

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RED HAT, INC.
Petitioner

v.

COMPETITIVE ACCESS SYSTEMS, INC.
Patent Owner

Case No. IPR2025-01381
U.S. Patent No. 8,228,801

**DECLARATION OF DR. STAN MCCLELLAN IN SUPPORT OF PATENT
OWNER PRELIMINARY RESPONSE**

Competitive Access Systems EX2015
Red Hat, Inc. v. Competitive Access
Systems, Inc.
IPR2025-01381

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I, Dr. Stan McClellan, hereby declare as follows:

I. Background

1. I have been retained by Patent Owner Competitive Access Systems, Inc. (“CAS”) to provide my opinions in the above-captioned *inter partes* review (“IPR”) proceeding involving U.S. Patent No. 8,228,801 (the “’801 Patent,” EX1013), which is titled “Broadband Communications Device.” I have been asked to evaluate whether certain references disclose or suggest the features recited in Claims 1-17 of the ’801 Patent (the “Challenged Claims”). I understand this declaration will be entered in the above-captioned IPR proceeding, as an exhibit with Patent Owner's Preliminary Response to the Petition for Inter Partes Review (the “Preliminary Response”) submitted by CAS.

2. The ’801 Patent is a continuation of U.S. Patent No. 7,606,156 (the “’156 Patent”). In addition to being retained in the present matter, I was also retained to provide my opinions as to the validity of the claims of the ’156 Patent as well as U.S. Patent Nos. 8,861,349 (the “’349 Patent”), 9,350,649 (the “’649 Patent”), 10,868,908 (the “’908 Patent”), 11,418,641 (the “’641 Patent”), 11,582,343 (the “’343 Patent”). I have and/or will submit declarations as part of the ’156 Patent, ’349 Patent, ’649 Patent, ’908 Patent, ’641 Patent, and ’343 Patent IPR proceedings.

II. Qualifications

3. I currently serve as the Director of the JSC Engineering, Technology and Science Program (JETS) at Texas State University, a partnership with Jacobs Technology Group and NASA's Johnson Space Center (JSC). Previously, I held the following positions at Texas State:

- a. Professor in the Ingram School of Engineering from 2013-2023;
- b. Co-Director of the Connected Infrastructure initiative for Education, Demonstration, and Research (CIEDAR) from 2019 to 2023;
- c. Director of the Ingram School of Engineering from 2013 to 2018;
- d. Associate Director of the Ingram School of Engineering from 2011 to 2013; and
- e. Associate Professor in the Ingram School of Engineering from 2008 to 2013.

4. My research activities at Texas State have involved the development and management of FCC-licensed private 5G and LTE wireless networks, and the management of a regional LoRaWAN wireless network for low-rate, real-time data collection in multiple projects at CIEDAR. During my time as a Professor, I developed performance enhancements for Internet transport protocols and packet

handling based on signal processing and machine learning algorithms, and designed a multi-building “5G-capable” core network to support multiple faculty re-search projects as well as academic priorities. During my time as an Associate Professor, I investigated various Smart Grid systems and advanced technologies for broadband networking (e.g. 40/100Gb Ethernet), developed novel PHY layer for low-frequency communication via power lines, and developed performance enhancements for IP transport protocols.

5. I have prior academic experience as an Associate Professor of Electrical and Computer Engineering at the University of Alabama at Birmingham from 1995 to 2002.

6. I also have technical experience from my time in the private sector. I previously held executive or senior engineering positions at companies including Power Tagging Technologies, ZNYX Networks, SBE, Hewlett Packard, General Dynamics and LTV Aerospace and Defense Company. I have also served as a technical consultant for companies such as Cisco, American Express, 3COM, BellSouth, N.E.T., Alcatel, AT&T, Research in Motion (RIM), F5 Networks, LSU Medical Center, and the U.S. National Science Foundation.

7. I have published dozens of books and peer-reviewed research papers in this field, and have given numerous related technical talks world-wide. I am a

named inventor on fourteen patents and have served as a technical expert witness in numerous patent litigation cases.

8. I received my Ph.D. from Texas A&M University (1995) in Electrical Engineering with a specialization in communication and data processing. I received a M.S. in Electrical Engineering (1991) and a B.S. in Electrical Engineering (1986), both from Texas A&M as well.

9. My qualifications and experience are detailed further in my Curriculum Vitae, which is EX2016.

III. Compensation

10. I am being compensated at the rate of \$350 per hour for the work I conduct related to this proceeding. My compensation does not depend on the content of my opinions or the outcome of the proceeding.

IV. Materials Considered

11. In providing the testimony set out in this declaration, I have reviewed the specification and claims of the '801 Patent, the file history of the '801 Patent, Red Hat's Petition for Inter Partes Review of the '801 Patent (the "Petition"), and the prior art, declarations, and other documents attached to the Petition.

V. Legal Principles

12. I am not an attorney and offer no legal opinions. In forming my opinions, I have been informed by counsel about certain aspects of the law that are relevant to my analysis. My understanding of these principles is summarized below.

13. I understand that in patent law a patent's claims define the scope of protection for the claimed invention.

14. I understand that the first step in an invalidity analysis involves construing the claims, as necessary, to determine their scope. I have also been informed by counsel that claims are generally given their ordinary and custom meaning as understood by a person of ordinary skill in the art ("POSITA") at the time of the invention, in light of the patent's claims, specification and file history. I have additionally been informed by counsel that claim construction is a matter of law and that the final claim constructions for this proceeding will be determined by the Patent Trial and Appeal Board ("PTAB").

15. I understand that the validity of a patent's claims is determined on a claim-by-claim basis.

16. I understand that in this proceeding, Petitioner has the burden of proving that the challenged claims would have been unpatentable over the prior art by a preponderance of the evidence.

17. Ground 1 of the Petition argues that the Challenged Claims of the '801 Patent should be invalidated as disclosed or rendered obvious by the "Challenger" prior art reference alone or in combination with the "Held" prior art reference. As pertinent to my analysis, these references are described further below.

18. Ground 2 of the Petition argues that the Challenged Claims of the '801 Patent should be invalidated as disclosed or rendered obvious by the "Kotzin" prior art reference alone or in combination with the "Held" prior art reference. As pertinent to my analysis, these references are described further below.

19. I understand that a claim is unpatentable as anticipated if a single prior art reference teaches each limitation of the claim.

20. I understand that a claim is unpatentable as obvious if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious to a POSITA at the time of the invention.

21. I understand that the question of obviousness is resolved based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of non-obviousness.

22. I further understand that for each of its obviousness grounds, Petitioner must demonstrate a POSITA would have: (1) a motivation to combine the relevant references and (2) a reasonable expectation of success of developing the claimed invention.

23. In forming my opinions, I have applied the understanding of one of ordinary skill in the art working at the time of the invention claimed in the '801 Patent, i.e., prior to January 2001. In my opinion, a person of ordinary skill in the

art at this time would have an acquired body of knowledge gained through formal education, or practical experience providing an equivalent to, a Bachelor of Science in Electrical Engineering or Computer Science, or a related/equivalent field, and at least 3 years of work experience in the field of computer networking. I understand that the date of conception of the '801 Patent may be contested. My identification as to the level of skill of the person of ordinary skill in the art would not vary between the date of the conception or the October 15, 2002 filing date of Provisional Application No. 60/418,521.

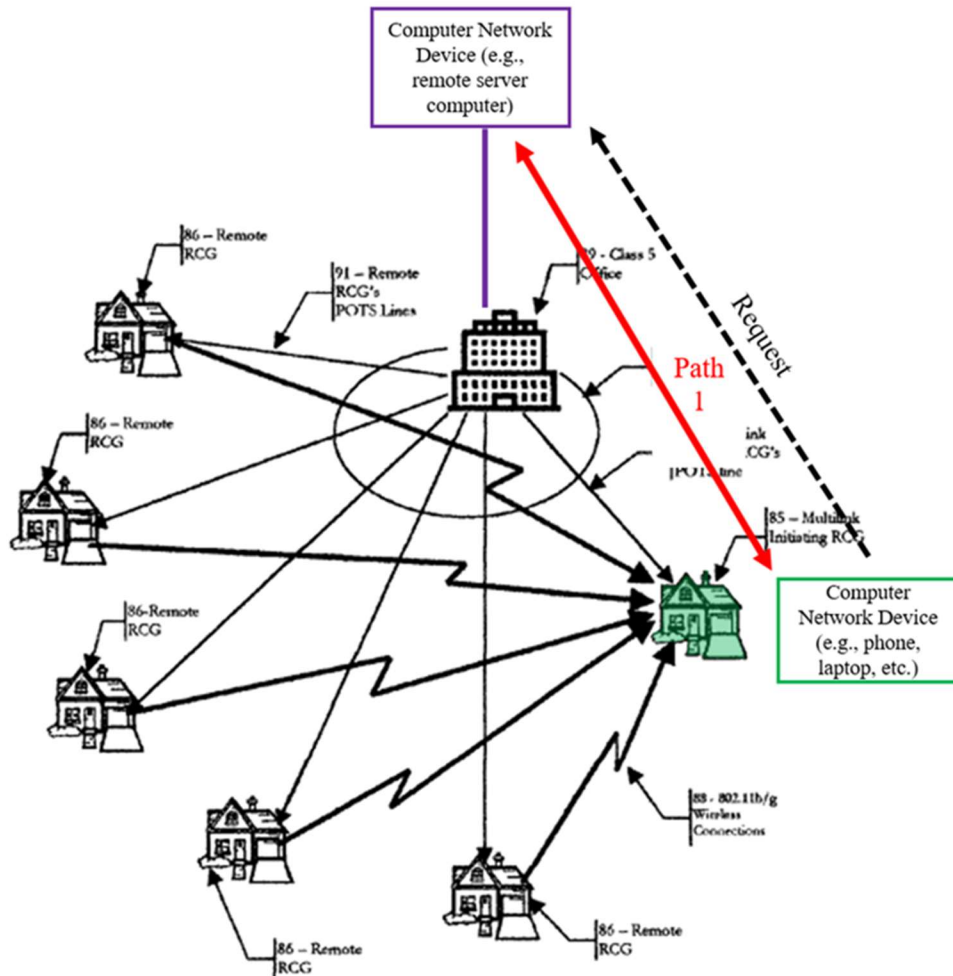
VI. Overview of the '801 Patent and the Invention Claimed in the '801 Patent

24. The '801 Patent pertains to devices and methods to improve the effective bandwidth between a remote sending device (e.g., a server) and a receiving device by leveraging the bandwidth of at least two separate communication paths to receive the data sent from a remote device.

