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APPLICATION #	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET #	REQUEST ID
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The entity status change request below filed through Patent Center on 11/09/2023 has been accepted.

Certifications

APPLICANT CHANGING TO REGULAR UNDISCOUNTED FEE STATUS

Signature

I certify, in accordance with 37 CFR 1.4(d)(4), that I am one of the signatories making the entity status change.

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Paper 10
Date: October 3, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETFLIX, INC.,
Petitioner,

v.

VL COLLECTIVE IP LLC,[1]
Patent Owner.

IPR2023-00630
Patent 7,440,559 B2

Before JEFFREY S. SMITH, STACEY G. WHITE, and STEPHEN E. BELISLE, *Administrative Patent Judges.*

SMITH, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

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[1] Although the Petition states that the Patent Owner is VideoLabs, Inc., Patent Owner states that VL Collective IP LLC is the Patent Owner, and that VideoLabs, Inc. is a real party-in-interest. Paper 4, 2.

I. INTRODUCTION

A. Background and Summary

Petitioner, Netflix, Inc., filed a Petition (Paper 2, "Pet.") requesting *inter partes* review of claims 1–24 of U.S. Patent No. 7,440,559 B2 (Ex. 1001, "the '559 patent") pursuant to 35 U.S.C. § 311(a). Patent Owner, VL Collective IP LLC, did not file a Preliminary Response. Pursuant to 35 U.S.C. § 314(a), the Director may not authorize an *inter partes* review unless the information in the petition and preliminary response "shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition."

For the reasons that follow, we institute an *inter partes* review as to claims 1–24 of the '559 patent on the grounds of unpatentability asserted in the Petition.

B. Real-Parties-In-Interest

Petitioner identifies itself (Netflix, Inc.) and Netflix Streaming Services, Inc. as real parties-in-interest. Pet. 58. Patent Owner identifies itself (VL Collective IP LLC) as well as VL IP Holdings LLC and VideoLabs, Inc. as real parties-in-interest. Paper 4, 2.

C. Related Matters

The Petition states that the '559 patent is the subject of the following proceedings:

> *VideoLabs, Inc. v. Netflix Inc.*, No. 1-22-cv-00229, D. Del., filed Feb. 23, 2022;
>
> *Starz Entertainment, LLC v. VL Collective IP, LLC*, No. 1-21-cv-01448, D. Del., filed Oct. 13, 2021.

Pet. 58. Patent Owner identifies the following proceeding which was dismissed on December 27, 2022 and "previously asserted the '559 patent." Paper 4, 2–3.

> *VideoLabs, Inc. et al. v. Amazon.com, Inc. et al.*, Nos. 6-22-cv-00079, 6-22-cv-01167, W.D. Tex., filed Jan. 21, 2022.

II. THE '559 PATENT

The '559 patent generally relates to "controlling the flow of content in terminals operable with mobile telecommunication and digital broadcast networks." Ex. 1001, 1:11–13. The '559 patent discloses that "[d]igital broadband data broadcast networks are known." *Id.* at 1:58. The '559patent discloses that the "use of mobile telecommunications with a broadband delivery technique . . . has been proposed in the past in order to achieve efficient delivery of digital services to users on the move." *Id.* at 2:8–11. The '559 patent discloses that "current techniques for downloading content can suffer from inefficient control of content received and thereafter stored by mobile terminals, as well as inefficient control of content stored by mobile terminals." *Id.* at 2:49–53. The '559 patent discloses that to facilitate control of the flow of content in one embodiment, a terminal sends a content request that includes terminal status information. *Id.* at 2:62–65.

Fig. 6 of the '559 patent is shown below.

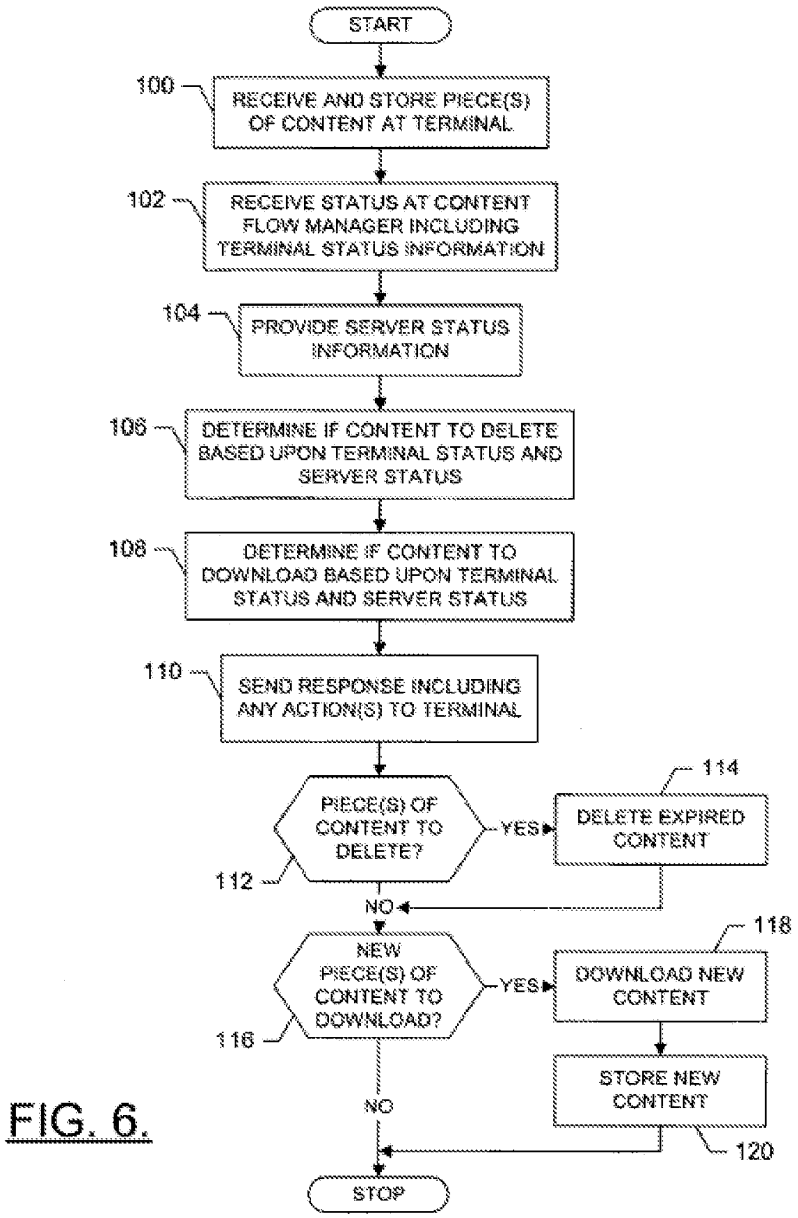

FIG. 6.

Figure 6 above illustrates a flowchart of a method of controlling the flow of content between a terminal and network entity. Ex. 1001, 4:28–30. The terminal is capable of sending a content status, which includes terminal status information, to a content flow manager. *Id.* at 3:10–15. The terminal

status information can include "information regarding the terminal that accounts for user preferences, capabilities of the terminal and/or previous contents stored by the terminal." *Id.* at 3:1–4, 12:18–30. In addition to terminal status information, the content flow manager can be provided with server status information regarding a source of content to the terminal. *Id.* at 12:32–37.

Based upon the terminal status information and/or the server status information, the "control flow manager can control the flow of content to the terminal" including by "controlling the terminal to delete at least one piece of content from a memory of the terminal, and/or download at least one piece of content from a source of content." *Id.* at 3:18–24. The content may include multimedia data. *Id.* at 2:3–7.

III. ILLUSTRATIVE CLAIM

Challenged claim 1 of the '559 patent recites:

> 1. An apparatus comprising:
>
> a processor configured to receive, from a terminal located remote from the apparatus, a content status including terminal status information, and configured to receive server status information regarding a source of content, wherein the server status information comprises a listing of at least one piece of content available from the source, wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information and the server status information, and
>
> wherein the at least one piece of content available from the source, and the content for which the processor is configured to control the flow, comprise multimedia content.

IV. ASSERTED GROUNDS

Petitioner asserts that claims 1–24 of the '559 patent are unpatentable on the following grounds.

Claim(s) Challenged	35 U.S.C. §[2]	Reference(s)/Basis
1, 2, 4, 7, 8, 10, 13, 14, 16, 19, 20, 22	102(a), (e)	Cassin[3]
1–24	103(a)	Cassin, Huston[4]
1–24	103(a)	Huston

[2] The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) ("AIA"), amended 35 U.S.C. §§ 102, 103. Because the '559 patent has an effective filing date prior to the effective date of the applicable AIA amendment, we refer to the pre-AIA version of §§ 102, 103.
[3] U.S. Publication No. 2003/0023427 A1; pub. Jan. 30, 2003 (Ex. 1004).
[4] U.S. Patent No. 7,243,136 B2; issued July 10, 2007 (Ex. 1005).

V. LEVEL OF ORDINARY SKILL

Petitioner identifies a person of ordinary skill as someone with "a bachelor's degree in electrical or computer engineering, or a closely related scientific field such as computer science, and two years of work experience with multimedia content transmission and management." Pet. 10. "Alternatively, any lack of experience could be remedied with additional education (*e.g.*, a master's degree), and likewise, a lack of education can be remedied with additional work experience (*e.g.*, 4–5 years)." *Id.* Patent Owner does not address the level of ordinary skill.

The level of ordinary skill in the art usually is evidenced by the references themselves. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *In re Oelrich*, 579 F.2d 86, 91 (CCPA 1978). As Petitioner's description of a person of ordinary skill appears commensurate with the subject matter before us, we apply Petitioner's definition for purposes of this Decision.

VI. CLAIM CONSTRUCTION

We interpret claim terms using "the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b)." 37 C.F.R. § 42.100(b) (2019). In this context, claim terms "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (citations omitted) (en banc). "In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence." *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at

1312–17). Extrinsic evidence is "less significant than the intrinsic record in determining 'the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (citations omitted).

We construe only those claim terms that require analysis to determine whether to institute *inter partes* review. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (holding that "only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy"). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Petitioner contends that "no claim terms require specific construction to resolve the unpatentability issues presented" in the Petition. Pet. 15–16. For purposes of this decision, we do not construe any claim terms.

VII. ANALYSIS

A. Legal Standards

"In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")); *see also* 37 C.F.R. § 42.104(b) (requiring a petition for *inter partes* review to identify how the challenged claim is to be construed and where each element of the claim is found in the prior art patents or printed publications relied upon).

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008).

Although the elements must be arranged or combined in the same way as in the claim, "the reference need not satisfy an *ipsissimis verbis* test," i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (citing *In re Bond*, 910 F.2d 831, 832–33 (Fed. Cir. 1990)).

A claim is unpatentable under 35 U.S.C. § 103(a) if "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective evidence of obviousness or nonobviousness, i.e., secondary considerations.[5] *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). An obviousness analysis "need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 550 U.S. at 418.

Additionally, the obviousness inquiry typically requires an analysis of "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2016) (requiring "articulated reasoning with some rational underpinning to support the legal conclusion of

[5] The parties do not direct us to any objective evidence of non-obviousness at this stage of the proceeding.

obviousness")). Furthermore, Petitioner does not satisfy its burden of proving obviousness by employing "mere conclusory statements," but "must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

B. Claims 1, 2, 4, 7, 8, 10, 13, 14, 16, 19, 20, and 22 As Anticipated By Cassin

1. Cassin – Exhibit 1004

Cassin is directed toward the implementing a media content delivery and playback scheme. Ex. 1004 ¶ 3. Cassin's system "includes a server computer system" and "a client computer system" that are coupled to each other by a network, which "may be implemented as a local area network, wide area network, a public access network (e.g., the Internet), or a combination of networks." *Id.* ¶ 140; Fig. 6. The client computer "may be implemented as a portable device." *Id.* ¶ 141.

Figure 6 of Cassin is shown below.

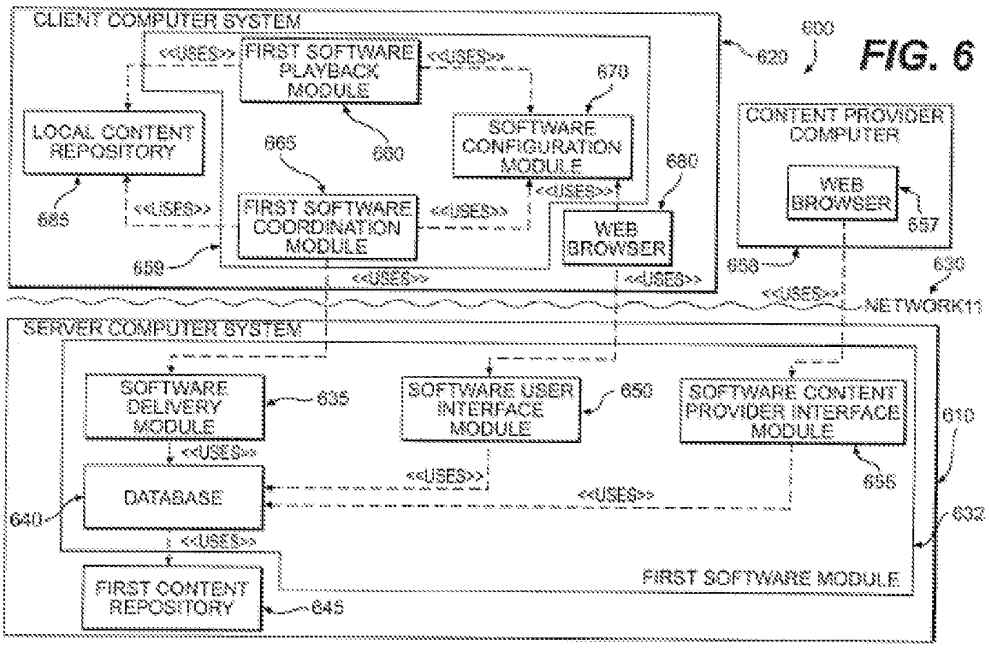

Figure 6 above illustrates a system for implementing a media content delivery and playback scheme. Ex. 1004 ¶ 140. The server may contain a database that stores metadata. *Id.* ¶ 146. The metadata is information "about the media content available to the system." *Id.* Media files may be contained in a content repository accessible via the database. *Id.* Cassin explains that the "client and server computers may interact in accordance with one of two protocols." *Id.* ¶ 164.

According to the first protocol, the client computer sends user information to the server after a connection is established. *Id.* The server computer uses the user information to query the database and then responds with a list of all content to which that user is entitled. *Id.* The server attempts to send a media content item to the client computer; however, if the client computer already has the media content item, then the client provides an indication to the server that it currently has the media content item. *Id.*

The server computer then offers the next media item content item on the list. *Id.*

According to the second protocol, the client sends user information to the server computer. *Id.* ¶ 166. The server computer uses the user information to query the database and then responds with a list of all content to which that user is entitled. *Id.* The client then identifies media content items that it does not already have in its local content repository, and returns a second list including only those items to the server. *Id.* The server then delivers those media content items included in the second list to the client. *Id.*

2. Independent Claims 1, 7, 13, and 19

Petitioner groups independent claims 1, 7, 13, and 19 together in its unpatentability analysis. Pet. 18–27. The preamble of claim 1 recites an "apparatus comprising." Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Cassin discloses the features recited in the preamble of claim 1.[6]

Claim 1 recites "a processor configured to receive, from a terminal located remote from the apparatus, a content status including terminal status information." Petitioner contends Cassin discloses this limitation in describing a server that receives from a client computer user information, a request for a list of content, an indication that the client computer currently has a media item, and a list of media items that the client computer does not have. Pet. 20–23 (citing Ex. 1004, ¶¶ 10, 12, 133–137, 142, 146, 151, 156, 164–168, Figs. 6, 8, 9, claims 130–133). Patent Owner does not contend

[6] Because Petitioner has shown that the features in the preamble are satisfied by the prior art, we need not determine whether the preamble are limiting at this time. *See Vivid Techs.*, 200 F.3d at 803.

otherwise at this stage of the proceeding.[7] Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *See Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Cassin discloses this limitation of claim 1.

Claim 1 recites "configured to receive server status information regarding a source of content, wherein the server status information comprises a listing of at least one piece of content available from the source." Petitioner contends Cassin discloses this limitation in describing a server with a multimedia content repository and describing the server receiving from a database a list of all content to which the user is entitled, which is "server status information regarding a source of content" as claimed. Pet. 23–24 (citing Ex. 1004, ¶¶ 146, 164, 166, Figs. 8, 9). Petitioner contends that the list identifies at least one piece of media content available from the repository, which is "comprising a listing of at least one piece of content available from the source" as claimed. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Cassin discloses this limitation of claim 1.

Claim 1 recites "wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information and the server status information." Petitioner contends Cassin discloses this limitation in

[7] Patent Owner does not challenge any of the proposed grounds at this stage of the proceeding.

describing a client computer receiving from the server a content listing to which the computer is entitled, identifying those content items in the listing that the client does not have, and sending to the server a list of the content items that the client does not have, resulting in the server then delivering the content items from the list to the client computer. Pet. 24–26 (citing Ex. 1004, ¶¶ 12, 85, 133–137, 146, 164–166, claims 130–132). Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Cassin discloses this limitation of claim 1.

Claim 1 recites "wherein the at least one piece of content available from the source, and the content for which the processor is configured to control the flow, comprise multimedia content." Petitioner contends Cassin discloses this limitation in describing a server computer's database and a client computer's local content repository each configured to store multimedia content including music, videos, and multimedia programming. Pet. 27 (citing Ex. 1004, ¶¶ 146, 151, 152, 156). Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Cassin discloses this limitation of claim 1.

Independent claims 7, 13, and 19 recite limitations similar to those recited in claim 1. For independent claims 7, 13, and 19, Petitioner relies on its contentions presented for claim 1, which we find persuasive at this stage. Pet. 18–27. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that Cassin anticipates claims 1, 7, 13, and 19.

3. Claims 2, 8, 14, and 20

Claim 2 depends from claim 1 and recites "wherein the terminal comprises a memory, and wherein the processor is configured to send, to the

terminal, a response to the content status that instructs the terminal to at least one of delete at least one piece of content from the memory of the terminal, or download at least one piece of content from the source." Petitioner contends Cassin describes that the local content repository of the client computer is a memory. Pet. 28 (citing Ex. 1004 ¶ 156, Fig. 6. Petitioner contends that Cassin describes that the server uses information in the indication received from the client computer to instruct the client computer to download a media file from the server. *Id.* at 28–29 (citing Ex. 1004 ¶¶ 164, 166).

Claims 8, 14, and 20 recite limitations similar to those recited in claim 2. For claims 8, 14, and 20, Petitioner relies on its contentions presented for claim 2. Pet. 28–29. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that Cassin anticipates claims 2, 8, 14, and 20.

4. Claims 4, 10, 16, and 22

Claim 4 depends from claim 2 and recites "wherein the server status information comprises a listing of at least one piece of available content from the source, and wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to download at least one piece of content from the source based upon the listing of at least one available piece of content from the source." Petitioner contends that Cassin discloses "the server status information comprises a listing of at least one piece of available content from the source" in describing a listing of all contend from the first content repository to which the user is entitled. Pet. 30 (citing Ex. 1004 ¶¶ 146, 164, 166, Figs. 8 and 9. Petitioner contends that Cassin discloses that the server, based on the

indication from the client computer, is configured to deliver content to the client computer by instructing the client to download at least one media file from the content repository that was identified in the listing. *Id.*

Claims 10, 16, and 22 recite limitations similar to those recited in claim 4. For claims 10, 16, and 22, Petitioner relies on its contentions presented for claim 4. Pet. 29–31. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that Cassin anticipates claims 4, 10, 16, and 22.

C. Claims 1–24 As Obvious Over Cassin and Huston

1. Huston – Exhibit 1005

Huston relates to an approach for managing and providing content to users. Ex. 1005, 1:13–15. Figure 2A of Huston is shown below.

FIG. 2A

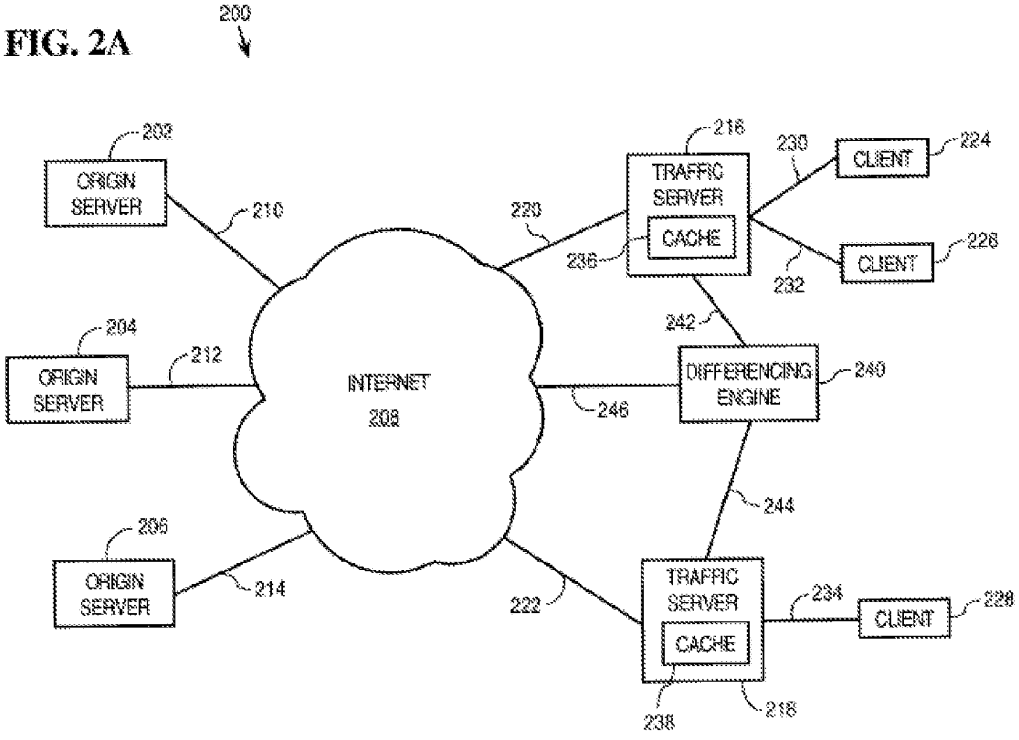

Figure 2A above illustrates a block diagram of an arrangement for managing and providing content to users over a communications link. *Id.* at 5:42–44. Huston's system includes a differencing engine that is coupled to traffic servers and to the Internet. *Id.* at 6:15–18, Fig. 2A. The system also includes a set of origin servers that "host content from one or more content providers." *Id.* at 5:44–46.

The traffic servers are configured with caches that provide local storage for content. *Id.* at 6:1–5. The "differencing engine **240** is configured to selectively cause content to be deleted from the traffic servers **216**, **218** and/or replaced with newer versions of the deleted content from origin severs." *Id.* at 6:18–25. The differencing engine may select "content to be deleted by comparing versions of content stored on caches **236**, **238** to versions of the corresponding content stored on origin servers." *Id.* at 6:44–48. The differencing engine may request information about versions of data stored on the origin servers that are also stored on the traffic servers in order to determine differences between the content. *Id.* at 6:66–7:5.

2. Reasons to Combine the Teachings of Cassin and Huston

Petitioner contends a person of ordinary skill would have had reason to combine the teachings of Cassin and Huston because both references concern controlling delivery of content to a remote device over a network, and the combination provides the benefit of Cassin's media content delivery system with a differencing engine to determine whether this is content to delete from the remote client and sending a command to delete such content as taught by Huston. Pet. 32–35 (citing Ex. 1003, Wechselberger Decl. ¶¶ 202–204). Petitioner also contends that a person of ordinary skill would have had a reasonable expectation of success in combining the teachings of Cassin and Huston because adding a delete command to a server was a

known technique and would have been straightforward to a person of ordinary skill in the art. Pet. 35–36 (citing Ex. 1003 ¶ 205).

Huston discloses a differencing engine to detect whether a more recent version of a data item stored in cache is available, and if so, to delete the current version and store the more recent version in order to increase the accuracy and coherence of the cache. Ex. 1005, Abstract, 3:37–44. On this record, we are persuaded by Petitioner, that a person of ordinary skill would have updated data items stored by the remote client of Cassin by deleting old versions in order to yield the benefits of increasing accuracy and coherency as taught by Huston. For purposes of this Decision, we are sufficiently persuaded that Petitioner cites sufficient evidence to support its contention that a person of ordinary skill would have had reason to combine the teachings of Cassin and Huston.

3. Claims 1, 7, 13, and 19

Petitioner contends that Cassin discloses the limitations of claims 1, 7, 13, and 19 for the reasons given in its analysis of ground 1. Pet. 36–42. Petitioner further contends that the combination of Cassin and Huston teaches "a processor configured to receive, from a terminal located remote from the apparatus, a content status including terminal status information." Id. at 38–40. Petitioner contends that a person of ordinary skill would have understood that the differencing engine of Huston, in order to compare different versions of content, would receive an identification of the versions stored on the caches, or "content status including terminal status information" as claimed, from the traffic servers, which are remote to the differencing engine. *Id.* at 39–40 (citing Ex. 1005, Fig. 2A, 6:1–5, 6:42–51, 7:38–49, 16:12–29).

Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that the combination of Cassin and Huston renders obvious claims 1, 7, 13, and 19.

4. Claims 2, 8, 14, and 20

Petitioner contends that Cassin discloses the limitations of claims 2, 8, 14, and 20 for the reasons given in its analysis of ground 1. Pet. 42–43.

Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that the combination of Cassin and Huston renders obvious claims 2, 8, 14, and 20.

5. Claims 3, 9, 15, and 21

Claim 3 depends from claim 2 and recites "wherein the terminal status information comprises a listing of at least one piece of content stored in the memory of the terminal, and wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal." Petitioner contends that Cassin discloses a user manually deleting media content from the remote client device. Pet. 44 (citing Ex. 1004, Figs. 12–14, ¶¶ 169, 171). Petitioner contends that Cassin teaches that a user may have access to a particular media content item for a predetermined period of time, such as a single day. *See id.* at 45 (citing Ex. 1004 ¶ 182). Petitioner contends that a person of ordinary skill in the art would have used Huston's technique of automatically deleting content to yield the benefits of deleting expired or stale content from the client computer, and doing so automatically

instead of manually. *Id.* at 45–46 (citing Ex. 1004 ¶ 169; Ex. 1005, 6:33–51).

Claims 9, 15, and 21 recite limitations similar to those recited in claim 3. For claims 9, 15, and 21, Petitioner relies on its contentions presented for claim 3. Pet. 43–46. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that the combination of Cassin and Huston renders obvious claims 3, 9, 15, and 21.

6. Claims 4, 10, 16, and 22

Petitioner contends that Cassin discloses the limitations of claims 4, 10, 16, and 22 for the reasons given in its analysis of ground 1.

Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that the combination of Cassin and Huston renders obvious claims 4, 10, 16, and 22.

7. Claims 5, 11, 17, and 23

Claim 5 depends from claim 2 and recites "wherein the processor is configured to determine if the memory of the terminal includes at least one piece of content to delete, and wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to delete at least one piece of content when the processor determines that the memory of the terminal includes at least one piece of content to delete." Petitioner contends that a person of ordinary skill in the art would have implemented the automatic delete feature of Huston to delete content from the client computer. Pet. 48–49 (citing Ex. 1003 ¶¶ 49–153, 169, 187, 197).

Claims 11, 17, and 23 recite limitations similar to those recited in claim 5. For claims 11, 17, and 23, Petitioner relies on its contentions presented for claim 5. Pet. 46–49. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that the combination of Cassin and Huston renders obvious claims 5, 11, 17, and 23.

8. Claims 6, 12, 18, and 24

Claim 6 depends from claim 5 and recites "wherein the processor is further configured to determine if source includes at least one available piece of content for the terminal to download, and wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to download at least one available piece of content when the processor determines that the source includes at least one available piece of content for the terminal to download." Petitioner contends that Cassin discloses this limitation in describing the server determining a media content item available for download, offering the media content item to the client computer, and the client downloading the media content item if the client does not have the item. Pet. 49–51 (citing Ex. 1003 ¶¶ 154–55, 170–72, 188–89, 198–200).

Claims 12, 18, and 24 recite limitations similar to those recited in claim 6. For claims 12, 18, and 24, Petitioner relies on its contentions presented for claim 6. Pet. 49–51. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that the combination of Cassin and Huston renders obvious claims 6, 12, 18, and 24.

D. Claims 1–24 As Obvious Over Huston

1. Claims 1, 7, 13, and 19

Petitioner contends that Huston teaches the limitations of claim 1 in disclosing a differencing engine that receives content available on origin servers and controls the flow of content to the caches on traffic servers by comparing the versions of content stored on the caches of the traffic serves with the versions stored on the origin servers, and deleting content from the traffic servers based on the comparison. Pet. 51–54 (citing Ex. 1003 ¶¶ 207–13). Petitioner contends that a person of ordinary skill would have understood that the information sent from the origin servers to the differencing engine teaches the claimed "listing of at least one piece of content available from the source." Pet. 53. Petitioner contends that the communication identifying versions of content stored on the caches received by the differencing engine from the traffic servers teaches the claimed "content status including terminal status information comprising a listing of at least one piece of content stored in memory." *Id.*

Petitioner contends that Huston teaches the limitations of claims 7, 13, and 19 for the reasons given in its analysis of claim 1. Pet. 51–54. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that Huston renders obvious claims 1, 7, 13, and 19.

2. Claims 2, 8, 14, and 20

Petitioner contends that Huston teaches the limitations of claim 2 in disclosing a differencing engine that causes content to be deleted from the traffic servers by issuing a delete command, and that retrieves new content

from the origin servers and stores the new content on the traffic servers. Pet. 54–55 (citing Ex. 1003 ¶¶ 214–216).

Petitioner contends that Huston teaches the limitations of claims 8, 14, and 20 for the reasons given in Petitioner's analysis of claim 2. Pet. 54–55. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that Huston renders obvious claims 2, 8, 14, and 20.

3. Claims 3, 9, 15, and 21

Petitioner contends that Huston teaches the limitations of claim 3 in disclosing a differencing engine that causes content to be deleted from traffic servers by comparing versions of content stored in cache of the traffic servers with versions of content stored in the origin servers and issuing a delete command based on the comparison to the traffic servers. Pet. 55–56 (citing Ex. 1003 ¶¶ 217–218).

Petitioner contends that Huston teaches the limitations of claims 9, 15, and 21 for the reasons given in Petitioner's analysis of claim 3. Pet. 55–56. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that Huston renders obvious claims 3, 9, 15, and 21.

4. Claims 4, 10, 16, and 22

Petitioner contends that Huston teaches the limitations of claim 4 in disclosing that the differencing engine receives new information on new content from the origin servers, and instructs the traffic servers to download the new content based on the new content information. Pet. 56 (citing Ex. 1003 ¶¶ 219–20).

Petitioner contends that Huston teaches the limitations of claims 10, 16, and 22 for the reasons given in Petitioner's analysis of claim 4. Pet. 56. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that Huston renders obvious claims 4, 10, 16, and 22.

5. Claims 5, 11, 17, and 23

Petitioner contends that Huston teaches the limitations of claim 5 in disclosing that the differencing engine selects content to be deleted by comparing the versions of content stored in the caches of the traffic servers with the versions stored in the origin servers, and causes older content to be deleted from the caches by issuing a delete command to the traffic servers. Pet. 56–57 (citing Ex. 1003 ¶¶ 221–22).

Petitioner contends that Huston teaches the limitations of claims 11, 17, and 23 for the reasons given in Petitioner's analysis of claim 5. Pet. 56–57. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that Huston renders obvious claims 5, 11, 17, and 23.

6. Claims 6, 12, 18, and 24

Petitioner contends that Huston teaches the limitations of claim 6 in disclosing that the differencing engine receives information on new content from the origin servers and instructs the traffic servers to download new content from the origin servers based on the new content information. Pet. 57–58 (citing Ex. 1003 ¶¶ 223–24).

Petitioner contends that Huston teaches the limitations of claims 12, 18, and 24 for the reasons given in Petitioner's analysis of claim 6. Pet. 57–

58. Based on the evidence and arguments currently of record, for purposes of institution, we are sufficiently persuaded that Petitioner has demonstrated a reasonable likelihood of prevailing in showing that Huston renders obvious claims 6, 12, 18, and 24.

VIII. CONCLUSION

Based on the arguments presented in the Petition, we conclude that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to claims 1–24 of the '559 patent challenged in the Petition. Accordingly, we institute a trial on all claims and all grounds asserted in the Petition. The Board has not made a final determination under 35 U.S.C. § 318(a) with respect to the patentability of any challenged claim. Any final determination will be based on the record developed during trial. We place Patent Owner on express notice that any argument not asserted in a timely-filed Response to the Petition, or in another manner permitted during trial, may be deemed waived.

IX. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–24 of the '559 patent is instituted with respect to the grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '559 patent shall commence on the entry date of this Decision, and notice is hereby given of the institution of a trial.

FOR PETITIONER:

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Heather Schneider
Indranil Mukerji
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UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

ACKNOWLEDGEMENT OF CHANGE TO SMALL ENTITY STATUS

APPLICATION #	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET #	REQUEST ID
10/690,692	10/22/2003	Ahti Muhonen	22104.19	112042

The entity status change request below filed through Patent Center on 09/26/2023 has been accepted.

Certifications

APPLICANT ASSERTING SMALL ENTITY STATUS. See 37CFR 1.27.

Signature

I certify, in accordance with 37 CFR 1.4(d)(4), that I am one of the signatories making the entity status change.

Signature	Name	Registration #
/Levi Brown/	Levi Brown	72533

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/690,692	10/22/2003	Ahti Muhonen	22104.19

CONFIRMATION NO. 6127

22913
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

POA ACCEPTANCE LETTER

OC000000060865538

Date Mailed: 08/23/2023

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/16/2023.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/wrhopkins/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/690,692	10/22/2003	Ahti Muhonen	22104.19

CONFIRMATION NO. 6127

826
ALSTON & BIRD LLP
VANTAGE SOUTH END
1120 SOUTH TRYON STREET
SUITE 300
CHARLOTTE, NC 28203-6818

POWER OF ATTORNEY NOTICE

OC000000060865475

Date Mailed: 08/23/2023

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/16/2023.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/wrhopkins/

PTO/AIA/96 (08-12)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: VL COLLECTIVE IP LLC

Application No./Patent No.: 7440559 Filed/Issue Date: October 21, 2008

Titled: SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT

VL COLLECTIVE IP LLC, a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Ahti NUHONEN et al. To: NOKIA CORPORATION

   The document was recorded in the United States Patent and Trademark Office at

   Reel 014632, Frame 0289, or for which a copy thereof is attached.

2. From: NOKIA CORPORATION To: NOKIA TECHNOLOGIES OY

   The document was recorded in the United States Patent and Trademark Office at

   Reel 035570, Frame 0474, or for which a copy thereof is attached.

PTO/AIA/96 (08-12)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

3. From: NOKIA TECHNOLOGIES OY To: VIDEOLABS, INC.

The document was recorded in the United States Patent and Trademark Office at
Reel 050910, Frame 0249, or for which a copy thereof is attached.

4. From: VIDEOLABS, INC. To: VL IP HOLDINGS LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 051391, Frame 0919, or for which a copy thereof is attached.

5. From: VL IP HOLDINGS LLC To: VL COLLECTIVE IP LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 051392, Frame 0412, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Levi S. Brown/	August 16, 2023
Signature	Date
Levi S. Brown	72,533
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
10/690,692	**08/16/2023 11:44:33 AM ET**	**042933/269767**

Title of Invention

SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	7440559
CONFIRMATION #	6127	FILED BY	Tyler Eller
PATENT CENTER #	62622064	FILING DATE	10/22/2003
CUSTOMER #	826	FIRST NAMED INVENTOR	Ahti Muhonen
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Levi Brown

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
22104-19 2023-08-16 3.73c Statement - VL Collective IP.pdf	3	Assignee showing of ownership per 37 CFR 3.73	112 KB
22104-19 2023-08-16 VL Collective IP POA.pdf	2	Power of Attorney	697 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
22104-19 2023-08-16 3.73c	6D6F39F6AB1AF7062693A137C1E1C7EF3893378E085B561F70

Statement - VL Collective IP.pdf	F45DD542AF159914CD2F62CF5C35D29B28D6797BF75FC7B371E2F45697C86BDB4E1EE4E71DC47B
22104-19 2023-08-16 VL Collective IP POA.pdf	E42E79606AA735B8FE7375EC6F3A1513F7D1F5ADB792BD8425147FF93E7E17E5B5044920FD30CB5868F943D4766FB002688C4E7484D3E1D13C4BC75394B60096

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	10/690,692
Filing Date	October 22, 2003
First Named Inventor	Ahti HUHONEN
Title	SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT
Art Unit	
Examiner Name	
Attorney Docket Number	22104.19

SIGNATURE of Applicant or Patent Practitioner

Signature	/Levi S. Brown/	Date (Optional)	
Name	Levi S. Brown	Registration Number	72533
Title (if Applicant is a juristic entity)	Attorney for Applicant		
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 22913

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

VL Collective IP LLC

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	William Goldman	Date (Optional)	November 1, 2022
Name	Bill Goldman		
Title	Managing Member		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the Western District of Texas (Waco Division) on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:22-cv-00079	1/21/2022	for the Western District of Texas (Waco Division)

PLAINTIFF	DEFENDANT
VideoLabs, Inc. and VL Collective IP LLC	Amazon.com, Inc. and Amazon Web Services, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	See Attachment A		
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
10/11/2022 Doc #91 Sealed MEMORANDUM OPINION AND ORDER GRANTING 39 Opposed Sealed Motion to Transfer Venue Pursuant to 28 U.S.C. 1404(a).

CLERK	(BY) DEPUTY CLERK	DATE
PHILIP J. DEVLIN		10/11/2022

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

ATTACHMENT A

PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1. U.S. 6,880,156	4/12/2005	VL Collective IP LLC
2. U.S. 7,266,682	9/4/2007	VL Collective IP LLC
3. U.S. 7,440,559	10/21/2008	VL Collective IP LLC
4. U.S. 7,769,238	8/3/2010	VideoLabs, Inc.
5. U.S. 7,970,059	6/28/2011	VideoLabs, Inc.
6. U.S. 8,139,878	3/20/2012	VideoLabs, Inc.
7. U.S. 8,605,794	12/10/2013	VL Collective IP LLC

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the Western District of Texas (Waco Division) on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	1/21/2022	for the Western District of Texas (Waco Division)

PLAINTIFF	DEFENDANT
VideoLabs, Inc. and VL Collective IP LLC	Amazon.com, Inc. and Amazon Web Services, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	See Attachment A		
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

ATTACHMENT A

PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1. U.S. 6,880,156	4/12/2005	VL Collective IP LLC
2. U.S. 7,266,682	9/4/2007	VL Collective IP LLC
3. U.S. 7,440,559	10/21/2008	VL Collective IP LLC
4. U.S. 7,769,238	8/3/2010	VideoLabs, Inc.
5. U.S. 7,970,059	6/28/2011	VideoLabs, Inc.
6. U.S. 8,139,878	3/20/2012	VideoLabs, Inc.
7. U.S. 8,605,794	12/10/2013	VL Collective IP LLC

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
22-cv-229-CFC	2/23/2022	District of Delaware

PLAINTIFF	DEFENDANT
VideoLabs, Inc. and VL Collective IP LLC	Netflix Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 8,139,878 B2	3/20/2012	VideoLabs, Inc.
2	US 7,440,559 B2	10/21/2018	VL Collective IP LLC
3	US 7,233,790 B2	6/19/2007	VideoLabs, Inc.
4			
5			

In the above---entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY
5/6/2022	☑ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 8,605,794 B2	12/10/2013	VL Collective IP LLC
2			
3			
4			
5			

In the above---entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1---Upon initiation of action, mail this copy to Director Copy 3---Upon termination of action, mail this copy to Director
Copy 2---Upon filing document adding patent(s), mail this copy to Director Copy 4---Case file copy

AO 120 (Rev. 08/10)

TO:		
	Mail Stop 8 **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	**REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	2/23/2022	District of Delaware

PLAINTIFF	DEFENDANT
VideoLabs, Inc. and VL Collective IP LLC	Netflix Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 8,139,878 B2	3/20/2012	VideoLabs, Inc.
2	US 7,440,559 B2	10/21/2018	VL Collective IP LLC
3	US 7,233,790 B2	6/19/2007	VideoLabs, Inc.
4			
5			

In the above---entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above---entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

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AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	10/13/2021	District of Delaware

PLAINTIFF	DEFENDANT
STARZ ENTERTAINMENT, LLC	VL COLLECTIVE IP, LLC and VIDEOLABS, INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,233,790	6/19/2007	VIDEOLABS, INC.
2	7,440,559	10/21/2008	VL COLLECTIVE IP, LLC
3	8,605,794	12/10/2013	VL COLLECTIVE IP, LLC
4	RE43,113	1/17/2012	VIDEOLABS, INC.
5			

In the above---entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
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4		
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DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

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Copy 2---Upon filing document adding patent(s), mail this copy to Director Copy 4---Case file copy

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,692	10/21/2008	7440559	042933/269767	6127

826 7590 10/01/2008

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 820 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Ahti Muhonen, Hirvihaara, FINLAND;
Antti-Pentti Vainio, Espoo, FINLAND;
Ari Hannikainen, Turku, FINLAND;

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

826 7590 06/16/2008

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT & TRADEMARK OFFICE.

