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May 21, 2025

***Via Email***

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***RE: Valtrus Innovations Ltd. et al. v. TierPoint, LLC, Case No. 2:24-cv-00776-JRG  
(Member Case)***

Dear Matthew:

We write to address Plaintiffs' Disclosure of Asserted Claims and Infringement Contentions (P.R. 3-1 Disclosures) served on January 7, 2025. Plaintiffs' submission fails to comply with the requirements as specifically set forth in P.R. 3-1. This correspondence identifies numerous deficiencies of Plaintiffs' P.R. 3-1 Disclosures relating to methods allegedly practiced by TierPoint using equipment provided by Vertiv.<sup>1</sup>

**A. Failure to Comply With P.R. 3-1(b)**

First, P.R. 3-1(b) requires that a party claiming infringement must identify the following:

Separately for each asserted claim, each accused apparatus, product, device, process, method, act, or other instrumentality ("Accused Instrumentality") of each opposing party of which the party is aware. This identification shall be as specific as possible. Each product, device, and apparatus must be identified by name or model number, if known. Each method or process must be identified by name, if known, or by any product, device, or apparatus which, when used, allegedly results in the practice of the claimed method or process.

Plaintiffs' P.R. 3-1 Disclosures vaguely refer to TierPoint's United States data centers as the allegedly infringing Accused Instrumentalities and include a list of some 39 data centers. The list falls short of the requirements of P.R. 3-1(b) as it fails to provide notice of any particular

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<sup>1</sup> This letter focuses on the contentions as they relate to Vertiv equipment, and in no way should be interpreted as a concession that the contentions are adequate as it relates to other manufacturer's equipment.

apparatus, product, device, process, method, act or other instrumentality that is allegedly used at any particular TierPoint data center(s) to practice one or more of the asserted patents.

Plaintiffs' P.R. 3-1 Disclosures also refer to the accompanying infringement claim charts in relation to the identification of Accused Instrumentalities. This also fails to comply with P.R. 3-1(b). None of the claim charts identify or are directed to any particular TierPoint data center. Nor does any claim charts address the specific equipment or processes that are alleged to infringe as used in a particular TierPoint data center.

For each TierPoint data center that Plaintiffs accuse in this case, please identify, with the specificity required under P.R. 3-1, each allegedly infringing method or process that Plaintiffs contend is practiced at the data center and/or each product, device, or apparatus that Plaintiffs allege results in infringement of any asserted method claims as used in the data center.

#### **B. Failure to Comply With P.R. 3-1(c)**

Second, P.R. 3-1(c) requires that Plaintiffs must submit “[a] chart identifying specifically where each element of each asserted claim is found within each Accused Instrumentality . . . .” As mentioned, the claim charts provided by Plaintiffs do not comply with this requirement for the threshold reason that none of the charts provide notice of how Plaintiffs map the elements of any asserted patent claim to the cooling equipment or methods in use at any particular data center (notwithstanding that Plaintiffs identified individual TierPoint data centers as the Accused Instrumentalities). By parroting claim language and cobbling together excerpts from product documentation of several different cooling equipment suppliers, the claim charts do not articulate any coherent theory of infringement. Nor do the charts map the asserted claims to any cooling process of an actual TierPoint data center.

Plaintiffs' approach of mapping the claims to hypothetical cooling methods that could allegedly be implemented using capabilities of Vertiv equipment (rather than to methods actually used by TierPoint) is deficient for the additional reason that Plaintiffs fail to identify where each element is found in such hypothetical cooling methods. By way of example only, the following identifies numerous instances where the claim charts provide no insight regarding how Plaintiffs contend that Vertiv equipment includes capabilities that can implement each step of the asserted claims.

In this regard, the claim charts rely heavily on features and functionality allegedly provided by Vertiv's iCOM monitoring and control software. Despite receiving comprehensive technical documentation of Vertiv equipment on or about February 10, 2025 and having access to the iCOM source code since at least February 5, 2025, Plaintiffs have not satisfied their P.R. 3-1 obligations with respect to cooling methods performed in TierPoint data centers using iCOM software.

