

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT TRIAL AND APPEAL BOARD

ORACLE CORPORATION

Petitioner,

v.

COMPETITIVE ACCESS SYSTEMS, INC.

Patent Owner.

Case No. IPR2023-00880

U.S. Patent No. 9,350,649

PATENT OWNER'S PRELIMINARY RESPONSE

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TABLE OF PATENT OWNER'S EXHIBITS

Exhibit No.	Description
Ex. 2001	Complaint, <i>Competitive Access Systems, Inc. v. Oracle Corp. and Oracle America, Inc.</i> , Case No. 2:22-cv-00287-JRG, filed July 27, 2022

Patent Owner, Competitive Access Systems, Inc., submits this Patent Owner Preliminary Response (“POPR”) pursuant to 37 C.F.R. 42.107(a) to the *Inter Partes* Review (“IPR”) petition (“Petition”) filed by Oracle Corporation for Claims 1-12, 21, and 23 (“Challenged Claims”) of U.S. Patent No. 9,350,649 (the “’649 Patent”).

I. INTRODUCTION

While living in a rural area, the inventor, Eric Delangis, was unable to obtain high-speed internet. Ex. 2001, 8-9. At the same time, he recognized that many network connections of nearby devices were generally underused. *Id.* Only a subset of the total bandwidth of those nearby connections was utilized at any given time, such that the remaining bandwidth was both unused and unavailable for use. *Id.*; *See* Ex. 1001, 11:42-53. Mr. Delangis sought a commercial product that could pool multiple internet connections to provide the increased bandwidth that he desired, but none was available. Ex. 2001, 8-9.

In response, Mr. Delangis invented a novel multipath connection that routes data over several connections using multiple neighboring “network-edge” devices and combines the data for the intended data-requesting device. *Id.*; Ex. 1001, 12:2-13:3. The multipath connection disclosed and claimed in the ’649 Patent provides an increased bandwidth available to the data-requesting device by combining the excess bandwidth available from the network-edge devices. Ex. 1001, 11:25-56 and

13:13-14:9. To coordinate the multipath connection, the data-requesting device sends messages to the server and/or network-edge devices with the multilink request or a multilink session identification. *Id.*, at 12:2-14 and 46-60.

The Petition sets forth three grounds for challenging Claims 1-12, 21, and 22 of the '649 Patent as shown below. Petition, 17-90. Each of these grounds fails for multiple reasons.

Ground	Basis for Challenge
1	Claims 1-12, 21, and 22 are allegedly obvious over Bender and Maurya
2	Claims 1-12, 21, and 22 are allegedly obvious over Mineno and RFC 793
3	Claims 1-12, 21, and 22 are allegedly obvious over Mineno, RFC 793, RFC 1990, and RFC 1661

Ground 1 fails due to its reliance on Bender. The Petition relies on Bender for “a data-source device receiving multipath information about each of a plurality of network-edge devices” and “the data-source device... sending different groups of data packets to different network-edge devices that are participating in the multipath connection,” as recited in representative Claim 1. In contrast to the '649 Patent, Bender discloses a CDMA system including a node that receives IP data from the internet, converts the IP data to radio waves, and sends the radio waves to radio

elements within a mobile station. This is fundamentally different from the claims of the '649 Patent, and therefore the Petition does not stand a reasonable likelihood of prevailing as the asserted combination of Ground 1 fails to disclose or render obvious the claimed methods.

Ground 2 fails for two reasons. First, the Board should exercise its discretion under 35 U.S.C. § 325(d) and deny institution based on Ground 2 because Petitioner relies on prior art references—Mineno and RFC 793—that have already been considered by the Patent Office without demonstrating any error material to patentability during prosecution. Although Petitioner acknowledges that Mineno and RFC 793 were cited during prosecution, Petitioner does not address the discretionary analysis under 325(d) or present any specific evidence or explanation as to whether the Patent Office erred by not properly considering Mineno and RFC 793. This failure to identify error is reason alone to deny institution on Ground 2.

Substantively, Ground 2 also fails due to its reliance on Mineno. The Petition relies on Mineno for “a data-source device receiving multipath information about each of a plurality of network-edge devices” and “the data-source device... sending different groups of data packets to different network-edge devices that are participating in the multipath connection,” as recited in representative Claim 1. In contrast to the '649 Patent, Mineno discloses a cluster type network that enables a

fixed host to connect to the internet for receiving data and to the cluster network for transferring data, while the remaining mobile hosts are able to receive data from the fixed host through the cluster network. The cluster network of Mineno, however, does not include a data-source device. The fixed host connected to the internet functions as a node to merely transmit data, but does not source the data. This is fundamentally different from the claims of the '649 Patent, and therefore the Petition does not stand a reasonable likelihood of prevailing as the asserted combination of Ground 2 fails to disclose or render obvious the claimed methods.

Finally, Ground 3 fails for the same reasons as Ground 2. Ground 3 differs from Ground 2 in that Petitioner relies on RFC 1990 and RFC 1661 in addition to Mineno and RFC 793. Here, the Board should also exercise its discretion under 35 U.S.C. § 325(d) and deny institution based on Ground 3 because RFC 1990, like Mineno and RFC 793, has already been considered by the Patent Office, and as Petitioner relies on RFC 1661 for the exact same reasons as RFC 1990, which was considered by the Patent Office, the same art and arguments related to RFC 1661 previously have been presented to the Patent Office through RFC 1990. Further, Petitioner fails to demonstrate any error material to patentability during prosecution. Petitioner does not even address the discretionary analysis under 325(d) or present

any argument as to whether the Patent Office erred. This failure to identify error is reason alone to deny institution on Ground 3.

Substantively, Ground 3 also fails for the same reasons that Ground 2 fails. Petitioner relies primarily on the disclosure of Mineno as allegedly disclosing the claimed methods of the '649 Patent, and the additionally cited references, RFC 1990 and RFC 1661, fail to remedy the deficiencies of Mineno noted above with respect to Ground 2.

Further, it is axiomatic that, if the prior art does not demonstrate that an independent claim is unpatentable, it cannot be used to demonstrate that any corresponding dependent claim is also unpatentable. *See Hartness Int'l v. Simplimatic Eng'g Co.*, 819 F.2d 1100, 1108 (Fed. Cir. 1987). Therefore, the Petition fails to demonstrate a reasonable likelihood of success that the Challenged Claims are obvious over any of the identified prior art combinations. Because all of the grounds fail to render obvious the independent claims, the entirety of the Petition should be rejected.

Patent Owner respectfully requests that the Board find the Challenged Claims patentable over Petitioner's challenges and deny institution. 35 U.S.C. § 314(a).

II. SUMMARY OF THE '649 PATENT

A. The Invention of the '649 Patent

The '649 Patent is directed to devices that utilize a multipath connection to increase bandwidth available to a data-requesting device. To provide increased bandwidth, a data-source device sends data packets to the data-requesting device through different connections via network-edge devices before the data-requesting device recombines the data packets. Ex. 1001, 10:36-14:27, Claims 1-17.

As described in the '649 Patent, the multipath connection implements broadband through a multilink PPP bundle 87 comprised of connections between the initiating or data-requesting device 85¹ and neighboring network-edge devices 86. *Id.*, at 11:35-67-12:07. Each network-edge device 86 assesses its available bandwidth based on the respective device's currently available bandwidth and the current local demands for that bandwidth, and determines whether it can join the multilink PPP bundle 87. *Id.*, at 12:05-13. If the device indicates that it can join, the data-requesting device 85 then sends the multilink initialization packet containing

¹ The '649 Patent refers to a residential communications gateway ("RCG") throughout the specification. For clarity, the term "RCG" is used interchangeably with "device" throughout this POPR.

the multilink PPP session ID and any other pertinent information required for the remote RCG 86 to join in the existing multilink PPP bundle 87. *Id.*, at 12:24-35. In response, each network-edge device 86 sends a multilink PPP packet to the destination URL with the multilink PPP session ID and requests to be added to the multilink PPP bundle 87. *Id.*, at 12:35-41. When the network-edge devices 86 receive data packets destined for the multilink PPP bundle 87, they simply relate the data packets to the initiating device 85. *Id.*, at 12:41-48.

The innovative multipath connection unlocks higher network speeds, increased availability, and greater efficiency. Transmitting and receiving data over multiple communication channels and aggregating the transmitted data improves the effective bandwidth between the sender and recipient of the data. *See, e.g., Id.*, at 11:21-35. In addition to increasing speeds, the multipath connection also enables data transfers over different connections when certain connections are unavailable, and utilizes bandwidth that otherwise is unused. *Id.*, at 11:47-14:28.

The '649 Patent includes 23 claims, including five independent claims. Independent Claims 1, 7, and 21 of the Challenged Claims are reproduced below, separated by limitation:

Claim 1	
Identifier	Claim Element
[1pre]	A method for establishing and sending data during a multipath connection comprising:
[1a]	a data-source device receiving multipath information about each of a plurality of network-edge devices that is capable of joining a multipath connection with a data-requesting device,
[1b]	each of the network-edge devices being connected to one or more networks, and
[1c]	each of the network-edge devices being connected to the data-requesting device over a different connection; and
[1d]	the data-source device performing at least one of (i) sending different groups of data packets to different network-edge devices that are participating in the multipath connection, (ii) sending different streams of data to one or more of the network-edge devices that are participating in the multipath connection, and (iii) sending combinations of different streams and different groups of data packets to one or more of the network-edge devices that are participating in the multipath connection.

