IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

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|---|---|---|
| ACCELERATION BAY LLC,<br><br>Plaintiff,<br><br>v.<br><br>ELECTRONIC ARTS INC.,<br><br>Defendant. | )<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>)<br>) | C.A. No. 16-454 (RGA)<br><br>REDACTED - PUBLIC VERSION |

**DECLARATION OF KATHLEEN B. BARRY**
**IN SUPPORT OF ELECTRONIC ART INC.'S OPENING BRIEF**
**IN SUPPORT OF ITS MOTIONS FOR SUMMARY JUDGMENT AND**
**TO EXCLUDE EXPERT OPINIONS UNDER FRE 702**

VOLUME 8 OF 8

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# EXHIBIT E-11

# CONFIDENTIAL – OUTSIDE COUNSEL ONLY

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IN ITS

ENTIRETY

# EXHIBIT E-12

# CONFIDENTIAL – OUTSIDE COUNSEL ONLY

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IN ITS

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# EXHIBIT E-13

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# EXHIBIT E-14

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# EXHIBIT F-1

Appl. No. 09/629,042

Attorney Docket No. 030048009US

Express Mail Label EV 335522411 US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | | | |
|---|---|---|---|
| IN RE APPLICATION OF: | FRED B. HOLT *ET AL.* | EXAMINER: | BRADLEY E. EDELMAN |
| APPLICATION NO.: | 09/629,042 | ART UNIT: | 2153 |
| FILED: | JULY 31, 2000 | CONF. NO: | 4750 |

FOR: **DISTRIBUTED GAME ENVIRONMENT**

RECEIVED
SEP 15 2003
Technology Center 2100

**Amendment Under 37 C.F.R. § 1.111**

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

Sir:

In response to the Office Action dated May 21, 2003, please amend the above-identified application as follows:

**Amendments to the Claims** are reflected in the listing of the Claims which begins on page 2 of this paper.

**Amendments to the Drawings** begin on page 6 of this paper and include attached drawing sheets.

**Remarks/Arguments** begin on page 7 of this paper.

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**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A computer network for providing a game environment for a plurality of participants, each participant having connections to at least three neighbor participants, wherein an originating participant sends data to the other participants by sending the data through each of its connections to its neighbor participants and wherein each participant sends data that it receives from a neighbor participant to its other neighbor participants, further wherein the network is m-regular, where m is the exact number of neighbor participants of each participant and further wherein the number of participants is at least two greater than m thus resulting in a non-complete graph.

2. (Original) The computer network of claim 1 wherein each participant is connected to 4 other participants.

3. (Original) The computer network of claim 1 wherein each participant is connected to an even number of other participants.

4. (Cancelled)

5. (Original) The computer network of claim 1 wherein the network is m-connected, where m is the number of neighbor participants of each participant.

5
6. (Original) The computer network of claim 1 wherein the network is m-regular and m-connected, where m is the number of neighbor participants of each participant.

4
7. (Original) The computer network of claim 1 wherein all the participants are peers.

7
8. (Original) The computer network of claim 1 wherein the connections are peer-to-peer connections.

8
9. (Original) The computer network of claim 1 wherein the connections are TCP/IP connections.

9
10. (Original) The computer network of claim 1 wherein each participant is a process executing on a computer.

10
11. (Original) The computer network of claim 1 wherein a computer hosts more than one participant.

11
12. (Original) The computer network of claim 1 wherein each participant sends to each of its neighbors only one copy of the data.

12
13. (Original) The computer network of claim 1 wherein the interconnections of participants form a broadcast channel for a game of interest.

13

14. (Currently Amended) A distributed game system comprising:

a plurality of broadcast channels, each broadcast channel for playing a game, each of the broadcast channels for providing game information related to said game to a plurality of participants, each participant having connections to at least three neighbor participants, wherein an originating participant sends data to the other participants by sending the data through each of its connections to its neighbor participants and wherein each participant sends data that it receives from a neighbor participant to its neighbor participants, further wherein the network is m-regular, where m is the exact number of neighbor participants of each participant and further wherein the number of participants is at least two greater than m thus resulting in a non-complete graph;

means for identifying a broadcast channel for a game of interest; and

means for connecting to the identified broadcast channel.

14

15. (Original) The distributed game system of claim 13 wherein means for identifying a game of interest includes accessing a web server that maps games to corresponding broadcast channel.

15

16. (Original) The distributed game system of claim 13 wherein a broadcast channel is formed by player computers that are each interconnected to at least three other computers.

16

17. (New) A computer network for providing a game environment for a plurality of participants, each participant having connections to exactly four neighbor participants, wherein an originating participant sends data to the other participants by sending the data through each of its

connections to its neighbor participants and wherein each participant sends data that it receives from a neighbor participant to its neighbor participants, further wherein the network is in a stable 4-regular state and wherein there are at least six participants to result in a non-complete graph.

17 (New) The computer network of Claim 16 wherein a computer hosts more than one participant.

18 (New) A computer network for providing a game environment for a plurality of participants, each participant having connections to at least three neighbor participants, wherein an originating participant sends data to the other participants by sending the data through each of its connections to its neighbor participants and wherein each participant sends data that it receives from a neighbor participant to its other neighbor participants, further wherein the network is m-regular and the network forms an incomplete graph.

19 (New) The computer network of Claim 18 wherein a computer hosts more than one participant.

**Amendments to the Drawings**

The attached sheets of drawings include changes to Figures 6 and 7. These sheets, which include Figures 6 and 7, replace the original sheets including Figures 6 and 7, respectively.

Attachment: Replacement Sheets

## REMARKS/ARGUMENTS

Reconsideration and withdrawal of the rejections set forth in the Office Action dated May 21, 2003 are respectfully requested. In that Office Action, the Examiner objected to the drawings as failing to include certain reference signs mentioned in the description. Two replacement sheets for Figures 6 and 7 are submitted herewith with the appropriate reference signs included. The Examiner is requested to approve these replacement sheets for entry into this application.

Turning to the rejection of the claims based upon the prior art, the Examiner rejects Claims 14-16 under 35 U.S.C. § 102(b) being anticipated by Microsoft's Internet Gaming Zone; as well as being in public use more than one year prior to the filing date of this application as evidenced by the Internet Gaming Zone (IGZ) article. The Examiner also rejects Claims 1-13 as being obvious over the Alagar et al. paper.

**The Cited Prior Art:**

The IGZ article is a press release detailing the Internet Gaming Zone by Microsoft. As detailed in the press release, the IGZ article describes a system that allows for multi-player gaming via the Internet. There is however no indication as to how such a network system is implemented.

The Alagar reference relates to a reliable mobile wireless network. The term "mobile wireless network" as used in Alagar means that the network does not contain any static support stations. The example given in the Alagar reference is of a military theater where each of the nodes (troops, tanks, etc. . . .) are mobile and can communicate with each other using wireless transmissions. Because of the mobile nature of the network, there are frequent changes in link connectivity between various nodes. The mobile wireless network, because it does not contain any static support stations, is dissimilar to the Internet or even cellular telephony.

Because of the mobile nature of the network nodes, the Alagar reference teaches that two mobile nodes are "neighbors" if they can hear each other. Each host detects its neighbors by periodically broadcasting a probe message. A host that hears a probe message sends an acknowledgement to the probing host. Every host maintains a list of neighbors and periodically updates the list based on acknowledgements received. When two hosts become neighbors, a wireless link is established between them, and they execute a handshake procedure. As part of the handshake procedure, they update their list of neighbors.

Because of the mobile nature of the nodes, it is not uncommon that the link may be disconnected between two nodes. Because of this, messages are transmitted from node to node using a flooding methodology that involves transmitting the message to every node in the network. Thus, to broadcast a message, a mobile node transmits the message to all of its neighbors. On receiving a broadcast message, an intermediate mobile host retransmits the message to all of its neighbors. The Alagar reference also provides a methodology for limiting the amount of retransmission of messages. This is accomplished by means of an acknowledgement protocol.

**The Examiner's Arguments:**

The Examiner rejects Claims 14-16 under 35 U.S.C. § 102 as being anticipated by the IGZ article. The Examiner argues that the IGZ article discloses a plurality of broadcast channels and means for broadcasting a broadcast channel for topics of interest.

Next, the Examiner rejects Claims 1-13 under 35 U.S.C. § 103 as being obvious over the Alagar et al. reference. The Examiner argues that Alagar discloses a plurality of nodes that form a network and that the data is sent to the other participants by a flooding technique.

Applicants respectfully request reconsideration.

**Applicants' Amendments and Arguments:**

Applicants have significantly amended independent Claims 1 and 14. In addition, new independent Claims 17 and 19 have been added which applicants believe should be allowable over the cited prior art in view of the remarks set forth below. In view of the substantial amendments made to Claim 14 to include all of the limitations of Claim 1, the arguments will be primarily directed towards the Alagar reference which was used to reject Claims 1-13.

First, one important aspect of the Alagar reference is that the flooding protocol disclosed in Alagar dictates that when a node receives a message, that node will rebroadcast that message to **all** of its neighbors. See Alagar at page 239, column 1, lines 13-15. Specifically, the Alagar reference at page 239, column 2, lines 7-23 dictates that whenever a host (i.e., node) receives a message, that message is broadcast to all of its neighbors.

In contrast, the present claimed invention of Claim 1 dictates and requires that each participant only rebroadcasts received messages to its neighbors **other than** the neighbor from which the node received the message. The Alagar reference requires a larger number of messages to be broadcast. For example, if m is the number of nodes and N is the number of neighbors for each node, then the total number of messages is m x N.

In contrast, by limiting the rebroadcast to "other neighbors," this reduces the number of messages to be broadcast to (m-1)N + 1. For large networks, the saved bandwidth can be significant. For this sole reason alone, Claim 1 has a requirement of "other neighbors" which is not fairly shown in the Alagar reference. Therefore, Claim 1 and all dependent claims therefrom are in condition for allowance.

Secondly, the Alagar reference teaches the indiscriminant linking with neighbors regardless of the number of total neighbors that are capable of being connected. For example, Alagar

teaches that the definition of a "neighbor" is any two mobile hosts that can "hear" each other. See Alagar at page 238, column 1, lines 5-6. In other words, there is no "regularity" to the network formed by Alagar because each of the nodes can link to as few as one neighbor or a potentially extremely large number of neighbors. The only limitation is that the node will link and classify as a neighbor any other node that is within hearing distance. This is precisely the opposite of the amended claimed invention. Claim 1 as amended requires that each participant in the network connects to and forms a neighbor bond to exactly an m number of neighbors. Independent claims 14 and 17 contain similar limitations.

Figure 1 of the Alagar reference is deceiving in that it coincidentally shows a 4-regular network. However, that is not the typical situation as is clear from a careful review of the Alagar reference. Column 1 of page 238 of the Alagar reference clearly indicates that there is in fact nonregularity in a computer network formed because the number of neighbors is not set at a predetermined number, but rather based upon the particular encountered terrain of the mobile nodes.

Claim 1 as amended requires that the computer network be m regular at substantially all times where there are not new nodes entering or leaving the network. Furthermore, Claim 17 requires that the network is "in a stable 4-regular state." For this reason, the claims are allowable over the cited prior art.

Third, and yet another independent reason for allowing the claims, as amended, over the Alagar patent, is that the claims as amended now require that the computer network so formed is not a "complete graph." A complete graph is a network that is characterized by $N = m + 1$. A "complete graph" in graph theory is that each node has a connection to every other node in the network. Thus, Figure 1 of the Alagar reference shows a complete graph. Each of the nodes has

a connection to every other node in the network. Obviously, for a five-node network, this will require four communications connections for each node.

Claims 1 and 17 have been amended to recite that there are at least two more nodes than there are maximum number of neighbors. For example, Claim 17 requires that for a 4-regular network, there are at least six participants. Claim 1 requires that the parameter N is at least two greater than the parameter m. Alagar does not show this limitation whatsoever. In fact, the only m-regular network shown in Alagar is a complete graph. It is the combination of having a computer network that is m regular and that is not a complete graph that is patentable over the Alagar reference. This combination has been shown to produce an efficient and stable computer network. Claim 19 is specifically directed to this aspect of the invention.

In view of the foregoing, the claims pending in the application comply with the requirements of 35 U.S.C. § 112 and patentably define over the prior art. A Notice of Allowance is, therefore, respectfully requested. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-6488.

Respectfully submitted,
Perkins Coie LLP

Date: 9/10/03

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# EXHIBIT F-2

05/05/04 2155

Attorney Docket No. 030048001US

#9/A 2155 5-20-04 entered

Express Mail No. EV336677851US



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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|---|---|---|---|
| IN RE APPLICATION OF: | FRED B.HOLT *ET AL.* | EXAMINER: | YOUNG N. WON |
| APPLICATION NO.: | 09/629,576 | ART UNIT: | 2155 |
| FILED: | JULY 31, 2000 | CONF. NO: | 5408 |
| FOR: | **BROADCASTING NETWORK** | | |

**Amendment Under 37 C.F.R. § 1.111**



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

Sir:

The present communication responds to the Office Action dated February 4, 2004 in the above-identified application. Please amend the application as follows:

Amendments to the Specification begin on page 2.

Amendments to the Claims are reflected in the listing of claims beginning on page 6.

Remarks begin on page 13.

**Amendments to the Specification:**

In accordance with 37 CFR 1.72(b), an abstract of the disclosure has been included on page 3. In accordance with 37 CFR 1.73, a brief summary of the invention has been included on page 4. In addition, the status of the related cases listed on page 1 of the specification has been updated and can be found on page 5.

## ABSTRACT

A technique for broadcasting data across a network is provided. An originating participant sends data to another participant, which in turn sends the data that it receives from a neighbor participant to its other neighbor participants. Communication in the broadcast network is controlled by a contact module that locates the neighbor participants to which the seeking participant can be connected and by a join module that establishes the connection between the neighbor participants and the seeking participant. Data is numbered sequentially so that data that is received out of order can be queued and rearranged.

## SUMMARY OF THE INVENTION

Embodiments of the invention deal with a non-routing table based method for broadcasting messages in a network. More specifically, a network in which each participant has at least three neighbor participants broadcasts data through each of its connections to neighbor participants, which in turn send the data that it receives to its other neighbor participants. The data is numbered sequentially so that data that is received out of order can be queued and rearranged.

Communication within the broadcast channel is controlled by a contact module and by a join module. The contact module locates a portal computer and requests the located portal computer to provide an indication of neighbor participants to which the participant can be connected. The join module receives the indication of the neighbor participants and establishes a connection between the seeking participant and each of the indicated neighbor participants.

Each participant in the network is connected to neighbor participants, and the participants and connections between them form an m-regular graph, where m is greater than 2. In addition, when a participant receives data from a neighbor participant, it sends the data to its other neighbor participants.

## CROSS-REFERENCE TO RELATED APPLICATIONS

This application is related to ~~U.S. Patent Application No. 09/629,576, entitled "BROADCASTING NETWORK," filed on July 31, 2000 (Attorney Docket No. 030048001 US)~~; U.S. Patent Application No._09/629,570, entitled "JOINING A BROADCAST CHANNEL," filed on July 31, 2000 ~~(Attorney Docket No. 030048002 US)~~, U.S. Patent Application No._09/629,577, "LEAVING A BROADCAST CHANNEL," filed on July 31, 2000 ~~(Attorney Docket No. 030048003 US)~~, U.S. Patent Application No._09/629,575, entitled "BROADCASTING ON A BROADCAST CHANNEL," filed on July 31, 2000 ~~(Attorney Docket No. 030048004 US)~~, U.S. Patent Application No._09/629,572, entitled "CONTACTING A BROADCAST CHANNEL," filed on July 31, 2000 ~~(Attorney Docket No. 030048005 US)~~; U.S. Patent Application No._09/629,023, entitled "DISTRIBUTED AUCTION SYSTEM," filed on July 31, 2000 ~~(Attorney Docket No. 030048008 US)~~, U.S. Patent Application No._09/629,043, entitled "AN INFORMATION DELIVERY SERVICE," filed on July 31, 2000 ~~(Attorney Docket No. 030048007 US)~~; U.S. Patent Application No._09/629,024, entitled "DISTRIBUTED CONFERENCING SYSTEM," filed on July 31, 2000 ~~(Attorney Docket No. 030048008 US)~~; and U.S. Patent Application No._09/629,042, entitled "DISTRIBUTED GAME ENVIRONMENT," filed on July 31, 2000 ~~(Attorney Docket No. 030048009 US)~~, the disclosures of which are incorporated herein by reference.