#### **1. U.S. Patent No. 6,718,277 Claim Chart (P.R. 3-1 Disclosures Exhibit A)**

The asserted independent claim 1 of the '277 patent requires sensing atmospheric parameters, generating an empirical atmospheric map, and comparing said empirical atmospheric

map to a template atmospheric map. Independent claim 12 recites a similar method where the sensed atmospheric conditions are temperatures.

Plaintiffs' chart for these claims refers to TierPoint's use of Vertiv's iCOM control software. The chart does not identify any functionality or source code of the iCOM software that involves comparing two maps to each other. The chart thus fails to provide notice of how TierPoint's use of iCOM software allegedly satisfies the map comparison steps of the claims. Plaintiffs' chart vaguely refers to iCOM software comparing sensed temperatures to temperature setpoints. This fails to account for the claim language and fails to disclose any alleged comparison of an empirical map to a template map.

Claims 1 and 12 include the step of "identifying pattern differentials between said empirical and template [atmospheric/thermal] maps." Plaintiffs' claim chart includes unexplained excerpts from iCOM product manuals relating to setting up alarms and the display of temperature readings, together with vague assertions referring to sensors reporting conditions that exceed "template conditions." This fails to provide notice of what allegedly constitutes the "pattern differentials" identified by iCOM software, how Plaintiffs alleges that iCOM software identifies pattern differentials between two maps upon comparing the maps to each other, or where in the software this functionality is present.

In relation to dependent claims 2 and 13, which recite "determining corrective action to reduce said pattern differentials," the chart includes unexplained block excerpts from an iCOM product manual relating to fan speed control. This fails to provide notice of how Plaintiffs allege that iCOM software initiates corrective action in response to identifying pattern differentials between two maps after comparing the maps, or where such functionality is present in iCOM.

Dependent claims 4 and 15 recite "correlating at least one of the location, size, and intensity of said pattern differentials to at least one of the location of said plurality of vents, the speed of said at least one blower, and the capacity of said at least one source of conditioned air." The claim chart provides only unexplained block excerpts from an iCOM manual relating to fan speed control, with vague commentary that iCOM uses the location, size, and intensity of pattern differentials to control fan speed. The cited excerpts make no mention of using location, size or intensity of pattern differentials to control fan speed. Furthermore, these claims are directed to "correlating" particular information about pattern differentials to particular details of the cooling systems. Plaintiffs' unexplained reliance on the excerpts fails to identify any aspect of iCOM that identifies pattern differentials between two maps and then correlates the location, size or intensity of the pattern differentials to the location of vents, the fan speed or the capacity of a source of conditioned air.

Dependent claims 7 and 18 require that the step of identifying pattern differentials is performed "using pattern recognition software." The claim chart sets forth an unexplained screenshot showing the display of measured temperatures. This fails to identify any "pattern recognition software" within iCOM or how Plaintiffs allege that iCOM uses pattern differential software to identify pattern differentials between two maps upon comparing the maps to each other.

Dependent claims 11 and 21 require that the step of identifying pattern differentials between the empirical and template maps involves “performing at least one of extrapolation and triangulation to determine locations of one or more hot spots.” Claim 17 recites using thermal mapping software that “triangulates locations of hot spots.” The claim chart includes block excerpts from an iCOM manual relating to setting up alarms, together with a screenshot showing measured temperatures being displayed. This fails to identify any capability of the iCOM software to perform extrapolation or triangulation to locate hot spots and fails to provide notice of how Plaintiffs allege that TierPoint uses iCOM to perform triangulation or extrapolation to identify the location of hot spots.

## **2. U.S. Patent No. 6,854,284 Claim Chart (P.R. 3-1 Disclosures Exhibit B)**

The asserted claim 10 of the ‘284 patent recites a method of cooling data center racks that includes steps of activating a cooling system and opening a plurality of returns, the returns being configured to remove cooling fluid from the data center and being in fluid communication with a plenum such that the cooling fluid flows through the returns, through the plenum, and then into the cooling system. The method also involves sensing a pressure of cooling fluid in the plenum and then varying the intake of the cooling system through the returns when the sensed pressure falls outside of a predetermined range.

