Samsung, Apple v. Smart Mobile Technologies

IPR2022-01248
U.S. Patent No. 8,842,653

Smart Mobile Technologies
October 24, 2023

Parham Hendifar
Colette Woo
Lowenstein & Weatherwax LLP

Exhibit 2036
IPR2022-01248

All Five Grounds Rely On Yegoshin And/Or Bernard

Ground	Claims	Basis for Rejection
1A	14-16	Yegoshin, Johnston, Billström
1B	1-11, 17-21, 23	Yegoshin, Johnston, Billström, Bernard
1C	12	Yegoshin, Johnston, Billström, Bernard, WO748
1D	13, 24-26	Yegoshin, Johnston, Billström, Bernard, Sainton
1E	27-30	Yegoshin, Johnston, Billström, Bernard, Preiss

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Claims 1, 27 and Dependents Require "Multiplexed" Signals

Patent No.: US 8,842,653 B1

1. An Internet-enabled mobile communication device comprising:

a memory;

display electronics;

at least two or more antennas;

at least one or more processors; and

a plurality of wireless transmit and receive components including a first wireless transmit and receive component and a second wireless transmit and receive component, wherein each wireless transmit receive component is configured to communicate using one or more protocols;

wherein the device is configured for multi-band wireless communication;

wherein the device is enabled for communication using Internet Protocol (IP);

wherein the device is enabled for wireless communication on a wireless local area network;

wherein the first wireless transmit and receive component is configured to communicate using a plurality of antennas; and

wherein a transmission interface is created and wherein said transmission interface uses a plurality of IP enabled interfaces on the mobile device which utilize the plurality of wireless transmit and receive components on the mobile device to enable a single interface comprised of multiplexed signals from the plurality of wireless transmit and receive components.

Petitioner Proposes To Use Plain Meaning Of "Multiplexed" In Both IPR And District Court

PETITION FOR *INTER PARTES* REVIEW

> **C. Claim Construction**
>
> Based on the prior art's description of the claimed elements being similar to that of the '653 patent specification, no formal claim constructions are necessary in

Pet., 2

SECOND DECLARATION OF DR. MICHAEL ALLEN JENSEN

> 31. In particular, the '653 patent's priority application, which was included in the record of this proceeding (cited as Ex. 17 in EX-2003), confirms that the same inventors use the term "multiplex" in its plain meaning. For example, the

Ex. 1051 [2nd-Jensen-Decl.] ¶ 31

DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF

Defendants' Proposed Construction
Plain and ordinary meaning, which is "to interleave or simultaneously transmit two or more messages on a single communications channel."

Ex. 2003 [Defendants-District-Court-Claim Construction] 37

Petitioner Argues That It Is Allowed To Advance Different Plain Meanings For "Multiplexed" In IPR And District Court

PETITIONER'S REPLY

district court construction (POR, 12-13), Petitioner is allowed to advance a different claim construction position from that in the district court, as the Board

Reply, 15

Why?

Petitioner's Expert: Petitioner's IPR Plain Meaning Of "Multiplexed" Is Broader Than Its District Court Plain Meaning

DEPOSITION OF MICHAEL JENSEN, PH.D.

Q Are you aware that -- I assume you are since you state so in your declaration. But are you aware that in the District Court, petitioners have proposed that the plain and ordinary meaning of the word multiple -- the verb multiplexing is to interleave or simultaneously transmit two systems?

A Yes, sir. I've been made aware of that.

Ex. 2032 [2nd-Jensen-Depo.] 52:6-12

Q So your opinion the plain meaning of multiplexing, the verb, is broader than the dictionary definition to interleave or simultaneously transmit or two or more messages on a single connection; correct?

MR. GREEN: Object to the form.

THE WITNESS: I would say that I believe the definition of the verb to multiplex is broader than -- than this form, at least for the purposes of the analysis that I did and my belief of the use of that word, yes.

Ex. 2032 [2nd-Jensen-Depo.] 54:4-14

Petitioner's Attempt To Stretch The Plain Meaning Of "Multiplexed" Should Be Rejected

1. **"Multiplexed" Signals Does Not Encompass *Merely Selecting* WLAN Or Cellular Networks For The Entire Duration Of A Call**

2. ***Independent, Non-Overlapping Streams* Sequentially Transmitted At Different Times Are Not "Multiplexed" Just Because they Pass Through The Same Channel**

No Dictionary Of Record In Either IPR Or District Court Defines "Multiplexing" As Merely "Selecting" A Signal

DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF

Third, the extrinsic evidence also supports Defendants' plain and ordinary construction, consistently referring to interleaving or simultaneously transmitting two or more messages on a single communications channel. *See, e.g.,* Ex. 48, THE COMMUNICATIONS HANDBOOK 87 (Jerry D. Gibson, ed., 1996) ("The process of sending multiple signals on a single channel is called multiplexing."); Ex. 49, THE AUTHORITATIVE DICTIONARY OF IEEE STANDARDS TERMS 716 (7th Ed., 2000) ("To interleave or simultaneously transmit two or more messages on a signal channel."); Ex. 50, HARGRAVE'S COMMUNICATIONS DICTIONARY 338 (IEEE Press, 2001) (same); Ex. 51, WEBSTER'S NEW WORLD DICTIONARY OF COMPUTER TERMS 362 (8th Ed., 2000) (same); Ex. 52, NEWTON'S TELECOM DICTIONARY 585 (16th ed. 2000) ("To transmit two or more signals over a single channel."). Ex. 53, MICROSOFT COMPUTER DICTIONARY 302 (4th Ed. 1999) ("Multiplexing n. A technique used in communications and input/output operations for transmitting a number of separate signals simultaneously over a single channel or line. …").

Ex. 2003 [Defendants'-Opening-Claim-Construction-Brief] 40

Petitioner's IPR Plain Meaning Of "Multiplexed" Contradicts Its District Court Plain Meaning, Which Did Not Include "Selecting"

DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF

Defendants' Proposed Construction
Plain and ordinary meaning, which is "to interleave or simultaneously transmit two or more messages on a single communications channel."

Ex. 2003 [Defendants-District-Court-Claim Construction] 37

Petitioner Conflates "Multiplexed" Signals With A "Multiplexer Device"

PETITIONER'S REPLY

"multiplexing," "multiplexer," etc.). For example, a multiplexer "***select[s]***" one of multiple input signals and "switch[es]" it to an output, "***interleaves***" multiple signals to a single path, or "***combines*** (or funnels) multiple input data streams into an aggregate stream." EX-1050, ¶10; EX-1061 & EX-1062 (reproducing Ex. 49 and Ex. 50 in EX-2003); EX-1053, 16:6-15 (Dr. Cooklev acknowledged a "data selector can be called a multiplexer."). Notably, Dr. Cooklev acknowledged that

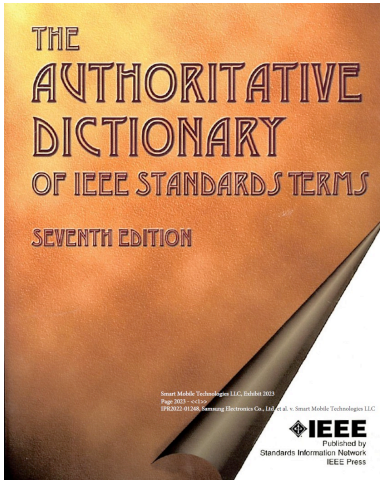
Reply, 16

A "Multiplexer" Is A "Device" That "Selects" In Addition To Multiplexing

A "multiplexer" is a device

multiplexer (A) (supervisory control, data acquisition, and automatic control) A device that allows the interleaving of two or more signals to a single line or terminal. (B) (supervisory control, data acquisition, and automatic control) A device for selecting one of a number of inputs and switching its information to the output.

A "multiplexer" may be a device that "select[s]" in addition to multiplexing



A "multiplexer" may be a device that performs "multiplexing" as defined by the dictionary

multiplex To interleave or simultaneously transmit two or more messages on a signal channel.

Petitioner Cannot Point To Any Part Of The Patent's Specification That Discloses "Selecting" As "Multiplexing"

PETITIONER'S REPLY

As Dr. Jensen noted, the '653 patent offers no specific definition of the term "multiplex," much less one being different from the general understanding. EX-1050, ¶¶11-12; EX-1001, 3:47-48, 5:8-67, 8:32-37, 9:4-44, 10:18-21, 11:1-41.

Reply, 16

Improperly Incorporated Expert Declaration That Must Be Disregarded, But Also Does Not Change The Conclusion

Petitioner's Reliance On The Patent's Priority Application Should Be Rejected Both Procedurally And On The Merits

PETITIONER'S REPLY

As also discussed by Dr. Jensen, the '653 patent's priority application (issued to US 6,169,789 (EX-1052)) also supports the well-known use of the term "multiplex." EX-1050, ¶¶13-16; EX-1051, ¶¶30-33 (citing EX-1052, 3:46-4:12, 8:49-9:23, 11:30-64, 12:35-47, 13:15-31, 14:5-26, 16:45-47, 20:44-49, 21:4-20).