Janet F. Moore	(Depositor's name)
Janet F. Moore	(Signature)
September 16, 2008	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,692	10/22/2003	Ahti Muhonen	042933/269767	6127

TITLE OF INVENTION: SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1440	$300	$0	$1740	09/16/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, QUYNH H	2614	379-201010

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Alston & Bird LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Nokia Corporation

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Espoo, FINLAND

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 16-0605 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date September 16, 2008

Typed or printed name Nathaniel T. Quirk Registration No. 60,676

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Electronic Patent Application Fee Transmittal

Application Number:	10690692
Filing Date:	22-Oct-2003
Title of Invention:	SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT
First Named Inventor/Applicant Name:	Ahti Muhonen
Filer:	John Elmus Johnson/Jan Moore
Attorney Docket Number:	042933/269767

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1440	1440
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1740**

Electronic Acknowledgement Receipt	
EFS ID:	3949969
Application Number:	10690692
International Application Number:	
Confirmation Number:	6127
Title of Invention:	SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT
First Named Inventor/Applicant Name:	Ahti Muhonen
Customer Number:	00826
Filer:	John Elmus Johnson/Jan Moore
Filer Authorized By:	John Elmus Johnson
Attorney Docket Number:	042933/269767
Receipt Date:	16-SEP-2008
Filing Date:	22-OCT-2003
Time Stamp:	14:34:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1740
RAM confirmation Number	9139
Deposit Account	160605
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Issue Fee Payment (PTO-85B)	269767_Issue_Fee.pdf	99403 f51d7eff7e862810eed2d84f921c9813feccb51e	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	32010 b43ccb047cb77e819d73feb95f8e88db4226b3dc	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	131413		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Substitute for form 1449/PTO
(Revised 04/2003)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/690,692
Filing Date	October 22, 2003
First Named Inventor	Ahti Muhonen et al.
Group Art Unit	2666
Examiner Name	To be assigned
Attorney Docket Number	042933/269767

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document Number Number - Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages of Relevant Figures Appear
/QN/	13	US- 5,974,454 A	10-25-1999	Apfel et al.	
/QN/	14	US- 6,029,175 A	02-22-2000	Chow et al.	
/QN/	15	~~US-2002/062336~~ A1	05-23-2002	Toedosiu et al.	
		2002/0062336			

MR 7-38

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Country Code - Number Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	English Language Translation Attached

Examiner Signature	/Quynh Nguyen/	Date Considered	03/14/2007

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

CLT01/4713474v1

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

826 7590 06/16/2008

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER	
NGUYEN, QUYNH H	
ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 06/16/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,692	10/22/2003	Ahti Muhonen	042933/269767	6127

TITLE OF INVENTION: SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1440	$300	$0	$1740	09/16/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

826 7590 06/16/2008

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,692	10/22/2003	Ahti Muhonen	042933/269767	6127

TITLE OF INVENTION: SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1440	$300	$0	$1740	09/16/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, QUYNH H	2614	379-201010

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,692	10/22/2003	Ahti Muhonen	042933/269767	6127

826 7590 06/16/2008

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER	
NGUYEN, QUYNH H	
ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 06/16/2008

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 820 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 820 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

Notice of Allowability	Application No.	Applicant(s)	
	10/690,692	MUHONEN ET AL.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *remarks filed 3/13/08*.

2. ☒ The allowed claim(s) is/are *1-24*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Quynh H Nguyen/
Primary Examiner, Art Unit 2614

Issue Classification	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/690,692	MUHONEN ET AL.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

ISSUE CLASSIFICATION

ORIGINAL		CROSS REFERENCE(S)							
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)						
379	201.01	379	265.09	221.08	221.09	221.11	221.12		
INTERNATIONAL CLASSIFICATION		370	352						
H 0 4 M	3/42								
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	/								
	/								

(Assistant Examiner) (Date)	/Quynh H Nguyen/ Primary Examiner, Art Unit 2614 6/2/08	**Total Claims Allowed: 24**
(Legal Instruments Examiner) (Date)	(Primary Examiner) (Date)	O.G. Print Claim(s): 1 / O.G. Print Fig.: 6

☒ **Claims renumbered in the same order as presented by applicant** ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1		31		61		91		121		151		181
2	2		32		62		92		122		152		182
3	3		33		63		93		123		153		183
4	4		34		64		94		124		154		184
5	5		35		65		95		125		155		185
6	6		36		66		96		126		156		186
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9	9		39		69		99		129		159		189
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	30		60		90		120		150		180		210

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/690,692	MUHONEN ET AL.
Examiner	**Art Unit**
QUYNH H. NGUYEN	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date									
Final	Original	3/19/07	8/20/07	1/8/08	6/2/08						
	1	√	√	√	=						
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/690,692	MUHONEN ET AL.	
	Examiner	Art Unit	
	QUYNH H. NGUYEN	2614	

SEARCHED			
Class	Subclass	Date	Examiner
370	352	3/14/2007	QN
379	201.01 265.09 221.08 221.09 221.11 221.12	3/14/07	QN
above	updated	8/8/2007	QN
above	updated	1/8/08	QN
above	updated	6/2/2008	QN

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner
379	201.01 265.09 221.08 221.09 221.11 221.12	6/2/08	QN
370	352	6/2/08	QN
Interference searched history printout		6/2/08	QN

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT	3/14/07	QN
Inventor searched through PALM database	3/14/07	QN

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	61	(terminal with content with status with information).clm.	US-PGPUB	OR	ON	2008/06/02 12:41
L2	1	(send$3 with terminal with response with (content near3 status)).clm.	US-PGPUB	OR	ON	2008/06/02 12:41
L3	0	(instruct$3 with terminal with perform$3 with actions with (control near3 flow near3 content)).clm.	US-PGPUB	OR	ON	2008/06/02 12:45
L4	0	(processor with (control near3 flow) with (multimedia near3 content)).clm.	US-PGPUB	OR	ON	2008/06/02 12:45
L5	1	1 and 2	US-PGPUB	OR	ON	2008/06/02 12:46

6/2/08 12:46:47 PM
C:\Documents and Settings\qnguyen\My Documents\EAST\Workspaces\10690692.wsp

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.:	10/690,692	Confirmation No.: 6127
Applicant(s):	Muhonen et al.	
Filed:	October 22, 2003	
Art Unit:	2614	
Examiner:	Nguyen, Quynh H.	
Title:	SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT	

Docket No.: 042933/269767
Customer No.: 00826

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY UNDER 37 C.F.R. § 1.111

Sir:

In response to the Official Action dated January 14, 2008, please reconsider the above-identified application in view of the following remarks:

Remarks/Arguments begin on page 2 of this paper.

REMARKS/ARGUMENTS

This Reply is being filed in response to the first Official Action on a Request for Continued Examination (RCE) for the present application. The first Official Action of this RCE rejects all of the pending claims, namely Claims 1-24, under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2005/0086318 to Aubault, in view of U.S. Patent No. 6,157,982 to Deo, and further in view of U.S. Patent Application Publication No. 2004/0213207 to Silver et al. In addition, the first Official Action provisionally rejects all of the pending claims under the doctrine of obviousness-type double patenting in view of co-pending U.S. Patent Application No. 10/690,656, filed on the same date as the present application. As explained below, however, Applicants respectfully submit that Aubault is not prior art to the claimed invention, and that the Official Action fails to support its obviousness-type double patenting rejection of the claims. Accordingly, Applicants respectfully traverse all of the rejections of the pending claims. In view of the remarks presented herein, Applicants respectfully request reconsideration and allowance of all of the pending claims of the present application.

A. Rejection of Claims 1-24 over Aubault, Deo and Silver

The Official Action rejects all of the pending claims as being unpatentable over Aubault, in view of Deo, and further in view of Silver. Applicants respectfully submit, however, that Aubault does not qualify as prior art to support a rejection of the claimed invention. In this regard, Aubault published on April 21, 2005, after the filing date of the present application (i.e., October 22, 2003); and therefore, Aubault does not qualify as prior art to the claimed invention under 35 U.S.C. §§ 102(a) or (b). Aubault does claim priority to a PCT patent application filed before the filing date of the present application (i.e., December 5, 2002). But as that PCT patent application was not published in the English language, Aubault also does not qualify as prior art to the claimed invention under 35 U.S.C. §§ 102(e). And as Aubault does not qualify as prior art under §§ 102(a), (b) or (e), and as none of the other subsections of § 102 apply, Applicants respectfully submit that Aubault cannot properly be cited in support of an anticipation rejection of the claimed invention under 35 U.S.C. § 102, and accordingly, in support of an obviousness

rejection of the claimed invention under 35 U.S.C. § 103.

As Aubault is disqualified as prior art to support a rejection of the claimed invention under 35 U.S.C. § 103, Applicants respectfully submit that the rejection of Claims 1-24 under 35 U.S.C. § 103(a) as being unpatentable over Aubault, in view of Deo, and further in view of Silver is overcome.

B. The Official Action Fails to Support a Provisional Double Patenting Rejection

The first Official Action provisionally rejects all of the pending claims for obviousness-type double patenting in view of the aforementioned '656 application. Applicants respectfully submit, however, that even if one could argue that the claimed invention of the present application and that of the '656 application are related, the Official Action has not presented any proper support for the assertion that respective inventions are not patentably distinct from one another. The Official Action indicates that the claimed invention of the present application merely broadens the scope of the claimed invention of the '656 application. More particularly, the Official Action alleges that the claims of the present application are broader in scope than those of the '656 application.

Initially, Applicants note that the Official Action alleges that it has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. However, as the Official Action failed to provide support for this assertion, Applicants cannot reasonably evaluate if, and if so to what extent, such a holding applies to the instant case. Applicants do note that MPEP § 2144.04 II.A. does indicate that such an omission is obvious if the function of the element is not desired or otherwise required (*citing Ex parte Wu*, 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989)). In the instant case, however, the Official Action has not alleged that any alleged omitted features are not desired or otherwise required.

As explicitly stated in the MPEP, the fact that one application dominates another application (i.e., when an application has a broad or generic claim that fully encompasses or reads on the claimed invention of another application) cannot itself support a double patenting rejection. MPEP § 804 II. Thus, to support an obviousness-type double patenting rejection, the

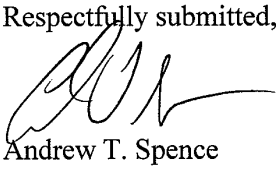
Official Action must establish that the claims of the present application are obvious variations of the invention defined by the claims of the '656 application. As the Official Action fails to establish such obviousness of the claimed invention, Applicants respectfully submit that the provisional double-patenting rejection of Claims 1-24 is overcome.

CONCLUSION

In view of the remarks presented above, Applicants respectfully submit that the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicants' undersigned attorney in order to resolve any remaining issues.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



Andrew T. Spence
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Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000
Fax Charlotte Office (704) 444-1111
LEGAL02/30734618v1

ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT & TRADEMARK OFFICE ON MARCH 13, 2008.

Electronic Acknowledgement Receipt

EFS ID:	2994549
Application Number:	10690692
International Application Number:	
Confirmation Number:	6127
Title of Invention:	System and associated terminal, method and computer program product for controlling the flow of content
First Named Inventor/Applicant Name:	Ahti Muhonen
Customer Number:	826
Filer:	John Elmus Johnson/Jan Sherrill
Filer Authorized By:	John Elmus Johnson
Attorney Docket Number:	042933/269767
Receipt Date:	13-MAR-2008
Filing Date:	22-OCT-2003
Time Stamp:	15:20:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		269767_Reply.pdf	196212 af37dbca5c2d96cc06f45a1138f92f1aafeca560	yes	5

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment - After Non-Final Rejection	1	1
	Applicant Arguments/Remarks Made in an Amendment	2	5
Warnings:			
Information:			
	Total Files Size (in bytes):	196212	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

US

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,692	10/22/2003	Ahti Muhonen	042933/269767	6127

826 7590 01/14/2008

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER	
NGUYEN, QUYNH H	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
01/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/690,692	MUHONEN ET AL.	
	Examiner	Art Unit	
	Quynh H. Nguyen	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE and amendment filed 11/14/07*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

2. Applicant's RCE and amendment filed 11/14/07 has been entered. Claims 1-24 have been amended. No claims have been canceled. No claims have been added. Claims 1-24 are still pending in this application, with claims 1, 7, 13, and 19 being independent.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being obvious over Aubault (2005/0086318) in view of Deo (6,157,982) and further in of Silver et al. (2004/0213207).

As to claims 1, 13, and 19, Aubault teaches an apparatus comprising:

a processor configured to receive from a terminal located remote from the apparatus a content status including terminal status information ([0131] - *client /*

terminal transmits cache information to server / network entity), sending to the terminal a response the content status that instructs the terminal to perform one or more actions based upon terminal and server status information ([0074] - [0077]).

Aubault does not explicitly teach receiving the one or more from the processor from the source.

Deo teaches receiving the one or more from the processor from the source based upon the status of the content stored in memory to at least partially control storage of the at least one piece of content in memory of the terminal (col. 3, lines 16-24 *- a computer / network entity remotely issues memory transactions / instructions to a information device, those instructions being based upon the content of the information device's memory).*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Deo into the teachings of Aubault for the purpose of decreasing the processing burden of a terminal that has less processing power available than a computer it is networked with, as discussed by Deo (col. 2, line 65 through col. 3, line 4). However, Aubault and Deo do not teach at least one piece of content available from the source for which the processor is configured to control the follow comprise multimedia content.

Silver et al. teaches at least one piece of content available from the source for which the processor is configured to control the follow comprise multimedia content ([0024 - [0025], [0030] - [0034]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Silver into the teachings of Aubault and Deo for the purpose of having a more efficient system and more fully utilize the telephone network and allow users to better utilize their time by enabling one or both parties of a telephone call to view contents of a source computer, as discussed by Silver ([0007]).

As to claims 2, 8, 14, and 20, Aubault teaches the terminal comprises a memory and the processor sends the terminal to delete at least one piece of content from the memory of the terminal ([0076] - [0078] - *the memory does not have sufficient storage capacity for at least one subsequent piece of content*), or download at least one piece of content from the source.

As to claims 3, 5, 9, 11, 15, 17, 21, and 23, Aubault teaches the terminal comprises a memory and the processor sends the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal ([0076] - [0078] - *the memory does not have sufficient storage capacity for at least one subsequent piece of content*).

As to claims 4, 6, 10, 12, 16, 18, 22, and 24, Aubault teaches controlling the terminal to at least one of delete at least one piece of content from the memory of the terminal, and download at least one piece of content from the source ([0076] - [0078] - *the memory does not have sufficient storage capacity for at least one subsequent piece of content*).

As to claim 7, Aubault teaches a controller operable with a terminal including a memory configured to store at least one piece of content (([0131] - *client terminal transmits cache information to server / network entity*).

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-24 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7, 9, 11-39 of copending Application No. 10/690656. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the present application are broader in scope than the claims of the copending application. Omission of an element and its function in a combination is an obvious expedient if the remaining elements perform the same functions as before. In re KARLSON (CCPA) 136 USPA 184 (1963).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

6. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh H. Nguyen whose telephone number is 571-272-7489. The examiner can normally be reached on Monday - Thursday from 6:30 A.M. to 5:00 P.M. If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Ahmad Matar, can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Quynh H. Nguyen

Quynh H. Nguyen
Primary Examiner
Art Unit 2614

Notice of References Cited	Application/Control No. 10/690,692	Applicant(s)/Patent Under Reexamination MUHONEN ET AL.	
	Examiner Quynh H. Nguyen	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2005/0086318	04-2005	Aubault, Olivier	709/213
*	B	US-2004/0213207	10-2004	Silver et al.	370/352
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/690,692	MUHONEN ET AL.
Examiner	**Art Unit**
Quynh H. Nguyen	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	3/19/07	8/20/07	1/8/08						
	1	√	√	√						
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Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination
10/690,692	MUHONEN ET AL.
Examiner	**Art Unit**
Quynh H. Nguyen	2614

SEARCHED			
Class	Subclass	Date	Examiner
370	352	3/14/2007	QN
379	201.01 265.09 221.08 221.09 221.11 221.12	3/14/07	QN
above	updated	8/8/2007	QN
above	updated	1/8/08	QN

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT	3/14/07	QN
Inventor searched through PALM database	3/14/07	QN

REQUEST For CONTINUED EXAMINATION (RCE) TRANSMITTAL Address to: MAIL STOP RCE COMMISSIONER FOR PATENTS P. O. BOX 1450 ALEXANDRIA, VA 22313-1450 (Revised 01/2003)	Application Number 10/690,692
	Filing Date 10/22/03
	First Named Inventor: Muhonen et al.
	Art Unit: 2614
	Examiner Name: Nguyen, Quynh H.
	Confirmation No.: 6127
	Attorney Docket No. 042933/269767

This is a request for Continued Examination (RCE) under 37 C.F.R. § 1.114 of the above-identified application. Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application.

1. **Submission required under 37 C.F.R. § 1.114** Note: if the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☒ Enclosed
      i. ☒ Amendment/Reply
      ii. ☐ Affidavits(s)/Declarations(s)
      iii. ☐ Information Disclosure Statement (IDS); of cites listed on PTO Form 1449
      iv. ☐ Other _____

2. **Miscellaneous**

   a. ☐ Suspension of action on the above-identified application is requested under 37 C.F.R. §1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R. § 1.17(i) required)
   b. ☐ Other _____

3. **Fees** The RCE fee under 37 C.F.R. § 1.17(e) is required by 37 C.F.R. § 1.114 when the RCE is filed.

   a. The Director is hereby authorized to charge any fee deficiencies, or credit any overpayments, to Deposit Account No. 16-0605.
      i. ☒ RCE fee required under 37 C.F.R. § 1.17(e) ($810.00 large entity; $405.00 small entity)
      ii. ☐ Extension of Time Fee (37 C.F. R. §§ 1.136 and 1.17)
      iii. ☐ Other

   b. ☐ Check in the amount of $_____ enclosed

Respectfully submitted,

Andrew T. Spence
Registration No. 45,699

Customer No. 00826
Alston & Bird LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
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Fax Charlotte Office (704) 444-1111
LEGAL02/30601603v1

ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT & TRADEMARK OFFICE ON NOVEMBER 14, 2007.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.:	10/690,692	Confirmation No.: 6127
Applicant(s):	Muhonen et al.	
Filed:	October 22, 2003	
Art Unit:	2614	
Examiner:	Nguyen, Quynh H.	
Title:	SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT	

Docket No.: 042933/269767
Customer No.: 00826

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT
37 CFR § 1.115

Sir:

Please enter this Preliminary Amendment before calculating the claim fee and amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims beginning on page 2 of this paper.

Remarks begin on page 9 of this paper.

Amendments to the Claims:

1. (Currently Amended) ~~A system of controlling a flow of content, the system~~ An apparatus comprising:

~~a terminal configured to send a content status including terminal status information; and~~

a ~~network entity comprising a~~ processor configured to receive ~~the~~, from a terminal located remote from the apparatus, a content status including terminal status information, and configured to receive server status information regarding a source of content, wherein the server status information comprises a listing of at least one piece of content available from the source, wherein the processor is configured to send, to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information and the server status information, and

wherein the at least one piece of content available from the source, and the content for which the processor is configured to control the flow, comprise multimedia content ~~consumable by the terminal~~.

2. (Currently Amended) ~~A system~~ An apparatus according to Claim 1, wherein the terminal comprises a memory, and wherein the processor is configured to ~~control~~ send, to the terminal, a response to the content status that instructs the terminal to at least one of delete at least one piece of content from the memory of the terminal, or download at least one piece of content from the source.

3. (Currently Amended) ~~A system~~ An apparatus according to Claim 2, wherein the terminal status information comprises a listing of at least one piece of content stored in the memory of the terminal, and wherein the processor is configured to ~~control~~ send, to the terminal, a response to the content status that instructs the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

4. (Currently Amended) ~~A system~~ An apparatus according to Claim 2, wherein the server status information comprises a listing of at least one piece of available content from the source, and wherein the processor is configured to ~~control~~ send, to the terminal, a response to the content status that instructs the terminal to download at least one piece of content from the source based upon the listing of at least one available piece of content from the source.

5. (Currently Amended) ~~A system~~ An apparatus according to Claim 2, wherein the processor is configured to determine if the memory of the terminal includes at least one piece of content to delete, and wherein the processor is configured to send ~~a response~~, to the terminal ~~instructing~~, a response to the content status that instructs the terminal to delete at least one piece of content when the processor determines that the memory of the terminal includes at least one piece of content to delete.

6. (Currently Amended) ~~A system~~ An apparatus according to Claim 5, wherein the processor is further configured to determine if source includes at least one available piece of content for the terminal to download, and wherein the processor is configured to send ~~a response~~, to the terminal ~~instructing~~, a response to the content status that instructs the terminal to download at least one available piece of content when the processor determines that the source includes at least one available piece of content for the terminal to download.

7. (Currently Amended) An apparatus comprising:

a controller operable with a terminal including a memory configured to store at least one piece of content, wherein the controller is configured to send a content status including terminal status information comprising a listing of at least one piece of content stored in ~~a~~ the memory ~~configured to store at least one piece of content~~, wherein the controller is configured to send the content ~~request such that a~~ status to a remote network entity ~~receives the terminal status inquiry and controls~~, and receive a response to the content status from the network entity that instructs the controller to perform one or more actions to thereby control a flow of content to the terminal based upon the terminal status information, and

wherein the at least one piece of content stored in the memory, and the content for which the network entity is configured to control the flow, comprise multimedia content ~~consumable by the terminal~~.

8. (Currently Amended) An apparatus according to Claim 7, wherein the controller is configured to ~~send the content status such that the network entity~~ receive a response that instructs the controller to at least one of delete at least one piece of content from the memory of the terminal, or download at least one piece of content from a source of content.

9. (Currently Amended) An apparatus according to Claim 8, and wherein the controller is configured to ~~send the content status such that the network entity~~ receive a response that instructs the controller to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

10. (Currently Amended) An apparatus according to Claim 8, wherein the controller is configured to ~~send the content status such that the network entity~~ receive a response that instructs the controller to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

11. (Currently Amended) An apparatus according to Claim 8, wherein the controller is configured to send the content status such that the network entity determines if the memory of the terminal includes at least one piece of content to delete, and ~~sends a response to the terminal instructing~~ wherein the controller is configured to receive a response that instructs the controller to delete at least one piece of content when the network entity determines that the memory of the terminal includes at least one piece of content to delete.

12. (Currently Amended) An apparatus according to Claim 11, wherein the controller is configured to send the content status such that the network entity further determines if the source includes at least one available piece of content for the terminal to download, ~~and sends the response further indicating~~ wherein the controller is configured to receive a response that further indicates if the source includes at least one available piece of content, and wherein the controller is further configured to download the at least one available piece of content when the network entity determines that the source includes at least one available piece of content.

13. (Currently Amended) A method for controlling a flow of content, the method comprising:

receiving, at a network entity from a terminal located remote therefrom, a content status including terminal status information comprising a listing of at least one piece of content stored in a memory of the terminal; and

~~controlling~~ sending, from the network entity to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information,

wherein the at least one piece of content stored in the memory of the terminal, and the content for which the flow is controlled, comprise multimedia content ~~consumable by the terminal~~.

14. (Currently Amended) A method according to Claim 13, wherein ~~controlling a flow of content comprises controlling the terminal~~ sending a response comprises sending a response that instructs the terminal to at least one of delete at least one piece of content from the memory of the terminal, or download at least one piece of content from a source of content.

15. (Currently Amended) A method according to Claim 14, and wherein ~~controlling a flow of content comprises controlling the terminal~~ sending a response comprises sending a response that instructs the terminal to delete at least one piece of content from the memory of the

terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

16. (Currently Amended) A method according to Claim 14, wherein ~~controlling a flow of content comprises controlling the terminal~~ sending a response comprises sending a response that instructs the terminal to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

17. (Currently Amended) A method according to Claim 14~~, wherein controlling a flow of content comrpises~~ further comprising:

determining if the memory of the terminal includes at least one piece of content to delete~~; and~~,

wherein sending a response ~~to the terminal instructing~~ comprises sending a response that instructs the terminal to delete at least one piece of content when the the memory of the terminal is determined to include at least one piece of content to delete.

18. (Currently Amended) A method according to Claim 17~~, controlling a flow of content further comrpises~~ further comprising:

determining if the source includes at least one available piece of content for the terminal to download,

wherein sending a response comprises sending a response ~~to the terminal~~ that further ~~instructing~~ instructs the terminal to download at least one available piece of content when the source is determined to include at least one available piece of content.

19. (Currently Amended) A ~~computer program product for controlling a flow of content, the computer program product comprising a~~ computer-readable storage medium having computer-readable program code portions stored therein, the computer-readable program code portions comprising:

a first executable portion configured to receive, at a network entity from a terminal located remote therefrom, a content status including terminal status information comprising a listing of at least one piece of content stored in a memory of the terminal; and

a second executable portion configured to send, from the network entity to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information,

wherein the at least one piece of content stored in the memory of the terminal, and the content for which the flow is controlled, comprise multimedia content ~~consumable by the terminal~~.

20. (Currently Amended) A ~~computer program product~~ computer-readable storage medium according to Claim 19, wherein the second executable portion is configured to ~~instruct~~ send a response that instructs the terminal to at least one of delete at least one piece of content from the memory of the terminal, or download at least one piece of content from a source of content.

21. (Currently Amended) A ~~computer program product~~ computer-readable storage medium according to Claim 20, wherein the second executable portion is configured to ~~instruct~~ send a response that instructs the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

22. (Currently Amended) A ~~computer program product~~ computer-readable storage medium according to Claim 20, wherein the second executable portion is configured to ~~instruct~~ send a response that instructs the terminal to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

23. (Currently Amended) A ~~computer program product~~ computer-readable storage medium according to Claim 20~~, wherein the second~~ further comprising:

a third executable portion ~~is~~ configured to determine if the memory of the terminal includes at least one piece of content to delete, ~~and~~

wherein the second executable portion is configured send a response ~~to the terminal instructing~~ that instructs the terminal to delete at least one piece of content when the second executable portion determines the memory of the terminal includes at least one piece of content to delete.

24. (Currently Amended) A ~~computer program product~~ computer-readable storage medium according to Claim 23, wherein the ~~second~~ third executable poirtion is further configured to determine if the source includes at least one available piece of content for the terminal to download, and wherein the second executable portion is configured to send a response ~~to the terminal~~ that further ~~instructing~~ instructs the terminal to download at least one available piece of content when the second executable portion determines the source includes at least one available piece of content.

REMARKS

This Amendment is being filed in response to the final Official Action of August 14, 2007, and concurrent with a Request for Continued Examination (RCE). The final Official Action rejects independent Claims 1, 7, 13 and 19 under 35 U.S.C. § 112, first paragraph, for allegedly failing to comply with the written description requirement; and under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite. The final Official Action continues to reject all of the computer program product claims, namely Claims 19-24, under 35 U.S.C. § 101 for being directed to non-statutory subject matter; and continues to reject all of the pending claims, namely Claims 1-24, under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,450,482 to Chen et al.

As explained below, Applicants respectfully submit that all of the claims do comply with the written description requirement, and are definite. In addition, Applicants respectfully submit that Claims 19-24 are directed to statutory subject matter, and that all of the pending claims are patentably distinct from Chen. Nonetheless, to advance prosecution of the present application, Applicants have amended various ones of the claims to further highlight aspects of the present invention. In view of the amendments to the claims and the remarks presented herein, Applicants respectfully request reconsideration and allowance of all of the pending claims of the present application.

A. Claims 1, 7, 13 and 19 are Proper

As indicated above, the final Official Action rejects independent Claims 1, 7, 13 and 19 under 35 U.S.C. § 112, first and second paragraphs, for allegedly failing to comply with the written description requirement, and for being indefinite. In this regard, the Official Action alleges that the specification fails to support the recitation amended into the independent claims in response to the first Official Action, namely the recitation specifying that the content comprises "multimedia content consumable by the terminal;" and alleges that the recitation is indefinite. Although Applicants disagree with the allegations proffered in the final Official Action, Applicants have amended independent Claims 1, 7, 13 and 19 to instead refer to "multimedia content," which Applicants submit is supported by the specification and definite. In

this regard, see the present application at least at page 1, lines 16-17; page 2, lines 6-9; page 2, lines 16-27; page 3, lines 4-8; page 8, line 30 – page 9, line 2; page 11, lines 28-30; and page 17, lines 12-15.

For at least the foregoing reasons, Applicants respectfully submit that the rejections of independent Claims 1, 7, 13 and 19 under 35 U.S.C. § 112, first and second paragraphs, are overcome.

B. Claims 19-24 are Statutory

The final Official Action continues to reject all of the computer program product claims, namely Claims 19-24, under 35 U.S.C. § 101 for being directed to non-statutory subject matter. More particularly, the Official Action alleges that Claims 19-24 merely claim a data structure without an accompanying computer-readable media embodying the data structure. As explained in response to the first Official Action, however, independent Claim 19, and by dependency Claims 20-24, clearly recite "[a] computer program product comprising a computer-readable storage medium having computer-readable program code portions stored therein, the computer-readable program code portions" including a number of recited executable portions. Applicants therefore respectfully traverse the § 101 rejection of Claim 19-24, and submit that in fact those claims are directed to statutory subject matter. Nonetheless, Applicants have amended Claims 19-24 to more clearly recite the computer-readable storage medium. And in view of the foregoing, Applicants respectfully submit that the rejection of Claims 19-24 as being directed to non-statutory subject matter is overcome.

C. Claims 1-24 are Patentable over Chen

As also indicated above, the final Official Action rejects all of the pending claims as being anticipated by Chen. Again, Chen discloses a network automatic call distribution system (ACD) for a network including a number of switches interconnecting a number of telephones and operator stations. As disclosed, when one switch in the network has blocked resources, the ACD uses information stored in that switch to insure that the calls it distributes are routed to another switch that has available resources. When a call for a specified service is received at a switch,

the switch first checks to determine whether it can handle the call. If the switch cannot handle the call, then the switch checks stored status tables to determine another switch in the network that can handle the call. The call is then delivered to the determined switch. In this regard, the stored status tables include a list of switches within the network including an associated availability status for each of a number of services (such a directory assistance, toll assistance, credit card, etc.), and an availability status of a trunk connecting the switch and the other switches in the network. The two statuses are logically "ANDed" together to derive the availability status. Each switch sends an updated status to the other switches via a signaling network whenever a service changes status (e.g., no available operators).

1. Claims 1-6 are Patentable

According to a first aspect of the present invention, as reflected by amended independent Claim 1, an apparatus including a processor is recited. As recited, the processor is configured to receive, from a terminal located remote from the apparatus, a content status including terminal status information. The processor is also configured to receive server status information regarding a source of content, where the server status information includes a listing of one or more pieces of content available from the source. The processor is further configured to send, to the terminal, a response to the content status that instructs the terminal to perform one or more actions to thereby control the flow of content to the terminal based upon the terminal status information and the server status information. And as further recited, the piece(s) of content available from the source, and the content for which the processor is configured to control the flow, comprise multimedia content.

In contrast to amended independent Claim 1, Chen does not teach or suggest an apparatus including a processor configured to control the flow of content to a terminal based on terminal status information, as well as server status information for a source of content, the server status information including a listing of one or more pieces of content available from the source. The Official Action continues to cite column 1, lines 50-55 of Chen for allegedly disclosing this feature of the claimed invention. In this regard, the cited passage of Chen explains that switches store status tables including "a list of switches within the network wherein an availability status

is associated with each service (such a [*sic*] directory assistance, toll assistance, credit card, etc.), and an availability status of a trunk connecting the switch and the other switches in the network." Thus, instead of disclosing a server status including a listing of ***multimedia*** content available from the source, similar to amended independent Claim 1, Chen discloses switch status including a listing of switches and services available from those switches.

Applicants therefore respectfully submit that amended independent Claim 1, and by dependency Claims 2-6, is patentably distinct from Chen. And for at least the foregoing reasons, Applicants respectfully submit that the rejection of Claims 1-6 as being anticipated by Chen is overcome.

2. Claims 7-23

According to a second aspect of the present invention, as reflected by amended independent Claim 7, an apparatus including a controller is recited. As recited, the controller is operable with a terminal including a memory configured to store at least one piece of content, and is configured to send a content status including terminal status information having a listing of one or more pieces of content stored in the memory. In addition, the controller is configured to send the content status to a remote network entity, and receive a response to the content status from the network entity that instructs the controller to perform one or more actions to thereby control a flow of content to the terminal based upon the terminal status information. And as further recited, the piece(s) of content available from the source, and the content for which the controller is configured to control the flow, comprise multimedia content.

In contrast to amended independent Claim 7, Chen does not teach or suggest an apparatus including a controller configured to send a content status, including terminal status information having a listing of content stored in memory of a terminal, to a remote entity, and receive a response to the content status that instructs the controller to perform action(s) to thereby control the flow of content to the terminal based on the terminal status information. For these features of independent Claim 7, the Official Action cites column 5, lines 4-11. Similar to column 1, lines 50-55 of Chen, column 5, lines 4-11 of Chen disclose operator availability tables from which a switch may know the availability of services of other switches in the network. Again, then,

instead of disclosing a terminal status including a listing of ***multimedia*** content stored in memory of the terminal, similar to the claimed invention, Chen discloses switch status including a listing of switches and services available from those switches.

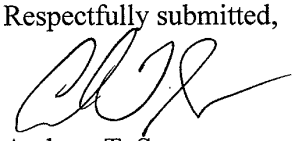
Applicants therefore respectfully submit that amended independent Claim 7, and by dependency Claims 8-12, is patentably distinct from Chen. Applicants also respectfully submit that amended independent Claims 13 and 19 recite subject matter similar to that of amended independent Claim 7, including the aforementioned flow control feature. As such, Applicants also respectfully submit that amended independent Claims 13 and 19, and by dependency Claims 14-18 and 20-23, are patentably distinct from Chen for at least the same reasons given above with respect to amended independent Claim 7.

For at least the foregoing reasons, Applicant respectfully submits that the rejection of Claims 7-23 as being anticipated by Chen is overcome.

CONCLUSION

In view of the amendments to the claims and the remarks presented above, Applicants respectfully submit that the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicants' undersigned attorney in order to resolve any remaining issues. It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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ELECTRONICALLY FILED USING THE EFS-WEB ELECTRONIC FILING SYSTEM OF THE UNITED STATES PATENT & TRADEMARK OFFICE ON NOVEMBER 14, 2007.

Electronic Patent Application Fee Transmittal

Application Number:	10690692
Filing Date:	22-Oct-2003
Title of Invention:	System and associated terminal, method and computer program product for controlling the flow of content
First Named Inventor/Applicant Name:	Ahti Muhonen
Filer:	John Elmus Johnson/Jan Sherrill
Attorney Docket Number:	042933/269767
Filed as Large Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	1801	1	810	810
		Total in USD ($)		**810**

Electronic Acknowledgement Receipt

EFS ID:	2466453
Application Number:	10690692
International Application Number:	
Confirmation Number:	6127
Title of Invention:	System and associated terminal, method and computer program product for controlling the flow of content
First Named Inventor/Applicant Name:	Ahti Muhonen
Customer Number:	826
Filer:	John Elmus Johnson/Jan Sherrill
Filer Authorized By:	John Elmus Johnson
Attorney Docket Number:	042933/269767
Receipt Date:	14-NOV-2007
Filing Date:	22-OCT-2003
Time Stamp:	14:20:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$810
RAM confirmation Number	7697
Deposit Account	160605
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)

1		269767_RCE.pdf	788658 602e9593da97e423ee355cc355ee3387afd1c3c2	yes	16

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Request for Continued Examination (RCE)	1	2
Amendment Submitted/Entered with Filing of CPA/RCE	3	3
Claims	4	10
Applicant Arguments/Remarks Made in an Amendment	11	16

Warnings:

Information:

2	Fee Worksheet (PTO-06)	fee-info.pdf	8216 73e584aeaa15df4ddb4994d59451f444799b48da	no	2

Warnings:

Information:

Total Files Size (in bytes):	796874

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/690,692	10/22/2003	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 11/14/2007	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 24	Minus	** 24	= 0	X $ =		OR	X $50=	0
Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $ =		OR	X $210=	0
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
Joy Dobbs

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,692	10/22/2003	Ahti Muhonen	042933/269767	6127

826 7590 08/14/2007

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EXAMINER	
NGUYEN, QUYNH H	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
08/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/690,692	MUHONEN ET AL.	
	Examiner	Art Unit	
	Quynh H. Nguyen	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-24* is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 7, 13, and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1, 7, 13, and 19 recite "...multimedia content consumable by the terminal" which was not described in the specification. Furthermore, on page 9-10 of the Remarks, Applicant argues that multimedia content consumable by a user of the terminal while the claims recite multimedia content consumable by the terminal.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

It is unclear as what does "...multimedia content consumable by the terminal"

means as recited in claims 1, 7, 13, and 19?

Claim Rejections - 35 USC § 101

4. Claims 19-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

Claims 19-24, claims the non-statutory subject matter of a computer program product. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1754 (claim to a data structure per se held nonstatutory). Therefore, since the claimed programs are not tangibly embodied in a physical medium and encoded on a computer-readable medium then the Applicants has not complied with 35 U.S.C 101.

Claim Rejections - 35 USC § 102

5. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (U.S. Patent 5,450,482).

As to claims 1, 13, and 19, Chen et al. teaches the steps of:

a terminal (terminal at operator stations 120, 121) capable of sending a content status including terminal status information (col. 3, lines 48-52); and

a network entity (Fig. 1) comprising a content flow manager (dynamic table in memory 116 and administrative module 160) capable of receiving the terminal status information and server status information regarding a source of content (col. 1, lines 50-55), wherein the server status information comprises a listing of at least one piece of content available from the source (col. 1, lines 50-55), and wherein the content flow manager is capable of controlling the flow of content to the terminal based upon the terminal status information and the server status information (col. 3, lines 21-35; col. 5, lines 4-11).

As to claims 2, 8, 14, and 20, Chen et al. teaches the terminal comprises a memory (memory in terminal at operator stations 120), and the control flow manager is capable of controlling the terminal to at least one of delete at least one piece of content from the memory of the terminal, and download at least one piece of content from the source (col. 3, lines 35-68).

As to claims 3, 5, 9, 11, 15, 17, 21, and 23, Chen et al. teaches the terminal status information comprises a listing of at least one piece of content stored in the memory of the terminal (col. 1, lines 50-55), and wherein the control flow manager is capable of controlling the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal (col. 3, lines 22-35 - *where Chen discussed determining the switch with available status by consulting a dynamic table of availability to connects a*

trunk to the switch, hence the unavailable or busy or blocked switch is delete from the list of available switches).

As to claims 4, 6, 10, 12, 16, 18, 22, and 24, Chen et al. teaches the control flow manager is capable of controlling the terminal to at least one of delete at least one piece of content from the memory of the terminal, and download at least one piece of content from the source (col. 3, lines 35-68).

As to claim 7, Chen et al. teaches a terminal comprising:

a memory (memory in terminal at operator stations 120) capable of storing at least one piece of content (col. 5, lines 4-11);

a controller (administrative module 160) capable of sending a content status including terminal status information comprising a listing of at least one piece of content stored in the memory (col. 5, lines 4-11), wherein the controller is capable of sending the content request such that a network entity can receive the terminal status inquiry and control a flow of content to the terminal base upon the terminal status information (col. 3, lines 21-35; col. 5, lines 4-11).

Response to Arguments

6. Applicant's arguments filed 6/4/07 have been fully considered but they are not persuasive.

Applicant's argument regarding claims 19-24 are being rejected under 101 are not persuasive because the claimed computer program product are not tangibly

embodied in a physical medium and encoded on a computer-readable medium. Hence, claims 19-24 are being rejected under 101 are maintained.

Applicant argues that Chen does not teach "...information including a listing of one or more pieces of content available from the source..." (Remarks, page 9) and "...content stored in memory of the terminal..." (Remarks, page 10), see 112 rejections above.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh H. Nguyen whose telephone number is 571-272-7489. The examiner can normally be reached on Monday - Thursday from 6:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Quynh H. Nguyen

Quynh H. Nguyen
Primary Examiner
Art Unit 2614

Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	10/690,692	MUHONEN ET AL.
	Examiner	Art Unit
	Quynh H. Nguyen	2614

SEARCHED			
Class	Subclass	Date	Examiner
370	352	3/14/2007	QN
379	265.09 221.08 221.09 221.11 221.12	3/14/07	QN
above	updated	8/8/2007	QN

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT	3/14/07	QN
Inventor searched through PALM database	3/14/07	QN

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/690,692	MUHONEN ET AL.
Examiner	**Art Unit**
Quynh H. Nguyen	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	3/19/07	8/20/07							
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.:	10/690,692	Confirmation No.: 6127
Applicant(s):	Muhonen et al.	
Filed:	October 22, 2003	
Art Unit:	2614	
Examiner:	Nguyen, Quynh H.	
Title:	SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT	

Docket No.: 042933/269767
Customer No.: 00826

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 37 C.F.R. § 1.121

Sir:

In response to the Official Action dated March 22, 2007, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims beginning on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

Amendments to the Claims:

1. (Currently Amended) A system of controlling a flow of content, the system comprising:

a terminal ~~capable of sending~~ configured to send a content status including terminal status information; and

a network entity comprising a ~~content flow manager capable of receiving~~ processor configured to receive the terminal status information and server status information regarding a source of content, wherein the server status information comprises a listing of at least one piece of content available from the source, ~~and~~ wherein the ~~content flow manager~~ processor is ~~capable of controlling~~ configured to control the flow of content to the terminal based upon the terminal status information and the server status information, and

wherein the at least one piece of content available from the source, and the content for which the processor is configured to control the flow, comprise multimedia content consumable by the terminal.

2. (Currently Amended) A system according to Claim 1, wherein the terminal comprises a memory, and wherein the ~~control flow manager~~ processor is ~~capable of controlling~~ configured to control the terminal to at least one of delete at least one piece of content from the memory of the terminal, ~~and~~ or download at least one piece of content from the source.

3. (Currently Amended) A system according to Claim 2, wherein the terminal status information comprises a listing of at least one piece of content stored in the memory of the terminal, and wherein the ~~control flow manager~~ processor is ~~capable of controlling~~ configured to control the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

4. (Currently Amended) A system according to Claim 2, wherein the server status information comprises a listing of at least one piece of available content from the source, and

wherein the ~~control flow manager~~ processor is ~~capable of controlling~~ configured to control the terminal to download at least one piece of content from the source based upon the listing of at least one available piece of content from the source.

5. (Currently Amended) A system according to Claim 2, wherein the processor is ~~capable of determining~~ configured to determine if the memory of the terminal includes at least one piece of content to delete, and wherein the ~~control flow manager~~ processor is ~~capable of sending~~ configured to send a response to the terminal instructing the terminal to delete at least one piece of content when the ~~control flow manager~~ processor determines that the memory of the terminal includes at least one piece of content to delete.

6. (Currently Amended) A system according to Claim 5, wherein the ~~control flow manager~~ processor is further ~~capable of determining~~ configured to determine if source includes at least one available piece of content for the terminal to download, and wherein the ~~control flow manager~~ processor is ~~capable of sending~~ configured to send a response to the terminal instructing the terminal to download at least one available piece of content when the ~~control flow manager~~ processor determines that the source includes at least one available piece of content for the terminal to download.