**Amendments to the Claims:**

Following is a complete listing of the claims pending in the application, as amended:

1. (Currently Amended) A non-routing table based computer network having a plurality of participants, each participant having connections to at least three neighbor participants, wherein an originating participant sends data to the other participants by sending the data through each of its connections to its neighbor participants, ~~and~~ wherein each participant sends data that it receives from a neighbor participant to its other neighbor participants, and wherein data is numbered sequentially so that data received out of order can be queued and rearranged.

2. (Original) The computer network of claim 1 wherein each participant is connected to 4 other participants.

3. (Original) The computer network of claim 1 wherein each participant is connected to an even number of other participants.

4. (Original) The computer network of claim 1 wherein the network is m-regular, where m is the number of neighbor participants of each participant.

5. (Original) The computer network of claim 4 wherein the network is m-connected, where m is the number of neighbor participants of each participant.

6. (Original) The computer network of claim 1 wherein the network is m-regular and m-connected, where m is the number of neighbor participants of each participant.

7. (Original) The computer network of claim 1 wherein all the participants are peers.

8. (Original) The computer network of claim 1 wherein the connections are peer-to-peer connections.

9. (Original) The computer network of claim 1 wherein the connections are TCP/IP connections.

10. (Original) The computer network of claim 1 wherein each participant is a process executing on a computer.

11. (Original) The computer network of claim 1 wherein a computer hosts more than one participant.

12. (Original) The computer network of claim 1 wherein each participant sends to each of its neighbors only one copy of the data.

13. (Currently Amended) A non-routing table based component for controlling communications of a participant with a broadcast channel, comprising:

a contact module that locates a portal computer and requests the located portal computer to provide an indication of neighbor participants to which the participant can be connected, wherein a connection between the portal computer and the participant is not established, and wherein a connection between the portal computer and the neighbor participants is not established; and

a join module that receives the indication of neighbor participants and establishes a connection between the participant and each of the indicated neighbor participants.

14. (Original) The component of claim 13 wherein each participant is a computer process.

15. (Original) The component of claim 13 wherein the indicated participants are computer processes executing on different computer systems.

16. (Original) The component of claim 13 including:

a broadcast module that receives data from a neighbor participant of the participant and transmits the received data to the other neighbor participants.

17. (Original) The component of claim 13 including:

a connection request module that receives a request to connect to another participant, disconnects from a neighbor participant, and connects to the other participant.

18. (Original) The component of claim 13 wherein the connections are established using the TCP/IP protocol.

19. (Currently Amended) A non-routing table based broadcast channel for participants, comprising:

a communications network that provides peer-to-peer communications between the participants connected to the broadcast channel; and

for each participant connected to the broadcast channel, an indication of four neighbor participants of that participant; and

a broadcast component that receives data from a neighbor participant using the communications network and that sends the received data to its other neighbor participants to effect the broadcasting of the data to each participant of the broadcast channel, wherein data is numbered sequentially so that data received out of order can be queued and rearranged.

20. (Original) The broadcast channel of claim 19 wherein the broadcast component disregards received data that it has already sent to its neighbor participants.

12 ~~21.~~ (Original) The broadcast channel of claim 10 ~~19~~ wherein a participant connects to the broadcast channel by contacting a participant already connected to the broadcast channel.

13 ~~22.~~ (Original) The broadcast channel of claim 10 ~~19~~ wherein each participant is a computer process.

14 ~~23.~~ (Original) The broadcast channel of claim 10 ~~19~~ wherein each participant is a computer thread.

15 ~~24.~~ (Original) The broadcast channel of claim 10 ~~19~~ wherein each participant is a computer.

16 ~~25.~~ (Original) The broadcast channel of claim 10 ~~19~~ wherein the communications network uses TCP/IP protocol.

17 ~~26.~~ (Original) The broadcast channel of claim 10 ~~19~~ wherein the communications network is the Internet.

18 ~~27.~~ (Original) The broadcast channel of claim 10 ~~19~~ wherein the participants are peers.

28. (Currently Amended) A non-routing table based broadcast channel comprising a plurality of participants, each participant being connected to neighbor participants, the participants and connections between them forming an m-regular graph, where m is greater than 2 and the number of participants is greater than m.

29. (Original) The broadcast channel of claim 28 wherein the graph is m-connected.

30. (Original) The broadcast channel of claim 28 wherein m is even.

31. (Original) The broadcast channel of claim 28 wherein m is odd and the number of participants is even.

32. (Original) The broadcast channel of claim 28 wherein the participants are computer processes.

33. (Original) The broadcast channel of claim 28 wherein the participants are computers.

34. (Original) The broadcast channel of claim 28 wherein the connections are established using TCP/IP protocol.

35. (Original) The broadcast channel of claim 28 wherein a message is broadcast on the broadcast channel by an originating participant sending the message to each of its neighbor participants and by each participant upon receiving a message from a neighbor participant sending the message to its other neighbor participants.

36. (Currently Amended) A non-routing table based broadcast channel comprising a plurality of participants, each participant being connected to neighbor participants, the participants and connections between them form an m-regular graph, where m is greater than 2, ~~and~~ wherein when a participant receives data from a neighbor participant, it sends the data to its other neighbor participants, and wherein data is numbered sequentially so that data received out of order can be queued and rearranged.

37. (Original) The broadcast channel of claim 36 wherein the number of participants is greater than m.

38. (Original) The broadcast channel of claim 36 wherein the graph is m-connected.

39. (Original) The broadcast channel of claim 36 wherein m is even.

40. (Original) The broadcast channel of claim 36 wherein m is odd and the number of participants is even.

41. (Original) The broadcast channel of claim 36 wherein the participants are computer processes.

42. (Original) The broadcast channel of claim 36 wherein the participants are computers.

43. (Original) The broadcast channel of claim 36 wherein the connections are established using TCP/IP protocol.

44. (Currently Amended) A non-routing table based computer-readable medium containing instructions for controlling communications of a participant of a broadcast channel, by a method comprising:

locating a portal computer;

requesting the located portal computer to provide an indication of neighbor participants to which the participant can be connected;

receiving the indications of the neighbor participants; and

establishing a connection between the participant and each of the indicated neighbor participants, wherein a connection between the portal computer and the participant is not established, and wherein a connection between the portal computer and the neighbor participants is not established.

45. (Original) The computer-readable medium of claim 44 wherein each participant is a computer process.

46. (Original) The computer-readable medium of claim 44 wherein the indicated participants are computer processes executing on different computer systems.

47. (Original) The computer-readable medium of claim 44 including:

receiving data from a neighbor participant of the participant; and

transmitting the received data to the other neighbor participants.

23 19
~~48.~~ (Original) The computer-readable medium of claim ~~44~~ including:

receiving a request to connect to another participant;

disconnecting from a neighbor participant; and

A4 connecting to the other participant.

24 19
~~49.~~ (Original) The computer-readable medium of claim ~~44~~ wherein the connections are established using the TCP/IP protocol.

## REMARKS

Reconsideration and withdrawal of the rejections set forth in the Office Action dated February 4, 2004 are respectfully requested.

### I. Rejections under 35 U.S.C. § 102

#### A. The Applied Art

U.S. Patent No. 6,611,872 to McCanne (*McCanne*) is directed to an overlay protocol and system for allowing multicast routing in the Internet to be performed at the application level. The overlay protocol uses routing tables to route information. Column 2, lines 45-49 and Column 23, lines 11-15. The overlay protocol fails to disclose the use of a portal computer to add new participants to a network. In addition, the overlay protocol fails to disclose a method in which data is numbered sequentially so that messages received out of order can be queued and rearranged.

#### B. Analysis

Distinctions between independent claims 1, 13, 19, 28, 36, and 44 and *McCanne* will first be discussed, followed by distinctions between *McCanne* and the remaining dependent claims.

As noted above, *McCanne* discloses an overlay protocol that uses routing tables to route information. Column 2, lines 45-49 and Column 23, lines 11-15. *McCanne* fails to disclose a non-routing table based method for routing information. Independent claims 1, 13, 19, 28, 36, and 44 have been amended to clarify the inherent language of previously pending claims 1, 13, 19, 28, 36, and 44. In other words, claims 1, 13, 19, 28, 36, and 44 has been amended to recite, among other limitations, a "non-routing table based" method for routing information. *McCanne* fails to disclose such a method for routing information. For at least this reason, claims 1, 13, 19, 28, 36, and 44 are patentable over *McCanne*.

*McCanne* fails to disclose a method by which "data is numbered sequentially so that data received out of order can be queued and rearranged". Independent claims 1, 19, and 36 have been amended to clarify the inherent language of previously pending claims 1, 19, and 36. In other words, claims 1, 19, and 36 have been amended to recite, among other limitations, a method by which "data is numbered sequentially so

that data received out of order can be queued and rearranged". *McCanne* fails to disclose such a method for numbering data. For at least this reason, claims 1, 19, and 36 are patentable over *McCanne*.

*McCanne* fails to disclose the use of a portal computer to locate neighbor participants for the seeking participant to connect to. In addition, *McCanne* fails to disclose a method in which "a connection between the portal computer and the participant is not established, and wherein a connection between the portal computer and the neighbor participants is not established". *McCanne* discloses a method in which an overlay router, not a portal computer, determines what receivers are present. Column 8, lines 53-56. In addition, *McCanne* discloses a method in which the overlay router joins the corresponding group. The embodiments of the invention disclose a method by which the portal computer does not join the neighbor participants. Independent claims 13 and 44 have been amended to clarify the inherent language of previously pending claims 13 and 44. In other words, claims 13 and 44 have been amended to recite, among other limitations, a method in which "a connection between the portal computer and the participant is not established, and wherein a connection between the portal computer and the neighbor participants is not established". *McCanne* fails to disclose such a method. For at least this reason, claims 13 and 44 are patentable over *McCanne*.

As is known, to anticipate a claim under 35 U.S.C. § 102, the reference must teach every element of the claim.[1] *McCanne* fails to disclose every limitation recited in independent claims 1, 13, 19, 28, 36, and 44. Since independent claims 1, 13, 19, 28, 36, and 44 are allowable, based on at least the above reasons, the claims that depend on independent claims 1, 13, 19, 28, 36, and 44 are likewise allowable. Thus, for at

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[1] MPEP section 2131, p. 70 (Feb. 2003, Rev. 1). *See also, Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1462 (Bd. Pat. App. & Interf. 1990) (to establish a *prima facie* case of anticipation, the Examiner must identify where "each and every facet of the claimed invention is disclosed in the applied reference."); *Glaverbel Société Anonyme v. Northlake Mktg. & Supply, Inc.*, 45 F.3d 1550, 1554 (Fed. Cir. 1995) (anticipation requires that each claim element must be identical to a corresponding element in the applied reference); *Atlas Powder Co. v. E.I. duPont De Nemours*, 750 F.2d 1569, 1574 (1984) (the failure to mention "a claimed element (in) a prior art reference is enough to negate anticipation by that reference").

least this reason, claims 2-12, 14-18, 20-27, 29-35, 37-43, and 45-49 are patentable over *McCanne*.

## II. Conclusion

In view of the foregoing, the claims pending in the application comply with the requirements of 35 U.S.C. § 112 and patentably define over the applied art. A Notice of Allowance is, therefore, respectfully requested. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-8000.

Respectfully submitted,
Perkins Coie LLP

Date: 5/4/04

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# EXHIBIT F-3

Attorney Docket No. 030048003US

Express Mail No. EV335519837US

#7/4 LDS 12-19-03 entered



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | | |
|---|---|---|---|
| IN RE APPLICATION OF: | FRED B. HOLT *ET AL.* | EXAMINER: | DAVID R. LAZARO |
| APPLICATION NO.: | 09/629,577 | ART UNIT: | 2155 |
| FILED: | JULY 31, 2000 | CONF. NO: | 4317 |

FOR: **LEAVING A BROADCAST CHANNEL**



**Amendment Under 37 C.F.R. § 1.111**

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

Sir:

The present communication responds to the Office Action dated November 5, 2003 in the above-identified application. Please amend the application as follows:

Amendments to the Specification begin on page 2.

Amendments to the Abstract begin on page 3.

Amendments to the Claims are reflected in the listing of claims beginning on page 4.

Arguments/Remarks begin on page 8.

**Amendments to the Specification:**

Please replace the paragraph beginning at page 1, line 3, with the following rewritten paragraph:

This application is related to U.S. Patent Application No. 09/629,576, entitled "BROADCASTING NETWORK," filed on July 31, 2000 (Attorney Docket No. 030048001 US); U.S. Patent Application No. 09/629,570, entitled "JOINING A BROADCAST CHANNEL," filed on July 31, 2000 (Attorney Docket No. 030048002 US); U.S. Patent Application No. 09/629,577, "LEAVING A BROADCAST CHANNEL," filed on July 31, 2000 (Attorney Docket No. 030048003 US); U.S. Patent Application No. 09/629,575, entitled "BROADCASTING ON A BROADCAST CHANNEL," filed on July 31, 2000 (Attorney Docket No. 030048004 US); U.S. Patent Application No. 09/629,572, entitled "CONTACTING A BROADCAST CHANNEL," filed on July 31, 2000 (Attorney Docket No. 030048005 US); U.S. Patent Application No. 09/629,023, entitled "DISTRIBUTED AUCTION SYSTEM," filed on July 31, 2000 (Attorney Docket No. 030048006 US); U.S. Patent Application No. 09/629,043, entitled "AN INFORMATION DELIVERY SERVICE," filed on July 31, 2000 (Attorney Docket No. 030048007 US); U.S. Patent Application No. 09/629,024, entitled "DISTRIBUTED CONFERENCING SYSTEM," filed on July 31, 2000 (Attorney Docket No. 030048008 US); and U.S. Patent Application No. 09/629,042, entitled "DISTRIBUTED GAME ENVIRONMENT," filed on July 31, 2000 (Attorney Docket No. 030048009 US), the disclosures of which are incorporated herein by reference.

**Amendments to the Abstract:**

Please add the following **new** paragraph as an **Abstract**.

A method for leaving a multicast computer network is disclosed. The method allows for the disconnection of a first computer from a second computer. When the first computer decides to disconnect from the second computer, the first computer sends a disconnect message to the second computer. Then, when the second computer receives the disconnect message from the first computer, the second computer broadcasts a connection port search message to find a third computer to which it can connect.

**Amendments to the Claims:**

Following is a complete listing of the claims pending in the application, as amended:

1-8. (Withdrawn)

~~9.~~ (Currently amended) A method of disconnecting a first computer from a second computer, the first computer and the second computer being connected to a broadcast channel, said broadcast channel forming an m-regular graph where m is at least 3, the method comprising:

when the first computer decides to disconnect from the second computer, the first computer sends a disconnect message to the second computer, said disconnect message including a list of neighbors of the first computer; and

when the second computer receives the disconnect message from the first computer, the second computer broadcasts a connection port search message on the broadcast channel to find a third computer to which it can connect in order to maintain an m-regular graph, said third computer being one of the neighbors on said list of neighbors.

~~10.~~ 2 (Original) The method of claim ~~9~~ 1 wherein the second computer receives a port connection message indicating that the third computer is proposing that the third computer and the second computer connect.

~~11.~~ 3 (Original) The method of claim ~~9~~ 1 wherein the first computer disconnects from the second computer after sending the disconnect message.