Claim 7	
Identifier	Claim Element
[7pre]	A method for establishing and sending data during a multipath connection, comprising:

Claim 7	
Identifier	Claim Element
[7a]	the data-source device receiving multipath connection requests from a plurality of data-requesting devices, each of the multipath connection requests involving a particular multipath connection to a data-requesting device;
[7b]	the data-source device associating a connection ID to each multipath connection request;
[7c]	the data-source device using multipath information about each of a plurality of network-edge devices that is capable of joining in a particular multipath connection to a particular data-requesting device, the particular multipath connection having a particular connection ID;
[7d]	the data-source device notifying each of the network-edge devices that is participating in the particular multipath connection associated with the particular connection ID; and
[7e]	the data-source device sending data associated with the particular connection ID to the network-edge devices participating in the particular multipath connection associated with the particular connection ID.

Claim 21	
Identifier	Claim Element
[21pre]	A method for creating and using a multipath connection, comprising the steps of:

Claim 21	
Identifier	Claim Element
[21a]	a data-requesting device sending first multipath control information to or through a first network-edge device, the first multipath control information indicates that the first network-edge device will join the multipath connection, the data-requesting device being connected over a first connection to the first network-edge device;
[21b]	the data-requesting device sending a second multipath control information to or through a second network-edge device, the second multipath control information indicates that the second network-edge device will join the multipath connection, the data-requesting device being connected over a second connection to the second network-edge device, the data-requesting device capable of receiving different data over the first connection and the second connection at the same time; and
[21c]	after the first network-edge device joins the multipath connection, the data-requesting device receiving first data over the first connection from the first network-edge device; and
[21d]	after the second network-edge device joins the multipath connection, receiving second data at the data-requesting device over the second path from the second network-edge device.

B. Prosecution of the '649 Patent

U.S. Patent Application No. 14/512,414 (the "'414 Application") issued as the '649 Patent. Ex. 1002, 1. The '414 Application included original independent Claims 1, 7, 13, and 18, and dependent Claims 2-6, 8-12, 14-17, 19, and 20, each of which was amended for clarification in a preliminary amendment. *Id.*, at 429-435. In the first Office Action dated August 18, 2015, the Examiner rejected Claims 1-3, 6-8, and 11-20 as anticipated by U.S. Patent No. 6,496,477 to Perkins ("Perkins") and rejected Claims 4, 5, 9, and 10 as obvious over Perkins in view of U.S. Publication No. 2002/0150099 to Pung ("Pung"). *Id.*, at 441-444.

The Applicant then amended independent Claims 1 and 7 to require "a data-source device receiving/using multipath information about each of a plurality of network-edge devices that is capable of joining a (particular) multipath connection with a (particular) data-requesting device" and added independent Claim 21 and Claims 22 and 23 dependent thereon. *Id.*, at 461-470. In the second and final Office Action, the Examiner rejected Claims 1-3, 6-8, and 11-23 as obvious over Perkins in view of U.S. Publication No. 2001/0037472 to Li ("Li") and U.S. Patent No. 8,370,507 to Cain ("Cain") and rejected Claims 4, 5, 9, and 10 as obvious over Perkins in view of Li and Pung. *Id.*, at 515-520. In response, Applicant argued

against the rejections without amending the claims, and the Examiner then allowed the claims. *Id.*, at 531-540.

C. Claim Construction

The Petition was filed after November 13, 2018, and, as such, the proper claim construction standard to be applied is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*), in accordance with its regulation, 37 C.F.R. § 42.100(b); *Apple Inc. v. Firstface Co.*, No. 2021-1001, 2021 WL 4156323, at *1 n.1 (Fed. Cir. Sept. 13, 2021). Therefore, these claims should be “given their ordinary and customary meaning [and] that the ordinary and customary meaning of a claim term is the meaning that the term would have to a [POSITA] in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312-13.

1. “A method for establishing and sending data during a multipath connection” (Claims 1 and 7)

Petitioner asserts that the limitation “[a] method for establishing and sending data during a multipath connection” in Claims 1 and 7 would require “a method for establishing... data.” Petition, 15. Patent Owner disagrees. However, for purposes of this POPR only, Patent Owner does not dispute the following construction proposed by Petitioner: “[a] method for establishing [a multipath connection] and sending data during [the] multipath connection.”

2. “multipath connection” (All Claims)

Petitioner asserts that “[Patent Owner] has stated that a “multipath connection” is a connection that “uses multiple network connections to transfer data,” citing documents filed by Patent Owner in a parallel district court proceeding. Petition, 16 (citing Ex. 1021, 5-6, 13). For purposes of this POPR only, Patent Owner does not dispute the proposal provided by Petitioner.

Petitioner also asserts that “[Patent Owner] contends that a ‘multipath connection’ can be satisfied by a MLPPP connection or a multipath TCP connection” (Petition, 16 (citing *id.*; Ex. 1011), citing documents filed by Patent Owner in a parallel district court proceeding. Patent Owner does not agree that such contention has been made, particularly given the lack of definition of “MLPPP connection.” Patent Owner notes that Applicant cited the non-patent literature document entitled *RFC 1990: The PPP Multilink Protocol* (“RFC 1990”), which describes the industry standard for the multilink PPP protocol as of its publication in August 1996, as prior art in an information disclosure statement during prosecution of the ’649 Patent.

3. “the data source device receiving second multipath information...” (Claim 3)

Petitioner proposes the following construction of the limitation “[the] data-source device receiving second multipath information about a second network-edge device that is capable of joining the multipath connection” in Claim 3: “[the] data-

source device receiving additional (“second”) multipath information about an additional (“second”) network-edge device that is capable of joining the multipath connection.” For purposes of this POPR only, Patent Owner does not dispute the proposal provided by Petitioner.

4. “the particular multilink connection” (Claim 10)

Petitioner proposes the following construction of the limitation of Claim 10: “[the] particular multipath (“multilink”) connection.” Petition, 16. Patent Owner does not dispute this construction for purposes of this POPR.

D. Level of Ordinary Skill in the Art

For purposes of this POPR only, Patent Owner does not dispute the proposal provided by Petitioner that a person of ordinary skill in the art (“POSITA”) “would have had a bachelor’s degree in electrical engineering with at least three years of work experience in the field, or a master’s degree with specialization in the field. A person with less education but more relevant practical experience may also meet this standard... A POSITA would have had the knowledge and skills to:

- Use computers to access webpages/data from Internet servers;
- Recognize/apply the client-server architecture;

- Use concepts from known telecommunications/networking standards, including TCP, MLPPP, IEEE 802.11, 802.3, and cellular including CDMA, etc.; and
- Design systems for routing packets through packet-switched networks.”

Petition, 14-15. Patent Owner reserves the right to dispute this proposal in this IPR, in any related litigations, and in other proceedings involving the '649 Patent or any related patents.

III. THE PETITION FAILS TO ESTABLISH A REASONABLE LIKELIHOOD THAT PETITIONER WILL PREVAIL ON ANY SINGLE CLAIM UNDER GROUNDS 1-3

A. Ground 1: The Petition Does Not Establish that Claims 1-12, 21 and 22 Would Have Been Obvious over Bender and Maurya

U.S. Publication No. 2003/0223450 to Bender (“Bender”) and U.S. Patent No. 6,160,808 to Maurya (“Maurya”) do not render obvious Claims 1-12, 21 and 22 of the '649 Patent. As discussed below, Petitioner fails to show that the Bender-Maurya combination discloses all elements of independent Claims 1, 7, and 21, which in turn fails to disclose all elements of the claims dependent therefrom. Petitioner also fails to identify any motivation to combine these prior art references. Therefore, the Petition fails to demonstrate that the Challenged Claims are unpatentable under Ground 1, and the Board should therefore deny institution under 35 U.S.C. § 314(a).

1. Asserted References

a. Bender

Bender is directed to a system that utilizes code division multiple access (CDMA), a spread-spectrum technique that spreads the bandwidth of data of multiple signals on a channel so that the network can carry multiple transmissions simultaneously on a single channel without interfering with one another. *See* Ex. 1004, ¶ 3. The CDMA system of Bender uses a multi-link protocol, such as the multilink PPP protocol of RFC 1990, to connect a mobile station 106 to a packet data service node (PDSN) 130 on a cellular network. *Id.*, at ¶¶ 23, 25, 39. As the maximum throughput between the PDSN 130 and the mobile station 106 is dictated by the slowest connection in the link, the CDMA system of Bender utilizes multiple air interfaces, or radio elements 210, at the mobile station 106 to receive data from the PDSN 130. *Id.*, at ¶ 5.

The PDSN 130 can sink data to or source data from an external network, such as a data application or the internet. *Id.*, at ¶ 32. The PDSN 130 sends data through interface connections 530N to the base station 104, which sends data wirelessly to multiple air interfaces 540N of the mobile station 106. *Id.*, at ¶ 22. Fig. 5 reproduced below illustrates the links 520N between the PDSN 130 and the mobile station 106.

Id., at Fig. 5. Wireless interfaces or radio elements 210 receive the data at the mobile station 106. *Id.*, at ¶ 25.

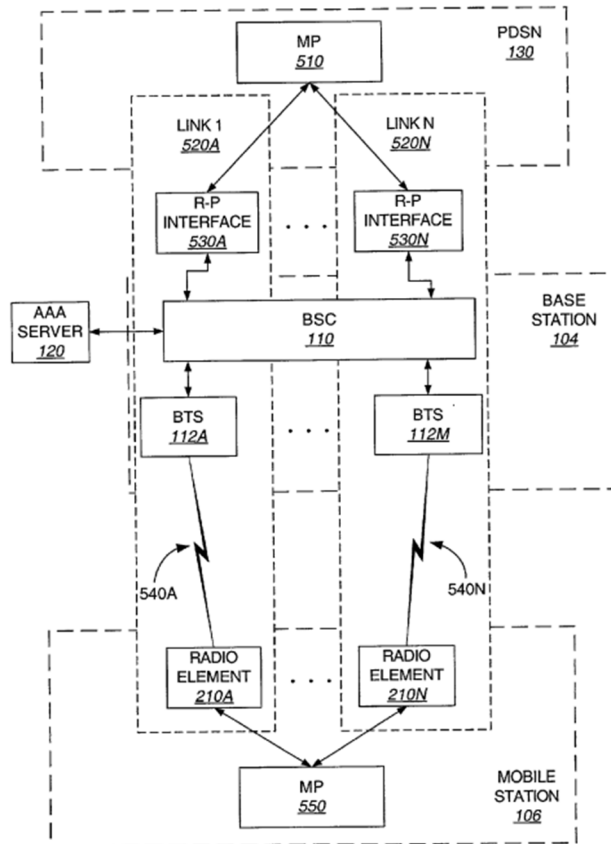


FIG. 5

The CDMA system of Bender also discloses a method for establishing the link that authenticates and verifies each radio element 210N associated with its respective mobile station 106. *Id.*, at ¶¶ 33-38. The mobile station 106 associates a link identifier with each radio element 210N. *Id.*, at ¶ 33. The radio element 210N sends its link identifier and the subscriber identifier, which is common to all radio elements

of the same mobile station 106, to the base station 104 for authentication. *Id.*, at ¶¶ 34-35.

