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NFC FORUM UNVEILS TECHNOLOGY ARCHITECTURE AND ANNOUNCES INITIAL SPECIFICATIONS AND MANDATORY TAG FORMAT SUPPORT

WAKEFIELD, Mass., USA – June 5, 2006 – The NFC Forum, a non-profit industry association advancing the use of near field communication (NFC) technology, today unveiled its technology architecture and announced the first five Forum specifications, at a Web news conference. Forum officials also announced the initial tag formats for which support is mandatory in NFC Forum-compliant devices.

NFC technology is a short-range, standards-based wireless connectivity technology. It allows consumers to perform safe contactless transactions, access digital content and connect electronic devices with a single touch. For example, consumers with NFC-enabled mobile phones can leave their wallets at home and use their phones to make contactless financial transactions or to enjoy electronic access to transportation networks.

When complete, the NFC Forum's technology architecture will include specifications that define a modular NFC device architecture, and protocols for interoperable data exchange and device-independent service delivery, device discovery, and device capability. A schematic showing the basic elements of the NFC Forum technology architecture is available on the NFC Forum's Web site at http://www.nfc-forum.org/news/june06_architecture_and_specs/nfc_architecture_schematic/.

The Forum's initial specifications, available during the third quarter of this year, are:

- The NFC Data Exchange Format (NDEF) Specification (specifies a common data format for NFC Forum-compliant devices and NFC Forum-compliant tags)
- The NFC Record Type Definition (RTD) Specification (specifies standard record types used in messages between NFC Forum-compliant devices and between NFC Forum-compliant devices and tags)

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The Forum also announced that it is developing three initial Record Type Definition (RTD) Specifications, which detail technical requirements for specific types of records. They are:

- Smart Poster RTD Specification (for posters incorporating embedded tags containing text, audio or other kinds of data that can be read by NFC-enabled devices)
- Text RTD Specification (for records containing plain text that can be read by NFC-enabled devices)
- Uniform Resource Identifiers (URI) RTD Specification (for elements that refer to an Internet resource that can be read by NFC-enabled devices)

In addition to unveiling the NFC Forum architecture and initial specifications, the Forum also announced the initial set of tag formats that all NFC Forum-compliant devices must support. Tags are integrated circuits that store data that can be read by NFC-enabled devices. The Forum's selected tags are based on the International Organization for Standardization (ISO) 14443 Type A and B standards and Sony's FeliCa.

ISO 14443 is a four-part international standard for contactless smart cards operating at 13.56 MHz in close proximity with a reader antenna; FeliCa is derived from ISO 18092, passive communication mode. Tags compatible with the Forum's mandatory formats are available initially from Innovision, Philips, Sony and other vendors, and more than one billion NFC-ready tags are already deployed globally.

The NFC Forum selected the initial tags to accommodate a broad range of applications and device capabilities. NFC Forum Tag Types 1 and 2, based on ISO 14443 A, have small memory capacity (1 and 2 KB) and thus a low cost, and are suited for use with single applications. They operate at relatively low speed (106 kbps of data per second), and are driven by specific command sets.

NFC Forum Tag Type 3 is based on FeliCa, and is a more flexible, moderate-cost tag with significantly larger memory (up to 1 MB) and higher speed (212 kbps per second). Tag Type 4, also flexible and moderate in cost, is based on ISO 14443, with memory up to 64 KB and speed of 106 to 424 kbps per second. Both Type 3 and 4 tags are capable of being used with multiple applications.

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More about the NFC Forum's initial specifications

NFC Data Exchange Format (NDEF)

The NDEF specification describes a common data exchange format for NFC Forum-compliant devices and NFC Forum-compliant tags. It also contains the rules for constructing a valid NDEF message as an ordered and unbroken collection of NDEF records. Further, it defines the mechanism for specifying the types of application data encapsulated in NDEF records.

Record Type Definition (RTD)

To help ensure interoperability of NFC technology in a broad variety of devices, the RTD provides guidelines for specifying well-known record types for inclusion in NDEF messages exchanged between NFC Forum-compliant devices, and between NFC Forum-compliant devices and tags.

Smart Poster Record Type Definition (RTD)

The Smart Poster RTD defines a record type to put URLs, SMSs or phone numbers on an NFC tag, or to transport them between devices. The Smart Poster RTD provides the wrapper necessary to fulfill the Smart Poster use case defined by the NFC Forum, in which information about an object, event, etc., is attached to a physical object.

Text Record Type Description (Text RTD)

The Text RTD defines a record format for plain text data, which can be used for free-form text descriptions of other objects on a tag. The Text RTD is a general purpose text field to add metadata to things such as URLs, and it can be used where there is not much space. The Text RTD will also work well for non-Western languages, as it includes language information for localization purposes.

Universal Resource Identifier Service Record Type Description (URI RTD)

The URI Service RTD describes a record to be used with the NDEF to retrieve a URI stored in an NFC Forum-compliant tag or to transport a URI from one NFC device to another. The URI RTD also provides a way to store URIs inside other NFC elements, such as on Smart Posters.

About Near Field Communication Technology

Near Field Communication (NFC) is a standards-based, short-range wireless connectivity technology that enables simple and safe two-way interactions among electronic devices, allowing consumers to perform contactless transactions, access digital content and connect devices with a single touch. NFC also simplifies setup of longer-range wireless technologies, such as Bluetooth and Wi-Fi.

Near Field Communication (NFC) technology evolved from a combination of contactless identification and interconnection technologies. NFC operates in the 13.56 MHz frequency range, over a typical distance of a few centimeters. The underlying layers of NFC technology are ISO, ECMA, and ETSI standards.

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NFC technology is supported by the leading mobile device, infrastructure and technology manufacturers and by all major payment providers, and it is compatible with millions of contactless cards already in use worldwide.

About the NFC Forum

The NFC Forum was launched as a non-profit industry association in 2004 by leading mobile communications, semiconductor and consumer electronics companies. The Forum's mission is to advance the use of Near Field Communication technology by developing specifications, ensuring interoperability among devices and services, and educating the market about NFC technology. The Forum's 80 global member companies currently are developing specifications for a modular NFC device architecture, and protocols for interoperable data exchange and device-independent service delivery, device discovery, and device capability.

The NFC Forum's Sponsor Members, which hold seats on the Board of Directors, include leading players in key industries around the world. The Sponsor Members are: MasterCard International, Matsushita Electric Industrial Co., Ltd., Microsoft Corp., Nokia, NEC, Renesas Technology, Royal Philips Electronics, Samsung, Sony Corporation, Texas Instruments and Visa International.

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