~~12.~~ 4 (Original) The method of claim ~~9~~ 1 wherein the broadcast channel is implemented using the Internet.

13. (Cancelled)

14. (Cancelled)

~~15.~~ 5 (Original) The method of claim ~~9~~ 1 wherein the first computer and second computer are connected via a TCP/IP connection.

~~16.~~ 6 (Currently amended) A method for healing a disconnection of ~~disconnecting~~ a first computer from a second computer, the computers being connected to a broadcast channel, said broadcast channel being an m-regular graph where m is at least 3, the method comprising:

~~connecting the first computer to a second computer;~~

attempting to send a message from the first computer to the second computer; ~~and~~

when the attempt to send the message is unsuccessful, broadcasting from the first computer a connection port search message indicating that the first computer needs a connection; and

having a third computer not already connected to said first computer respond to said connection port search message in a manner as to maintain an m-regular graph.

~~17.~~ 7 (Original) The method of claim ~~16~~ 6 including:

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 that the first computer and third computer connect.

~~18.~~ 8 (Original) The method of claim ~~17~~ 7 including:

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.

~~19.~~ 9 (Original) The method of claim ~~16~~ 6 wherein each computer connected to the broadcast channel is connected to at least three other computers.

20. (Cancelled)

21. (Cancelled)

~~22.~~ (Original) The method of claim ~~16~~ wherein the broadcasting includes sending the message to each computer to which the first computer is connected.

~~23.~~ (Currently amended) A computer-readable medium containing instructions for controlling disconnecting of a computer from another computer, the computer and the other computer being connected to a broadcast channel, said broadcast channel being an m-regular graph where m is at least 3, comprising:

a component that, when the computer decides to disconnect from the other computer, the computer sends a disconnect message to the other computer, said disconnect message including a list of neighbors of the computer; and

a component that, when the computer receives a disconnect message from another computer, the computer broadcasts a connection port search message on the broadcast channel to find a computer to which it can connect in order to maintain an m-regular graph, said computer to which it can connect being one of the neighbors on said list of neighbors.

~~24.~~ (Original) The computer-readable medium of claim ~~23~~ including:

a component that, when the computer receives a connection port search message and the computer needs to connect to another computer, sends to the computer that sent the connection port search message a port connection message indicating that the computer is proposing that the computer that sent the connection port search message connect to the computer.

~~25.~~ (Original) The computer-readable medium of claim ~~24~~ including:

a component that, when the computer receives a port connection message, connecting to the computer that sent the port connection message.

26. (Cancelled)

27. (Cancelled)

14 ~~28.~~ (Original) The computer-readable medium of claim 11 ~~23~~ wherein the computers are connected via a TCP/IP connection.

15 ~~29.~~ (Original) The computer-readable medium of claim 11 ~~23~~ wherein the computers that are connected to the broadcast channel are peers.

#3

16 ~~30.~~ (Original) The computer-readable medium of claim 11 ~~23~~ wherein the broadcast channel is implemented using the Internet.

## REMARKS

This communication is in response to the first Office Action dated November 5, 2003. Claims 9-30 are currently pending. Claims 1-8 have been withdrawn due to election of Claims 9-30 without traverse in response to a Restriction Requirement. In the Office Action, the Examiner noted that the Abstract is missing. An abstract has been provided herein on a separate sheet as requested by the Examiner. The Examiner also rejected Claims 9-30 as being obvious in view of U.S. Patent No. 6,618,752 to Moore et al. (Moore), U.S. Patent No. 6,353,599 to Bi et al. (Bi), and "Graph Theory with Applications" by Bondy et al. (Bondy).

The Present Claimed Invention

The claims of the present application are directed primarily towards the disconnection of a computer from a broadcast network (channel). While the present specification comprehensively covered all aspects of a broadcast network, the present claimed invention is directed towards only those specific aspects related to disconnection (voluntary or involuntary) of a computer from that network.

A connected computer disconnects from the broadcast channel either in a planned or unplanned manner. When a computer disconnects in a planned manner, it sends a disconnect message to each of its four neighbors. The disconnect message includes a list that identifies the four neighbors of the disconnecting computer. When a neighbor receives the disconnect message, it tries to connect to one of the computers on the list. In one embodiment, the first computer in the list will try to connect to the second computer in the list, and the third computer in the list will try to connect to the fourth computer in the list. If a computer cannot connect (*e.g.*, the first and second computers are already connected), then the computers may try connecting in various other combinations. If connections cannot be established, each computer broadcasts a message that it needs to establish a connection with another computer. When a

computer with an available internal port receives the message, it can then establish a connection with the computer that broadcast the message.

When a computer disconnects in an unplanned manner, such as resulting from a power failure, the neighbors connected to the disconnected computer recognize the disconnection when each attempts to send its next message to the now disconnected computer. Each former neighbor of the disconnected computer recognizes that it is short one connection (*i.e.*, it has a hole or empty port). When a connected computer detects that one of its neighbors is now disconnected, it broadcasts a port connection request on the broadcast channel, which indicates that it has one internal port that needs a connection. The port connection request identifies the call-in port of the requesting computer. When a connected computer that is also short a connection receives the connection request, it communicates with the requesting computer through its external port to establish a connection between the two computers.

It is possible that a planned or unplanned disconnection may result in two neighbors each having an empty internal port. In such a case, since they are neighbors, they are already connected and cannot fill their empty ports by connecting to each other. Such a condition is referred to as the "neighbors with empty ports" condition. Each neighbor broadcasts a port connection request when it detects that it has an empty port as described above. When a neighbor receives the port connection request from the other neighbor, it will recognize the condition that its neighbor also has an empty port.

To detect this condition, which would be a problem if not repaired, the first neighbor to receive the port connection request recognizes the condition and sends a condition check message to the other neighbor. The condition check message includes a list of the neighbors of the sending computer. When the receiving computer receives the list, it compares the list to its own list of neighbors. If the lists are different, then this condition has occurred in the large

regime and repair is needed. To repair this condition, the receiving computer will send a condition repair request to one of the neighbors of the sending computer which is not already a neighbor of the receiving computer. When the computer receives the condition repair request, it disconnects from one of its neighbors (other than the neighbor that is involved with the condition) and connects to the computer that sent the condition repair request. Thus, one of the original neighbors involved in the condition will have had a port filled.

However, two computers are still in need of a connection, the other original neighbor and the computer that is now disconnected from the computer that received the condition repair request. Those two computers send out port connection requests. If those two computers are not neighbors, then they will connect to each other when they receive the requests. If, however, the two computers are neighbors, then they repeat the condition repair process until two non-neighbors are in need of connections.

Distinctions Between the Prior Art and the Claimed Invention

The primary reference upon which the Examiner relies upon is the Moore patent. The Moore patent discloses a software method for multicasting information over large networks. The example given in Moore is the distribution of, for example, music to various client users over the Internet. Moore correctly identified that the client server architecture commonly used where a single server serves multiple streams of data to each of the clients can be limiting. In particular, the number of clients served is limited by the capacity of the server and the bandwidth of the server's connection to the network (such as the Internet).

Instead, Moore proposes what is characterized as a daisy chain arrangement where clients act as "mini-servers" to forward the data stream onto other clients. Perhaps this can be best seen in Figure 5B where the server 206 serves a data stream to a first child host 506. When a second child host 504 wishes to access the data stream, the child host 504 is connected to the child host

506, rather than to the original server 206. Figure 5C shows another network architecture which is similar to the daisy chaining of Figure 5B, but includes multiple branching into a tree structure. Figure 5D shows a two-level daisy chain tree structure. Importantly, in all of the network architectures shown in the Moore patent, in no instance can it be considered that the architecture of Moore describes **a regular graph**.

Furthermore, as noted by the Examiner, column 10 of the Moore patent does disclose a method for disconnecting one of the child hosts from the network. The method described in the Moore patent is a simplistic method which connects the upstream host to the downstream host of the disconnected computer.

The Bi patent is cited for the proposition of teaching the use of sending a connection port search message to find a computer that is available for connection.

The Bondy reference is cited for the general proposition of teaching graph theory as applied to computer systems. Bondy mentions that the use of graph theory can be applied to computer networks to insure greater reliability. However, there is no teaching in Bondy as to how to disconnect a computer from a network and have the remaining computers in the network form new interconnections.

In response to the Examiner's arguments, applicants have amended the independent claims 9, 16, and 23 to include limitations that are not fairly shown in the cited references and that are not rendered obvious by the cited references. Specifically, each of the independent claims now require that the broadcast channel forms an M-regular graph with its constituent computers. The corresponding dependent claims 14, 21, and 20 have been cancelled. Further, each of the independent claims have been amended to indicate the importance that the graph has an "M" value of at least 3. Therefore, the corresponding dependent claims related to that limitation have been deleted as well.

After review of the cited references, applicants believe that the amendments to the claims place this case in condition for allowance. In particular, the network architecture described by Moore clearly is not a graph structure, let alone an M-regular graph structure with an M at least equal to 3. Instead, the Moore patent discloses a computer architecture that is at best a tree structure where information and data only flow in one direction. In contrast, in a multicasting graph structure of the present invention, data flows from each computer to all of the other computers in its multicast list. The Examiner attempts to remedy the differences between the Moore patent and the claimed invention by citing Bondy. Still, it is difficult to see how it would have been obvious to combine the disconnection techniques of Moore with the graph theory teachings of Bondy.

As set forth in column 10 of Moore, the only discourse as to how a computer can leave the network while the network reconfigures itself is where in a daisy chain system, the client upstream and the client downstream of the disconnected computer form a connection. This protocol for disconnection is simplistic because the network architecture itself is simplistic. There is simply no other way to reconfigure the network upon having a computer leave. In contrast, because of the complexities of an architecture that incorporates graph theory ideas, the present invention provides important methods and techniques for reconfiguring the M-regular graph that is the computer network upon disconnection of a computer.

Therefore, claim 9 has been amended to indicate that when a voluntary disconnection takes place, the disconnecting computer **sends a list of its neighbors to all of its neighbors**. The neighbors of the first computer can then receive that list and **can attempt to connect to other computers on that list**. This type of complex disconnection and healing process of a regular graph computer network is not fairly shown in the Moore nor the Bondy references. For this reason, claims 9-12 and 15 are in condition for allowance.

Claims 16-19 and 22 relate to the situation where a computer is involuntarily disconnected from the M-regular graph computer network. Claim 16 has been amended to indicate that the healing process of the computer network is performed in a way such as to maintain the M-regular graph nature of the computer network. Once again, as noted above, because Moore teaches a simple non-graph architecture where disconnections are easily handled, there would be no incentive to combine the graph theory of Bondy with the Moore teachings. Therefore, claims 16-19 and 22 are in condition for allowance.

Claims 23-25 and 28-30 mirror claims 9-12 and 15. Thus, these claims are in condition for allowance for the same reasons as those claims.

As seen from the remarks set forth above, at the heart of this case is whether or not it is obvious to combine the deficient teachings of Moore with Bondy. Applicants respectfully submit that the Examiner has failed to carry the burden. The Examiner's conclusory remarks as to obvious cannot satisfy his burden under prevailing case law. According to controlling caselaw, the motivation to combine references cannot be based on mere common knowledge and common sense as to benefits that would result from such a combination, and instead must be based on specific teachings in the prior art, such as a specific suggestion in a prior art reference.

For example, last year the Federal Circuit rejected an argument by the PTO's Board of Patent Appeals and Interferences that the ability to combine the teachings of two prior art references to produce beneficial results was sufficient motivation to combine them, and overturned the Board's finding of obviousness because of the failure to provide a specific motivation in the prior art to combine the two prior art references.[1] The Manual of Patent Examining Procedure ("MPEP") provides similar instructions.[2]

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[1] In *In re Sang-Su Lee*, the Federal Circuit last year indicated the following:

Conversely, and in a similar manner to the arguments rejected by the Federal Circuit, the Examiner's motivation to combine these three prior art references is based solely on the alleged beneficial results that would result from combining them, with no motivation from the prior art cited to support the combination. Therefore, given the record, applicant respectfully submits that the Examiner's rejections are improper.

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The Nortrup reference describes a television set having a menu display by which the user can adjust various picture and audio functions; however, the Nortrup display does not include a demonstration of how to adjust the functions. The Thunderchopper Handbook describes the Thunderchopper game's video display as having a "demonstration mode" showing how to play the game . . . Lee appealed to the Board, arguing that . . . the prior art provided no teaching or motivation or suggestion to combine this reference [Thunderchopper] with Nortrup . . . On the matter of motivation to combine the Nortrup and Thunderchopper references, . . . review of the Examiner's Answer reveals that the examiner merely stated that both the Nortrup function menu and the Thunderchopper demonstration mode are program features and that the Thunderchopper mode "is user-friendly" and it functions as a tutorial, and that it would have been obvious to combine them.

When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. See, e.g., . . . In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998) (there must be some motivation, suggestion, or teaching of the desirability of making the specific combination that was made by the applicant); In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) ("'teachings of references can be combined only if there is some suggestion or incentive to do so.'") (emphasis in original) (quoting ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)). . . .

With respect to Lee's application, neither the examiner nor the Board adequately supported the selection and combination of the Nortrup and Thunderchopper references to render obvious that which Lee described. The examiner's conclusory statements . . . do not adequately address the issue of motivation to combine.
In re Sang-Su Lee, 277 F.3d 1338, at 1341-1343, (Fed. Cir. 2002).

[2] To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art*, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See Manual of Patent Examining Procedure, § 2143 (emphasis added).

In view of the foregoing, the claims pending in the application comply with the requirements of 35 U.S.C. § 112 and patentably define over the applied art. A Notice of Allowance is, therefore, respectfully requested. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-6488.

Respectfully submitted,
Perkins Coie LLP

Date: 12/11/03

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12-12-03

Attorney Docket No. 030048003US

Express Mail No. EV335519837US


PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | |
|---|---|
| IN RE APPLICATION OF: FRED B. HOLT *ET AL.* | EXAMINER: DAVID R. LAZARO |
| APPLICATION NO.: 09/629,577 | ART UNIT: 2155 |
| FILED: JULY 31, 2000 | CONF. NO: 4317 |
| FOR: **LEAVING A BROADCAST CHANNEL** | |

**Transmittal of Amendment Under 37 C.F.R. § 1.111**

RECEIVED
DEC 17 2003
Technology Center 2100

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

Sir:

1. Transmitted herewith are the following:

- ☒ Amendment Under 37 C.F.R. § 1.111
- ☐ Petition for -Month Extension of Time
- ☐ Terminal Disclaimer
- ☐ Sequence Listing printout, floppy diskette, matching declaration
- ☐ Information Disclosure Statement, Form PTO-1449 (modified), References
- ☐ Check in the amount of $

2. Entity Status

- ☐ Small Entity Status (37 C.F.R. § 1.9 and § 1.27) has been established by a previously submitted Small Entity Statement.

3. Conditional Petition for Extension of Time:

Applicant petitions for an Extension of Time, if necessary, for timely submission of this transmittal and enclosures.

4. Fee Calculation and Payment

| For: | (Col. 1) No. Filed | (Col. 2) No. Extra | Small Entity | | | Other Than a Small Entity | |
|---|---|---|---|---|---|---|---|
| | | | Rate | Fee | | Rate | Fee |
| Total Claims | 24 | 0 | x $ 9 = | $ | or | x $ 18 = | $0 |
| Independent Claims | 4 | 0 | x $43 = | $ | or | x $ 86 = | $0 |
| ☐ Multiple Dependent Claim Presented | | | + $145 = | $ | or | + $290 = | $ |
| ☐ Extension of Time Fee | | | | $ | | | $ |
| *If the difference in Col. 1 is less than zero, enter "0" in Col. 2. | | | TOTAL | $ | or | TOTAL | $0 |

5. Provisional Fee Authorization

Please charge any underpayment in fees for timely filing of this transmittal and enclosures to Deposit Account No. 50-0665.