Reply, 17

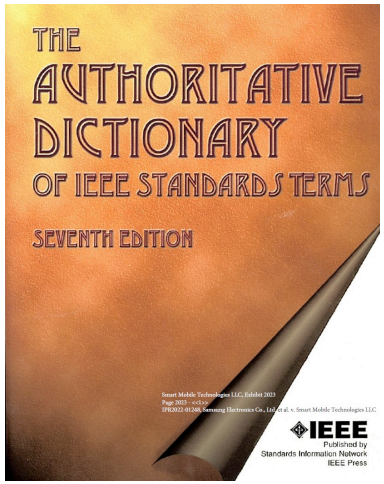
Improperly Incorporated Portions That Must Be Disregarded, But Also Do Not Change The Conclusion

The Patent's Priority Application Discloses A Multiplexer "Device," Which May Select In Addition To Multiplexing

The Patent's Priority Application

Referring now to FIG. **3**, illustrates the Central multi-channel multiplexing transmit/receive device, and the electronics/components of the Central multichannel multiplexing, transmit/receive device; an input block,

Ex. 1052, 11:30-33

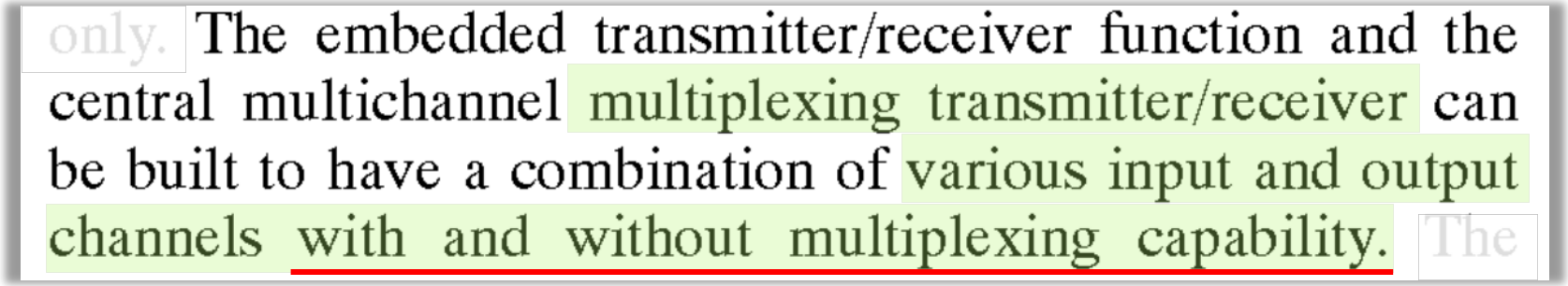


multiplexer (A) (supervisory control, data acquisition, and automatic control) A device that allows the interleaving of two or more signals to a single line or terminal. (B) (supervisory control, data acquisition, and automatic control) A device for selecting one of a number of inputs and switching its information to the output.

Ex. 2023 [IEEE-Dictionary] 716

The Patent's Priority Application Confirms That A Multiplexer That Selects May Not Multiplex

The Patent's Priority Application

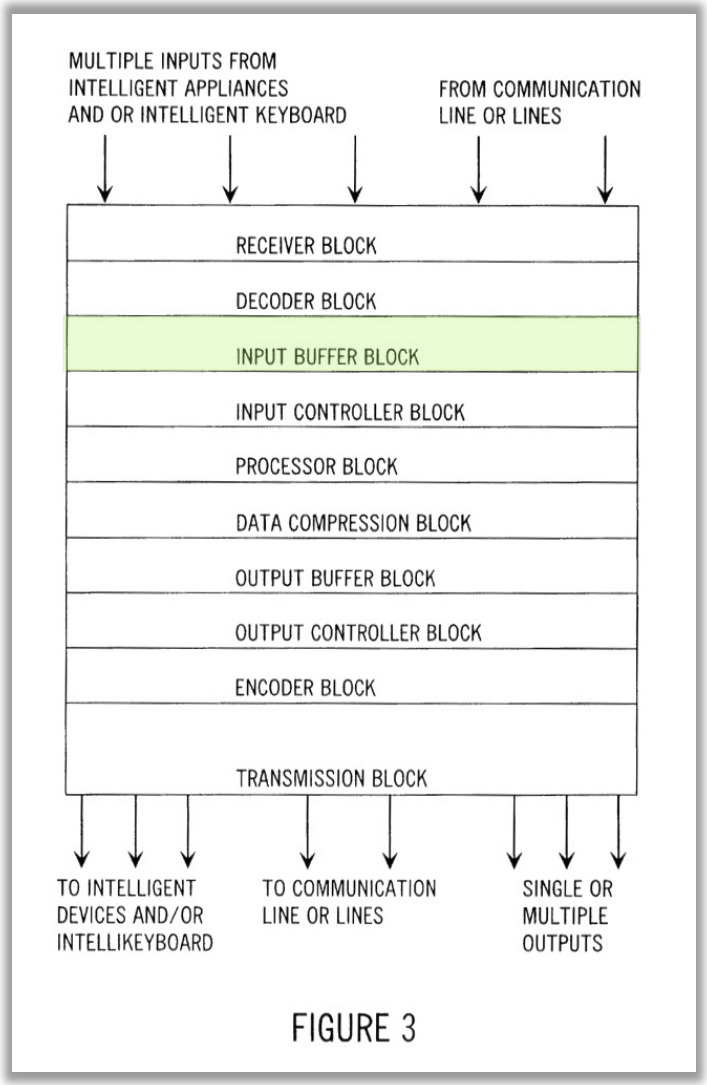


only. The embedded transmitter/receiver function and the central multichannel multiplexing transmitter/receiver can be built to have a combination of various input and output channels with and without multiplexing capability. The

Ex. 1052, 14:27-31

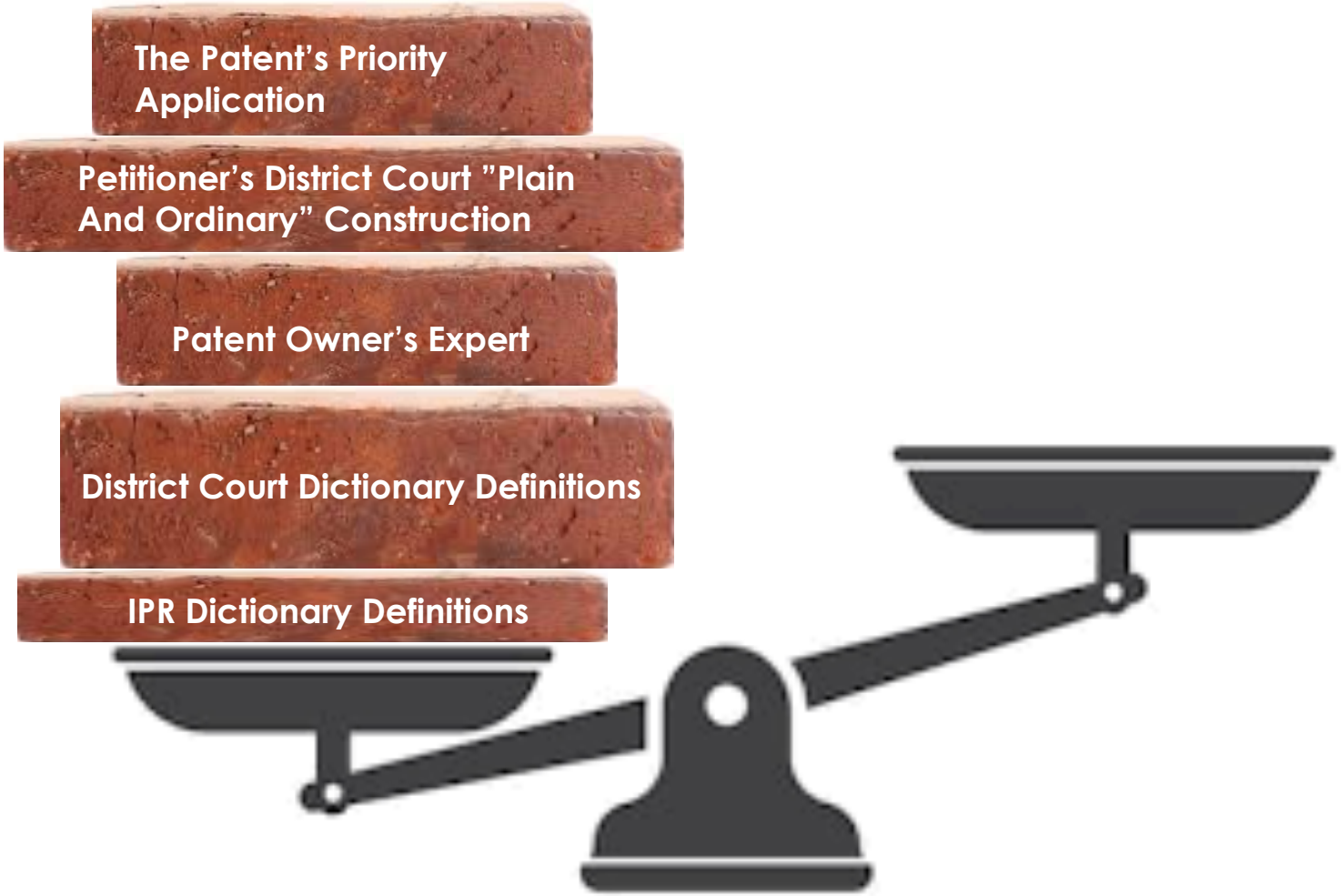
Even Though The Multiplexer Selects A Channel, It Still May Not Be Able To Multiplex

The Patent's Priority Application Provides A Buffer To Potentially Store And Multiplex Sequentially Received Streams



Ex. 1052, Fig. 3

Plain And Ordinary Meaning Of "Multiplexed" Signals Does Not Encompass Selecting One Of Cellular Or WLAN For The Entire Duration Of A Call



Independent, Non-Overlapping Streams Transmitted Sequentially At Different Times Are Not "Multiplexed" Just Because They Pass Through The Same Channel

Petitioner's Interpretation Creates Absurd Results: Two Separate Calls Completed 50 Years Apart Are "Multiplexed"

DEPOSITION OF MICHAEL JENSEN, PH.D.

Q Okay. So in your opinion, if on Yegoshin's phone, a phone call is made using the cellular network today and another phone call is made 50 years from now on the WLAN network, in your opinion, those two signals are multiplexed?

A Again, these are extreme examples. But -- but yes.

Ex. 2032 [2nd-Jensen-Depo.] 56:1-7

Petitioner's IPR Plain Meaning Of "Multiplexed" Contradicts Its District Court Plain Meaning, Which Does Not Include Non-Overlapping Streams

DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEF

Defendants' Proposed Construction
Plain and ordinary meaning, which is "to interleave or simultaneously transmit two or more messages on a single communications channel."