7. (Currently Amended) ~~A terminal~~ An apparatus comprising:

~~a memory capable of storing at least one piece of content;~~

a controller ~~capable of sending~~ configured to send a content status including terminal status information comprising a listing of at least one piece of content stored in ~~the~~ a memory configured to store at least one piece of content, wherein the controller is ~~capable of sending~~ configured to send the content request such that a network entity ~~can receive~~ receives the terminal status inquiry and ~~control~~ controls a flow of content to the terminal based upon the terminal status information, and

wherein the at least one piece of content stored in the memory, and the content for which the network entity is configured to control the flow, comprise multimedia content consumable by

the terminal.

8. (Currently Amended) ~~A terminal~~ An apparatus according to Claim 7, wherein the controller is ~~capable of sending~~ configured to send the content status such that the network entity ~~can instruct~~ instructs the controller to at least one of delete at least one piece of content from the memory of the terminal, ~~and~~ or download at least one piece of content from a source of content.

9. (Currently Amended) ~~A terminal~~ An apparatus according to Claim 8, and wherein the controller is ~~capable of sending~~ configured to send the content status such that the network entity ~~can instruct~~ instructs the controller to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

10. (Currently Amended) ~~A terminal~~ An apparatus according to Claim 8, wherein the controller is ~~capable of sending~~ configured to send the content status such that the network entity ~~can instruct~~ instructs the controller to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

11. (Currently Amended) ~~A terminal~~ An apparatus according to Claim 8, wherein the controller is ~~capable of sending~~ configured to send the content status such that the network entity ~~can determine~~ determines if the memory of the terminal includes at least one piece of content to delete, and ~~send~~ sends a response to the terminal instructing the controller to delete at least one piece of content when the network entity determines that the memory of the terminal includes at least one piece of content to delete.

12. (Currently Amended) ~~A terminal~~ An apparatus according to Claim 11, wherein the controller is ~~capable of sending~~ configured to send the content status such that the network entity ~~can~~ further ~~determine~~ determines if the source includes at least one available piece of

content for the terminal to download, and ~~sending~~ sends the response further indicating if the source includes at least one available piece of content, and wherein the controller is further ~~capable of downloading~~ configured to download the at least one available piece of content when the network entity determines that the source includes at least one available piece of content.

13. (Currently Amended) A method for controlling a flow of content, the method comprising:

~~sending~~ receiving a content status including terminal status information comprising a listing of at least one piece of content stored in a memory of the terminal~~;~~

~~receiving the terminal status information~~; and

controlling the flow of content to the terminal based upon the terminal status information,

wherein the at least one piece of content stored in the memory of the terminal, and the content for which the flow is controlled, comprise multimedia content consumable by the terminal.

14. (Currently Amended) A method according to Claim 13, wherein controlling a flow of content comprises controlling the terminal to at least one of delete at least one piece of content from the memory of the terminal, ~~and~~ or download at least one piece of content from a source of content.

15. (Original) A method according to Claim 14, and wherein controlling a flow of content comprises controlling the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

16. (Original) A method according to Claim 14, wherein controlling a flow of content comprises controlling the terminal to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

17. (Original) A method according to Claim 14, wherein controlling a flow of content comrpises:

determining if the memory of the terminal includes at least one piece of content to delete; and

sending a response to the terminal instructing the terminal to delete at least one piece of content when the the memory of the terminal is determined to include at least one piece of content to delete.

18. (Original) A method according to Claim 17, controlling a flow of content further comrpises:

determining if the source includes at least one available piece of content for the terminal to download,

wherein sending a response comprises sending a response to the terminal further instructing the terminal to download at least one available piece of content when the source is determined to include at least one available piece of content.

19. (Currently Amended) A computer program product for controlling a flow of content, the computer program product comprising a computer-readable storage medium having computer-readable program code portions stored therein, the computer-readable program code portions comprising:

a first executable portion ~~for receiving~~ configured to receive a content status including terminal status information comprising a listing of at least one piece of content stored in a memory of the terminal; and

a second executable portion ~~for controlling~~ configured to control the flow of content to the terminal based upon the terminal status information,

wherein the at least one piece of content stored in the memory of the terminal, and the content for which the flow is controlled, comprise multimedia content consumable by the terminal.

20. (Currently Amended) A computer program product according to Claim 19, wherein the second executable portion is ~~adapted~~ configured to instruct the terminal to at least one of delete at least one piece of content from the memory of the terminal, ~~and~~ or download at least one piece of content from a source of content.

21. (Currently Amended) A computer program product according to Claim 20, wherein the second executable portion is ~~adapted~~ configured to instruct the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

22. (Currently Amended) A computer program product according to Claim 20, wherein the second executable portion is ~~adapted~~ configured to instruct the terminal to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

23. (Currently Amended) A computer program product according to Claim 20, wherein the second executable portion is ~~adapted~~ configured to determine if the memory of the terminal includes at least one piece of content to delete, and send a response to the terminal instructing the terminal to delete at least one piece of content when the second executable portion determines the memory of the terminal includes at least one piece of content to delete.

24. (Currently Amended) A computer program product according to Claim 23, wherein the second executable poirtion is further ~~adapted~~ configured to determine if the source includes at least one available piece of content for the terminal to download, and wherein the second executable portion is ~~adapted~~ configured to send a response to the terminal further instructing the terminal to download at least one available piece of content when the second executable portion determines the source includes at least one available piece of content.

REMARKS/ARGUMENTS

The Official Action rejects all of the computer program product claims, namely Claims 19-24, under 35 U.S.C. § 101 for being directed to non-statutory subject matter. More particularly, the Official Action alleges that Claims 19-24 merely claim a data structure without an accompanying computer-readable media embodying the data structure. We note, however, that independent Claim 19, and by dependency Claims 20-24, clearly recite "[a] computer program product comprising a computer-readable storage medium having computer-readable program code portions stored therein, the computer-readable program code portions" including a number of recited executable portions. Applicants therefore respectfully traverse the § 101 rejection of Claim 19-24, and submit that in fact those claims are directed to statutory subject matter. And in view of the above, Applicants respectfully submit that the rejection of Claims 19-24 as being directed to non-statutory subject matter is overcome.

In addition to the foregoing, the Official Action rejects all of the pending claims, namely Claims 1-24, under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,450,482 to Chen et al. As explained below, however, Applicants respectfully submit that the claimed invention is patentably distinct from Chen, and accordingly also traverse this rejection of the claims. Nonetheless, to advance prosecution of the present application, Applicants have amended various ones of the claims to further highlight aspects of the present invention. In view of the amendments to the claims and the remarks presented herein, Applicants respectfully request reconsideration and allowance of all of the pending claims of the present application.

Briefly, Chen discloses a network automatic call distribution system (ACD) for a network including a number of switches interconnecting a number of telephones and operator stations. As disclosed, when one switch in the network has blocked resources, the ACD uses information stored in that switch to insure that the calls it distributes are routed to another switch that has available resources. When a call for a specified service is received at a switch, the switch first checks to determine whether it can handle the call. If the switch cannot handle the call, then the switch checks stored status tables to determine another switch in the network that can handle the call. The call is then delivered to the determined switch. In this regard, the stored status tables

include a list of switches within the network including an associated availability status for each of a number of services (such a directory assistance, toll assistance, credit card, etc.), and an availability status of a trunk connecting the switch and the other switches in the network. The two statuses are logically "ANDed" together to derive the availability status. Each switch sends an updated status to the other switches via a signaling network whenever a service changes status (e.g., no available operators).

A. Claims 1-6 are Patentable

According to a first aspect of the present invention, as reflected by amended independent Claim 1, a system is provided for controlling a flow of content. The system includes a terminal and a network entity. The terminal is configured to send a content status including terminal status information. The network entity (e.g., content flow server, origin server, digital broadcast receiver, etc.) includes a processor configured to receive the terminal status information. Then, based upon the terminal status information and server status information regarding a source of content, the processor is configured to control the flow of content to the terminal. In this regard, the server status information includes a listing of one or more pieces of content available from the source. And as further recited, the piece(s) of content available from the source, and the content for which the processor is configured to control the flow, comprise multimedia content consumable by a user of the terminal.

In contrast to amended independent Claim 1, Chen does not teach or suggest a network entity controlling the flow of content to a terminal based on terminal status information, as well as server status information for a source of content, the server status information including a listing of one or more pieces of content available from the source. The Official Action cites column 1, lines 50-55 of Chen for allegedly disclosing this feature of the claimed invention. In this regard, the cited passage of Chen explains that switches store status tables including "a list of switches within the network wherein an availability status is associated with each service (such a [*sic*] directory assistance, toll assistance, credit card, etc.), and an availability status of a trunk connecting the switch and the other switches in the network." Thus, instead of disclosing a server status including a listing of content available from the source, similar to the claimed

invention, Chen discloses switch status including a listing of switches and services available from those switches.

Applicants therefore respectfully submit that amended independent Claim 1, and by dependency Claims 2-6, is patentably distinct from Chen. And for at least the foregoing reasons, Applicants respectfully submit that the rejection of Claims 1-6 as being anticipated by Chen is overcome.

B. Claims 7-23

According to a second aspect of the present invention, as reflected by amended independent Claim 7, a terminal is provided that includes memory and a controller. As recited, the memory is configured to store one or more pieces of content. The controller is configured to send a content status including terminal status information having a listing of one or more pieces of content stored in the memory. In addition, the controller is configured to send the content request such that a network entity receives the terminal status inquiry and controls a flow of content to the terminal based upon the terminal status information. And as further recited, the piece(s) of content available from the source, and the content for which the processor is configured to control the flow, comprise multimedia content consumable by a user of the terminal.

In contrast to amended independent Claim 7, Chen does not teach or suggest a terminal including controller sending a listing of content stored in memory of the terminal, and sending a content request for a network entity to control the flow of content to the terminal based on the listing. For these features of independent Claim 7, the Official Action cites column 5, lines 4-11. Similar to column 1, lines 50-55 of Chen, column 5, lines 4-11 of Chen disclose operator availability tables from which a switch may know the availability of services of other switches in the network. Again, then, instead of disclosing a terminal status including a listing of content stored in memory of the terminal, similar to the claimed invention, Chen discloses switch status including a listing of switches and services available from those switches.

Applicants therefore respectfully submit that amended independent Claim 7, and by dependency Claims 8-12, is patentably distinct from Chen. Applicants also respectfully submit

that amended independent Claims 13 and 19 recite subject matter similar to that of amended independent Claim 7, including the aforementioned flow control feature. As such, Applicants also respectfully submit that amended independent Claims 13 and 19, and by dependency Claims 14-18 and 20-23, are patentably distinct from Chen for at least the same reasons given above with respect to amended independent Claim 7.

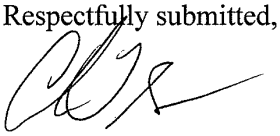
For at least the foregoing reasons, Applicant respectfully submits that the rejection of Claims 7-23 as being anticipated by Chen is overcome.

CONCLUSION

In view of the amendments to the claims and the remarks presented above, Applicants respectfully submit that the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicants' undersigned attorney in order to resolve any remaining issues.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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Electronic Acknowledgement Receipt

EFS ID:	1836339
Application Number:	10690692
International Application Number:	
Confirmation Number:	6127
Title of Invention:	System and associated terminal, method and computer program product for controlling the flow of content
First Named Inventor/Applicant Name:	Ahti Muhonen
Customer Number:	826
Filer:	Tyler Spence/Sarah Simmons
Filer Authorized By:	Tyler Spence
Attorney Docket Number:	042933/269767
Receipt Date:	04-JUN-2007
Filing Date:	22-OCT-2003
Time Stamp:	16:19:43
Application Type:	Utility

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1		269767Amendment.PDF	601142	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment - After Non-Final Rejection	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	12
Warnings:			
Information:			
	Total Files Size (in bytes):	601142	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/690,692	MUHONEN ET AL.
Examiner	**Art Unit**
Quynh H. Nguyen	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
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Claim		Date
Final	Original	3/19/07
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PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

Application or Docket Number: 10690692

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	24	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	24 minus 20=	* 4
INDEPENDENT CLAIMS	1 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	385.00	OR	BASIC FEE	770.00
X$ 9=		OR	X$18=	72
X43=		OR	X86=	86
+145=		OR	+290=	
TOTAL		OR	TOTAL	928

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 24	Minus	** 24	=
Independent	* 4	Minus	*** 4	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

1, 7, 13, 19

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,692	10/22/2003	Ahti Muhonen	042933/269767	6127

826 7590 03/22/2007

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER	
NGUYEN, QUYNH H	
ART UNIT	**PAPER NUMBER**
2614	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

Office Action Summary	Application No.	Applicant(s)	
	10/690,692	MUHONEN ET AL.	
	Examiner	Art Unit	
	Quynh H. Nguyen	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 19-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of the claim raises a question as to whether the claim is directed merely to an abstract idea that is not tied to a technological art, environment or machine which would result in a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101.

Claims 19-24, claims the non-statutory subject matter of a computer program product. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1754 (claim to a data structure per se held nonstatutory). Therefore, since the claimed programs are not tangibly embodied in a physical medium and encoded on a computer-readable medium then the Applicants has not complied with 35 U.S.C 101.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (U.S. Patent 5,450,482).

As to claims 1, 13, and 19, Chen et al. teaches the steps of:

a terminal (terminal at operator stations 120, 121) capable of sending a content status including terminal status information (col. 3, lines 48-52); and

a network entity (Fig. 1) comprising a content flow manager (dynamic table in memory 116 and administrative module 160) capable of receiving the terminal status information and server status information regarding a source of content (col. 1, lines 50-55), wherein the server status information comprises a listing of at least one piece of content available from the source (col. 1, lines 50-55), and wherein the content flow manager is capable of controlling the flow of content to the terminal based upon the terminal status information and the server status information (col. 3, lines 21-35; col. 5, lines 4-11).

As to claims 2, 8, 14, and 20, Chen et al. teaches the terminal comprises a memory (memory in terminal at operator stations 120), and the control flow manager is capable of controlling the terminal to at least one of delete at least one piece of content from the memory of the terminal, and download at least one piece of content from the source (col. 3, lines 35-68).

As to claims 3, 5, 9, 11, 15, 17, 21, and 23, Chen et al. teaches the terminal status information comprises a listing of at least one piece of content stored in the memory of the terminal (col. 1, lines 50-55), and wherein the control flow manager is capable of controlling the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal (col. 3, lines 22-35 - *where Chen discussed determining the switch with available status by consulting a dynamic table of availability to connects a trunk to the switch, hence the unavailable or busy or blocked switch is delete from the list of available switches*).

As to claims 4, 6, 10, 12, 16, 18, 22, and 24, Chen et al. teaches the control flow manager is capable of controlling the terminal to at least one of delete at least one piece of content from the memory of the terminal, and download at least one piece of content from the source (col. 3, lines 35-68).

As to claim 7, Chen et al. teaches a terminal comprising:

a memory (memory in terminal at operator stations 120) capable of storing at least one piece of content (col. 5, lines 4-11);

a controller (administrative module 160) capable of sending a content status including terminal status information comprising a listing of at least one piece of content stored in the memory (col. 5, lines 4-11), wherein the controller is capable of sending the content request such that a network entity can receive the terminal status inquiry and control a flow of content to the terminal base upon the terminal status information (col. 3, lines 21-35; col. 5, lines 4-11).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Silver et al. (US 2004/0213207) teaches system and method for viewing contents via a computer network during a telephone call.

Lund (U.S. Patent 5,978,806) teaches method and apparatus for communicating information about a called party to a calling party.

Bateman et al. (U.S. Patent 5,884,032) teaches system for coordinating communications via customer contact channel changing system using call centre for setting up the call between customer and an available help agent.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quynh H. Nguyen whose telephone number is 571-272-7489. The examiner can normally be reached on Monday - Thursday from 6:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on 571-272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qhn

Quynh H. Nguyen

Quynh H. Nguyen
March 19, 2007

Substitute for form 1449/PTO
(Revised 04/2003)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/690,692
Filing Date	October 22, 2003
First Named Inventor	Ahti Muhonen et al.
Group Art Unit	2666
Examiner Name	To be assigned
Attorney Docket Number	042933/269767

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document Number Number - Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages of Relevant Figures Appear
/QN/	13	US- 5,974,454 A	10-25-1999	Apfel et al.	
/QN/	14	US- 6,029,175 A	02-22-2000	Chow et al.	
/QN/	15	US-2002/062336 A1	05-23-2002	Toedosiu et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Country Code - Number Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	English Language Translation Attached

Examiner Signature	/Quynh Nguyen/	Date Considered	03/14/2007

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

CLT01/4713474v1

Substitute for form 1449/PTO
(Revised 04/2003)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 2

Complete if Known	
Application Number	To be assigned
Filing Date	Concurrently herewith
First Named Inventor	Ahti Muhonen et al.
Group Art Unit	To be assigned
Examiner Name	To be assigned
Attorney Docket Number	042933/269767

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document Number Number - Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages of Relevant Figures Appear
/QN/	1	US-2002/0021809A1(Pub.)	02-21-2002	Salo et al.	
/QN/	2	US-2002/0023264A1(Pub.)	02-21-2002	Aaltonen et al.	
/QN/	3	US-2002/0069406A1(Pub.)	06-06-2002	Aaltonen et al.	
/QN/	4	US-2002/0087997A1(Pub.)	07-04-2002	Dahlstrom	
/QN/	5	US-2003/0084177A1(Pub.)	05-01-2003	Mulligan	
/QN/	6	US2003/0104801A1(Pub.)	06-05-2003	Koulakiotis	
/QN/	7	US-2003/0134653A1(Pub.)	07-17-2003	Sarkkinen et al.	
/QN/	8	US-2003/0174645A1(Pub.)	09-18-2003	Paratainen et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Country Code - Number Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	English Language Translation Attached
/QN/	9	EP 1130 459 A2	09-12-2001	Nokia Corporation		
/QN/	10	WO 03/001755 A1	01-03-2003	Nokia Corporation		
/QN/	11	WO 01/45319 A1	06-21-2001	Telefonaktiebolaget LM Ericson		

Examiner Signature	/Quynh Nguyen/	Date Considered	03/14/2007

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449/PTO (Revised 04/2003)	Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	To be assigned
	Filing Date	Concurrently herewith
	First Named Inventor	Ahti Muhonen et al.
	Group Art Unit	To be assigned
(Use as many sheets as necessary)	Examiner Name	To be assigned
Sheet 2 of 2	Attorney Docket Number	042933/269767

OTHER DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	English Language Translation Attached
/QN/	12	*3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Multimedia Broadcast/Multicast Service; Stage 1 (Release 6)*; 3 GPP TS 22.146; 03-2003; 17 pages; V6.2.0; 3rd Generation Partnership Project (3GPP™).	

Examiner Signature	/Quynh Nguyen/	Date Considered	03/14/2007

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

CLT01/4615020v1

Notice of References Cited	Application/Control No. 10/690,692	Applicant(s)/Patent Under Reexamination MUHONEN ET AL.	
	Examiner Quynh H. Nguyen	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2004/0213207	10-2004	Silver et al.	370/352
*	B	US-5,978,806	11-1999	Lund, Arnold M.	707/10
*	C	US-5,884,032	03-1999	Bateman et al.	709/204
*	D	US-5,450,482	09-1995	Chen et al.	379/230
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/690,692	MUHONEN ET AL.
Examiner	**Art Unit**
Quynh H. Nguyen	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date
Final	Original	3/19/07
	1	√
	2	√
	3	√
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Claim		Date
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Claim		Date
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination
	10/690,692	MUHONEN ET AL.
	Examiner	Art Unit
	Quynh H. Nguyen	2614

SEARCHED			
Class	Subclass	Date	Examiner
370	352	3/14/2007	QN
379	265.09 221.08 221.09 221.11 221.12	3/14/07	QN

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
Searched: East, USPGPub, USPAT	3/14/07	QN
Inventor searched through PALM database	3/14/07	QN

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United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Bib Data Sheet

CONFIRMATION NO. 6127

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/690,692	10/22/2003 RULE	370	2614	042933/269767

APPLICANTS

Ahti Muhonen, Hirvihaara, FINLAND;
Antti-Pentti Vainio, Espoo, FINLAND;
Ari Hannikainen, Turku, FINLAND;

** CONTINUING DATA **********

none QN

** FOREIGN APPLICATIONS **********

none QN

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 01/24/2004

Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☑ no 35 USC 119 (a-d) conditions met ☐ yes ☑ no ☐ Met after Allowance Verified and Acknowledged Quynh H. Nguyen (Examiner's Signature) QN (Initials)	FINLAND	5	24	4

ADDRESS
826

TITLE
System and associated terminal, method and computer program product for controlling the flow of content

FILING FEE RECEIVED		
928	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

PLUS Search Results for S/N 10690692, Searched Wed Jan 10 16:44:24 EST 2007

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

20050089022 99
20020023264 88
20030200328 88
20040234234 88
20040242203 88
20050043020 88
20050047426 88
20050086334 88
20050091683 88
20050097053 88
20050097624 88
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20050102385 88
20050129042 88
20050255886 88
20060072509 88
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5606548 74
5749053 74
5786776 74
5812968 74
5812949 74
5828650 74
5848106 74
5937421 74
5940759 74
5946357 74
5991642 74
6009331 74
6035200 74

Attorney's Docket No. 042933/269767 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re:	Ahti Muhonen et al.	Confirmation No.: 6127
Appl. No.:	10/690,692	Group Art Unit: 2666
Filed:	October 22, 2003	
For:	SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT	

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

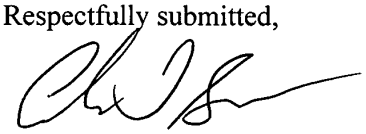
SUPPLEMENTAL CITATION UNDER 37 C.F.R. § 1.97

Attached is a Supplemental Form PTO-1449 listing several documents that were first cited in the International Search Report for the corresponding International Application Number PCT/IB2004/052139 not more than three months prior to the filing of this Statement In this regard, Applicant notes that the International Search Report was not received by any individual designated by 37 CFR 1.56(c) more than thirty (30) days prior to the filing of this Information Disclosure Statement.

The Search Report is enclosed along with any cited foreign patent documents and non-patent literature documents in accordance with 37 CFR 1.98(a)(2).

It is requested that the Examiner consider these documents and officially make them of record in accordance with the provisions of 37 C.F.R. § 1.97 and Section 609 of the MPEP. By identifying the listed documents, Applicant in no way makes any admission as to the prior art status of the listed documents, but is instead identifying the listed documents for the sake of full disclosure.

Respectfully submitted,



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Sarah B. Simmons

CLT01/4714546v1

Substitute for form 1449/PTO
(Revised 04/2003)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/690,692
Filing Date	October 22, 2003
First Named Inventor	Ahti Muhonen et al.
Group Art Unit	2666
Examiner Name	To be assigned
Attorney Docket Number	042933/269767

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document Number Number - Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages of Relevant Figures Appear
	13	US- 5,974,454 A	10-25-1999	Apfel et al.	
	14	US- 6,029,175 A	02-22-2000	Chow et al.	
	15	US-2002/062336 A1	05-23-2002	Toedosiu et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Country Code - Number Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	English Language Translation Attached

Examiner Signature		Date Considered	

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CLT01/4713474v1

UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b))	Attorney Docket No. 042933/269767
	First Inventor Ahti Muhonen et al.
	Title SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT
	Express Mail Label No. EV 331609214 US

ADDRESS TO: **MAIL STOP PATENT APPLICATION**
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

Transmitted herewith for filing in the United States Patent Office is a patent application for:

Inventors: Ahti Muhonen, Antti-Pentti Vainio, Ari Hännikäinen

Assignee of this invention is Nokia Corporation, Espoo, Finland.

1. ☒ The Filing Fee has been calculated as shown below:
2. ☐ Applicant claims Small Entity Status. See 37 CFR 1.27.

	No. Filed	No. Extra	Small Entity Rate	Small Entity Fee 0	Large Entity Rate	Large Entity Fee 1
BASIC FEE				$ 0		$ 770
TOTAL CLAIMS:	24 - 20 =	4	X 9 =	$ 0	x 18 =	$ 72
INDEP CLAIMS:	4 - 3 =	1	X 43 =	$ 0	x 86 =	$ 86
[☐]MULTIPLE DEPENDENT CLAIMS PRESENTED			+145 =	$	+290 =	$
*If the difference in Column 1 is less than zero, enter "0" in Column 2.			TOTAL	$	TOTAL	$ 928

The Commissioner is hereby authorized to credit overpayments or charge the following fees to Deposit Acct. No. 16-0605.

a. ☒ Fees required under 37 CFR 1.16 (National filing fees).
b. ☒ Fees required under 37 CFR 1.17 (National application processing fees) including any extension of time fees under 37 CFR § 1.136(a) that are required for consideration of papers filed during prosecution.

☒ A check in the amount of $ 928.00 for the filing fee is enclosed.

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3. ☒ Specification; Total Pages 29

4. ☒ 5 Sheets of Drawing(s) (35 USC 113)

5. ☒ Declaration and Power of Attorney; *[Total Pages 2]*
   a. ☒ Newly executed (original or copy)
   b. ☐ Copy from a prior application (37 CFR 1.63(d))
   (for continuation/divisional with Box 18 completed)
   i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) & 1.33(b).

6. ☐ Application Data Sheet. See 37 CFR 1.76

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)

8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
   a. ☐ Computer Readable Copy (CRF)
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   c. ☐ Specification Sequence Listing on:
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ACCOMPANYING APPLICATION PARTS

9. ☒ Assignment Papers (cover sheet & document(s) (including a check for the $40.00 fee)
10. ☐ 37 CFR 3.73(b) Statement *(when there is an assignee)*; ☐ Power of Attorney
11. ☐ English Translation Document *(if applicable)*
12. ☒ Information Disclosure Statement (IDS)/PTO-1449; 4 Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
    ☐ Foreign Priority is claimed as Application No. , filed
16. ☐ Nonpublication Request under 35 U.S.C. 122(b)(2)(B)(i). Applicant **must** attach form PTO/SB35 or its equivalent.
17. ☐ Request for Early Publication Under 37 CFR § 1.219. Fee of $300.00 is enclosed.
18. **If a CONTINUING APPLICATION**, *check appropriate box and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:*
    ☐ Continuation ☐ Divisional ☐ Continuation in Part (CIP)

    of prior Application No: ___; Filed

    Prior Application Information: Examiner Group/Art Unit:

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. **CORRESPONDENCE ADDRESS** **CUSTOMER NUMBER 00826**

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Sarah B. Simmons _____

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CLT01/4615956v1

UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b))	Attorney Docket No. 042933/269767
	First Inventor Ahti Muhonen et al.
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    ☐ Foreign Priority is claimed as Application No. , filed
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    ☐ Continuation ☐ Divisional ☐ Continuation in Part (CIP)

    of prior Application No: ___; Filed

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_____
Sarah B. Simmons
CLT01/4615956v1

SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT

FIELD OF THE INVENTION

The present invention generally relates to systems and methods for controlling the flow of content and, more particularly, to systems and associated terminals, methods and computer program products for controlling the flow of content in terminals operable with mobile telecommunication and digital broadcast networks.

BACKGROUND OF THE INVENTION

The deployment of advanced high bit-rate mobile networks has opened up new opportunities for delivering a host of services in a way that was not possible with earlier second generation wireless networks. Recent systems including third generation (3G) systems, such as those specified for use with the Global System for Mobile Communications (GSM) wireless standard, enable the delivery of new digital services such as video calls and the playback of multimedia applications that are comprised of audio and video clips. Although the increased bit rates of 3G systems widen the possibilities for providing digital services.

The increased bit rates of 3G systems provide adequate performance for delivering high quality digital audio and acceptable quality moving image clips. However, at these transfer rates it may be difficult to handle exceedingly high data intensive tasks such as delivering high quality full-motion video and transferring very large data files to mobile terminals. In this regard, attempts at downloading large data files may lead to inconveniently long downloading times that can be undesirably costly for users. For this and other reasons, alternative broadband delivery techniques have

been investigated that could provide a practical solution for high data intensive tasks in terms of lower cost and convenience for the users involved.

One such delivery technique that has shown promise is Digital Video Broadcasting (DVB). In this regard, DVB-T, which is related to DVB-H (handheld), DVB-C (cable) and DVB-S (satellite), is the terrestrial variant of the DVB standard. As is well known, DVB-T is a wireless point-to-multipoint data delivery mechanism developed for digital TV broadcasting, and is based on the MPEG-2 transport stream for the transmission of video and synchronized audio. DVB-T has the capability of efficiently transmitting large amounts of data over a broadcast channel to a high number of users at a lower cost, when compared to data transmission through mobile telecommunication networks using, e.g., 3G systems. Advantageously, DVB-T has also proven to be exceptionally robust in that it provides increased performance in geographic conditions that would normally affect other types of transmissions, such as the rapid changes of reception conditions, and hilly and mountainous terrain.

Digital broadband data broadcast networks are known. As mentioned, an example of such a network enjoying popularity in Europe and elsewhere world-wide is DVB which, in addition to the delivery of television content, is capable of delivering data, such as Internet Protocol (IP) data. Other examples of broadband data broadcast networks include Japanese Terrestrial Integrated Service Digital Broadcasting (ISDB-T), Digital Audio Broadcasting (DAB), and MBMS, and those networks provided by the Advanced Television Systems Committee (ATSC). In many such networks, a containerization technique is utilized in which content for transmission is placed into MPEG-2 packets which act as data containers. Thus, the containers can be utilized to transport any suitably digitized data including, but not limited to High Definition TV, multiple channel Standard definition TV (PAUNTSC or SECAM) and, of course, broadband multimedia data and interactive services.

The combined use of mobile telecommunications with a broadband delivery technique such as DVB-T has been proposed in the past in order to achieve efficient delivery of digital services to users on the move. This would take advantage of existing infrastructures in the effort to provide personal communications (already prevalent) and the growing demand for Internet access, together with the expected rise of digital

broadcasting, so that users can receive these services with a single device. Furthermore, DVB-T is a cross platform standard that is shared by many countries thereby making frequency compatibility and roaming less of an issue. The combination of mobile telecommunication and relatively very low cost digital broadband delivery techniques provides the possibility of interactive services such as uni-directional and bi-directional services such as audio and video streaming (e.g., TV, radio, etc.), file downloads and advanced gaming applications, etc.

In mobile terminals for combined use of mobile telecommunications and digital broadband data broadcast techniques, mobile terminals typically download content in accordance with a "pull" technique. In this regard, mobile terminals typically pull content from a server, such as by dispatching a uniform resource indicator (URI) from a mobile terminal to a server, which responds by providing information associated with the URI. Although mobile terminals typically download content in accordance with a pull technique, the server or content provider must typically have control over the content flow policy to the mobile terminal. For example, the server or content provider must typically have control over when pieces of content expire and are removed from the mobile terminal, when to deliver new pieces of content to the mobile terminal, what new pieces of content to deliver, etc.

As will be appreciated, in various instances, user preferences, capabilities of the mobile terminal and/or previous contents stored or otherwise received by the mobile terminal can have an affect on the flow of new content to the mobile terminal. Current techniques for downloading content from mobile terminals, however, do not provide for such user preferences, capabilities, previous contents and/or use of previous contents. Thus, current techniques for downloading content can suffer from inefficient content flow control between the mobile terminal and the server or content provider. More particularly, current techniques for downloading content can suffer from inefficient control of content received and thereafter stored by mobile terminals, as well as inefficient control of content stored by mobile terminals.

SUMMARY OF THE INVENTION

In light of the foregoing background, embodiments of the present invention provide an improved system and associated terminal, method and computer program product for controlling the flow of content, particularly to mobile terminals that are operable with mobile telecommunication and digital broadcast networks. To facilitate control of the flow of content in accordance with embodiments of the present invention, a terminal is capable of sending a content request that includes terminal status information. A network entity, such as a digital broadcast receiver, can then control the flow of content to the terminal based upon the terminal status information. Advantageously, the terminal status information can include information regarding the terminal that accounts for user preferences, capabilities of the terminal and/or previous contents stored by the terminal. Thus, in contrast to conventional techniques for downloading content to a terminal, the network entity can control the flow of content to the terminal based upon information that accounts for user preferences, capabilities of the terminal and/or previous contents stored by the terminal.

According to one aspect of the present invention, a system is provided for controlling a flow of content. The system includes a terminal and a network entity. The terminal is capable of sending a content status including terminal status information having a listing of one or more pieces of content stored in a memory of the terminal. The network entity (e.g., content flow server, origin server, digital broadcast receiver, etc.) includes a content flow manager that is capable of receiving the terminal status information. Then, based upon the terminal status information, the content flow manager can control the flow of content to the terminal. More particularly, for example, the content flow manager can be capable of controlling the terminal to delete at least one piece of content from a memory of the terminal, and/or download at least one piece of content from a source of content (e.g., an origin server, digital broadcast receiver, etc.).

With the listing of one or more pieces of content stored in the memory of the terminal in the terminal status information, the control flow manager can be capable of instructing the terminal to delete one or more pieces of content from the memory of the terminal based upon the listing of the piece(s) of content stored in the memory of the terminal. Similarly, the control flow manager can be capable of controlling the terminal

to download one or more pieces of content from the source of content based upon server status information including a listing of available piece(s) of content from the source.

More particularly, the control flow manager can be capable of determining if the memory of the terminal includes at least one piece of content to delete. Then, when the control flow manager determines that the memory of the terminal includes piece(s) of content to delete, the control flow manager can be capable of sending a response to the terminal instructing the terminal to delete at least one piece of content. Additionally, or alternatively, the control flow manager can be capable of determining if the source of content includes at least one available piece of content for the terminal to download. In such instances, the control flow manager can be capable of sending a response to the terminal instructing the terminal to download at least one available piece of content when the control flow manager determines that the source includes available piece(s) of content for the terminal to download.

According to other aspects of the present invention, a terminal, method and computer program product are provided for controlling the flow of content. Therefore, embodiments of the present invention provide a system and associated terminal, method and computer program product for controlling the flow of content. The system and associated terminal, method and computer program product of embodiments of the present invention are capable of controlling the flow of content based upon terminal status information from the terminal, where the terminal status information includes information regarding the terminal. Advantageously, the terminal status information can include information reflecting user preferences, capabilities of the terminal, previous contents stored by the terminal, and/or the use of such previous contents. Therefore, the system, and associated terminal, method and computer program product of embodiments of the present invention solve the problems identified by prior techniques and provide additional advantages.

BRIEF DESCRIPTION OF THE DRAWINGS

Having thus described the invention in general terms, reference will now be made to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

FIG. 1 is a schematic block diagram of a wireless communications system according to one embodiment of the present invention including a cellular network and a data network to which a terminal is bi-directionally coupled through wireless RF links;

FIG. 2 is a schematic block diagram of an entity capable of operating as a terminal, origin server, digital broadcast receiver and/or a digital broadcaster, in accordance with embodiments of the present invention;

FIG. 3 is a functional block diagram of a digital broadcast receiver, in accordance with one embodiment of the present invention;

FIG. 4 is a functional block diagram of the digital broadcaster, in accordance with one embodiment of the present invention;

FIG. 5 is a schematic block diagram of a mobile station that may operate as a terminal, according to embodiments of the present invention; and

FIG. 6 is a flowchart of a method of controlling the flow of content in accordance with one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention now will be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. Like numbers refer to like elements throughout.

Referring to FIG. 1, an illustration of one type of terminal and system that would benefit from the present invention is provided. The system, method and computer program product of embodiments of the present invention will be primarily described in conjunction with mobile communications applications. It should be understood, however, that the system, method and computer program product of embodiments of the present invention can be utilized in conjunction with a variety of other applications, both in the mobile communications industries and outside of the mobile communications industries. For example, the system, method and computer program product of

embodiments of the present invention can be utilized in conjunction with wireline and/or wireless network (e.g., Internet) applications.

As shown, a terminal **10** may include an antenna **12** for transmitting signals to and for receiving signals from a base site or base station (BS) **14**. The base station is a part of a cellular network that includes elements required to operate the network, such as a mobile switching center (MSC) **16**. As well known to those skilled in the art, the cellular network may also be referred to as a Base Station/MSC/Interworking function (BMI). In operation, the MSC is capable of routing calls and messages to and from the terminal when the terminal is making and receiving calls. The MSC also provides a connection to landline trunks when the terminal is involved in a call. Further, the MSC can be coupled to a server gateway (GTW) **20**.

The MSC **16** can be coupled to a data network, such as a local area network (LAN), a metropolitan area network (MAN), and/or a wide area network (WAN). The MSC can be directly coupled to the data network. In one typical embodiment, however, the MSC is coupled to a GTW **20**, and the GTW is coupled to a WAN, such as the Internet **22**. In turn, devices such as processing elements (e.g., personal computers, server computers or the like) can be coupled to the terminal **10** via the Internet. For example, the processing elements can include one or more processing elements associated with an origin server **24**, one of which is illustrated in FIG. 1. As explained below, the processing elements can additionally or alternatively include a content flow server **25** capable of operating a content flow manager to control the flow of content to the terminal.

In addition to the MSC **16**, the BS **14** can be coupled to a signaling GPRS (General Packet Radio Service) support node (SGSN) **27**. As known to those skilled in the art, the SGSN is typically capable of performing functions similar to the MSC **16** for packet switched services. The SGSN, like the MSC, can be coupled to a data network, such as the Internet **22**. The SGSN can be directly coupled to the data network. In a more typical embodiment, however, the SGSN is coupled to a packet-switched core network, such as a GPRS core network **33**. The packet-switched core network is then coupled to another GTW, such as a GTW GPRS support node (GGSN) **29**, and the

GGSN is coupled to the Internet. In addition to the GGSN, the packet-switched core network can also be coupled to a GTW **20**.

By coupling the SGSN **27** to the GPRS core network **33** and the GGSN **29**, devices such as origin servers **24** and/or the content flow server **25** can be coupled to the terminal **10** via the Internet **22**, SGSN and GGSN. In this regard, devices such as origin servers can communicate with the terminal across the SGSN, GPRS and GGSN. For example, origin servers can provide content to the terminal, such as in accordance with the Multimedia Broadcast Multicast Service (MBMS). For more information on the MBMS, see Third Generation Partnership Project (3GPP) technical specification 3GPP TS 22.146, entitled: *Multimedia Broadcast Multicast Service (MBMS)*, the contents of which are hereby incorporated by reference in its entirety.

In addition to being coupled to the BS **14**, the terminal **10** one or more wireless access points (APs) **26**. The APs can comprise access points configured to communicate in accordance techniques such as, for example, radio frequency (RF), Bluetooth (BT), infrared (IrDA) or any of a number of different wireless networking techniques, including WLAN techniques. The APs may be coupled to the Internet **22**. Like with the MSC **16**, the APs can be directly coupled to the Internet. In one advantageous embodiment, however, the APs are indirectly coupled to the Internet via a GTW **20**. As will be appreciated, by directly or indirectly connecting the terminals and the origin server **24**, as well as any of a number of other devices, to the Internet, the terminals can communicate with one another, the origin server, etc., to thereby carry out various functions of the terminal, such as to transmit data, content or the like to, and/or receive content, data or the like from, the origin server. As used herein, the terms "data," "content," "information" and similar terms may be used to interchangeably to refer to data capable of being transmitted, received and/or stored in accordance with embodiments of the present invention. Thus, use of any such terms should not be taken to limit the spirit and scope of the present invention.

Further, the terminal **10** can additionally, or alternatively, be coupled to a digital broadcaster **30** via a digital broadcast network, such as a terrestrial digital video broadcasting (e.g., DVB-T, DVB-H, ISDB-T, ATSC, etc.) network. As will be appreciated, by directly or indirectly connecting the terminals and the digital broadcaster,

the terminals can receive content, such as content for one or more television, radio and/or data channels, from the digital broadcaster. In this regard, the digital broadcaster can include, or be coupled to, a transmitter (TX) **31**, such as a DVB-T TX. Similarly, the terminal can include a receiver, such as a DVB-T receiver (not shown). The terminal can be capable of receiving content from any of a number of different entities in any one or more of a different number of manners. In one embodiment, for example, the terminal can comprise a terminal **10'** capable of transmitting and/or receiving data, content or the like in accordance with a DVB (e.g., DVB-T, DVB-H, etc.) technique as well as a cellular (e.g., 1G, 2G, 2.5G, 3G, etc.) communication technique. In such an embodiment, the terminal **10'** may include an antenna **12A** for receiving content from the DVB-T TX, and another antenna **12B** for transmitting signals to and for receiving signals from a BS **14**. For more information on such a terminal, see U.S. Patent Application No. 09/894,532, entitled: *Receiver*, filed June 29, 2001, the contents of which is incorporated herein by reference in its entirety.

In addition to, or in lieu of, directly coupling the terminal **10** to the digital broadcaster **34** via the TX **31**, the terminal can be coupled to a digital broadcast (DB) receiving terminal **28** which, in turn, can be coupled to the digital broadcaster **30**, such as directly and/or via the TX. In such instances, the digital broadcast receiver can comprise a DVB-T receiver, such as a DVB-T receiver in the form of a set top box. The terminal can be locally coupled to the digital broadcast receiver, such as via a personal area network. In one advantageous embodiment, however, the terminal can additionally or alternatively be indirectly coupled to the digital broadcast receiver via the Internet **22**.

Referring now to FIG. 2, a block diagram of an entity capable of operating as a terminal **10**, origin server **24**, content flow server **25**, digital broadcast receiver **28**, and/or a digital broadcaster **30** is shown in accordance with one embodiment of the present invention. Although shown as separate entities, in some embodiments, one or more entities may support one or more of a terminal, origin server, digital broadcast receiver, and/or a digital broadcaster, logically separated but co-located within the entit(ies). For example, a single entity may support a logically separate, but co-located, terminal and digital broadcast receiver. Also, for example, a single entity may support a logically separate, but co-located digital broadcast receiver and digital broadcaster.

As shown, the entity capable of operating as a terminal **10**, origin server **24**, content flow server **25**, digital broadcast receiver **28**, and/or a digital broadcaster **30** can generally include a processor **32** connected to a memory **34**. The processor can also be connected to at least one interface **36** or other means for transmitting and/or receiving data, content or the like. The memory can comprise volatile and/or non-volatile memory, and typically stores content, data or the like. For example, the memory typically stores software applications, instructions or the like for the processor to perform steps associated with operation of the entity in accordance with embodiments of the present invention. Also, for example, the memory typically stores content transmitted from, or received by, the terminal, digital broadcast receiver, and/or digital broadcaster.