Respectfully submitted,
Perkins Coie LLP

Date: 12/11/03

Chun M. Ng
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# EXHIBIT F-4

05/12/04

Attorney Docket No. 030048002US

Express Mail No. EV335515821US



PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | | |
|---|---|---|---|
| IN RE APPLICATION OF: | FRED B. HOLT *ET AL.* | EXAMINER: | BRADLEY E. EDELMAN |
| APPLICATION NO.: | 09/629,570 | ART UNIT: | 2153 |
| FILED: | JULY 31, 2000 | CONF. NO: | 5411 |
| FOR: | **JOINING A BROADCAST CHANNEL** | | |

**Amendment Under 37 C.F.R. § 1.111**



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

The present communication responds to the Office Action dated January 12, 2004 in the above-identified application. Please extend the period of time for response to the Office Action by one month to expire on May 12, 2004. Enclosed is a Petition for Extension of Time and the corresponding fee. Please amend the application as follows:

**Amendments to the Specification** begin on page 2.

**Amendments to the Claims** are reflected in the listing of claims beginning on page 4.

**Remarks/Arguments** begin on page 8.

**Amendments to the Specification:**

In accordance with 37 CFR 1.72(b), an abstract of the disclosure has been included below. In addition, the status of the related cases listed on page 1 of the specification has been updated.

Therefore, please add the Abstract as shown below:

A technique for adding a participant to a network is provided. This technique allows for the simultaneous sharing of information among many participants in a network without the placement of a high overhead on the underlying communication network. To connect to the broadcast channel, a seeking computer first locates a computer that is fully connected to the broadcast channel. The seeking computer then establishes a connection with a number of the computers that are already connected to the broadcast channel. The technique for adding a participant to a network includes identifying a pair of participants that are connected to the network, disconnecting the participants of the identified pair from each other, and connecting each participant of the identified pair of participants to the added participant.

Please amend the "Cross-Reference to Related Applications" to read as follows:

This application is related to U.S. Patent Application No. 09/629,576, entitled "BROADCASTING NETWORK," filed on July 31, 2000 (Attorney Docket No. 030048001 US); U.S. Patent Application No. 09/629,570, entitled "JOINING A BROADCAST CHANNEL," filed on July 31, 2000 (Attorney Docket No. 030048002 US); U.S. Patent Application No. 09/629,577, "LEAVING A BROADCAST CHANNEL," filed on July 31, 2000 (Attorney Docket No. 030048003 US); U.S. Patent Application No. 09/629,575, entitled "BROADCASTING ON A BROADCAST CHANNEL," filed on July 31, 2000 (Attorney Docket No. 030048004 US); U.S. Patent Application No. 09/629,572, entitled "CONTACTING A BROADCAST CHANNEL," filed on July 31, 2000 (Attorney Docket No. 030048005 US);

U.S. Patent Application No. 09/629,023, entitled "DISTRIBUTED AUCTION SYSTEM," filed on July 31, 2000 (Attorney Docket No. 030048006 US); U.S. Patent Application No. 09/629,043, entitled "AN INFORMATION DELIVERY SERVICE," filed on July 31, 2000 (Attorney Docket No. 030048007 US); U.S. Patent Application No. 09/629,024, entitled "DISTRIBUTED CONFERENCING SYSTEM," filed on July 31, 2000 (Attorney Docket No. 030048008 US); and U.S. Patent Application No. 09/629,042, entitled "DISTRIBUTED GAME ENVIRONMENT," filed on July 31, 2000 (Attorney Docket No. 030048009 US), the disclosures of which are incorporated herein by reference.

**Amendments to the Claims:**

Following is a complete listing of the claims pending in the application, as amended:

1. (Currently amended) A computer-based, non-routing table based, non-switch based method for adding a participant to a network of participants, each participant being connected to three or more other participants, the method comprising:

identifying a pair of participants of the network that are connected wherein a seeking participant contacts a fully connected portal computer, which in turn sends an edge connection request to a number of randomly selected neighboring participants to which the seeking participant is to connect;

disconnecting the participants of the identified pair from each other; and

connecting each participant of the identified pair of participants to ~~the added~~ the seeking participant.

2. (Original) The method of claim 1 wherein each participant is connected to 4 participants.

3. (Original) The method of claim 1 wherein the identifying of a pair includes randomly selecting a pair of participants that are connected.

4. (Original) The method of claim 3 wherein the randomly selecting of a pair includes sending a message through the network on a randomly selected path.

5. (Original) The method of claim 4 wherein when a participant receives the message, the participant sends the message to a randomly selected participant to which it is connected.

6. (Currently amended) The method of claim 4 wherein the randomly selected path is ~~approximately~~ proportional to the diameter of the network.

7. (Original) The method of claim 1 wherein the participant to be added requests a portal computer to initiate the identifying of the pair of participants.

8. (Original) The method of claim 7 wherein the initiating of the identifying of the pair of participants includes the portal computer sending a message to a connected participant requesting an edge connection.

9. (Currently amended) The method of claim 8 wherein the portal computer indicates that the message is to travel a ~~certain~~ distance proportional to the diameter of the network and wherein the participant that receives the message after the message has traveled that ~~certain~~ distance is one of the participants of the identified pair of participants.

10. (Currently amended) The method of claim 9 wherein the certain distance is ~~approximately~~ twice the diameter of the network.

11. (Original) The method of claim 1 wherein the participants are connected via the Internet.

12. (Original) The method of claim 1 wherein the participants are connected via TCP/IP connections.

13. (Original) The method of claim 1 wherein the participants are computer processes.

14. (Currently amended) A computer-based, non-switch based method for adding nodes to a graph that is m-regular and m-connected to maintain the graph as m-regular, where m is four or greater, the method comprising:

identifying p pairs of nodes of the graph that are connected, where p is one half of $m_2$

wherein a seeking node contacts a fully connected portal node, which in turn sends an edge connection request to a number of randomly selected neighboring nodes to which the seeking node is to connect;

disconnecting the nodes of each identified pair from each other; and

connecting each node of the identified pairs of nodes to ~~the added~~ the seeking node.

15. (Original) The method of claim 14 wherein identifying of the p pairs of nodes includes randomly selecting a pair of connected nodes.

16. (Original) The method of claim 14 wherein the nodes are computers and the connections are point-to-point communications connections.

17. (Original) The method of claim 14 wherein m is even.

18–31. (Previously cancelled)

32. (Currently amended) A computer-readable medium containing instructions for controlling a computer system to connect a participant to a network of participants, each participant being connected to three or more other participants, the network representing a broadcast channel wherein each participant forwards broadcast messages that it receives to all of its neighbor participants, wherein each participant connected to the broadcast channel receives all messages that are broadcast on the network, the network containing a method wherein messages are numbered sequentially so that messages received out of order are queued and rearranged to be in order, by a method comprising:

identifying a pair of participants of the network that are connected;

disconnecting the participants of the identified pair from each other; and

connecting each participant of the identified pair of participants to ~~the added~~ a seeking participant.

33. (Original) The computer-readable medium of claim 32 wherein each participant is connected to 4 participants.

34. (Original) The computer-readable medium of claim 32 wherein the identifying of a pair includes randomly selecting a pair of participants that are connected.

35. (Original) The computer-readable medium of claim 34 wherein the randomly selecting of a pair includes sending a message through the network on a randomly selected path.

36. (Original) The computer-readable medium of claim 35 wherein when a participant receives the message, the participant sends the message to a randomly selected participant to which it is connected.

37. (Currently amended) The computer-readable medium of claim 35 wherein the randomly selected path is ~~approximately~~ twice a diameter of the network.

38. (Original) The computer-readable medium of claim 32 wherein the participant to be added requests a portal computer to initiate the identifying of the pair of participants.

39. (Original) The computer-readable medium of claim 38 wherein the initiating of the identifying of the pair of participants includes the portal computer sending a message to a connected participant requesting an edge connection.

40. (Currently amended) The computer-readable medium of claim 38 wherein the portal computer indicates that the message is to travel a ~~certain~~ distance that is twice the diameter of the network and wherein the participant that receives the message after the message has traveled that ~~certain~~ distance is one of the identified pair of participants.

41–49. (Previously cancelled)

## REMARKS

Reconsideration and withdrawal of the rejections set forth in the Office Action dated January 12, 2004 are respectfully requested.

### I. Rejections under 35 U.S.C. § 112, first paragraph

Claims 1, 14, and 32 have been amended to include sufficient antecedent basis. In claim 1, the phrase "the added participant", which appears in the last line of the claim, has been changed to "the seeking participant". In addition, "a seeking participant" precedes "the seeking participant" in an earlier line of claim 1, providing sufficient antecedent basis. In claim 32, the phrase "the added participant", which appears in the last line of the claim, has been changed to "a seeking participant". In claim 14, the phrase "the added node", which appears in the last line of the claim, has been changed to "the seeking node". In addition, "a seeking node" precedes "the seeking node" in an earlier line of claim 14, providing sufficient antecedent basis.

### II. Rejections under 35 U.S.C. § 112, second paragraph

Claim 6 has been amended to render the claim definite. The term "approximately proportional" has been changed to "proportional". Claim 10 has also been amended to render the claim definite. The term "approximately twice the diameter" has been changed to "twice the diameter". Claim 37 has been amended to render the claim definite. The term "approximately twice a diameter of the network" has been changed to "twice a diameter of the network".

### III. Rejections under 35 U.S.C. § 102

#### A. The Applied Art

U.S. Patent No. 6,603,742 B1 to Steele, Jr. et al. (*Steele, Jr. et al.*) is directed to a technique for reconfiguring networks while it remains operational. *Steele, Jr. et al.* discloses a method for adding nodes to a network with minimal recabling. Column 3, lines 2-5. An interim routing table is used to route traffic around the part of the network affected by the adding of a

node. Column 11, lines 40-45. Each node in the network can connect to five other nodes. Column 4, lines 36-39, Column 4, lines 43-44. To add a node to a network, two links between two pairs of existing nodes are removed and five links are added to connect the new node to the network. Column 11, lines 25-31. For example, when upgrading from 7 to 8 nodes, the network administrator removes two links, 3-1 and 5-2, and adds five links, 7-1, 7-2, 7-3, 7-5, and 7-6. Column 12, lines 45-48.

B. Analysis

Distinctions between claim 1 and *Steele, Jr. et al.* will first be discussed, followed by distinctions between *Steele, Jr. et al.* and the remaining dependent claims.

As noted above, *Steele, Jr. et al.* discloses a technique for reconfiguring networks. Such a technique includes steps for disconnecting the participants of a pair from each other and connecting each participant to a seeking participant but does not include a step for identifying a pair of participants of the network that are fully connected. Column 12, lines 45-49. *Steele, Jr. et al.* fails to disclose a method for identifying a pair of participants of the network that are fully connected.

In contrast, claim 1 as amended includes the limitation of identifying a pair of participants of the network that are connected. For at least this reason, the applicant believes that claim 1 is patentable over *Steele, Jr. et al.*

The invention discloses an identification method in which a seeking participant contacts a fully connected portal computer. The portal computer directs the identification of a number of (for example four), randomly selected neighboring participants to which the seeking participant is to connect. *Steele, Jr. et al.* fails to disclose a portal computer that directs the identification of viable neighboring participants to which the seeking participant is to connect. Claim 1 has been amended to recite, among other limitations, the use of a portal computer for the identifying of "a

number of selected neighboring participants to which the seeking participant is to connect." *Steele, Jr. et al.* fails to disclose such a method for identifying neighboring participants for a seeking participant to connect to. For at least this reason, claim 1 is patentable over *Steele, Jr. et al.*

Further, the claimed does not make use of routing tables. *Steele, Jr. et al.* fails to disclose a non-table based routing method. Claim 1 has been amended to recite, among other limitations, "a computer-based, non-routing table based, non-switch based method for adding a participant to a network of participants". For at least this reason, claim 1 is patentable over *Steele, Jr. et al.*

Claim 2 discloses a connection scheme where "each participant is connected to 4 participants". *Steele, Jr. et al.* fails to disclose a connection scheme in which each participant is connected to 4 participants. Instead, *Steele, Jr. et al.* discloses a connection scheme in which each participant is connected to 5 other participants. Column 7, lines 14-33. For at least this reason, claim 2 is patentable over *Steele, Jr. et al.*

Anticipation a claim under 35 U.S.C. § 102 requires that the cited reference must teach every element of the claim.[1] *Steele, Jr. et al.* fails to disclose every limitation recited in claim 1. Since claim 1 is allowable, based on at least the above reasons, the claims that depend on claim 1 are likewise allowable.

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[1] MPEP section 2131, p. 70 (Feb. 2003, Rev. 1). *See also, Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1462 (Bd. Pat. App. & Interf. 1990) (to establish a *prima facie* case of anticipation, the Examiner must identify where "each and every facet of the claimed invention is disclosed in the applied reference."); *Glaverbel Société Anonyme v. Northlake Mktg. & Supply, Inc.*, 45 F.3d 1550, 1554 (Fed. Cir. 1995) (anticipation requires that each claim element must be identical to a corresponding element in the applied reference); *Atlas Powder Co. v. E.I. duPont De Nemours*, 750 F.2d 1569, 1574 (1984) (the failure to mention "a claimed element (in) a prior art reference is enough to negate anticipation by that reference").

## IV. Rejections under 35 U.S.C. § 103, first paragraph

### A. The Applied Art

*A Flood Routing Method for Data Networks* by Cho (*Cho*) is directed to a routing algorithm based on a flooding technique. *Cho* discloses a method in which flooding is used to find an optimal route to forward messages through. Flooding refers to a data broadcast technique that sends the duplicate of a packet to all neighboring nodes in a network. In *Cho*, flooding is not used to send the message, but is used to locate the optimal route for the message to be sent through. The method entails flooding a very short packet to explore an optimal route for the transmission of the message and to establish the data path via the selected route. Each node connected to the broadcast channel does not receive all messages that are broadcast on the broadcast channel. When a node receives a message, it does **not** forward that message to all of its neighboring nodes using flooding. In addition, *Cho* fails to disclose a method for rearranging a sequence of messages that are received out of order.

### B. Analysis

As noted above, *Steele, Jr. et al.* discloses a method for adding nodes to a network with minimal recabling. *Steele, Jr. et al.* fails to disclose a method in which "each participant forwards broadcast messages that it receives to all of its neighbor participants". Claim 32 has been amended to clarify the language of previously pending claim 32. *Cho* discloses a method in which flooding is used to find an optimal route to forward messages through. *Cho* fails to disclose the use of flooding to forward messages. In *Cho*, flooding is used only to find an optimal route for data transmission and is not used to actually forward messages. *Cho* fails to disclose a system in which "each participant forwards broadcast messages that it receives to all of its neighbor participants". In *Cho*, each participant forwards messages only to a destination node once the optimal route has been selected. *Cho* fails to disclose a system in which "each

participant connected to the broadcast channel receives all messages that are broadcast on the network". In addition, Cho fails to disclose a method for addressing a sequence of messages that are received out of order in which "messages are numbered sequentially so that messages received out of order are queued and rearranged to be in order".

As explained below, there is no incentive or teaching to combine *Steele, Jr. et al.* and *Cho*. However, even if they were combined, neither *Steele, Jr. et al.* nor *Cho* teach or suggest the use of flooding to send messages to all nodes connected to a broadcast channel. In addition, neither *Steele, Jr. et al.* nor *Cho* teach or suggest the sequential numbering of messages to rearrange a sequence of messages that are received out of order. The invention of claim 32 includes forwarding messages to all neighboring nodes and numbering each message sequentially so that "messages received out of order are queued and rearranged to be in order", which are not disclosed in either *Steele, Jr. et al.* or *Cho*. For at least this reason, the applicant believes that claim 32 is patentable over the combination of *Steele, Jr. et al.* and *Cho*.