Ex. 2003 [Defendants-District-Court-Claim Construction] 37

Streams Transmitted At Non-Overlapping Times Are Not "Simultaneously" Transmitted Under Petitioner's District Court Plain Meaning

time = t_1

Simultaneous

Independent Stream 1

Independent Stream 2

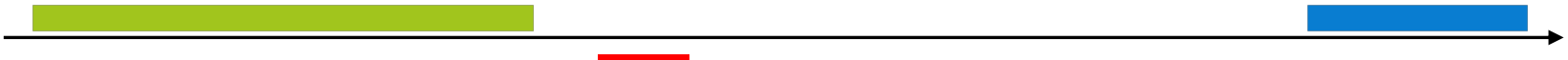
time = t_1

NOT Simultaneous

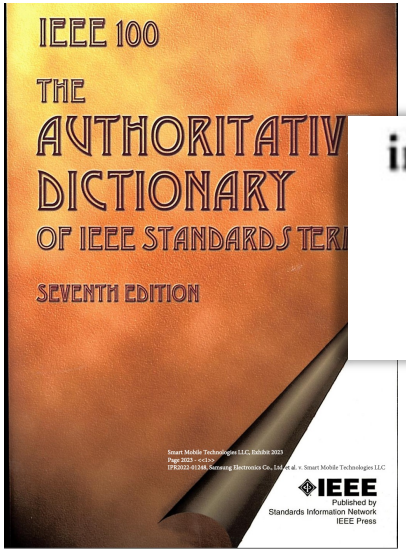
time = t_2

Two Streams Transmitted At Different, Non-Overlapping Times Cannot Be "Interleaved" Under Petitioner's District Court Plain Meaning

Alternating



NOT Alternating



interleave (1) To arrange parts of one sequence of things or events so that they alternate with parts of one or more other sequences of things or events and so that each sequence retains its identity. (C/C) [20], [85]

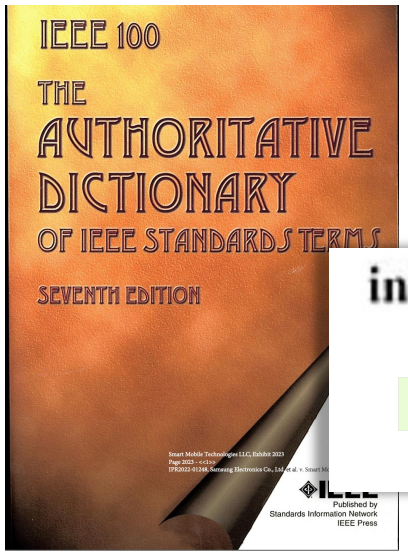
Ex. 2023 [IEEE-Dictionary] 577

Petitioner's Assertion That Sequentially Transmitted Data Can Be "Interleaved" Defies Common Sense

PETITIONER'S REPLY

"Interleaving" can be performed for data being communicated both simultaneously and sequentially. *See infra* §§V.A.1-2 & V.B.2. Therefore, "combining" can be

Reply, 12



interleave (1) To arrange parts of one sequence of things or events so that they alternate with parts of one or more other sequences of things or events and so that each sequence retains its identity. (C/C) [20], [85]

Ex. 2023 [IEEE-Dictionary] 577

Petitioner: STDM Shows Sequentially Transmitted Independent Streams Are "Multiplexed"

PETITIONER'S REPLY

For example, one of these documents (EX-1011) describes synchronous time division multiplexing (STDM) as a method "commonly used in the telephone network" among "several different methods for ***multiplexing*** multiple flows onto one physical link." EX-1011, 15, Figure 1.7 (below); EX-1051, ¶24. In STDM, multiple data flows do not have to be simultaneously or continuously communicated together for them to be multiplexed into a single output link. EX-1050, ¶¶7-8.

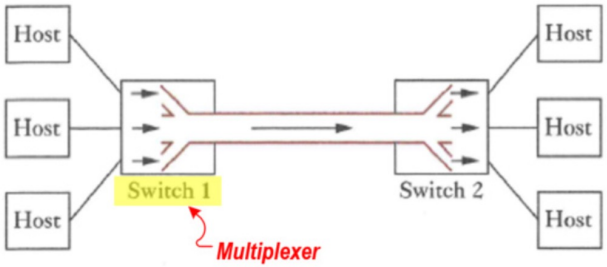


Figure 1.7 Multiplexing multiple logical flows over a single physical link.

Figure 1.7 of EX-1011

Exhibit 1011 Introduces STDM As A Solution For Several Streams To Use The Same Channel "At The Same Time," Not Sequentially

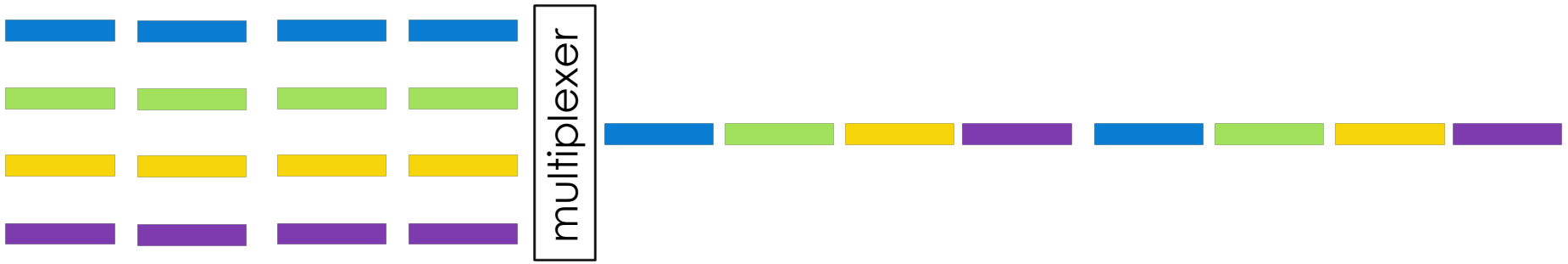
1.2.2 Cost-Effective Resource Sharing

As stated above, this book focuses on packet-switched networks. This section explains the key requirement of computer networks—in short, efficiency—that leads us to packet switching as the strategy of choice.

Given a collection of nodes indirectly connected by a nesting of networks, it is possible for any pair of hosts to send messages to each other across a sequence of links and nodes. Of course, we want to do more than support just one pair of communicating hosts—we want to provide all pairs of hosts with the ability to exchange messages. The question, then, is how do all the hosts that want to communicate share the network, especially if they want to use it at the same time? And, as if that problem isn't hard enough, how do several hosts share the same *link* when they all want to use it at the same time?

Ex. 1011, 14

STDM: Divide Time Into Equal Slots, Send A Piece Of Each Stream In Its Slot In A Round Robin Fashion, *i.e.*, Interleave



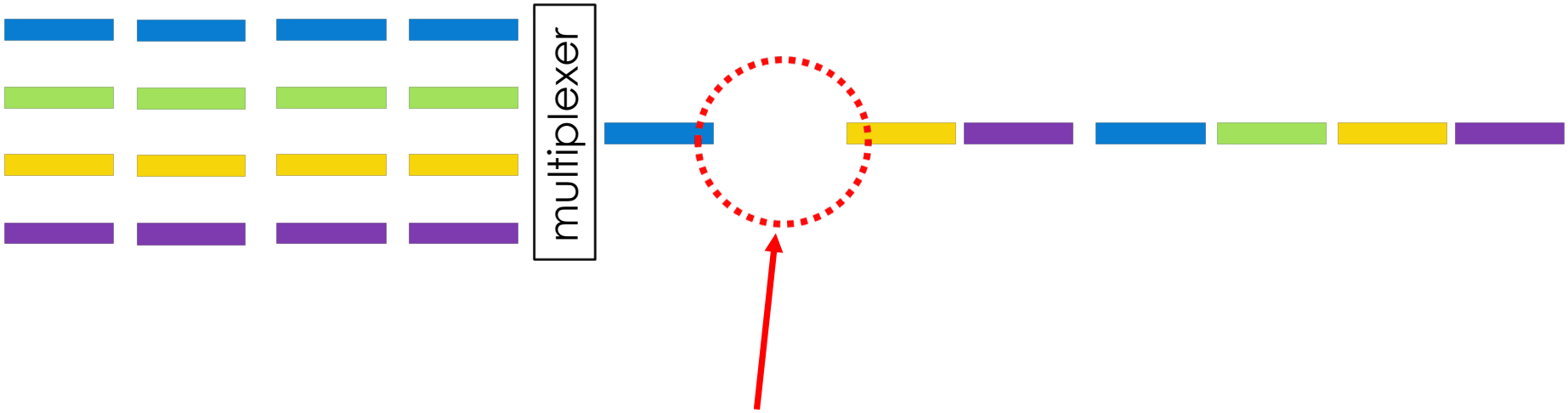
Stream 1

Stream 2

Stream 3

Stream 4

In STDM, It Is Possible That One Stream Does Not Send A Packet In A Given Timeslot



One Missing Packet Does Not Change The Fact That The Streams Are Still Interleaved And Multiplexed

Petitioner's Reliance On An Embodiment For "Combining … Data Paths" To Interpret "Multiplexed" Is Misplaced

Patent No.: US 8,842,653 B1

ports **608** is shown. One, all, or some of the connections may be used simultaneously or sequentially for combining multiple data paths into a single path. Whether to combine all the paths into a single data channel or use separate data channels for simultaneous operations will be based on the needs of the application. Examples of inputs/outputs are, for example,

Ex. 1001 ['653 Patent] 5:52-54

"multiplexed"

Claims 2 & 3 Do Not Address Whether Or When Sequential Signals Can Be Multiplexed

Patent No.: US 8,842,653 B1

2. The device of claim 1, wherein a single transmission connection is further comprised of at least two or more wireless transmit and receive connections simultaneously transmitting and receiving using the plurality of antennas, and wherein the processor multiplexes the receiving signals into the single transmission connection.

3. The device of claim 1, wherein a single transmission connection is further comprised of at least two or more wireless transmit and receive connections sequentially transmitting and receiving using the plurality of antennas, and wherein the processor multiplexes the receiving signals into the single transmission connection.

Transmitting And Receiving Can Be "Simultaneous[]" (cl. 2) Or "Sequential[]" (cl. 3), But Only Receiving Signals Are Multiplexed

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Petitioner Argues Yegoshin "Selectively Or Simultaneously" Uses Either Cellular Or WLAN For The Entire Duration Of A Call

PETITION FOR *INTER PARTES* REVIEW

as audible speech, and for rendering audible speech as audio data." *Id.*, 3:18-22. It would have been obvious that Yegoshin's phone selectively or simultaneously uses its first/cellular and second/WLAN communication interfaces to receive signals for calls and output the signals through a ***single interface*** that includes or is coupled to the "speaker apparatus" of the phone. EX-1003, ¶122; EX-1004, 3:18-22.