Reference is now made to FIG. 3, which illustrates a functional block diagram of a digital broadcast receiver **28**, in accordance with one embodiment of the present invention. As shown, the digital broadcast receiver includes an antenna **40** for receiving signals from a digital broadcaster **30** and feeding the signals into a receiver (RX) **42**. In turn, the receiver is capable of decrypting, demodulating and/or demultiplexing the signals, such as to extract content data. The receiver can feed the content data to a processor **44**, which can thereafter decode the content data. The processor can then feed the decoded signal into an audio/video (A/V) interface **46**, which can convert signals to a form suitable for display by a monitor, such as a television set **48**.

The digital broadcast receiver **28** can include volatile memory **50**, such as volatile Random Access Memory (RAM) including a cache area for the temporary storage of data. The digital broadcast receiver can also include non-volatile memory **52**, which can be embedded and/or may be removable. The non-volatile memory can additionally or alternatively comprise an EEPROM, flash memory, hard disk or the like. The memories can store any of a number of pieces of information, content and data, used by the digital broadcast receiver to implement the functions of the digital broadcast receiver. For example, as indicated above, the memories can store content, such as that received from a digital broadcaster **30**. As explained below, the memories can also store a content flow manager **53** capable of controlling storage of content by the digital broadcast receiver and/or a terminal **10**.

The digital broadcast receiver **28** can also include one or more interface means for sharing and/or obtaining data from electronic devices, such as terminals **10** and/or digital broadcasters **30**. More particularly, the digital broadcast receiver can include a network interface means **54**, for sharing and/or obtaining data from a network, such as the Internet **22** and/or the DVB-T **31**. For example, the digital broadcast receiver can include an Ethernet Personal Computer Memory Card International Association (PCMCIA) card configured to transmit and/or receive data to and from a network, such as the Internet.

The digital broadcast receiver **28** can also include one or more local interface means **56** for locally sharing and/or obtaining data from electronic devices, such as a terminal. For example, the digital broadcast receiver can include a radio frequency transceiver and/or an infrared (IR) transceiver so that data can be shared with and/or obtained in accordance with radio frequency and/or infrared transfer techniques. Additionally, or alternatively, for example, the digital broadcast receiver can include a Bluetooth (BT) transceiver operating using Bluetooth brand wireless technology developed by the Bluetooth Special Interest Group such that the digital broadcast receiver can share and/or obtain data in accordance with Bluetooth transfer techniques. Further, the digital broadcast receiver can additionally or alternatively be capable of sharing and/or obtaining data in accordance with any of a number of different wireline and/or wireless networking techniques, including LAN and/or WLAN techniques.

Reference is now made to FIG. 4, which illustrates a functional block diagram of the digital broadcaster **30** of one embodiment of the present invention. Like the digital broadcast receiver **28**, the digital broadcaster can include volatile memory **60**, such as volatile Random Access Memory (RAM) including a cache area for the temporary storage of data. The digital broadcaster can also include non-volatile memory **62**, which can be embedded and/or may be removable. The non-volatile memory can additionally or alternatively comprise an EEPROM, flash memory or the like. The memories can store any of a number of pieces of information, content and data, used by the digital broadcaster to implement the functions of the digital broadcaster. For example, as indicated above, the memories can store content, such as content for a television channel and other content for a number of other television, radio and/or data channels.

The digital broadcaster **30** can also include a multiplexer **64**, which can be capable of multiplexing content for a number of television, radio and/or data channels. The multiplexer can then feed the resulting signal into a TX **31**, which can be separate from the digital broadcaster, as shown in FIG. 1, or incorporated within the digital broadcaster, as shown in FIG. 4. Irrespective of where the TX is located relative to the digital broadcaster, the TX can receive the signal from the multiplexer for encryption, modulation, amplification and/or transmission, such as via an antenna **68**. In this regard, for example, the digital broadcaster can be capable of directly or indirectly transmitting content to a digital broadcast receiver **28** and/or a terminal **10**, such as in accordance with a digital broadcasting technique, such as DVB-T. For information on DVB-T, see European Telecommunications Standards Institute (ETSI) Standard EN 300 744, entitled: *Digital Video Broadcasting (DVB): Framing structure, channel coding and modulation for digital terrestrial television*, v.1.1.2 (1997) and related specifications, the contents of which are hereby incorporated by reference in their entirety.

In accordance with a number of digital broadcasting techniques, such as DVB-T, Internet Protocol (IP) Datacast (IPDC) can be utilized to provide audio, video and/or other content to terminals **10**. In this regard, the digital broadcaster **30** can be capable of providing IP datacasting content to the terminal utilizing a digital broadcasting technique. As will be appreciated by those skilled in the art, digital broadcasting techniques such as DVB-T are essentially cellular in nature with a transmission site associated with each of a number of different cells. DVB-T, for example, uses MPEG-2 transport streams, and as such, IP data can be encapsulated into DVB transmission signals sent from the digital broadcaster, or more particularly the TX **31**. Data streams including IP datagrams can be supplied from several sources, and can be encapsulated by an IP encapsulator (not shown). The IP encapsulator, in turn, can feed the encapsulated IP data streams into the data broadcasting (e.g., DVB-T) network.

The encapsulated IP data streams can then be transported to one or more transmission sites, where the transmission sites form cells of the data broadcasting network. For example, the encapsulated IP data streams can be transported to one or more transmission sites on an MPEG-2 transport stream for subsequent transmission over the air directly to the terminals, or to a receiver station serving one or more terminals. As

will be appreciated, the MPEG-2 transport stream, from production by the IP encapsulator, to reception by the terminals or the receiver station, is typically uni-directional in nature. In this regard, IP packets containing the data can be embedded in multi-protocol encapsulation (MPE) sections that are transported within transport stream packets.

In addition to the IP packets, the MPE sections can also include forward error correction (FEC) information and time slicing information. By including information such as time slicing information, data can be conveyed discontinuously with the receiver (e.g., terminal **10**), being capable of saving battery power by switching off when no data is being transmitted to the receiver. In other terms, in accordance with one time slicing technique, instead of using the current default method of continuous digital broadcasting (e.g., DVB-T) transmission, a time division multiplex-type of allocation technique can be employed (see, e.g., DVB-H standard). With such an approach, then, services can be provided in bursts, allowing a receiver to power down when the receiver is not receiving data, and allowing the receiver to power up to receive data packets, as necessary.

FIG. 5 illustrates a functional diagram of a mobile station that may operate as a terminal **10**, according to embodiments of the invention. It should be understood, that the mobile station illustrated and hereinafter described is merely illustrative of one type of terminal that would benefit from the present invention and, therefore, should not be taken to limit the scope of the present invention. While several embodiments of the mobile station are illustrated and will be hereinafter described for purposes of example, other types of mobile stations, such as portable digital assistants (PDAs), pagers, laptop computers and other types of voice and text communications systems, can readily employ the present invention.

The mobile station includes a transmitter **70**, a receiver **72**, and a controller **74** that provides signals to and receives signals from the transmitter and receiver, respectively. These signals include signaling information in accordance with the air interface standard of the applicable cellular system, and also user speech and/or user generated data. In this regard, the mobile station can be capable of operating with one or more air interface standards, communication protocols, modulation types, and access types. More particularly, the mobile station can be capable of operating in accordance

with any of a number of first-generation (1G), second-generation (2G), 2.5G and/or third-generation (3G) communication protocols or the like. For example, the mobile station may be capable of operating in accordance with 2G wireless communication protocols IS-136 (TDMA), GSM, and IS-95 (CDMA). The mobile station can additionally or alternatively be capable of operating in accordance with any of a number of different digital broadcasting techniques, such as the DVB technique (e.g., DVB-T, ETSI Standard EN 300 744). The mobile station can also be capable of operating in accordance with any of a number of different broadcast and/or multicast techniques, such as the MBMS technique (e.g., 3GPP TS 22.146). Further, the mobile station can be capable of operating in accordance with ISDB-T, DAB, ATSC techniques or the like. Some narrow-band AMPS (NAMPS), as well as TACS, mobile stations may also benefit from embodiments of the present invention, as should dual or higher mode mobile stations (e.g., digital/analog or TDMA/CDMA/analog phones).

It is understood that the controller **74** includes the circuitry required for implementing the audio and logic functions of the mobile station. For example, the controller may be comprised of a digital signal processor device, a microprocessor device, and various analog to digital converters, digital to analog converters, and other support circuits. The control and signal processing functions of the mobile station are allocated between these devices according to their respective capabilities. The controller thus also includes the functionality to convolutionally encode and interleave message and data prior to modulation and transmission. The controller can additionally include an internal voice coder (VC) **74A**, and may include an internal data modem (DM) **74B**. Further, the controller may include the functionally to operate one or more software applications, which may be stored in memory.

The mobile station also comprises a user interface including a conventional earphone or speaker **76**, a ringer **78**, a microphone **80**, a display **82**, and a user input interface, all of which are coupled to the controller **74**. The user input interface, which allows the mobile station to receive data, can comprise any of a number of devices allowing the mobile station to receive data, such as a keypad **84**, a touch display (not shown) or other input device. In embodiments including a keypad, the keypad includes

the conventional numeric (0-9) and related keys (#,), and other keys used for operating the mobile station.

The mobile station can also include one or more means for sharing and/or obtaining data from electronic devices, such as another terminal **10**, an origin server **24**, an AP **26**, a digital broadcast receiver **28**, a digital broadcaster **30** or the like, in accordance with any of a number of different wireline and/or wireless techniques. For example, the mobile station can include a radio frequency (RF) transceiver **86** and/or an infrared (IR) transceiver **88** such that the mobile station can share and/or obtain data in accordance with radio frequency and/or infrared techniques. Also, for example, the mobile station can include a Bluetooth (BT) transceiver **90** such that the mobile station can share and/or obtain data in accordance with Bluetooth transfer techniques. Although not shown, the mobile station may additionally or alternatively be capable of transmitting and/or receiving data from electronic devices according to a number of different wireline and/or wireless networking techniques, including LAN and/or WLAN techniques. In this regard, as shown in FIG. 1 with respect to terminal **10'**, the mobile station may include an additional antenna or the like to transmit and/or receive data from such electronic devices (e.g., digital broadcaster).

The mobile station can further include memory, such as a subscriber identity module (SIM) **92**, a removable user identity module (R-UIM) or the like, which typically stores information elements related to a mobile subscriber. In addition to the SIM, the mobile station can include other memory. In this regard, like the digital broadcast receiver **28** and the digital broadcaster **30**, the mobile station can include volatile memory **94**. Also, again like the digital broadcast receiver and the digital broadcaster, the mobile station can include other non-volatile memory **96**, which can be embedded and/or may be removable. The memories can store any of a number of pieces of information, and data, used by the mobile station to implement the functions of the mobile station. For example, the memories can store content, such as that received from an origin server **24** and/or a digital broadcast receiver. Also, for example, the memories can also store user or host applications such as a conventional Web browser for communicating in accordance with the hypertext transfer protocol (HTTP), a file transfer (e.g., FTP) application, a Telnet application, a peer-to-peer access application, or the like.

As explained in the background section, the terminal **10** typically downloads content in accordance with a pull technique, whereby the terminal receives content in response to a request for such content. And although user preferences, capabilities of the terminal and/or previous contents stored or otherwise received by the terminal can have an affect on the flow of content to the terminal, the digital broadband receiver **28** typically has control over content flow policy to the terminal. Current techniques for downloading content from terminals, however, do not provide for such user preferences, capabilities, previous contents and/or use of previous contents. Thus, current techniques for downloading content can suffer from inefficient control of content received and thereafter stored by terminals, as well as inefficient control of content stored by terminals.

To account for user preferences, capabilities of the terminal **10** and/or previous contents stored by the terminal in the flow of content to the terminal, the terminal of embodiments of the present invention is capable of sending a content status to a network entity, such as an origin server **24**, content flow server **25**, digital broadcast receiver **28** or the like, where the content status includes status information regarding the terminal. In this regard, the status information can reflect user preferences, capabilities of the terminal, previous contents stored by the terminal and/or use of such previous contents. The network entity can then control the flow of content to the terminal, as well as the storage of content in memory of the terminal, based upon the status information.

More particularly, to control the flow of content to the terminal **10**, a network entity, such as an origin server **24**, content flow server **25**, digital broadcast receiver **28** or the like, is capable of operating a content flow manager **53**. The content flow manager, in turn, can control the flow of content, or more particularly the downloading and storage of content, as well as the deletion of content, at the terminal based upon status information regarding the terminal, and if so desired, further based upon status information regarding a source of content, such as the digital broadcast receiver, an origin server **24** or the like. For example, the content flow manager can determine whether to offer an advertisement to a terminal based upon information including the use of similar previous content at the terminal (e.g., whether similar advertisements have previously been presented at the terminal). Additionally, or alternatively, the content flow manager

can control the flow of content to the terminal based, at least in part, upon status information available from the network entity operating the content flow manager or from another entity, such as the source of content to the terminal. In such instances, the status information can include, for example, available content, metadata of the available content, current time, and network capacity/load information.

As described herein, the content flow manager **53** typically comprises software capable of being stored within memory (e.g., non-volatile memory **52**), and operated by a processor (e.g., processor **44**), of a network entity, the digital broadcast receiver **28**, content flow server **25** or the like. It should be understood, however, that the content flow manager can alternatively comprise firmware or hardware, without departing from the spirit and scope of the present invention. As also described herein, the content flow manager is capable of controlling the flow of content. For example, the content flow manager can be capable of controlling the flow of content from one or more television, radio and/or data channels received from a digital broadcaster **30** in response to a subscription for content from one or more television, radio and/or data channels. Also, for example, the content flow manager can be capable of controlling the flow of content from one or more origin servers **24** in response to one or more requests for such content. In this regard, it should be understood that the content flow manager can be operated by any of a number of network entities to control the flow of content from any one or more of a number of content sources, whether the network entity operating content flow manager comprises, or is separate from, the content source(s).

Reference is now made to FIG. 6, which illustrates various steps in a method of controlling the flow of content in accordance with one embodiment of the present invention. As shown in block **100**, a method of controlling storage of content generally includes the terminal **10** downloading or otherwise receiving, at one or more points in time, one or more pieces of content from a content source, such as the origin server **24**, the digital broadcast receiver **28** or the like. Upon receipt of the piece(s) of content, then, the terminal can store the content, such as into non-volatile memory (e.g., memory **96**). Although not shown, in one typical embodiment, a user of the terminal can subscribe, such as with the digital broadcast receiver, to content from one or more television, radio and/or data channels, such as those capable of being provided by a digital broadcaster **30**.

In such instances, the content received at, and stored by, the terminal can include piece(s) of subscribed content.

After the terminal **10** has stored at least one piece of content, the terminal **10** can send, and the content flow manager **53** can receive, a content status at one or more points in time (e.g., periodically), as shown in block **102**. The content status can request any of a number of different pieces of content. In accordance with embodiments of the present invention, the content status includes terminal status information. As will be appreciated, the content status can be sent and received independent of a desire by the terminal **10** to receive, or the content source to send, content. It should also be appreciated, however, that the content status can be sent within, or otherwise associated with a request for subscribed content and/or updates to such content available from the source, such as the digital broadcast receiver **28**.

The status information in the content status can include any of a number of different pieces of information regarding the terminal **10** and the contents stored therein. For example, the status information can include information regarding the remaining storage capacity of the memory of the terminal. In addition, for example, the status information can include information regarding the pieces of content stored in memory, such as a listing of the pieces of content stored in memory, the time that the terminal received or otherwise downloaded each piece of content in memory, the time (if any) that the terminal utilized each piece of content in memory and/or the manner that the terminal utilized each respective piece of content in memory.

Upon receipt, the content flow manager **53** can be provided with the terminal status information. In addition to the terminal status information, the content flow manager can be provided with server status information regarding a source of content to the terminal **10**, and possibly the communication channel between the source and the terminal (via e.g., a direct communication channel, the Internet **22**, etc.). In this regard, in one embodiment, the source of content to the terminal comprises, or is associated with, the network entity operating the content flow manager. For example, the origin server **24**, digital broadcast receiver **28** or the like can comprise the source of content to the terminal and operate the content flow manager **53**. Alternatively, for example, the origin server, digital broadcast receiver or the like can comprise the source of content to the

terminal and be associated with another network entity, such as the content flow server **25**, which operates the content flow manager.

Irrespective of the source of content and network entity operating the content flow manager **53**, the server status information can include, for example, the current time, a listing of one or more pieces of content available from (e.g., stored by) the source of content to the terminal **10**. Additionally, for example, the server status information can include a type of each piece of content available from the source, where the type can identify, for example, content from one or more television, radio and/or data channels. Further, for example, the server status information can include capacity and/or load information regarding the communication channel between the source and the terminal.

After the content flow manager **53** has been provided with the terminal status information and the server status information, the content flow manager can determine if memory of the terminal **10** includes one or more pieces of content to delete, as shown in block **106**. The content flow manager can determine if memory of the terminal includes one or more pieces of content to delete in any of a number of different manners. For example, the content flow manager can compare the time that the terminal received or otherwise downloaded each piece of content in memory (from the terminal status information) with the current time (from the server status information). Based upon the comparison, then, the content flow manager can determine if the difference between the download time and the current time of each piece of content exceeds expiration time period to thereby identify one or more expired pieces of content. The content flow manager can then designate the expired piece(s) of content as the piece(s) of content to delete from memory of the terminal.

In addition to, or in lieu of, determining if memory of the terminal includes piece(s) of content to delete, the content flow manager **53** can determine if the source of content to the terminal **10** has one or more pieces of content available for download by the terminal, as shown in block **108**. Like determining piece(s) of content to delete from memory of the terminal, the content flow manager can determine if the source includes available piece(s) of content in any of a number of different manners. For example, as explained above, a user of the terminal can subscribe, such as with the digital broadcast receiver **28**, to content from one or more television, radio and/or data channels. In such

instances, the content flow manager can identify content in memory of the digital broadcast receiver from the subscribed television, radio and/or data channel(s) based upon a type associated with each piece of content in memory of the digital broadcast receiver (from the server status information). The content flow manager can then compare the piece(s) of content from the subscribed television, radio and/or data channel(s) with the listing of the pieces of content stored in memory of the terminal. Based upon the comparison, the control flow manager can determine those piece(s) of content (if any) available from (e.g., stored by) the digital broadcast receiver that are not already stored in memory of the terminal. The content flow manager can then designate those piece(s) of content as available piece(s) of content for the terminal to download from the digital broadcast receiver.

After determining if memory of the terminal **10** includes one or more pieces of content to delete, and/or if memory of the source of content to the terminal (e.g., origin server **24**, digital broadcast receiver **28**, etc.) includes one or more pieces of content for the terminal to download, the content flow manager can send a response to the terminal that instructs the terminal to delete one or more pieces of content to delete (if any), and/or to download one or more pieces of content available for download (if any), as shown in block **110**. Upon receipt of the response, if the response includes one or more pieces of content to delete, the terminal can delete such piece(s) of content from memory (e.g., non-volatile memory **96**), as shown in blocks **112** and **114**.

If the response includes one or more pieces of content for the terminal **10** to download, the terminal can download such piece(s) of content from the source of content (e.g., origin server **24**, digital broadcast receiver **28**, etc.), as shown in blocks **116** and **118**. The terminal can download such piece(s) of content in any of a number of different manners. For example, when the source comprises a digital broadcast receiver (e.g., DVB-T receiver), the terminal can download such piece(s) of content from the digital broadcast receiver in accordance with any of a number of different techniques for downloading content from a digital broadcast receiver. Upon downloading the content, as shown in block **120**, the terminal can store the content in memory (e.g., non-volatile memory **96**), such as for subsequent use by a user of the terminal.

As explained above, the content flow manager **53** can receive a content request including terminal status information, and in response, control the flow of content to the terminal **10**. In this regard, the content flow manager can cause the terminal to delete one or more pieces of content from memory of the terminal, and/or to download one or more pieces of content from a source of content. It should be understood, however, that the content flow manager need not cause the terminal to delete or download content in response to a content request. In this regard, in various instances, the content flow manager may determine that memory of the terminal does not include any pieces of content to delete. Likewise, the content flow manager may determine that the digital broadcast receiver does not have any pieces of content available for download by the terminal. In such instances, the content flow manager can send a response to the terminal instructing the terminal to neither delete nor download any pieces of content. Alternatively, the content flow manager can be configured to send a response only in instances in which the content flow manager determines that the memory of the terminal includes at least one piece of content to delete, or the digital broadcast receiver has at least one piece of content available for download. In the absence of a response, then, the terminal can be indirectly instructed to neither delete nor download any pieces of content in response to the content request.

According to one aspect of the present invention, all or a portion of the system of the present invention, such all or portions of the terminal **10**, origin server **24**, content flow server **25**, digital broadcast receiver **28**, and/or a digital broadcaster **30**, generally operates under control of a computer program product (e.g., content flow manager **53**). The computer program product for performing the methods of embodiments of the present invention includes a computer-readable storage medium, such as the non-volatile storage medium, and computer-readable program code portions, such as a series of computer instructions, embodied in the computer-readable storage medium.

In this regard, FIG. 6 is a flowchart of methods, systems and program products according to the invention. It will be understood that each block or step of the flowchart, and combinations of blocks in the flowchart, can be implemented by computer program instructions. These computer program instructions may be loaded onto a computer or other programmable apparatus to produce a machine, such that the instructions which

execute on the computer or other programmable apparatus create means for implementing the functions specified in the flowchart block(s) or step(s). These computer program instructions may also be stored in a computer-readable memory that can direct a computer or other programmable apparatus to function in a particular manner, such that the instructions stored in the computer-readable memory produce an article of manufacture including instruction means which implement the function specified in the flowchart block(s) or step(s). The computer program instructions may also be loaded onto a computer or other programmable apparatus to cause a series of operational steps to be performed on the computer or other programmable apparatus to produce a computer implemented process such that the instructions which execute on the computer or other programmable apparatus provide steps for implementing the functions specified in the flowchart block(s) or step(s).

Accordingly, blocks or steps of the flowchart supports combinations of means for performing the specified functions, combinations of steps for performing the specified functions and program instruction means for performing the specified functions. It will also be understood that each block or step of the flowchart, and combinations of blocks or steps in the flowchart, can be implemented by special purpose hardware-based computer systems which perform the specified functions or steps, or combinations of special purpose hardware and computer instructions.

Many modifications and other embodiments of the invention will come to mind to one skilled in the art to which this invention pertains having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the invention is not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

WHAT IS CLAIMED IS:

1. A system of controlling a flow of content, the system comprising:

a terminal capable of sending a content status including terminal status information; and

a network entity comprising a content flow manager capable of receiving the terminal status information and server status information regarding a source of content, wherein the server status information comprises a listing of at least one piece of content available from the source, and wherein the content flow manager is capable of controlling the flow of content to the terminal based upon the terminal status information and the server status information.

2. A system according to Claim 1, wherein the terminal comprises a memory, and wherein the control flow manager is capable of controlling the terminal to at least one of delete at least one piece of content from the memory of the terminal, and download at least one piece of content from the source.

3. A system according to Claim 2, wherein the terminal status information comprises a listing of at least one piece of content stored in the memory of the terminal, and wherein the control flow manager is capable of controlling the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

4. A system according to Claim 2, wherein the server status information comprises a listing of at least one piece of available content from the source, and wherein the control flow manager is capable of controlling the terminal to download at least one piece of content from the source based upon the listing of at least one available piece of content from the source.

5. A system according to Claim 2, wherein the control flow manager is capable of determining if the memory of the terminal includes at least one piece of content to delete, and wherein the control flow manager is capable of sending a response

to the terminal instructing the terminal to delete at least one piece of content when the control flow manager determines that the memory of the terminal includes at least one piece of content to delete.

6. A system according to Claim 5, wherein the control flow manager is further capable of determining if source includes at least one available piece of content for the terminal to download, and wherein the control flow manager is capable of sending a response to the terminal instructing the terminal to download at least one available piece of content when the control flow manager determines that the source includes at least one available piece of content for the terminal to download.

7. A terminal comprising:

a memory capable of storing at least one piece of content;

a controller capable of sending a content status including terminal status information comprising a listing of at least one piece of content stored in the memory, wherein the controller is capable of sending the content request such that a network entity can receive the terminal status inquiry and control a flow of content to the terminal based upon the terminal status information.

8. A terminal according to Claim 7, wherein the controller is capable of sending the content status such that the network entity can instruct the controller to at least one of delete at least one piece of content from the memory of the terminal, and download at least one piece of content from a source of content.

9. A terminal according to Claim 8, and wherein the controller is capable of sending the content status such that the network entity can instruct the controller to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

10. A terminal according to Claim 8, wherein the controller is capable of sending the content status such that the network entity can instruct the controller to

download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

11. A terminal according to Claim 8, wherein the controller is capable of sending the content status such that the network entity can determine if the memory of the terminal includes at least one piece of content to delete, and send a response to the terminal instructing the controller to delete at least one piece of content when the network entity determines that the memory of the terminal includes at least one piece of content to delete.

12. A terminal according to Claim 11, wherein the controller is capable of sending the content status such that the network entity can further determine if the source includes at least one available piece of content for the terminal to download, and sending the response further indicating if the source includes at least one available piece of content, and wherein the controller is further capable of downloading the at least one available piece of content when the network entity determines that the source includes at least one available piece of content.

13. A method for controlling a flow of content, the method comprising:

sending a content status including terminal status information comprising a listing of at least one piece of content stored in a memory of the terminal;

receiving the terminal status information; and

controlling the flow of content to the terminal based upon the terminal status information.

14. A method according to Claim 13, wherein controlling a flow of content comprises controlling the terminal to at least one of delete at least one piece of content from the memory of the terminal, and download at least one piece of content from a source of content.

15. A method according to Claim 14, and wherein controlling a flow of content comprises controlling the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

16. A method according to Claim 14, wherein controlling a flow of content comprises controlling the terminal to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

17. A method according to Claim 14, wherein controlling a flow of content comrpises:

determining if the memory of the terminal includes at least one piece of content to delete; and

sending a response to the terminal instructing the terminal to delete at least one piece of content when the the memory of the terminal is determined to include at least one piece of content to delete.

18. A method according to Claim 17, controlling a flow of content further comrpises:

determining if the source includes at least one available piece of content for the terminal to download,

wherein sending a response comprises sending a response to the terminal further instructing the terminal to download at least one available piece of content when the source is determined to include at least one available piece of content.

19. A computer program product for controlling a flow of content, the computer program product comprising a computer-readable storage medium having computer-readable program code portions stored therein, the computer-readable program code portions comprising:

a first executable portion for receiving a content status including terminal status information comprising a listing of at least one piece of content stored in a memory of the terminal; and

a second executable portion for controlling the flow of content to the terminal based upon the terminal status information.

20. A computer program product according to Claim 19, wherein the second executable portion is adapted to instruct the terminal to at least one of delete at least one piece of content from the memory of the terminal, and download at least one piece of content from a source of content.

21. A computer program product according to Claim 20, wherein the second executable portion is adapted to instruct the terminal to delete at least one piece of content from the memory of the terminal based upon the listing of at least one piece of content stored in the memory of the terminal.

22. A computer program product according to Claim 20, wherein the second executable portion is adapted to instruct the terminal to download at least one piece of content from the source based upon server status information comprising a listing of at least one available piece of content from the source.

23. A computer program product according to Claim 20, wherein the second executable portion is adapted to determine if the memory of the terminal includes at least one piece of content to delete, and send a response to the terminal instructing the terminal to delete at least one piece of content when the second executable portion determines the memory of the terminal includes at least one piece of content to delete.

24. A computer program product according to Claim 23, wherein the second executable poirtion is further adapted to determine if the source includes at least one available piece of content for the terminal to download, and wherein the second executable portion is adapted to send a response to the terminal further instructing the

terminal to download at least one available piece of content when the second executable portion determines the source includes at least one available piece of content.

5

SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT

ABSTRACT OF THE DISCLOSURE

A system for controlling a flow of content includes a terminal and a network entity. The terminal is capable of sending a content status including terminal status information having a listing of one or more pieces of content stored in a memory of the terminal. The network entity includes a content flow manager that is capable of receiving the terminal status information. Then, based upon the terminal status information, the content flow manager can control the flow of content to the terminal. More particuarly, for example, the content flow manager can be capable of controlling the terminal to delete at least one piece of content from a memory of the terminal, and/or download at least one piece of content from a source of content.

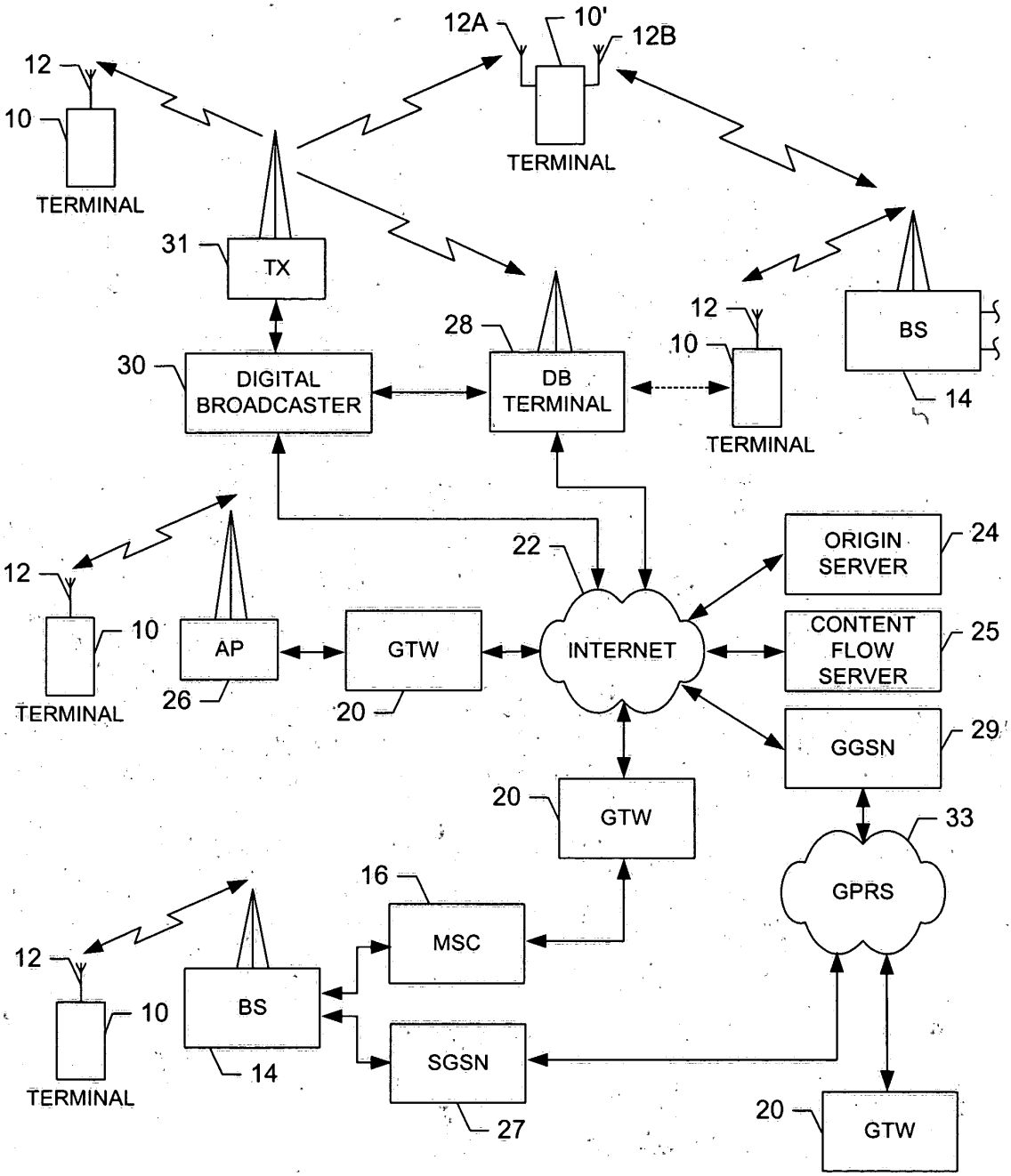
12A
10'
12B
12
10
TERMINAL
TERMINAL
31
TX
28
30
DIGITAL BROADCASTER
DB TERMINAL
12
10
TERMINAL
BS
14
12
10
TERMINAL
AP
26
GTW
20
22
INTERNET
ORIGIN SERVER
24
CONTENT FLOW SERVER
25
GGSN
29
20
GTW
33
GPRS
16
MSC
12
10
TERMINAL
BS
14
SGSN
27
20
GTW

FIG. 1.

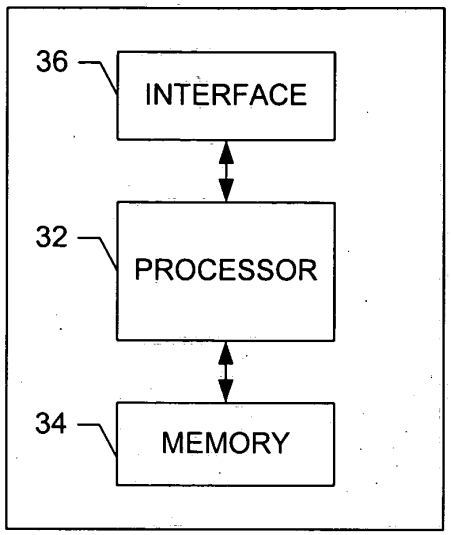
36
INTERFACE
32
PROCESSOR
34
MEMORY

FIG. 2.

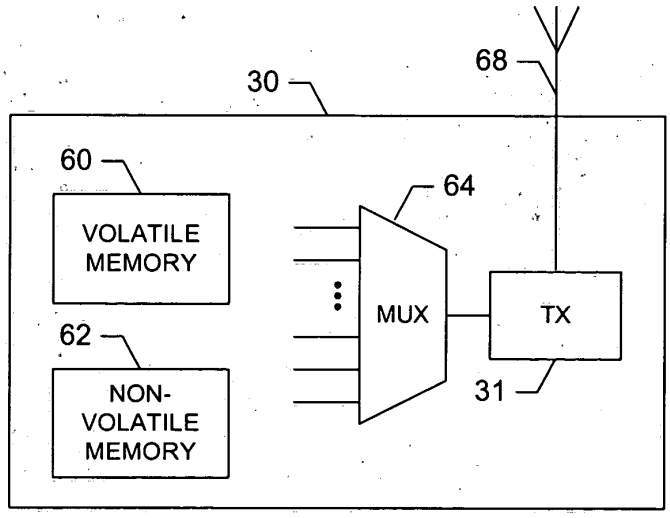
68
30
60
VOLATILE MEMORY
64
MUX
TX
62
NON-VOLATILE MEMORY
31

FIG. 4.

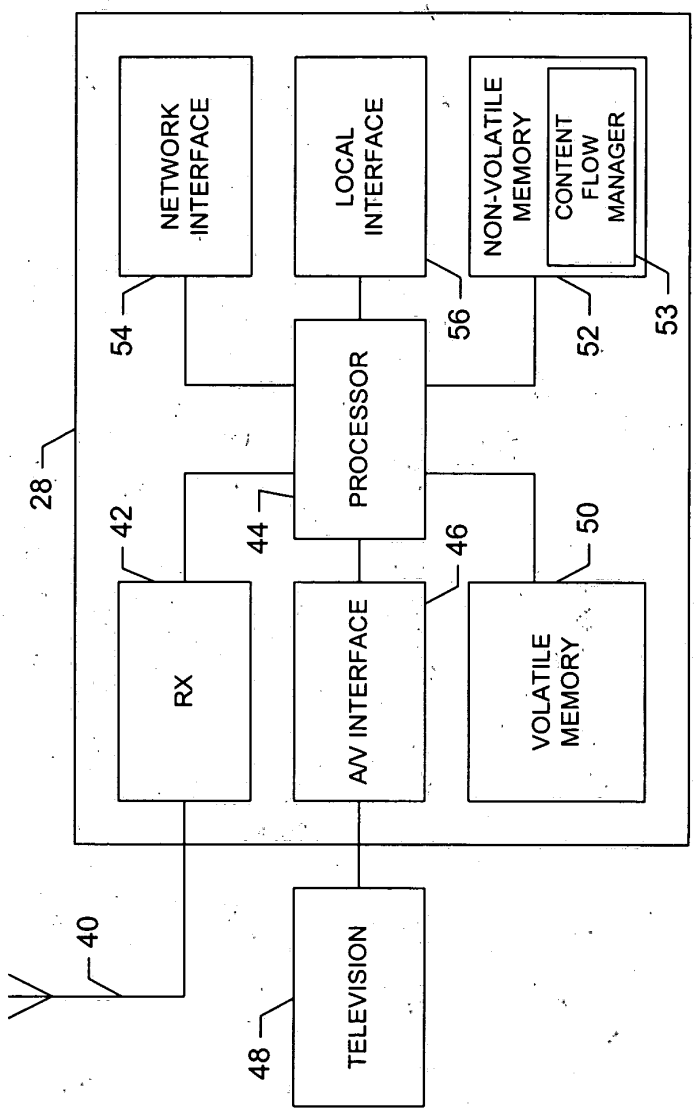
NETWORK INTERFACE
LOCAL INTERFACE
NON-VOLATILE MEMORY
CONTENT FLOW MANAGER
PROCESSOR
RX
A/V INTERFACE
VOLATILE MEMORY
TELEVISION
28
40
42
44
46
48
50
52
53
54
56

FIG. 3.

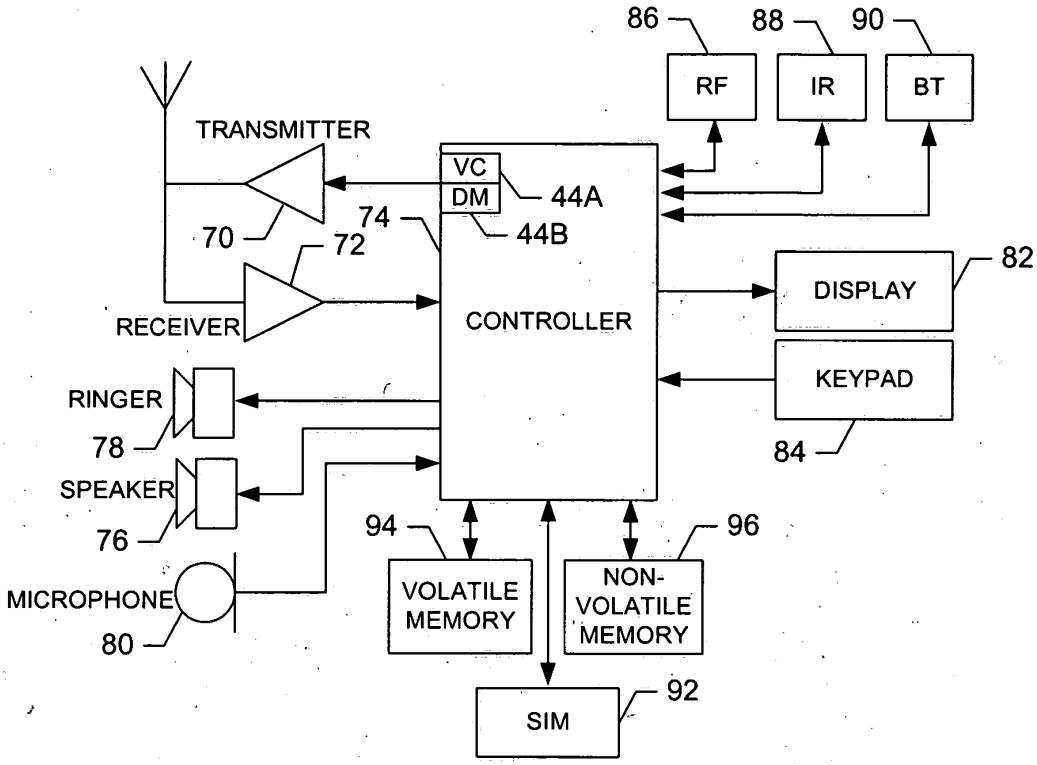
86
88
90
RF
IR
BT
TRANSMITTER
VC
DM
44A
74
44B
70
72
82
DISPLAY
RECEIVER
CONTROLLER
KEYPAD
RINGER
78
84
SPEAKER
76
94
96
MICROPHONE
VOLATILE MEMORY
NON-VOLATILE MEMORY
80
92
SIM

FIG. 5.