The claim chart provided by Plaintiffs includes several block excerpts from product documentation relating to Vertiv DSE cooling units. The chart fails to identify what Plaintiffs contend is the “return” or what corresponds to the step of “opening a plurality of returns.”

The claim chart cites various documentation related to iCOM software controlling the fan speed of DSE units based on a measured “static pressure.” The documents describe the static pressure as being a pressure differential between the supply plenum and the room. The documents are thus irrelevant to measuring pressure in the return plenum. The chart also cites a document that refers to measuring a pressure differential between the hot aisle and cold aisle, which is also irrelevant to measuring pressure in a return plenum. Plaintiffs have failed to identify any step of any TierPoint cooling process using Vertiv DSE units that allegedly corresponds to measuring pressure in the return plenum. The chart also fails to identify what constitutes varying the intake of cooling fluid through the returns when the sensed return plenum pressure falls outside of a predetermined range.

The chart is similarly deficient with regard to dependent claims 11 – 13, which relate to particular scenarios of the measured return pressure being equal to, above, or below a predetermined set point pressure.

## **3. U.S. Patent No. 6,868,682 Claim Chart (P.R. 3-1 Disclosures Exhibit C)**

The asserted independent claim 1 of the ‘682 patent relates to controlling temperature in a data center using a “hierarchy of agents.” According to the claim, a first agent processes sensed temperature data to determine if a subsystem in the data center is operating within a predetermined temperature range, and then adjusts the delivery of cooling fluid to keep the subsystem within the temperature range. The claim also involves requesting a second agent in the hierarchy of agents

to process the temperature data when the first agent cannot keep the subsystem within the predetermined temperature range unless the second agent redistributes the cooling fluid being delivered to one or more areas in the data center.

Plaintiffs' infringement claim chart does not identify what allegedly constitutes the first and second agents in a hierarchy of agents. The chart cites portions of product manuals describing a direct expansion ("DX") cooling unit operating in the "free-cooling" or "GLYCOOL" mode (otherwise referred to as a "fluid economizer"), in which the air is cooled by a chilled water cooling coil. The chart refers to a first agent in relation to a DX unit operating in GLYCOOL mode, but fails to identify what allegedly constitutes the first agent. The chart alludes to a second agent in relation to a DX unit operating its compressed refrigerant cooling coil, but fails to identify what constitutes the second agent or any step involving a second agent processing the temperature data as recited in the claim. The '682 patent is plainly referring to software agents, yet the chart also fails to identify where the first and second agents are allegedly present in the iCOM control software.

Furthermore, while alleging that chilled water is the cooling fluid controlled by the first agent, Plaintiffs fail to identify any functionality involving a second agent "redistributing" the chilled water being delivered to one or more areas of the data center. The claim chart refers to a DS unit switching from the chilled water cooling mode to a compressed refrigerant cooling mode, which is irrelevant to redistributing the chilled water being delivered to one or more areas in the data center.

Dependent claims 2 and 3 require a third agent of the hierarchy of agents to determine the amount of cooling fluid to output when the first and second agent cannot keep the subsystem operating within the predetermined temperature range. The claim chart provides block excerpts from a product brochure referring generally to "Zone Backup Protection" feature of iCOM-S software, without any explanation. This fails to provide notice of how iCOM-S provides a third agent that performs the additional steps of these claims or where the third agent is present in the iCOM-S software.

Claim 7 requires the data center to include a hierarchy of subsystems and components, with each agent being responsible for maintaining each hierarchical portion of the subsystems to operate within a predetermined temperature range. The claim chart refers to settings for controlling when a DX unit uses chilled water or compressed refrigerant to cool the air. The chart fails to identify what allegedly constitutes a hierarchy of subsystems and components in the data center or to explain how Plaintiffs allege that the operation of a DX unit allegedly involves agents each responsible for maintaining a hierarchical portion of the subsystems within a predetermined temperature range.