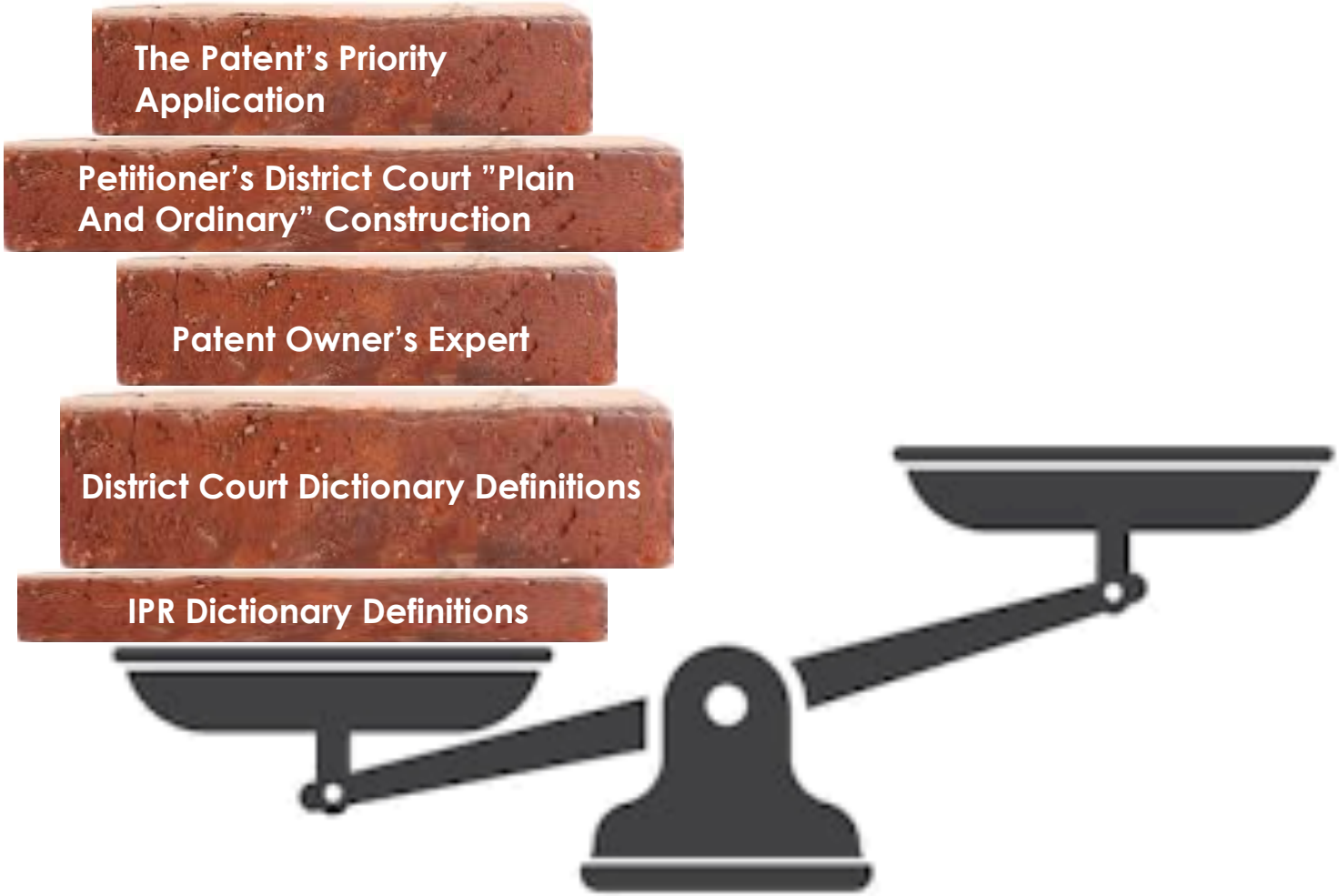
Pet., 32

PETITIONER'S REPLY

As discussed in the Petition and by Dr. Jensen, Bernard supplements Yegoshin's teachings of simultaneous or selective connection to cellular and WLAN networks, thereby rendering obvious "multiplexing." Pet., 31-44; EX-1050, ¶¶37-41; EX-1051, ¶36.

Reply, 18

Plain And Ordinary Meaning Of "Multiplexed" Signals Does Not Encompass Selecting One Of Cellular Or WLAN For The Entire Duration Of A Call



Institution Decision Agreed: Yegoshin Does Not "Simultaneously" Use Cellular And WLAN Networks

DECISION
Granting Institution of *Inter Partes* Review

The portion of Yegoshin quoted above regarding "a busy signal" or "call-waiting call" undermines Petitioner's argument that Yegoshin's "phone multiplexes the signals communicated on two network paths." Petitioner appears to focus on the phrase "cell phone 9 is capable of taking some calls via cellular path while receiving other calls via IP path," without considering Yegoshin's further elaboration on how IP and cell calls are handled.

Paper 13 [Institution Decision] 21

Yegoshin Sets Out To Solve A Well-Defined Problem: Avoiding Roaming Charges For Organizations With Many Roaming Users

United States Patent
Yegoshin

Typically, such individuals would carry cellular telephones or equivalent devices for communication with, for example, callers from a home office, or other business calls. Depending on where such an individual lives or works, he or she may be required to extend the mobile communication range of a cellular device. This is termed roaming in the art. If the organization is significantly large or distributed over a large geographic region, he may have to roam over more than one service area. The cost of communication on a cellular phone increases has he roams further from a primary service area.

Ex. 1004 [Yegoshin] 2:55-65

Yegoshin's Solution: User Can Choose To Have Calls Forwarded To A WLAN Network Instead Of The Cellular Network

United States Patent
Yegoshin

What is clearly needed is a method and apparatus that would allow a visitor to an IP LAN-connected site to plug in or otherwise connect his or her mobile telephone device to the local IP LAN, so that calls coming from any source network may be routed to the user's device on the LAN.

Ex. 1004 [Yegoshin] 2:55-65

Yegoshin Connects Its Network Switch 31 To "CTI processor 49" To "Intelligent[ly]" Route Calls Through Either WLAN Or Cellular

United States Patent
Yegoshin

invention. In this embodiment telephony switch **31** is linked to a CTI processor **49** via a CTI connection **51**. CTI processor **49** provides intelligent routing capability to switch **31** by virtue of added software known as T-server software to the inventor. A separate digital link **47** links CTI processor

Ex. 1004 [Yegoshin] 7:30-32

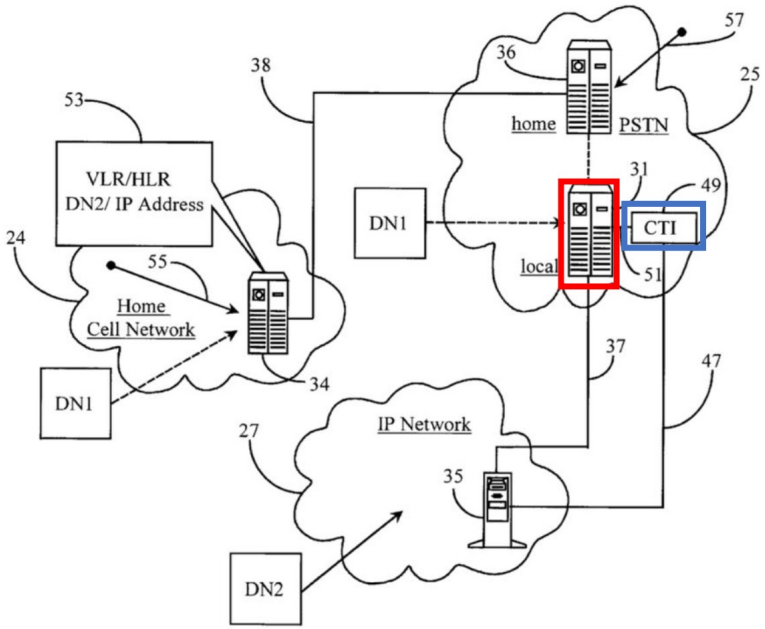


Fig. 3

The User Selects In Advance Whether To Use Cellular Or WLAN Networks For All Or Specific Phone Numbers

United States Patent
Yegoshin

A client software suite **19** enables a user to select a type of network for communication, to select a protocol for voice communication, and to set-up a temporary IP address on a network for the purpose of identifying and registering the device for normal operation on the network. Client software

Ex. 1004 [Yegoshin] 5:33-37

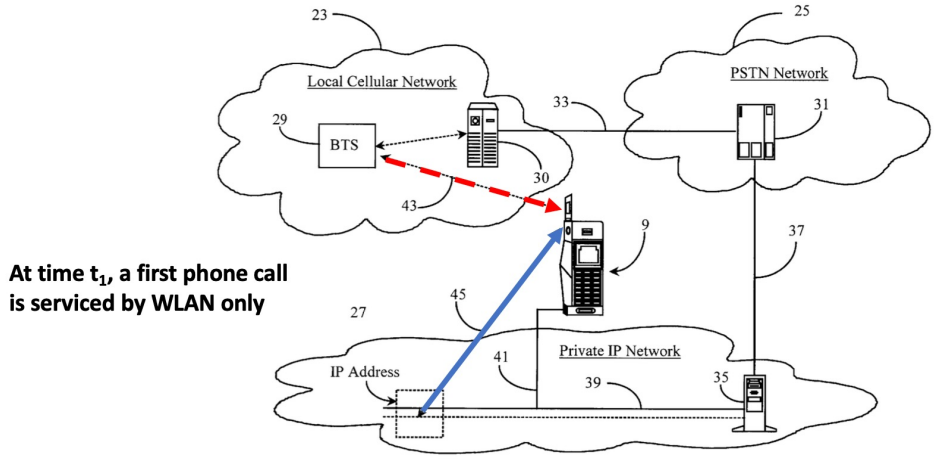
The Network Then Forwards Calls To The User Through WLAN Or Cellular Networks Depending On The User's Selection

United States Patent
Yegoshin

According to one embodiment of the present invention, call **55** may arrive at MSC **34** from within cellular network **24**. A look-up of the HLR indicates that the owner of the device called is not within range of the local service area. If no current cellular service area where the user is currently operating is indicated in MSC **34** at the time of call **55**, then the system looks for forwarding information and finds an IP address associated with the user's cell phone number. MSC **34** then routes call **55** via a trunk **38** to switch **36**. Call **55** is then routed on through to IP switch **35** (via local switch **31**) in network **27** via trunk **37** from switch **31** based on the IP address.