The independent claims are allowable not only because they recite limitations not found in the references (even if combined), but for at least the following additional reasons. For example, there is no motivation to combine the various references as suggested in the Office Action. According to the Manual of Patent Examining Procedure ("MPEP") and controlling case law, the motivation to combine references cannot be based on mere common knowledge and common sense as to benefits that would result from such a combination, but instead must be based on specific teachings in the prior art, such as a specific suggestion in a prior art reference. For example, last year the Federal Circuit rejected an argument by the PTO's Board of Patent Appeals and Interferences that the ability to combine the teachings of two prior art references to produce beneficial results was sufficient motivation to combine them, and thus overturned the

Board's finding of obviousness because of the failure to provide a specific motivation in the prior art to combine the two references.[2] The MPEP provides similar instructions.[3]

Conversely, and in a manner similar to that rejected by the Federal Circuit, the present Office Action lacks any description of a motivation to combine the references. Thus, if the current rejection is maintained, the applicant's representative requests that the Examiner explain with the required specificity where a suggestion or motivation in the references for so combining the references may be found.[4]

*Steele et al.* deals with a method for adding nodes to a network while *Cho* deals with finding an optimal route to forward messages in a network. The addition of nodes to a network represents a completely separate process from the forwarding of messages in a network. *Steele et al.* contains no specific teachings that would suggest combining *Steele et al.* with *Cho*. In other words, *Steele et al.* contains no specific teachings that would suggest finding an optimal route to forward messages in a network.

One may not use the application as a blueprint to pick and choose teachings from various prior art references to construct the claimed invention ("impermissible hindsight reconstruction").[5] Assuming, for argument's sake, that it would be obvious to combine the teachings of *Steele et al.* with *Cho*, then *Steele et al.* would have done so because it would have

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[2] In re Sang-Su Lee, 277 F.3d 1338, 1341-1343 (Fed. Cir. 2002).

[3] Manual of Patent Examining Procedure, Section 2143 (noting that "the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure," citing in re Vaeck, 947 F.2d 488 (Fed. Cir. 1991).

[4] See, MPEP Section 2144.03.

[5] See, e.g., In re Gorman, 933 F.2d 982,987 (Fed. Cir. 1991), ("One cannot use hindsight construction to pick and choose between isolated disclosures in the prior art to deprecate the claimed invention.").

provided at least some of the advantages of the presently claimed invention. *Steele et al.'s* failure to employ the teachings cited in *Cho* is persuasive proof that the combination recited in claim 32 is unobvious. For at least this reason, the applicant believes that claim 32 is patentable over the combination of *Steele et al.* and *Cho*.

Claim 33 discloses a connection scheme where "each participant is connected to 4 participants". *Steele, Jr. et al.* fails to disclose a connection scheme in which each participant is connected to 4 participants. Instead, *Steele, Jr. et al.* discloses a connection scheme in which each participant is connected to 5 other participants. Column 7, lines 14-33. For at least this reason, claim 33 is patentable over *Steele, Jr. et al.*

Since claim 32 is allowable, based on at least the above reasons, the claims that depend on claim 32 are likewise allowable. Thus, for at least this reason, claim 33 is patentable over the combination of *Steele, Jr. et al.* and *Cho*.

## V. Rejections under 35 U.S.C. § 103, second paragraph

### A. The Applied Art

U.S. Patent No. 6,490,247 B1 to Gilbert et al. (*Gilbert et al.*) is directed to a ring-ordered, dynamically reconfigurable computer network utilizing an existing communications system. *Gilbert et al.* discloses a method for adding a node to a network using a switching mechanism in which the nodes are ordered in a ring-like configuration as opposed to a hypercube configuration. Column 3, lines 28-35. The first step in adding a seeking node to the network consists of the seeking contacting a portal node that is fully connected to the network. Column 6, lines 31-33. The portal node that is contacted provides information regarding a neighboring node that is adjacent to the seeking node; the selection of the neighboring node is not random. Column 6, lines 40-42. The seeking node then contacts the neighboring node to request a connection. Column 6, lines 57-59. The portal node provides the relevant information regarding

the node that is adjacent to the neighboring node that is adjacent to the seeking node but does not request a connection.

U.S. Patent No. 6,553,020 B1 to Hughes et al. (*Hughes et al.*) is directed to a network for interconnecting nodes for communication across the network. *Hughes et al.* fails to disclose a system where a portal computer randomly selects four nodes to serve as neighboring nodes to the seeking node. *Hughes et al.* also fails to disclose a system in which the portal computer sends an edge connection request to the neighboring nodes.

B. Analysis

As noted above, *Gilbert et al.* discloses a method for adding a node to a network using a switching mechanism. *Gilbert et al.* fails to disclose a method in which a portal computer seeks "a number of randomly selected neighboring participants to which the seeking participant is to connect". In *Gilbert et al.*, the selection of the neighboring nodes is not random. Column 6, lines 40-49. Figure 6 of *Gilbert et al.* reveals that node 100 selects nodes 10 and 16; the selection of nodes 10 and 16 is not random since they are purposely adjacent to one another and since node 10 provides node 100 with information regarding the node adjacent to it, node 16. Column 6, lines 42-46. *Gilbert et al.* fails to disclose a method in which a portal computer "sends an edge connection request to a number of randomly selected neighboring participants to which the seeking participant is to connect". In *Gilbert et al.*, the seeking node, not the portal node, contacts the neighboring participants to which the seeking participant is to connect. Column 6, lines 57-61. *Gilbert et al.* fails to disclose a "non-switch based method for adding a participant to a network of participants". Column 3, lines 8-11. *Gilbert et al.* fails to disclose a method in which an additional node contacts "a number of randomly selected neighboring participants". Column 6, lines 30-32. *Hughes et al.* discloses a method in which an additional node contacts four neighboring participants. *Hughes et al.* fails to disclose a method in which a

portal computer seeks "four randomly selected neighboring participants to which the seeking participant is to connect". *Hughes et al.* also fails to disclose a method in which a portal computer "sends an edge connection request to four randomly selected neighboring participants to which the seeking participant is to connect".

As explained below, *Gilbert et al* and *Hughes et al.* would not be combined. However, even if they were combined, neither *Gilbert et al* nor *Hughes et al.* teach or suggest the random selection of neighboring participants. Claim 1 has been amended to recite, among other limitations, a method in which a portal computer seeks "four randomly selected neighboring participants to which the seeking participant is to connect". In other words, the invention of claim 1 includes randomly selecting neighboring participants to which the seeking participant is to connect, which is not disclosed in either *Gilbert et al* or *Hughes et al.* Even if they were combined, neither *Gilbert et al* nor *Hughes et al.* teach or suggest the sending of an edge connection request by the portal computer to the randomly selected neighboring participants to which the seeking participant is to connect. Claim 1 has been amended to recite, among other limitations, a method in which a portal computer "sends an edge connection request to four randomly selected neighboring participants to which the seeking participant is to connect". In other words, the invention of claim 1 includes the portal computer sending an edge connection request to the randomly selected neighboring participants to which the seeking participant is to connect, which is not disclosed in either *Gilbert et al* or *Hughes et al.* For at least these reasons, the applicant believes that claim 1 is patentable over the combination of *Gilbert et al* and *Hughes et al.*

In a similar fashion, claim 14 has been amended to recite, among other limitations, a method in which a portal computer seeks "four randomly selected neighboring nodes to which the seeking node is to connect". In other words, the invention of claim 14 includes randomly

selecting neighboring nodes to which the seeking node is to connect, which is not disclosed in either *Gilbert et al* or *Hughes et al.* Even if they were combined, neither *Gilbert et al* nor *Hughes et al.* teach or suggest the random selection of neighboring nodes. In addition, even if they were combined, neither *Gilbert et al* nor *Hughes et al.* teach or suggest the sending of an edge connection request by the portal computer to the randomly selected neighboring nodes to which the seeking node is to connect. Claim 14 has been amended to recite, among other limitations, a method in which a portal computer "sends an edge connection request to four randomly selected neighboring nodes to which the seeking node is to connect". In other words, the invention of claim 14 includes the portal computer sending an edge connection request to the randomly selected neighboring nodes to which the seeking node is to connect, which is not disclosed in either *Gilbert et al* or *Hughes et al.* For at least these reasons, the applicant believes that claim 14 is patentable over the combination of *Gilbert et al* and *Hughes et al.*

Since claim 1 is allowable, based on at least the above reasons, the claims that depend on claim 1 are likewise allowable. Thus, for at least this reason, claims 2-5, 7, 8, and 11-13 are patentable over the combination of *Gilbert et al* and *Hughes et al.* Since claim 14 is allowable, based on at least the above reasons, the claims that depend on claim 14 are likewise allowable. Thus, for at least this reason, claims 15-17 are patentable over the combination of *Gilbert et al* and *Hughes et al.*

If the current rejection is maintained, the applicant's representative requests that the Examiner explain with the required specificity where a suggestion or motivation in the references for so combining the references may be found.[6]

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[6] See, MPEP Section 2144.03.

*Gilbert et al.* deals with a method for adding nodes to a network while *Hughes et al.* deals with a network for interconnecting nodes for communication across the network. The addition of nodes to a network represents a completely separate process from the interconnection of nodes in a network. *Hughes et al.* contains no specific teachings that would suggest combining *Hughes et al.* with *Gilbert et al.* In other words, *Hughes et al.* contains no specific teachings that would suggest adding a node to a network.

As is known, one may not use the application as a blueprint to pick and choose teachings from various prior art references to construct the claimed invention ("impermissible hindsight reconstruction").[7] Assuming, for argument's sake, that it would be obvious to combine the teachings of *Hughes et al.* with *Gilbert et al.*, then *Hughes et al.* would have done so because it would have provided at least some of the advantages of the presently claimed invention. *Hughes et al.'s* failure to employ the teachings cited in *Gilbert et al.* is persuasive proof that the combination is unobvious. For at least this reason, the applicant believes that claims 1 and 14 are patentable over the combination of *Hughes et al.* and *Gilbert et al.*

Since claim 1 is allowable, based on at least the above reasons, the claims that depend on claim 1 are likewise allowable. Thus, for at least this reason, claims 2-5, 7, 8, and 11-13 are patentable over the combination of *Gilbert et al* and *Hughes et al.* Since claim 14 is allowable, based on at least the above reasons, the claims that depend on claim 14 are likewise allowable. Thus, for at least this reason, claims 15-17 are patentable over the combination of *Gilbert et al* and *Hughes et al.*

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[7] See, e.g., In re Gorman, 933 F.2d 982,987 (Fed. Cir. 1991), ("One cannot use hindsight construction to pick and choose between isolated disclosures in the prior art to deprecate the claimed invention.").

## VI. Rejections under 35 U.S.C. § 103, third paragraph

### A. The Applied Art

*A Flood Routing Method for Data Networks* by Cho (*Cho*), U.S. Patent No. 6,490,247 B1 to Gilbert et al. (*Gilbert et al.*), and U.S. Patent No. 6,553,020 B1 to Hughes et al. (*Hughes et al.*) have already been disclosed in the above descriptions of the applied art.

### B. Analysis

As noted previously, *Gilbert et al.* discloses a method for adding nodes to a network while *Hughest et al.* discloses a network for interconnecting nodes for communication across the network. The combination of *Gilbert et al.* and *Hughest et al.* fails to disclose a method in which "each participant forwards broadcast messages that it receives to all of its neighbor participants". *Cho* discloses a method in which flooding is used to find an optimal route to forward messages through. *Cho* fails to disclose the use of flooding to forward messages. In *Cho*, flooding is used only to find an optimal route for data transmission and is not used to actually forward messages. *Cho* fails to disclose a system in which "each participant forwards broadcast messages that it receives to all of its neighbor participants". In *Cho*, each participant forwards messages only to a destination node once the optimal route has been selected. *Cho* fails to disclose a system in which "each participant connected to the broadcast channel receives all messages that are broadcast on the network". In addition, Cho fails to disclose a method for addressing a sequence of messages that are received out of order in which "messages are numbered sequentially so that messages received out of order are queued and rearranged to be in order". Claim 32 has been amended to clarify the inherent language of previously pending claim 32. As explained below, *Gilbert et al, Hughes et al.*, and *Cho* would not be combined. However, even if they were combined, *Gilbert et al, Hughes et al.*, and *Cho* fail to teach or suggest the use of flooding to send messages to all nodes connected to a broadcast channel. In addition, *Gilbert et al, Hughes*

*et al.*, and *Cho* fail to teach or suggest the sequential numbering of messages to rearrange a sequence of messages that are received out of order. The invention of claim 32 includes forwarding messages to all neighboring nodes and numbering each message sequentially so that "messages received out of order are queued and rearranged to be in order", which are not disclosed in G*ilbert et al, Hughes et al.*, or *Cho*. For at least these reasons, the applicant believes that claim 32 is patentable over the combination of G*ilbert et al, Hughes et al.*, and *Cho*.

Since claim 32 is allowable, based on at least the above reasons, the claims that depend on claim 32 are likewise allowable. Thus, for at least this reason, claims 33-36, 38, and 39 are patentable over the combination of G*ilbert et al, Hughes et al.*, and *Cho*.

*Gilbert et al.* deals with a method for adding nodes to a network, *Hughes et al.* deals with a network for interconnecting nodes for communication, and *Cho* deals with finding an optimal route to forward messages in a network. These three prior art references represent separate, distinct processes. The combination of *Gilbert et al.* and *Hughes et al.* contains no specific teachings that would suggest combining *Gilbert et al.* and *Hughes et al.* with *Cho*. In other words, the combination of *Gilbert et al.* and *Hughes et al.* contains no specific teachings that would suggest finding an optimal route to forward messages in a network.

Assuming, for argument's sake, that it would be obvious to combine the teachings of *Gilbert et al.* and *Hughes et al.* with *Cho*, then *Gilbert et al.* and *Hughes et al.* would have done so because it would have provided at least some of the advantages of the presently claimed invention. The failure of *Gilbert et al.* and *Hughes et al.* to employ the teachings cited in *Cho* is persuasive proof that the combination recited in claim 32 is unobvious. For at least this reason, the applicant believes that claim 32 is patentable over the combination of *Gilbert et al.* and *Hughes et al.* in view of *Cho*.

Since claim 32 is allowable, based on at least the above reasons, the claims that depend on claim 32 are likewise allowable. Thus, for at least this reason, claims 33-36, 38, and 39 are patentable over the combination of *Gilbert et al, Hughes et al.*, and *Cho*.

## VII. Conclusion

In view of the foregoing, the claims pending in the application comply with the requirements of 35 U.S.C. § 112 and patentably define over the applied art. A Notice of Allowance is, therefore, respectfully requested. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-6488.

Respectfully submitted,
Perkins Coie LLP

Date: 5/10/04

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# EXHIBIT F-5

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

ACCELERATION BAY, LLC,
Patent Owner

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Case No. IPR2016-00747
Patent 6,732,147 B1

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**PATENT OWNER PRELIMINARY RESPONSE TO PETITION PURSUANT TO 37 C.F.R. §42.107**

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## PATENT OWNER'S EXHIBIT LIST

| | Description |
|---|---|
| **Exhibit-2001** | Declaration of Michael Goodrich, Ph.D. |
| **Exhibit-2002** | Andrew Tanenbaum, Computer Networks, Third Edition (1996)(Excerpts) |

## I. INTRODUCTION

On March 12, 2016, Petitioners filed a Petition for *inter partes* review of claim 1–16 of U.S. Patent No. 6,732,147 B1 (Ex. 1001, the "'147 Patent"), which issued to The Boeing Company on May 4, 2004, based on an application filed in the USPTO on July 31, 2000. Acceleration Bay LLC ("Acceleration Bay" or "Patent Owner") requests that the Board not institute *inter partes* review because Petitioners have not demonstrated a reasonable likelihood that it would prevail in showing unpatentability of any of the challenged claims on the grounds asserted in its Petition as required under 37 C.F.R. § 42.108(c).