Claim 8 requires adjusting a delivery rate for the cooling fluid and the volume of cooling liquid being delivered. This refers to the cooling fluid being controlled by the first agent, which Plaintiffs allege is chilled water. For claim 8, however, the chart refers to controlling the fan speed of a DX unit to vary the delivery of cooled air. This fails to provide notice of how Plaintiffs

contend that the delivery rate and volume of chilled water cooling fluid delivered to the data center is adjusted.

Claim 9 requires decreasing the amount of cooling fluid delivered in one area of the data center and increasing the amount of cooling fluid delivered to another area. The claim chart includes block excerpts from product literature relating to iCOM capability to use a “proportional band” technique to control cooling capacity of Vertiv cooling units. This is irrelevant to and fails to provide notice of how Plaintiffs alleges that the accused DX units redistribute the cooling fluid by decreasing cooling fluid delivered to one area of data center and increasing cooling fluid delivered to another area.

Claim 10 requires a third agent from a hierarchy of agents to determine the amount of cooling fluid to output when a pressure associated with the cooling fluid output is not within the predetermined range. The claim chart provides block excerpts from product literature relating to a Zone Backup Protection capability of iCOM-S, which is irrelevant to and fails to provide notice of how Plaintiffs alleges that the accused DX units include a third agent that performs the method of this claim.

#### **4. U.S. Patent No. 6,868,683 Claim Chart (P.R. 3-1 Disclosures Exhibit D)**

The asserted independent claim 10 of the ‘683 patent recites a method of cooling data center racks that includes the steps of activating a cooling system and opening a plurality of returns that are configured to remove cooling fluid from the data center. The method also involves supplying cooling fluid to various locations of the data center, varying the removal of cooling fluid from the racks in response to sensed rack temperatures being out of range, and varying the supply of cooling fluid in response to varying the removal of cooling fluid.

The claim chart provided by Plaintiffs includes several block excerpts from product documentation relating to Vertiv DSE cooling units. The chart fails to identify what Plaintiffs contends is the “return” or what corresponds to the step of “opening a plurality of returns.”

The chart alleges that the claim step of varying the removal of cooling fluid from the racks is performed when the fan speed of a DSE unit is adjusted. The chart fails to provide notice of how Plaintiffs contend that TierPoint practices the separate step of varying the supply of cooling fluid in response to varying the removal of cooling fluid. Rather than disclosing Plaintiffs’ infringement theory for that last step of claim 1, the chart presents additional product manual excerpts describing control of the same DSE unit fan. The chart cites to many of the same excerpts regarding fan speed control for the asserted dependent claims without any explanation of how fan speed control relates to any of the additional steps of those claims.

#### **5. U.S. Patent No. 6,854,287 Claim Chart (P.R. 3-1 Disclosures Exhibit E)**

The asserted independent claim 1 of the ‘287 patent recites a cooling method that utilizes a plurality of heat exchanger units to deliver cooled air to a room. The heat exchanger units are supplied with cooling fluid from an air conditioning unit, and the mass flow rate of cooling fluid

supplied by the air conditioning unit to each heat exchanger unit is individually manipulated in response to temperatures sensed at one or more locations in the room.

The claim chart provided by Plaintiffs refers to TierPoint's use of Vertiv "cooling units" generally and then haphazardly cites random excerpts from documents describing aspect of CW, DSE and DX cooling system product lines. The chart fails to identify what constitutes the "plurality of heat exchanger units" in any of those cooling systems or what constitutes the "air conditioning unit" that allegedly supplies cooling fluid to multiple heat exchanger units.

The chart further obfuscates Plaintiffs' infringement theories by conflating DSE and CW cooling systems. As the cited documentation confirms, these are distinct types of cooling equipment each with their own unique design and operational processes. Plaintiffs' approach of cobbling together block excerpts from product manuals of these distinct cooling systems fails to provide notice of how any actual cooling system or process used by TierPoint allegedly infringes the '287 patent. Furthermore, for the step of independently controlling cooling fluid flow to each heat exchanger unit recited in claim 1, the chart identifies a motorized ball valve of a chilled water/glycol "fluid economizer" cooling coil. However, as the cited documentation also makes clear, a fluid economizer is a feature available only in Vertiv's DX type cooling systems. The fluid economizer is not present in the DSE or CW cooling systems identified for the remaining claim elements. Plaintiffs' disclosed contentions are thus directed to a nonexistent cooling method and fail to identify any actual method that might even potentially be practiced by TierPoint using Vertiv cooling equipment.