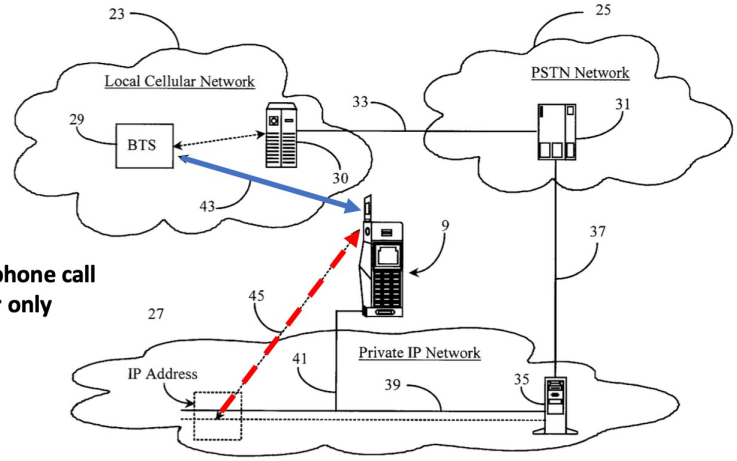
Ex. 1004 [Yegoshin] 8:16-27

Yegoshin's Phone Calls Are Serviced Either Entirely Through The Cellular Network Or Entirely Through The WLAN Network



At time t_1, a first phone call is serviced by WLAN only

Fig. 2



At time t_2, a second phone call is serviced by cellular only

Fig. 2

As The Board Found, There Is No Reason Shown To Multiplex Signals On Different Networks For Different Calls In Yegoshin

DECISION
Granting Institution of *Inter Partes* Review

Petitioner additionally argues that multiplexing techniques were well-known. Pet. 32 (citing Ex. 1003 ¶ 124; Ex. 1004, 1:40–51, 2:1–15, 9:23–26; Ex. 1006, Abstr.; Ex. 1011, 14–17, 284; Ex. 1012, 506–508, 543–545; Ex. 1013, 32–33, 382). But even if multiplexing techniques were well-known, Petitioner does not argue sufficiently that Yegoshin uses multiplexing techniques during cellular calls when another call is received through WLAN. The additional evidence cited also does expressly indicate that multiplexing is used when receiving a WLAN call during a cellular call. Petitioner's cited testimonial evidence (Ex. 1003 ¶ 124) likewise does not explain further how Yegoshin must be multiplexing cellular and WLAN calls. Nor does Petitioner provide a reason why one of ordinary skill in the art would have been motivated to modify Yegoshin's system to use multiplexing.

Paper 13 [Institution Decision] 22

Petitioner: Yegoshin Discloses Simultaneous Use Of Cellular And WLAN Calls As An "Alternative" To "Busy Signal"

PETITIONER'S REPLY

connect to cellular and WLAN calls. EX-1050, ¶¶34-36; EX-1051, ¶34. Besides non-limiting examples of operating Yegoshin's phone involving "a busy signal" or "a call-waiting call" (EX-1004, 5:59-65), Yegoshin provides alternative examples that consider simultaneous use of cellular and WLAN communications to support Yegoshin's description that "cell phone 9 is capable of taking some calls via cellular path ***while*** receiving other calls via IP path." EX-1004, 5:55-57; EX

FALSE

Reply, 17-18

Yegoshin: User May "Switch From One Network Capability To Another" Without Any Disclosure Of Simultaneous Use

United States Patent
Yegoshin

In one embodiment of the present invention cell phone **9** is capable of taking some calls via cellular path while receiving other calls via IP path. In such a situation, integrating software is provided to coordinate activity between the two paths. For example, if engaged with an IP call, an incoming cell call would get a busy signal and so on, or it would be redirected to the IP call point, where it would then be presented as a call-waiting call, if that feature set is available and enabled. In a preferred embodiment, phone **9** may be switched from one network capability to another at the user's discretion.

Ex. 1004 [Yegoshin] 5:55-65

In Yegoshin's System, A User Cannot Even Select Two Networks For Simultaneous Communication

United States Patent
Yegoshin

A client software suite **19** enables a user to select a type of network for communication, to select a protocol for voice communication, and to set-up a temporary IP address on a network for the purpose of identifying and registering the device for normal operation on the network. Client software

Ex. 1004 [Yegoshin] 5:33-37

Institution Decision: Petitioner Disregards Yegoshin's Disclosure To A POSITA As A Whole, Takes One Sentence Out Of Context

DECISION
Granting Institution of *Inter Partes* Review

The portion of Yegoshin quoted above regarding "a busy signal" or "call-waiting call" undermines Petitioner's argument that Yegoshin's "phone multiplexes the signals communicated on two network paths." Petitioner appears to focus on the phrase "cell phone 9 is capable of taking some calls via cellular path while receiving other calls via IP path," without considering Yegoshin's further elaboration on how IP and cell calls are handled.

Paper 13 [Institution Decision] 21

Consistent With The Institution Decision, Any Single-Reference Obviousness Modification Of Yegoshin Is Both Untimely And Unsupported

Unsubstantiated: "[E]ven if multiplexing techniques were well known," Yegoshin does not disclose "multiplexed" signals. I.D., 22

PETITIONER'S REPLY

EX-1050, ¶35 (citing EX-1004, 8:47-56); EX-1051, ¶¶34-35. Indeed, the simultaneous use of two different networks was well-known, as evidenced by Gillig's discussion of three-way linking of calls over two different networks. EX-1050, ¶36; Pet., 46 & 41 (citing EX-1045, 6:35-7:16 and EX-1007, 26:56-65); EX-1051, ¶35.

Reply, 18

Untimely: The Petition did not "provide a reason why [a POSITA] would have been motivated to modify Yegoshin's system to use multiplexing." I.D., 22

This Argument was not made in the Petition

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Petitioner Alternatively Relied On Modifying Yegoshin's Phone In View Of Bernard

PETITION FOR *INTER PARTES* REVIEW

The known multiplexing features are further confirmed by Bernard. EX-1003, ¶126. As described below, a POSITA would have found it obvious to implement or modify Yegoshin-Johnston-Billström's phone based on Bernard's features in a way that further renders obvious 1[j]. *Id.*

Pet., 33

Institution Decision Correctly Found That Bernard Does Not Disclose "Multiplexed" Signals

DECISION
Granting Institution of *Inter Partes* Review

For the reasons above, based on the present record, Petitioner's arguments do not show adequately that Yegoshin would have been understood to have multiplexed signals, or that Bernard "includes or operates as a multiplexer for combining the data packets" (Pet. 37). Because Petitioner does not sufficiently show multiplexed signals in any of the asserted references, Petitioner does not provide enough argument and evidence that its proposed combination of Yegoshin, Johnston, Billström, and Bernard would have "a single interface comprised of multiplexed signals from the plurality of wireless transmit and receive components," as required by claim 1.

Paper 13 [Institution Decision] 25

Petitioner Alleges That Data From Bernard's Networks Are "Multiplexed" By Virtue Of Passing Through Serial Interface 701

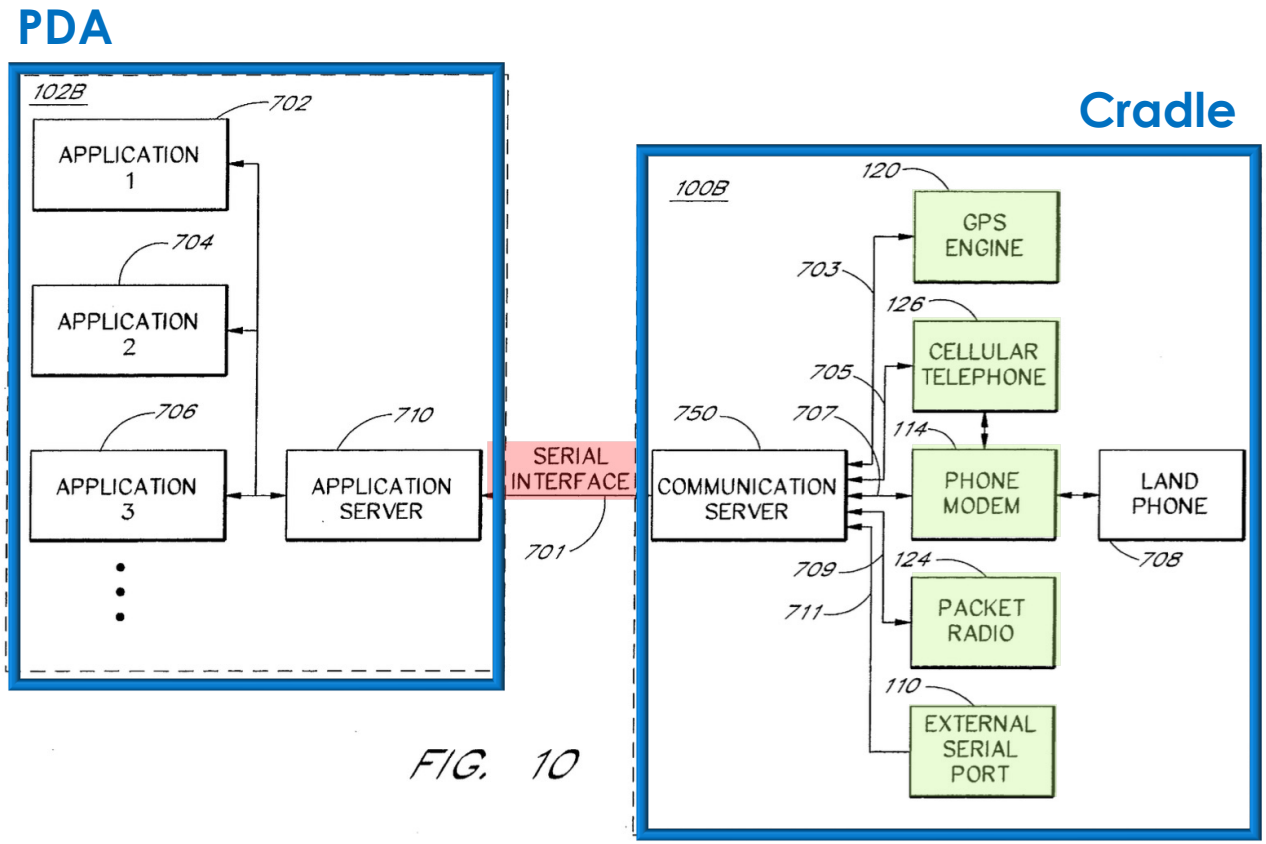


FIG. 10

Independent, Non-Overlapping Streams Transmitted Sequentially At Different Times Are Not "Multiplexed" Just Because They Pass Through The Same Channel

Interpreting Two Independent Streams Sequentially Transmitted At Different, Non-Overlapping Times Creates Absurd Results

DEPOSITION OF MICHAEL JENSEN, PH.D.

