

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ACTIVISION BLIZZARD, INC. ELECTRONIC ARTS INC.,
TAKE-TWO INTERACTIVE SOFTWARE, INC.,
2K SPORTS, INC. AND ROCKSTAR GAMES, INC.,
Petitioners

v.

ACCELERATION BAY, LLC,
Alleged Patent Owner

Case: IPR2016-00747

**REPLY IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW
OF CLAIMS 6-10 OF U.S. PATENT NO. 6,732,147**

(CONTAINS MATERIAL DESIGNATED “PROTECTIVE ORDER
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PETITIONERS' EXHIBIT LIST

Exhibit	Description
Ex.1001	U.S. Patent No. 6,732,147 ("the '147 patent")
Ex.1002	U.S. Patent No. 6,732,147 File History
Ex.1003	Expert Declaration of David R. Karger ("Karger")
Ex.1004	Declaration of Scott Bennett, Ph.D
Ex.1005	Peter J. Shoubridge & Arek Dadej, "Hybrid Routing in Dynamic Networks," IEEE International Conference on Communications, Montreal, 1997 ("Shoubridge")
Ex.1006	Declaration of Steven Silvio Pietrobon attaching as Exhibit F Peter J. Shoubridge, "Adaptive Strategies for Routing in Dynamic Networks" (Ph.D. Thesis, University of South Australia, December 1996) ("Shoubridge Thesis")
Ex.1007	John M. McQuillan, <i>et al.</i> , "The New Routing Algorithm for the ARPANET," <i>IEEE Transactions Comms.</i> , Vol. 28, No. 5, 1980 ("McQuillan")
Ex.1008	Yogen Kantilal Dalal, "Broadcast Protocols in Packet Switched Computer Networks," (Ph.D. Thesis, Stanford University 1977) ("Dalal")
Ex.1009	Katia Obraczka, <i>et al.</i> , "A Tool for Massively Replicating Internet Archives: Design, Implementation, and Experience," Proceedings of the 16th International Conference on Distributed Computing Systems, 2730 May 1996, Hong Kong (New York, NY: 1996), 657-664 ("Obraczka Paper")
Ex.1010	Katia Obraczka, "Massively Replicating Services In Wide-Area Internetworks," (Ph.D. Thesis, University of Southern California December 1994) ("Obraczka")
Ex.1011	Jose Rufino, <i>et al.</i> , "A Study On The Inaccessibility Characteristics Of ISO 8802/4 Token-Bus LANs," IEEE INFOCOM '92: The Conference on Computer Communications. One World through Communications. Eleventh Annual Joint Conference of the IEEE Computer and Communication Societies, Florence, Italy, Vol. 2 (Picataway, NJ: IEEE Service Center, 1992), 0958-0967 ("Rufino")
Ex.1012	U.S. Patent No. 6,829,634 ("the '634 patent")

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Ex.1013	Kuo-Jui Raymond Lin, “Routing and Broadcasting in Two-dimensional Linear Congruential Graphs of Degree Four,” (Master’s Thesis, Concordia University, June 1994) (“Kuo-Jui Lin”)
Ex.1014	William S. Davis and David C. Yen, <i>The Information System Consultant’s Handbook: Systems Analysis and Design</i> , CRC Press, 1998 (“Davis”)
Ex.1015	<i>Topological Design Considerations in Computer Communication Networks</i> , <i>Computer Communication Networks</i> (V.G. Cerf, D.D. Cown, R.C. Mullin), 1975 (“Cerf”)
Ex.1016	Stephen M. Grimes certification of English translation attaching English translation and original text of Tamás Dénes, “The ‘Evolution’ of Regular Graphs of Even Order by their Verticies,” <i>Matematikai Lapok</i> , 27, 3-4 (1976/1979): 365-377 (“Denes”)
Ex.1017	English-language translation from Exhibit 1016: Tamás Dénes, “The ‘Evolution’ of Regular Graphs of Even Order by their Verticies,” <i>Matematikai Lapok</i> , 27, 3-4 (1976/1979): 365-377 (“Denes”)
Ex.1018	‘Construction of Quartic Graphs,” <i>Journal of Combinatorial Theory</i> , 6.2 (April 1974): 124-133 (“Toida”)
Ex.1019	“The Token Grid Network,” <i>IEEE/ACM Transactions On Networking</i> , 2, : 279-287 (“Todd”)
Ex.1020	Declaration of Peter John Shoubridge and, as Exhibit A, Peter J. Shoubridge, Adaptive Strategies for Routing in Dynamic Networks, Ph.D. Thesis (Univ. S. Austl., 1996) (“Shoubridge Thesis”), and as Exhibit B, Peter J. Shoubridge & Arek Dadej, Hybrid Routing in Dynamic Networks, in 3 IEEE INT’L CONF. ON COMMC’NS CONF. REC. 1381-86 (Montreal, 1997) (“Shoubridge”).
Ex.1021	U.S. Patent No. 5,802,285 to Hirviniemi (“Hirviniemi”)
Ex.1022	U.S. Patent No. 4,700,185 to Balph (“Balph”)
Ex.1023	U.S. Patent No. 6,603,742 to Steele <i>et al.</i> (“Steele”)
Ex.1024	U.S. Patent No. 6,732,147 File History Excerpt: November 5, 2003 Office Action