25. Although specific claims or claim limitations may be directed to only certain aspects of the configuration or to separate, but related embodiments, Figure 7 of the specification of the '801 Patent shows an example network configuration.

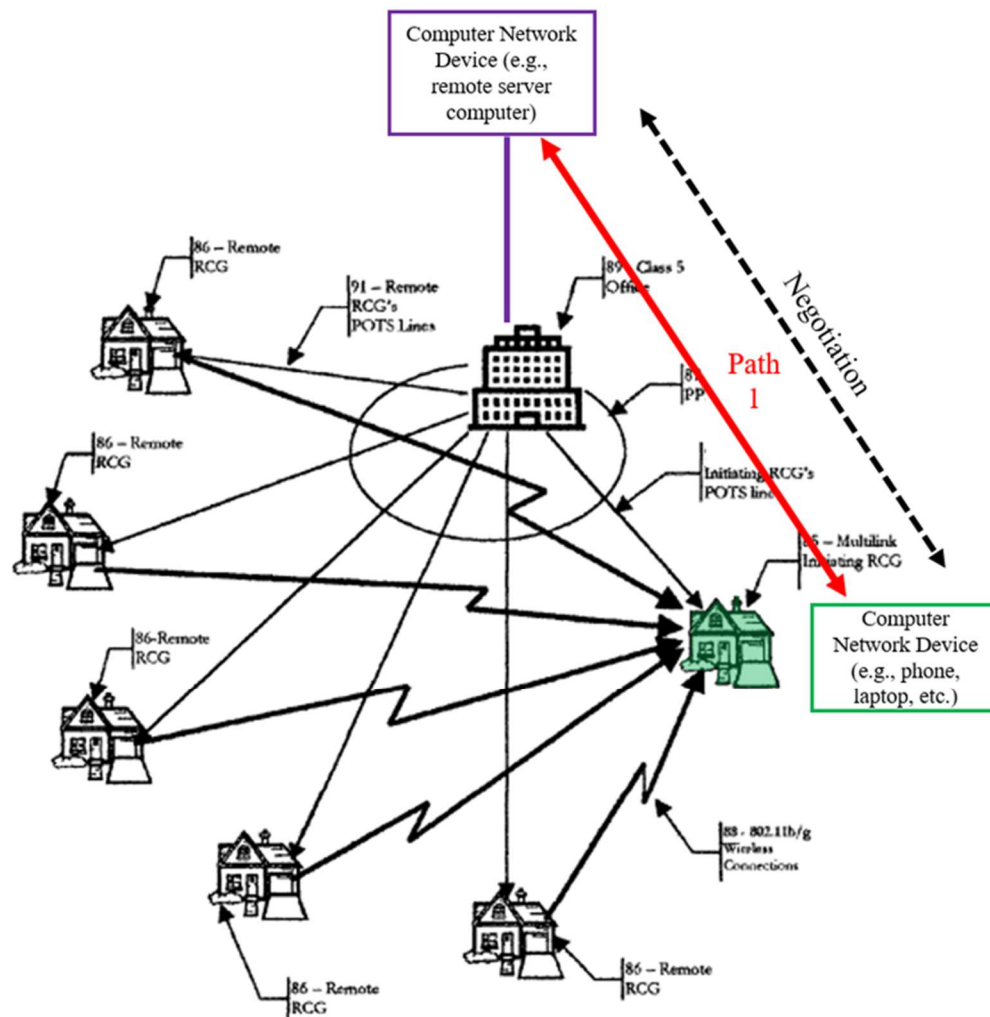
26. In this configuration, a request is sent from a computer network device (e.g., phone, laptop, server, etc.) over a first path (e.g., Path 1) to another computer network device, such as, for example, a remote server computer, for participation in a multilink session. To this end, as depicted and annotated below, the

specification states: “Referring to FIG. 7, an RCG-85 that decides to initiate a multilink PPP session with a remote computer i.e. internet URL, requests a multilink PPP session with that URL resource via Link Control Protocol (LCP) session management[.]” EX1015 at 11:48-52.



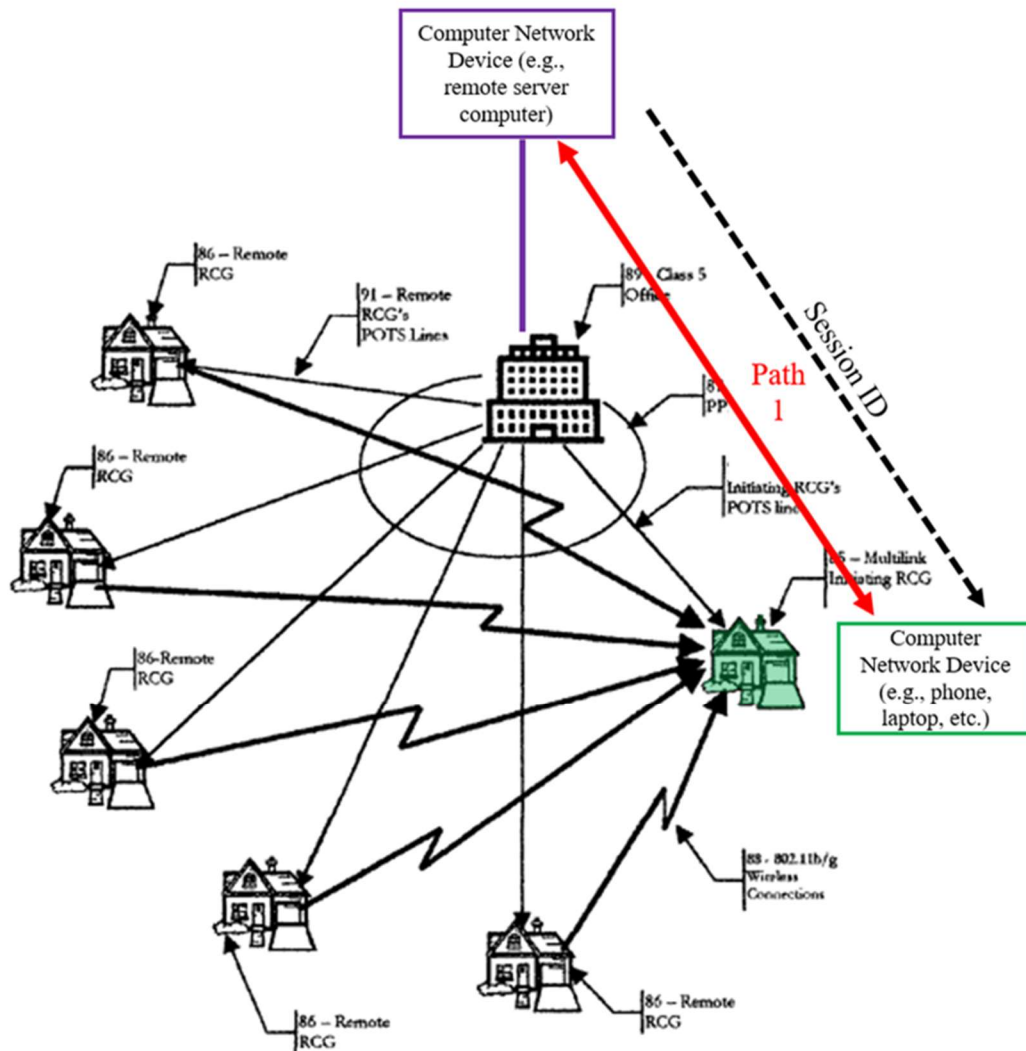
27. The two devices negotiate the pertinent multilink parameters. For example here, as depicted and annotated below, the specification states: “The initiating RCG-85 and the remote server computer (not shown) will negotiate the

pertinent multilink parameters such as compression, packet size, sync/async, link quality monitoring, bit stuffing etc.” EX1013 at 11:52-55.



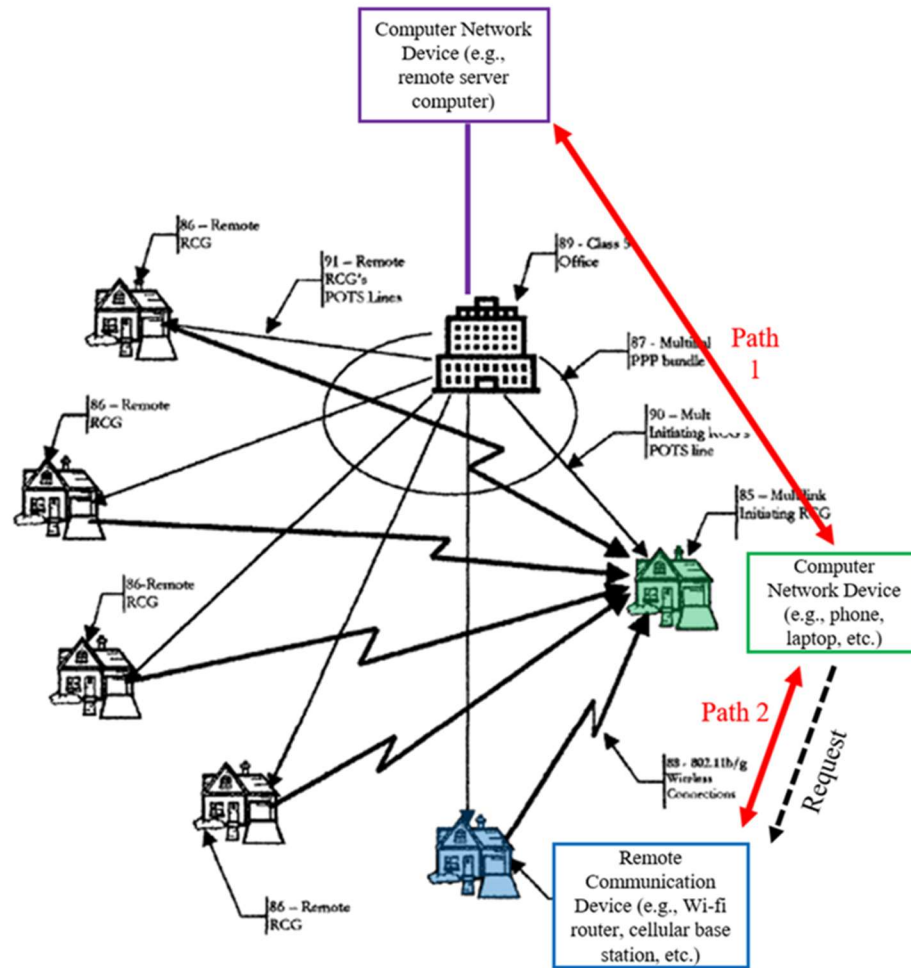
28. The multilink session setup is completed including that the remote server computer sends a multilink session ID to the computer network device (e.g., phone, laptop, etc.), which is used to identify this particular multilink session and is also used for adding or removing links from the multilink session. As is also depicted and annotated below, the specification states: “As part of a successful

multilink PPP session setup, the initiating RCG-85 receives a multilink PPP session ID, or “magic number”, which is used to identify this particular multilink PPP session and is also used for adding or removing links from the multilink bundle-87.” EX1013 at 11:55-60.