Q Okay. So in your opinion, if on Yegoshin's phone, a phone call is made using the cellular network today and another phone call is made 50 years from now on the WLAN network, in your opinion, those two signals are multiplexed?

A Again, these are extreme examples. But -- but yes.

Ex. 2032 [2nd-Jensen-Depo.] 56:1-7

Bernard Completes Servicing An Application Request From One Network Before Moving To Other Requests (If Any)

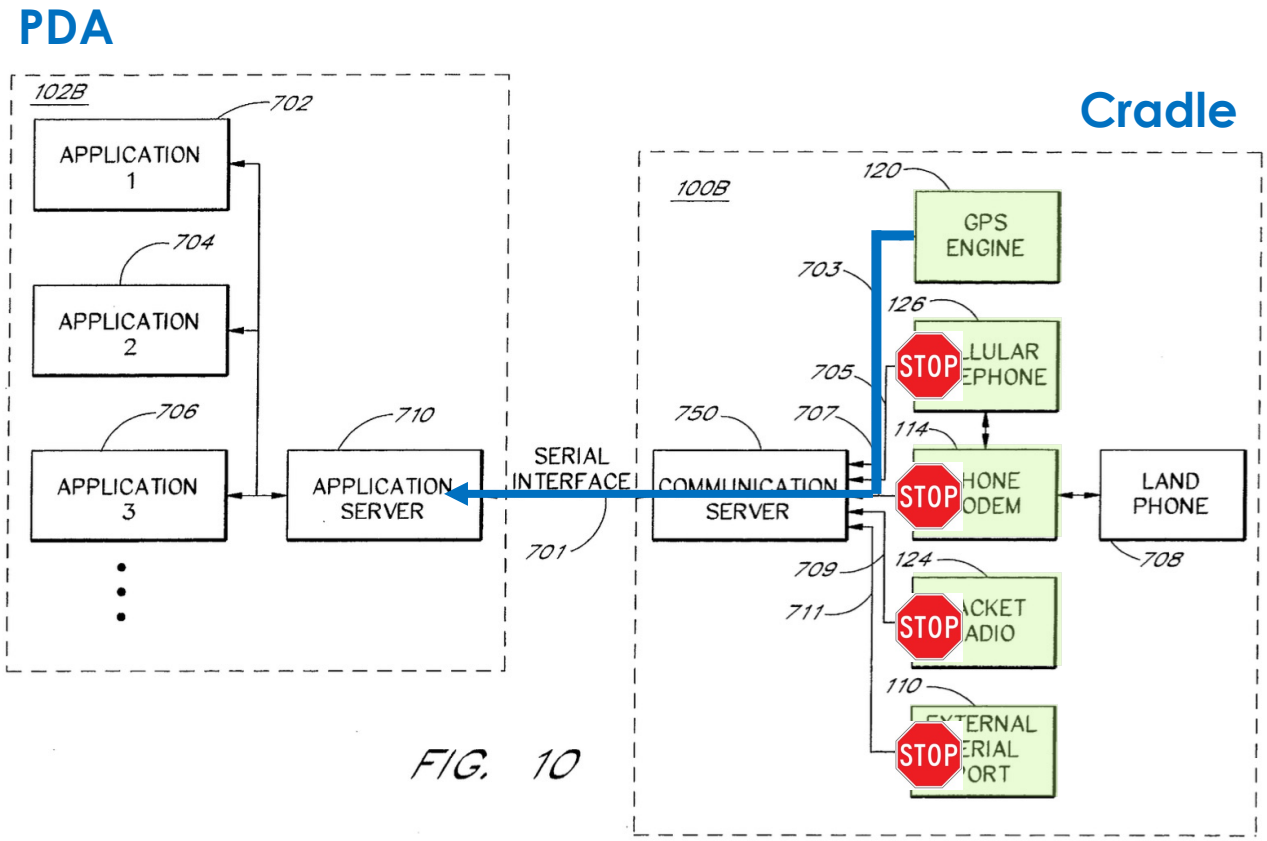


FIG. 10

Bernard's Second Embodiment (Relied Upon By The Petition) Only Allows One Network To Be Established At A Time

United States Patent

Bernard

In this second embodiment, only one of the four above-described connections can be established at a time. How-

Ex. 1007 [Bernard] 26:56-57

The telephone server **730** can be used to process incoming and outgoing phone calls using either the cellular telephone interface **720** or the land phone interface **724**, depending on

Ex. 1007 [Bernard] 21:55-59

Similarly, the fax server **732** can be used to send and receive data using the phone modem interface **722** and either the cellular telephone interface **720** or the land phone interface **724**. The fax server **732** also provides functions

Ex. 1007 [Bernard] 22:5-7

Bernard's First Embodiment Similarly Allows Only "Select[ing]" One Of The Networks For Connection And Processing

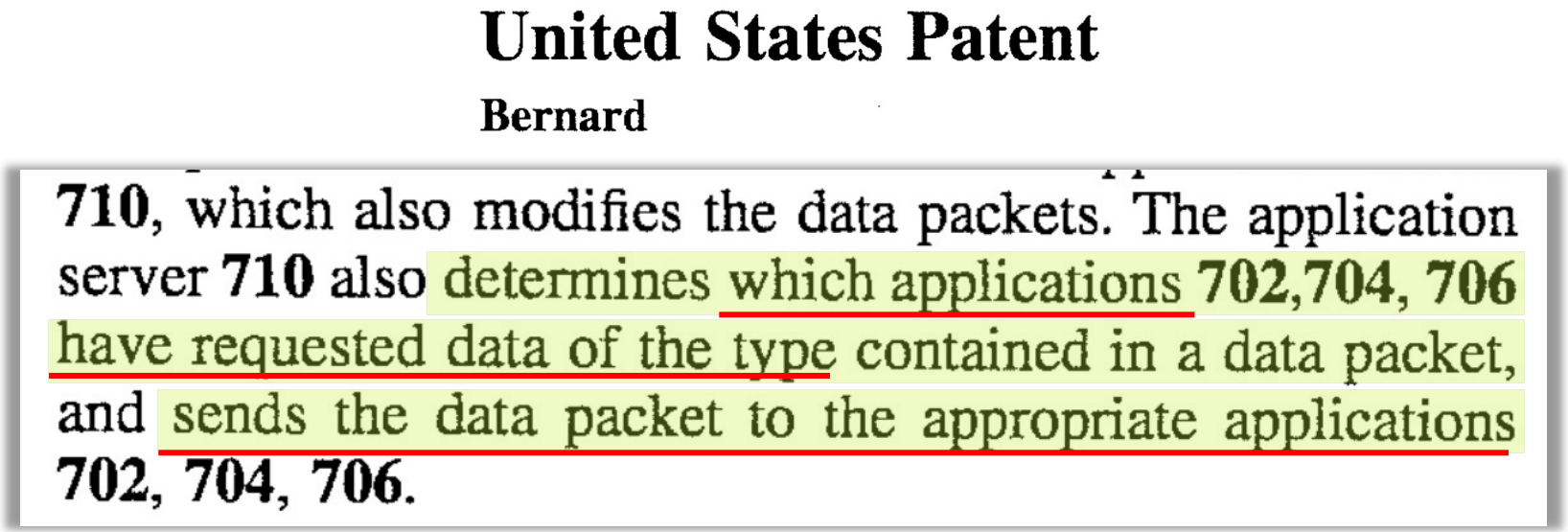
United States Patent

Bernard

the phone modem **114**. Thus, the decoder/multiplexer **112** allows the microcontroller **104** to select between three different serial interfaces. A first serial interface allows the

Ex. 1007 [Bernard] 6:9-11

Bernard's System Routes Packets Based On Which Application Has A Pending Request For That Data Type



United States Patent

Bernard

710, which also modifies the data packets. The application server 710 also determines which applications 702,704, 706 have requested data of the type contained in a data packet, and sends the data packet to the appropriate applications 702, 704, 706.

Ex. 1007 [Bernard] 18:46-51

Bernard Cannot Even Multiplex Packets For Different Applications From The Same Network Connection