Exhibit	Description
Ex.1025	U.S. Patent No. 6,732,147 File History Excerpt: December 17, 2003 Amendment and Response
Ex.1026	U.S. Patent No. 6,732,147 File History Excerpt: January 23, 2004 Notice of Allowance
Ex.1027	L.G. Valiant, “Optimality of a Two-Phase Strategy for Routing in Interconnection Networks,” <i>IEEE Transactions on Computers</i> , C-32.9 (September 1983): 861-863 (“Valiant”)
Ex.1028	U.S. Patent No. 6,490,247 to Gilbert <i>et al.</i> (“Gilbert”)
Ex.1029	U.S. Patent No. 6,122,277 to Garmire <i>et al.</i> (“Garmire”)
Ex.1030	U.S. Patent No. 5,181,017 to Frey <i>et al.</i> (“Frey”)
Ex.1031	J. Van Leeuwen, <i>et al.</i> , “Interval Routing,” <i>The Computer Journal</i> , 30.4 (August 1987): 298-307 (“Van Leeuwen”).
<i>Ex.1032-1100: Not Used</i>	
Ex.1101	U.S. Patent No. 6,910,069 (“the ’069 patent”)
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Ex.1202	Deposition Transcript of Michael Goodrich (Feb. 24, 2017)
Ex.1203	Handwritten drawing, Ex.10 to Deposition Transcript of Michael Goodrich
Ex.1204	“Computer Networks, Third Edition” by Andrew S. Tanenbaum (annotated copy), Ex.11 to Deposition Transcript of Michael Goodrich
Ex.1205	“Computer Networks, Third Edition” by Andrew S. Tanenbaum (unannotated copy) Ex.12 to Deposition Transcript of Michael Goodrich

Exhibit	Description
Ex.1206	Handwritten document, Ex.13 to Deposition Transcript of Michael Goodrich
Ex.1207	Excerpts of Deposition Transcript of Michael Goodrich (Feb. 22, 2017) [FILED UNDER SEAL]
Ex.1208	Email correspondence between A. Sommer and Patent Owner's counsel

I. PRELIMINARY STATEMENT

At institution, the Board correctly found that, unless rebutted by Patent Owner (“PO”), claims 6-10 of the ’147 patent are rendered obvious. Unable to rebut the obviousness ground based on the plain meaning of the claims, PO’s Response (“Resp.”) instead resorts to rewriting the claims to include myriad features of the preferred embodiments. Even if successful in doing so, however, the prior art still discloses the various claimed features and would have rendered the claimed subject matter obvious as shown below. PO also presents tenuous evidence of secondary considerations unanchored to the claims. The challenged claims should be cancelled.

II. PO’S PROPOSED CONSTRUCTIONS READ LIMITATIONS INTO THE CLAIMS

PO attempts to read unsupported limitations into the claims. The terms should be given their plain and ordinary meaning as understood by a POSITA—the inventors didn’t act as lexicographers or disavow claim scope for PO’s construed terms. *Info-Hold, Inc. v. Applied Media Techs. Corp.*, 783 F.3d 1262, 1266 (Fed. Cir. 2015).

A. PO Improperly Reads Limitations Into the Term “Connection”

For the first time in its Resp.,¹ PO asks the Board to construe “connection” to

¹ PO previously asserted that “it is not necessary to construe any term in the claims of the ‘147 Patent.” Pap.11, 10.

mean “an edge between two application programs connected to a logical broadcast channel that overlays an underlying network.” Resp., 13. PO further construes “connected” as “having a connection” and thus as including the same substantive limitations as “connection.” *Id.* These constructions ignore the plain meaning of the simple terms “connection” and “connected” in favor of a narrow construction that imports multiple limitations from the specification and goes far beyond any reasonable construction of the terms themselves.

Claim 1 covers “[a] method for healing a disconnection of a first computer from a second computer, the *computers being connected* to a broadcast channel, said broadcast channel being an m-regular graph....” Ex.1001, 29:12-15 (emphasis added). Rather than focusing on the meaning of connection/connected, PO instead construes these simple terms to define *what is being connected* (i.e., allegedly “application programs”), what the items being connected *are connected to* (i.e., allegedly “a logical broadcast channel”) and, even further, what that element “overlays” (i.e., allegedly an “underlying network.”). This extraordinary attempt at rewriting the claims through relatively simple and well-understood terms should be rejected for multiple reasons.

First, PO’s construction actually says nothing about the meaning of the terms being construed. PO is apparently not interested in clarifying what it means to be “connected” or to have a “connection.” Instead, PO’s construction is a transparent

attempt to create some distinctions between the claims and the prior art where none exist. In particular, PO construes “connection” as being between “application programs,” a term never used in claim 6. There is simply nothing in the claim that limits “connection” as being between application programs. To the contrary, the plain language of the claims states that it is “computers” which are “connected.” PO’s attempt to narrow the claimed connection of “computers” to connections between “application programs” is also inconsistent with the specification, which repeatedly describes “connections” in the context of computers. *See, e.g.*, Ex.1001 at 15:56-65 (“[t]he *computers connecting* to the broadcast channel”); *id.* at 4:26-27 (“point-to point *connections* ... between host *computers*”); *id.* at 5:57-59 (“some *connections* between *computers* need to be broken so that the seeking computer can connect to four *computers*”) (all emphasis added).