The base station 104 consults an AAA server 120, which stores shared secret or key information for each subscriber. *Id.*, at ¶ 36. The base station 104 sends an access request to the AAA server 120 with the subscriber identifier and receives a list of link identifiers associated with the subscriber identifier in return. *Id.*, at ¶ 37. If the link identifier provided among the radio element is among those associated with the subscriber identifier provided by the AAA server 120, then the base station 104 can proceed to complete the link with the PDSN 130. *Id.*, at ¶ 38.

Once each link 520N is established, the links 520N may be connected via a multi-link protocol 550 in the mobile station 106 or merged with existing links 520N already merged using multi-link protocol 510 in the PDSN. *Id.*, at ¶¶ 25, 39. Merging with additional links is accomplished by the radio element 210 sending a Link Control Protocol Endpoint Discriminator Option (“EDO”) that specifies the same <class, address> pair as the <class, address> pair of the links already merged with multi-link protocol 210 as described in RFC 1990. *Id.*

b. Maurya

Maurya is directed to a multi-link PPP protocol that enables two integrated services digital network (ISDN) peers to transmit data over multi-link transmission

channels. Ex. 1005, 5:7-6:12. Under conventional multi-link point-to-point (PPP) protocols, data is encapsulated into packets and transmitted through a network of single-link transmission channels between two fixed peers. The receiving peer assembles packets in order of their receipt, which works easily when using single-link transmission channels. Such conventional ordering is problematic when each transmission channel individually includes multiple links. *Id.*, at 3:66-4:35.

Conventional multi-link PPP packets include information that enables the multi-path connection, including a header portion identifying a multi-path connection, the encapsulated segmented data, and a sequence number. *Id.*, at 8:25-9:13, Figs. 2 and 3. The sequence number increases by one with each successive packet and the sequence number is used by the receiving peer to reassemble the segments into the proper order to reconstruct the data. *Id.*, at 3:28-35. When conventional single-link transmission channels are used between the fixed peers, the sending peer distributes packets in a round-robin basis among the several links, and the receiving peer extracts the segments from the received packets for reassembling into the PPP frame based on the sequential sequence numbering. *Id.*, at 3:28-35, 5:59-6:05.

Maurya is directed to a multi-path protocol 600 that enables a multi-path connection over transmission channels 630_n that each includes multiple links. *Id.*, at

11:59-63, Fig. 6A. When peers use multi-link transmission channels 630_n , data packets are sent over each channel 630_n to the respective ISDN terminal adapters 661_n and then forwarded to the receiving peer, e.g., the server computer 665. *Id.*, at 11:40-12:10. Because each individual channel 630_n includes pairs of links 632, 634, conventional sequence numbering in standard packets sent over these links 632, 634 would result in gaps between packets sent to the receiving peer 665, which would be unable to reassemble the received packets. *Id.*, at 12:36-65.

The multi-link protocol of Maurya packetizes each individually-transmitted packet as the segmented data within a second layer of packetized data in the multi-link PPP stream, creating a “multi-multi link packet.” *Id.*, at 15:22-56 and Fig. 6C. Once the receiving terminal adapter 660_n receives the multi-multi link packets, the receiving terminal adapter 660_n orders the packets based on the sequence number in its multi-multi link header, then strips each multi-multi link packet of its multi-multi link header, and finally transmits the packets in their proper order to the server computer 665. *Id.*, at 17:9-19.

Maurya also discloses sending an endpoint discriminator value unique to the originating device to each sending terminal adapter 620_n , which, in turn, sets the value of its own endpoint discriminator to match that of the sending peer 610. *Id.*, at 9:35-49 and 13:61-14:21. While each sending terminal adapter 620_n negotiates with

a corresponding receiving terminal adaptor 660_n, each terminal adaptor 620_n sends the same endpoint discriminator value of the sending peer 610 to its receiving terminal adapter 660_n.

2. Independent Claim 1

Each of Bender and Maurya disclose two fixed peers transmitting data through a multilink PPP connection, with one or both peers including multiple interfaces or terminals. Petitioner's arguments that Claim 1 is obvious over the Bender-Maurya combination fail because neither reference teaches or suggests a multipath connection utilizing distinct network-edge devices as required by Claim 1. This deficiency is demonstrated by the Bender-Maurya combination failing to teach or suggest: (a) "a data-source device receiving multipath information about each of a plurality of network-edge devices that is capable of joining a multipath connection with a data-requesting device;" (b) "each of the network-edge devices being connected to the data-requesting device over a different connection;" or (c) "the data-source device... sending different groups of data packets to different network-edge devices that are participating in the multipath connection," as required under Claims 1-6.

a. “a data-source device receiving multipath information about each of a plurality of network-edge devices”

Claim 1 requires “a data-source device receiving multipath information about each of a plurality of network-edge devices.” Ex. 1001, Claim 1. According to Petitioner, the PDSN 130 of Bender receiving an EDO from the radio elements 210N of the mobile station 106 satisfies this limitation. *See, e.g.*, Petition, 25. This argument fails because (i) the EDO simply identifies existing links and does not include multipath information about a radio element and (ii) the radio elements are not network-edge devices.

In the multilink PPP connection of Bender, a radio element 210N sends an LCP Configure Request with an EDO to the PDSN 130 in order to join an existing PPP connection. Ex. 1004, ¶ 39. Bender explicitly teaches that the EDO specifies the same <class, address> pair as the <class, address> pair of links between fixed devices that are already merged with the PPP Multilink Protocol 510 of the PDSN 130. *Id.* Bender continues on to direct the reader to RFC 1990, entitled “Multilink PPP,” and RFC 1661, entitled “The Point-to-Point Protocol (PPP)” for details. *Id.* RFC 1990 clarifies that the EDO “advises a system that the peer on this link could be the same as the peer on another existing link... If this option matches the class and address of some other peer of an existing link, the new link must be joined to the bundle containing the link to the matching peer...” Ex. 1009, 15. Therefore, the

EDO includes information relating to an existing link and/or an adjacent peer connected to an existing link, and does not include any information related to the radio element that sends it.

Petitioner argues that the EDO amounts to the claimed “multipath information about the radio element that sent it because it includes a class-address pair for that radio element.” Petition, 25. Simply sending an EDO does not transform the EDO, which consists of details identifying existing links between neighboring peer devices, into information “about” the element sending the EDO. The multipath information in the EDO is not related to the radio element.

Additionally, Claim 1 requires the data-source device to receive multipath information about each of a plurality of network-edge devices. Ex. 1001, Claim 1. Petitioner argues that the radio elements 210N are “network-edge devices,” but the radio elements 210N are actually components of the mobile station 106 that enable its functionality. The radio elements 210N contained within a single mobile station 106 are simply wireless interfaces that enable the processor 230 of the mobile station 106 to receive data.² *See, e.g.*, Ex. 1004, ¶ 25. The link 520N between the PDSN 130

² Petitioner asserts that “Bender teaches its processor and radio elements as separate devices, either inside the same or separate mobile stations.” *See* Petition, 23. This

and the mobile station 106 can *only* be established if the radio element 210N is authenticated with the respect to its associated mobile station 106. Ex. 1004, ¶¶ 34-38. Therefore, the radio elements 210N are components of the mobile station 106 and correspond to the claimed data-requesting device, rather than to the claimed plurality of network-edge devices.

Therefore, the Bender-Maurya combination does not teach or suggest a data-source device receiving multipath information about each of a plurality of network-edge devices, as required in Claims 1-6.

b. “each of the network-edge devices being connected to the data-requesting device over a different connection”

Independent Claim 1 requires that each network-edge device be connected to the data-requesting device over a different connection. Ex. 1001, Claim 1 (Claim Element 1b). Petitioner’s argument that each radio element is connected to the processor of the mobile station 106 over a different connection, including different physical and/or logical connections, is based purely on speculation and not on the disclosure of Bender. *See* Petition, 27.

assertion is based on a mischaracterization of Bender. There is no disclosure in Bender that the processor 230 and the radio elements 210N are on separate mobile stations.

As an initial matter, the radio elements 210N of Bender are components of the data-requesting device and not network-edge devices for the reasons noted above. *See* Section III(A)(2)(a). Petitioner’s arguments fail at least because Bender does not teach or suggest any network-edge devices connected to the data-requesting device.

Further, even if the radio elements 210N are considered to be network-edge devices (they are not), there is no explicit teaching that each of the plurality of radio elements is connected to the data-requesting device over a *different connection*. Bender discloses that “[t]he radio elements 210A-210N are connected to processor 230... for aggregating the data from radio elements 210A-210N.” Ex. 1004, ¶ 25. Bender also states that the “[p]rocessor 230 may perform some or all of the functions of radio elements 210A-210N.” *Id.* at ¶ 27. Given the limited information, a POSITA could assume that the radio elements 210 are formed integrally with the processor 230 or connect to the processor 230 through a common wired or wireless bus or other suitable connection means. *See Id.* at ¶ 25.