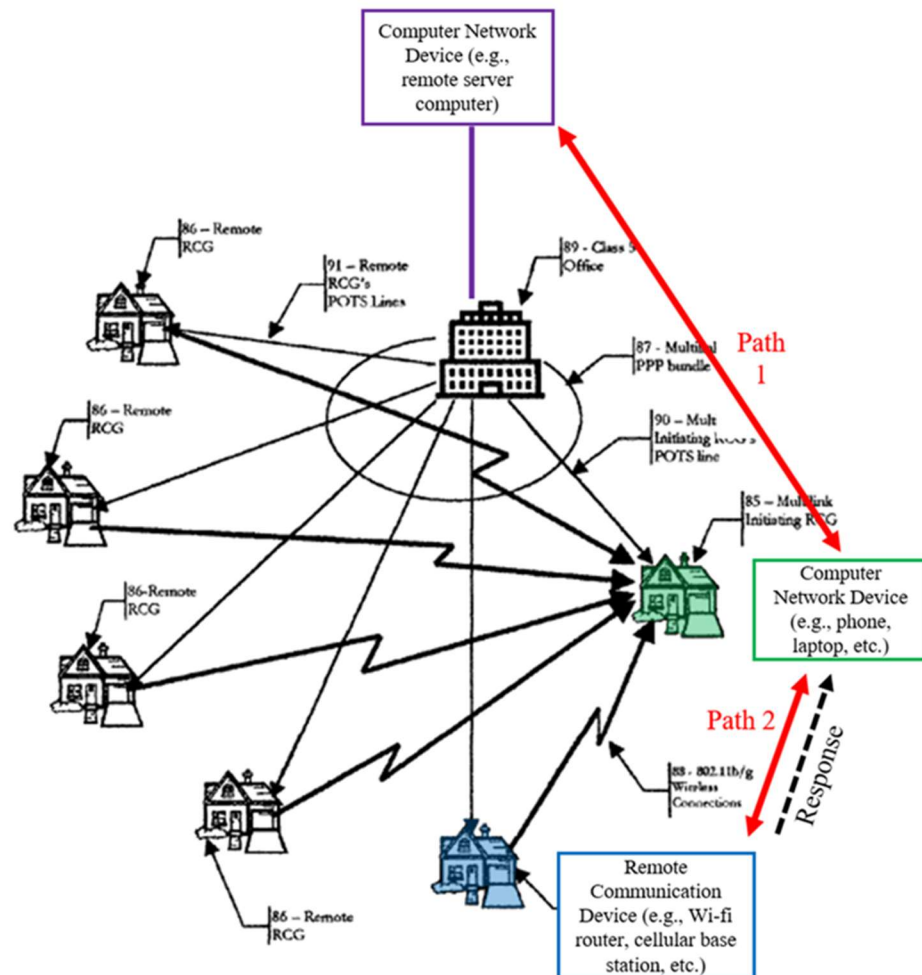
29. The computer network device (e.g., phone, laptop, server etc.) then sends a multilink request over a second path (e.g., Path 2) to one or more remote communications devices such as, for example, a router or base station to participate

in the multilink session. As is relevant here, and as depicted and annotated below, the specification states: “The initiating RCG-85 then looks up the addresses of up to 31 (in this embodiment) other RCGs in its router tables to use for the multilink PPP transfer. (If a Neighborhood Access Point is available the RCG could request service through it instead of setting up a Multilink PPP connection—see FIG. 8.) The initiating RCG-85 determines the number of remote RCGs-86 that it wants to use to get the desired bandwidth for the transfer and sends multilink PPP service requests via the 802.11b/g wireless connections-88 to the selected remote RCGs-86.” EX1013 at 11:62-12:4.



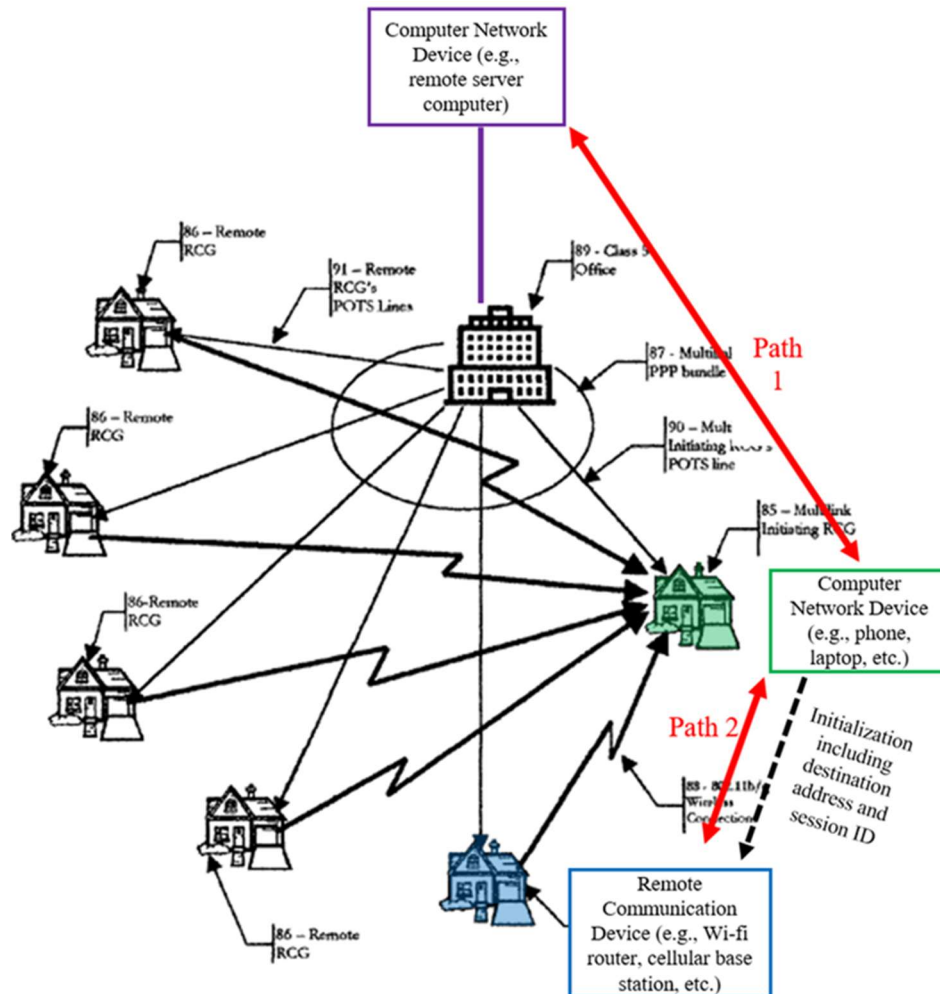
30. The remote communications devices respond back to the computer network device (e.g., phone, laptop, etc.) with acceptance or denial. For example, as depicted and annotated below, the specification states: “The selected remote RCGs-86 respond back to the initiating RCG with either an acceptance or denial of multilink PPP service request. This decision is made based upon the remote RCG’s currently available POTS bandwidth and the current local demands for that bandwidth. The remote RCG-86 makes a decision to participate in a multilink PPP service for an initiating RCG If the remote RCG-86 accepts the multilink PPP

service request from the initiating RCG-85 it also sends its currently available bandwidth on its POTS line-91 that the initiating RCG-85 will have available to it for the multilink PPP transfers.” EX1013 at 12:5-11, 12:24-29.