In addition, to the extent PO argues that “computer” should mean “application program,” Dr. Goodrich opined to the contrary, stating that “computer” should be given its plain and ordinary meaning in the context of claim 6. Ex.1202, 74:2-6. Construing the claimed “connection” between “computers” to mean a connection between application programs in light of the plainly different meanings of the words is inappropriate. *Source Vagabond Sys. Ltd. v. Hydrapak, Inc.*, 753 F.3d 1291, 1301 (Fed. Cir. 2014) (“‘[C]laim construction is a function of the words of the claim not the ‘purpose’ of the invention,’ and that [plaintiff]’s construction ‘violates nearly

every tenet of claim construction and amounts to a wholesale judicial rewriting of the claim.””).

In addition to attempting to read “application program” into the claim through the words “connection/connected,” PO tries to read in the concept of a “logical broadcast channel that overlays an underlying network.” This, of course, goes well beyond the meaning of “connection.” In addition, the term “broadcast channel” is already in the claims, and its meaning should be addressed separately. It is unnecessary, and inappropriate, to construe “broadcast channel” through the construction of the different terms “connection/connected.”

B. PO Improperly Reads Limitations Into “Broadcast Channel”

PO seeks to improperly limit “broadcast channel” to “a logical channel that overlays an underlying point-to-point communications network.” Resp., 13. As discussed in the previous section, the plain language of claim 6 makes it clear that connections between *computers* form the broadcast channel. Ex.1001 at 29:19-26. There is no “logical channel” requirement in claim 6 and no requirement of an “overlay” on top of a “point-to-point communications network.” Once again, PO’s construction is a transparent attempt to read in concepts from the preferred embodiments to manufacture distinctions between the claims and the prior art.

PO cites to the specification as allegedly “defining a ‘broadcast channel’ as a logical network ‘implemented using an underlying network system that sends

messages on a point-to-point basis.” Resp., 13 (citing ’147 patent, 4:17-21). However, there is no such “definition.” In the sentences *immediately preceding* the portion on which PO relies, the specification is unequivocal that the described “logical” broadcast channel is only “one embodiment” of the invention. Ex.1001, 4:10-12 (“In *one embodiment*, the broadcast technique provides a logical broadcast channel....”) (emphasis added). PO has failed to show that the inventors acted as their own lexicographers in defining “broadcast channel” narrowly as a “logical overlay” or that they otherwise disavowed claim scope.

PO tries to limit the claims to the “logical” or “application” layer in the OSI model in an attempt to distinguish the claimed connections from connections made in the prior art which PO argues, as addressed below, are directed to connections at different OSI layers. The ’147 patent, however, never mentions the OSI model. And the ’147 patent only uses the term “overlay” two times. Ex.1001, 4:3-5 and 4:25-28. Neither of these citations limit the term “overlay” to an *application layer* overlay.

Further, the “application layer” involves layer 7 in the OSI model. Goodrich Decl. ¶¶28-31. Thus, under PO’s reading of the claims, the “connections” would be directed at layer 7. However, claims dependent from claims 1 and 11, which also use the terms “connection” and “broadcast channel,” further specify that “the connections are TCP/IP connections”—*i.e.*, at the *transport* layer—layer 4 in the OSI model. Ex.1001, 29:10-11 and 30:34-35 (claims 5 and 14). Thus, the

“connections” of the claims cannot be limited to “applications” in the “logical overlay,” as the dependent claims are clear that connections exist at the transport layer.

C. PO Improperly Reads Limitations Into “Healing a Disconnection”

PO seeks to improperly limit “healing a disconnection of a first computer from a second computer” to “connecting a first computer to another computer in order to maintain an m-regular network after the second computer has involuntarily been disconnected.” Resp., 12-13. PO’s construction adds three superfluous limitations to the preamble: (a) the disconnection is “involuntary,” (b) the addition of an “involuntary disconnection” step, and (c) “connecting a first computer to another computer in order to maintain an m-regular network.”

First, the plain language of claim 6 includes nothing about whether “healing a disconnection” applies to an “involuntary disconnection” or some other disconnection. The specification never discusses “voluntary” or “involuntary” disconnections. Rather, PO imports the term from one sentence in the file history. Ex.1025 at 13 (“Claims [6-10] *relate to* the situation where a computer is *involuntarily disconnected* from the M-regular graph computer network.”) (emphasis added). The file history does not elaborate on the meaning of the term “involuntarily disconnected,” nor does it say that claims 6-10 are limited *only to* involuntary disconnections. *Id.* The cited argument was merely that these claims

“relate to,” i.e., are relevant to, involuntary disconnections. *Id.* This file history statement is certainly not a “clear and unequivocal” disclaimer of healing *voluntary* disconnections in addition to involuntary ones. *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1323-28 (Fed. Cir. 2003) (“[W]e must give the claim language its presumptive full ordinary meaning, limited solely by the patentee’s clear and unmistakable disclaimer.”).