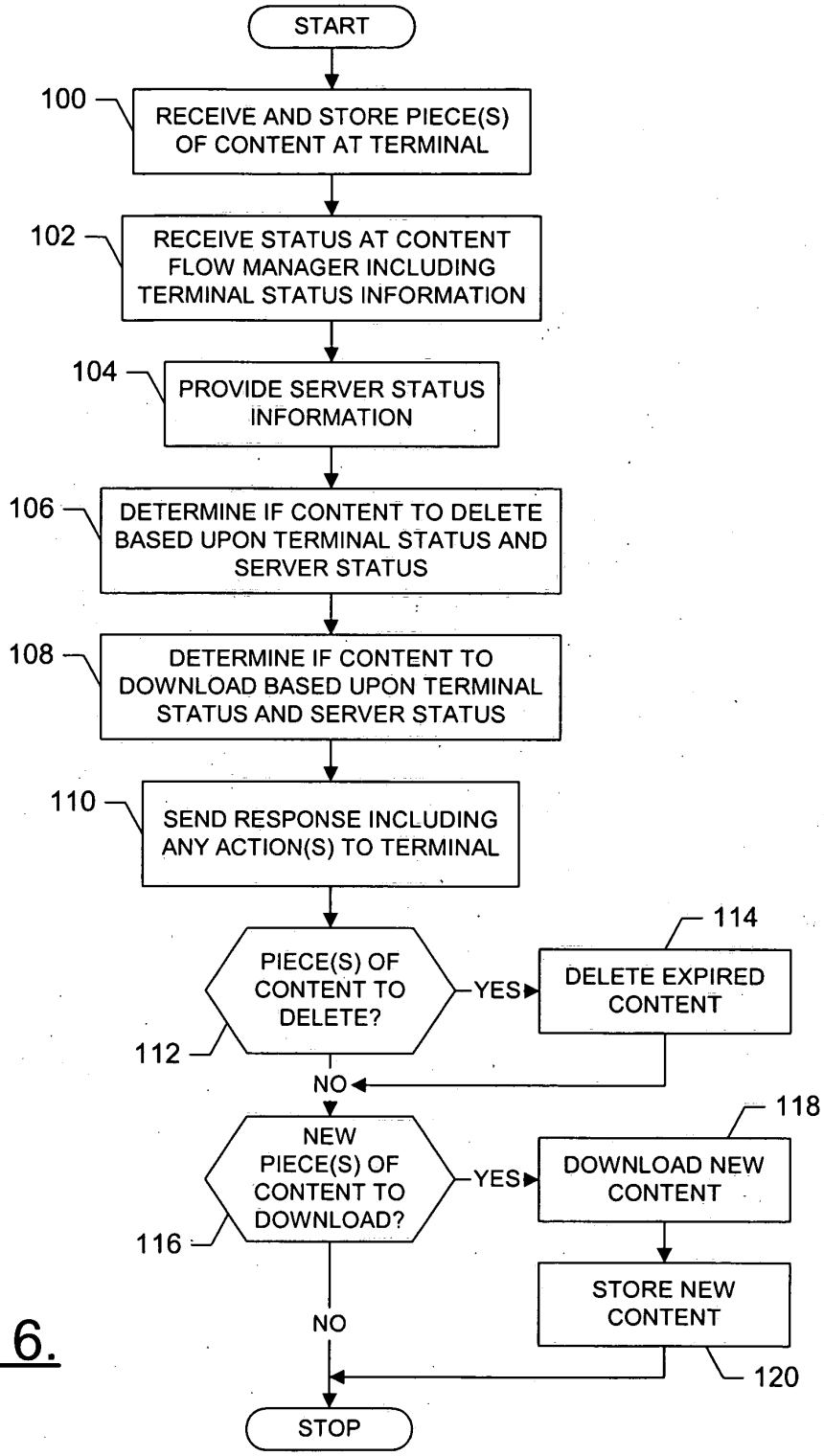
START
100
RECEIVE AND STORE PIECE(S) OF CONTENT AT TERMINAL
102
RECEIVE STATUS AT CONTENT FLOW MANAGER INCLUDING TERMINAL STATUS INFORMATION
104
PROVIDE SERVER STATUS INFORMATION
106
DETERMINE IF CONTENT TO DELETE BASED UPON TERMINAL STATUS AND SERVER STATUS
108
DETERMINE IF CONTENT TO DOWNLOAD BASED UPON TERMINAL STATUS AND SERVER STATUS
110
SEND RESPONSE INCLUDING ANY ACTION(S) TO TERMINAL
PIECE(S) OF CONTENT TO DELETE?
YES
114
DELETE EXPIRED CONTENT
112
NO
NEW PIECE(S) OF CONTENT TO DOWNLOAD?
YES
118
DOWNLOAD NEW CONTENT
116
STORE NEW CONTENT
NO
120
STOP

FIG. 6.

Attorney Docket No. 042933/269767

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, mailing address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT,

the specification of which
☒ is attached hereto
OR
☐ was filed on as United States Application No. or PCT International Application Number

and was amended on (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				Yes	No
			☐	☐	☐
			☐	☐	☐

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the practitioners associated with Nokia Corporation and with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and direct that all correspondence be addressed to that Customer Number:

Customer Number 00826, and

Wayne DeMello – Reg. No. 48,601
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Attorney's Docket No. 042933/269767 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Anti Muhonen et al.
Appl. No.: To be assigned
Filed: Concurrently herewith
For: SYSTEM AND ASSOCIATED TERMINAL, METHOD AND COMPUTER PROGRAM PRODUCT FOR CONTROLLING THE FLOW OF CONTENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT
CITATION UNDER 37 C.F.R. § 1.97

Sir:

Attached is a list of documents on form PTO-1449. In accordance with the Office waiver published July 11, 2003, copies of the cited U.S. patents and patent application publications are not enclosed. Applicant does enclose copies of any cited foreign patent documents and non-patent literature in accordance with 37 CFR 1.98(a)(2).

It is requested that the Examiner consider these documents and officially make them of record in accordance with the provisions of 37 C.F.R. § 1.97 and Section 609 of the MPEP. By submitting the listed documents, Applicant in no way makes any admission as to the prior art status of the listed documents, but is instead submitting the listed documents for the sake of full disclosure.

Respectfully submitted,

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"Express Mail" mailing label number EV 331609214 US
Date of Deposit October 22, 2003
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Sarah B. Simmons

CLT01/4615966v1

Substitute for form 1449/PTO (Revised 04/2003)	Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*	Application Number	To be assigned
	Filing Date	Concurrently herewith
	First Named Inventor	Ahti Muhonen et al.
	Group Art Unit	To be assigned
	Examiner Name	To be assigned
Sheet 1 of 2	Attorney Docket Number	042933/269767

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.	Document Number Number - Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages of Relevant Figures Appear
	1	US-2002/0021809A1(Pub.)	02-21-2002	Salo et al.	
	2	US-2002/0023264A1(Pub.)	02-21-2002	Aaltonen et al.	
	3	US-2002/0069406A1(Pub.)	06-06-2002	Aaltonen et al.	
	4	US-2002/0087997A1(Pub.)	07-04-2002	Dahlstrom	
	5	US-2003/0084177A1(Pub.)	05-01-2003	Mulligan	
	6	US2003/0104801A1(Pub.)	06-05-2003	Koulakiotis	
	7	US-2003/0134653A1(Pub.)	07-17-2003	Sarkkinen et al.	
	8	US-2003/0174645A1(Pub.)	09-18-2003	Paratainen et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document Country Code - Number Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	English Language Translation Attached
	9	EP 1130 459 A2	09-12-2001	Nokia Corporation		
	10	WO 03/001755 A1	01-03-2003	Nokia Corporation		
	11	WO 01/45319 A1	06-21-2001	Telefonaktiebolaget LM Ericson		

Examiner Signature		Date Considered	

*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Substitute for form 1449/PTO (Revised 04/2003)	Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Application Number	To be assigned
	Filing Date	Concurrently herewith
	First Named Inventor	Ahti Muhonen et al.
	Group Art Unit	To be assigned
(Use as many sheets as necessary)	Examiner Name	To be assigned
Sheet 2 of 2	Attorney Docket Number	042933/269767

OTHER DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s) , volume-issue number(s), publisher, city and/or country where published.	English Language Translation Attached
	12	*3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Multimedia Broadcast/Multicast Service; Stage 1 (Release 6)*; 3 GPP TS 22.146; 03-2003; 17 pages; V6.2.0; 3rd Generation Partnership Project (3GPP™).	

Examiner Signature		Date Considered	

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CLT01/4615020v1

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(54) Method and apparatus for downloading an application with a variable lifetime

(57) Apparatus, and associated method, provides for downloading an application with a selectable lifetime from an application database to a mobile terminal. The mobile terminal user's identification information and the selected lifetime for the application are stored in an application-license database. When the user seeks to download the same application on a subsequent occasion the user is able to download that application for a reduced fee if lifetime remains from when the application was first downloaded. In addition, the application may be configured to delete or uninstall itself from the mobile terminal when the selected lifetime for the application expires.

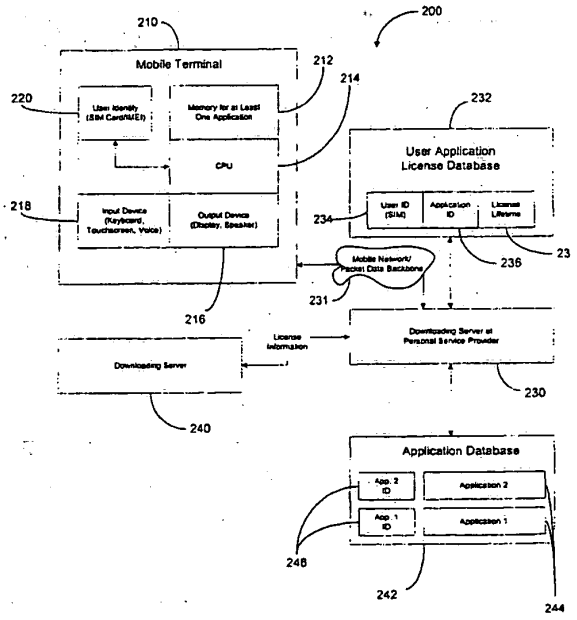

Figure 2

EP 1 130 495 A2

Printed by Jouve, 75001 PARIS (FR)

Description

FIELD OF THE INVENTION

[0001] This invention relates to an apparatus and method for downloading content to a mobile terminal with communication capabilities.

BACKGROUND OF THE INVENTION

[0002] Recent years have witnessed the emergence and proliferation of the Internet, the World Wide Web ("WWW"), mobile communication technologies and mobile computing devices. As technology advances, telecommunications and computing are converging. Convergence is producing devices that communicate over networks and integrate media, telephony and computing.

[0003] Cellular communication networks, for example, allow subscribers to communicate both voice and nonvoice data. Typically, a subscriber pays a fee to obtain a subscription to a cellular network allowing the subscriber to use the network. The subscriber uses a mobile terminal to communicate on the cellular network. As technology advances, mobile terminals are increasingly constructed to be contained in smaller packages and also to provide greater functionality. One example, of a "mobile terminal" is the rapidly proliferating "cell phone."

[0004] The same technological advances that have fostered the proliferation of the cell phone have also fostered great advancements in computing devices. Computing devices are becoming increasingly smaller, faster, and more mobile. Technological advancement in computing devices and mobile terminals is blurring the line between them. Mobile terminals are integrating more and more capability typically associated with conventional computing devices. For example, cell phones are now able to run software applications and provide Internet access. Accordingly, the term "mobile terminal" shall herein refer to a broad range of devices (e.g. Personal Digital Assistants ("PDA"), Communicators, Smart Phones, and Personal Computers ("PC")) and not solely devices operable merely to communicate in a cellular communication system.

[0005] Mobile terminals utilize a range of processing circuitry to perform the functions described herein. The processing circuitry is generally capable of running, i.e., executing, content, also referred to herein as an application program. The terms content and application programs shall be used interchangeably herein and shall each refer to digital information. Content, executable or otherwise usable by the processing circuitry is typically stored at a memory device which is accessible by the processing circuitry. Downloading content to a mobile terminal is regularly performed. Oftentimes content is downloaded to a mobile terminal directly or indirectly utilizing the WWW. If an application is downloaded directly the mobile terminal has the capability to connect directly to the WWW. Whereas, if content is downloaded to a mobile terminal indirectly an intermediate device such as a PC is used. A Nokia 9000 Series™, for example, permits the downloading of content thereto by way of a cable or infrared connection from a source, such as a personal computer.

[0006] As noted above, existing mobile terminals are capable of receiving content downloaded thereto. Increased amounts of, and types of, content shall likely be available to be downloadable to a mobile terminal in the future. Some, and perhaps much, of such content is private-domain content. That is to say, an owner, or other entity, has property rights in such content, and is entitled to payment for use of such content. Convenient manners by which to market, distribute and pay for such content are needed.

[0007] Software application providers are using numerous pricing models to provide applications over the WWW to PC users. These models range from providing applications at no cost to full cost. "Freeware," as the term implies, refers to an application that a PC user is able to obtain without any payment. With freeware the user has full rights to the software, including the source code. Linux is an example of a freeware product. Some application providers do sell freeware, typically on a Compact Disk Read Only Memory ("CD-ROM"). However, the freeware is bundled with installation help programs and additional software. It is the packaging and additional software that is being paid for, not the freeware itself which is free by default.

[0008] "Shareware" is a term that refers to applications that PC users have full rights to at a low price. Typically, however, the payment is voluntary and sent directly to the developers of the application. In addition to freeware and shareware, some applications are simply sold at full price. Full price applications, are purchased by credit card or other money transaction and are fully functional from the start. The application is normally downloaded after the payment transaction has been processed.

[0009] In addition to the various pricing models discussed above for users to obtain applications, the functionality of downloaded applications can be restricted in several ways. "Time limited" applications are applications that are only usable for a certain time after which they become non-functional. Time limited applications generally are associated with an unlocking code wherein the user obtains the code when the purchase price is paid for and is then able to unlock the application, making it functional for a determined time. Transaction limited applications, are only functional for a set number of uses or starts. Like time limited applications, transaction limited operations generally operate with an unlocking code.

[0010] In contrast to time limited and transaction limited applications, limited functionality applications are first obtained for free or for a low price by a user with some key functions disabled. After paying the full price

the disabled functions may be enabled or the fully functional application downloaded from the WWW. Limited dataset applications contain an incomplete dataset. Games are often available in a limited dataset where only the first level is available to the user. The limited dataset application is generally freeware, however, use of the complete dataset -- the additional levels -- requires payment of the purchase price.

[0011] In the environment of mobile terminals as compared to PC's unique problems are encountered with downloading applications that require new solutions. Ease of payment and user satisfaction are key considerations when determining how best to provide downloadable applications to mobile terminals. Possible payment methods include charging for the application along with the monthly bill, electronic cash, credit card charge and monthly membership fee. These payment methods along with those described herein for PC users (i.e. freeware, shareware, full-price, and time-limited applications) present special problems when implemented for mobile terminals.

[0012] The various methods of distributing applications to PC users discussed above were developed in the PC environment. Mobile terminals, however, provide unique problems not encountered with traditional PCs. For example, current mobile terminals typically have less memory available for applications than current PCs. Current mobile terminal applications such as downloadable ringing tones are much less complex than typical PC applications. Accordingly, a mobile phone application cannot typically motivate a user to pay a price anywhere near PC application prices.

[0013] With any application PC, Mobile terminal or otherwise, consumers would enjoy the ability to test or try out a new application without paying full price. Accordingly, a manner by which to permit a user to download and application for a limited time, pay a small price, and test or try out the application is desirable. In addition, mobile terminals generally have much less memory capacity, at the current time, than PC applications. Because of limited memory capacity, a user or the mobile terminal itself may have to eliminate an old application in memory to make room for a new application in memory. If a consumer has paid full price for several applications that do not fit in the memory of the users mobile terminal that user will not be willing to pay for the applications that do not fit. Therefore, a manner by which to permit a user to pay for an application once but be able to download that application on subsequent occasions for a reduced fee or at no cost would be desirable. Moreover, the installing and deinstalling of applications should be as simple and or automatic as possible providing the mobile terminal with an uncomplicated seamless experience. Accordingly, there is a need for new manners by which to provide applications to mobile terminals. The invention herein solves these problems.

SUMMARY OF THE INVENTION

[0014] An embodiment of the present invention provides a method that records user identity when downloading an application from a server to a mobile phone so that application later can be downloaded again without separate charge. An embodiment of the present invention also provides a method by which an application with limited lifetime on the mobile phone can uninstall itself and thus free memory space for new applications. The terms delete and uninstall are used interchangeably herein.

[0015] One embodiment of the present invention is an apparatus for a communication system. The communication system comprises a mobile terminal capable of communicating by way of a radio link with network infrastructure. The mobile terminal comprises memory for at least one application. The apparatus comprises an application database, a detector and an application-license database. The application database is coupled to the network infrastructure and contains at least a first application downloadable to the mobile terminal. The application(s) in the application database have a selectable lifetime during which the application is executable. In addition, the applications may be configured to delete or uninstall themselves from memory of the mobile terminal when their lifetime expires. The applications may be preprogrammed to delete themselves according to a preset lifetime or configured to delete themselves after the lifetime is selected. The lifetime may be calculated on time or transaction basis.

[0016] The detector is coupled to the network infrastructure and detects requests generated by the mobile terminal for downloading an application to the mobile terminal for a selected lifetime. The application-license database is also coupled to the network infrastructure and is configured to store the selected lifetime for the application. By storing the selected lifetime in the application-license database the user may download the same application at a later time for a lesser fee than originally paid for the application, if the lifetime for the application has not expired. The lesser fee includes paying no fee for subsequent downloads.

[0017] Another embodiment of the present invention is a method for downloading an application to a mobile terminal from an application database containing at least a first application. The application has a selectable lifetime during which the application is executable. The lifetime may be preprogrammed in the application or programmed in the application after the lifetime is selected. When the user of the mobile terminal chooses an application to download, the user also selects the lifetime for that application during which the application is executable. The lifetime may be determined on a transaction or time basis. The application is then downloaded to the mobile terminal from an application database. The user's identification and lifetime selection is also stored in an application-license database.

[0018] When the application is downloaded to the mobile terminal it may be configured to delete itself or uninstall itself from memory of the mobile terminal when the lifetime expires. In addition, the user may be required to pay a fee for the application when it is first downloaded. However, because the user selects, and may pay for, a lifetime and that lifetime is stored in the application-license database the user is able to download the same application at a later time for a reduced fee or no fee depending on the lifetime remaining for the application.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019]

Figure 1 illustrates a functional block diagram comprising the devices and modules of a communication system in which an embodiment of the present invention is operable;

Figure 2 illustrates another functional block diagram of the communication system shown in Figure 1 here further illustrating the devices and modules used during operation of an embodiment of the present invention;

Figure 3 illustrates a flowchart describing the operation of an embodiment of the present invention; and

Figure 4 illustrates another flowchart describing the operation of a further embodiment of the present invention.

DETAILED DESCRIPTION

[0020] Referring first to Figure 1, a communication system, shown generally at 100, provides for communications with a mobile terminal 110. Within the mobile terminal 110 is at least one memory unit 112 for storing an application. The mobile terminal 110 is connected to a network 114 by way of communication path, here a radio link 116. The network 114 comprises network infrastructure 124 and a downloading server 118. The network infrastructure 124 comprises various hardware devices and associated software for receiving and processing signals transmitted upon the radio link 116 by the mobile terminal. In the exemplary implementation in which the network 114 is a cellular communication network, the signals form electromagnetic signals.

[0021] The network infrastructure 124 is connected to a downloading server 118. The downloading server 118 and, in turn, the network infrastructure 124 is connected to both an application database 120 and an application-license database 122. The application-license database 122 comprises data about each mobile terminal users application licenses. The application-license database 122 is accessible by the downloading server 118 whenever a mobile terminal user attempts to download an application. The application-license database 122 stores individual mobile terminal users' application licensing information including lifetime selections. The lifetime selections are discussed below along with Figures 3 and 4.

[0022] The application database 120 stores various applications 126. The applications 126 are available for downloading to the mobile terminal 110 via the downloading server 118 and other necessary network infrastructure 114.

[0023] Referring to Figure 2, a communication system, here shown generally at 200, again provides for communications with a mobile terminal, here mobile terminal 210. The mobile terminal 210 comprises an input device 218, an output device 216, a Central Processing Unit ("CPU") 214, memory for at least one application 212 and a user identity module 220. The range of possible input devices 218 includes, e.g., a keyboard, a touchscreen and a voice recognition module. The range of possible output devices 216 includes, e.g., a display screen and a speaker.

[0024] The user identity module 220, in the exemplary implementation, is formed of a Subscriber Identity Module ("SIM") at which an International Mobile Equipment Identity ("IMEI") is stored. Both the SIM and the IMEI are specified in the Global System for Mobile Communication ("GSM") technical standards. Although this specification refers to GSM devices, it is not intended to be limited to GSM devices. In a GSM network the user's subscription identity to the network is contained in the SIM. The SIM allows the GSM network to identify the mobile terminal user. The SIM is linked to a user's subscription to the GSM network and not a particular mobile terminal and therefore may be used with different mobile terminals. A GSM mobile terminal is identified by the IMEI. An IMEI is a unique 15-digit number. The SIM in conjunction with the IMEI identify the user and the user's mobile terminal to the GSM network.

[0025] The mobile terminal 210 is able to communicate with a downloading server 230 at the personal service provider by way of a mobile network and packet data backbone 231. The server 230 is linked to an application-license database 232 and an application database 242. The application-license database comprises user identification information 234, user application selections 236 and application lifetime information 238. The user identification information 234 may comprise both SIM and IMEI information. The application selections 236 may comprise both current and past application selections. The application lifetime information 238 is discussed further below along with Figures 3 and 4.

[0026] The application database 242 contains the applications available for downloading to the mobile terminal. The application database 242 comprises at least one application 244 and an application identifier 246 associated with the application. Two applications, application 1 and application 2, are shown in the Figures 1 and

2 for purposes of example.

[0027] In the case of a mobile terminal user having a subscription to a particular cellular network, that user communicates by way of the mobile network, as part of the subscription, and the packet data backbone 231. The user, however, may communicate over other networks for a fee or change subscriptions. Moreover, a user may desire to download applications while using another network. Accordingly, in the exemplary implementation, the packet data backbone portion of the mobile network and backbone 231 is a public backbone, such as the Internet backbone so that the license information stored in the user application database 232 is accessible in other manners through the public backbone.

[0028] Referring to Figure 3, a flowchart, shown generally at 300, illustrates operation of one embodiment of the present invention. At block 310 a mobile terminal user starts a downloading service. A downloading service provides applications for mobile terminals. The downloading service may be accessed directly by the mobile terminal, indirectly from a PC or otherwise. A downloading service is oftentimes implemented in the form of a website, either commercial or non commercial. The website provides links to various applications available for download. If the downloading service is run indirectly on a PC, the application is first downloaded to the PC. The mobile terminal must then allow the downloading of the application from the PC to the mobile terminal. Downloading from a PC to a mobile terminal, for example, is implemented in a Nokia 9000 Series™ mobile terminal by way of a cable or infrared connection.

[0029] At block 312, the user chooses an application. Choosing an application, in the case of a website implemented downloading service, may be achieved by selecting the link to that application. After clicking the link to an application, at block 314 the user selects a lifetime for the application. The lifetime represents the time during which the application will be executable and/or the time during which the application will reside in the memory of the mobile terminal. The application chosen is automatically configured, before downloading, to cease functioning or delete itself from the memory of the mobile terminal after the selected lifetime expires.

[0030] The user, at block 314 has a plurality of choices for lifetimes. The price of the application, at block 316, may be dependent on the selected lifetime. For example, use of the application three times may be free, use of the application ten times or for one week may be $2.00, use of the application 100 times or for a month may be $5.00 and use of the application for an unlimited amount of time may be $10.00.

[0031] At block 316, the user pays for the application. The payment price may be dependent on the selected lifetime. For example, if the user selects a lifetime of one week the user pays $2.00. After the application is paid for, the application is downloaded to the mobile terminal at block 318. The lifetime of the application may be tracked by the application itself, by the downloading service or otherwise. If the application tracks its own lifetime, the application is automatically configured at downloading to delete itself according to the user's selected lifetime. In the example above the application would automatically delete itself after one week. If the user had selected ten uses instead of one week, the application would automatically delete itself after ten uses.

[0032] Deletion comprises freeing all memory space used by the application and corresponding data or only freeing some specified portion of the memory space used by the application. For example, when the lifetime expires the application deletes its own executable code, however, the application's corresponding data and libraries are not deleted. If the application is customized by the mobile terminal user, the customized settings are retained even after the application deletes itself. Accordingly, if the same application is downloaded on a subsequent occasion the user's customized settings are retained.

[0033] At block 320, the application determines if it's lifetime has expired. If so, the application deletes itself at block 322. If not, the application does not delete itself and allows the user to continue using the application.

[0034] Referring to Figure 4, reference numeral 400 refers to another flowchart illustrating further operation of an embodiment of the present invention. At block 410 a dynamic application downloading sequence is started. The first operation is connecting to a downloading service at block 412. As mentioned earlier in conjunction with the description of Figure 3, the downloading service may run directly on the user's mobile terminal, indirectly on a PC or otherwise. The downloading service may be accessed through a website. The website provides links to various applications available for download. If the downloading service is run indirectly on a PC, the mobile terminal must allow the downloading of the application from the PC to the mobile terminal. This may be achieved by way of a cable or infrared connection between the PC and the mobile terminal.

[0035] The user's identity information (e.g. SIM and IMEI information) is also supplied to the downloading service. If the downloading service is run directly on the mobile terminal, the user's identity information SIM information and IMEI information is automatically transmitted to the downloading service. If the downloading service is run directly on the mobile terminal, the user's identity information is automatically transmitted to the downloading service. The user identity information is then stored in the application-license database 122 or 232, referring to Figures 1 and 2 respectively.

[0036] At block 414, the user selects an application. If the downloading service is implemented in a website, the user selects the link to that application. The downloading service then determines if the user has previously paid for an unlimited application lifetime at block 416. For example, referring to Figure 2, the downloading service through the downloading server 230 will compare the user's identity 220 to user identification infor-

mation 234 in the application-license database 232. If there is a match between the current user identity 220 and user identity information 234 in the database, a further comparison is made to determine the licensing information 236, 238 for the user. The license-database 232 keeps track of a particular users current and past application selections and the lifetime for those applications. If the user previously paid for an unlimited application lifetime the license-database 232 will contain that information. If the user has previously paid for an unlimited lifetime the application is downloaded at block 426 without a reduced fee or without a fee for the application. Note, because the user has paid for an unlimited lifetime the user may be able to download the application to multiple mobile terminals - wherever he or she has plugged in their SIM card.

[0037] Block 416 may be modified to determine if the user has lifetime remaining from a previously paid for application, even if the user has not paid for an unlimited application lifetime. This is especially important in current mobile terminals with little memory available for applications. If a user needs to download an application to his or her mobile terminal when there is no memory available to store the application, the user will have to delete an existing application or an application may be deleted automatically to make room for the new application. The deleted application may have lifetime remaining. Accordingly, the license-database 232 stores the application lifetimes 238 for each application a particular user has selected. If at block 416 the downloading service determines that life remains from a previous selection of the application, the application is downloaded to the user's mobile terminal 110 at block 426 and stored in a memory element 112. When an application is downloaded to a mobile terminal 110 at block 416 with lifetime remaining, the application is configured to automatically delete itself from the memory 112 of the mobile terminal 110 when the remaining lifetime expires.

[0038] If the user has not paid for an unlimited lifetime on a previous occasion or does not have lifetime remaining from a previous selection, the user must now select the desired lifetime for the application at block 418. Available lifetimes correspond to different payment requirements. At block 420 the downloading service determines if the selected lifetime requires payment. For example, use of the application three times or for a week may be free whereas use of the application ten times or for a month may be $2.00. If the lifetime selected does not require payment the application is downloaded to the user's mobile terminal 110 at block 426 and stored in memory 112. If the application does require payment the user pays for the application at block 422. Payment methods include credit card charging, electronic cash, monthly fee or membership, and charging along with network subscription and use payments (e.g. the cell phone bill). The application, before downloading at block 426, is automatically configured to delete itself when the selected lifetime 418 expires.

[0039] At block 424 the downloading service records the user's identification information in the application-license database 232. As discussed earlier, the user identification information includes the application selection, and application lifetime selection for the user. In a GSM network, the user identification information will also include SIM and IMEI information. After the user has paid for the application at block 422 and the user's information is recorded at block 424, the selected application is downloaded to the user's mobile terminal 110 and stored in memory 112 at block 426. Downloading may occur directly to the mobile terminal or indirectly to a PC or otherwise. If indirectly, the application must then be downloaded from the PC to the mobile terminal using some type of link such as an infrared connection or a cable.

[0040] If during the selection process and downloading process represented by blocks 412 through 426, it is determined that there is insufficient memory for a new application there are several possible results. First, the downloading operation may be cancelled either automatically or manually by the user. Second, the user may choose to remove an existing application from his or her mobile terminal. In the latter case, if the user has selected to remove an application with lifetime remaining the user can later download this application at a reduced cost or at no cost if the user does so while lifetime remains for the deleted application. The ability to download an application with remaining lifetime is discussed above in reference to block 416.

[0041] Once the application is downloaded at block 426 the user may use the application 428. Each time the user subsequently attempts to use the application, the application queries itself to determine if it has an unlimited lifetime 430. If the application determines that it doesn't have an unlimited lifetime, the application determines if its lifetime has expired at block 432. If the lifetime has not expired, the user may use the application. If the lifetime has expired, the application automatically deletes itself at block 434.

[0042] The apparatus and method described herein provides a manner by which a mobile terminal user may download an application to a mobile terminal and select a lifetime for that application. By storing the user's identity, application selection and lifetime selection in a license-database that is accessible by a downloading service, the user is able to download the same application to a mobile terminal on subsequent occasions for a reduced fee. Moreover, the application deletes itself automatically from the mobile terminals memory after its lifetime expires. The features of this invention provide a convenient manner by which to obtain applications and try applications for a limited time. Moreover, the features of this invention provide a convenient manner by which to free-up memory in a mobile terminal by deleting an application and then obtaining the deleted application later on without having to pay twice for the application.

[0043] The invention also provides a convenient man-

ner by which to obtain applications on an as needed basis. The user can then effectively use many more applications than would otherwise be possible if the applications had to permanently reside in the mobile terminal memory or be paid for every time they were downloaded to the mobile terminal. This feature is especially important given the portable nature of mobile terminals.

[0044] The previous descriptions are of preferred examples for implementing the invention, and the scope of the invention should not necessarily be limited to this description. The scope of the invention is defined by the following claims:

Claims

1. A method for downloading an application to a mobile terminal from an application database, the application database containing at least a first application wherein the at least one application has a selectable lifetime during which the application is executable, said method comprising:

   choosing an application of the at least one application contained at the application database the application to download to the mobile terminal;
   selecting the selectable lifetime of the chosen application during which the application is to be executable;
   downloading the chosen application from said application database to said mobile terminal; and
   storing indicia of said selectable lifetime in an application-license database.

2. The method of claim 1 further comprising the operation of paying a fee for the chosen application wherein the fee for the chosen application is a function of said selected lifetime.

3. The method of claim 2 further comprising the operations subsequent to said step of storing of:

   subsequently choosing the application previously chosen during said first operation of choosing and previously downloaded during said operation of downloading;
   determining whether time remains within the selectable lifetime selected during said operation of selecting; and
   again downloading the application from said application database and storing said application in said mobile terminal if a determination is made during said step of determining that time remains in the selectable lifetime.

4. The method of claim 3 further comprising the operation of paying a fee for said operation of again downloading the application that is a function of the time remaining in the selectable lifetime.

5. The method of claim 1 further comprising the operation of configuring the chosen application to be deleted from the mobile terminal when the selected lifetime for the chosen application expires.

6. The method of claim 5 further comprising the operation of deleting the application from the mobile terminal when said selected lifetime expires.

7. The method of claim 6 wherein the chosen application is programmed to delete itself from the mobile terminal when said selected lifetime expires.

8. The method of claim 1 further comprising the operations of:

   querying said application-license database to obtain the lifetime for the chosen application;
   determining if said selectable lifetime for the application has expired; and
   deleting the application from the mobile terminal if said selectable lifetime has expired.

9. The method of claim 1 wherein the operation of choosing an application further comprises the operations of:

   accessing a website; and
   selecting a link to the chosen application.

10. The method of claim 2 wherein said lifetime includes an unlimited lifetime.

11. The method of claim 10 wherein if the user has selected an unlimited lifetime for the chosen application the user may download the application to additional mobile terminals without incurring additional fees.

12. The method of claim 3 wherein the operation of determining comprises the operation of comparing said chosen application and said selected lifetime to said indicia of said selectable lifetime in said application-license database to determine if time remains within the selectable lifetime selected during said operation of selecting.

13. The method of claim 1 wherein the selectable lifetime of the chosen application is preprogrammed in the application.

14. The method of claim 1 wherein the selectable lifetime of the chosen application is programmed after the selectable lifetime is selected.

15. The method of claim 1 further comprising the operation of configuring the chosen application to be deleted from the mobile terminal memory when the selected lifetime for the chosen application expires, wherein deletion responsive thereto removes a portion of said chosen application from the mobile terminal.

16. In a communication system having a mobile terminal capable of communicating by way of a radio link with network infrastructure, the mobile terminal having memory for at least one application, an improvement of apparatus for downloading an application to the mobile terminal, said apparatus comprising:

an application database coupled to the network infrastructure, said application database containing at least a first application downloadable to the mobile terminal, the application having a selectable lifetime during which the application is executable;
a detector coupled to the network infrastructure, said detector for detecting a request generated by the mobile terminal to have a selected application of the at least first application contained at said application database downloaded, said detector for obtaining the application from said application database, said detector for downloading the application to the mobile terminal for said selected lifetime; and
an application-license database coupled to the network infrastructure, said application-license database for storing said selected lifetime.

17. The apparatus of claim 16 further comprising a downloading server, said downloading server coupled to said detector, said downloading server coupled to said application database, and said downloading server coupled to said application-license database.

18. The apparatus of claim 17 wherein said downloading server configures said downloadable application to delete itself from the mobile terminal when said lifetime expires.

19. The apparatus of claim 17 wherein said downloading server is configured to compare said request generated by the mobile terminal for downloading an application to said selected lifetime for said application stored in said application-license database, said downloading server downloads said application to the mobile terminal for a reduced fee if said requested application has lifetime remaining.

20. The apparatus of claim 17 wherein said downloadable application is preprogrammed with said lifetime, wherein said downloadable application deletes itself from the mobile terminal when said lifetime expires.

21. The apparatus of claim 17 wherein said lifetime expires as a function of a selected number of transactions.

22. The apparatus of claim 17 wherein said lifetime expires as a function of a selected time.

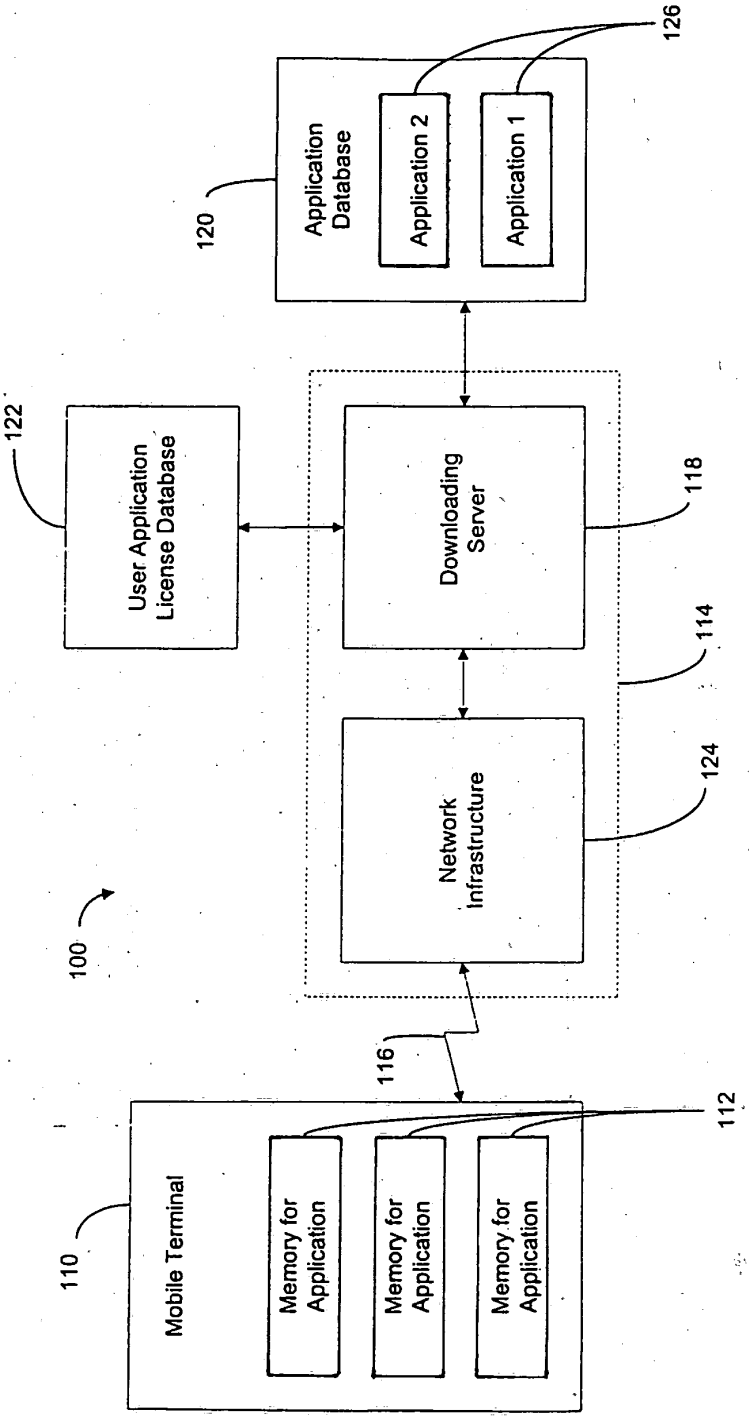
126
Application Database
Application 2
Application 1
120
122
User Application License Database
Downloading Server
118
114
Network Infrastructure
124
100
116
112
Mobile Terminal
Memory for Application
Memory for Application
Memory for Application
110

Figure 1

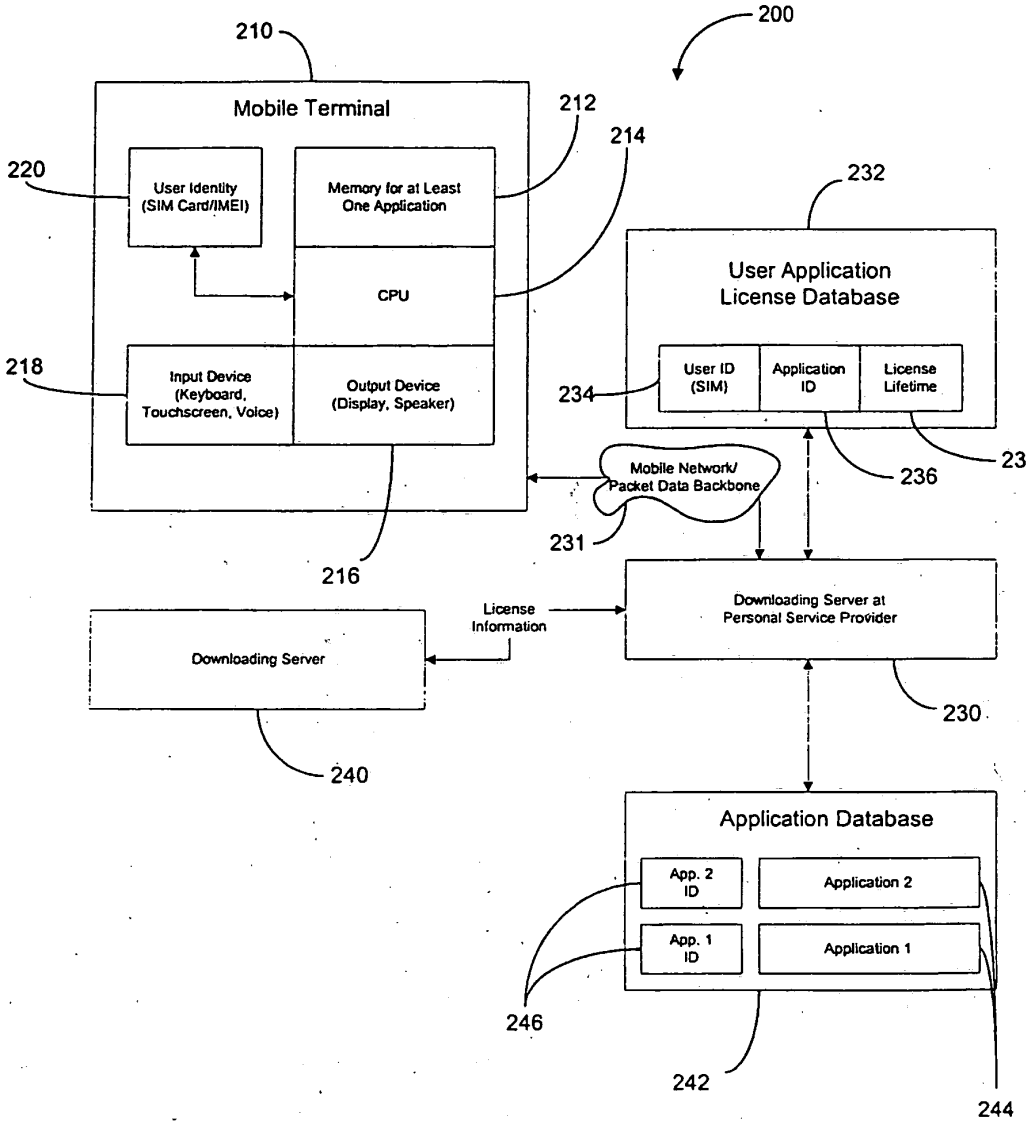
200
210
Mobile Terminal
212
214
220
User Identity (SIM Card/IMEI)
Memory for at Least One Application
CPU
218
Input Device (Keyboard, Touchscreen, Voice)
Output Device (Display, Speaker)
216
232
User Application License Database
User ID (SIM)
Application ID
License Lifetime
234
236
23
Mobile Network/ Packet Data Backbone
231
Downloading Server at Personal Service Provider
License Information
Downloading Server
230
240
Application Database
App. 2 ID
Application 2
App. 1 ID
Application 1
246
242
244

Figure 2

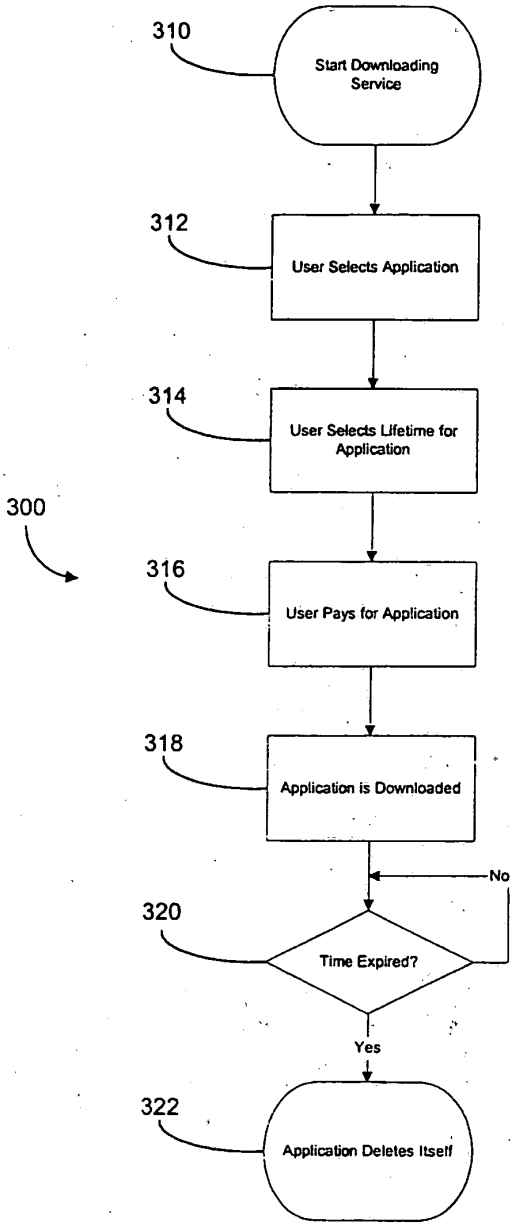
300
310
Start Downloading Service
312
User Selects Application
314
User Selects Lifetime for Application
316
User Pays for Application
318
Application is Downloaded
320
Time Expired?
No
Yes
322
Application Deletes Itself