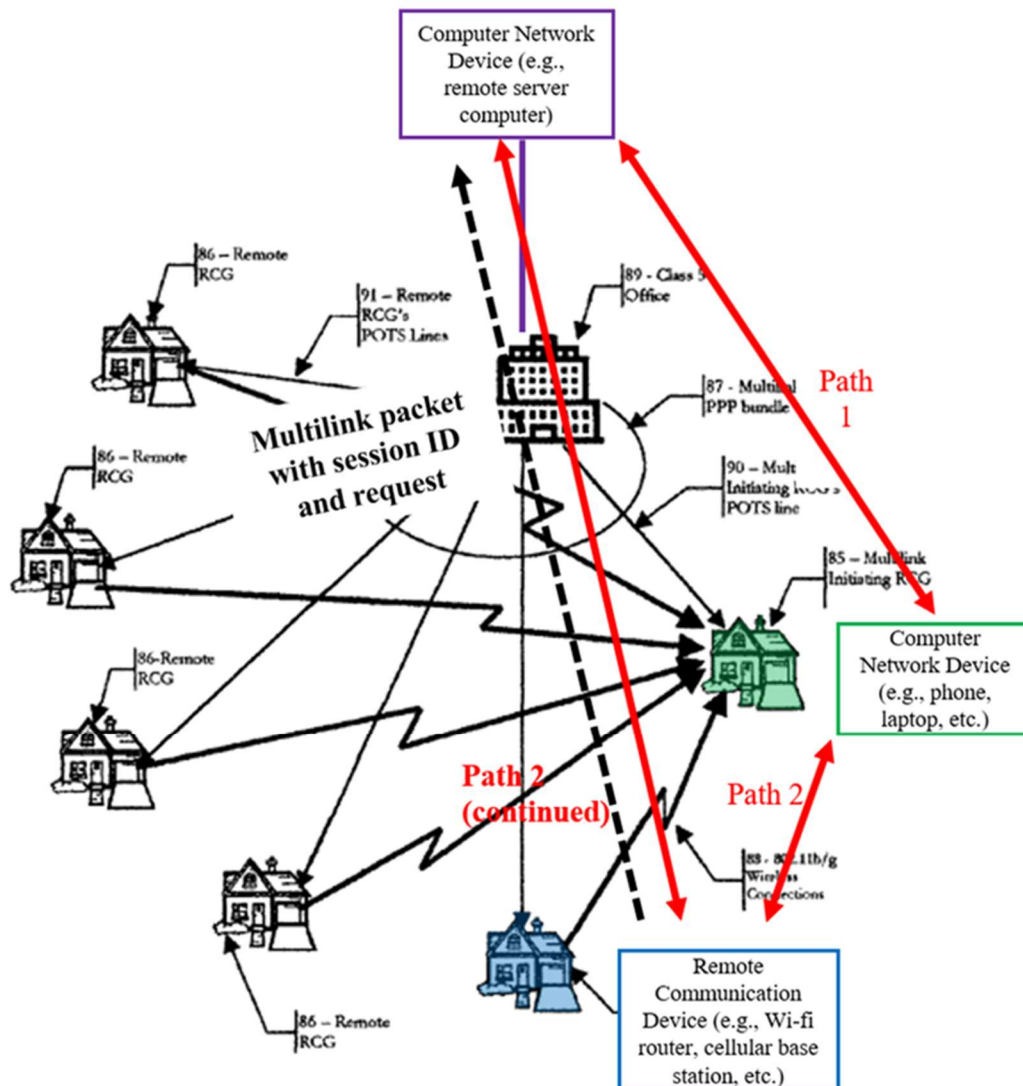


31. The computer network device (e.g., phone, laptop, server, etc.) sends a multilink initialization packet containing the address of the destination as well as the multilink session ID (magic number) and any other pertinent information required for the remote communications device to join in the existing multilink session. Here, as depicted and annotated below, the specification states: “The

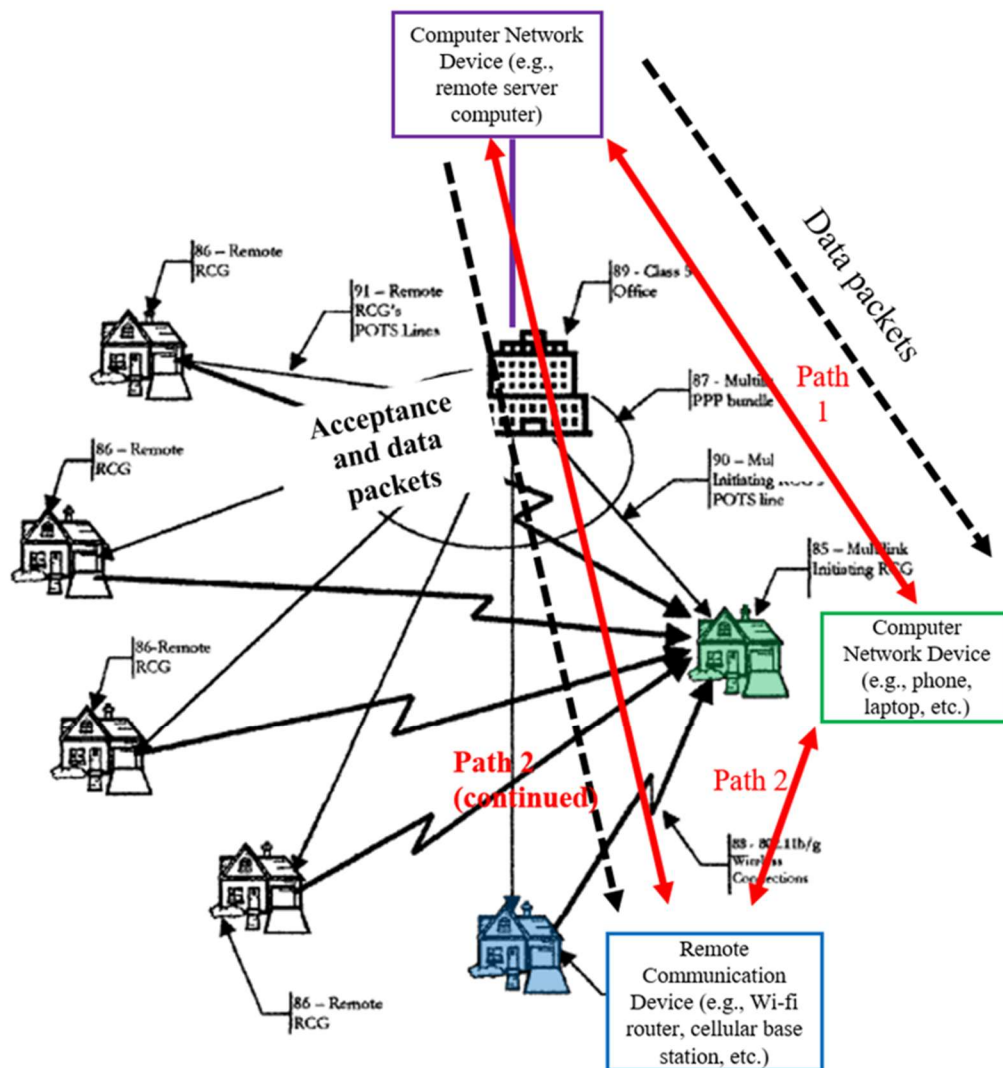
initiating RCG then selects which of the responding remote RCGs-86 it will use for the multilink PPP bundle-87 and sends them a multilink initialization packet containing the URL of the destination as well as the multilink PPP session ID (magic number) and any other pertinent information required for the remote RCG to join in the existing multilink PPP bundle-87. Each remote RCG POTS interface-91 participating in a multilink PPP bundle, represents a logical “link” in the initiating RCG’s multilink PPP bundle-87.” EX1013 at 12:29-38.



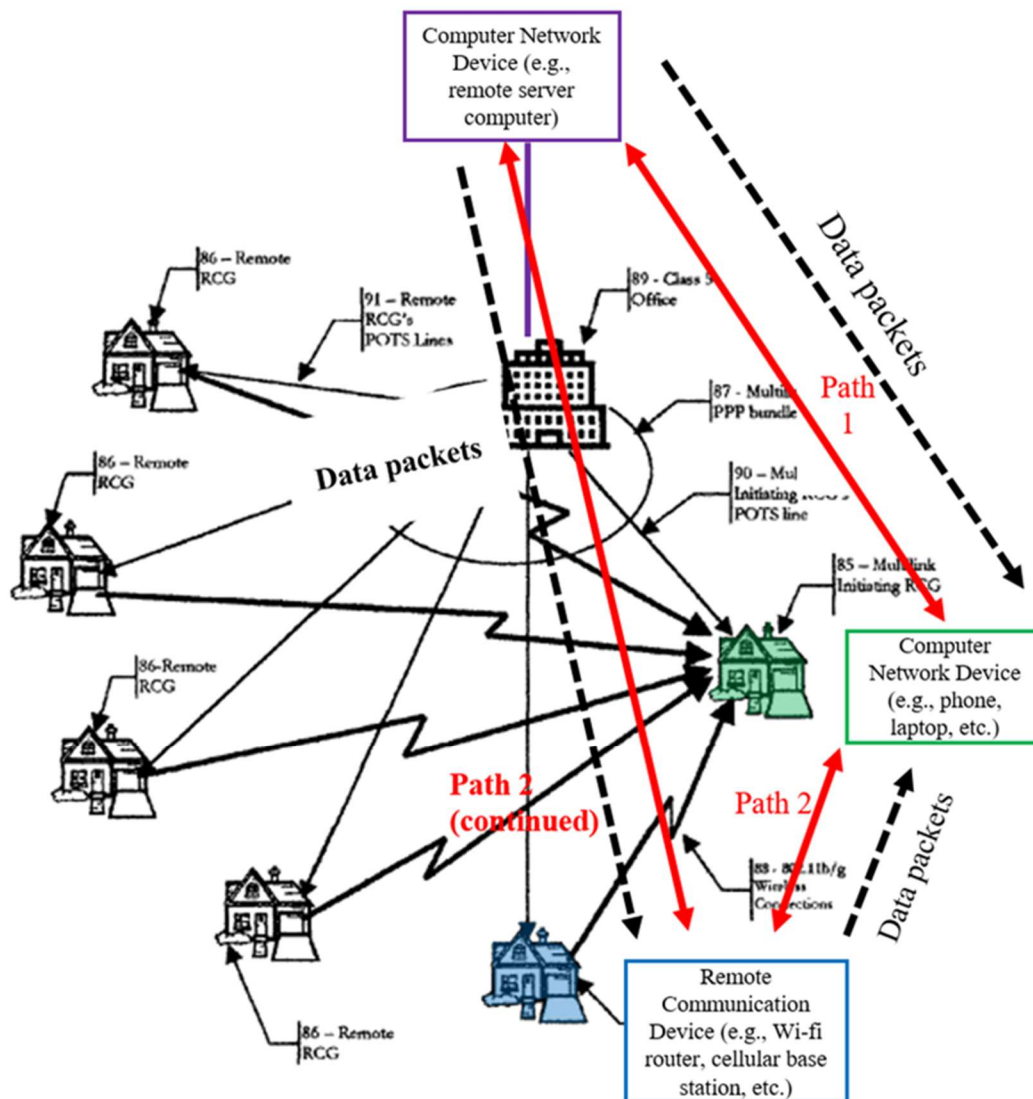
32. Each of the participating remote communications devices sends a multilink packet to the remote server computer with the multilink session ID and requests to be added to the multilink session. For example, as depicted and annotated below, the specification states: “The remote RCGs-86 then send a multilink PPP packet (over their respective POTS lines-91) to the destination URL with the multilink PPP session ID and request to be added to that multilink PPP bundle-87.” EX1013 at 12:38-41.