PO argues that an “involuntary disconnection” means the same thing as an “unplanned disconnection” in the patent specification. Ex.1202, 110:12-14. Even if true, PO’s construction is still unduly limiting because, again, nothing in claim 6 limits “healing a disconnection” to only *unplanned* disconnections. According to the specification, both “a planned or unplanned disconnection may result in two neighbors each having an empty internal port” which will be healed by sending a “connection port search message.” Ex.1001, 9:52-10:24, 9:12-14. Indeed, claims 1 and 11 (relating to planned disconnections) recite the same “connection port search message” of claim 6. Ex.1001, 28:63, 30:16, 29:21-22. While the steps recited in claim 6 may be useful in unplanned disconnections, the specification also states that the “connection port search message” is also used in the context of a planned disconnection when “a connection cannot be established.” Ex.1001, 9:6-14. Simply put, a computer can leave in a planned manner and the method of claim 6 can still be used to “heal” the resulting disconnection. PO has shown nothing to the contrary.

Second, PO's construction requires the addition of an "involuntary disconnection" step—"the second computer has involuntarily been disconnected." Resp., 12; Ex.1202, 156:12-15 ("Q. So this -- so the -- so claim 6 requires a disconnection to occur? A. I don't -- I don't see how it can read on anything else, actually.")). The plain language of the claim, however, recites a series of steps that will be used to heal a disconnection that has already occurred; there is no step of "disconnecting." Ex.1001, 29:12-14. ("A method for healing a disconnection of a first computer from a second computer"). Claim 6 simply does not recite any disconnection step, let alone a particular type of disconnection. *Id.*

Third, the construction also improperly limits the "healing a disconnection" portion of the preamble to "connecting a first computer to another computer in order to maintain an m-regular network." The only support PO cites for this addition is the file history. Resp., 13; *see also* Ex.1025, 13. But the statement PO relies on from the file history related to the addition of what was an entirely new limitation, i.e., the last step of claim 6. Ex.1025, 6 and 13. There is no justification for reading a similar, and slightly different, requirement into the preamble through the "healing a disconnection" term.

III. THE CLAIMS ARE OBVIOUS

A. Claim 6 Is Obvious

A POSITA would not have understood that the claims are limited to an

“application layer” and sending application layer data (e.g., Resp., 22-25). See §II.A. As addressed above, the ’147 patent never refers to the “OSI” model or a “layer,” let alone an “application layer,” and PO improperly relies on supposed understandings of a POSITA to justify its narrow construction of “broadcast channel” and “connected/connection.” Id. When the plain and ordinary meanings of these terms are applied, consistent with the broadest reasonable construction, PO’s arguments collapse. Further, as addressed next, PO’s arguments are flawed even under the narrow constructions it advances.

Even under PO’s improper construction of “connection” and “connected,” the prior art renders the claims obvious. See §II.A. Even if the claims were improperly limited to an application layer (they shouldn’t be), Dr. Goodrich agrees that “an application” in the context of the ’147 patent includes computer processes that cause a connection to form at the network and/or transport layers. Ex.1202, 225:24-226:12. Shoubridge, Rufino, and Todd all contain software that causes connections and traffic in each of their networks. Shoubridge discloses “a routing strategy that smoothly adapts to changing network conditions” and these “routing algorithms” are, e.g., “executed” on the network topology. Ex.1005, Abstract and 1382. Rufino discloses “[a]ccess control” performed by “a token passing protocol, which establishes a logical ring over the physical bus,” that performs each “operation” by software. Ex.1011, 0959 and 0960. Todd discloses a “virtual topology” that

executes its token grid “algorithm” in software. Ex.1019, 280. Therefore, Shoubridge, Todd, and Rufino render obvious computers being “connected,” even if the “connection” is (improperly) limited to “an edge between two application programs” All three of these references are clearly using applications to form the connections.

Even under PO’s improper construction of “broadcast channel,” the prior art renders the claims obvious. See §II.B. Shoubridge, Todd, and Rufino render obvious computers being connected to a broadcast channel, even if the broadcast channel is (improperly) limited to a logical channel that overlays an underlying point-to-point communications network.

Shoubridge discloses a logical channel (user traffic) that overlays an underlying point-to-point communications network. Ex.1005, 1. Shoubridge provides example routing algorithms and a sample network topology of a 4-regular incomplete network. *Id.*, 3. In this network topology, “each node functions as a source of user traffic entering the network where traffic can be destined to all other nodes within the network.” *Id.*, 3. Contrary to PO’s expert’s conclusory assertions (*e.g.*, Resp., 27), nothing in Shoubridge limits its teachings to a network layer.²

² Dr. Karger did not testify that Shoubridge’s network was limited to the network layer (contrary to Resp. 26). Dr. Karger testified that “Shoubridge is not specifying

Rufino and Todd also disclose a “broadcast channel.” Instead of focusing on the logical channel formed by the path a token travels over the underlying network, PO incorrectly focuses on other messages. Resp., 28-31. Rufino discloses “a logical ring” and the ring is formed by the path by which the logical token is passed. *E.g.*, Ex.1011, 9 (“Access control is performed by a token passing protocol, which establishes a logical ring over the physical bus.”), 10 (“... logical ring housekeeping functions ...”), 10 (“Each station on the logical ring periodically offers other stations the opportunity to become ring members.”). Indeed, PO agrees that Rufino provides a “2-regular logical ring over a physical bus” but argues that the 2-regular ring is not a “broadcast channel” because it is a “logical point-to-point communications channel.”³ Resp. 31. But this argument fails because the token is sent to every

whether the network he's simulating is a real network or an overlay network, and it doesn't matter....[Y]ou could create a grid shaped overlay if you wished and make use of Shoubridge's simulations in order to understand what the behavior of that grid shaped overlay would be.” Ex2011, 102:22-103:14; Ex2012, 81:7-19.