Accordingly, Petitioner’s argument that the Bender-Maurya combination teaches or suggests each of the network-edge devices being connected to the data-requesting device over a different connection, as required in Claims 1-6, fails.

c. “the data-source device... sending different groups of data packets to different network-edge devices that are participating in the multipath connection”

Claim Element 1d recites “the data-source device... sending different groups of data packets to different network-edge devices that are participating in the multipath connection.” Ex. 1001, Claim 1. Petitioner’s argument fails because the radio elements 210N are part of the data-requesting device and not different network-edge devices.

As noted above, the radio elements 210 of Bender are simply wireless interfaces within the mobile station 106, and therefore are components of the data-requesting device instead of the network-edge devices. *See* Section III(A)(2)(a). Therefore the PDSN 130 of Bender sends different data packets directly to the data-requesting device and not to different network-edge devices.

Additionally, Bender utilizes a multi-link PPP connection to transmit data between the node 130 and the mobile station 106 and points to RFC 1990, which clarifies that a multi-link PPP connection is only capable of transferring data between two connected endpoints. Ex. 1004, ¶ 39; *see also* Ex. 1009, § 2 (“The goal of multilink operation is to coordinate multiple independent links between a fixed pair of systems...”). Bender does not teach or even suggest sending data packets to devices outside of the two connected endpoints of the multi-link PPP connection. In

contrast, the presently claimed method implements a multipath connection that routes data from a data-source device to different network-edge devices as recited in Claim element 1d.

Therefore, Bender and Maurya fail to disclose a data-source device that sends different groups of data packets to different network-edge devices that are participating in the multipath connection, as required in Claims 1-6.

Accordingly, a POSITA would understand that the Bender-Maurya combination does not render obvious Claim 1, and Claims 2-6 dependent thereon.

3. Independent Claim 7

Bender and Maurya do not render independent Claim 7 obvious because the Bender-Maurya combination fails to teach or suggest (a) “the data-source device associating a connection ID to each multipath connection request” or (b) “the data-source device using multipath information about each of a plurality of network-edge devices.”

a. “the data-source device associating a connection ID to each multipath connection request”

Petitioner has failed to show that the Bender-Maurya combination discloses, teaches, or suggests “the data-source device associating a connection ID to each multipath connection request” required under Claim element 7b. Petitioner instead

mixes, matches, and rearranges elements of the system in an attempt to reach the claim limitation.

Petitioner points to the LCP Configure Requests as corresponding to the claimed multipath connection request and to the <class, address> pair as corresponding to the claimed connection ID. Petition, 40. But the <class, address> pair is a default identifier derived from an existing peer's connection details as set forth in RFC 1990. Ex. 1009, § 5.1.3 ("This option advises a system that the peer on this link could be the same as the peer on another existing link.").

In contrast, Claim element 7b is a method step requiring *the data-source device* to associate a connection ID to each multipath connection request. Ex. 1001, Claim 7. It is clear that the PDSN 130 of Bender does not perform the step of associating the connection ID with each multipath connection request, as required under Claim 7.

Thus, the Bender-Maurya combination does not disclose "the data-source device associating a connection ID to each multipath connection request," as required by Claims 7-12 of the '649 Patent.

b. "the data-source device using multipath information about each of a plurality of network-edge devices"

Claim element 7c specifies "the data-source device using multipath information about each of a plurality of network-edge devices." Ex. 1004, Claim 7.

Similar to arguments made with respect to Claim element 1d above, Petitioner's argument that the PDSN 130 of Bender using an EDO from the radio elements 210N of the mobile station 106 satisfies this limitation fails because (i) the EDO simply identifies existing links and does not include multipath information about a radio element and (ii) the radio elements are not network-edge devices.

Petitioner relies on the radio elements 210N of Bender sending an LCP Configure Request with an EDO to the PDSN 130 in order to join an existing PPP connection. Ex. 1004, ¶ 39. But Bender explicitly teaches that the EDO specifies the same <class, address> pair as the <class, address> pair of links between fixed devices that are already merged with the PPP Multilink Protocol 510 of the PDSN 130. *Id.*; *see also* RFC 1990.

Petitioner argues that the EDO is “multipath information about the radio element that sent it because it includes a class-address pair for that radio element.” Petition, 25, 40. As noted above, the EDO is not transformed into multipath information about the radio element simply because the radio element sends the LCP packet with the EDO. *See* Section III(A)(2)(a).

Further, Petitioner's argument also fails because the radio elements 210N are components of the mobile station 106. The radio elements 210N are contained within a mobile station 106, and the link 520N between the PDSN 130 and the radio element

210N can only be established if the radio element 210N is authenticated with the respect to its associated mobile station 106. Ex. 1004, ¶¶ 34-38. Therefore, the radio elements 210N correspond to the claimed data-requesting device, rather than to the claimed plurality of network-edge devices. *See* Section III(A)(2)(a).

Thus, Bender fails to disclose or suggest multipath information about each of a plurality of network-edge devices. Therefore Bender fails to disclose or suggest a data-source device using such multipath information, as required by Claims 7-12 of the '649 Patent.

Accordingly, the POSITA would understand that the Bender-Maurya combination does not render obvious Claim 7, and Claims 8-12 dependent thereon.

4. Independent Claim 21

Bender and Maurya do not render obvious independent Claim 21 because the Bender-Maurya combination fails to teach or suggest (a) “a data-requesting device sending first multipath control information to or through a first network-edge device, the first multipath control information indicates that the first network-edge device will join the multipath connection” or (b) “the data-requesting device sending a second multipath control information to or through a second network-edge device, the second multipath control information indicates that the second network-edge device will join the multipath connection.”

- a. **“a data-requesting device sending first multipath control information to or through a first network-edge device, the first multipath control information indicates that the first network-edge device will join the multipath connection”**

Claim element 21a requires the data-requesting device to send first multipath control information to or through a first network-edge device, the first multipath control information indicating that the first network-edge device will join the multipath connection. Ex. 1001, Claim 21. Petitioner argues that Bender discloses the processor 230 of the mobile station 106 performing this step, but Bender makes no such disclosure. *See* Petition, 45-47.

First, Petitioner’s argument fails because Bender does not include network-edge devices. *See* Section III(A)(2)(a). Petitioner points to the radio elements 210N as corresponding to the claimed network-edge devices, but the radio elements 210N are components of the mobile station 106 and correspond to the data-requesting device, not the network-edge devices.

Further, Petitioner argues that the processor 230 uses the EDO, corresponding to the claimed multipath control information, to “associate each link with an aggregate bundle” by sending the same <class, address> pair to each radio element 210 in the mobile station 106. Petition, 47. But Bender states that the radio elements send the LCP Configure Requests with the EDO:

The [radio element] e1 establishes the first link (link1). The [radio element] e2 establishes the second link (link2). The e2 indicates that it wants link2 to be “merged” with link 1 through multi-link PPP, which may be implemented according to RFC 1990 by e2 sending an LCP option (Endpoint Discriminator Option) specifying the same <class, address> pair as the <class, address> pair associated with link1.”

Ex. 1004, ¶ 45; *see also, Id.*, at ¶ 39. Therefore Bender discloses that the radio element 210 sends the <class, address> pair (the EDO) to the PDSN 130 to join an existing multilink bundle.

Petitioner points to the multilink protocol 550 in the mobile station 106 as support for the assertion that it was obvious for the processor 230 of Bender to send the EDO because the processor 230 controls the multilink protocol 510. Petition, 47. But Bender explicitly states that the multi-link protocol 510 *in the PDSN 130*, not the multilink protocol 550 in the mobile station 106, receives the LCP Configure Request from the radio elements 210N. Ex. 1004, ¶ 39. Bender does not even suggest that the multilink protocol 550 of the mobile station 106 controls packets sent to the radio elements 210N. Bender discloses that, once established between a radio element 210 and PDSN 130, a link 520 “may be connected with the multi-link protocol 550 in mobile station 106.” *Id.*

It is clear that the radio elements e1, e2 send the appropriate packets to establish the links, and that once established, the links may then connect with the

multi-link protocol 550 of the mobile station 106 such that the processor 230 does not send the EDO to or through the radio elements 210N.

Alternatively, if the radio elements 210N are considered to be part of the data-requesting device, Bender fails to satisfy Claim element 21a under this interpretation because the radio elements 210N as the data-requesting device do not send the multipath control information to or through any network-edge devices as required under Claim 21. Instead, the radio elements 210N merely send the LCP Configure Option directly to the PDSN 130.

Therefore, Bender and Maurya do not teach or suggest a data-requesting device sending first multipath control information to or through a first network-edge device, the first multipath control information indicates that the first network-edge device will join the multipath connection, as required in Claims 21 and 22.

- b. “the data-requesting device sending a second multipath control information to or through a second network-edge device, the second multipath control information indicates that the second network-edge device will join the multipath connection”**

Similar to the argument regarding Claim element 21a above, Petitioner has failed to show that the Bender-Maurya combination discloses, teaches, or suggests “the data-requesting device sends second multipath control information to or through a second network-edge device, the second multipath control information indicates

that the second network-edge device will join the multipath connection” required under Claim element 21b. *See* Section III(A)(4)(a).

As noted above, the radio elements 210 of Bender, and not the processor 230, send the LCP Configure Requests with the EDO to the PDSN 130. *Id.* Therefore, Petitioner’s argument fails because the radio elements 210, corresponding to the network-edge devices, send the multipath control information. *See* Section III(A)(4)(a).

Alternatively, under the interpretation of the radio elements 210N as part of the data-requesting device, Bender fails to satisfy Claim element 21b because the radio elements 210N merely send the LCP Configure Option directly to the PDSN 130. The data-requesting device does not send the multipath control information to or through any network-edge devices, indicating that such network-edge devices will join the multipath connection, as required under Claim 21.