33. The remote server computer accepts the request and begins sending data packets to each of the remote communications devices over their respective paths or links. As an example, as depicted and annotated below, the specification states: “The destination URL accepts the request of each of the remote RCGs-86 and begins sending data packets to each over their respective POTS lines-91.” EX1013 at 12:41-44.



34. The remote communications device relays the data packets to the computer network device (e.g., phone, laptop, etc.). In this instance, as depicted and annotated below, the specification states: “When the remote RCGs-86 receive data packets sent over their respective POTS lines-91, that are destined for the multilink PPP bundle-87, they simply relay the data packets over their 802.11b/g interface-88 to the initiating RCG-85.” EX1013 at 12:44-48.



35. The use of the additional links as claimed in the '908 Patent thus results in increased bandwidth, data throughput, quality of service, and/or connection reliability. For example, as explained in the specification: “An RCG that is transferring a very large file can request the services of 31 (in this embodiment) other RCGs to assist in the file transfer using their respective POTS lines. A single RCG can therefore gain the combined bandwidth of up to 32 POTS lines transferring data at as much as 56 Kbps each to transfer information. This is roughly equivalent to a transfer rate of 1.79 Mbps in the inbound direction (towards the RCG) and approximately 1.075 Mbps in the outbound direction (towards the PSTN).” EX1013 at 11:26-35.

36. The claims of the '801 Patent are limited to particular configuration and/or operation of computer network devices involved in an exchange of data designed to enable technological improvements such as increasing bandwidth, data throughput, quality of service, and/or connection reliability.

37. Specifically, claim 1 of the '801 Patent recites the following:

A communications device that is capable of providing broadband communications services, comprising:

- at least one connection for connecting to a communications network;

- at least one wireless interface for connecting wirelessly to at least one remote communications device; and

- a processor that requests at least one remote communications device to assist in transferring data, sends a request to the at least

one remote communications device for requesting use of a portion of unused bandwidth of the at least one remote communications device, receives a response from the at least one remote communications device, the response containing information about the portion of unused bandwidth, selects the at least one remote communications device with unused bandwidth, sends control information to the at least one remote communications device for participating in a multilink connection, receives packets from the at least one remote communications device and aggregates the data from the at least one remote communications device with data transfers from the at least one connection to increase data bandwidth for the communications device.

EX1013 at 16:31-52.

38. Claim 10 of the '801 Patent recites the following:

A communications device that is capable of providing broadband communications services, comprising:

at least one connection for connecting to a network;

at least one wireless interface for connecting wirelessly to remote communications devices; and

a processor that requests the remote communications devices to transfer portions of data, sends a request to the remote communications devices for requesting use of a portion of unused bandwidth of each of the remote communications devices, receives a response from each of the remote communications devices, the response containing information about the portion of unused bandwidth for each of the remote communications devices, selects a group of the remote communications devices with a larger combined, unused bandwidth, sends control information to the selected remote communications devices for participating in a multilink transfer, and receiving packets from the selected remote communications devices and combines and sequences the portions of the data from the remote communications devices with second data

transferred from the at least one connection to increase data bandwidth for the communications device.

EX1013 at 17:21-43.

39. Claim 15 of the '801 Patent recites the following:

A communications device that is capable of providing broadband communications services, comprising:

at least one connection for connecting to a communications network;

at least one wireless interface for connection wirelessly to at least one cellular phone; and

a processor that requests the at least one cellular phone to assist in transferring data, sends a request to the at least one cellular phone for requesting use of a portion of unused bandwidth of the at least one cellular phone, receives a response from the at least one cellular phone, the response containing information about the portion of unused bandwidth, selects the at least one cellular phone with unused bandwidth, sends control information to the at least one cellular phone for participating in a multilink connection, receiving packets from the at least one cellular phone and aggregates the data from the at least one cellular phone with data transfers from the at least one connection to increase data bandwidth for the communications device.

EX1013 at 18:17-36.

40. Using Figure 7 as an exemplary, non-exclusive example, the claimed configurations of Claims 1 and 10 can be depicted as shown below:

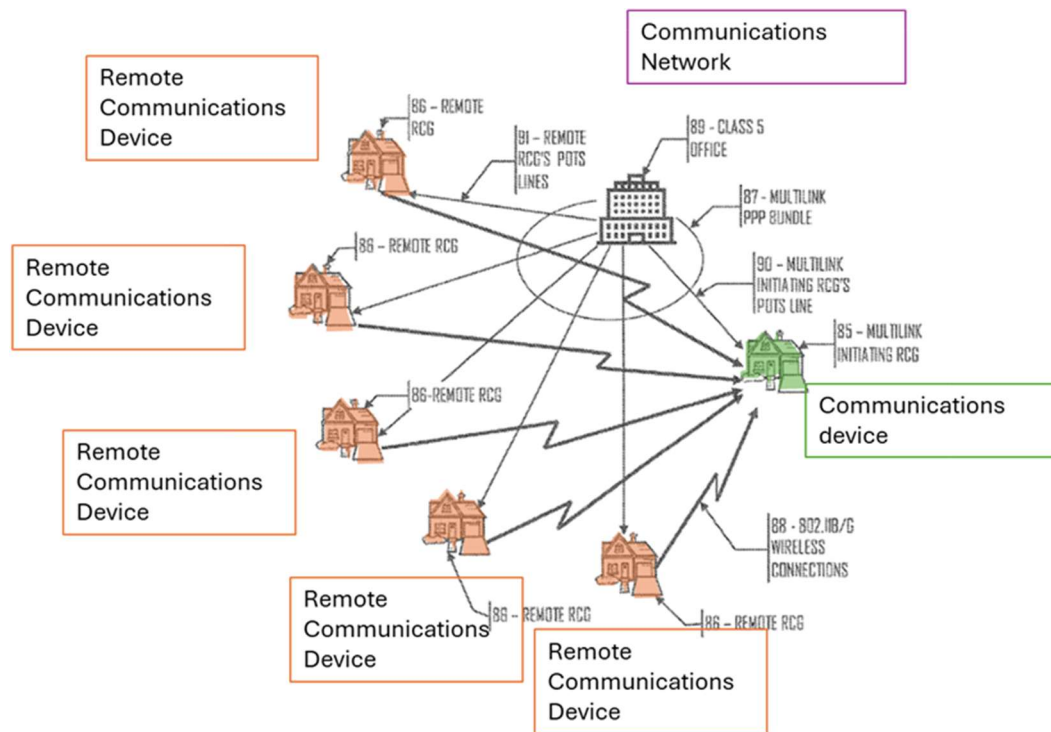


FIG. 7

41. The inventions recited in the claims of the '801 Patent and its family members also improve upon the prior art. The typical and representative prior art configurations and computer network device operations involved in exchanging data included the following: a Plain Old Telephone Service ("POTS") lines, cable lines, or DSL lines to connect two computer network devices.

42. The problems with the prior art configurations and methods included low bandwidth, data throughput, quality of service, and reliability and substantial costs.

43. For example, as highlighted in the specification, DSL and cable lines require tremendous infrastructure costs, suffer from high costs associated with

purchase, installation, and maintenance, required expensive modems at the customer's end, were difficult to deploy, were too complicated for the average user, and were not available to many customers. EX1013 at 1:62-64 (“DSL or Cable services [] require tremendous infrastructure costs on behalf of the CLEC.”); *id.* at 2:8-11 (“The high-speed services require expensive infrastructure enhancements to the local telephone companies’ facilities and cable plants, as well as expensive modems at the customer’s end ...”).

44. As another example, POTS lines had very limited bandwidth. *See also* EX1013 at 10:51-61 (“... standard POTS lines can only guarantee a maximum of 56 Kbps transfer rate under the best conditions ... DSL, however, suffers from the very high costs associated with the purchase, installation, maintenance, floor lease costs, etc. ...”).

45. In addition, prior art configurations and methods also suffered from poor quality of service. EX1013 at 2:12-15 (“Internet based VoIP services suffer from Internet delays caused by a lack of true Quality of Service (QOS) capabilities across the Internet.”).

VII. The Prior Art

A. Challenger

46. U.S. Patent Application Publication No. 2004/0001512 A1 (“Challenger”) (EX1017) discloses a method and apparatus for sharing bandwidth

among a plurality of end users to increase the bandwidth available to each user as depicted in its Figure 2.

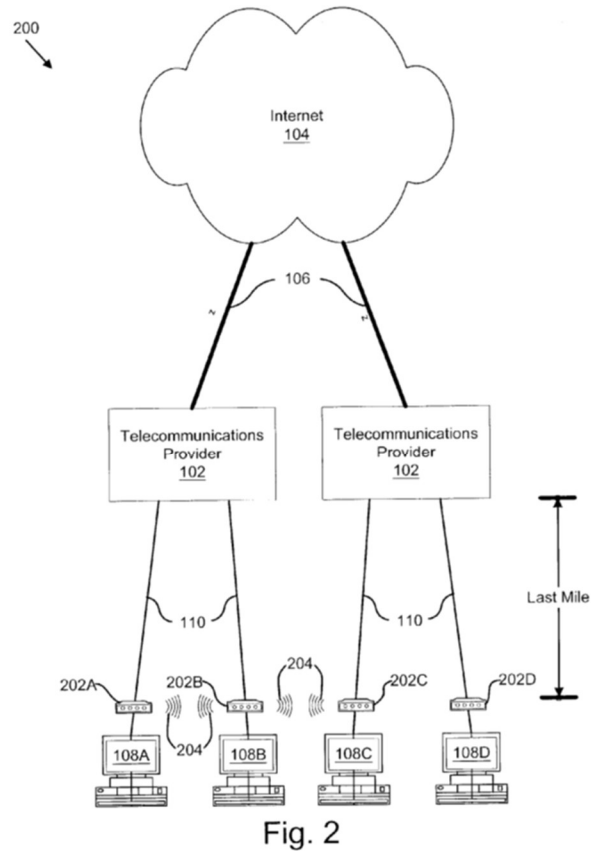


Fig. 2

EX1017 at FIG. 2.

47. Challenger also discloses the following sequence by which data is sent from a remote site through at least two bandwidth sharing devices (one device acting as a master device and the other acting as slave device) in its Figure 7.