If Plaintiffs contend that TierPoint's use of Vertiv DSE, CW or DX cooling systems infringes any claims of the '287 patent, then Plaintiffs need to address each system separately and provide notice of where each step of each asserted claim is allegedly performed by each type of cooling system as used by TierPoint.

Plaintiffs' contentions for the asserted dependent claims suffer from numerous additional deficiencies. For example, claims 2 and 4 require controlling or varying the temperature of cooling fluid supplied to the heat exchanger units. The chart refers to the capability of a DX unit to operate using a chilled water cooling coil, a compressed refrigerant cooling coil, or using both simultaneously. This fails to identify what Plaintiffs' contend is the relevant cooling fluid or to identify what operation allegedly corresponds to controlling the temperature of the cooling fluid.

Claims 5 and 6 require increasing or decreasing the cooling fluid temperature in response to "a sum of sensed temperatures" being below or above a predetermined range. The claim chart provides block excerpts from a manual describing the capability of iCOM control software to aggregate sensed temperatures measured at multiple locations for use in controlling cooling capacity. Plaintiffs fail to identify any capability of iCOM to compute a sum of the sensed temperatures, to determine whether the sum is below said predetermined range, or to control the cooling fluid temperature based on such a determination. Plaintiffs also fail to identify where any such capabilities are allegedly present in the iCOM software.

## 6. U.S. Patent No. 6,862,179 Claim Chart (P.R. 3-1 Disclosures Exhibit F)

The asserted independent claim 1 of the 179 patent recites of method of cooling data center racks that includes “activating a cooling device and opening a controllable partition configured to vary a supply of cooling fluid within a zone of said data center, said zone including at least one associated rack of said plurality of racks.” Additional steps involve manipulating a controllable partition to vary the cooling fluid supplied to the zone in response to sensed rack temperatures being outside of a predetermined range.

The claim chart provided by Plaintiffs cites product literature regarding a motorized ball valve for controlling the flow chilled water/glycol within a “fluid economizer” heat exchanger coil of a Vertiv DX cooling unit. Plaintiffs have failed to identify what they contend constitutes a zone of a data center that includes at least one rack or any partition that allegedly varies the supply of cooling fluid to such a data center zone.

Dependent claims 3, 5, 11 and 12 recite additional steps of sensing the pressure of the cooling fluid and varying an output of the cooling device if the sensed pressure is out of range. Having previously identified the cooling fluid as chilled water flowing within a fluid economizer coil of DX unit, Plaintiffs have not identified any operation of the fluid economizer that involves sensing pressure of the chilled water. The chart instead refers to sensing liquid refrigerant pressure in a Vertiv DSE type cooling system, which is irrelevant to the accused fluid economizer feature of DX cooling units.

Dependent claims 6 and 13 relate to decreasing or increasing the cooling fluid output from a cooling device in response to a net decrease or increase of cooling fluid supplied to a data center zone. The claim chart refers to iCOM control software “activation point” settings that affect how quickly the cooling unit operation is adjusted in response to a sensed temperature deviating from the setpoint. This fails to identify any operation that allegedly decreases or increases the cooling fluid output of a DX unit in response to a net decrease or increase in cooling fluid supplied to a data center zone.

Claims 10 and 15 require numerical modeling of a temperature distribution and flow characteristics of the data center and executing additional actions based on the numerical modeling. The claim chart includes unexplained block excerpts from product manuals relating to iCOM control software’s capability to “optimize thermal system performance,” to “provide[] adaptive control for hot spot reduction,” to “adapt to changes in facility-level demand,” etc. Plaintiffs have not identified any capability or operation of the iCOM software that allegedly constitutes numerical modeling of data center temperature distribution and flow characteristics. Plaintiffs have not identified where any such operations are present in the algorithms performed by the iCOM software.