Bender and Maurya do not teach or suggest a data-requesting device sending a second multipath control information to or through a second network-edge device, the second multipath control information indicates that the second network-edge device will join the multipath connection,” as required in Claims 21 and 22.

Accordingly, the POSITA would understand that the Bender-Maurya combination does not render obvious independent Claim 21 or dependent Claim 22.

5. Petitioner Fails to Show Motivation to Combine Bender and Maurya

The Petition asserts that a POSITA would have been motivated to combine Bender and Maurya because both use a multilink PPP and because both references merge links using an EDO. Petition, 17-19. However, Bender and Maurya are readily distinguishable systems that address different problems with no common features that would motivate the POSITA to combine them. Bender addresses the problem of increasing throughput within a CDMA system on a cellular network by adding air interfaces. Ex. 1004, ¶ 8. Maurya addresses the problem of implementing a multilink PPP protocol on multiple transmission channels, where each transmission channel is an ISDN that individually includes multiple links. Ex. 1005, 3:66-4:35. Although Bender and Maurya are each concerned, in their own ways, with communication systems, this is not sufficient to establish that a POSITA would have an objective reason to combine the references or that the resultant combination would have been obvious. Rejection of a claim based on obviousness cannot be sustained by mere conclusory statements; there must be some articulated reasoning with some rational underpinning to support the conclusion of obviousness. *KSR v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Further, the systems of Bender and Maurya are not compatible in any manner. Bender is solely focused on CDMA systems that transmit data between a PDSN 130

and a mobile station 106 using air interfaces. *See* Ex. 1004, ¶¶ 4, 18, 21-22. Maurya is solely focused on the use of multiple multi-link ISDN terminals within a multilink PPP connection. *See* Ex. 1005, 1:09-5:04. Neither Bender nor Maurya provides any motivation to modify the CDMA system of Bender to implement use of the multi-multi link packets as taught by Maurya because the multi-link PPP connection of Bender does not include multiple individual channels that each include multiple links. Nor would a POSITA expect to have any reasonable likelihood of success of modifying nodes of Bender to include such terminals.

Petitioner argues that each of Bender's and Maurya's use of an EDO renders the teachings "complimentary." Petition, 17. Use of an EDO in the multilink protocol of the CDMA system of Bender and of the ISDN-based system of Maurya does not mean that the disclosures are "complimentary" in any meaningful way. The EDO was commonly used in multi-link PPP connections as demonstrated by RFC 1990. *See* Ex. 1009. A POSITA would not have been motivated to combine Bender and Maurya simply due to each system's use of an EDO.

Even if it could be argued that the references are combinable, the mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417, 82 USPQ2d

1385, 1396 (2007). The Petition fails to articulate any reasoning why, given the vastly different systems disclosed in Bender and Maurya, a POSITA would have considered the results of the proposed combination to be predictable.

Further, “rejections on obviousness cannot be sustained by mere conclusory statements; there must be some articulated reasoning with some rational underpinning to support the conclusion of obviousness. *KSR*, at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). The Petition merely provides a conclusory statement devoid of any rational underpinning to support the legal conclusion of obviousness.

As articulated in the Petition, Ground 1 fails to present a legally sufficient motivation to combine Bender and Maurya. Accordingly, Ground 1 fails for at least this reason and institution should be denied.

B. Ground 2: The Board Should Deny Institution Because the Examiner Did Not Err in Allowing the Challenged Claims Over Mineno and RFC 793 and, Alternatively, Because the Petition Does Not Establish that Claims 1-12, 21 and 22 Would Have Been Obvious over Mineno and RFC 793

Ground 2 alleges that Claims 1-12, 21 and 22 are obvious over the combination of the non-patent literature document entitled *Multiple Paths Protocol for a Cluster Type Network* by Mineno et al. (“Mineno”) and the non-patent literature document entitled *RFC 793: Transmission Control Protocol* (“RFC 793”). Both

Mineno and RFC 793 were considered by the Patent Office during prosecution and Petitioner fails to identify any error material to patentability by the Patent Office during prosecution. Accordingly, the Board should deny institution based on Ground 2 under 35 U.S.C. § 325(d).

The Petition also fails to demonstrate that Mineno and RFC 793 disclose all limitations of independent Claims 1, 7, and 21 and the claims depending therefrom. As such, the Petition therefore fails to demonstrate that the Challenged Claims are unpatentable under Ground 2 and institution should be denied under 35 U.S.C. § 314(a).

1. Asserted References

a. Mineno

Mineno is directed to a SHAKE protocol that shares data over multiple paths in a cluster type or ad hoc network, i.e., a LAN-based temporary network of mobile hosts to support cooperation for people gathered in an area. Ex. 1006, ¶ 3. The Mineno SHAKE protocol is designed to enable groups of people in mobile units such as trains, ships, and aircrafts to obtain larger capacity with a more stable connection to an external network. *Id.* For example, if a mobile host in the cluster does not have a path with the Internet, it can transfer data by relaying others' paths. *Id.*, at ¶ 14.

The cluster type network includes a number of mobile hosts, including at least one mobile host referred to as a “fixed host” or a “sending host” which communicates with the external network such as the Internet, as shown in Fig. 1 reproduced below. *Id.*, at ¶¶ 15-16; Fig. 1.

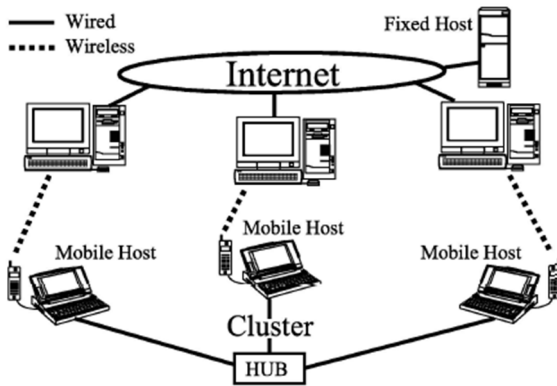


Figure 1: An Example of the System.

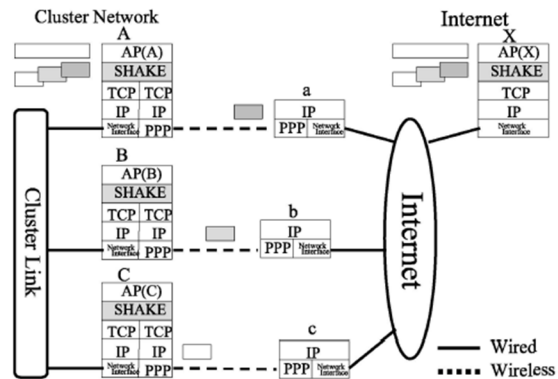


Figure 2: SHAKE Protocol Stack.

The SHAKE protocol is implemented at all mobile hosts and fixed hosts in the cluster network. *Id.*, at ¶ 17. As a protocol of the transport layer 4, SHAKE uses TCP to transmit data. *Id.* Therefore, a TCP connection is formed between all mobile hosts in the cluster and between a fixed host connected to the Internet. *Id.*

The SHAKE protocol of Mineno includes three types of packets: data packets that contain data from the application layer; control packets to form a cluster; and report packets which are used to report communication status. *Id.*, at ¶¶ 17, 26. Before a mobile host is part of the cluster, the mobile host sends a control packet to form or join a cluster. *Id.*

Once a cluster is formed, the SHAKE protocol forms a path information table which contains various information like theoretical bandwidth, round-trip delay, and the receiving rate. *Id.*, at ¶¶ 19, 33. After a sending host begins sending data packets to a receiving host, the receiving host sends report packets back to the sending host to report timing and speed information, which is incorporated into the path information table to reflect all end-to-end path information. *Id.*, at ¶¶ 21, 33.

Each mobile host is associated with a link number, and the path information table performs the role of the routing table between the sending host, the link numbers, and the destination host. *Id.*, at ¶¶ 26-27, 33. The sending host divides the application data into SHAKE data packets, adds the special SHAKE header to the data packets, and distributes the data packets to the paths in the path information table. *Id.*, at ¶¶ 24, 26, 35.

The SHAKE header includes, among other things, a link number that identifies the destination host. *Id.* When each mobile host receives a data packet, the mobile host gives the packet to its application if the link number is the host's own number and relays the packet to the next host if the link number is not the host's own number. *Id.*, at ¶¶ 27, 35.

b. RFC 793

RFC 793 describes the internet standard for the Transmission Control Protocol (TCP). Ex. 1007, 1. RFC 793 discloses that TCP provides a connection for transferring a continuous stream of data, and uses a handshake protocol to establish a reliable connection. *Id.*, at 3, 33-34.

2. The Board Should Exercise Its Discretion to Deny Institution on Ground 2 Because Petitioner Fails to Demonstrate Any Error in a Manner Material to Patentability During Prosecution

It is well-settled that the Board has discretion whether to institute an *inter partes* review. 35 U.S.C. § 325(d). The Board uses a two-part framework set forth in its precedential decision in *Advanced Bionics* for evaluating arguments under § 325(d): “(1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims.” *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020).

In determining whether to exercise its discretion, the Board utilizes the following non-exhaustive factors:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioners rely on the prior art or Patent Owner distinguishes the prior art;
- (e) whether Petitioners have pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Id., at 9; see *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, 17–18 (PTAB Dec. 15, 2017) (“the *Becton, Dickinson* Factors”). Factors (a), (b), and (d) relate to whether the art or arguments presented in the Petition are the same or substantially the same as those previously presented to the Patent Office, and Factors (c), (e), and (f) relate to whether Petitioner has demonstrated a material error by the Patent Office. *Roku, Inc. v. Universal Electronics, Inc.*, IPR2019-01619, Paper 11 at 10 (PTAB Apr. 2, 2020) (citing *Advanced Bionics*, Paper 6 at 10).