Figure 3

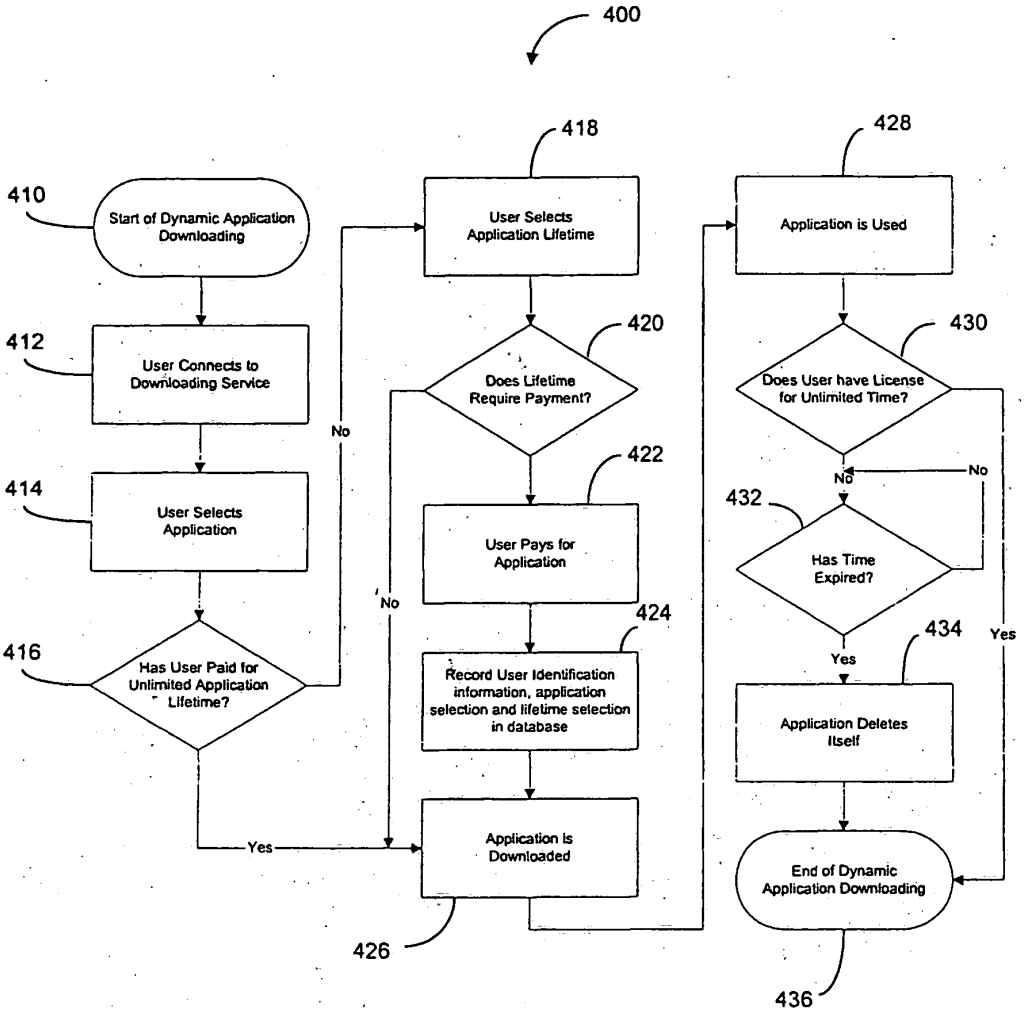
400
410
Start of Dynamic Application Downloading
412
User Connects to Downloading Service
414
User Selects Application
416
Has User Paid for Unlimited Application Lifetime?
No
Yes
418
User Selects Application Lifetime
420
Does Lifetime Require Payment?
No
422
User Pays for Application
424
Record User Identification information, application selection and lifetime selection in database
426
Application is Downloaded
428
Application is Used
430
Does User have License for Unlimited Time?
No
Yes
432
Has Time Expired?
No
Yes
434
Application Deletes Itself
436
End of Dynamic Application Downloading

Figure 4

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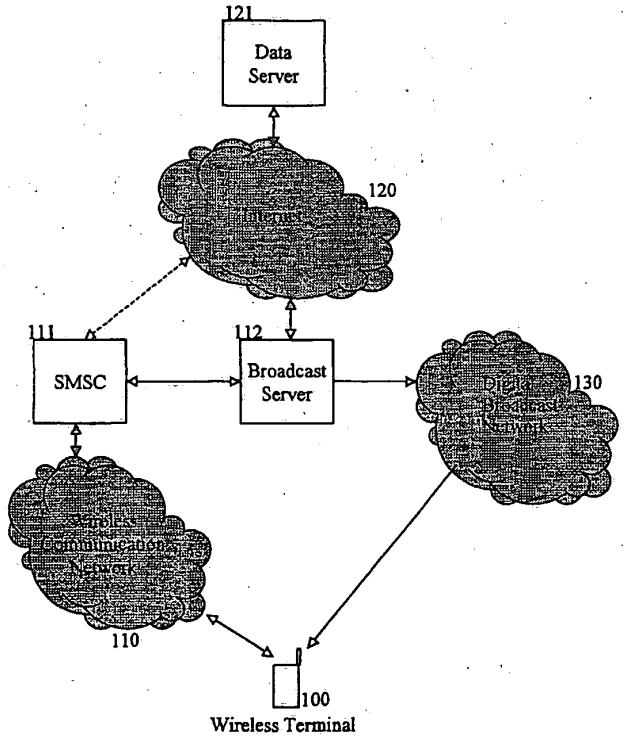
[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR OBTAINING DATA INFORMATION



(57) Abstract: An apparatus and a method for providing user a wireless terminal operating within a wireless communication network an access to a resource storing content in a network of computing systems. A user message is transferred, the message including an identifier indicating the resource in the network of computing systems from the wireless terminal over the wireless communication network to a broadcast server having an access to the network. Communicating with the network of computing systems for retrieving the content indicated in the message. The content is broadcast over a broadcast network to the wireless terminal. The content, which is received at the wireless terminal, is presented at the terminal if the data packets of the content are substantially received at the wireless terminal.

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METHOD AND APPARATUS FOR OBTAINING DATA INFORMATION

TECHNICAL FIELD OF THE INVENTION

The present invention relates generally to accessing information in communication networks, and more particularly, to a method and an apparatus for obtaining data information to a wireless terminal across multiple network platforms.

BACKGROUND OF THE INVENTION

Computer networking broadly refers to the data communication system resulting from linking two or more computing systems. Networking allows those who can access the network to share programs, data, network resources, database information, and to facilitate other functions such as e-mail and invoicing. The need for immediate access to information has fueled the pursuit of more sophisticated networks and network applications to conveniently and efficiently communicate information.

Due to its vast reach, the global web of interconnected computers and computer networks referred to as the Internet has proved to be an invaluable tool in satisfying the need for on-demand information. The Internet is used as a business and personal tool to facilitate global e-mail, remote data access, research, etc. Its ability to deliver multimedia content has also established the Internet as an entertainment tool for playing games, delivering stream content such as video, audio and MP3, and the like.

Gaining access to the information available on the Internet conventionally required a hardware connection to the Internet. While the Internet allows users to access information via any computer or terminal connected to the Internet, the need for a hardware connection established an undesirable physical limitation to Internet information access - a particular impediment to users that spend a substantial amount of time on the move. As users become more dependent on information and services provided via the Internet, an integration of the Internet and the wireless domain becomes increasingly important.

Mobile networks, such as GSM, IS-136, IS-95, PDC, etc., have traditionally been used in connection with mobile telephone communication. These

sophisticated mobile networks made possible another aspect of communication convenience, by allowing mobile telephone users to communicate with other mobile users and with landline telephony systems. However, the need still existed to integrate information networks, such as intranets and the Internet, with the portability and convenience of mobile devices. This need gave rise to efforts to integrate the Internet and other networks with wireless network platforms.

The most sophisticated mobile networks enable an access to the Internet. However, the access and a transfer of data information from the Internet via mobile networks platform to the mobile have limited data transfer rate. Moreover, the transfer of the data is expensive via the mobile domain. The need to provide faster and cheaper communication channel to wireless domain still exists.

In view of various inherent limitations of mobile devices and existing network platforms, and the need to provide access to the wealth of data information available on existing network platforms, it would be desirable to avoid these and other problems associated with prior art systems. A need exists in the communications industry for an apparatus and a manner for obtaining data information via wireless devices from other networks, while increasing flexibility and user convenience. The present invention provides a solution to the aforementioned and other shortcomings of the prior art, while offering additional advantages over the prior art.

SUMMARY OF THE INVENTION

To overcome limitations in the prior art described above, and to overcome other limitations that will become apparent upon reading and understanding the present specification, the present invention discloses an apparatus and a method for communicating data information to a wireless terminal operating within a wireless network across multiple network platforms. The wireless device is not limited to any preset navigation structure, and provides the ability to communicate with the multiple network platforms.

In accordance with a first aspect of the invention there is provided a method for obtaining content to a wireless terminal operating within a wireless communication network, the method comprising:

transmitting a user message via the wireless communication network to a network of computing systems, the user message indicating a resource containing the content in the network of computing systems, and thereafter

transferring the content from the resource over a broadcast network to the wireless terminal.

In accordance with a second aspect of the invention there is provided a wireless terminal for transmitting a user message via a wireless communication network for obtaining content, the terminal comprising:

an input user interface to receive an address of the content for addressing the user message to a resource in a network of computing systems via the wireless communication network,

means for transmitting the user message to the resource in the network of computing systems to obtain the content from the resource,

a broadcast network interface to receive the content broadcast over a broadcast network,

a memory to store the content received over the broadcast network and received at the wireless terminal, and

an output user interface to present the content to the user of the wireless terminal.

Advantageously in one embodiment, an additional message for obtaining missing data packet(s) of received content is created. The wireless terminal receives the list of the data packets and compares received data packets to the data packets shown in the list. The wireless terminal marks received data packets and stores the data packets, thereby the missing data packet(s) can be identified. The additional message is sent to a broadcast server. The broadcast server checks the missing data packets from a site database. If the packets are not stored in the database, the broadcast server retrieves the data packets from the Internet. The data packets are broadcast to the wireless terminal.

Advantageously in another embodiment, wireless terminal outputs received content. The wireless terminal user selects a link in the output information and the wireless terminal generates a further message. The further message includes at least an address of the link for obtaining the resource of the link. The further message is sent to a broadcast server and the broadcast server retrieves the resource of the link via the Internet. Alternatively, the content of the link can be locally stored at the wireless terminal or a site database of the broadcast server can also store the content of the link.

Advantageously, another embodiment of the invention can be applied to a GSM environment. The wireless communication network comprises a GSM

network and the user message conveying the address of the content comprises a Short Message Service (SMS) message. The address comprises a Uniform Resource Locator (URL) in the Internet and the content comprises data information in the Internet. A Short Message Service Centre (SMSC) receives the message and converts the message into a request. The request is forwarded to a broadcast server, the broadcast server bridging the communication between the GSM network, the Internet and the broadcast network. The broadcast network comprises a digital broadcast network (DBN). The broadcast server retrieves the data information from data server in the Internet. The broadcast server saves data information and creates a list of 15-25 data packets of the data information. The broadcast server forwards the list and the 15-25 data packets to the DBN. The list and the data packets are broadcast and the wireless terminal receives the list and the data packets.

In another embodiment, a charge for the user message is created. The charge is based on at least one of the following type of the resource related information, a function of time, a Quality Of Service (QOS) requirement of the content, a function of available bandwidth, a function of simultaneous users, a load in at least one of the networks and means for accessing to the resource related information. A monitoring program in a broadcast server keeps track on physical resources of the networks. In the embodiment where the wireless communication network comprises a GSM network the charging can be advantageously attached to the charging of a mobile phone in the GSM network. An operator of the GSM network can identity user and the message when requesting the data information from Internet and attach the charge.

In another embodiment, the means for transmitting the user message comprises a first wireless unit and the network interface comprises a second wireless unit, wherein the first and the second wireless unit comprises two independent devices. The first device is a mobile phone and the second device is a DVB terminal. The mobile phone sends the SMS message for requesting Internet data information. The DVB terminal receives the Internet data information, which is transmitted by the DVB network, in response to the SMS message. A communication link operatively couples the DVB terminal to the mobile phone. The communication link can, for example be, an infrared link, a cable and Bluetooth, etc.

In accordance with a third aspect of the invention there is provided a computer program product comprising a program of instructions executable by a computing system for processing a supply of content, comprising:

computer program code for receiving a user message from a wireless terminal via a wireless communication network, the user message indicating a resource in a network of computing systems,

computer program code for converting the user message into a request,

computer program code for communicating with the network of computing systems for retrieving the content indicated in the message, and

computer program code for transmitting the content over a broadcast network to the wireless terminal.

For better understanding of the present invention reference is made to the following description, taken in conjunction with the accompanying drawings, and its scope will be pointed out in the appending claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

The method and the apparatus according to the invention will be described in more detail by means of preferred embodiments, with references to the appended drawings in which:

Figure 1 is an exemplary embodiment of a networking environment in which the principles of the present invention are applied.

Figure 2 is a block diagram illustrating a more particular embodiment of wireless terminal by which user may access data information in accordance with the invention.

Figure 3 is a block diagram illustrating an alternative embodiment of wireless terminal by which user obtains data information, and where the terminal has a mobile and a broadcast unit, embodying the invention.

Figure 4 is a block diagram illustrating a more particular embodiment of a network arrangement which is utilized in bridging communication between networks in accordance with the invention.

Figure 5 is a general flow diagram of one embodiment of the invention illustrating a method in which user obtains data information, such as an Internet site, to a wireless terminal.

Figure 6 is a flow diagram of a further embodiment depicting a charging model of the short message and/or the content.

DETAILED DESCRIPTION OF THE VARIOUS EMBODIMENTS

The present invention is generally directed to an apparatus and a method for obtaining data information to a wireless terminal operating within a wireless communication network. The data information is preferably an Internet site, specific data information which the Internet site contains, etc. The present invention allows a user message to be entered at the wireless terminal, where the user message identifies the data information that the user requests. In one embodiment of the invention, such user messages are transferred from a wireless communication network to the Internet using a Short Message System (SMS). The message is converted to an Internet request for obtaining the data information and transmitted to a broadcast server configured to operate in the Internet environment. The data information identified by the message is thereafter retrieved and transmitted from the broadcast server back to the wireless terminal over a digital broadcast network (DBN) to be presented to the user via the wireless terminal. The DBN is preferably a Digital Video Broadcasting (DVB) network. A local memory of the wireless device may store the requested data information after it is checked.

Figure 1 is an exemplary embodiment of a networking environment in accordance with the present invention. The present invention may be applied to any wireless communication systems supporting data services and the transmission of the user message. In the embodiment, the transmission of the user message refers to the transfer of a text message between a wireless terminal 100 and a network element in the wireless communication network 110 without the need to set up a point-to-point connection. This is why the transfer of the message may take place even when in the wireless terminal 100 there is a speech or data call in progress on a circuit-switched point-to-point connection. The message transfer may only require one message. That is, the transfer of one message constitutes the whole transaction, but concatenated messages can be applied as well. In concatenated messages information is parsed from the messages to constitute the transaction.

In the following, the invention will be described in connection with the GSM (Global System for Mobile Communication). Regarding the invention, the operation and structure of the wireless communication system are not relevant, and hence they are described only to a degree that may assist in comprehending the transmission of the user message. Other applicable wireless communication systems in transmitting the message are GPRS (General Packet Radio Services) and 3G (Third generation for Mobile Communication). A publication WO 98/11744, incorporated herein as a reference, discloses an applicable example about transmit of the short message via GSM to the Internet.

Referring to Figure 1, a mobile switching centre (MSC) (not shown) switches incoming and outgoing calls in the network. It also performs tasks typical of mobile telephone traffic, such as subscriber location management, in co-operation with mobile network subscriber registers a Visitor Location Register VLR and a Home Location Register (HLR). The HLR is a subscriber's home register for a permanent storage of subscriber data. The VLR is a local register to which the subscriber data is copied from the HLR when a mobile subscriber visits the area of the VLR. The wireless terminal 100 communicates with the MSC via base station systems (BSS) (not shown). The BSS includes a base station controller (BSC) (not shown) and base stations (BTS), for example, fixed radio transceivers by which the wireless terminal 100 communicates with a wireless communication network 110 over the radio path.

A short message service (SMS) of the wireless communication network 110 offers means for transferring short messages with limited length (160 ASCII characters) between the wireless terminal 100 and a short message service centre (SMSC) 111. By means of concatenated SMS messages, more than 160 characters can be transmitted. Wireless terminal 100 originated short messages are transferred from the wireless terminal 100 to the SMSC 111. The short messages are destined for other wireless terminal users or for service providers in a fixed network such as in Internet 120. A protocol employed between the SMSC 111 and the wireless terminal 100 is called SMTP (Short Message Transport Protocol).

The SMSC 111 is operationally coupled with the wireless communication network 110 via the MSC. The MSC relays short messages between the wireless terminal 100 and the SMSC 111, and it performs the HLR (and VLR) inquiries possibly needed for the message in the communication. The SMSC 111 is given a dedicated ISDN number in the number space of the wireless communication

network 110, and the wireless terminal 100 uses the ISDN number for addressing a short message to the SMSC 111. The short message also identifies the wireless terminal 100 when the Internet data information is to be obtained.

Still referring to Figure 1, the SMSC 111 is operatively coupled with the Internet 120 such that can serve as a gateway between the wireless communication network 110 and the Internet 120. An interface between the SMSC 111 and the Internet computing systems are bridged in connection with a broadcast server 112 having access to the Internet 120. Accordingly, the embodiment of the invention enables access to the information resources of the Internet 120. The information resources comprise a server computing system such as a data server 121 storing the information resource. An access to the information resource is by the SMS. As described below in detail, the resource is obtained to the user by digital broadcasting in response to the SMS message. A large number of users, local networks and server computing systems may be connected to the Internet 120.

Still referring to Figure 1, a digital broadcast network (DBN) 130 broadcasts the data information to the wireless terminal 100. Digital broadcast network 130 may, for example, be a DVB or DAB network configured to transfer data information. The DBN 130 is operatively coupled with the Internet 120 such that it is used to transfer data information from the Internet 120 to the wireless terminal 100. An interface between the DBN 130 and the Internet 120 is bridged in operational connection with the broadcast server 112 having access to the Internet 120. Data information, which is specified in the SMS message, from the data server 121 is retrieved to the broadcast server 112 and transferred to the wireless terminal 100 over the DBN 130. The DBN 130 may serve a plurality of wireless terminals.

Advantageously, a terrestrial digital video broadcast (DVB-T) network may be applied in the invention. A user equipped with a suitable Digital Receiver (DR) referred to as the wireless terminal 100 may receive data broadcast over the DBN 130. The data broadcast may respectively include TCP/IP.

Advantageously, the wireless communication network 110 may transfer location information of the wireless terminal 100 to the broadcast server 112 along with the request. In GSM environment location information is obtained from the VLR and the location information can be attached to the SMS message. The broadcast server 112 receives the location information and is able to forward

broadcasting to the appropriate broadcast cell of the DBN 130. Alternatively in a system of a plurality of broadcast servers, the location information addresses the request to the preferred broadcast server 112. Therefore, a preferred broadcast cell can be selected for broadcasting the requested content to the wireless terminal 100.

Before transmission, the data, which is received from the data server 121, is processed in the broadcast server 112 operatively coupled with the DBN 130. As is well known in the art, the broadcast server 112 performs a multi-protocol encapsulation and places the IP data into Moving Picture Experts Group-Transmission Stream (MPEG-TS) based data containers. To cater for the delivery of data to a particular terminal or group of terminals, the containers may also hold address information which can be identified and read by a conditional access component in the wireless terminal 100 to determine whether the data is intended for that terminal. Alternatively, to cater for the delivery of data to a plurality of terminals multicast can be applied, and advantageously single sender can reach multiple receivers. A Virtual Private Network (VPN) is formed in the system of the DBN 130, the broadcast server 112, and the wireless terminal 100. A certain bandwidth of the DBN broadcasting is allocated to a point-to-point communication from the DBN 130 to the wireless terminal 100. The DBN 130 may also have various transmission channels for other streams running. The wireless terminal 100 performs a multi-protocol decapsulation to form the IP data packets. As described, the system of the invention provides the facility for suitably equipped terminal 100 to interact. Thus, a user may request the delivery of the Internet site via DBN 130 to the wireless terminal 100. Such functionality requires the return channel from the wireless terminal 100 to DBN 130 as referred above by means of SMS. It is possible for the user to issue a request for a specific Internet content via the user interface of the wireless terminal 100. It should be noted that the request from the user might include content which is not presently being transmitted by the DBN 130. To ensure that the user only receives the requested content, the data is broadcast with an identifier which the conditional access component in the wireless terminal 100 recognises as being intended for the user. In the event, that the content is received by an another terminal, the conditional access component of that terminal will prevent a presentation of the content.

The data server 121 may alternatively be configured in an intranet or local area network (LAN). As can be seen, the present invention may be implemented in connection with any network that can communicate with the broadcast server

112, and includes various multi-node network structures such as multipoint, star, ring, loop, mesh, etc. network topologies used in networks ranging from local area networks (LAN) to proliferative global area networks (GAN) such as the Internet.

Figure 2 is a block diagram illustrating a more particular embodiment of wireless terminal by which user obtain data information in accordance with the invention. A wireless device 100 is operatively coupled with the wireless communication network 110 to engage wireless communication and also with the digital broadcast network 130 to receive data. In the example of Figure 2, the wireless device 100 represents a mobile terminal such as a handheld PC, personal digital assistant (PDA), mobile telephone, or other device capable of wireless communication. The wireless terminal 100 is SMS-compliant for transmitting the message indicating the resource. In response to the messages the wireless terminal 100 receives the data information via the broadcast. The data information can be web content or even e-mail. An input user interface (UI) 102 on the wireless terminal 100 allows the user to submit requests for data resource. The requests are submitted through the SMS message in the wireless terminal 100. The request is processed by a processor 103 such that SMS message is formed and sent utilising a mobile transceiver 105 that communicates with the wireless communication network 110 via an antenna 106. A broadcast receiver 107 is operatively coupled with the DBN 130 via the antenna 106. Alternatively, the wireless terminal 100 includes two antennas each for respective communication circuits. The wireless terminal 100 comprises the conditional access application (not shown) for accessing received data information. The broadcast receiver 107 receives a list of data packets and data packets corresponding to the request for obtaining data information from the Internet 120. The processor 103 compares the list to received data packets and marks received data packets, thereby missing data packet(s) is detected. For the missed data packet(s) the processor 103 forms an additional SMS message indicating said missed or incorrect packet(s). The mobile transceiver 105 sends the additional SMS message to the broadcast server 112 for re-transmission of the missed packet(s). Received data information is processed and stored on a memory 104 where memory 104 may include volatile memory and/or non-volatile memory. Received data information is presented to user via an output user interface 101 by processing data from memory 104. Stored data information is allowed to change, and the wireless terminal 100 can selectively store requested content provided by the resource.

As described, the received data information from the data server 121 is locally stored in the memory 104 of the wireless terminal 100. The wireless terminal 100 can temporarily store content locally, so that subsequent requests for that particular content is readily accessible to the wireless terminal 100 without requiring further access to the data server 121. The temporarily stored content is the content which is obtained in response to the latest message(s). The similar feature is known in an Internet browser in the computer as a cache. Alternatively, the user can save certain content to the memory 104 locally. The size of the memory 104 is the limit of the content. For example, the wireless terminal 100 has a 32 MB flash memory to store the content. This provides greatly increased flexibility and efficiency, as all of the data information need not be obtained from the data server 121 using the SMS service each time the data information is desired, since selected information is locally stored. Further, all of the information need not be stored in the local memory 104, which may be prohibitive due to the capacity limitations of the local storage of such mobile devices. Selectively storing the received data information locally thereby reduces the number of required SMS service transactions, which takes time and resources. In addition, SMS services may further be associated with a service transaction fee.

Figure 3 is a block diagram illustrating an alternative embodiment of a wireless terminal by which the user gets data information, where the wireless terminal includes two separate modules. A functional user terminal 300, which may replace the wireless terminal 100 in the example of Figure 1, includes two network units for operating in accordance with the invention. A first network unit such as a mobile phone 301 operates within the wireless communication network 110. By the mobile phone 301 the user enters a request for content and the mobile phone 301 sends an SMS message to the mobile network 110 for obtaining the content. A second network unit such as a DVB terminal 302 receives the content, which is requested by the user and transmitted over the DNB 130. The DVB terminal 302 and the mobile phone 301 are operatively coupled for transmitting data information indicating missing data packets of the content. Also, if user requests to use hyperlink of a received Internet site, the communication between the mobile phone 301 and the DVB terminal 302 takes place. A communication link 303 provides the data information exchange between the terminals. An example of the communication link 303 are an infrared link, a cable and Bluetooth, etc. A publication US 6,172,673 B1, incorporated herein by a reference, refers to an applicable reception of multimedia information in a terminal having a reception part for Digital Audio Broadcasting (DAB). The system in the

publication has a separate mobile phone which is used in giving responses via a GSM network to the DAB network if the terminal does not store the multimedia information which user requests. The terminal has a software agent for controlling reception and storage of received multimedia information in the terminal.

Figure 4 is a block diagram illustrating a more particular embodiment of a network arrangement bridging the communication between networks in accordance with the invention. The SMSC 111 is operatively coupled with the Internet 130 by means of the broadcast server 112. Some of the functions described below may be decentralized between the SMSC 111 and the broadcast server 112 or they may be implemented solely on the SMSC 111. A basic feature of the broadcast server 112 is that it can be connected to data networks. A property, which is also utilized at the physical level of Internet connections. The broadcast server is coupled with the Internet 120 via a firewall 1121. The broadcast server 112 uses IP protocol towards the Internet 120. A datacast server 1122 in the broadcast server 112 controls the IP protocol data transfer. The datacast server receives the request from the SMSC 111 in the IP protocol. An IP encapsulation block 1123 in the broadcast server 112 performs the multi-protocol encapsulation and places the IP data into Moving Picture Experts Group-Transmission Stream (MPEG-TS) based data containers. The encapsulation is the inclusion of one data structure within another structure so that the first data structure is hidden for the time being. To cater for the delivery of data to a particular terminal or group of terminals, the containers may also hold address information which can be identified and read by a conditional access component in the wireless terminal 100 to determine whether the data is intended for that terminal. A plurality of broadcast streams may be broadcast from the broadcast server 112 to the DBN 130. Alternatively, the broadcast server 112 can also receive separate Digital Television (DTV) streams to be wirelessly broadcast over the DBN 130 in addition to the requested content. The data server 121 and application(s) usable in the broadcast server 112 in retrieving the Internet sites from the Internet 120 are commercially available for different operating systems.

The conversion application 115 in the SMSC 111 controls the transmission and reception of SMS messages. The conversion application 115 converts the SMS message into an Internet content request to be forwarded to the broadcast server 112. The publication WO 98/11744 refers to the conversion which is applicable in the present invention. The broadcast server 112 forwards the requests to the Internet 120 and controls the retrievals of the Internet content. The

broadcast server 112 comprises also a site database 116 for storing retrieved Internet contents and various parameters, conversion tables etc. Alternatively, the site database 116 can have a list of sponsored web content, and various billing possibilities. A monitoring program 117 is also included in the broadcast server 112 for controlling of a network usage. The monitoring program 117 keeps track on a usage level of networks while networks offer services. This is applicable to charging purposes where a price depends on a network load/traffic. Alternatively, the monitoring program 117 checks whether the user request matches with sponsored content.

A charging database 118 is included in the wireless communication network 110 for compensating or billing the user depending on the content and/or the request for the content. A possibly variable price for the requested content including the request is stored on the charging database 118. The charging database 118 decides on the charging parameters for each user. The charging database 118 receives user related information from a user database 119 via the wireless communication network 110 and information about the retrieved/received content. The charging database 118 may also receive information from the monitoring program 117 about the network usage and/or the received identification information of the wireless terminal user. The broadcast server 112 sets a price for the requested content and sends the price having related user id to the charging database 118. The charging database 118 transfers the charging information to the wireless communication network operator which accordingly charges the user for the requested/received content. For the later use, the user database 119 may include user-related information such as a user profile based on user identity information for the requested services.

The system of the embodiment in Figure 4 is very advantageous because it can be introduced into the existing short message service centres.

Figure 5 is a flow diagram of one embodiment of the invention illustrating a method in which a user gets data content, such as from an Internet site, to a wireless terminal. When requiring information from an Internet site, the user submits a request to obtain the content (Step 500). A request identifier is entered via a user interface, such as a text entry field viewable on a display of the wireless terminal 100. Alternatively, the request is entered via other or additional user interfaces, such as an audio input capable of receiving voice commands or other sound commands. Other known user interfaces may also be used within the scope and spirit of the invention, including Graphical User Interfaces (GUI) and

GUI selection tools such as a mouse, joystick, keyboard, touch screen, head mounted display, etc. By the wireless terminal 100 the user submits a SMS message transmitted to the SMSC 111. The SMS message contains an identifier directly or indirectly indicating the Internet site. The direct indication comprises an Internet address such as a URL (Uniform Resource Locator). Alternatively, instead of the URL, the user keys in a short keyword in the message indirectly indicating the desired Internet content. The site database 116 comprises a table for linking keywords to WWW page addresses. An example of such a table is illustrated below. For example, when requesting information on patent information from a WWW page the URL of which is http://www.uspto.gov/patentnumber, the user enters a code PATN 6234567 and the wireless terminal 100 sends the code in the message to the SMSC 111 and the request is converted to the broadcast server 112.

Keyword	URL
PATN 6234567	http://www.uspto.gov/pat-seach/US6234567
WEATHERMAP LONDON	http://www.weathermapdata.com/london
...	...

Referring to Figure 5, the wireless terminal 100 transmits the SMS message to a certain number (Step 501). Typically this number is the number indicating service for accessing the resource by a certain operator. The SMSC 111 converts the SMS message into a request and forwards the request the broadcast server 112 (Step 502). Alternatively, the SMSC 111 forwards the request directly to the data server 121, the forwarded request having the address of the broadcast server 112, so that the Internet content can be addressed to the broadcast server 112.

Still referring to Figure 5, the broadcast server 112 checks if the Internet content has been retrieved previously and is stored on the site database 116 (Step 503). If the site database 116 does not have the content, the broadcast server 112 retrieves the Internet content corresponding to the URL address from the Internet 120 and stores it on the site database 116. The Broadcast server 112 checks packets of the retrieved content and possibly a due time for the transmission over the broadcasting (Step 504). On the basis of the keyword, such

as the PATN6234567, the broadcast server 112 retrieves the URL address from the site database 116.

Before the broadcasting, the broadcast server 112 may alternatively have a threshold for certain conditions that are to be checked (Step 505). The conditions may, for example, be that number of terminals obtaining the content must exceed a certain amount. Also, it may be that the user has requested weathermap information for the weekend on Thursday. The system idles until Friday and transfers the requested weather information to the user by the DBN 130 on Friday. This condition may also relate to the charging of the content as will be described afterwards.

The broadcast server 112 performs the multi-protocol encapsulation and places the IP data into the MPEG-TS based data containers. The broadcast server creates also a list of the data packets to be sent. The list contains identity information of about 15-25 packets. The amount of the packets in the list may vary based on effective broadcasting and acknowledgement. The list is formed so that the wireless terminal 100 can check the received packets. The broadcast server 112 forwards the packet stream and related information to the DBN 130 as described referring to Figure 1 and the DBN 130 broadcasts the data information to at least one wireless terminal 100 (Step 506). The entire content is transferred as periods of 15-25 data packets and the list for those packets.

The wireless terminal 100 receives the list and the data packets, such as the US patent 6,234,567 (Step 507). The list of the data packets shows number and identity of the packets and possibly the transmission due time. The transmission due time may inform the wireless terminal 100 when to stop receiving the packets. The application running in the wireless terminal 100 compares the received packets to the list. Temporarily stored packets are compared to the list and stored upon marking the packet as received in the list (Step 508).

The wireless terminal 100 presents the requested content if the packets have been substantially received. If the wireless terminal 100 receives all data information that is shown in the list, the terminal 100 presents the requested data info. If the wireless terminal 100 receives such an amount of the data information that it is capable of presenting it, the terminal 100 presents the data. Advantageously, if the transferred data has minor errors, the terminal can correct them by, for example, coding. If data information is substantially missing, wireless

terminal 100 creates a request indicating the missing data information. The request is an additional SMS message. The additional SMS message includes the address of the resource and information showing the missing data packets. The wireless terminal 100 sends the additional SMS message to the SMSC 111 (Step 509). The SMSC 111 converts and forwards the request to the broadcast server 112. The broadcast server 112 first checks does it have the missing data packets in the site database 116. If the missing packets are not stored in the server 112, the server 112 retrieves the missing packets from the data server 121. The broadcast server 112 forms a list of the missing packets to be transmitted, and transmits the list and the packets as described referring to the broadcasting. The wireless terminal 100 sends the additional message similarly as it sends the initiating request message. Alternatively instead of the missing packet(s), the entire requested data information is broadcast to the wireless terminal 100. After the content is substantially received, it is presented to the user via the output interface 101. Similar feature of retrieving missing data packets is known in the Internet environment as IP-NACK (Negative Acknowledgement).

In the Internet IP-NACK every single received packet is acknowledged. If every single packet is transmitted by broadcast and acknowledged by the SMS message, the SMSC 111 is overloaded and obstructed. If the return channel is continuously on, this creates costs and takes resources. Therefore, a set of 15-25 packets *per* list is selected.

If the user wants to select a hyperlink in the content, the user makes an indication to the link using the input user interface 102 (Step 510). For example, the user may view the Internet site and move a mouse to the hyperlink and click the hyperlink. The wireless terminal 100 creates a further SMS message for obtaining data information to which the hyperlink relates. The further SMS message comprises at least the selected hyperlink. Alternatively, if data information of the hyperlink is locally stored, it is obtained from the storage of the wireless terminal 100. The wireless terminal 100 sends the further message to obtain the linked content (Step 511). The further SMS message is sent as referred upon describing the sending of the initiating SMS message. The SMSC 111 converts the further SMS message to the request and forwards the request to the broadcast server 112. The broadcast server 112 checks if data information, which is indicated in the hyperlink, is in the site database 116. If the site database does not store data information, the broadcast server 112 retrieves data information from the Internet 120. The broadcast server 112 forms a list of the missing

packets to be transmitted, and transmits the list and the packets as described referring to the broadcasting. The process ends when the wireless terminal 100 presents the content and the user do not select any link (Step 512).

Figure 6 is a flow diagram of a more particular embodiment depicting a charging model of the short message and/or the content. One embodiment of the invention enables the content provider to define various charging scenarios that depends, for example, on the content. This provides advantages to the invention since the user can access the content free of charge. This will certainly attracts users. Moreover, the invention can yet provide traditional request based billing, and allows content providers to charge for the content itself. Some examples of various usage possibilities are listed below.

	No charge to user, message paid by service provider	Message paid by user	Message and content paid by user
Advertisements	X		
Time schedules	X		
Web-page	(X) depend on provider	X	
MP3			X

Referring to Figure 6, the user initiates access to the resource (Step 600). The user makes a request identifier to indicate the content. The wireless terminal 100 sends the SMS message, which is converted into the request, to the resource which typically is the data server 121 (Step 601). The request for the content is received at the broadcast server 112. The content and the message for requesting the content can be billed. There are several modes in billing and three are described. 1) The content is totally free for the user (Mode 602). The content provider pays for transmission costs such as the requesting SMS message and for the broadcasting costs (Step 603). For example, advertisement may be free for the user. When the user requests to obtain the advertisements the content

provider is charged for the SMS message and possibly for other costs such as the broadcasting cost or Internet usage cost. 2) Content itself is free for the user (Mode 604). The user is charged for the transmission costs such as for the SMS message (Step 605). For example, a traditional web site may establish this kind of billing situation where user obtains the content for free but pay for the SMS message. 3) Content costs a certain amount for user (Mode 606). The user is charged for the SMS message and the content (Mode 607). For example, a digital music such as an MP3 file may establish this kind of billing situation where the user obtains music and pays for both the content and the SMS message.

The content is broadcast to the user via the DBN 130 (Step 608). The broadcast server 112 forwards the content to the DBN 130 and the data broadcasting takes place. The broadcast takes place when billing scenario is set at the broadcast server 112. The wireless terminal 100 receives the content (Step 609). The wireless terminal 100 can inform the broadcast server 112 of successfully receiving the content and the broadcast server 112 is able to end the charging scenario. A telecommunication operator administrates the actual charging of the user. The operator receives charging information from the charging database 118. Alternatively, the administrator of the broadcast server 112 controls the actual charging. The user pays for the service in, for example, a periodical mobile phone bill.

In a further embodiment of the invention obtaining the content is charged based on traffic in the networks. The user requests content from the Internet 120 by the wireless terminal 100. The request for the content is at some point received at the broadcast server 112 or at the networking element having equivalent functions. The monitoring program 117 scans networking systems periodically in order to have information on availability of physical resources of the network. The physical resources are, for example, an available bandwidth, the number of simultaneous users, a time of the network usage, etc. The monitoring program 117 retrieves the physical resource information about the wireless communication network 110, about the Internet 120 and about the DBN 130. A charge for the variable connection for obtaining the data information from the Internet 120 is dependent on the availability of physical network resources. There are various charging scenarios, for illustrative purposes two is described. 1) Lower the quality, cheaper the price of the contract. The lower the quality is, the cheaper the price for the connection is. The cheaper price typically means more users in the networks. Advantageously, this kind of charging compensates a loss in the Quality

Of Service (QOS) for the users. 2) More users in the network, the more expensive the price contract. The more simultaneous users there are using the networks, the more expensive the price for the connection is. This kind of billing model tries to keep the QOS on reasonable level. This gives the operator a tool to limit possible network congestion especially during peak hour. Because the network has a certain capacity, the charging model 2) offers a way to limit users when the network is too loaded. More users in the networks typically mean lower transmission quality. Advantageously, the QOS level remains on a reasonable level. Moreover, there might be more nighttime users because the cheaper price for that particular connection attracts them.

In a further embodiment of the invention accessing the resource is charged based on the access. Again, user requests content from the Internet 120 by the wireless terminal 100. The operator of the wireless communication network 110 provides the charging. Alternatively, the operator of the broadcast server 112 provides the charging. There are various charging scenarios implemented by access based charging. 1) The access to data information is free of charge. In this case a certain access identifier, for example, the number of the SMS message is used and the user is identified based on the wireless terminal 100 operating within the wireless communication network 110. 2) An access to the data information includes an extra charging. The user sends the request including the certain access identifier, for example the number of the SMS message. The requested content comprises the content that is considered to have monetary value, for example MP3 music. The operator charges the user for the requested content based on the access identifier identifying the user. Advantageously, some network sites may be free and attract more users. Also, the user will not have to enter extra credit card information to obtain the resource from the network, because the user can be charged according to the access identifier. When the user uses the number access to the Internet 120, the SMS message is read at the SMSC 111. As a content of the SMS message indicates the resource having the requested content in the Internet 120, the number of the SMS message directed to SMSC 111 also tells the system to include the charge for that user. The requested content is broadcast to the user.

One skilled in the art of computer science will be able to create the software in accordance with the invention with appropriate general purpose or special purpose computer hardware to create a computer system and/or computer

subcomponents embodying the invention, and to create a computer system and/or computer subcomponents for carrying out the method of the invention.

While there has been described what are believed to be the preferred embodiment of the invention, those skilled in the art will recognize that other and further changes and modifications may be made thereto, and it is intended to cover all such changes and modifications as fall within the scope of the claims. For example, USSD (Unstructured Supplementary Services Data) may be applied as an alternative for the SMS. The USSD provides the operator with a tool to design proprietary supplementary services. As with the SMS, USSD uses a signaling channel as a bearer. However, instead of having the store-and-forward functionality, it is session-oriented. This means that when the user accesses a USSD service, a session is established and the radio connection stays open until the user, application, or time-out releases it. Response times for interactive applications are faster. A packet switched data transfer contains the evolvement of the SMS and the USSD into the GPRS and further into the UMTS. These sophisticated wireless communication networks provide the ability to transfers the message in form of packets via the wireless communication network. Also instead of the SMS, R-data offers also a way to transfer the message in IS-136 (Time Division Multiple Access, TDMA) network to an element of the wireless communication network to be forwarded to the Internet.

CLAIMS

1. A method for obtaining content to a wireless terminal (100) operating within a wireless communication network (110), the method comprising:

   transmitting a user message via the wireless communication network (110) to a network of computing systems (120), the user message indicating a resource containing the content in the network of computing systems (120), and thereafter

   transferring the content from the resource over a broadcast network (130) to the wireless terminal (100).

2. The method according to Claim 1, further comprising, before the step of transferring the content, creating a list of data packets of the content, and the step of transferring the content comprises transferring the list and the content.

3. The method according to Claim 2, further comprising sending an additional message for obtaining missing data packets of the content if the content is not substantially received at the wireless terminal.

4. The method according to Claim 1, further comprising sending a further message including an identifier indicating said content and further content in the network of computing systems wherein said further content is linked to said content.

5. The method according to Claim 1, wherein transmitting the user message comprises receiving the user message at a network element of the wireless communication network (110), converting the message into a request of the network of computing systems and forwarding the request to a broadcast server (112) for obtaining the content.

6. The method according to Claim 1, before the step of transferring the content over the broadcast network (130) further comprising a step of communicating with the network of computing systems (120) for retrieving the content to a broadcast server (112).