³ Based on its improper claim construction of “broadcast channel,” *see* §II.B, PO also complains that Rufino does not disclose a “broadcast channel” because its “physical bus” is not an “underlying point-to-point communications network.” Resp. 27-31. But Rufino discloses that the token is sent on a point-to-point basis, plainly

computer on the network, i.e., broadcasted, and even Dr. Goodrich agreed that the shortest distance a message has to travel between the two most distant computers on the network (the “diameter”) does not matter to the definition of a “broadcast channel.” Ex.1202, 70:20-72:24 (“... whatever the diameter number is it should not matter to the definition of a broadcast channel.”). Todd also discloses that its overlapping token ring topology is a “virtual topology.” Ex.1019, 2. Indeed, Dr. Goodrich calls the token grid of Todd a “generalization” of the token ring. Goodrich Decl. ¶¶83, 86. The underlying point-to-point communications network of Todd includes a “physical topology.” Ex.1019, 2.

To the extent it is limiting, the preamble of claim 6 is obvious as the Board properly found. Pap.12, 16-17. It would have been obvious to implement a healing mechanism using Shoubridge’s teachings of generic computer “communication” networks. Petition, 29-30. PO’s proposed construction of “healing a disconnection” is improper. §II.C. Nevertheless, as shown by the discussion addressing claims 6(a)-(c) in the Petition, Shoubridge, Denes, Rufino, and Todd disclose the limitation of “healing a disconnection.” Petition, 29-37.

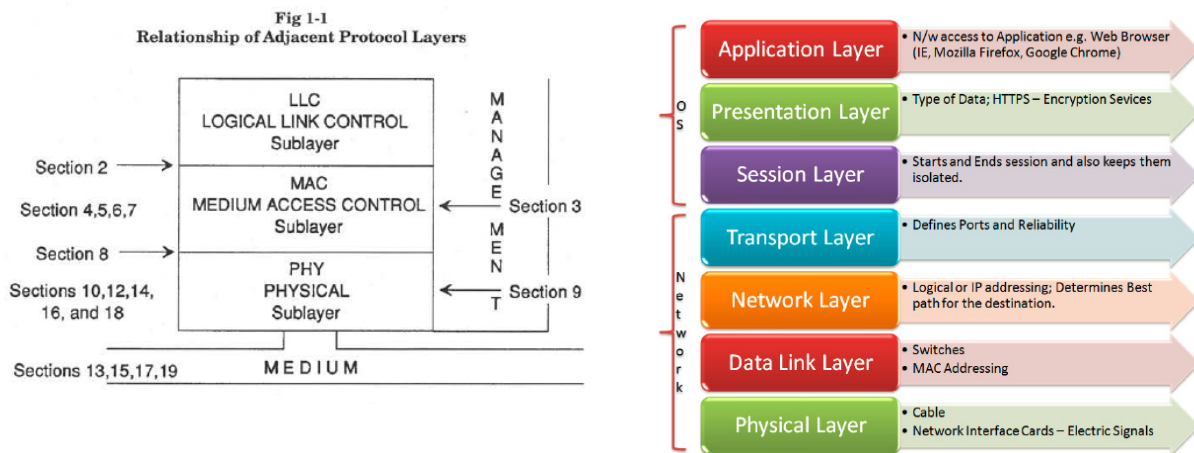
Rufino discloses the recovery procedure that occurs when a computer abruptly

showing the underlying network is capable of being a point-to-point communications network. *E.g.*, Ex1011, 9.

leaves the network at the “logical” layer. Petition, 30-37. Rufino discloses a method for a station (second computer) in a network to leave the network in an involuntary way from its predecessor station (first computer). Ex.1011, 12 (“Stations may leave the *logical ring* either in an abrupt or orderly way.”) (emphasis added). Rufino discloses that when a station cannot successfully send a message to its successor (because of an unplanned disconnect of the successor), the station broadcasts a connection port search message on the broadcast channel to find a third computer to which it can connect to maintain a 2-regular graph.

PO’s argument that a POSITA would not combine Shoubridge, Denes, Rufino, and Todd misses (or willfully ignores) Petitioners’ argument. Petitioners are not arguing, and need not argue, that the entire networks of Shoubridge, Rufino, and Todd are combinable. Instead, Petitioners explained that the message passing technique of Rufino is easily translatable to m-regular incomplete networks. Petition, 33 (“A POSITA would have further applied any well-known messaging technique to accomplish the communication between nodes, including the techniques of Rufino”). Even PO’s expert and exhibits support this conclusion because Rufino’s message passing technique occurs at the “logical” layer. Ex.1011, 12 (“Stations may leave the *logical ring* either in an abrupt or orderly way.”) (emphasis added). As PO’s expert explained, protocols are “modeled conceptually as being partitioned into layers” Ex.2003, ¶28. Just like the OSI model Dr. Goodrich

discusses, Rufino models its protocol in layers so that “[e]ach layer provides a set of services and functionality guarantees for higher layers and, to the extent possible, each layer does not depend on details or services from higher levels.” *Id.* Fig. 1-1 of Dr. Goodrich’s Ex.2014 shows the relationship of adjacent layers in Rufino’s protocol:



Ex.2014, 15

Goodrich Decl., 11

Shoubridge shows that it would have been obvious to implement the message passing techniques of Rufino on a common 4-regular computer network. PO incorrectly argues that Shoubridge is silent on how to add or remove nodes. Resp., 18-19. Shoubridge specifically contemplates nodes leaving the network. Ex.1105, 1 (“Links may fail or become congested, nodes or users could be mobile, resulting in changes to source-destination paths.”), (“[A] link is either up providing good error free transmission, or a link has failed providing no useful transmission at all.”). Further, Shoubridge contemplates the problem of maintaining network connectivity

in very dynamic networks due to topological changes, and searches for solutions. *Id.*, 1 (“Routing by flooding is often used in very dynamic networks where ... topological changes occur very frequently and therefore the network connectivity is uncertain.”).

Todd further showed that a POSITA would have known to expand Rufino’s messaging technique to a 4-regular grid topology, as the Board agreed. Paper.12. 18-19. Todd’s teaching of a two-dimensional token grid network allows for higher throughput and shows that the modification of Rufino to a higher order network can be done in simple fashion by overlapping token rings. *Id.*

PO’s argument that token grids and token rings are different and incompatible standards are inapposite as those arguments are focused on the underlying network and not the abstract message passing techniques. The idea that token rings and buses share common methods of managing their topologies should be well-known to Dr. Goodrich, as he wrote a paper ten years before the ’147 patent that applied “geometric properties in addition to its strictly graph theoretic properties” to the “ring type of a topology” of token rings and buses. Ex.1202, 39:2-41:21 (discussing M.T. Goodrich and J.S. Snoeyink, “Stabbing Parallel Segments with a Convex Polygon,” *Computer Vision, Graphics and Image Processing*, 39, 1990, 152-170). Instead of addressing Petitioners’ combination, PO addresses irrelevant details.

PO’s argument that Denes does not teach a general method of maintaining an

m-regular graph when a node is removed from a network, i.e., that Denes does not teach a method that applies to every possible graph, misses the point. For the purposes of an obviousness analysis, as long as one embodiment is disclosed under the claim, then the claim is rendered obvious. *In re Geisler*, 116 F.3d 1465, 1469-71 (Fed. Cir. 1997). And Denes certainly discloses more than one possibility of how to maintain an m-regular graph; it discloses a range of possibilities: for whenever “m” is an even number. Ex.1017, 1. The ’147 patent discloses that it has a similar limitation; it cannot always maintain an m-regular graph when “m” is an odd number. Ex.1001, 14:64-66 (“If the number of internal connections is odd, then when the broadcast channel has an odd number of computers connected, one of the computers will have less than that odd number of internal connections.”).

Denes even applies under PO’s improper requirement of an “involuntary disconnection” step. As discussed in §II.C, PO requires the limitation to include an “involuntary disconnection” step. But even if the claim contained such a step, all nodes and edges would be present *before* any such disconnection occurs and so Denes still applies, contrary to PO’s argument on Resp., 20. Further, Denes also teaches the steps of what must occur in *any* disconnection, e.g., that after a disconnection, in order to maintain an m-regular graph, $m/2$ edges must be formed. Ex.1017, 1. And, therefore, the Rufino messaging technique must be performed at least that many number of times to maintain an m-regular graph. This is exactly the

same way claim 6 works according to Dr. Goodrich, who asserts that claim 6 only repairs a single connection, and the result of claim 6 does not have to result in an m-regular graph, but only move the graph towards an m-regular graph. E.g., Ex.1202, 114:4-115:5 (“... the message that's coming from the third computer has to be a message that will ultimately lead to an m-regular graph, that this is a process that will lead to that. But it did not say, for example, here, so as to result in an m-regular graph.”).

PO also argues that Denes does not work in a particular situation known as the “‘neighbors with empty ports’ condition.” Resp., 23-24. PO then devotes two pages in its Resp. to discussing a technique in the specification for addressing such a condition which involves, in part, sending a “condition repair request” which breaks existing connections. *Id.* But this technique is not recited anywhere in claim 6 and thus is irrelevant.

PO’s argument that Rufino fails to disclose “having a third computer not already connected to said first computer respond to said connection port search message” should be rejected (Resp., 32-33). PO argues that each station in Rufino “is directly connected to every other station on the physical bus” *Id.* This application of the term “connected” is inconsistent with PO’s own construction of the term, which relates to a *logical* connection that overlays an underlying network. Even PO acknowledges that Rufino establishes a logical connection that overlays

the physical network. Resp., 33 (“... there is no circumstance in which the station that responds to a who_follows query was not already connected to the station that sent the who_follows query—even if those stations ... were not neighbors in the *logical* token ring.”) (emphasis added).

B. Claims 7-10 Are Obvious

Claim 7 is obvious. Rufino discloses “when a third computer receives the connection port search message and the third computer also needs a connection, sending a message from the third computer to the first computer proposing the first computer proposing that the first computer and third computer connected” (set_successor packet). Petition, 37-39. PO argues that the set_successor packet does not meet this limitation because it is sent on the physical bus, not the logical token ring. PO’s argument fails because claim 7 does not require the set_successor packet to be sent on the broadcast channel.