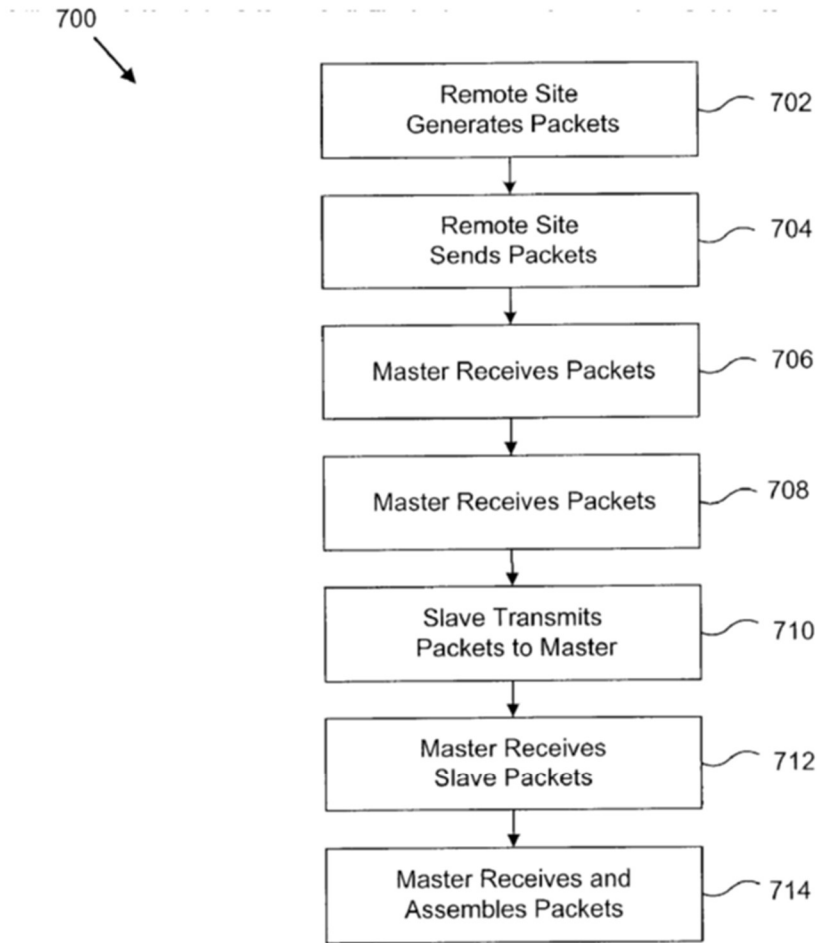


Fig. 7

EX1017 at FIG. 7.

B. Kotzin

48. U.S. Patent Application Publication No. 2003/0026221 (“Kotzin”) (EX1018) discloses “[a] method and apparatus splits information into subsets of information to be communicated for a wireless apparatus.” EX1018 at Abstract.

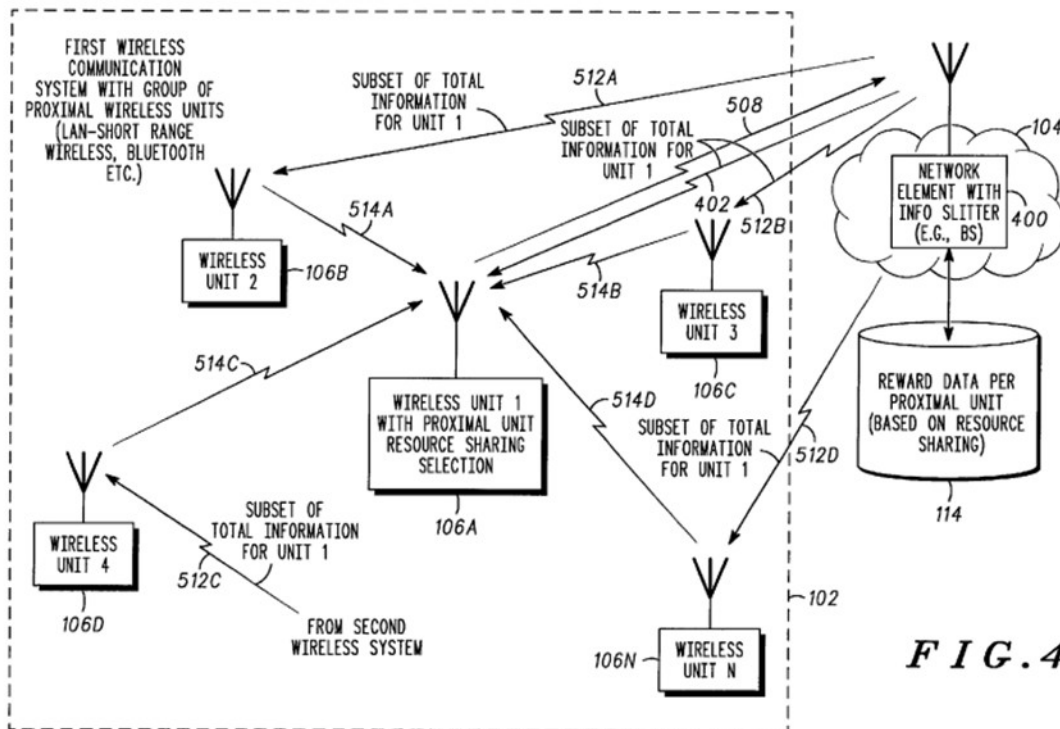


FIG. 4

EX1018 at FIG. 4.

49. Kotzin also discloses in its Figure 5 the following sequence by which participation of wireless units are requested and the data is sent from the network communication system through the multiple wireless units to the recipient wireless unit.

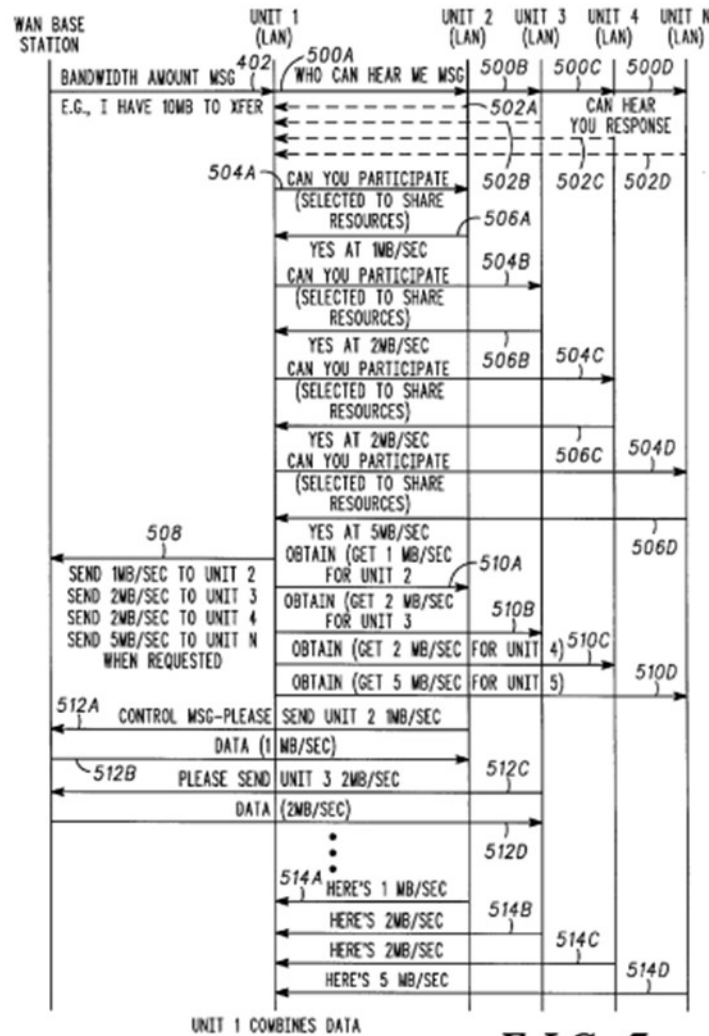


FIG. 5

EX1018 at FIG. 5.

VIII. Claim Construction

A. “Multilink Connection”

50. It is my opinion that in the context of the '801 Patent the POSITA would understand the claim term “multilink connection” to mean “a connection for a data transfer session using at least two network interfaces to form links between two devices, where each link is associated with the same session identification for

assisting in the data transfer, and at least one of the links connects the two devices through a remote communications device having available bandwidth to assist with the data transfer.”

51. The claim language supports that “multilink connection” comprises “a connection for a data transfer session” portion of the proposed construction. For example, in Claim 1, once control information is sent to the at least one remote communications device for participating in a multilink connection, the claimed method comprises “receives packets from the at least one remote communications device and aggregates the data from the at least one remote communications device with data transfers from the at least one connection to increase data bandwidth.” EX1013 at 16:48-52.

52. The specification also supports the “a connection for a data transfer session” portion of the proposed construction. EX1013 at 11:36-46 (“The multilink PPP connection-87 is initiated by an RCG when it determines that the file (or streaming service) that it is to download (receive) is of sufficient size or requires a minimum amount of bandwidth to justify the use of a multilink PPP connection. This determination can be made on many different criteria such as the file size, type of data being transmitted, the type of compression if any, a Quality-of-Service requirement or any other pertinent information. (Since a certain amount of overhead is required to set up a Multilink PPP connection, it doesn’t make sense to use it for

small or low data rate transfers.)”), 11:48-51 (“Referring to FIG. 7, an RCG-85 that decides to initiate a multilink PPP session with a remote computer i.e. internet URL, requests a multilink PPP session with that URL resource”).

53. The claim language supports that “multilink connection” comprises “using at least two network interfaces to form links between two devices” portion of the proposed construction.

54. For example, in Claim 1 multiple interfaces are identified for the multilink communication. EX1013 at 16:31-52 (“1.A communications device that is capable of providing broadband communications services, comprising: at least one connection for connecting to a communications network[and] at least one wireless interface for connecting wirelessly to at least one remote communications device ... [to] receive[] packets from the at least one remote communications device and aggregates the data from the at least one remote communications device with data transfers from the at least one connection”).

55. Notably, the person of skill in the art would have recognized that the “at least one connection for connecting to a communications network” would have required a separate network interface from the “at least one wireless interface.”