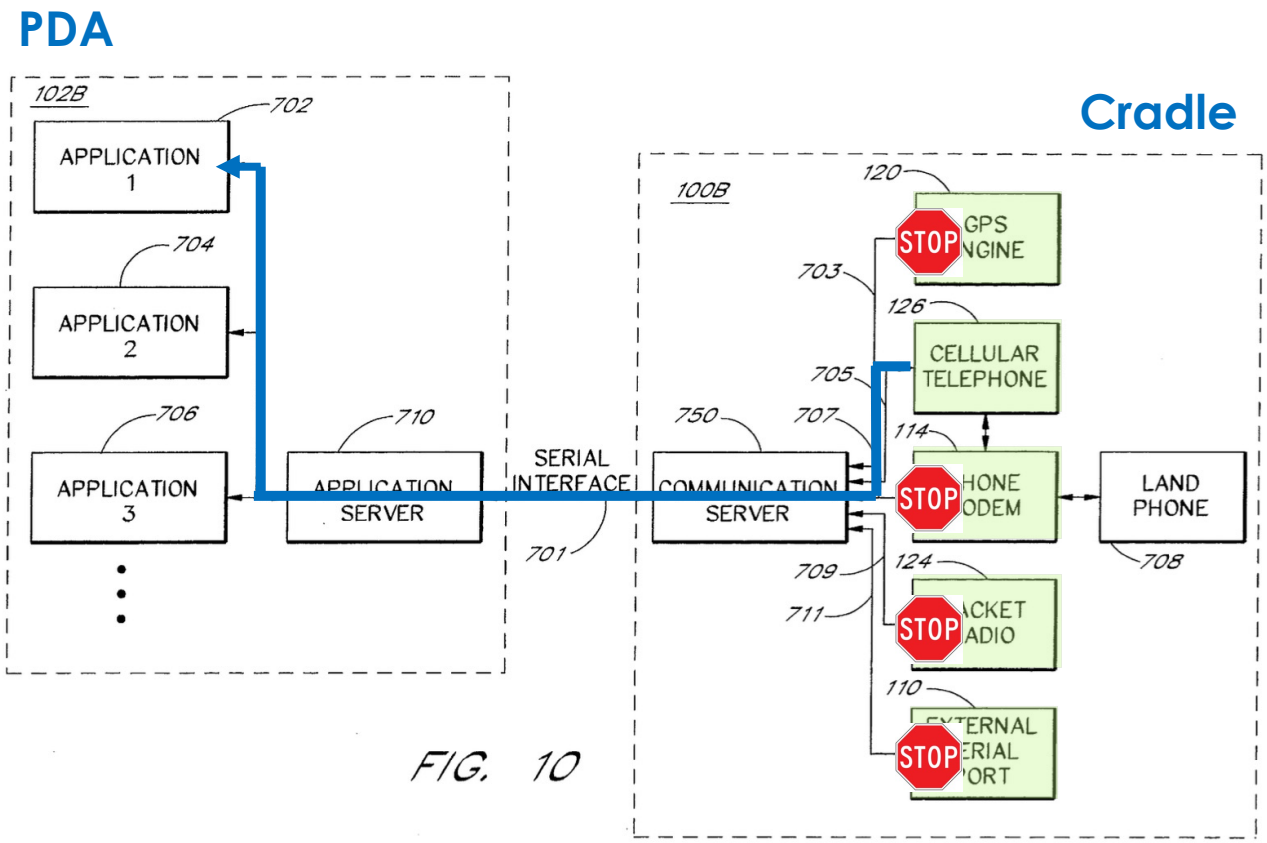


FIG. 10

Petitioner Misapprehends Bernard

PETITIONER'S REPLY

(citing EX-1007, 18:36-51). This is incorrect. EX-1051, ¶¶42-44. Bernard expressly describes "[e]ach data packet also contains an ***address*** identifying the destination of the data packet," and therefore a POSITA would have understood and found obvious that data packets would be routed to different applications even if they are of the same type. EX-1007, 18:19-20; EX-1051, ¶44. Further, Bernard

Reply, 22

Bernard's Packet "Address" Identifies Network For Outgoing Packets, Not Destination Application Of Incoming Packets

United States Patent

Bernard

To utilize the communication functions of the communication circuits **114, 120, 124, 126**, the applications **702, 704, 706** cause one or more data packets to be generated and communicated to the communication circuits **114,120,124, 126**. The data packets can contain commands to control the operation of the communication circuits **114, 120, 124, 126**, or the data packets can contain requests for data, or the data packets can contain data for transmission by an appropriate communication circuit **114,120,124,126**, such as the phone modem **114**, the packet radio **124**, or a device connected to the external serial port **110**. Each data packet also contains an address identifying the destination of the data packet. The destination can be any of the communication circuits **114, 120, 124,126**, or the external serial port **110**. The application

Ex. 1007 [Bernard] 18:9-22

Petitioner Incorrectly States That Bernard "Describes" "Simultaneous Connections"

PETITIONER'S REPLY

if they are of the same type. EX-1007, 18:19-20; EX-1051, ¶44. Further, Bernard describes other scenarios where simultaneous connections are established, such as a single application requesting data of different types from different communication circuits. EX-1007, 17:66-18:1 ("For example, the first application 702 may utilize the GPS engine 120 and the packet radio 124[.]"); EX-1051, ¶44.

Reply, 22

No Disclosure That Different Data Types Are Used "Simultaneous[ly]"

Bernard's Modified, Undisclosed Embodiment That Would Allow Multiple Simultaneous Connections Does Not Help Petitioner

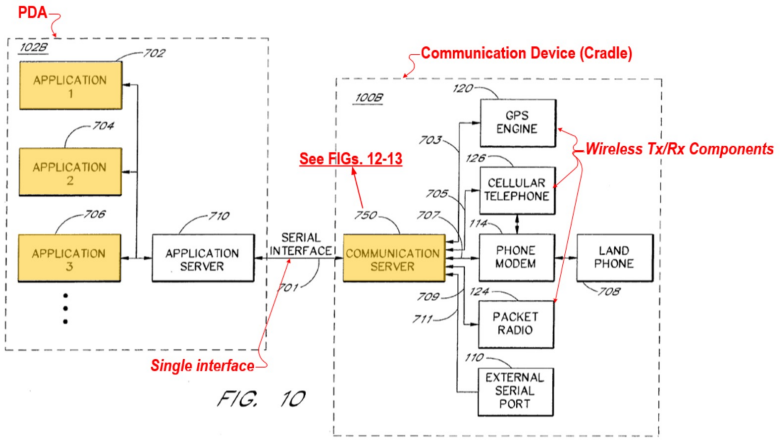
United States Patent

Bernard

In this second embodiment, only one of the four above-described connections can be established at a time. However, a person of skill in the art will understand that an alternative interconnection could be used that would allow multiple connections to be established simultaneously. For

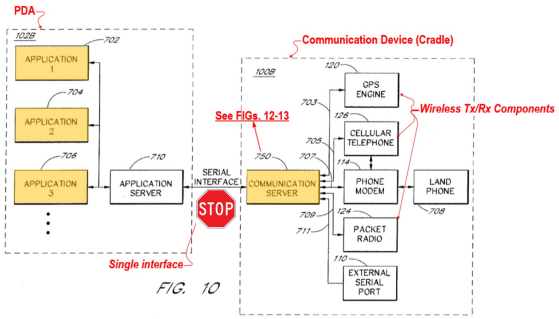
Ex. 1007 [Bernard] 26:56-60

The Petition (at 33-38) Relied On Bernard's Unmodified Second Embodiment



EX-1007, Figure 10 (annotated)

A Modified Bernard Would Not Use Serial Interface 701, Which Petitioner Requires For Alleged Multiplexing



EX-1007, Figure 10 (annotated)

United States Patent

Bernard

In this second embodiment, only one of the four above-described connections can be established at a time. However, a person of skill in the art will understand that an alternative interconnection could be used that would allow multiple connections to be established simultaneously. For

Ex. 1007 [Bernard] 26:56-60

DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

Bernard teaches that such a modification would involve "an alternative interconnection," suggesting that the serial interface 701 between Bernard's cradle and phone would be changed to, *e.g.*, a parallel (rather than a serial) interface, which would allow each connection's signal to use its own channel, which would not even arguably multiplex under Petitioner's line of reasoning. Therefore,

Ex. 2019 [2nd-Cooklev-Decl.] ¶ 79

Bernard's "Multiplexer" Devices Operate To "Select," Not "Multiplex" Signal Lines

United States Patent

Bernard

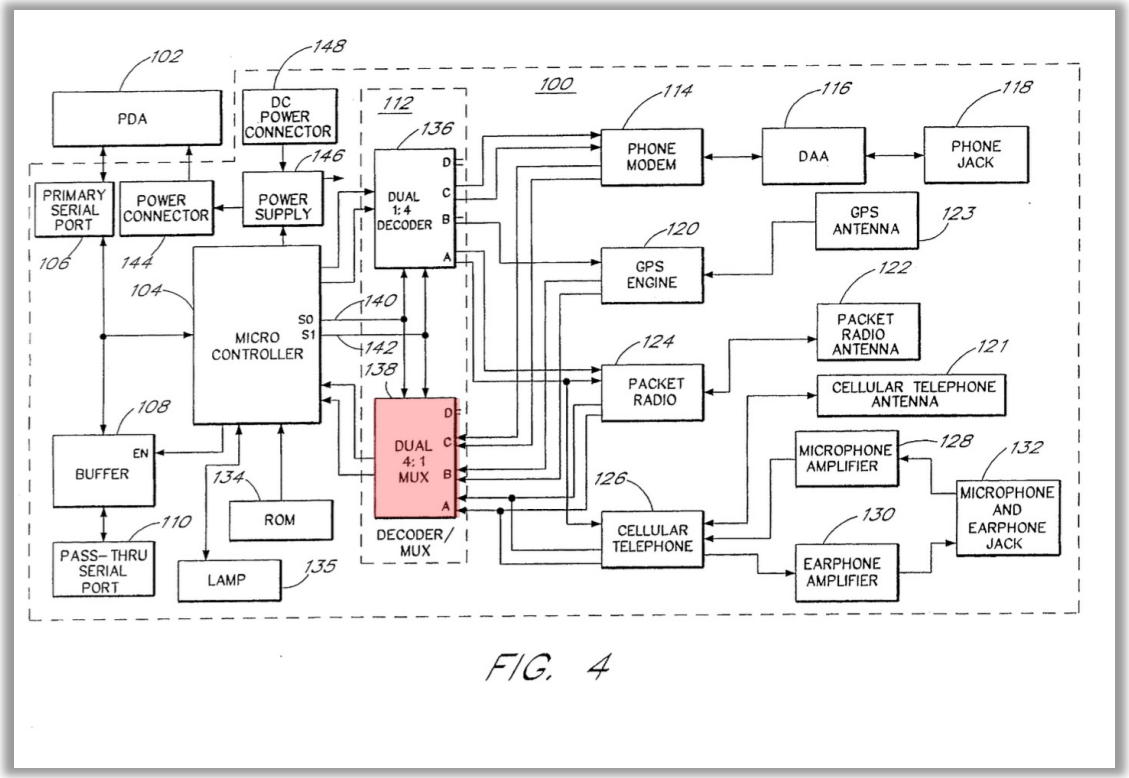


FIG. 4

ments, or the like, while the multiplexer **138** comprises a 74HC153, also from Texas Instruments, or the like. The

Ex. 1007 [Bernard] 5:17-21

Bernard's "Multiplexer" Devices Operate To "Select," Not "Multiplex" Signal Lines

SNx4HC153 Dual 4-Line To 1-Line Data Selectors/Multiplexers

2 Description

The SNx4HC153 is a dual data selector/multiplexer containing full binary decoding to select one of four data sources. Both channels are controlled by the same address select inputs, and each channel includes its own strobe ($\overline{G}$) input. A high level at the strobe terminal forces the repective output low.

Ex. 2007 [74HC153-Data-Sheet] 1

Bernard Confirms That Its Multiplexer Devices Merely Select

United States Patent

Bernard

signals from the microcontroller **104** may be connected. The microcontroller **104** generates a pair of select signals on a pair of select lines **140** and **142** to the decoder **136**. The two select signals have logical values of 00, 01, 10, or 11 to control the selection of one of the four output pairs of the decoder **136** to which the input pair is connected. The output

Ex. 1007 [Bernard] 5:30-35

is unconnected in the present embodiment. Thus, the microcontroller **104** can send serial data to any of the installed communication circuits **114**, **120** and either **124** or **126** by selecting the appropriate select signals.