Claim 8 is obvious. Rufino discloses “when the first computer receives the message proposing that the first computer and third computer connect, sending from the first computer to the third computer a message indicating that the first computer accepts the proposal to connect the first computer to the third computer.” PO argues that the set_successor packet is not a new message. Resp., 36-37. PO’s argument fails because it offers no reason why that is the case, such as, e.g., an explanation for why a message is distinct from a packet.

Claims 9 and 10 are obvious. As discussed above, the references disclose a “broadcast channel” and Shoubridge discloses flooding messages on the broadcast channel. Furthermore, PO’s criticisms that Petitioners do not rely on the same broadcast channel is a mischaracterization of Petitioners’ argument. To wit, Shoubridge discloses a general communications network which is 4-regular and incomplete, and Rufino, Denes, and Todd show how to maintain the 4-regular incomplete communications network.

IV. POSITA WOULD HAVE BEEN MOTIVATED TO COMBINE

PO’s “motivation to combine” argument does not address Petitioners’ simple combination. It would have been straightforward for a POSITA to take the messaging technique disclosed in Rufino and apply it to Shoubridge, Todd. Instead of addressing this issue, PO rehashes arguments focused on irrelevant details about the underlying network, which Petitioners have already addressed above.

PO incorrectly argues that Shoubridge is directed to a fixed network topology in which nodes never enter or leave the network. As discussed above in §III, Shoubridge discloses a 4-regular incomplete network intended to model a “real system.” See Ex.1005, 3 (“In a real system, this information may be piggybacked on return user packets.”). Shoubridge expressly contemplates dynamic changes to this system, such as temporary link (e.g. a failed link) or node failures (e.g. a node temporarily disconnects with the intention of rejoining). *E.g., id.*, 1 (“Links may fail

or become congested, nodes or users could be mobile, resulting in changes to source-destination paths.”).

PO incorrectly argues that a POSITA would not have modified Rufino’s token bus network messaging system to work in the token ring network of Todd.

As discussed above in §III, Petitioners are not arguing that the entire networks of Rufino and Todd are combinable. Instead, the Petition explains that it would have been straightforward to apply the messaging techniques of Rufino to 4-regular incomplete networks, such as the virtual token grid of Todd.

Moreover, PO’s expert came to the conclusion that the token bus of Rufino is not combinable with the token rings of Todd without performing a complete analysis. Dr. Goodrich opines that Rufino and Todd are not combinable because they use two different systems; Rufino uses the IEEE 802.4 standard and Todd uses the IEEE 802.5 standard. But, Dr. Goodrich merely “skimmed” the IEEE 802.4 standard (Ex.2014) and could not recall if he ever reviewed the 802.5 standard, which he did not attach as an exhibit. Ex.1202, 178:15-179:10. Instead of reviewing the actual standards, Dr. Goodrich relied on “the Tanenbaum reference,” which he said summarized “both of these standards as we’ve been reading and talks about, in sufficient detail, how the token bus architectures differ from the token ring architectures, and that is already demonstrated in Exhibit 2007 how fundamentally different these two architectures are.” Ex.1202, 180:1-9. But Dr. Goodrich’s

analysis ignores the most relevant portions of the Tanenbaum reference; Exhibit 2007 does not include the pages of Tanenbaum which explained that the 802.4 and 802.5 standards “use roughly similar technology and get roughly similar performance.” Ex.1205, 2. Further, Dr. Goodrich considers a paper’s citations to other references as evidence of relatedness. Ex.1202, 22:12-25:9 (“[T]hese citations are seen as a kind of a praise, if you will, that others are giving you this citation, that then is a way of them recognizing that you made this contribution that was worthy of them referencing in their work.”). But Dr. Goodrich’s declaration does not mention the references Rufino cites, which include citations to token ring references (references [1], [3], [10], [11]), to determine whether Rufino could be applied to token rings.

Third, PO incorrectly argues that a POSITA would not have modified Shoubridge, Rufino, and Todd with Denes. As discussed above in §III, Denes teaches how to maintain an m-regular graph for *any* disconnection. For instance, Denes teaches that after a disconnection, in order to maintain an m-regular graph, $m/2$ edges must be formed. Ex.1017, 1-2. A POSITA would thus understand that the Rufino messaging technique can be performed at least that many number of times to return a graph to m-regular, as taught by Denes. See §III.A.

V. SECONDARY CONSIDERATIONS DO NOT OVERCOME OBVIOUSNESS SHOWING

A. Petitioner Had No Burden To Address Secondary Considerations

Evidence of secondary considerations “must be first developed *in this proceeding* by Patent Owner.” *Petroleum Geo-Services v. Westerngeco*, IPR2014-01475, Pap.18, 28 (emphasis added). Regardless of whether PO had asserted secondary considerations in other related district court or IPR proceedings, Petitioners were not required to guess as to what arguments PO might advance in *this* proceeding and rebut such arguments before they were even made. *Id.* Indeed, PO has the “burden of production to demonstrate a nexus” to support any secondary considerations. *MRC Innovations, Inc. v. Hunter Mfg., LLP*, 747 F.3d 1326, 1336 (Fed. Cir. 2014).