56. The specification also supports this construction. EX1013 at 3:35-41 (“Broadband networking for home computers and appliances as well as wide area networking using a combination of a plurality POTS lines connected to a plurality

of RCGS and/or a direct wireless connection to a wireless access point. (These interfaces allow smart devices to communicate to other devices within the home, or over the Internet through the RCG.)), 2:59-61 (“The 802.11b/g interface is for wireless communications between the RCG and PCs, other RCGs as well as any other types of compatible wireless devices.”), 11:10-15 (“An 802.11b/g interface-87 is shown as the preferred embodiment, since its 11/54 Mbps interface is considered sufficient 10 bandwidth at this time also. its transmission distances are sufficient for implementation of this device, as opposed to other shorter ranged wireless transmission schemes”), 12:44-48 (“When the remote RCGs-86 receive data packets sent over their respective POTS lines 91, that are destined for the multilink PPP bundle-87, they 45 simply relay the data packets over their 802.11b/g interface88 to the initiating RCG-85.”), 11:4–7 (“Referring to FIG. 7, the RCG implements broadband over POTS by employing an 802.11 b/g wireless interface to configure a multilink PPP bundle87 (per RFC 1990) comprised of the POTS lines connected to up to 32 RCGs.”), 11:60-65 (“Once the multilink bundle is setup, the initiating RCG-85 begins data transfer across its POTS interface 90 with the far end computer system. The initiating RCG-85 then looks up the addresses of up to 31 (in this embodiment) other RCGs in its router tables to use for the multilink PPP transfer.”), 11:26-35 (“An RCG that is transferring a very large file can request the services of 31 (in 25 this embodiment) other RCGs to assist in the file transfer using

their respective POTS lines. A single RCG can therefore gain the combined bandwidth of up to 32 POTS lines transferring data at as much as 56 Kbps each to transfer information. This is roughly equivalent to a transfer rate of 30 1.79 Mbps in the inbound direction (towards the RCG) and approximately 1.075 Mbps in the outbound direction (towards the PSTN).”), 12:35–38 (“Each remote RCG POTS interface 91 participating in a multilink PPP bundle, represents a logical “link” in the initiating RCG's multilink PPP bundle-87.”).

57. The specification supports that “multilink connection” comprises “where each link is associated with the same session identification for assisting in the data transfer and at least one of the links connects the two devices through a remote communications device having available bandwidth to assist with the data transfer” portion of the proposed claim construction. EX1013 at Fig. 11:26-35 (“An RCG that is transferring a very large file can request the services of 31 (in 25 this embodiment) other RCGs to assist in the file transfer using their respective POTS lines. A single RCG can therefore gain the combined bandwidth of up to 32 POTS lines transferring data at as much as 56 Kbps each to transfer information. This is roughly equivalent to a transfer rate of 30 1.79 Mbps in the inbound direction (towards the RCG) and approximately 1.075 Mbps in the outbound direction (towards the PSTN).”), 12:35-38 (“Each remote RCG POTS interface 91 participating in a multilink PPP bundle, represents a logical “link” in the initiating

RCG's multilink PPP bundle-87."), 11:48-50 ("Referring to FIG. 7, an RCG-85 that decides to initiate a multilink PPP session with a remote computer i.e. internet URL,"), 11:55-60 ("As part of a successful multilink PPP session setup, the initiating RCG-85 receives a multilink PPP session ID, or "magic number", which is used to identify this particular multilink PPP session and is also used for adding or removing links from the multilink bundle 87"), 12:29-35 ("The initiating RCG then selects which of the responding remote RCGs-86 it will use for the multilink PPP bundle 87 and sends them a multilink initialization packet containing the URL of the destination as well as the multilink PPP session ID (magic number) and any other pertinent information required for the remote RCG to join in the existing multilink PPP bundle-87.").

B. "Multilink Transfer"

58. It is my opinion that in the context of the '801 Patent the POSITA would understand the claim term "multilink transfer" as used in Claim 10 to mean a "transfer of data during a data transfer session using at least two network interfaces to form links between two devices, where each link is associated with the same session identification for assisting in the data transfer, and at least one of the links connects the two devices through a remote communications device having available bandwidth to assist with the data transfer."

59. The claim language supports that “multilink transfer” comprises the “transfer of data during a data transfer session” portion of the proposed construction. For example, in Claim 10 once the communications device selects a group of the remote communications devices with a larger, combined, unused bandwidth, it is described as “send[ing] control information to the selected remote communications devices for participating in a multilink transfer, and receiving packets from the selected remote communications devices and combines and sequences the portions 40 of the data from the remote communications devices with second data transferred from the at least one connection to increase data bandwidth for the communications device.” EX1013 at 17:36-44, *see also* EX2015 at ¶ 54.

60. As explained above with respect to the support for construing “multilink connection” to comprise “a connection for a data transfer session,” the specification likewise supports that “multilink transfer” comprises the “transfer of data during a data transfer session” portion of the proposed construction. EX1013 at 11:36-46, 11:48-51.

61. The claim language likewise supports that “multilink transfer” comprises “using at least two network interfaces to form links between two devices” portion of the proposed construction. For example, in Claim 10 the multilink transfer is described as using “at least one connection for connecting to a network”

and “at least one wireless interface for connecting wirelessly to remote communications devices.” EX1013 at 17:23-25.

62. As explained with respect to the support for construing “multilink connection” to similarly comprise “using at least two network interfaces to form links between two devices,” the specification also supports this portion of the proposed construction for “multilink transfer.” EX1013 at 3:35-41 (“Broadband networking for home computers and appliances as well as wide area networking using a combination of a plurality POTS lines connected to a plurality of RCGS and/or a direct wireless connection to a wireless access point. (These interfaces allow smart devices to communicate to other devices within the home, or over the Internet through the RCG.)”), 2:59-61 (“The 802.11b/g interface is for wireless communications between the RCG and PCs, other RCGs as well as any other types of compatible wireless devices.”), 11:10-15 (“An 802.11b/g interface-87 is shown as the preferred embodiment, since its 11/54 Mbps interface is considered sufficient 10 bandwidth at this time also. its transmission distances are sufficient for implementation of this device, as opposed to other shorter ranged wireless transmission schemes”), 12:44-48 (“When the remote RCGs-86 receive data packets sent over their respective POTS lines 91, that are destined for the multilink PPP bundle-87, they 45 simply relay the data packets over their 802.11b/g interface88 to the initiating RCG-85.”), 11:4–7 (“Referring to FIG. 7, the RCG

implements broadband over POTS by employing an 802.11 b/g wireless interface to configure a multilink PPP bundle⁸⁷ (per RFC 1990) comprised of the POTS lines connected to up to 32 RCGs.”), 11:60-65 (“Once the multilink bundle is setup, the initiating RCG-85 begins data transfer across its POTS interface 90 with the far end computer system. The initiating RCG-85 then looks up the addresses of up to 31 (in this embodiment) other RCGs in its router tables to use for the multilink PPP transfer.”), 11:26-35 (“An RCG that is transferring a very large file can request the services of 31 (in 25 this embodiment) other RCGs to assist in the file transfer using their respective POTS lines. A single RCG can therefore gain the combined bandwidth of up to 32 POTS lines transferring data at as much as 56 Kbps each to transfer information. This is roughly equivalent to a transfer rate of 30 1.79 Mbps in the inbound direction (towards the RCG) and approximately 1.075 Mbps in the outbound direction (towards the PSTN).”), 12:35–38 (“Each remote RCG POTS interface 91 participating in a multilink PPP bundle, represents a logical “link” in the initiating RCG's multilink PPP bundle-87.”).

63. As explained with respect to the support for construing “multilink connection,” the specification supports that “multilink transfer” comprises “where each link is associated with the same session identification for assisting in the data transfer and at least one of the links connects the two devices through a remote communications device having available bandwidth to assist with the data transfer”

portion of the proposed claim construction. EX1013 at Fig. 11:26-35 (“An RCG that is transferring a very large file can request the services of 31 (in 25 this embodiment) other RCGs to assist in the file transfer using their respective POTS lines. A single RCG can therefore gain the combined bandwidth of up to 32 POTS lines transferring data at as much as 56 Kbps each to transfer information. This is roughly equivalent to a transfer rate of 30 1.79 Mbps in the inbound direction (towards the RCG) and approximately 1.075 Mbps in the outbound direction (towards the PSTN).”), 12:35-38 (“Each remote RCG POTS interface 91 participating in a multilink PPP bundle, represents a logical "link" in the initiating RCG's multilink PPP bundle-87.”), 11:48-50 (“Referring to FIG. 7, an RCG-85 that decides to initiate a multilink PPP session with a remote computer i.e. internet URL,”), 11:55-60 (“As part of a successful multilink PPP session setup, the initiating RCG-85 receives a multilink PPP session ID, or "magic number", which is used to identify this particular multilink PPP session and is also used for adding or removing links from the multilink bundle 87”), 12:29-34 (“The initiating RCG then selects which of the responding remote RCGs-86 it will use for the multilink PPP bundle 87 and sends them a multilink initialization packet containing the URL of the destination as well as the multilink PPP session ID (magic number) and any other pertinent information required for the remote RCG to join in the existing multilink PPP bundle-87.”).

IX. Opinions on Ground 1 (Challenger Alone or in Combination with Held)

A. *“send[ing] control information ... for participating in a multilink connection”*

64. I understand Red Hat to assert that claims 1-17 of the '801 Patent are invalid, specifically asserting that claims 1, 10, and 15 are disclosed or rendered obvious by Challenger alone or in view of Held.

65. Each of independent claim of the '801 Patent requires that the communications device include a processor that “sends control information ... for participating in a multilink connection” (See claim 1, limitation [1.7], claim 10, limitation [10.7], claim 15, limitation [15.8]).

66. I understand Red Hat to assert that these limitations are met in that Challenger discloses that “the logic unit of the master BSD sends control information for participating in a multilink connection, e.g., commands and instructions, to the slave BSD to control its operations so that it shares bandwidth with the master BSD where the master BSD is receiving data over a connection including multiple physical links.” Petition at 27; EX1017 at ¶[0017] (“The operations of the slave devices are determined by the commands from the master device, which is connected to the end user terminal initiating the bandwidth sharing process.”).