The '147 Patent is one of several patents obtained by Boeing directed to novel computer network technology, developed by inventors Fred Holt and Virgil Bourassa more than sixteen years ago, that solved critical scalability and reliability problems associated with the real-time sharing of information among multiple widely distributed computers. This innovative technology enabled large-scale, online collaborations with numerous participants continually joining and leaving—with applications ranging from aircraft design development to multi-player online games. A core feature of the patented technology claimed in the '147 Patent is the manner in which a node or participant is removed from a network, which involves a first computer sending a disconnect message to a second computer, which includes a list of the departing computer's neighbors, and

the second computer broadcasting a connection port search message to find one of the first computer's neighbors to which it can connect in order to maintain an m-regular graph.

The references cited in Grounds 1–4 of the Petition do not disclose the approach to joining or leaving a network disclosed in the '147 Patent. For example, and in addition to further deficiencies, Petitioners have failed to meet its burden under 37 C.F.R. § 42.104(b) to demonstrate that the cited references disclose:

- when the second computer receives the disconnect message from the first computer, the second computer broadcasts a connection port search message on the broadcast channel to find a third computer to which it can connect in order to maintain an m-regular graph, said third computer being one of the neighbors on said list of neighbors; (claims 1 and 11); and
- when the attempt to send the message is unsuccessful, broadcasting from the first computer a connection port search message indicating that the first computer needs a connection (claim 6).

Additionally, a person of ordinary skill in the art at the time of the '147 Patent would not have combined the cited references to arrive at the claimed invention.

Although there are a variety of reasons why the '147 Patent is valid over Petitioners' asserted prior art references, this Preliminary Response focuses on only limited reasons why *inter partes* review should not be instituted. *See*

*Travelocity.com L.P. v. Conos Techs., LLC*, CBM2014-00082, Paper No. 12 at 10 (P.T.A.B. Oct. 16, 2014)("[N]othing may be gleaned from the Patent Owner's challenge or failure to challenge the grounds of unpatentability for any particular reason."). Regardless, the deficiencies of the Petition noted herein, however, are more than sufficient for the Board to find that Petitioners have not met its burden to demonstrate a reasonable likelihood that it would prevail in showing unpatentability of any of the challenged claims.

## II. THE '147 PATENT

As discussed in the Background of the Invention section of the '147 Patent (the "Background"), point-to-point network protocols, such as UNIX pipes, TCP/IP, and UDP, allow processes on different computers to communicate via point-to-point connections. '147 Patent at 1:46-48. However, the interconnection of ***all*** participants using point-to-point connections, while theoretically possible, does not scale well as the number of participants grows. *Id.* at 1:48-51. Because each participating process needs to manage its direct connections to all other participating processes, the number of possible participants is limited to the number of direct connections a given machine, or process, can support. *Id.* at 1:51-59.

On the other end of the connectivity spectrum are client/server middleware systems that have a single server that does not communicate with any other server

and coordinates all communications between various clients who are sharing the information. *Id*. at 1:60-62. These systems rely on the sole server to function as a central authority for controlling all access to shared resources. *Id.* at 1:62-64. Such systems are also not well suited to sharing of information among many participants (*id.* at 1:67-2:2), but for different reasons than point-to-point networks. When a client stores information to be shared at the server, every other client must poll the server to determine that the new information is being shared, which places a very high overhead on the communications network. *Id.* at 2:2-6. Alternatively, each client can register a callback with the server, which the server then invokes when new information is available to be shared. *Id.* at 2:6-8. However, such callback techniques create a performance bottleneck. A single server needs to effect a callback to each and every client whenever new information is to be shared. *Id.* at 2:9-11. In addition, the reliability of the entire information sharing depends upon that of a single server; failure at the single server prevents all communications between ***any*** clients. *Id.* at 2:11-15.

The '147 Patent is one of several patents obtained by Boeing directed to its novel computer network technology that solved the central bottleneck problem of client/server networks, as well as the problems of management complexity and limited supported connections of point-to-point networks. More particularly, the '147 Patent describes using a broadcast channel that overlays a point-to-point

network where each node, or participant, is connected to some—but not all—neighboring participants. For example, Fig. 2 of the '147 Patent, reproduced below, shows a network of twenty participants, where each participant is connected to four other participants:

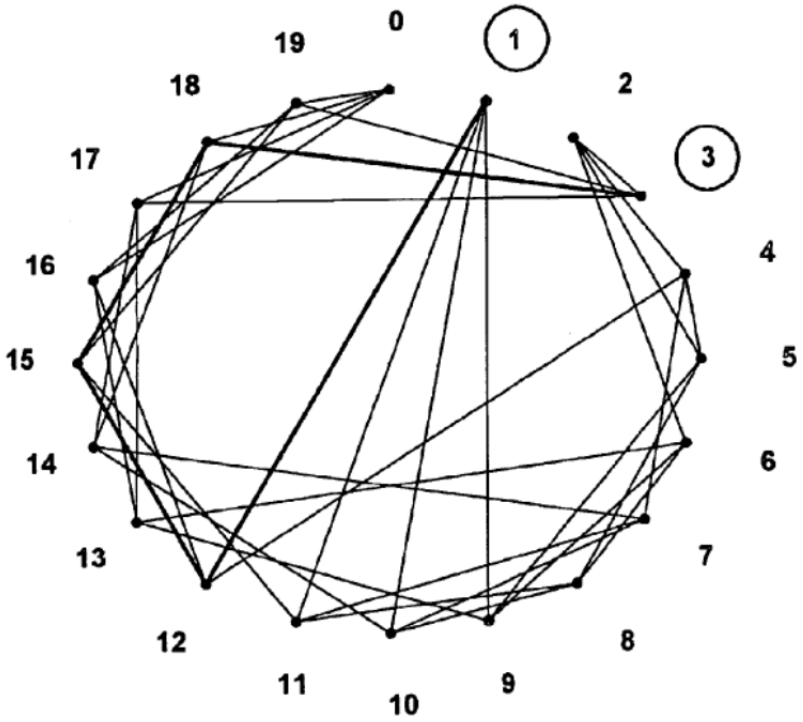


*Fig. 2*

*Id.* at Fig. 2. Such a network arrangement, where each node in the network, is connected to the same number of other nodes, is known as an ***m-regular network***. *Id.* at 4:40-41. That is, a network is *m*-regular when each node is connected to *m* other nodes at least some of the time, and a computer would become disconnected from the broadcast channel only if all *m* of the connections to its neighbouring

nodes fail. *Id.* at 4:41-44. In Fig. 2 above, *m*=4 because each node is connected to four other nodes of the network. A network is said to be ***m-connected*** when it would take a failure of *m* computers to divide the graph into disjoint sub-graphs, i.e., separate broadcast channels. *Id*. at 4:44-47. The '147 Patent also describes a computer network in which the number of network participants ***N*** (in Fig. 2, this is twenty) is greater than the number of connections *m* to each participant (in Fig. 2, this is four). *Id.* at Fig. 2. This network topology, where no node is connected to every other node, is known as an ***incomplete graph.***

The incomplete graph topology relies on participants to disseminate information to other participants. *See id*. at 1:60-2:15. As described in the '147 Patent, to broadcast a message, the originating computer sends the message to each of its neighbors using the overlay network. *Id*. at 7:30-35. Each computer that receives the message then sends the message to its neighbors using the network. *Id.* at 7:36-48. In this way, the message is propagated to each computer of the overlay network using the underlying network, thus broadcasting the message to each computer over a logical broadcast channel.

The invention claimed in the'147 Patent focuses on a process for removing nodes, or participants, from an existing network. A computer connected to the network can leave in either a planned or unplanned manner. *Id.* at 8:66–67. If the disconnect happens in a planned manner, the disconnecting computer sends a

message to each of its neighbors that includes a list identifying the disconnecting computer's neighbors. *Id.* at 8:67–9:4. When a neighbor receives the message it attempts to connect to one of the computers on the list. *Id.* at 9:4–6. If any one of the neighboring computers cannot connect with a computer on the list, it will broadcast a message seeking to connect to another computer in the network. *Id.* at 9:9–17.

Fig. 5A of the '147 Patent, reproduced below, illustrates the procedure for disconnecting a computer in a planned manner. In particular, Fig. 5A shows an exemplary procedure for disconnecting computer ***H*** from the network. Computer ***H*** sends a message informing its neighbors, computers ***I***, ***A***, ***E***, and ***F***, that it intends to disconnect and then disconnects. *Id.* at 9:19–23. The message includes the identities of computers ***I***, ***A***, ***E***, and ***F***. When the neighboring computers receive the message from computer ***H***, they establish connections between each other. *Id*. at 9:23–26. In the example shown in Fig. 5, the dashed lines indicate that computer ***A*** connects to computer ***I***, and computer ***E*** connects to computer ***F***.

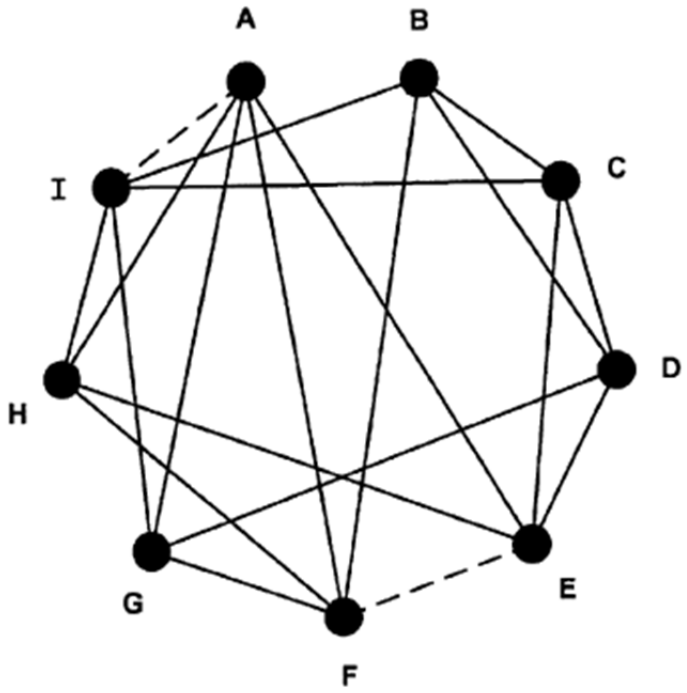


*Fig. 5A*

'147 Patent, Fig. 5A.

If a computer leaves the network in an unplanned manner—such as in the event of a power failure—its neighbors are notified of the computer's absence when each attempts to send a message to the disconnected computer. *Id.* at 9:27–31. When a computer detects that one of its neighbors is disconnected, it broadcasts a port connection request over the broadcast channel indicating that it has an open port that needs a connection and identifying the call-in number for the port. *Id.* at 9:33–38. When the port connection request is received at another computer connected to the broadcast channel that has an open port, the other

computer contacts the requesting computer to establish a connection. *Id.* at 9:38–42.

Fig. 5B of the '147 Patent, reproduced below, illustrates the procedure for disconnecting a computer in an unplanned manner. In particular, Fig. 5B shows an exemplary procedure for computer ***H's*** neighboring computers to establish new connections when they discover that computer ***H*** has disconnected in an unplanned manner (*e.g.* without sending a list of its neighboring computers). *Id.* at 9:42–45. When each of computer ***H***'s neighbors discovers that ***H*** has disconnected, it broadcasts a port connection request indicating that it needs to fill an empty port. *Id*. at 9:45–48. In the example shown in Fig. 5B, the dashed lines indicate that computers ***F*** and ***I*** respond to each other's request and form a connection, and computers ***A*** and ***E*** respond to each other's request and form a connection. *Id*. at 9:48–51.

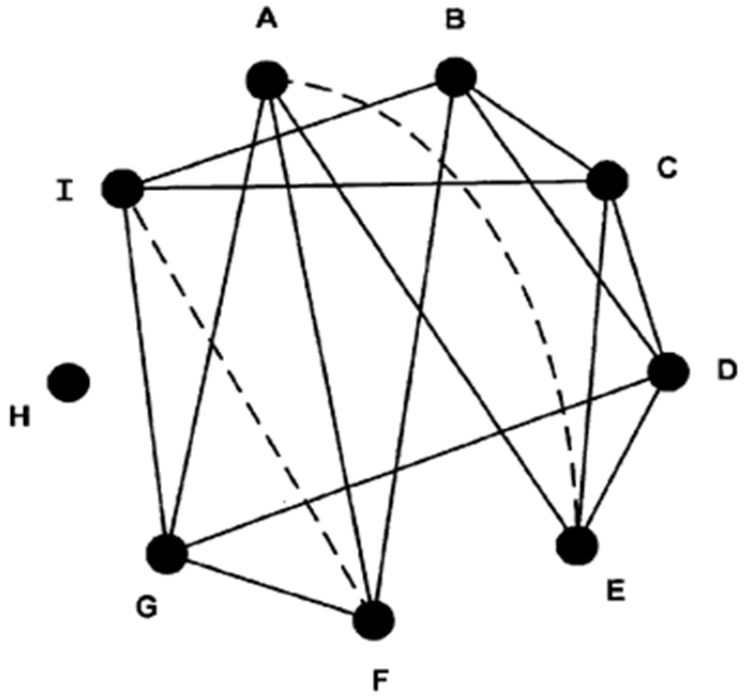


*Fig. 5B*

'147 Patent, Fig. 5B.

## III. CLAIM CONSTRUCTION

Patent Owner respectfully submits, without prejudice, that, for purposes of this Patent Owner Preliminary Response, it is not necessary to construe any term in the claims of the '147 Patent.

## IV. SPECIFIC REASONS WHY THE CITED REFERENCES DO NOT INVALIDATE THE CLAIMS, AND WHY *INTER PARTES* REVIEW SHOULD NOT BE INSTITUTED

Petitioners' proposed Grounds rely on four references: (1) Peter J. Shoubridge et al., *Hybrid Routing in Dynamic Networks*, IEEE International Conference on Communications (Ex. 1005, "Shoubridge"); (2) Tamás Denes, *The*

*"Evolution" of Regular Graphs of Even Order by their Vertices*, Matematikai Lapok, 27, 3–4 (Ex. 1017, "Denes");[1] (3) Jose Rufino *et al.*, *A Study on the Inaccessibility Characteristics of ISO 8802/4 Token-Bus LANs*, IEEE INFOCOM '92: The Conference on Computer Communications (Ex. 1011, "Rufino"); and (4) Hirviniemi, U.S. Patent No. 5,802,285 (Ex. 1021, "Hirviniemi"); (5) Balph *et al.*, U.S. Patent No. 4,700,185 (Ex. 1022, "Balph"); and (6) T. Todd, *The Token Grid Network*, IEEE/ACM Transactions on Networking, 2.3, 279–287 (Ex. 1019, "Todd").

Petitioners' Ground 1 proposes that claims 1–16 of the '147 Patent are obvious under pre-AIA 35 U.S.C. § 103(a) over Shoubridge in view of Denes and Rufino. Ground 2 proposes that claims 4, 5, 14, and 16 of the '147 Patent are obvious, in the alternative, over Shoubridge in view of Denes and Rufino and further in view of Hirviniemi. Ground 3 proposes that claims 8 and 13 are obvious, in the alternative, over Shoubridge in view of Denes and Rufino and further in view of Balph. Ground 4 proposes that claims 1–16 are obvious, in the alternative, over Shoubridge in view of Denes and Rufino and further in view of Todd.

[1] Patent Owner reserves its right to object to the accuracy of the English language translation of Ex. 1016, provided as Ex. 1017 ("Denes").

There are several reasons, however, that the Board should decline to institute *inter partes* review of the '147 Patent, including that the proposed combinations of Shoubridge, Denes, Rufino, and Todd do not teach the subject matter of independent claims 1 and 14, and that a POSITA would not have combined the cited references in the manner suggested at the time the '147 Patent was invented.