“If a condition in the first part... is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.” *Advanced Bionics*, Paper 6 at 8-9. Here, the Board should deny institution on Ground 2 because Petitioner fails to demonstrate or even allege that the Patent Office erred in a manner material to the patentability of the Challenged Claims. *See* Petition, 14.

a. First Part of the *Advanced Bionics* Framework: Mineno and RFC 793 Were Previously Presented to and Considered by the Patent Office During Prosecution

During prosecution of the '649 Patent, Applicant cited Mineno on an Information Disclosure Statement filed November 18, 2015. Ex. 1002, 471-74. Subsequently, the Examiner issued an Office Action on December 30, 2015, rejecting the claims as obvious over Perkins, Li, Cain, and Pung. A “List of References cited by applicant and considered by the examiner” signed by the Examiner on December 21, 2015 and appended to the December 30, 2015 Office Action shows that Mineno had in fact been considered before the Examiner issued an obviousness rejection over other prior art. *Id.*, at 513-23. Mineno is also cited on the face of the '649 Patent.

Also during prosecution of the '649 Patent, Applicant cited RFC 793 on an IDS filed July 2, 2015. *Id.*, at 83-147. After filing that IDS, the Examiner issued an

Office Action dated August 18, 2015, rejecting the claims as obvious over Pung and Perkins. *Id.*, at 439-44. A “List of References cited by applicant and considered by the examiner” signed by the Examiner on July 28, 2015 and appended to the August 18, 2015 Office Action shows that RFC 793 had been considered by the Examiner before she issued an obviousness rejection over other prior art. *Id.*, at 439-45. RFC 793 is also cited on the face of the ’649 Patent.

Upon considering *Becton, Dickinson* Factors (a) and (b), the citing of Mineno and RFC 793 on the face of the patent, and the Examiner’s explicitly signing Applicant’s IDS’s, are sufficient representations to satisfy the first part of the *Advanced Bionics* Framework. *See Atrium Medical Corporation v. Bard Peripheral Vascular*, IPR2021-01200, Paper 11 at 23 (PTAB Jan. 20, 2022) (citing *Advanced Bionics*, Paper 6 at 7-8).

b. Second Part of the *Advanced Bionics* Framework: Petitioner’s Failure to Demonstrate Material Error During Examination Should Be Fatal to Its Petition

As an initial matter, Petitioner’s statement that “[g]rounds based on references cited in an IDS but not considered at any length during prosecution should not serve as a basis for denying institution under § 325(d)” is without merit. Petitioner cites to *Becton, Dickinson* for this argument (Petition, 14), but the *Becton, Dickinson* Board exercised its discretion to deny institution on a ground based on two references that

were considered substantively during prosecution. *Becton, Dickinson*, Paper 8 at 17. Despite Petitioner's failure to cite to any portion of *Becton, Dickinson* for support of its statement, Patent Owner presumes that Petitioner relies on the *Becton, Dickinson* Board's statement *in dicta* that the petitioner's references were each used as a basis for obviousness rejections during prosecution, in contrast to prior art that was "simply listed in an IDS during prosecution" *Id.* at 23. This *in dicta* comment by the *Becton, Dickinson* Board does not sufficiently support Petitioner's argument that prior art cited in an IDS should not serve as a basis for denying institution under § 325(d) and is contrary to the holding of *Advanced Bionics*.

In fact, the Board has repeatedly held that grounds based on references cited in an IDS, but not considered at length during prosecution, *can* in fact serve as a basis for denying institution under 325(d). *See Atrium*, Paper 11 at 17-24 (denying institution based on prior art cited in IDS's but not used in a prior art rejection during prosecution); *Roku*, Paper 11 at 20 (denying institution based on a reference cited in an IDS, but not used substantively in a rejection during a Reexamination Proceeding and a new reference deemed to be cumulative of prior art considered during the Reexamination Proceeding); *see also Roku*, Paper 17 at 13 (request for rehearing denied).

In the present Petition, despite noting that Mineno and RFC 793 were cited during prosecution of the '649 Patent, Petitioner elected not to properly address § 325(d) in its Petition. *See generally* Petition, 13-14. While Petitioner summarily states in its review of that the Examiner “focused on other art directed to multicast for streaming media,” this single, conclusory sentence is insufficient to show a material error on the Examiner’s part, as required under the second part of the *Advanced Bionics* framework. Petition, 14; *see In Re Magnum Oil*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). This alone is reason to deny the Petition. *See Atrium*, Paper 11 at 22-24.

Still further, *Becton, Dickinson* Factors (e) and (f), which aid in the analysis of whether the petitioner has demonstrated material error by the Patent Office in its prior consideration of that art or arguments under the second part of the *Advanced Bionics* framework, favor denial of institution. *See Tesla, Inc. v. Charge Fusion Techs., LLC, No.*, IPR2023-00062, 2023 WL 5030692, at 4 (PTAB May 11, 2023), at 9 (citing *Advanced Bionics*, Paper 6 at 9–11); *Atrium*, Paper 11 at 21 (citing *Advanced Bionics*, Paper 6 at 10).

Regarding Factor (e), “whether Petitioners have pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art,” Petitioner does not attempt to point to any error by the Examiner in the original prosecution. Petitioner

merely mentions that the Examiner “focused on other art directed to multicast for streaming media.” Petitioner does not even attempt to explain how the Examiner materially erred by not considering Mineno and/or RFC 793 before confirming the patentability of the Challenged Claims. Petition, 14; *see also Roku*, Paper 11 at 20 (denying institution based on Petitioner’s failure to demonstrate that the Examiner erred during prosecution); *see also Roku*, Paper 17 at 13 (request for rehearing denied); *Atrium*, Paper 11 at 22-24.

To the extent Petitioner implies error by the Patent Office regarding whether the prior art teaches the claim limitations, the prosecution history demonstrates that the Examiner engaged with the prior art, specifically regarding methods of establishing and sending data during a multipath connection and for creating and using a multipath connection as claimed in the Challenged Claims. In this regard, the primary reference used in the rejections, Perkins, is substantially the same as Mineno in that both Perkins and Mineno discloses a network including multiple, distinct pathways for transmitting data. “[I]f reasonable minds can disagree regarding the purported treatment of the art or arguments, it cannot be said that the Patent Office erred in a manner material to patentability.” *Advanced Bionics*, Paper 6 at 9; *Atrium*, Paper 11 at 29-30. “[The *Advanced Bionics*] framework reflects a

commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Atrium*, Paper 11 at 29-30.

Regarding Factor (f), “the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments” also warrants denial of Ground 2 of the Petition. Petitioner did not present any new evidence or facts. Petitioner does not explain adequately why Petitioner’s citation of Mineno and/or RFC 793 presents new evidence or facts that warrant reconsideration of Mineno and/or RFC 793. Petitioner does not assert that the Expert Declaration includes any new evidence or facts that warrant reconsideration of Mineno and/or RFC 793. *See* Petition, 13-14.

In sum, Petitioner makes no “express assertion that any error was committed by the [Patent] Office in ultimately allowing and upholding the patentability of the claims in the [‘649] patent.” *Atrium*, Paper 11 at 23-24 (Board denied institution of an IPR due to petitioner’s failure to expressly assert and sufficiently show error by the Patent Office).

As Petitioner has failed to identify any material error in the examination that would have led to rejection of the challenge claims, the Board should exercise its discretion and deny institution based on Ground 2 on this reason alone.

3. The Petition Does Not Establish that Claims 1-12, 21, and 22 Would Have Been Obvious over Mineno and RFC 793

a. Independent Claim 1

Mineno teaches a cluster type network including multiple mobile hosts and at least one fixed host that routes data through a routing table between a sending device and a destination device. *See* Ex. 1006, ¶¶ 15-16. Mineno and RFC 793 do not render obvious independent Claim 1 because the Mineno-RFC 793 combination fails to teach or suggest “a data-source device receiving multipath information about each of a plurality of network-edge devices that is capable of joining a multipath connection with a data-requesting device,” as required under Claim 1.

i. “a data-source device receiving multipath information about each of a plurality of network-edge devices that is capable of joining a multipath connection with a data-requesting device”

Claim element 1a recites “a data-source device receiving multipath information about each of a plurality of network-edge devices that is capable of joining a multipath connection with a data-requesting device.” Ex. 1001, Claim 1. Petitioner’s reliance on Mineno fails because Mineno’s sending host only receives multipath information from mobile hosts that are already part of the cluster type network. Mineno’s sending host does not receive multipath information from mobile hosts that have not yet joined but are “capable of joining” the multipath connection.

Petitioner argues that all mobile hosts, including the sending host, receive report packets and control packets, which corresponds to the claimed multipath information, about each of the other hosts. Petition, 60. Petitioner's argument fails because report packets and control packets are distinct in terms of content and timing.

Each mobile host sends report packets to the other mobile hosts *only* after a mobile host is part of the cluster type network. *See* Ex. 1006, ¶¶ 21, 26. The report packets include a packet identifier, the link number of the destination host, the packet length, different time stamps, and the receiving rate of the path. *Id.* The sending device uses this multipath information to select paths within the path information table for routing data. *Id.*, at ¶ 24. The mobile hosts, including the sending host, which corresponds to the data-requesting device, receive multipath information about a plurality of mobile hosts that *have already joined* a multipath connection, in contrast to Claim 1.

According to Mineno, the control packet is “only used to form a cluster and make a link table,” referring to the table relating each mobile host with its respective link number. *Id.*, at ¶¶ 17, 26-27. A mobile host sends a control packet *before* joining or forming a cluster. *Id.*, at ¶ 26. The control packet does not include any multipath information about the mobile host requesting to join the cluster type network. *See*

Id. Because the report packets are only sent after a mobile host has joined the cluster, the mobile hosts, including the sending host—corresponding to the data-source device—do not receive multipath information about each of a plurality of mobile hosts prior to the mobile hosts joining the cluster. *Id.*, at ¶¶ 17, 26-27. Therefore, the sending host does not receive multipath information about mobile hosts that are *capable* of joining a multipath connection, only mobile hosts that have already joined the multipath connect.