67. Specifically, regarding the “multilink connection,” I understand Red Hat asserts that Challenger “participates in a multilink connection with the master BSD where the connection is at least a physical link between the master BSD and

the slave BSD and also the master BSD and the Internet. Petition at 28. Red Hat likewise argues that the claimed “multilink transfer” was met or obvious, “because multiple physical links are being used to transfer data.” Petition at 28.

68. In my opinion, as addressed above, “multilink connection” (as used in both Claims 1 and 15) should be construed to mean “a connection for a data transfer session using at least two network interfaces to form links between two devices, where each link is associated with the same session identification for assisting in the data transfer, and at least one of the links connects the two devices through a remote communications device having available bandwidth to assist with the data transfer.”

69. Similarly, it is my opinion that “multilink transfer” (as used in claim 10) should be construed to mean “transfer of data during a data transfer session using at least two network interfaces to form links between two devices, where each link is associated with the same session identification for assisting in the data transfer, and at least one of the links connects the two devices through a remote communications device having available bandwidth to assist with the data transfer.”

70. Applying this understanding in the context of Challenger, the slave BSD would be the “remote communications device” through which two devices would be linked (e.g. the remote server and master BSD in the context of Challenger). Notably, Challenger does not discuss establishing a “link” between the slave device

and the remote server. Challenger only discusses establishing the link between the master device and the slave devices, not the overall shared bandwidth connection with the remote server.

71. In Challenger, the links between the master and each of the slave devices are all independent, point to point links. They are not part of a “multilink connection” or provide “multilink transfers” which are end-to-end constructs. From the perspective of the master devices, the connections—and data transfers—are “one to many” and point-to-point. From the perspective of each slave devices, the connection—and data transfer—is “one to one” and point-to-point with the master as well as “one-to-one” with the remote host. From the perspective of the remote host, each connection—and each data transfer—with a slave is “one-to-one” with that specific slave. The remote host is completely unaware that each slave device is a relay because each slave device is creating an independent end-to-end connection with the remote host, and then acting as a transparent relay on one end of that connection. A multilink connection—which provides for a multilink transfer—requires each end of the logical connection to be “one to many” in terms of physical links or constituent logical paths, which then effects an end-to-end “one to one” logical connection.

72. In Challenger, each slave device simply relays data between the master and a remote node in an architecture where each master/slave connection is

"appended" to a separate, end-to-end session between the slave and the remote node. Figures 6 and 7 concisely depict slaves "receiving" (606, 708 [sic]) and "sending" (608, 710) packets. Because the slaves are already offering spare bandwidth to the master device making the request, the master does not need to distribute independent "control information" (e.g., destination or session parameters) to coordinate participation by separate, independent remote devices.

73. As discussed above, the terms "multilink connection" and "multilink transfer" as properly construed also require that "each link is associated with the same session identification for assisting in the data transfer." Red Hat's Petition does not address if or how session identifications are used for assisting in the data transfer.

74. Therefore, it is my opinion that Challenger alone or in view of Held does not disclose or render obvious the "multilink connection" required by independent claims 1, 10, and 15.

X. Opinions on Ground 2 (Kotizn Alone or in Combination with Held)

A. "send[ing] control information ... for participating in a multilink connection"

75. I understand Red Hat to assert that claims 1-17 of the '801 Patent are invalid, specifically asserting that claims 1, 10, and 15 are disclosed or rendered obvious by Challenger alone or in view of Held.

76. Each of independent claim of the '801 Patent requires that the communications device include a processor “sends control information ... for participating in a multilink connection” (*See* claim 1, limitation [1.7], claim 10, limitation [10.7], claim 15, limitation [15.8]).

77. I understand Red Hat asserts these limitations are met in that “Messages 510A, B, C, and D depicted in Figure 5 are control messages sent by UNIT 1 that tell the UNITS 2, 3, 4, and N the amount of bandwidth they are to share with UNIT 1” and “messages 510A, B, C, and D set up a multilink transfer, because the multiple links to external network 104 will be used to transfer data to and from UNIT 1.” Petition at 60.

78. As explained above, it is my opinion that the POSITA would understand the term “multilink connection” (as used in both Claims 1 and 15) to mean “a connection for a data transfer session using at least two network interfaces to form links between two devices, where each link is associated with the same session identification for assisting in the data transfer, and at least one of the links connects the two devices through a remote communications device having available bandwidth to assist with the data transfer.”

79. Similarly, it is my opinion that the POSITA would understand the term “multilink transfer” (as used in claim 10) to mean “transfer of data during a data transfer session using at least two network interfaces to form links between two

devices, where each link is associated with the same session identification for assisting in the data transfer, and at least one of the links connects the two devices through a remote communications device having available bandwidth to assist with the data transfer.”

80. Contrary to Red Hat’s assertions, messages 510A, B, C, and D do not establish open links between Unit 1, Units 2-N, and the WAN Base Station as components of a single multilink session. Instead the sequence of messages in Kotzin represent a series of separate one-off requests and responses.

81. In my opinion, as shown in Figure 5 below, the messages 510 from Unit 1 to Units 2-N are essentially acknowledgements from Unit 1 to Units 2-N that they have been included in the pool, and may begin direct contact with the WAN to set up individual channels. This direct contact is indicated by message pairs 512A/B, 512C/D and so on.

82. The blue arrows in the figures below highlight message sequence 5121A/B—the direct connection between Unit 2 and WAN for the "first tranche" of data—and Message 514A—Unit 2's "offer" to Unit 1 for the "second tranche" of data.

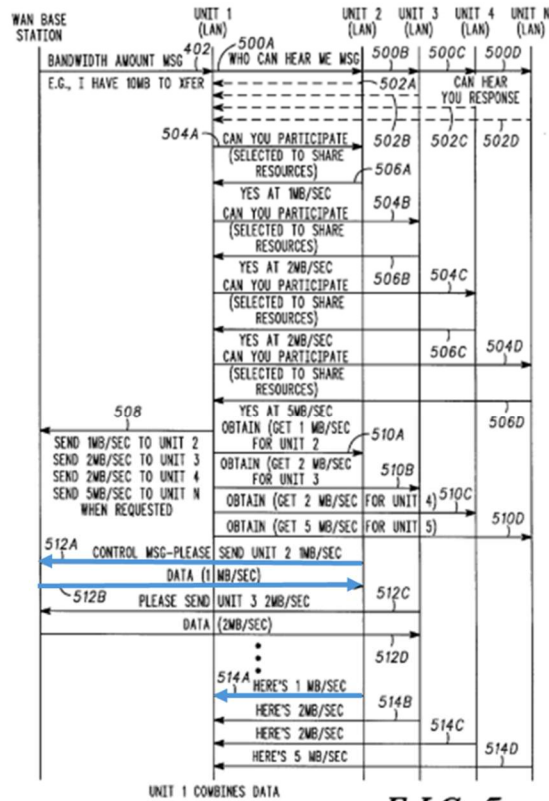


FIG. 5

83. Contrasting Kotzin to the teachings of Challener (further discussed below) demonstrates why Kotzin is not establishing end-to-end link. The teachings of Challener show the lines between the bandwidth sharing devices are connected at 506 and later released at 518. *See* EX1017 Fig. 5 (reproduced below). Notably, Challener discloses establishing connections between the bandwidth sharing devices but does not similarly disclose establishing connections between the bandwidth sharing devices and the web server.

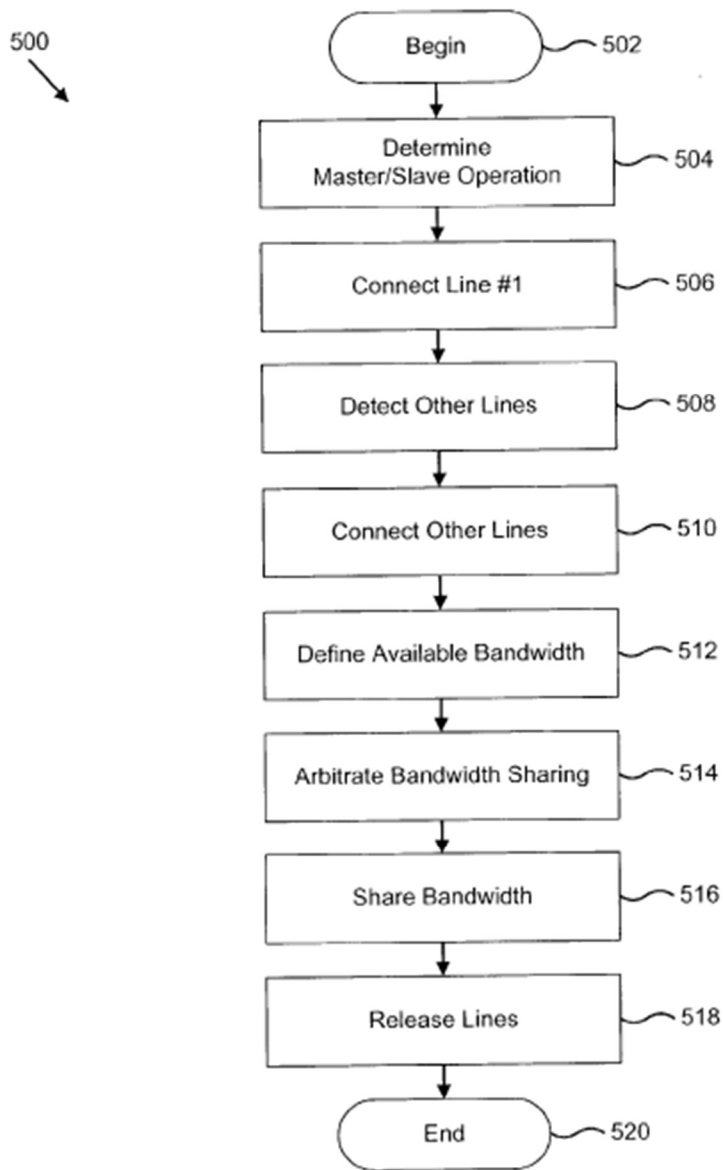
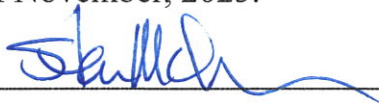


Fig. 5

84. Therefore, it is my opinion that Kotzin alone or in view of Held does not disclose or render obvious the “multilink connection” required by independent claims 1, 10, and 15.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 12th day of November, 2025.

By Dr. Stan McClellan: _____