### A. Ground 1: Claims 1–16 are Patentable Over Shoubridge in view of Denes and Rufino

Independent claims 1, 6, and 11 recite the invention of the '147 Patent in terms of two distinct scenarios for disconnecting a computer from a network. In particular, claims 1 and 11 recite a method and computer-readable medium, respectively, for disconnecting a computer from a network in a planned manner. Claim 1 is illustrative and recites, accordingly:

> 1. A method of disconnecting a first computer from a second computer, the first computer and the second computer being connected to a broadcast channel, said broadcast channel forming an m-regular graph where m is at least 3, the method comprising:
>
> when the first computer decides to disconnect from the second computer, the first computer sends a disconnect message to the second computer, said disconnect message including a list of neighbors of the first computer; and
>
> ***when the second computer receives the disconnect message from the first computer, the second computer broadcasts a connection port search message*** on the broadcast channel to find a

> third computer to which it can connect in order to maintain an m-regular graph, said third computer being one of the neighbors on said list of neighbors.

'147 Patent, claim 1 (emphasis added).

On the other hand, claim 6 recites a method for disconnecting a computer from a network in an unplanned manner:

> 6. 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 where m is at least 3, the method comprising:
>
> attempting to send a message from the first computer to the second computer; and
>
> when the attempt to send the message is unsuccessful, broadcasting from the first computer a connection port search message indicating that the first computer needs a connection; and
>
> having a third computer not already connected to said first computer respond to said connection port search message in a manner as to maintain an m-regular graph.

'147 Patent, claim 6.

#### 1. Shoubridge in view of Denes and Rufino Fails to Disclose "a broadcast channel, said broadcast channel forming an m-regular graph where m is at least 3" (claims 1, 6, and 11)

Petitioners rely solely on Shoubridge as allegedly teaching "a broadcast channel, said broadcast channel forming an m-regular graph where m is at least 3."

*See* Petition at 19–21 ("Shoubridge discloses a dynamic network forming a broadcast channel, said broadcast channel forming an m-regular graph where m is at least 3."); *see also id.* at 29–30 (repeating the same assertion regarding independent claim 6); *id.* at 42 (repeating a similar assertion regarding independent claim 11). However, Shoubridge fails to show or suggest "a broadcast channel" as the term is understood in the context of the '147 Patent. As defined in the '147 Patent, a broadcast channel is "implemented using an underlying network system (e.g., the Internet) that allows each computer connected to the underlying network system to send messages to each other connected computer using each computer's address." '147 Patent at 4:17-21. In other words, "a broadcast channel ***overlays*** a point-to-point communications network." *Id.* at 4:5-6 (emphasis added).

Petitioners fail to identify any teaching in Shoubridge that corresponds to a "broadcast channel" as the term is used in the context of the '147 Patent. Indeed, neither Petitioners nor Petitioners' expert, Dr. Karger, provides any discussion whatsoever regarding how Shoubridge allegedly teaches a broadcast channel. Rather, Petitioners ignore the term "broadcast channel" and focuses on only on whether Shoubridge discloses an m-regular graph where m is at least 3. *See* Petition at 20 (citing Shoubridge at 1383, ¶ 2 ("A 64 node network with connectivity of degree 4 is modeled as *G*. The network is a large regular graph forming a manhattan grid network that has been wrapped around itself as a torus to

avoid edge effects.")). Because Petitioners fail to give any weight to the term "broadcast channel" it has not met its burden to "specify where each element of the claim is found in the prior art patents or printed publications relied upon." *See* 37 C.F.R. § 42.104(b)(4).

The term "broadcast channel" has a particular meaning in the context of the '147 Patent in that it overlays a point-to-point communications network. *See* '147 Patent at 4:5-7 ("A broadcast technique in which a broadcast channel overlays a point-to-point communications network is provided."); *see also id.* at 4:25-28 ("The broadcast technique overlays the underlying network system with a graph of point-to-point connections (i.e., edges) between host computers (i.e., nodes) through which the broadcast channel is implemented."). Accordingly, the hallmark of a broadcast channel is that it overlays a point-to-point communications network, not that it is simply a network that supports broadcast data. The Petition fails to identify any teaching in Shoubridge that corresponds to such an overlayed broadcast channel.

For at least the foregoing reasons, Petitioners have not established a reasonable likelihood that Shoubridge, Denes, and Rufino renders obvious independent claims 1, 6, and 11 of the '147 Patent. Patent Owner respectfully requests, therefore, that the Board decline to institute trial on Petitioners' proposed Ground 1.

**2. Shoubridge in view of Denes and Rufino Fails to Disclose "said disconnect message including a list of neighbors of the first computer" (claims 1 and 11)**

Petitioners fail to identify any teaching in Shoubridge, Denes, or Rufino that corresponds to "said disconnect message including a list of neighbors of the first computer." Petitioners have, therefore, not met their burden to "specify where each element of the claim is found in the prior art patents or printed publications relied upon." *See* 37 C.F.R. § 42.104(b)(4). At best, Petitioners map Rufino's disclosure of a leaving station in a token ring setting a *set_successor* frame to the claimed "disconnect message." *See* Petition at 22 ("Rufino discloses a method for a leaving station (first computer) in a token bus network to leave the logical ring in an orderly way by sending a *set_successor* frame (a disconnect message) to its predecessor station (second computer).").

Petitioners appear to acknowledge, however, that this "*set_successor* frame" does not include a "list of neighbors of the first computer," but rather only "a single neighbor" (*i.e.* "the future successor"). Petition at 22. That is, although the station that sets the "*set_successor* frame" has two neighbors, the *set_successor* frame only "carr[ies] the address of its future successor," rather than all of its neighbors:

> An orderly leave from a logical ring is only possible when that station holds the token. Station withdrawal is achieved through a ring patch between its predecessor and successor stations. For that purpose, the

> leaving station before passing the token issues a *set_successor* frame, addressed to its predecessor, and ***carrying the address of its future successor***.

Rufino at 962, right col., ¶ 3 (emphasis added).

Simply informing a predecessor station of the address of a successor station is suitable for token rings, such as the one disclosed in Rufino, where each station is only connected to a predecessor and successor. However, this *set_successor* procedure breaks once m-regular graphs where m is greater than 2 are considered because outside of the token ring context m-regular networks have no clearly defined predecessors and successors. Consequently, the '147 Patent teaches a technique in which a computer disconnecting in a planned neighbor "sends a disconnect message to each of its four neighbors" where "[t]he disconnect message includes a list that identifies the four neighbors of the disconnecting computer." '147 Patent at 8:66–9:4. That is, the disconnecting computer sends a message to each of its neighbors, and the message contains a list of each of its neighbors. This technique allows the neighbors, which otherwise have no knowledge of one another, to find each other to establish new connections. *See id.* at 9:4–17 (describing how the neighbors attempt to connect to other computers on the list of neighbors); *see also id.* at 13:25–28 ("One advantage of the broadcast channel, however, is that no computer has global knowledge of the broadcast channel. Rather, each computer has local knowledge of itself and its neighbors.").

In contrast Rufino's *set_successor* frame at best provides the address of one of its two neighbors (*i.e.* the successor station) to the other one of its neighbors and does not, therefore, disclose a "disconnect message including a list of neighbors of the first computer." *See* Rufino at 962, right col., ¶ 3 (emphasis added).

For at least the foregoing reasons, Petitioners have not established a reasonable likelihood that Shoubridge, Denes, and Rufino renders obvious independent claims 1 and 11 of the '147 Patent. Patent Owner respectfully requests, therefore, that the Board decline to institute trial on claims 1–5 and 11–16 under Petitioners' proposed Ground 1.

**3. Shoubridge in view of Denes and Rufino Fails to Disclose "when the second computer receives the disconnect message from the first computer, the second computer broadcasts a connection port search message on the broadcast channel to find a third computer to which it can connect in order to maintain an m-regular graph, said third computer being one of the neighbors on said list of neighbors" or "a component that, when the computer receives a disconnect message from another computer, the computer broadcasts a connection port search message on the broadcast channel to find a computer to which it can connect in order to maintain an m-regular graph, said computer to which it can connect being one of the neighbors on said list of neighbors" (claims 1 and 11).**

Petitioners fail to identify any teaching in Shoubridge, Denes, or Rufino that corresponds to "when the second computer receives the disconnect message from the first computer, the second computer broadcasts a connection port search message on the broadcast channel to find a third computer to which it can connect

in order to maintain an m-regular graph, said third computer being one of the neighbors on said list of neighbors" or "a component that, when the computer receives a disconnect message from another computer, the computer broadcasts a connection port search message on the broadcast channel to find a computer to which it can connect in order to maintain an m-regular graph, said computer to which it can connect being one of the neighbors on said list of neighbors," as affirmatively recited in claims 1 and 11, respectively.

These claim features require that a computer "broadcasts a connection port search message on the broadcast channel" to find one of the other neighbors on the list of neighbors included in the disconnect message after a disconnect message is received at the computer. In other words, when a computer executes a ***planned*** disconnect from the broadcast channel and sends a disconnect message to its neighbors, a neighbors receiving the disconnect message broadcasts a connection port search message in order to find a new neighbor to connect to. *See* '147 Patent at 8:66–9:9 (disclosing the claimed technique for disconnecting a computer from the broadcast channel in a planned manner).

Petitioners rely solely on Rufino as disclosing this claim feature despite that reference being silent with respect to broadcasting a port search message after receiving a disconnect message. *See* Petition at 23–26 (discussing claim 1); *see also id*. at 47–50 (discussing claim 11). In particular, Petitioners attempt to rely on

Rufino's disclosure of a "*who_follows"* frame as allegedly teaching the "connection port search message [] on the broadcast channel to find the successor (the neighbor) of the disconnected station." Petition at 25; *see also id.* at 48. But as Petitioners note, this *who_follows* frame only occurs "when a station cannot successfully send a message to its successor (because of an unplanned disconnect of the successor)." Petition at 25; *see also id.* at 48. That is, Rufino's *who_follows* procedure only takes place in the event of an "abrupt" leave of a station from the token ring, not in the case where a station leaves in an orderly manner by setting a *set_successor* frame, which Petitioners have mapped to the claimed disconnect message. *See* Rufino at 962, col. 2–963, col. 1 (discussing orderly and abrupt station leaves, using the *set_successor* frame in the case of orderly leaves, and using the *who_follows* frame in the case of abrupt leaves); *see also* Petition at 22 (mapping the *set_successor* frame to the claimed "disconnect message").

These claim features also require broadcasting a "connection port search message on the broadcast channel" and "maintain[ing] an m-regular graph." One of skill in the art at the time understood that token rings, such as those discussed in Rufino, are not a "broadcast medium, but a collection of individual point to point links that happen to form a circle." *See* Ex. 2001 ("Goodrich Decl.") at ¶ 31(citing Ex. 2002, Tanenbaum at 292 (explaining how one of the many attractive features of ring networks "is the fact that a ring is not really a broadcast

medium, but a collection of individual point to point links that happen to form a circle.")). In contrast to the claimed computers of the "broadcast channel," more than one station of the token ring cannot send messages (e.g. disconnect or connection port messages). Rather token rings rely on token passing where only one station can transmit at a given instant, namely because there is only one token. *See* Goodrich Decl. at ¶ 31(citing Rufino at 0959 ("Access control is performed by a token passing protocol, which establishes a logical ring over the physical bus. Access to the shared broadcast medium for data transmission is only granted to the station which currently holds the token."); *see also* Ex. 2002, Tanenbaum at 293 ("When a station wants to transmit a frame, it is required to seize the token and remove it from the ring before transmitting. .. Because there is only one token, only one station can transmit at a given instant…"). As such, Rufino is discussing a token-passing bus that is essentially a wire that each station is holding on to, if one station puts electricity on this wire, the rest of the stations in the ring feel the jolt. If one station in the ring has the "token" and is sending a message on this wire, the rest of the stations in the ring all get it immediately. As such, there is no need for broadcasting information as recited in the claims. *See* Goodrich Decl. at ¶ 31 ("The token-ring part is just so that we can perform computations that require that we "take turns" by moving an imaginary token around a "ring." For example, what if ten of us around a ring have ten numbers we want to add up? The token

ring part is a great way to do this, using a traveling message that stores a partial sum. On the other hand, no POSITA would use the teachings of the prior art to make the claimed system as the prior art teaches that it is "not really a broadcast medium."). *See* Goodrich Decl. at ¶ 31 (citing Ex. 2002, Tanenbaum at 292 ("Among their many attractive features is the fact that a ring is not really a broadcast medium, but a collection of individual point to point links that happen to form a circle.")).

Moreover, Rufino, teaches away from the specialized graphs solutions proposed by Shoubridge and Denes by stating because these solutions are "costly and complex." *See* Goodrich Decl. at ¶ 32 (citing Rufino at 0958 (criticizing specialized graph solutions such as "costly and complex.")). Thus, these three systems operate in fundamentally different ways that would completely redesign Rufino's system to be contrary to its stated goals.

For at least the foregoing reasons, Petitioners have not established a reasonable likelihood that Shoubridge, Denes, and Rufino renders obvious independent claims 1 and 11 of the '147 Patent. Patent Owner respectfully requests, therefore, that the Board decline to institute trial on claims 1–5 and 11–16 under Petitioners' proposed Ground 1.

### 4. Shoubridge in view of Denes and Rufino Fails to Disclose "attempting to send a message from the first computer to the second computer" (claim 6)

Petitioners fail to identify any teaching in Shoubridge, Denes, or Rufino that corresponds to "attempting to send a message from the first computer to the second computer," as affirmatively recited in independent claim 6. Petitioners rely solely on Rufino as allegedly disclosing this claim element. *See* Petition at 30–33. However, the portion of Rufino cited by Petitioners in support of their conclusion only refers the failure to ***pass a token*** from one computer to its successor. *See id.* at 32 (citing Rufino at 962, col. 2 ¶ 9– 963, col. 1 ¶ 1 ("If a station is failed, the token passing operation will not succeed. After the token pass checking period (one slot time) has elapsed a recovery strategy is tried.")).

Token rings like the one disclosed in Rufino operate by passing a token around the ring. The passage of a token does not send or receive any type of disconnect message between stations but rather only "establishes a logical ring over the physical bus." *See* Rufino at 959, ¶ 1 ("Access control is performed by a token passing protocol, which establishes a logical ring over the physical bus."). Accordingly, Petitioners' reliance on Rufino's disclosure regarding "when a station cannot send a message to its successor (because of an unplanned disconnect of the successor)" only refers to the inability to pass a token from a computer to its

successor, not "attempting to send a message from the first computer to the second computer."

For at least the foregoing reasons, Petitioners have not established a reasonable likelihood that Shoubridge, Denes, and Rufino renders obvious independent claim 6 of the '147 Patent. Patent Owner respectfully requests, therefore, that the Board decline to institute trial on claims 7–10 under Petitioners' proposed Ground 1.

### 5. A Person of Skill in the Art Would Not Have Combined Shoubridge, Denes, and Rufino in the Manner Suggested in the Petition

Shoubridge, Denes and Rufino are disparate systems that one of skill in the art would not have been motivated to combine. Here, Petitioners merely offer boilerplate reasons that that do not connect to any specific claim limitation. To the contrary, the law is clear, "Petitioner must show some reason why a person of ordinary skill in the art would have thought to combine particular available elements of knowledge, as evidenced by the prior art, ***to reach the claimed invention.***" *Heart Failure Techs., LLC v. CardioKinetix, Inc.*, IPR2013-00183, Paper No. 12 at 9 (P.T.A.B. July 31, 2013)(citing *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 418 (2007))(original emphasis removed, emphasis added).