7. The method according to Claim 2, wherein transferring the content over the broadcast network (130) to the wireless terminal (100) comprises broadcasting the data packets of the content and the list showing the data

packets of the content over a terrestrial digital video broadcasting (DVB-T) network (130) to the wireless terminal (100).

8. The method according to Claim 1, wherein the message identifies a plurality of wireless terminals and the content is broadcast to the plurality of wireless terminals identified in the message.

9. The method according to Claim 2, further comprising the steps of comparing received data packets to the data packets in the list and presenting the content at the wireless terminal if the data packets are substantially received.

10. The method according to Claim 9, wherein presenting the content received at the wireless terminal if the data packets are substantially received comprises presenting the content received at the wireless terminal (100) if all data packets listed on the received list are received at the wireless terminal (100).

11. The method according to Claim 9, wherein presenting the content received at the wireless terminal (100) if the data packets are substantially received comprises presenting the content received at the wireless terminal (100) if all data packets of the content are received at the wireless terminal (100).

12. The according to Claim 9, wherein presenting the content received at the wireless terminal (100) if the data packets are substantially received comprises presenting the content received at the wireless terminal (100) if the wireless terminal (100) is capable of presenting the content.

13. The method of Claim 1, wherein the user message comprises at least one of a SMS message and a packet based message, the content comprises data information in Internet, and the wireless communication network (110) comprises a mobile phone network, the network of computing systems (120) comprises the Internet, and the broadcast network (130) comprises a terrestrial digital video broadcasting (DVB-T) network.

14. The method of Claim 1, wherein the user message creates a certain charge based on at least one of the following a type of the data packets, a function of time, a Quality Of Service (QOS) requirement of the content, a function of available bandwidth, a function of simultaneous users, a load in at least

one of the networks (110, 120, 130) and means for accessing to the resource.

15. A wireless terminal (100) for transmitting a user message via a wireless communication network (110) for obtaining content, the terminal (100) comprising:

an input user interface (102) to receive an address of the content for addressing the user message to a resource (121) in a network of computing systems (120) via the wireless communication network (110),

means (103, 105) for transmitting the user message to the resource (121) in the network of computing systems (120) to obtain the content from the resource (121),

a broadcast network interface (107) to receive the content broadcast over a broadcast network (130),

a memory (104) to store the content received over the broadcast network (130) and received at the wireless terminal (100), and

an output user interface (101) to present the content to the user of the wireless terminal (100).

16. The wireless terminal (100) as in Claim 15, further comprising means (103) for comparing received data packets of the content to a list of data packets of the content.

17. The wireless terminal (100) as in Claim 16, further comprising means (103) for transmitting an additional message to a broadcast server (112) if data packets of the content are missing.

18. The wireless terminal (100) as in Claim 15, further comprising means (103) for transmitting a further message to a broadcast server (112) if the input user interface (102) receives an instruction based on outputted content.

19. The wireless terminal (100) as in Claim 15, wherein the user message contains a uniform resource locator (URL) address of the content in the network of computing systems (120).

20. The wireless terminal (100) as in Claim 15, wherein the user message contains an index which is associated with a URL address of the resource in the network of computing systems (120).

21. The wireless terminal (100) as in Claim 15, wherein the content comprises Internet data information, the wireless communication network (110) comprises a mobile network, the network of computing systems (120) comprises the Internet and the broadcast network (130) comprises a terrestrial digital video broadcasting (DVB-T) network.

22. The wireless terminal (100) as in Claim 15, wherein the means for transmitting the user message comprises a first wireless unit (301) and the broadcast network interface comprises a second wireless unit (302), wherein the first and the second wireless units comprises two independent devices (301, 302).

23. A computer program product comprising a program of instructions executable by a computing system for processing a supply of content, comprising:

computer program code for receiving a user message from a wireless terminal (100) via a wireless communication network (110), the user message indicating a resource in a network of computing systems (120),

computer program code for converting the user message into a request of the network of computing systems (120),

computer program code for communicating with the network of computing systems (120) for retrieving the content indicated in the message, and

computer program code for transmitting the content over a broadcast network (130) to the wireless terminal (100).

24. The computer program product as in Claim 23, further comprising computer program code for creating a list of data packets of the content, and wherein the code for transmitting the content over a broadcast network (130) comprises computer program code for transmitting the list and the content over a broadcast network (130) to the wireless terminal (100).

Fig. 1

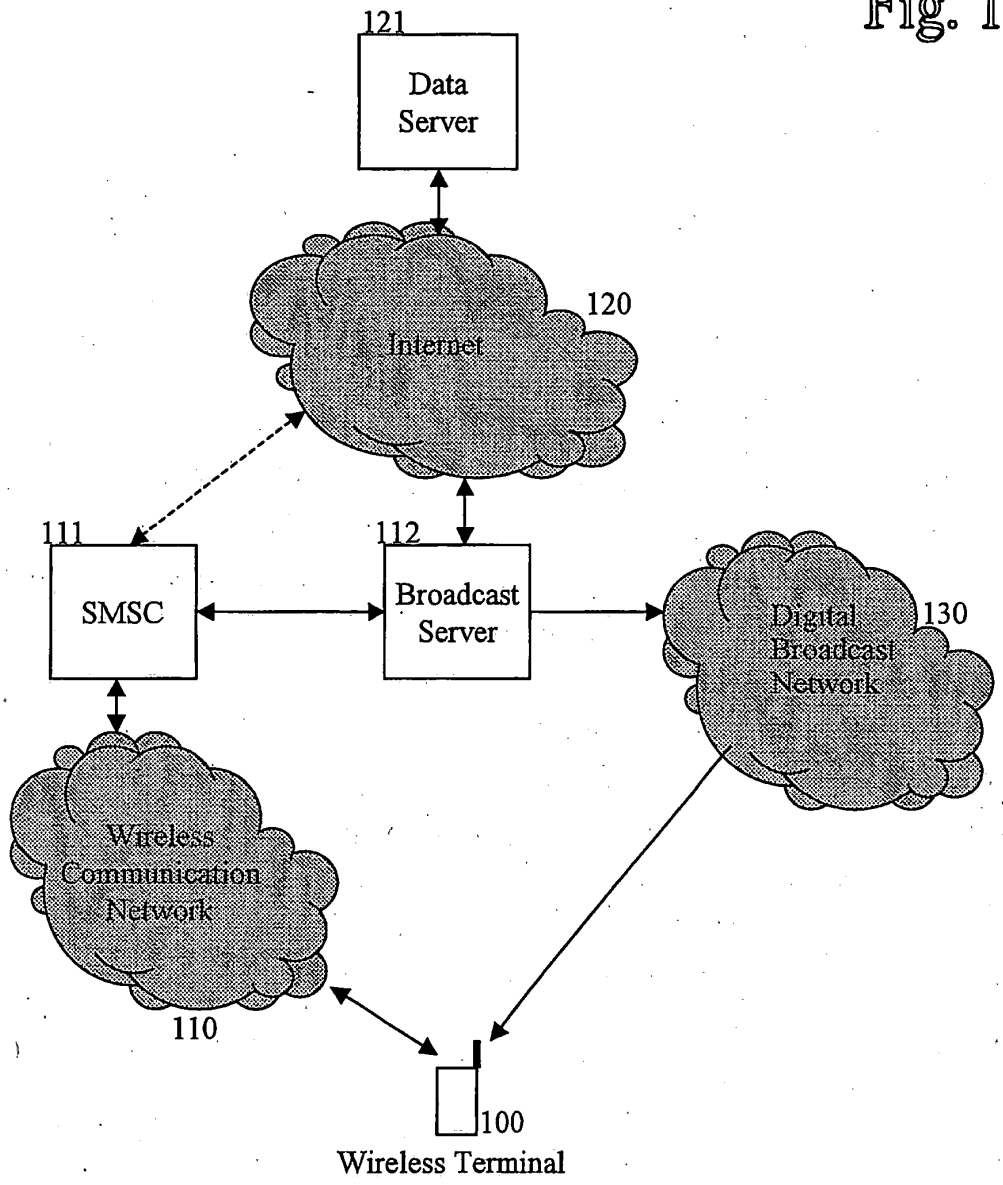

121
Data Server
120
Internet
111
SMSC
112
Broadcast Server
130
Digital Broadcast Network
Wireless Communication Network
110
100
Wireless Terminal

Fig. 2

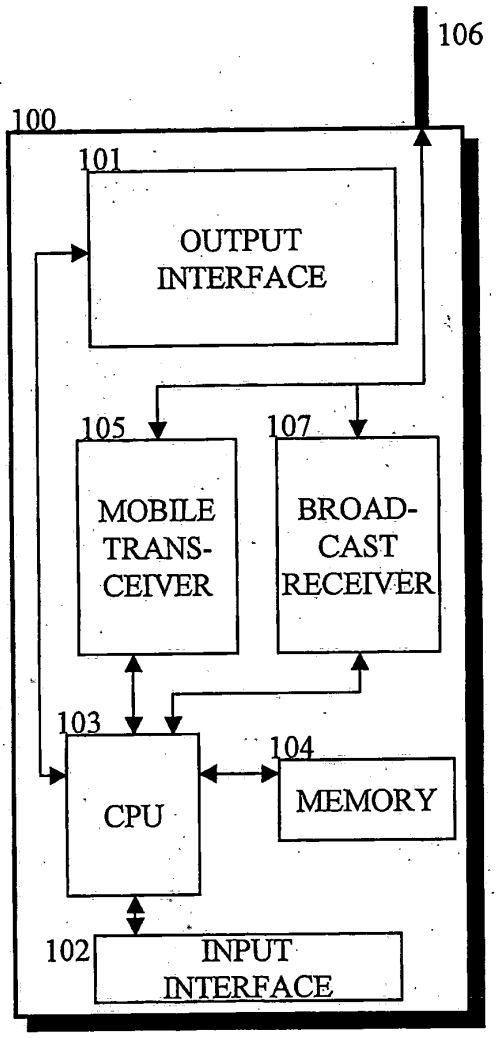

106
100
101
OUTPUT INTERFACE
105
MOBILE TRANS-CEIVER
107
BROAD-CAST RECEIVER
103
CPU
104
MEMORY
102
INPUT INTERFACE

Fig. 3

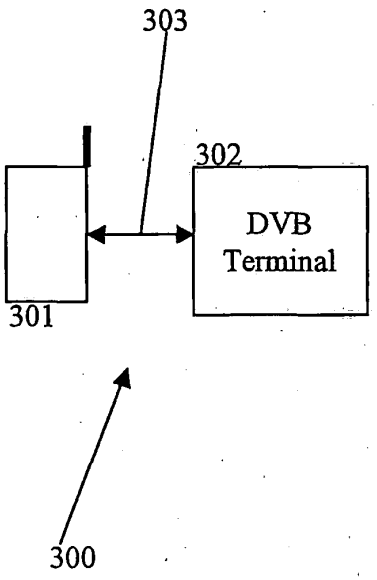


Fig. 4

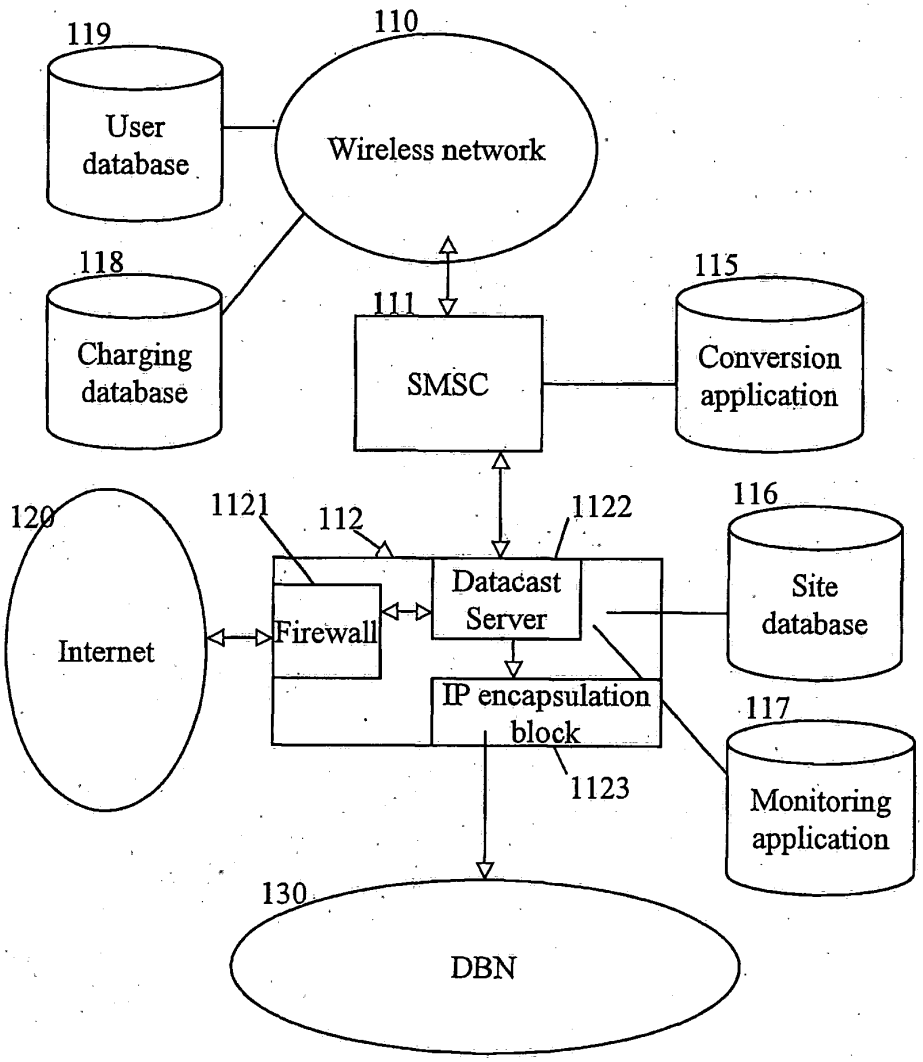

119
User database
110
Wireless network
118
Charging database
111
SMSC
115
Conversion application
120
Internet
1121
112
1122
Firewall
Datacast Server
116
Site database
IP encapsulation block
117
1123
Monitoring application
130
DBN

Fig. 5

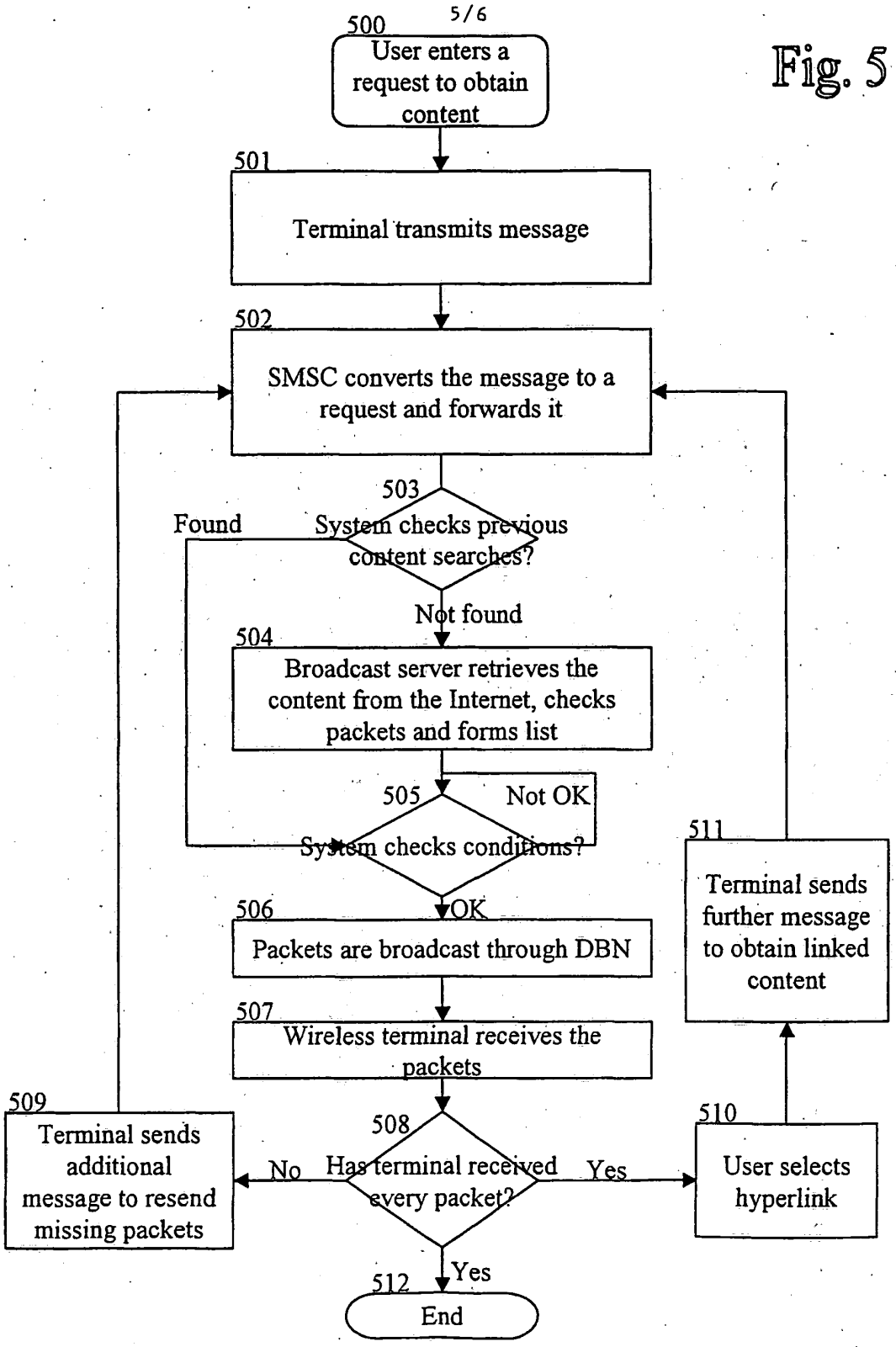
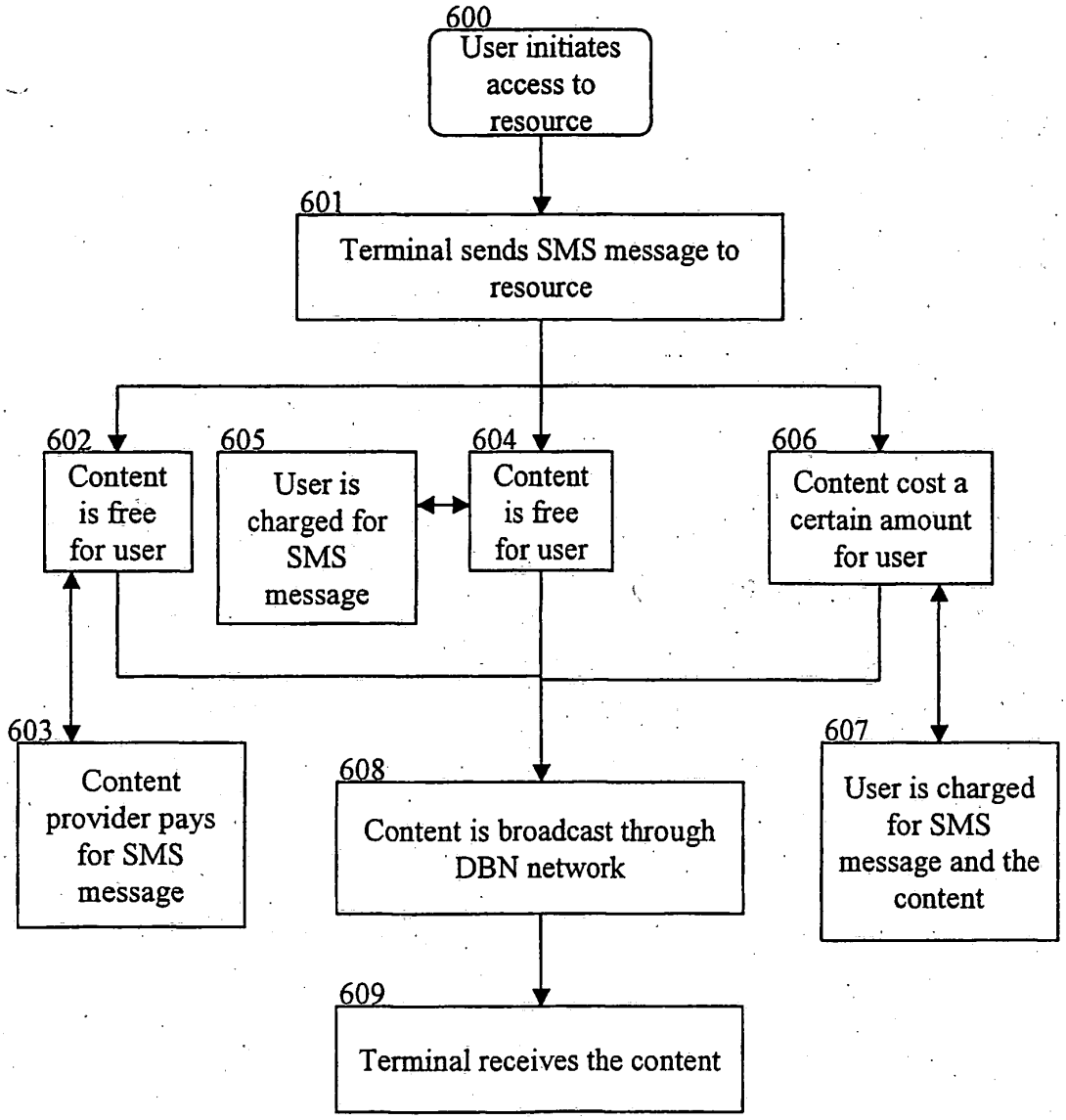

500
User enters a request to obtain content
501
Terminal transmits message
502
SMSC converts the message to a request and forwards it
503
System checks previous content searches?
Found
Not found
504
Broadcast server retrieves the content from the Internet, checks packets and forms list
505
System checks conditions?
Not OK
OK
506
Packets are broadcast through DBN
507
Wireless terminal receives the packets
508
Has terminal received every packet?
No
Yes
509
Terminal sends additional message to resend missing packets
510
User selects hyperlink
511
Terminal sends further message to obtain linked content
Yes
512
End

Fig. 6


600
User initiates access to resource
601
Terminal sends SMS message to resource
602
Content is free for user
605
User is charged for SMS message
604
Content is free for user
606
Content cost a certain amount for user
603
Content provider pays for SMS message
608
Content is broadcast through DBN network
607
User is charged for SMS message and the content
609
Terminal receives the content

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 02/00554

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04L 12/66 // H04H 1/00, H04L 29/06
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04B, H04L, H04H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2313981 A (ROKE MANOR RESEARCH LTD), 10 December 1997 (10.12.97), whole document --	1-24
X	KELLERER, W. et al.: IP based enhanced data casting services over radio broadcast networks. In: Universal Multiservice Networks, 2000. ECUMN 2000. 1st European Conference on. On pages 195-203. 2-4 Oct. 2000. ISBN: 0-7803-6419-8. See whole document --	1-24
A	WO 9914775 A1 (TERACOM AB), 25 March 1999 (25.03.99), page 11, line 16 - line 24, abstract --	1-24

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Åsa Hällgren/LR Telephone No. +46 8 782 25 00

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI 02/00554

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	HARTWIG, S. et al.: Mobile multimedia-challenges and opportunities. In: Consumer Electronics, IEEE Transactions on. On pages 1167-1178. Nov. 2000, vol. 46, issue 4. ISSN: 0098-3063. See paragraphs 2,4; figure 4	1-24
A	WO 9857482 A1 (TELEFONAKTIEBOLAGET LM ERICSSON), 17 December 1998 (17.12.98), figure 1, abstract	1-24
A	WO 9856181 A1 (TELIA AB), 10 December 1998 (10.12.98), abstract	1-24

Form PCT/ISA/210 (continuation of second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

Information on patent family members

02/09/02

International application No.
PCT/FI 02/00554

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2313981 A	10/12/97	GB 9705123 D	00/00/00
		GB 9611830 D	00/00/00
		GB 9613404 D	00/00/00
WO 9914775 A1	25/03/99	AU 9194198 A	05/04/99
		CA 2304016 A	25/03/99
		EP 1016109 A	05/07/00
		SE 9703345 D	00/00/00
WO 9857482 A1	17/12/98	AU 8045698 A	30/12/98
		CN 1260094 T	12/07/00
		EP 0988742 A	29/03/00
		JP 2002503419 T	29/01/02
		US 6122263 A	19/09/00
WO 98561181 A1	10/12/98	NONE	

Form PCT/ISA/210 (patent family annex) (July 1998)

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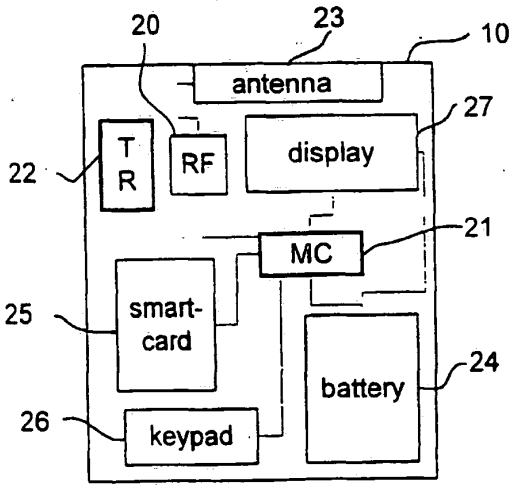
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AT (utility model), AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ (utility model), DE, DE (utility model), DK, DK (utility model), DM, DZ, EE, EE (utility model), ES, FI, FI (utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (utility model), SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A METHOD AND SYSTEM FOR ESTABLISHING A SHORT-RANGE RADIO LINK



(57) Abstract: A method and system for establishing a first short-range radio link, operating within a first link range (13), between a stationary unit (12) and a mobile communication device (10, A) in a wireless network environment, wherein the stationary unit (12) transmits an interrogation signal to said mobile communication device (10, A) via a short-range communication link operating within a second link range (14) essentially smaller than said first link range (13). The mobile communication device (10, A) receives the interrogation signal from the stationary unit (12), and generates and transmitting a respond signal, including a unique identification number of the mobile communication device (10, A), to said interrogation signal. The stationary unit (12) receives said respond signal, and authenticate the identification number. Finally, the stationary unit (12) and said mobile communication device (10, A) establish a connection via said first short-range radio link.

WO 01/45319 A1

TITLE: A METHOD AND SYSTEM FOR ESTABLISHING A SHORT-RANGE RADIO LINK

Field of the Invention

The present invention relates to a method and system for establishing a radio link between a stationary unit and a mobile communication device, and more particularly to a method and system for establishing a short-range radio link between a stationary unit and a mobile communication device in a wireless network environment comprising a plurality of mobile communication devices.

Description of the Prior Art

There are some well-known methods and systems for establishing connections for wireless communication between stationary units and mobile communication devices. Bluetooth is a technology based on a short-range radio link utilising a microchip facilitating protected ad hoc connections for stationary and mobile communication units in wireless environments. Bluetooth technology allows for the replacement of cables connecting a device to another with a universal short-range radio link. For example, this Bluetooth technology can be built into cellular phones, laptops, printers, PDAs, fax machines, pay terminals, and several other digital devices. Further, the Bluetooth technology is designed to operate in a noise radio frequency environment, and uses a fast acknowledgement and frequency hopping scheme to make the link robust. Bluetooth radio modules avoid interference from other signal by hopping to a new frequency after transmitting or receiving a packet.

However, there is a problem associated with the procedure of establishing a short-range radio channel between one stationary unit and a particular mobile unit

from a plurality of mobile units, located within the range of the short-range radio link. In this case, confusion may occur regarding with which one of the mobile units the stationary unit should establish the connection.

In a particular wireless communication application, a wireless electronic pay terminal is provided with a short-range radio frequency unit and a microchip for communication with a stationary point of sale terminal. The point of sale terminal comprises a corresponding short-range radio frequency unit and a microchip. Assume a situation where several customers provided with a wireless electronic pay terminal, as described above, queue at the point of sale for paying the wares at the electronic point of sale terminal. In this case, a plurality of customers and their pay terminals will be located within the range of the short-range radio link. Thus, the point of sale terminal has difficulties in determining which one of the queuing customers (the first one) being the next in turn and an object for establishing a communication in order to debit the customer and exchange other data between the point of sale terminal and the particular pay terminal.

Summary of the Invention

Therefore, it is an object of the present invention to provide a method and system for establishing a short-range radio link between a stationary unit and a particular mobile communication device for transactions in a wireless network environment including a plurality of mobile communication devices within the range of the short-range radio link.

This is accomplished by a method and system according to the present invention, wherein the particular mobile communication device, which is subject to the current communication, is identified by transmitting a signal including a unique identification number of the mobile

communication device to the stationary unit through another short-range communication link than the short-range radio link, which is used for the current transaction and data exchange. The short-range communication link used for identification operates within a link range essentially smaller than the link range of the radio link used for the transaction.

Another object of the invention is to provide a mobile communication device for use in a wireless communication network, comprising a an ID transponder for receiving an interrogation signal from a stationary unit and generating a respond signal to said interrogation signal, including a unique identification number of the mobile communication device for authentication in a stationary unit, and for establishing a connection with the stationary unit via a short-range radio link.

Still another object of the invention is to provide a stationary unit for use in a wireless communication network, wherein the stationary unit comprises a short-range radio frequency unit for communication with a mobile communication device via a short-range radio link, and a short-range communication unit for communication with the mobile communication device via another short-range communication link, operating within a second link range essentially smaller than the first link range. Through the short-range communication link, the stationary unit transmits an interrogation signal to the mobile communication device and receives a respond signal, including a unique identification number, from the mobile communication device, and authenticates the identification number in order to establish a connection with the mobile communication device via the short-range radio link.

Brief Description of the Drawings

In order to explain the invention in more detail and the advantages and features of the invention, a preferred embodiment will be described in detail below, reference being made to the accompanying drawings in which

FIG 1A is a schematical view of a wireless communication system according to the invention,

FIG 1B is a schematical view of a plurality of wireless communication systems according to the invention,

FIG 2 is a block diagram of a mobile communication device according to the invention including an ID transponder,

FIG 3 is a schematic diagram of a first embodiment of the ID transponder in FIG 2,

FIG 4A is a block diagram of a first embodiment of a stationary unit according to the invention, and

FIG 5 is a flow chart of the method of establishing a short-range radio link according to the invention.

Detailed Description of the Invention

FIG 1A shows an illustrative view of a wireless communication system according to the invention. For the purpose of illustration the wireless communication system according to the invention is described in connection with a particular wireless communication application, wherein a first short-range radio link is to be established between a wireless electronic pay terminal 10 and a stationary point of sale terminal 12 for communication of transaction data during a payment procedure. In this embodiment of the invention a Bluetooth link with a range 13 of about 10m is used for the first short-range radio link.

An environment, such as in a supermarket, including several customers provided with wireless electronic pay terminals 10 queuing at a plurality of point of sale terminals 12 for paying the wares is shown in FIG 1B. In

this case, a number of pay terminals 10 will be located within the range of the first short-range radio link. Thus, an identification or authentication of which one of the queuing customers (the first one) being the next in turn has to be performed by each of the sale terminals 12. Thus, the particular pay terminal held by the first customer in the queue which is also the closest one to the point of sale terminal 12 is the next object for establishing a communication with the sale terminal 12. The closest pay terminal 10 is denoted A in FIG 1A. In FIG 1B there are two additional "closest" pay terminals B and C, which are located first in their respective queues.

The identification is performed by transmitting a signal including a unique identification number of the pay terminal A to the point of sale terminal through another short-range communication link than the short-range radio link, which is used for the current transaction and data exchange. The short-range communication link used for identification operates within a second link range, illustrated by a small dashed circle 14 in FIGs 1A and 1B, essentially smaller than the link range of the radio link used for the transaction.

A block diagram of a pay terminal 10 according to the invention is shown in FIG 2. The pay terminal comprises a short-range radio frequency unit 20 operatively connected to at least one microchip 21, which facilitates ad hoc connection with the point of sale terminal 12 via a short-range radio link operating within the first link range 13. The pay terminal 10 further comprises a passive radio frequency ID transponder 22 for communication with said point of sale terminal 12 via a short-range radio link. This link operates within the second link range 14 which is essentially smaller than the first link range 13. The second link range should be limited to about 50cm. However,

it can still operate properly up to about 1m. However, the preferred range of the second short-range link is 0-20cm.

The transponder 22 is adapted for receiving an interrogation signal from the point of sale terminal 12, and generating a respond signal to the interrogation signal. The signal includes a unique identification number, stored in storage means in the transponder 22, of the particular pay terminal 10. Further, the pay terminal and its microchip is adapted for establishing a connection with the point of sale terminal 12 by means of the short-range radio frequency unit 20 and its antenna 23 via the short-range radio link 13.

Power supply for the pay terminal 10 and its components is preferably provided by means of a battery 24. A smartcard 25 including at least one microchip and storage means are attached to the pay terminal and operatively connected to the internal microchip 21. The pay terminal is operated by a keypad 26 and information about transactions etc. appears on a display 27.

The passive radio frequency transponder 22 is shown in further detail in FIG 3. The transponder comprises an antenna coil 30 connected to a microchip 31 including a user-programmable EEPROM 31 with the unique identification number of the pay terminal 10 and additional circuitry. The transponder is capable of receiving an interrogation signal transmitted from the sale terminal 12 and separating the radio-frequency energy from the received signal. This energy is utilised by the transponder for supplying its operation. Thus, the interrogation signal is analysed and a respond signal including the unique identification number is send to the sale terminal 12.

A first embodiment of the electronic point of sale terminal 12 is illustrated as block diagram in FIG 4A. The point of sale terminal 12 comprises at least one microchip operatively connected to a first short-range radio

frequency unit 41 for communication with the pay terminal 10 via a first antenna 42. As described above, this first radio link is used for transaction data. For the identification procedure, a second radio link is used, which operates within the second link range 14, essentially smaller than the first link range 13. Therefore, the sale terminal 12 is provided with a second radio frequency unit 43 and a suitable antenna 44. The sale terminal 12 and its microchip 40 is capable of transmitting an interrogation signal to the pay terminal 10 via the second radio link, and receiving a respond signal including the unique identification number of the pay terminal 10 via the second radio link. Further the microchip is adapted for authenticating the identification number, and then establishing a connection with said pay terminal 2 via the first radio link.

A method according to the present invention for establishing a first short-range radio link, operating within a first link range, between the point of sale terminal 12 and the pay terminal A in the wireless network environment shown in FIGs 1A and 1B, is illustrated by the flowchart in FIG 5.

When the point of sale terminal 12 and the particular pay terminal A are within the range of the second short-range communication link, an interrogation signal is transmitted from the point of sale terminal 12 to the pay terminal B via the second short-range communication link in step 50. The transponder 22 in the pay terminal A receives the interrogation signal in step 51. A respond signal, including a unique identification number of the pay terminal A stored in the storage means of the transponder, is generated in the microchip in step 52 and transmitted through the second communication link to the point of sale terminal 12 via its second communication unit 43 or 45 in step 53. The respond signal is received in the point of

sale terminal 12 in step 54, and the identification number is separated from the signal and authenticated by the microchip 40 in step 55. If the identification number is authenticated properly, the point of sale terminal finally establishes a connection with the pay terminal A via the first short-range radio link.

Hence, the present invention provides a method and system for establishing a first short-range radio link between a point of sale terminal and a pay terminal for transactions in a wireless network environment including a plurality of pay terminals within the range of the short-range radio link, by utilising another short-range communication link for identification or authentication purpose. However, the present disclosure of the embodiments described is to be considered as exemplification of the invention and it is not intended to limit the invention to the specific embodiments.

In an alternative embodiment of the invention the pay terminal is included in mobile phone or another mobile communication device. Similarly, the point of sale terminal may be another kind of stationary unit.

For example, in an alternative embodiment of the invention the transponder is a TEMIC TK5561A-PP passive ID radio frequency transponder having crypto capability for the information exchange. This transponder operates at the nominal carrier frequency of 125kHz. Still another example of a suitable transponder is the TIRIS RI-TRP-R9WK or RI-TRP-W9WK provided by Texas Instruments. Other similar transponders can be used within the scope of the invention as disclosed.

The Bluetooth technology, which is used for the first short-range radio link in the above-described embodiments, operates in a range of 10cm to 100m in the unlicensed ISM band at 2,4 GHz. However, other similar wireless network technologies can be used for the first radio link.

CLAIMS

1. A mobile communication device for use in a wireless communication network, comprising a short-range radio frequency unit (20) operatively connected to at least one microchip (21), facilitating ad hoc connection with a stationary unit (12) via a first short-range radio link operating within a first link range (13), **characterized** in that said mobile communication device (10,A) comprises an ID transponder (22) for communication with said stationary unit (12) via a short-range communication link, operating within a second link range (14) essentially smaller than said first link range (13), said transponder having interrogation receive means (30,31) for receiving an interrogation signal from said stationary unit and responder means (30,31) for generating a respond signal to said interrogation signal, including a unique identification number of the mobile communication device (10,A), and said mobile communication device comprises link establish means (20,21,23) for establishing a connection with the stationary unit (12) via said short-range radio link, after the identification number has been authenticated by said stationary unit (12).

2. A mobile communication device according to claim 1, **characterized** in that said first radio link is a Bluetooth link.

3. A mobile communication device according to claim 1 or 2, **characterized** in that said first link range is 10cm-100m.

4. A mobile communication device according to claim 3, **characterized** in that said second link range is less than 50cm and preferably 0-20cm.

5. A mobile communication device according to any of the preceding claims, **characterized** in that said transponder (22) is a radio frequency ID transponder and said short-range communication link is a second short-range radio link.

6. A mobile communication device according to any of the preceding claims, **characterized** in that said transponder (22) is a crypto transponder.

7. A mobile communication device according to any of the preceding claims, **characterized** in that said mobile communication device (10,A) includes a wireless pay terminal comprising a smartcard (25) including at least one microchip and storage means.

8. A mobile communication device according to claim 7, **characterized** in that said smartcard (25) is a credit card, a cash-card, and/or a bonus-card.

9. A mobile communication device according to any of the preceding claims, **characterized** in that said unique identification number is a unique address of the mobile communication device (10,A).

10. A stationary unit for use in a wireless communication network, comprising a first short-range radio frequency unit (41) operatively connected to at least one microchip (40), facilitating ad hoc connection with a mobile communication device (10,A) via a first radio link operating within a first link range (13), **characterized** in that said stationary unit (12) comprises a short-range communication unit (43) operatively connected to said microchip (40) for communication with said mobile communication device (10,A) via a short-range communication link,

operating within a second link range (14) essentially smaller than said first link range (13), transmit means (40,43,44;40,45,46) for transmitting an interrogation signal to said mobile communication device (10,A) via said communication link, receive means (40,43,44;40,45,46) for receiving a respond signal including a unique identification number from said mobile communication device (10,A) via said communication link, and authenticator means (40) for authenticating the identification number, and link establish means (40,41,42) for establishing a connection with said mobile communication device (10,A) via said first radio link.

11. A stationary unit according to claim 10, **characterized** in that said first radio link is a Bluetooth link.

12. A stationary unit according to claim 10 or 11, **characterized** in that said first link range is 10cm-100m.

13. A stationary unit according to claim 12, **characterized** in that said second link range is less than 50cm and preferably 0-20cm.

14. A stationary unit according to any of the claims 10-13, **characterized** in that said communication unit is a second short-range radio frequency unit (43) and said short-range communication link is a short-range radio link.

15. A stationary unit according to any of the claims 10-14, **characterized** in that said unique identification number is a unique address of the mobile communication device (10,A).

16. A stationary unit according to any of the claims 10-15, **characterized** in that said stationary unit includes a point-of-sale terminal.

17. A wireless communication system comprising at least a stationary unit, comprising a first short-range radio frequency unit (41) operatively connected to at least a stationary unit microchip (40), at least a mobile communication device (10,A), comprising a communication device short-range radio frequency unit (20) operatively connected to at least a communication device microchip (21), said microchips (21,40) facilitating ad hoc connection between said stationary unit (12) and said mobile communication device (10,A) via a first radio link operating within a first link range (13), **characterized** in that said stationary unit (12) comprises a short-range communication unit (43) operatively connected to said stationary unit microchip (40) for communication with said mobile communication device (10,A) via a short-range communication link, operating within a second link range (14) essentially smaller than said first link range (13), transmit means (40,43,44;40,45,46) for transmitting an interrogation signal to said mobile communication device (10,A) via said communication link, receive means (40,43,44;40,45,46) for receiving a respond signal including a unique identification number transmitted from said mobile communication device (10,A) via said communication link, and authenticator means (40) for authenticating the identification number, and link establish means (40,41,42) for establishing a connection with said mobile communication device (10,A) via said first radio link; said mobile communication device comprises an ID transponder (22) for communication with said stationary unit (12) via said communication link, said transponder having interrogation receive means (30,31) for receiving an

interrogation signal from said stationary unit (12), and responder means (30,31) for generating said respond signal to said interrogation signal, and said mobile communication device comprises link establish means (20,21,23) for establishing a connection with the stationary unit (12) via said first radio link, after the identification number has been authenticated by said stationary unit (12).

18. A wireless communication system according to claim 17, **characterized** in that said first radio link is a Bluetooth link.

19. A wireless communication system according to claim 17 or 18, **characterized** in that said first link range is 10cm-100m.

20. A wireless communication system according to claim 19, **characterized** in that said second link range is less than 50cm and preferably 0-20cm.

21. A wireless communication system according to any of the claims 17-20, **characterized** in that said transponder (22) is a radio frequency ID transponder, said communication unit is a second short-range radio frequency unit, and said short-range communication link is a second short-range radio link.

22. A wireless communication system according to any of the claims 17-21, **characterized** in that said transponder (22) is a crypto transponder.

23. A wireless communication system according to any of the claims 17-22, **characterized** in that said mobile communication device (10,A) includes a wireless pay

terminal comprising a smartcard (25) including at least one microchip and storage means.

24. A wireless communication system according to claim 23, **characterized** in that said smartcard (25) is a credit card, a cash-card, and/or a bonus-card.

25. A wireless communication system according to any of the claims 17-24, **characterized** in that said unique identification number is a unique address of the mobile communication device (10,A).