Therefore, the Mineno-RFC 793 combination fails to teach or suggest a data-source device receiving multipath information about each of a plurality of network-edge devices, as required in Claims 1-6.

b. Independent Claim 7

Mineno and RFC 793 do not render obvious independent Claim 7 because the Mineno-RFC 793 combination fails to teach or suggest (i) “the data-source device receiving multipath connection requests from a plurality of data-requesting devices” that performs each of the claimed method steps or (ii) “the data-source device associating a connection ID to each multipath connection request.”

i. “the data-source device receiving multipath connection requests from a plurality of data-requesting devices”

Claim element 7a recites a “data-source device receiving multipath connection requests from a plurality of data-requesting devices.” Ex. 1001, Claim 7. According to Petitioner, the sending device of the cluster type network of Mineno could be an Internet server. Petition, 75-76. However, Mineno does not disclose an Internet server implementing the SHAKE protocol. Petitioner is attempting to manipulate the disclosure of Mineno to fit the claim language where Mineno fails to disclose or suggest the recitation.

As an initial matter, the cluster type network of Mineno does not include an Internet server participating in the SHAKE protocol. Mineno repeatedly states that the fixed host is “connected to the Internet,” and does not teach an Internet server implementing the SHAKE protocol. *See* Ex. 1006, ¶¶ 15-16, 17, 31. Instead, a sending host implementing the SHAKE protocol connected to the Internet receives data therefrom and transmits the data to the mobile hosts in the cluster. As shown in the figures below, Fig. 1 shows the fixed host (circled in red) as a server that is connected to the Internet, and Fig. 2 illustrates the SHAKE protocol on the fixed host (circled in red) corresponding to fixed host shown in the schematic of Fig. 1.

Mineno does not teach or even suggest that an Internet server itself implements the SHAKE protocol.

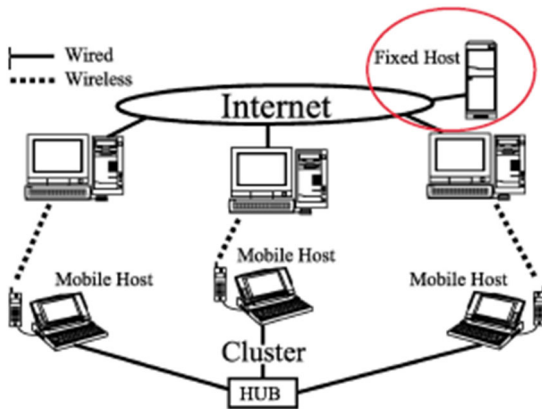


Figure 1: An Example of the System.

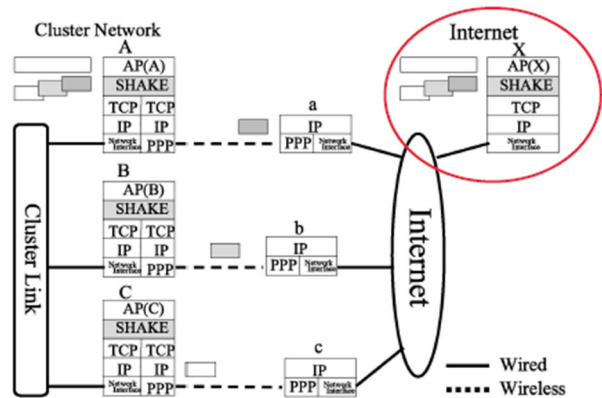


Figure 2: SHAKE Protocol Stack.

Further, Petitioner alleges Mineno's destination host corresponds to the claimed data-requesting device and Mineno's sending host corresponds to the claimed data-source device. Even if this were true, Mineno does not teach or suggest its destination host sends "multipath connection requests" to the sending host.

As used in the '649 Patent, a "multipath connection request" is a request used to initiate a multipath connection, which occurs when a new multipath connection is being formed. Ex. 1001, 11:49-12:57. In contrast, the SHAKE protocol provides a single multipath connection defined by the paths in the information path table or routing table, which is generated in response to formation of the cluster. Mineno's sending host and destination host do not form new multipath connections, they simply make use of the existing multipath connection provided by the SHAKE

protocol. The receipt of “multipath connection requests” from a plurality of destination hosts as required under Claim 7 is incompatible with the SHAKE protocol because the cluster already defines the only multipath connection available to all mobile hosts.

Therefore, the Mineno-RFC 793 combination does not teach or even suggest the data-source device receiving a plurality of multipath connection requests from a plurality of data-requesting devices.

ii. “the data-source device associating a connection ID to each multipath connection request”

Petitioner has failed to show that Mineno discloses, teaches, or suggests “the data-source device associating a connection ID to each multipath connection request” required under Claim element 7b. Specifically, Mineno fails to teach or suggest a “connection ID” associated to each multipath connection request.

Petitioner’s argument that the link number identifies a connection between the sender and destination hosts is inaccurate. *See* Petition, 69.

The SHAKE protocol of Mineno assigns a link number to each mobile host when the mobile host joins the cluster. Ex. 1006, ¶¶ 26-27. Before packets are distributed among paths in the information path table, the special SHAKE header including the link number of the destination host is added to each data packet distributed through the cluster type network. *Id.* When each host receives each data

packet, the mobile host determines whether to retain the data packet for itself or to pass the data packet to the next mobile host based on whether the link number in the header of the data packet corresponds to the respective host's associated link number. *Id.*

Contrary to Petitioner's argument, the link number is associated with a single, specific mobile host. Petitioner's argument that the link number is associated with a "connection between the sender and destination hosts" misapplies the teachings of Mineno to fit the claim recitations. *See* Petition, 69. There is no disclosure in Mineno that the link number is associated with both the sending host and the destination host or the connection therebetween.

Further, Claim element 7b positively recites the step of associating, by the data-source device, a connection ID to each multipath connection request. The sending host of Mineno simply follows the SHAKE protocol of distributing packets among the information path table or routing table to the mobile hosts within the cluster type network. The sending host does not associate a connection ID with any multipath connection requests or even any particular path to a specific mobile host. Further, the information path table of the SHAKE protocol outlines a single multipath connection and does not allow or provide for "associating a connection ID

to each multipath connection request” because there are not multipath connection requests to which a connection ID could even be associated.

Thus, the Mineno–RFC 793 combination does not disclose “the data-source device associating a connection ID to each multipath connection request,” as required by Claims 7-12 of the ’649 Patent.

Accordingly, a POSITA would understand that the Mineno–RFC 793 combination does not render obvious Claim 7, and Claims 8-12 dependent thereon.

c. Independent Claim 21

Mineno and RFC 793 do not render obvious independent Claim 21 because the Mineno-RFC 793 combination fails to teach or suggest (i) “a data-requesting device sending first multipath control information to or through a first network-edge device, the first multipath control information indicates that the first network-edge device will join the multipath connection” or (ii) “a data-requesting device sending a second multipath control information to or through a second network-edge device, the second multipath control information indicates that the second network-edge device will join the multipath connection.”

- i. **“a data-requesting device sending first multipath control information to or through a first network-edge device, the first multipath control information indicates that the first network-edge device will join the multipath connection”**

Claim element 21a requires that the data-requesting device sends first multipath control information to or through a first network-edge device, the first multipath control information indicating that the first network-edge device will join the multipath connection.

Petitioner argues that “Mineno teaches a destination/Receiver host sending multipath control information to or through the other mobile hosts, *e.g.* a ‘control packet’ that is used ‘to form a cluster’ and ‘make a link table,’ which in turn is used to route packets through the multiple paths of a SHAKE connection.” Petition, 85. This argument is based on assumptions that are not supported by Mineno.

Although a mobile host sends a control packet to form a cluster and make a routing table, Mineno does not teach that a first data-requesting mobile host sends the control packet *to or through* a second mobile host indicating that the second mobile host will join the cluster, as required under Claim 21. Mineno simply discloses that a mobile host uses a control packet to join or create a cluster. Ex. 1006, ¶¶ 26-27.

Petitioner also argues that “[i]nformation in the control packets, stored in the SHAKE management module, is responsible for ‘controlling the other modules, forming the cluster, ensuring communication paths...’” Petition, 85. But there is no support for information in the control packets being responsible for the enlisted aspects. The full excerpt that Petitioner is quoting is as follows: “[t]he work of [the SHAKE management module of the SHAKE protocol] includes controlling the other modules, forming the cluster, ensuring communication paths and so on.” Ex. 1006, ¶ 29. The only disclosure in Mineno regarding control packets is that the control packets are “only used to form a cluster and make a link table.” *Id.*, at ¶ 26.

Therefore Petitioner’s argument that the control packets sent by a first mobile host to or through a second mobile host indicate that the second mobile host will join the multipath connection is unsupported. The control packets merely add a mobile host to a cluster and link table.

Mineno and RFC 793, therefore, do not teach or suggest a data-requesting device sending first multipath control information to or through a first network-edge device, the first multipath control information indicates that the first network-edge device will join the multipath connection, as required in Claims 21 and 22.

- ii. **“the data-requesting device sending a second multipath control information to or through a second network-edge device, the second multipath control information indicates that the second network-edge device will join the multipath connection”**

Similar to the argument regarding Claim element 21a above, Petitioner fails to show that the Mineno-RFC 793 combination discloses, teaches, or suggests “the data-requesting device sends second multipath control information to or through a second network-edge device, the second multipath control information indicates that the second network-edge device will join the multipath connection” required under Claim element 21b.

As argued above, Petitioner’s argument that the control packets correspond to the multipath control information fails because the control packets are not sent to or through another mobile host and/or indicate that the other mobile host will join the cluster. *See* Section III(B)(3)(c)(i).