Generally, Shoubridge is about a hybrid routing algorithm. The network identified by Petitioners is a simulated network that is not based on a real-world

network. Shoubridge at 1383. Neither Denes nor Rufino are about routing algorithms, modifying a simulation of a network, nor do either have any suggestions on improving a simulation of a network. Goodrich Decl. at ¶¶ 29-32. Shoubridge simulates the adding and removal of a network by modifying the link value and distributing the changes evenly. Goodrich Decl. at ¶ 30; Shoubridge at 1383 ("Changes in network topology are evenly distributed across all links…. If a link failure event is scheduled to occur, a link (i,j) is randomly selected form the L possible links in G, using a uniform distribution."). Neither Denes nor Rufino discuss link values or even distributions of network topologies changes. A POSITA would not have thought to combine Shoubridge, Denes, and Rufino because they are unrelated. Goodrich Decl. at ¶¶ 30-31.

For claim 1(b), Petitioners assert that "it would have been obvious to modify Shoubridge in view of Denes to include the orderly leave in Rufino, with the step of broadcasting a who follows query (connection port search message) on the broadcast channel." Petition at 25. Rufino does not cure the deficiencies of Denes as Rufino does not address receiving disconnect messages in the context of maintaining an m-regular non-complete topology, as required by claim 1(b). As Petitioners concede, "Rufino relates to a token ring which is a 2 regular topology." Petition at 59. Thus, Rufino is directed towards 2-regular systems not "a broadcast

channel, said broadcast channel forming an m-regular graph where m is at least 3." Goodrich Decl. at ¶ 31.

Furthermore, Petitioners never explain how this combination of three different references operate to disclose claim 1(b), which recites "when the second computer receives the disconnect message from the first computer, the second computer broadcasts a connection port search message on the broadcast channel to find a third computer to which it can connect in order to maintain an m-regular graph, said third computer being one of the neighbors on said list of neighbors." '147 Patent at 28:61-67. In other words, Petitioner provides no reason why a person of ordinary skill in the art would have thought to combine particular available elements of Shoubridge, Denes and Rufino, "to reach the claimed invention." *See Heart Failure Techs., LLC v. CardioKinetix, Inc.*, IPR2013-00183, Paper No. 12 at 9 (citing *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. at 418 ("Petitioner must show some reason why a person of ordinary skill in the art would have thought to combine particular available elements of knowledge, as evidenced by the prior art, to reach the claimed invention."). Rather, Petitioners merely reference previous boilerplate reasons that are unspecific to the language recited in claim 1(b). *See* Petition at 26 ("A POSITA would have been motivated to combine the teachings of Shoubridge, Denes, and Rufino for the reasons discussed above…"). At most, Petitioners argue that it would have been obvious to combine

because "Shoubridge teaches the use of its network in a dynamic setting, and Denes and Rufino address the problem of dynamic networks." Petition at 17. This proffered motivation is insufficient as a matter of law, as arguing that the cited references describe dynamic networks is just another way of saying that they are in the same field- which is not sufficient motivation to combine these three references. *OpenTV, Inc. v. Cisco Tech., Inc.*, IPR2013-00328, Paper No. 13 at 21-22 (P.T.A.B. Nov. 29, 2013)("The mere fact that [the cited references] describe similar [] systems is not, by itself, a sufficient rationale for a person of ordinary skill in the art to have made the asserted combination."). In fact, Rufino teaches away from point-to-point graphs such as Denes because Rufino teaches that such solutions are "costly and complex." *See* Goodrich Decl. at ¶ 32; Rufino at 0958 (discussing specialized solutions such as "point-to-point graphs [6] or multiple LANs [7]. These solutions are however costly and complex."). Thus, one of skill in the art would not look to or combine Denes and Rufino because they are directed to completely different technologies and technical problems.

### B. Ground 2: Claims 4, 5, 14, and 16 are not Obvious Over Shoubridge in view Denes, Rufino, and Hirviniemi

Claims 4, 5, 14, and 16 depend from independent claims 1 or 11, which are not obvious over the combination of Shoubridge in view of Denes, and Rufino. *See* § IV.A, *supra*. Petitioners do not argue that Hirviniemi cures any of the deficiencies noted with respect to Ground 1 and, therefore, claims 4, 5, 14, and 16

are not obvious over the combination of Shoubridge, Denes, Rufino, and Hirviniemi for at least the same reasons. Patent Owner respectfully requests, therefore, that the Board not institution *inter partes* review of the '147 Patent under Petitioners' proposed Ground 2. Moreover, a POSITA would not have thought to combine Shoubridge, Denes, Rufino, and Hirviniemi because they are unrelated as discussed above and Hirviniemi does not add any additional information that the Shoubridge authors did not already know. Goodrich Decl. at ¶¶ 33-34.

### C. Ground 3: Claims 8 and 13 are not Obvious Over Shoubridge in view Denes, Rufino, and Balph

Claims 8 and 13 depend from independent claims 1 and 11, which are not obvious over the combination of Shoubridge in view of Denes, and Rufino. *See* § IV.A, *supra*. Petitioners do not argue that Balph cures any of the deficiencies noted with respect to Ground 1 and, therefore, claims 8 and 13 are not obvious over the combination of Shoubridge, Denes, Rufino, and Balph for at least the same reasons. Patent Owner respectfully requests, therefore, that the Board not institution *inter partes* review of the '147 Patent under Petitioners' proposed Ground 3.

### D. Ground 4: Claims 1–16 are not Obvious Over Shoubridge in view Denes, Rufino, and Todd

As described above, Shoubridge in view Denes and Rufino fail to teach the invention claimed in the '147 Patent (*see infra*). For Ground 4, Petitioners propose

adding a fourth reference (Todd) to the proposed combination to cure the previously noted deficiencies of Rufino, namely modifying Rufino "from a 2-regular topology to a 4-regular topology." Petition at 59. But Todd suffers from the same deficiencies as Rufino. In particular, Rufino, does not disclose disconnecting from an m-regular graph where m is at least 3. At most, Petitioners assert that Rufino's token ring is 2-regular. Petition at 24 ("Rufino discloses broadcasting messages on the broadcast channel to maintain a 2-regular graph."). In contrast, the claim language is clear that "m-regular graph" requires "where m is at least 3." *See* '147 Patent at claims 1 and 11 (reciting "an m-regular graph where m is at least 3"). Similarly, Todd makes clear that "each station is two-connected" in the resulting token grid system proposed by Todd. Todd at 1, Col. 1 ("In this paper, a token grid network is introduced where media access is performed over a two-dimensional mesh. In the resulting system, each station is two-connected and has the same transmission hardware and small station latency as in a dual token ring."). Thus, Todd's token grid network does not cure Rufino's failure to disclose disconnecting from an "m-regular graph where m is at least 3."

Just like Rufino, Todd also makes clear that its token grid network relies on token rings, including "the same transmission hardware and small station latency as in a dual token ring." Todd at 1, Col. 1. As described above, one of skill in the art at the time understood that token rings are not a "broadcast medium, but a

collection of individual point to point links that happen to form a circle." Goodrich Decl. at ¶¶ 35-36; Ex. 2002, Tanenbaum at 292 (explaining how one of the many attractive features of ring networks "is the fact that a ring is not really a broadcast medium, but a collection of individual point to point links that happen to form a circle.") In contrast to the claimed computers of the "broadcast channel," each station of token ring cannot send messages (e.g. disconnect or connection port messages). Rather token rings rely on token passing where only one station can transmit at a given instant, namely because there is only one token. Rufino at 0959 ("Access control is performed by a token passing protocol, which establishes a logical ring over the physical bus. Access to the shared broadcast medium for data transmission is only granted to the station which currently holds the token."); *see also* Ex. 2002, Tanenbaum at 293 ("When a station wants to transmit a frame, it is required to seize the token and remove it from the ring before transmitting.... Because there is only one token, only one station can transmit at a given instant…"). Thus, Todd fails to cure the previously noted deficiencies of Rufino because Todd relies on token rings and thus suffers from the same deficiencies as Rufino. Furthermore, Petitioners provide insufficient motivation to combine these four references. For the alleged motivation to combine, Petitioners improperly fail to provide ***any*** reason why one would have been motivated to apply Todd to the teachings of Shoubridge and Denes. Rather, Petitioners solely assert that assert

that a POSITA would been motivated to modify Rufino because it "can be done in 'a very simple fashion' by overlapping token rings." Petition at 60. To the contrary, modifying Rufino to apply Todd would be very complex. Here, Petitioners take the quote 'very simple fashion' out of context, as Todd only states that "couplings between the rings arc implemented by the user stations in a very simple fashion and under token control." Goodrich Decl. at ¶ 38. In order for transmissions to occur using these multiple LANs, Todd requires a convoluted Token Grid Protocol as shown below:

PROTOCOL 1:
BASIC TOKEN GRID PROTOCOL

| | |
|---|---|
| Column Token $j$ Arrives To Station $(i, j)$ : | |
| 1. | Capture the token. |
| 2. | If a packet is available, transmit onto Column Ring $j$. |
| 3. | Hold Column Token $j$. Wait for Row Token $i$. |
| 4. | Done. |
| Row Token $i$ Arrives To Station $(i, j)$ : | |
| 1. | Capture the token if a packet is available for Row Ring $i$ or if Column Token $j$ is being held. |
| 2. | Transmit onto Row Ring $i$ if a packet is available. |
| 3. | If the station is not holding Column Token $j$ then release Row Token $i$ and go to 5. |
| 4. | Enter the SR state. Generate and release Row/Column Token $i, j$. |
| 5. | Done. |
| Row/Column Token $i, j$ Arrives To Station $(i, k)$ : | |
| 1. | Capture the token if a packet is available for Row/Column Ring $i, j$ or if $k = j$. |
| 2. | If a packet is available then transmit onto Row/Column Ring $i, j$. |
| 3. | If $k \neq j$ then release the token and go to 5. |
| 4. | Generate and release Column/Row Token $i, j$. |
| 5. | Done. |
| Column/Row Token $i, j$ Arrives To Station $(k, j)$ : | |
| 1. | Capture the token if a packet is available for Column/Row Ring $i, j$ or if $k = i$. |
| 2. | If a packet is available then transmit onto Column/Row Ring $i, j$. |
| 3. | If $k \neq i$ then release the token and go to 5. |
| 4. | Enter the DR state. Regenerate and release Column Token $j$ and Row Token $i$. |
| 5. | Done. |

*See* Todd at 3 (Protocol 1); *see also* Todd at 3 (Transmission to a station on a different row and column can only be accomplished when a ring merge has occurred…A formal description of the basic algorithm is shown in Protocol 1.") Requiring such a complex protocol is contrary to the goal of Rufino. In fact,

Rufino, teaches away from such specialized solutions using multiple LANs because these solutions are "costly and complex." *See* Rufino at 0958 (discussing specialized solutions such as "point-to-point graphs [6] or multiple LANs [7]. These solutions are however costly and complex."

Petitioners also assert that Todd has been available "no later than 1980." Petition at 59. Thus, Petitioners assert that Todd was available nearly twenty years before the '147 Patent was filed, yet there is no evidence that anyone sought to modify Rufino using Todd to reach the claimed invention. Indeed, this considerable time lapse suggests instead that the Petitioners only traverses the obstacles to this inventive enterprise with a resort to hindsight. *See Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1356-57 (Fed. Cir. 2013)("The elapsed time between the prior art and the '013 patent's filing date evinces that the '013 patent's claimed invention was not obvious to try. Indeed this considerable time lapse suggests instead that the Board only traverses the obstacles to this inventive enterprise with a resort to hindsight . . . Indeed ordinary artisans would not have thought to try at all because they would not have recognized the problem.")

Moreover, Petitioners improperly failed to explain how the references would be modified by Todd to reach the claimed invention. At most, the Petition states that "Ground 4 simply proposes an alternative ground for independent claims 1, 6 and 11 (which require m to be at least 3)" without explaining how Todd provides

an alternative mapping of the charted claim elements in Ground 1. Petition at 60. Thus, Petitioners' tactic of attempting to establish a motivation to combine with no focus on "how specific references could be combined, which combination(s) of elements in specific references would yield a predictable result, or how any specific combination would operate or read on the asserted claims" is insufficient as a matter of law. *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F. 3d 1312, 1327 (Fed. Cir. 2012).

## V. PETITIONERS' OBVIOUSNESS ARGUMENTS FAIL AS A MATTER OF LAW BECAUSE THEY DID NOT CONDUCT A COMPLETE OBVIOUSNESS ANALYSIS

The Petition relies solely on obviousness to challenge the '147 Patent yet Petitioners make no effort to present a complete obviousness analysis. Specifically, both the United States Supreme Court and the Federal Circuit have repeatedly stated that any obviousness analysis must address (1) the scope and content of the prior art, (2) the differences between the prior art and the claims at issue, (3) the level of ordinary skill in the pertinent art, and (4) relevant secondary considerations of non-obviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Failure to address any one of these criteria is fatal to a challenger's obviousness argument as a matter of law. *See, e.g.*, *Apple Inc. v. Int'l Trade Comm'n*, 725 F.3d 1356, 1365–66 (Fed. Cir. 2013) (vacated and remanded ITC's ruling of obvious, as ITC failed to consider all obviousness factors, including

objective evidence of secondary considerations); *see also Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 662-64 (Fed. Cir. 2000) (vacated a conclusion of obviousness because the fact-finder failed to make *Graham* factor findings). Petitioners' failure to present the Board with a complete obviousness analysis in the Petition is, as a matter of law, enough to deny the institution of a trial on all presented grounds.

In this case, Petitioners' failure to even consider the objective indicia of nonobviousness in support of their obviousness allegations is fatal to their obviousness arguments. *Plantronics, Inc. v. Aliph, Inc.*, 724 F.3d 1343, 1355 (Fed. Cir. 2013)("This court has consistently pronounced that all evidence pertaining to the objective indicia of nonobviousness must be considered before reaching an obviousness conclusion."). In fact, the Federal Circuit dictates that "[w]hether before the Board or a court, . . . consideration of the objective indicia is *part* of the whole obviousness analysis, not just an afterthought." *Leo Pharm. Prods., Ltd. v. Rea*, 726 F.3d 1346, 1357–58 (Fed. Cir. 2013)(emphasis in original). In other words, objective indicia of nonobviousness must always be considered as it "serve[s] to resist the temptation to read into the prior art teachings of the invention in issue." *Plantronics*, 724 F.3d at 1355 (citing *In re Cyclobenzaprine Hydrochloride Extended–Release Capsule Patent Litig.*, 676 F.3d 1063, 1076 (Fed. Cir. 2012)). Indeed, Petitioners' failure to consider objective indicia of nonobviousness only serves to further highlight the fact that Petitioners' proposed

combinations were colored by hindsight. *Leo Pharm.*, 726 F.3d at 1358 (quoting *Crocs, Inc. v. Int'l Trade Comm'n*, 598 F.3d 1294, 1310 (Fed. Cir. 2010))("Here, the objective indicia of nonobviousness are crucial in avoiding the trap of hindsight when reviewing, what otherwise seems like, a combination of known elements.").

The fact that Petitioners do not address this important component of the obviousness analysis, and chose to provide the Board with incomplete obviousness analyses, is basis alone for denying the Petition. *See Rambus Inc. v. Rea*, 731 F.3d 1248, 1257 (Fed. Cir. 2013)(overturning Board because it failed to consider objective indicia of nonobviousness).

## VI. CONCLUSION

Petitioners have not established a reasonable likelihood that it will prevail in establishing that claims 1–16 of the '147 Patent are invalid. Patent Owner accordingly requests that the Board deny institution of *inter partes* review of the '147 Patent on Petitioners' proposed grounds.

Respectfully submitted,

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**CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24**

This paper complies with the type-volume limitation of 37 C.F.R. § 42.24. The paper includes 7,796 words, excluding the parts of the paper exempted by §42.24(a).

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**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that a true and correct copy of the foregoing Patent Owner's Preliminary Response to Petition Pursuant to 37 C.F.R. § 42.107 was served on June 28, 2016, by filing this document through the Patent Review Processing System as well as delivering via electronic mail upon the following counsel of record for Petitioner:

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