26. A wireless communication system according to any of the claims 17-25, **characterized** in that said stationary unit (12) includes a point-of-sale terminal.

27. A method of establishing a first short-range radio link, operating within a first link range (13), between a stationary unit (12) and a mobile communication device (10,A) in a wireless network environment, **characterized** by the steps of:

said stationary unit (12) transmitting an interrogation signal to said mobile communication device (10,A) via a short-range communication link operating within a second link range (14) essentially smaller than said first link range (13),

said mobile communication device (10,A) receiving said interrogation signal from said stationary unit (12),

said mobile communication device (10,A) generating and transmitting a respond signal, including a unique identification number of the mobile communication device (10,A), to said interrogation signal,

said stationary unit (12) receiving said respond signal, and authenticating the identification number,

said stationary unit (12) and said mobile communication device (10,A) establishing a connection via said first short-range radio link.

28. A method according to claim 27, **characterized** in that said first radio link is a Bluetooth link.

29. A method according to claim 27 or 28, **characterized** in that said first link range is 10cm-100m.

30. A method according to claim 29, **characterized** in that said second link range is less than 50cm and preferably 0-20cm.

31. A method according to any of the claims 27-30, **characterized** in that said unique identification number is a unique address of the mobile communication device (10,A).

32. A method according to any of the claims 27-31, **characterized** in that said short-range communication link is a second short-range radio link.

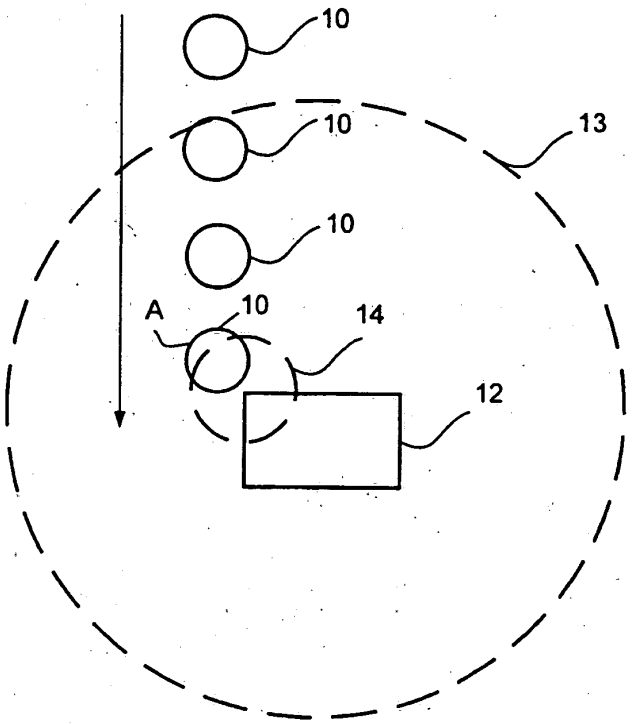


FIG. 1A

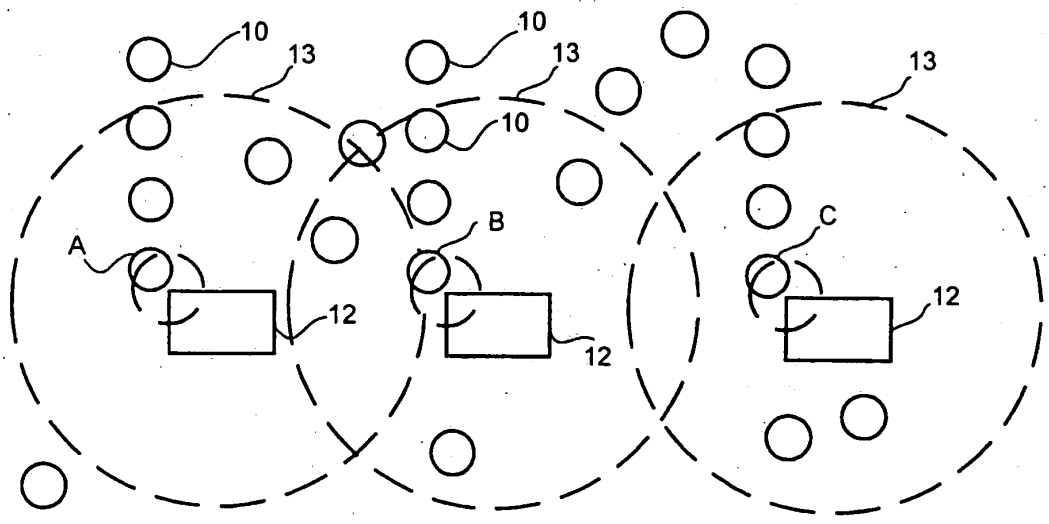


FIG. 1B

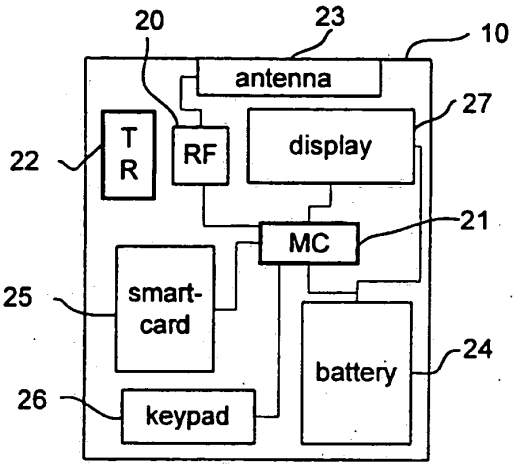

20
23
10
antenna
27
T
R
RF
display
22
21
MC
25
smart-
card
24
battery
26
keypad

FIG. 2

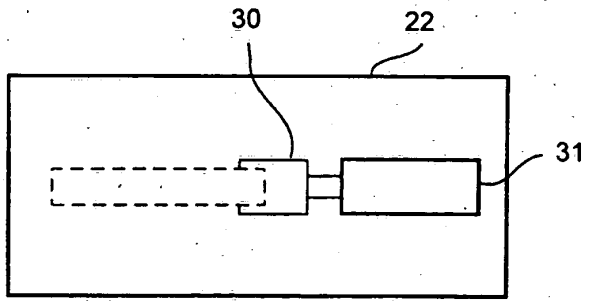

30
22
31

FIG. 3

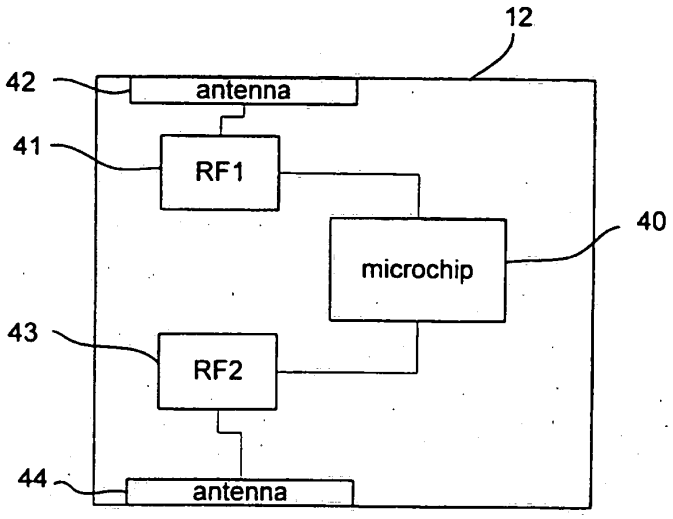


FIG. 4A

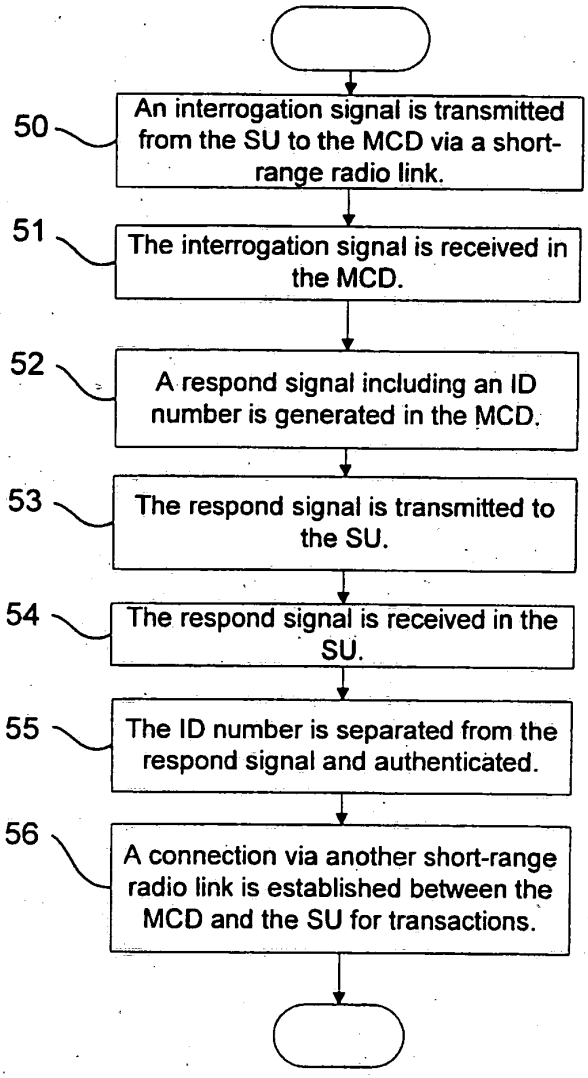

50
An interrogation signal is transmitted from the SU to the MCD via a short-range radio link.
51
The interrogation signal is received in the MCD.
52
A respond signal including an ID number is generated in the MCD.
53
The respond signal is transmitted to the SU.
54
The respond signal is received in the SU.
55
The ID number is separated from the respond signal and authenticated.
56
A connection via another short-range radio link is established between the MCD and the SU for transactions.

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 00/02538

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04L 9/08, H04Q 7/32
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04Q, H04L, H04M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 9941876 A1 (TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)), 19 August 1999 (19.08.99), page 7, line 27 - page 8, line 3; page 10, line 6 - page 13, line 6, figures 1,4	1-32
A	WO 9934631 A1 (TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)), 8 July 1999 (08.07.99), page 3, line 2 - line 31	1-32
A	WO 9834203 A1 (QUALCOMM INCORPORATED), 6 August 1998 (06.08.98), page 11, line 19 - page 12, line 7, figure 8	1-32

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents:
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"P" document published prior to the international filing date but later than the priority date claimed
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"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
20 March 2001	29 -03- 2001
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE 00/02538

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9521424 A1 (JONHIG LIMITED), 10 August 1995 (10.08.95), page 4, line 28 - page 7, line 7 -- --------	1-32

Form PCT/ISA/210 (continuation of second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/SE 00/02538

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9941876 A1	19/08/99	AU 2650199 A	30/08/99
		BR 9907826 A	24/10/00
		EP 1055307 A	29/11/00
WO 9934631 A1	08/07/99	AU 2082399 A	19/07/99
		EP 1025732 A	09/08/00
		SE 9704885 A	30/06/99
WO 9834203 A1	06/08/98	AU 5963898 A	25/08/98
WO 9521424 A1	10/08/95	AT 169139 T	15/08/98
		AU 682923 B	23/10/97
		AU 1541795 A	21/08/95
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		JP 9508484 T	26/08/97
		KR 218663 B	01/09/99
		LV 11714 A,B	20/02/97
		MD 960321 A	30/06/97
		NO 963179 A	30/07/96
		NZ 278931 A	24/11/97
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		RU 2140669 C	27/10/99
		SI 741890 T	00/00/00
		US 5857152 A	05/01/99

Form PCT/ISA/210 (patent family annex) (July 1998)

3GPP TS 22.146 V6.2.0 (2003-03)

Technical Specification

3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Multimedia Broadcast/Multicast Service; Stage 1 (Release 6)

Keywords
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Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

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  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

Broadcast and Multicast are methods for transmitting data-grams from a single source to several destinations (point-to-multipoint). To date, release-4 and release-99 define two services in this respect:

A cell broadcast service (CBS) allowing for low bit-rate data to be transmitted to all subscribers in a set of given cells over a shared broadcast channel. This service offers a message-based service [5,6]

An IP-Multicast service allowing for mobile subscribers to receive multicast traffic. This service does not allow for multiple subscribers to share radio or core network resources and as such does not offer any advantages as far as resource utilization within the PLMN and over the radio access network. [3,4]

It is envisaged that for some applications, multiple users can receive the same data at the same time. The benefit of multicast and broadcast in the network is that the data is sent once on each link. For example, an SGSN will send data once to an RNC regardless of the number of Node Bs and UEs that wish to receive it. The benefit of multicast and broadcast on the air interface is that many users can receive the same data on a common channel, thus not clogging up the air interface with multiple transmissions of the same data.

With increasing use of high bandwidth applications in third generation mobile systems, especially with a large number of users receiving the same high data rate services, efficient information distribution is essential. Thus, broadcast and multicast are techniques to decrease the amount of data within the network and use resources more efficiently

1 Scope

This Technical specification defines the stage one description of the Broadcast and Multicast Services for the 3GPP System (UTRAN and GERAN). Stage one is the set of requirements which shall be supported for the provision of Broadcast and Multicast services, seen primarily from the subscriber's and service providers' points of view.

This TS includes information applicable to network operators, content providers, and terminal and network manufacturers.

This TS contains the core requirements for Multicast and Broadcast Services, which are sufficient to provide a complete service.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TR 21.905: " Vocabulary for 3GPP Specifications ".

[2] RFC 1112: "Host extensions for IP multicasting", RFC 1920:" Internet official protocol standards", RFC 1458: "Requirements for multicast protocols", RFC 1301: "Multicast transport protocol"

[3] 3GPP TS 22.060: "General Packet Radio Service (GPRS); Service description; Stage 1".

[4] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".

[5] 3GPP TS 25.324: "Broadcast/Multicast Control BMC"

[6] 3GPP TS 23.041: "Technical Realization of Cell Broadcast Service (CBS)"

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the definitions in 3GPP TR 21.905 [1] as well as the following definitions apply.

Broadcast service area: The area in which a specific broadcast service is available. It is defined individually per broadcast service. The broadcast service area may represent the coverage area of the entire PLMN, or part(s) of the PLMN's coverage area. The broadcast service area is the sum of all local broadcast areas offering the same service.

Local Broadcast Area: The area of a broadcast service, where the service content is the same. One broadcast service may have different content in different local broadcast areas.

Broadcast mode: The part of MBMS that supports broadcast services.

Broadcast service: A unidirectional point-to-multipoint service in which data is efficiently transmitted from a single source to multiple UEs in the associated broadcast service area. Broadcast services may be received by all users who have enabled the specific broadcast service locally on their UE and who are in the broadcast area defined for the service.

Broadcast session: A continuous and time-bounded reception of a broadcast service by the UE. A single broadcast service can only have one broadcast session at any time. A broadcast service may consist of multiple successive broadcast sessions.

Mobile Station (MS): Defined in TS 24.002. (The abbreviation "UE" in this specification refers both to MS and User Equipment.)

Multicast transmission activation: The process by which the network activates the transmission of Multicast data.

Multicast service area: The area in which a specific multicast service is available. It is defined individually per multicast service. The multicast service area may represent the coverage area of an entire PLMN, or part(s) of the PLMN's coverage area. The multicast service area is the sum of all local multicast areas offering the same service.

Local multicast area: The area of a multicast service, where the service content is the same. One multicast service may have different content in different local multicast areas.

Multicast mode: The part of MBMS that supports multicast services.

Multicast joining: The process by which a user joins a multicast group.

Multicast session: A continuous and time-bounded reception of a multicast service by the UE. A single multicast service can only have one multicast session at any time. A multicast service may consist of multiple successive multicast sessions.

Multimedia Broadcast/Multicast Service (MBMS): A unidirectional point-to-multipoint service in which data is transmitted from a single source entity to a group of users in a specific area. The MBMS has two modes: Broadcast mode and Multicast mode.

Multicast group: A group of users that have an activated MBMS in multicast mode and therefore are ready to or are receiving data transmitted by this service. The multicast group is a subset of the **Multicast subscription group**. Multicast subscription group members may join the corresponding multicast group.

Multicast service: A unidirectional point-to-multipoint service in which data is efficiently transmitted from a single source to a multicast group in the associated multicast service area. Multicast services can only be received by such users that are subscribed to the specific multicast service and have joined the multicast group associated with the specific service.

Multicast subscription: The process by which a user subscribes or is subscribed to a multicast subscription group and thereby is authorised to join certain multicast services. Multicast subscription is performed either upon user selection or due to home environment initiation.

Multicast Subscription Group: A group of users who are subscribed to a certain MBMS in multicast mode and therefore authorised to join and receive multicast services associated with this group.

User Equipment: defined in TS 21.905. An occurrence of a User Equipment is an MS for GSM as defined in TS 24.002.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

MBMS	Multimedia Broadcast/Multicast Service
MS	Mobile Station
UE	User Equipment

4 General description of a multimedia broadcast/multicast service (MBMS)

Point to multipoint services exist today which allow data from a single source entity to be transmitted to multiple endpoints. These services are expected to be used extensively over wireless networks, hence there is a need for a capability in the PLMN to efficiently support them. The Multimedia Broadcast/Multicast Service (MBMS) will provide this capability for such broadcast/multicast services provided by the home environment and other VASPs.

The MBMS is an unidirectional point to multipoint bearer service in which data is transmitted from a single source entity to multiple recipients. It is anticipated that other services will use these bearer capabilities.

3GPP has defined two modes of operation:

- the broadcast mode
- the multicast mode.

4.1 MBMS broadcast mode

The broadcast mode is a unidirectional point-to-multipoint transmission of multimedia data (e.g. text, audio, picture, video) from a single source entity to all users in a broadcast service area. The broadcast mode is intended to efficiently use radio/network resources e.g. data is transmitted over a common radio channel. Data is transmitted in the broadcast service area as defined by the network (Home environment).

MBMS data transmission should adapt to different RAN capabilities or different radio resource availability, e.g. by reducing the bitrate of the MBMS data. The selection and description of an appropriate mechanism is subject to MBMS stage 2.

Figure 1 gives an example of how a network can be configured to broadcast a variety of high bit rate services to users within the associated broadcast service area.

A broadcast service received by the UE, involves one or more successive broadcast sessions. A broadcast service might, for example, consist of a single on-going session (e.g. a media stream) or may involve several intermittent sessions over an extended period of time (e.g. messages).

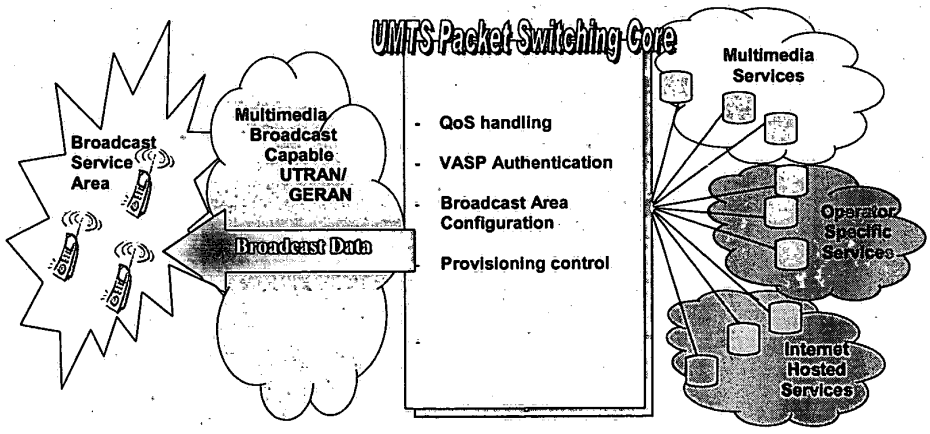

Figure 1: Example of Multicast Br adcast Mod Network

The broadcast mode should not be confused with the existing Cell Broadcast service (CBS) which is currently used for low bit rate services (messaging) whilst the broadcast mode enables the broadcast of multimedia services (Audio, Video etc).

An example of a service using the broadcast mode could be advertising or a welcome message to the network. As not all users attached to the network may wish to receive these messages then the user shall be able to enable/disable the reception of these broadcast service on his UE.

The broadcast mode differs from the multicast mode in that there is no specific requirement to activate or subscribe to the MBMS in broadcast mode.

The broadcast mode should allow terminals to minimise their power consumption.

It is expected that charging data for the end user will not be generated for this mode. The reception of the traffic in the broadcast mode is not guaranteed. The receiver may be able to recognize data loss.

4.2 MBMS multicast mode

The multicast mode allows the unidirectional point-to-multipoint transmission of multimedia data (e.g. text, audio, picture, video) from a single source point to a multicast group in a multicast service area. The multicast mode is intended to efficiently use radio/network resources e.g. data is transmitted over a common radio channel. Data is transmitted in the multicast service area as defined by the network (Home environment). In the multicast mode there is the possibility for the network to selectively transmit to cells within the multicast service area which contain members of a multicast group.

MBMS data transmission should adapt to different RAN capabilities or different radio resource availability, e.g. by reducing the bitrate of the MBMS data. The selection and description of an appropriate mechanism is subject to MBMS stage 2.

A multicast service received by the UE, involves one or more successive multicast sessions. A multicast service might, for example, consist of a single on-going session (e.g. a multimedia stream) or may involve several intermittent multicast sessions over an extended period of time (e.g. messages).

An example of a service using the multicast mode could be a football results service for which a subscription is required.

Unlike the broadcast mode, the multicast mode generally requires a subscription to the multicast subscription group and then the user joining the corresponding multicast group. The subscription and group joining may be made by the PLMN operator, the user or a third party on their behalf (e.g. company). Unlike the broadcast mode, it is expected that charging data for the end user will be generated for this mode.

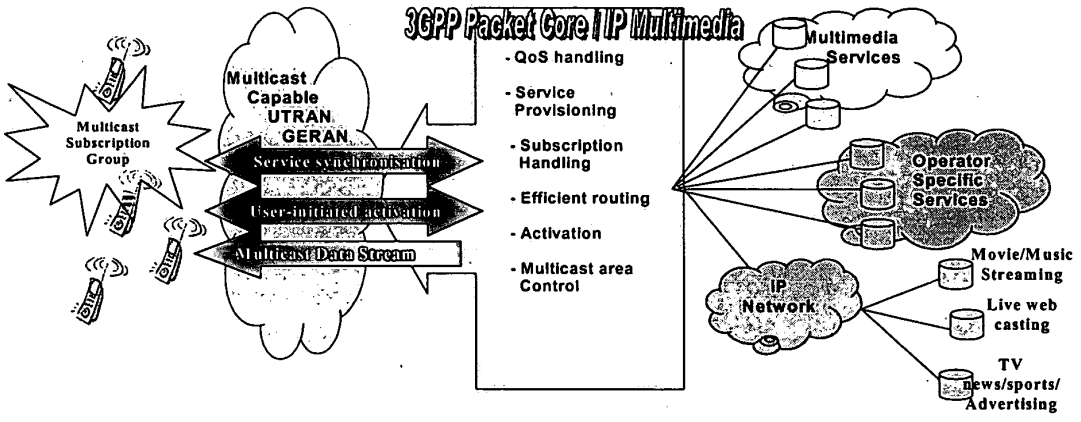

Figure 2: Example of Multicast Mode Network

Reception of multicast services cannot be guaranteed over the access network. For many applications and services guaranteed data reception may be carried out by higher layer services or applications which make use of MBMS.

Multicast mode should allow terminals to minimise their power consumption.

The multicast mode defined in this specification should not be confused with IP Multicast (RFC s 1112, 1301, 1458, 1920 [2]). There are similarities between these two services and such similarities may be exploited in 3GPP networks given that 3GPP multicast mode has been defined with consideration to maximizing efficiency on the radio interface and of network resources.

Multicast mode shall be inter-operable with IETF IP Multicast. This could allow the best use of IP service platforms to help maximize the availability of applications and content so that current and future services can be delivered in a more resource efficient manner. Figure 2 above shows a general high level overview of multicast mode network.

4.2.1 Multicast subscription and reception

The following is the expected sequence for the user to be able to access the MBMS multicast mode:

1 The user subscribes or is subscribed to a multicast subscription group which is uniquely identified and thereby becomes a member of that group. The subscription may be continuous (e.g. as defined by the subscriber's contract), time-limited, or generated by the subscriber on a one-time basis. The subscription to multicast services shall not be further standardized.

2 The user discovers, or becomes aware (e.g. via service announcements), that there are multicast services currently active, or multicast services that will become active at some time later, at the user's current location.

3a) The user selects a multicast service and hence the user joins the corresponding multicast group.

3b) As an alternative, the Home Environment can join the user to the selected multicast group on behalf of the user, that has previously subscribed to this multicast group.

Signalling exchange between the UE and the network might not be necessary in some cases, e.g. in the case of network congestion.

4 If the transmission is not already in progress the network starts transmitting the corresponding multicast content. Alternatively, the transmission may start at a later time.

5 The network may optionally select to set up unicast (point to point) connections to some users e.g. if there are insufficient users to justify multicasting

6 The UE starts receiving the multicast data associated with the multicast group(s) it has joined

7 The user may choose to stop receiving a selected multicast service and thereby leaves the multicast group. The user may also select to continue (or not) to receive service announcements for this multicast subscription group.

8 The user may unsubscribe or be unsubscribed from the multicast subscription group and stop receiving both the multicast data and future service announcements for this multicast subscription group.

The home environment shall be able to remove a user from a multicast group (deactivation) and if required remove the subscriber from the multicast subscription group (un-subscription). This is required to allow the operator to bar service.

4.3 Discovery and announcement of MBMS services

The user shall be able to find out or be informed about MBMS services available in the network. The network shall support service announcements both for the broadcast and multicast mode of MBMS in order to enable the user to be informed about the MBMS services available currently, or some time later.. Users should also be able to discover and monitor MBMS service availability e.g. using a URL.

5 High level requirements

5.1 Broadcast mode

5.1.1 Home environment requirements

- Broadcast services

The PLMN operator shall be able to provision one or more broadcast services within his PLMN.

The operators sharing a network shall be able to provide one or more broadcast services for their own subscribers and inbound roamers from roaming partners only. This shall be applicable for sharing of radio network and for sharing of radio network and the core network entities connected to the radio network.

A broadcast area is configured individually for each broadcast service. Broadcast areas associated with different broadcast services are independent of each other and may overlap.

A broadcast service shall be able to distribute different content data to different locations, i.e. local broadcast areas, within the broadcast service area as shown in figure 3. This allows the user to receive broadcast data depending on his location (e.g. a "nationwide traffic service" with localized traffic reports) Only one location specific version of content data is distributed to each of the individual local broadcast areas, i.e. in any location a user will never receive different content data from a single broadcast service.

It shall be possible to define a broadcast service for only the subscribers and inbound roamers of one of the operators sharing network. The broadcast services transmitted in a broadcast service area of operator A shall only be available to the subscribers and inbound roamers of operator A. The broadcast areas of different sharing operators may cover the same geographical area. This shall be applicable for sharing of radio network and for sharing of radio network and the core network entities connected to the radio network.

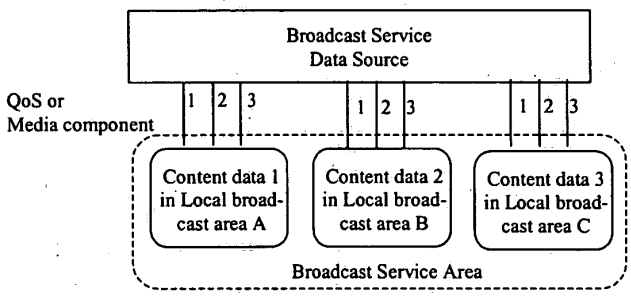

Figure 3 Broadcast Service with different content data for different locations

- Quality of service

The PLMN operator shall be able to configure the quality of service for each individual broadcast service. It should be possible to adapt the MBMS data transmission to different RAN capabilities or different radio resource availability.

The home environment shall be able to set priority to select which simultaneous broadcast services are supported when there is a limit on the resources available.-

- Network and radio efficiency

The PLMN operator shall be able to use network and radio resources in an efficient manner.

NOTE: Allocation of resources based on actual need in the broadcast service area is not applicable for the broadcast mode.

The operator shall be able to schedule a certain broadcast service at pre-determined times.

- Types of data services

  MBMS in The broadcast mode shall be transparent for the transferred data packets independent of the type of service being transmitted, will support a number of services, and permit support of and therefore transfer all data types e.g. Audio, Data, Video or combinations thereof. A minimum number of data types may need to be identified to enable interoperability.

- Sources of data services

  In addition to supporting their own broadcast services the PLMN shall as well support broadcast services from third parties (i.e. HE-VASPs or VASPs)

- Broadcast service announcements

  The PLMN operator shall be able to provide service announcements for a broadcast service within and outside of the broadcast area defined for the service.

5.1.2 User requirements for MBMS

- User mobility

  The user shall be able to continue receiving broadcast services throughout the broadcast service area. For example, in case of handover and presuming that a certain broadcast service is offered in the target cell, it should be possible for the user to continue receiving the service in the target cell.

- User selectivity

  The user shall be able to discover what broadcast services are available at the user's current location and outside of the current location.

  The user shall be able to enable/disable the reception of specific broadcast services and can receive simultaneously more than one MBMS service.

  The user may be able to define service preference for reception. A priority procedure may be implemented to allow the user to select between simultaneous broadcast services e.g. while receiving commercial broadcast service a new multicast service may interrupt this.

  While receiving one or more broadcast services, it shall be possible for the user to be informed about incoming voice calls or the availability of other MBMS services.

  Dependent on terminal capabilities, it shall be possible for the user to participate in other services, while simultaneously participating in MBMS services. For example the user can originate or receive a call or send and receive messages whilst receiving advertisements.

5.2 Multicast mode

5.2.1 Home environment requirements

- Multicast services

  The PLMN operator shall be able to provision one or more multicast services. A multicast area is configured individually for each multicast service. Multicast areas associated with different multicast services are independent of each other and may overlap.

  Multicast service areas may cover part(s) of one or more PLMNs.

  A multicast service shall be able to distribute different content data to different locations, i.e. local multicast areas, within the multicast service area as shown in figure 4. This allows the user to receive multicast data depending on his location (e.g. a "nationwide traffic service" with localized traffic reports) Only one version of location specific content data is distributed to each of the individual local multicast areas, i.e. in any location a user will never receive different content data from a single multicast service.

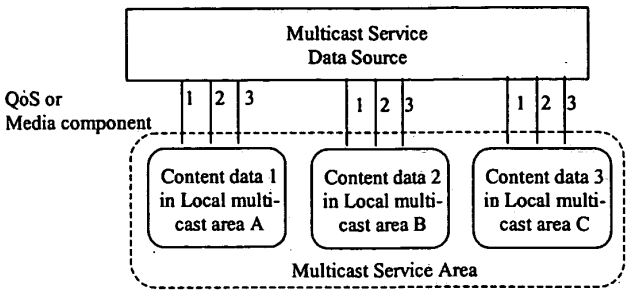

Figure 4 Multicast Service with different content data for different locations

- Multicast subscription groups and multicast groups

  The PLMN operator shall be able to provision one or more multicast subscription groups. The home environment shall be able to make a user a member of a multicast subscription group (subscription).

  On receipt of a request to join a multicast group, the PLMN shall check that the user is a member of the applicable multicast subscription group. The home environment shall be able to join users to the multicast group e.g. at the request of the subscriber.

- Quality of service

  The PLMN operator shall be able to configure the quality of service for individual multicast services. It should be possible to adapt the MBMS data transmission to different RAN capabilities or different radio resource availability.

  As part of the same service, it should be possible for the operator to provide the UEs with multiple successive sessions with different quality-of-service for each session.

  The home environment shall be able to set priority to select which simultaneous multicast services are supported when there is a limit on the resources available.

- Network and radio efficiency

  The PLMN operator shall be able to use network and radio resources in an efficient manner.

  Within the multicast service area, the network may distribute the data across the whole multicast service area or parts of the area. The decision to distribute to only parts of the multicast service area may be based on: a) multicast group members are present in a given part of the multicast area b) resources are not available in parts of the multicast service area.

  The operator shall be able to schedule a certain multicast service at pre-determined times.

- Types of services

  The multicast mode shall be independent of the type of service being transmitted, will support a number of services, and permit support of all data types e.g. Audio, Data, Video or combinations thereof. A minimum number of data types may need to be identified to enable interoperability

- Sources of services

  In addition to supporting their own multicast services the PLMN shall as well support multicast services by third parties (i.e. HE-VASPs or VASPs).

- Multicast service announcements

  The PLMN operator shall be able to provide service announcements for a multicast service within and outside of the multicast area defined for the service.

5.2.2 User requirements for MBMS

- User mobility

  The user shall be able to continue receiving multicast services throughout the multicast service area in which the service is provided. For example, in case of handover and presuming that a certain multicast service is offered in the target cell, it should be possible for the user to continue the session in the target cell. It is possible that data loss will occur due to user mobility.

- User selectivity

  The user shall be able to discover what multicast services are available at the user's current location and outside of the current location. The user shall be able to select between different multicast services provided to the user and can receive simultaneously more than one MBMS service.

  The user may be able to define service preference for reception. A priority procedure may be implemented to allow the user to select between simultaneous broadcast/multicast services e.g. while receiving commercial broadcast service a new multicast service may interrupt this.

  While receiving one or more multicast services it shall be possible for the user to be informed about incoming voice calls or the availability of other MBMS services.

  Dependent on terminal capabilities, it shall be possible for the user to participate in other services, while simultaneously participating in MBMS services. For example the user can originate or receive a call or send and receive messages whilst receiving MBMS video content.

- Multicast subscription groups and multicast groups

  The subscriber shall be able to subscribe to or unsubscribe from a multicast subscription group. (The subscription mechanism is outside the scope of this TS.)

  The user shall be able to join a multicast group only if he is a member of the applicable multicast subscription group. The user shall be able to leave a multicast group if he is a member of that group.

5.3 Availability

MBMS in multicast or broadcast mode shall be available to all users that are registered/attached to a PLMN, in case of non-shared network.

In the case of two or more operators sharing infrastructure (e.g. parts of the radio network or sharing of radio network and the core network entities connected to the radio network), it shall be possible for a sharing operator offering MBMS in multicast or broadcast mode to prevent access to these MBMS services by subscribers and inbound roamers of the other operator(s) sharing the same infrastructure.

Within the broadcast or multicast service area, it shall be possible to inform users of up-coming MBMS sessions which they may receive. This may be useful e.g. to initiate UE processes for the reception of MBMS data.

In case of roaming a user should also be able to subscribe and join Multicast Services that are provided locally in the visited network, as allowed by the user's home environment.

6 Security

In multicast mode it shall be possible to ensure that only those users who are entitled to receive a specific multicast service may do so. It should be possible to choose whether a given multicast service is to be delivered with or without ensured group privacy.

7 Charging

7.1 Broadcast mode

It shall be possible to collect charging information for the transmission of broadcast services to enable billing of broadcast services providers e.g. billing 3rd parties for advertising.

Examples of the type of the charging information that could be collected include:

- usage duration
- volume of contents

The above list of possible charging mechanisms is neither complete nor exhaustive.

7.2 Multicast mode

It shall be possible to collect charging information for the transmission of multicast services to enable billing of multicast services providers e.g. billing 3rd parties for advertising.

It shall be possible to collect subscriber charging information (including roaming) for the use of the multicast mode (e.g. to enable billing to multicast services providers), as well as for the receipt of multicast data (e.g. users), on a per multicast service basis. On-line charging for multicast services should be possible as well.

Examples of the type of the charging information that could be collected include:

- multicast session duration
- time when joining and leaving a multicast subscription group, duration of membership to a multicast subscription group
- time when joining and leaving a multicast group, duration of membership to a multicast group
- multicast session volume of contents

The above list of possible charging mechanisms is neither complete nor exhaustive.

Billing issues are out of scope of this TS.

Annex A (informative): MBMS Bit Rates

MBMS Bit Rates

MBMS shall support a variety of background and streaming class applications. A particular service may be available at different bit rates depending on the radio conditions of the access network.The following table contains a non-exhaustive list of some applications with typical bit rates that may be suitable for MBMS. (It is assumed that MBMS codecs will have similar capabilities to those required to support PSS.)

Application	Media type(s)	[1]Typical Bit rate
Traffic telematics	Text, audio, pictograms, video	8kb/s ~ 64kb/s
Weather	Text, video, pictograms	8kb/s ~ 64kb/s
Advertising	Text, video, pictograms	8kb/s ~64kb/s
News broadcast	Audio, video	8kb/s ~ 256kb/s
Music streaming, (Web radio)	Audio	8kb/s ~ 64kb/s
Video concert	Audio/Video	32kb/s ~ 256kb/s
Sports replay	Video	32kb/s ~ 256kb/s
File sharing	Binary data	8kb/s ~ 256kb/s

1. Actual bit rates are dependent on radio access technology and terminal capabilities.

Annex B (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
July 2001							
July 2001							

Change history											
TSG SA#	SA Doc.	SA1 Doc	Spec	CR	Rev	Rel	Cat	Subject/Comment	Old	New	WI
	SA1#13		22.146					Creation of TS		0.1.0	MBMS
	SA1#13		22.146					Output version from SA1 #13	0.1.0	1.0.0	MBMS
	SA1 #13		22.146					Raised to version 2.0.0 for approval at SA #13	1.0.0	2.0.0	MBMS
SP-13	SP-010443	S1-010858	22.146					Approved at SA #13	2.0.0	5.0.0	MBMS
SP-14	SP-010678	1077	22.146	002	2	Rel-5	F	Proposed CR on changes to definitions in 22.146	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1305	22.146	003	3	Rel-5	B	Proposed CR on clarification of reliable transmission	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1075	22.146	005	1	Rel-5	F	Proposed CR on clarifications of the availability of MBMS	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1303	22.146	006	2	Rel-5	F	Proposed CR on Clarification on MBMS applicability in Gb mode	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1306	22.146	009	2	Rel-5	F	Proposed CR on data loss during handover	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1076	22.146	011	1	Rel-5	C	Proposed CR on optional privacy assurance for Multicast services	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1304	22.146	018	2	Rel-5	F	Proposed CR to 22.146: High level Diagrams of MBMS	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1065	22.146	019		Rel-5	F	CR Clarifying Service Requirements on Multicast and Broadcast Areas	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1326	22.146	020	2	Rel-5	F	Proposed CR to 22.146 MBMS	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1225	22.146	021		Rel-5	B	Multiple Areas for Multicast and Broadcast Services	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1309	22.146	022	1	Rel-5	F	MBMS service discovery	5.0.0	5.1.0	MBMS
SP-14	SP-010678	1020	22.146	023		Rel-5	F	CR to 22.146 (MBMS) UE and MS definition	5.0.0	5.1.0	MBMS
SP-15	SP-020057	S1-020125	22.146	024		Rel-5	F	CR 22.146 Rel. 5 F Area Specific QoS for Broadcast and Multicast Services	5.1.0	5.2.0	MBMS
SP-15	SP-020057	S1-020128	22.146	025		Rel-5	F	CR 22.146 Rel. 5 F Clause 4.2 Multicast mode	5.1.0	5.2.0	MBMS
SP-15	SP-020057	S1-020133	22.146	026		Rel-5	F	CR 22.146 Rel. 5 F Addition of MBMS multicast mode and broadcast mode definitions	5.1.0	5.2.0	MBMS
SP-15	SP-020057	S1-020563	22.146	027		Rel-5	B	Proposed CR on MBMS Broadcast and Multicast Sessions	5.1.0	5.2.0	MBMS
SP-15	SP-020057	S1-020565	22.146	028		Rel-5	B	Power consumption minimisation for MBMS	5.1.0	5.2.0	MBMS
SP-15	SP-020057	S1-020646	22.146	029		Rel-5	F	CR to 22.146 (MBMS stage 1) 'Editorial Change'	5.1.0	5.2.0	MBMS
SP-15	SP-020045	S1-020457	22.146	030	-	Rel-5	F	Editorial CR to correct terms and references	5.1.0	5.2.0	CORRECT
SP-16	SP-020257	S1-020892	22.146	031		Rel-6	C	Proposed CR on Multicast Joining Outside the Multicast Area	5.2.0	6.0.0	MBMS

SP-16	SP-020257	S1-021180	22.146	032		Rel-6	F	CR to 22.146: Clarification of requirement related to paging messages	5.2.0	6.0.0	MBMS
SP-17	SP-020561	S1-021473	22.146	033		Rel-6	B	Support of simultaneous services in MBMS	6.0.0	6.1.0	MBMS
SP-17	SP-020561	S1-021472	22.146	034		Rel-6	F	Proposal for Amalgamation of 1279, 1334, 1291	6.0.0	6.1.0	MBMS
SP-17	SP-020561	S1-021471	22.146	035		Rel-6	B	Proposed CR to 22.146: addition of QoS information	6.0.0	6.1.0	MBMS
SP-17	SP-020561	S1-021469	22.146	036		Rel-6	F	MBMS Editorial CR	6.0.0	6.1.0	MBMS
SP-17	SP-020561	S1-021483	22.146	037		Rel-6	F	Proposed CR 22.146 on MBMS Availability	6.0.0	6.1.0	MBMS
SP-17	SP-020561	S1-021481	22.146	038		Rel-6	C	Proposed CR to 22.146: Multicast service discovery	6.0.0	6.1.0	MBMS
SP-17	SP-020561	S1-021475	22.146	039		Rel-6	B	CR to 22.146 on MBMS Charging	6.0.0	6.1.0	MBMS
SP-19	SP-030026	S1-030154	22.146	040	-	Rel-6	C	CR to 22.146 - MBMS Cell broadcast in shared network	6.1.0	6.2.0	MBMS

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

10/24/2003 EAREGAY1 00000050 10690692

01 FC:1001	770.00 OP
02 FC:1201	86.00 OP
03 FC:1202	72.00 OP

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PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2003

Application or Docket Number: 10690692

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	24	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	24 minus 20=	* 4
INDEPENDENT CLAIMS	1 minus 3 =	*
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐ OR OTHER THAN SMALL ENTITY

RATE	FEE		RATE	FEE
BASIC FEE	385.00	OR	BASIC FEE	770.00
X$ 9=		OR	X$18=	72
X43=		OR	X86=	86
+145=		OR	+290=	
TOTAL		OR	TOTAL	928

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

1, 7, 13, 19

SMALL ENTITY OR OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X43=		OR	X86=	
+145=		OR	+290=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the ntry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.