B. No Evidence of Long-Felt Need

PO’s position regarding long-felt need is propped up only by the *ipse dixit* of its expert, Dr. Bims. Ex.2004, ¶¶35-40. Dr. Bims says, without any supporting facts or data, that a multicast system “would have required a special type of router that would have taken years or decades to” solve the alleged problems. Ex.2004, ¶¶37-38. This is self-serving, unsupported by fact, and thus entitled to little or no weight. 37 C.F.R. §42.65(a). PO has therefore shown no nexus between the alleged need or failures and the claims.

Additionally, PO’s argument that since the technology was not available

“demonstrates ... failure of others” is bereft of legal merit. *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004) (“Absent a showing of long-felt need or the failure of others, the mere passage of time without the claimed invention is not evidence of nonobviousness.”). And, failures by the inventor are not failure by others.

C. No Evidence Of Unexpected Results

“[E]vidence of unexpected results must establish that there is a difference between the results obtained and those of the closest prior art, and that the difference would not have been expected by one of ordinary skill in the art at the time of the invention.” *Bristol-Myers Squibb Co. v. Teva Pharm. USA, Inc.*, 752 F.3d 967, 977 (Fed. Cir. 2014). PO has presented no evidence comparing the claimed inventions to the closest prior art, let alone showing how the claimed invention is unexpectedly better than the closest prior art. Instead, PO argues it took the inventors an unexpectedly long time to come up with the invention. Resp., 54. Even if true, that’s not evidence of unexpected results. And, no attempt has been made to show what part of the three-year period was attributable to the ’147 patent as opposed to anything else that was being worked on during that time.

D. Insufficient Evidence Of Commercial Success

The licensing of the ’147 patent to Sony and Sony’s sales are not evidence of success of the ’147 patent because PO has not shown a nexus with the claimed

subject matter. “[W]ithout a showing of nexus, the mere existence of licenses is insufficient to overcome the conclusion of obviousness.” *In re Antor Media Corp.*, 689 F.3d 1282, 1293 (Fed. Cir. 2012). There are 10 patent properties encompassed by the Boeing-Sony license and no attempt has been made to show that Sony was even interested in the ’147 patent—let alone the claims involved here. Ex.2009, p.11.

PO has also not shown that the PlayStation products practice the ’147 patent, let alone shown that their success is driven by the features of the ’147 patent. Indeed, PO’s expert admitted that he had no opinion whether Sony’s products infringe the claims. Ex.1201, 90:10-13. If there is no infringement by the Sony products, PO has not met its burden of showing a nexus. Further, PO’s expert admitted that he did not look into other factors that might have caused the commercial success. *Id.*, 158:23-163:18. Thus, PO has not tied any alleged commercial success to the challenged claims.

E. No Evidence Of Industry Praise

PO offers two flawed theories that praise supports a finding of non-obviousness. First, PO contends that Boeing praised its own patent and second, that since the ’147 patent was cited nine times in other patents, it has supposedly been praised. “Industry praise must also be linked to the patented invention.” *Geo. M. Martin Co. v. All. Mach. Sys. Int’l LLC*, 618 F.3d 1294, 1305 (Fed. Cir. 2010).

Further, “bare journal citations and self-referential commendation fall well short of demonstrating true industry praise.” *Bayer Healthcare Pharm., Inc. v. Watson Pharm., Inc.*, 713 F.3d 1369, 1377 (Fed. Cir. 2013). PO’s evidence of industry praise is nothing more than the bare journal citations and self-adulation rejected by the Federal Circuit as evidence of industry praise. *See also Amazon.com, Inc. v. Personalized Media Commc’ns, LLC*, IPR2014-01534, Pap.45, at 43 (Mar. 22, 2016) (rejecting 850 citations as evidence of industry praise).

VI. CONCLUSION

For the reasons set forth above and those included in the Petition, the challenged claims should be cancelled.

Dated: March 7, 2017

By: /Michael M. Murray/
Michael M. Murray

CERTIFICATION UNDER 37 C.F.R. §42.24(d)

Pursuant to 37 CFR §42.24(d), the undersigned certifies that this Reply complies with the type-volume limitation of 37 CFR §42.24(c). The word count application of the word processing program used to prepare this Reply indicates that the Reply contains 5,572 words, excluding the parts of the brief exempted by 37 C.F.R. §42.24(c).

Respectfully submitted,

Dated: March 7, 2017

/Michael M. Murray/

Michael M. Murray

WINSTON & STRAWN LLP

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§42.6(e) and 42.105(a), this is to certify that on March 7, 2017, I caused to be served a true and correct copy of the foregoing REPLY IN SUPPORT OF PETITION FOR INTER PARTES REVIEW OF CLAIMS 6-10 OF U.S. PATENT NO. 6,732,147 and Exhibits 1201-1208, by e-mail pursuant to the parties' agreement, to the following attorneys of record:

James Hannah
Michael Lee
Kramer Levin Naftalis & Frankel LLP
990 Marsh Road
Menlo Park, CA 94025
(650) 752-1700
jhannah@kramerlevin.com
mhlee@kramerlevin.com
svdocketing@kramerlevin.com

Shannon Hedvat
Jeffrey Price
Kramer Levin Naftalis & Frankel LLP
1177 Avenue of the Americas
New York, NY 10036
(212) 715-9100
shedvat@kramerlevin.com
jprice@kramerlevin.com

Respectfully submitted,

Dated: March 7, 2017

/s/ Nicole S. Lynch

WINSTON & STRAWN LLP