Further, Claim element 21b additionally requires the same data-requesting device that sent the first multipath control information to a first mobile host then sends second multipath control information to or through a second mobile host. But there is no disclosure in Mineno that a mobile host sends more than one control packet. Mineno discloses that each mobile host sends a single control packet to join

the cluster. *See* Ex. 1006, ¶ 26. Mineno does not teach or suggest a single mobile host sends both first and second control packets.

Thus, Mineno and RFC 793 do not teach or suggest the data-requesting device sending a second multipath control information to or through a second network-edge device, the second multipath control information indicates that the second network-edge device will join the multipath connection,” as required in Claims 21 and 22. For this additional reason, Ground 2 fails and the Board should deny institution.

C. Ground 3: The Board Should Deny Institution By Exercising Its Discretion Under 35 U.S.C. § 325(d) and, Additionally, Because the Petition Does Not Establish that Claims 1-12, 21 and 22 Would Have Been Obvious over Mineno, RFC 793, RFC 1661, and RFC 1990

Ground 3 alleges that Claims 1-12, 21 and 22 are obvious over the combination of the non-patent literature document entitled Mineno and RFC 793 and further in view of the non-patent literature document entitled *RFC 1990: The PPP Multilink Protocol* (“RFC 1990”) and the non-patent literature document entitled *RFC 1661: The Point-to-Point Protocol* (“RFC 1661”). Mineno, RFC 793, and RFC 1990 were considered by the Patent Office during prosecution, and although RFC 1661 was not of record during prosecution, Petitioner relies on RFC 1661 for the same disclosure in RFC 1990 such that the relevant teachings of RFC 1661 are cumulative features that were in the prior art that was considered by the Patent Office

during prosecution. As with Ground 2, the Board should discretionarily deny institution based on Ground 3 under 35 U.S.C. § 325(d) because Petitioner fails to identify any error material to patentability by the Patent Office during prosecution.

Alternatively, the Petition also fails to demonstrate that Mineno, RFC 793, RFC 1990, and RFC 1661 disclose all limitations of independent Claims 1, 7, and 21. As such, Petitioner fails to show that the claims depending from Claims 1, 7, and 21 are disclosed. The Petition therefore fails to demonstrate that the Challenged Claims are unpatentable under Ground 3 and institution should therefore be denied under 35 U.S.C. § 314(a).

1. Additional Asserted References

a. RFC 1661

RFC 1661 describes the internet standard for the Point-to-Point Protocol (PPP). Ex. 1008, at 1. RFC 1661 discloses a communication directly between two nodes for transferring a continuous stream of data. *Id.*, at 1-2.

b. RFC 1990

RFC 1990 describes the internet standard for the Multilink Point-to-Point Protocol (MP PPP). Ex. 1009, at 1-2. RFC 1990 discloses a plurality of communications directly between two nodes for transferring a continuous stream of data. *Id.*, at 4-6.

2. The Board Should Exercise Its Discretion to Deny Institution Because Petitioner Fails to Demonstrate Any Error in a Manner Material to Patentability During Prosecution

As noted above, the two-part framework set forth in *Advanced Bionics* for evaluating arguments under § 325(d) provides: “(1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of the challenged claims.” *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020). The Board utilizes the *Becton, Dickinson* Factors noted above in its analysis. *Roku*, Paper 11 at 10-12 (citing *Advanced Bionics*, Paper 6 at 10). *See* Section III(B)(2).

“If a condition in the first part... is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.” *Advanced Bionics*, Paper 6 at 8. Here, the Board should deny institution on Ground 3 because Petitioner fails to demonstrate or even allege that the Patent Office erred in a manner material to the patentability of the Challenged Claims.

a. First Part of the *Advanced Bionics* Framework: Mineno, RFC 793, and RFC 1990 Were Previously Presented to and Considered by the Patent Office During Prosecution and RFC 1661 is Cumulative of RFC 1990

As noted above, Mineno and RFC 793 were cited during prosecution of the '649 Patent, and the citing of Mineno and RFC 793 on the face of the patent and the Examiner's explicitly signing Applicant's IDS's are sufficient representations to satisfy the first part of the *Advanced Bionics* Framework. *See* Section III(B)(2)(a).

Additionally, Applicant also cited RFC 1990 on the Information Disclosure Statement filed November 18, 2015 during prosecution of the '649 Patent. Ex. 1002, 470-511. As noted above, the Examiner then issued an Office Action on December 30, 2015, rejecting the claims as obvious over Perkins, Li, Cain, and Pung, and included a "List of References cited by applicant and considered by the examiner" signed by the Examiner on December 21, 2015 and appended to the December 30, 2015 Office Action showing that RFC 1990 had in fact been considered before the Examiner issued an obviousness rejection over other prior art. RFC 1990 is also cited on the face of the '649 Patent. Ex. 1002, 513-23.

RFC 1661 was not explicitly of record during prosecution of the '649 Patent, but Petitioner relies on RFC 1661 as a secondary reference, and the relevant

disclosure of RFC 1661 that Petitioner relies on are cumulative features of RFC 1990.

Specifically, Petitioner states that RFC 1661 introduced PPP and that RFC 1990 added multilink feature to provide the multilink PPP, and that “their teachings were meant to be used together.” Petition, 52. Petitioner relies on the combination of RFC 1990/RFC 1661 in the Petition for the alleged disclosure of: LCP Configure Requests with EDO information for aggregating multiple links; monitoring connections and removing disconnected hosts as appropriate; establishing links and using multiple physical links as one logical link; receiving multipath information in the form of termination packets; endpoints sending multipath connection requests. Petition, 53, 54, 58, 74, 76. Petitioner does not rely on the RFC 1990/RFC 1661 combination for any of the deficiencies noted in regards to Mineno.

Every time Petitioner relies on RFC 1661 in the Petition it is in combination with RFC 1990. RFC 1661’s disclosure that Petitioner relies upon is the same or substantially the same teachings of RFC 1990. Therefore, the Board should find that RFC 1661 presents the same or substantially the same issues as RFC 1990, which has been considered by the Patent Office.

Accordingly, because Mineno, RFC 793, RFC 1990, and RFC 1661 (via the disclosure of RFC 1990) were considered during prosecution, *Becton, Dickinson*

Factors (a) and (b) weigh in favor of satisfying the first part of the *Advanced Bionics* Framework. *See Atrium*, Paper 11 at 23 (citing *Advanced Bionics*, Paper 6 at 7-8); *Roku*, Paper 11 at 22-24.

b. Second Part of the *Advanced Bionics* Framework: Petitioner's Failure to Demonstrate Material Error During Examination Should Be Fatal to Its Petition

As noted above, Petitioner does not address § 325(d) in its Petition. *See generally* Petition, 13-14; *see* Section III(B)(2)(b). Petitioner's conclusory statement that the Examiner "focused on other art directed to multicast for streaming media" is insufficient to show a material error on the Examiner's part, as required under the second part of the *Advanced Bionics* framework. *See In Re Magnum Oil*, 829 F.3d at 1380. This alone is reason to deny the Petition. *Atrium*, Paper 11 at 26-27.

For the reasons also noted above, *Becton*, *Dickinson* Factors (e) and (f), highlighting Petitioner's failure to point to any error by the Examiner in the original prosecution and the lack of any new evidence or facts presented by Petitioner to explain material error by the Patent Office, supports denial of institution based on Ground 3. *See* Section III(B)(2)(b).

Again, Petitioner makes no "express assertion that any error was committed by the [Patent] Office in ultimately allowing and upholding the patentability of the claims in the ['649] patent." *See Atrium*, Paper 11 at 27. As Petitioner has failed to

identify any material error in the examination that would have led to rejection of the challenge claims, the Board should exercise its discretion and deny institution under § 325(d) based on Ground 3 on this reason alone.

3. The Petition Does Not Establish that Claims 1-12, 21, and 22 Would Have Been Obvious over Mineno, RFC 793, RFC 1661, and RFC 1990

Petitioner's arguments that Claims 1-12, 21, and 22 would have been obvious over Mineno, RFC 793, RFC 1661, and RFC 1990 fail for substantially the same reasons noted above with respect to Ground 2, based on Mineno and RFC 793. *See* Section III(B)(3).

Further to its arguments that Claims 1-12, 21, and 22 would have been obvious over Mineno and RFC 793, Petitioner relies on the combination of RFC 1990/RFC 1661 as supplemental references to support its argument that certain features were provided in the prior art. *See* Petition, 53, 54, 58, 74, 76. Petitioner does not rely on RFC 1990 and/or RFC 1661 to remedy any of the deficiencies noted above with respect to Ground 2. *See* Section III(B)(3)(a)-(c).

Because RFC 1990 and RFC 1661 fail to remedy the deficiencies noted in Ground 2, Ground 3 fails for the same reasons set forth above with respect to Ground 2 in Section III(B)(3).

Thus, Ground 3 fails and institution should be denied under § 314(a).

IV. CONCLUSION

Petitioner has failed to demonstrate that there is a reasonable likelihood that it would prevail with respect to at least one of the claims challenged in the Petition on Grounds 1-3, and the Board should deny institution under 35 U.S.C. § 314(a). Additionally, the Board should exercise its discretion to deny institution on Grounds 2 and 3 under 35 U.S.C. § 325(d) as the Petition raises the same prior art that was before the Patent Office during prosecution. As such, Patent Owner respectfully requests that the Board deny institution of an *inter partes* review.

Dated: August 23, 2023

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Certification of Word Count Under 37 C.F.R. § 42.24(d)

The undersigned hereby certifies that the foregoing contains 13,890 words according to the word count of the word-processing software used to prepare the foregoing.

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CERTIFICATE OF SERVICE

I hereby certify that on August 23, 2023, a true and correct copy of the foregoing was caused to be served electronically on the following counsel of record for Petitioner at the following email addresses:

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