## 7. U.S. Patent No. 7,031,870 Claim Chart (P.R. 3-1 Disclosures Exhibit G)

The ‘870 patent relates to evaluating components of a data center. The asserted independent claim 1 requires detecting inlet and outlet temperatures of one or more heat dissipating devices, detecting temperatures of air supplied by one or more computer room air

conditioning units), and “calculating indices of air re- circulation for the one or more heat dissipating devices based upon the detected inlet temperatures, outlet temperatures and supplied air temperatures.”

The claim chart provided by Plaintiffs refers to TierPoint’s use of Vertiv’s iCOM control software and cites excerpts from a product manual indicating that iCOM can receive temperature measurements of the cooled air supplied to the equipment, of the warm air returning from the equipment, or of other locations monitored by remote temperature sensors. The chart fails to identify where in the iCOM software any indices of air recirculation are calculated based on detected inlet, outlet and supplied air temperatures or how TierPoint’s use of iCOM software allegedly satisfies this step. The chart also cites unexplained block excerpts from an iCOM manual relating to fan speed control, which fails to provide notice of how Plaintiffs contend that iCOM software performs the claimed calculation step. The chart also cites a diagram from a third-party LinkedIn post that does not relate to iCOM software or any feature thereof related to calculating indices of air recirculation based on the three sensed temperatures recited in this claim.

The remaining claim steps require varying a flow field setting of air delivered to one or more heat dissipating devices, then determining whether this causes the calculated indices of air recirculation to change, and then evaluating data center components based on changes in the indices of air re-circulation. The claim chart does not identify any corresponding steps allegedly performed by TierPoint using iCOM software. The chart includes block excerpts from product manuals, none of which include any mention of calculating indices of air recirculation, determining how varying air flow settings affect calculated indices of air recirculation, or evaluating data center components based on such an analysis. The block excerpts relate instead to automatically adjusting fan speed or compressor operations based on sensed temperature, control settings that affect how quickly iCOM can adjust the cooling operation, “Teamwork” mode for coordinating the control of multiple cooling units, and settings for placing cooling units in standby mode. The citations are unrelated to and fail to provide notice of how Plaintiffs alleges that TierPoint uses iCOM software to calculate or recalculate indices of air recirculation after changing flow field settings, or that TierPoint evaluates equipment components based on determining whether indices of air recirculation have changed in response to varied flow field settings.

Dependent claim 6 recites a specific mathematical formula for calculating the indices of air recirculation based on the measured inlet, outlet, and supply air temperatures. Plaintiffs’ claim chart fails to identify any capability of iCOM to calculate indices of air recirculation using the recited equation. The chart cites a document that discusses the concepts of Supply Heat Index and Return Heat Index generally. The document is not related to iCOM software and does not describe any functionality of iCOM software relevant to performing the calculation recited in this claim.

Dependent claim 7 recites “designing a substantially optimized layout of the data center based upon the step of evaluating the one or more components.” The chart fails to identify any activity related to designing the layout of any TierPoint data center. The chart instead presents various block excerpts from product literature summarizing features and benefits of iCOM software generally, none of which has any relevance to designing an optimized data center layout



based on evaluation of whether calculated indices of air recirculation change with varying flow field settings.

The remaining asserted dependent claims 8-12 require particular evaluations based on whether calculated indices of air recirculation change as air flow rates or other operational parameters are varied. For those claims as well the claim chart fails to identify any capability of iCOM or usage of iCOM by TierPoint to calculate indices of air re-circulation, to compare indices of air re-circulation at various field flow settings, to determine whether the indices of air re-circulation for any heat dissipating device have changed with varying flow field settings, to output indications reflecting those relationships, or to perform any of the other steps recited in these claims.

We request that Plaintiffs' promptly remedy the deficiencies addressed herein and comply with P.R. 3-1.

Sincerely,

*/s/ Randal S. Alexander*

CC: Counsel of record