Ex. 1007 [Bernard] 5:41-44

Any Multiplexer Implemented In Bernard's Second Embodiment Also Necessarily Only Selects One Of The Inputs

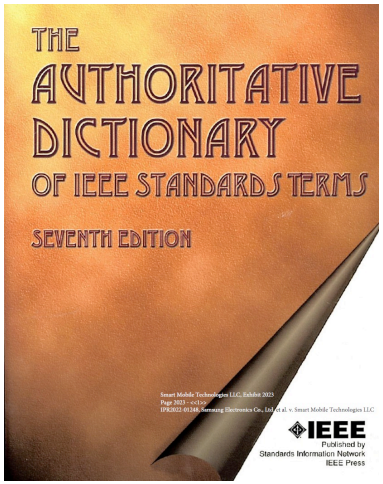
United States Patent

Bernard

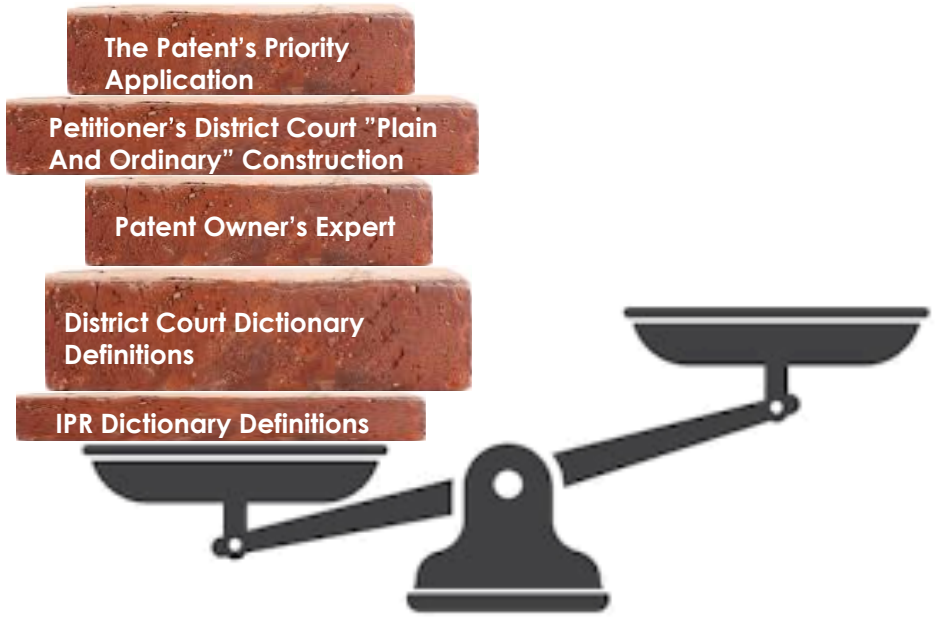
In this second embodiment, only one of the four above-described connections can be established at a time. However, a person of skill in the art will understand that an alternative interconnection could be used that would allow multiple connections to be established simultaneously. For

Ex. 1007 [Bernard] 26:56-60

A "Multiplexer" Device That Only "Selects" Does Not Multiplex



multiplexer (A) (supervisory control, data acquisition, and automatic control) A device that allows the interleaving of two or more signals to a single line or terminal. (B) (supervisory control, data acquisition, and automatic control) A device for selecting one of a number of inputs and switching its information to the output.



Petitioner Also Fails To Prove A Motivation For Either Of Its Two Alternative Combinations Of Yegoshin And Bernard

PETITION FOR *INTER PARTES* REVIEW

A POSITA would have found it obvious to modify Yegoshin-Johnston-Billström's phone based on Bernard's teachings in at least two alternative ways. EX-1003, ¶132. In a first scenario, the phone in the combination would have been modified to be used with Bernard's cradle to provide multiple network connections. *Id.* Yegoshin actually suggests two alternative configurations to implement

In a second scenario, it would have been obvious to implement or modify the internal circuitry of Yegoshin-Johnston-Billström's phone to include the multiplexing features of Bernard, so that the phone integrally contains the functionality executed in Bernard's cradle. EX-1003, ¶133. In fact, Yegoshin does not present

The Yegoshin Signals Relied Upon By Petitioner For Other Limitations Do Not Pass Through Bernard's Serial Interface 701

Patent No.: US 8,842,653 B1

The Petition (at 30) relied on Yegoshin's internal cellular and WLAN for the "first" and "second" transmit and receive components

Signals from Yegoshin's internal cellular and WLAN networks would not pass through serial interface 701 to Bernard's cradle, and no motivation shown why they should

1. An Internet-enabled mobile communication device comprising:

a memory;

display electronics;

at least two or more antennas;

at least one or more processors; and

a plurality of wireless transmit and receive components including a first wireless transmit and receive component and a second wireless transmit and receive component, wherein each wireless transmit receive component is configured to communicate using one or more protocols;

wherein the device is configured for multi-band wireless communication;

wherein the device is enabled for communication using Internet Protocol (IP);

wherein the device is enabled for wireless communication on a wireless local area network;

wherein the first wireless transmit and receive component is configured to communicate using a plurality of antennas; and

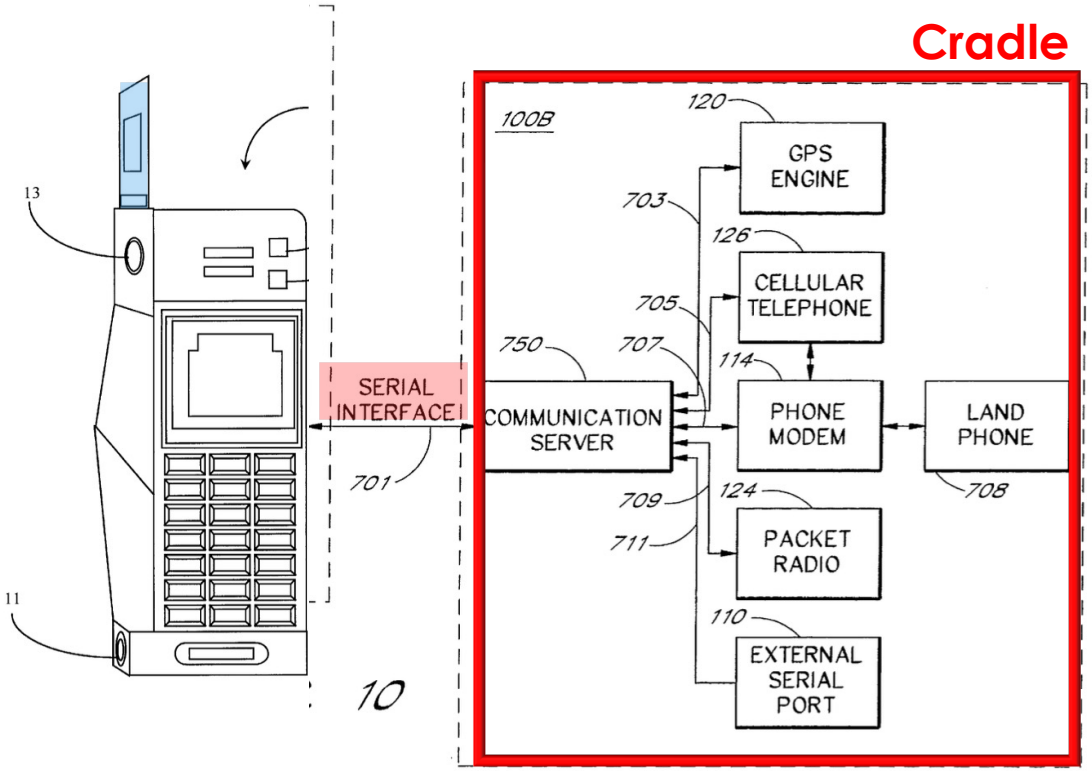
wherein a transmission interface is created and wherein said transmission interface uses a plurality of IP enabled interfaces on the mobile device which utilize the plurality of wireless transmit and receive components on the mobile device to enable a single interface comprised of multiplexed signals from the plurality of wireless transmit and receive components.

Yegoshin's Phone With Bernard's Cradle Would Still Use Yegoshin's Own Internal Cellular And WLAN Networks

DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

84. Yegoshin's own mobile device already includes cellular and WLAN interfaces. Ex. 1004 [Yegoshin] 4:63-5:3. Petitioner, in fact, relies on these interfaces for the disclosure of the claimed two transmit and receive components. Pet., 30 (limitation 1[e]); 74-75 (limitation 27[e]). Petitioner does not explain why, even if a POSITA were to add Bernard's cradle with duplicate cellular and WLAN networks, the combined system would use the cellular and WLAN networks through the cradle interface. There does not appear to be any obvious reason to use a cellular and WLAN network through a cradle with a serial data bottleneck—permitting the transmission of only one bit at a time—that limits the number and speed of data packets that pass through it, and that likely causes increased battery power consumption.

Yegoshin's Internal Cellular And WLAN Signals (Relied Upon By Petition) Would Not Pass Through Serial Interface 701 From Bernard's Cradle



The Reply Changes Its Mapping To Instead Rely On Cellular And WLAN Networks In Bernard's Cradle

PETITIONER'S REPLY

restrictive."); EX-1051, ¶50. Therefore, where Yegoshin's phone has a particular cellular protocol (e.g., GSM), a POSITA would have understood and found obvious that, at a minimum, Yegoshin's adapter, as modified by Bernard's teaching, would be configured for WLAN and/or a cellular network having a different protocol (e.g., CDMA) from that of Yegoshin's phone to thereby expand the capability of the phone. EX-1051, ¶50. In this obvious scenario, the two streams of WLAN and cellular networks provided by the adapter would pass through Bernard's serial interface 701 connecting Yegoshin's phone to Bernard's cradle through the adapter port 13. *Id.*

Reply, 25

The Reply's Untimely Modification Of Its Combination Also Fails On The Merits To Show A Motivation

United States Patent
Yegoshin

invention. In this embodiment telephony switch **31** is linked to a CTI processor **49** via a CTI connection **51**. CTI processor **49** provides intelligent routing capability to switch **31** by virtue of added software known as T-server software to the inventor. A separate digital link **47** links CTI processor

Ex. 1004 [Yegoshin] 7:30-32

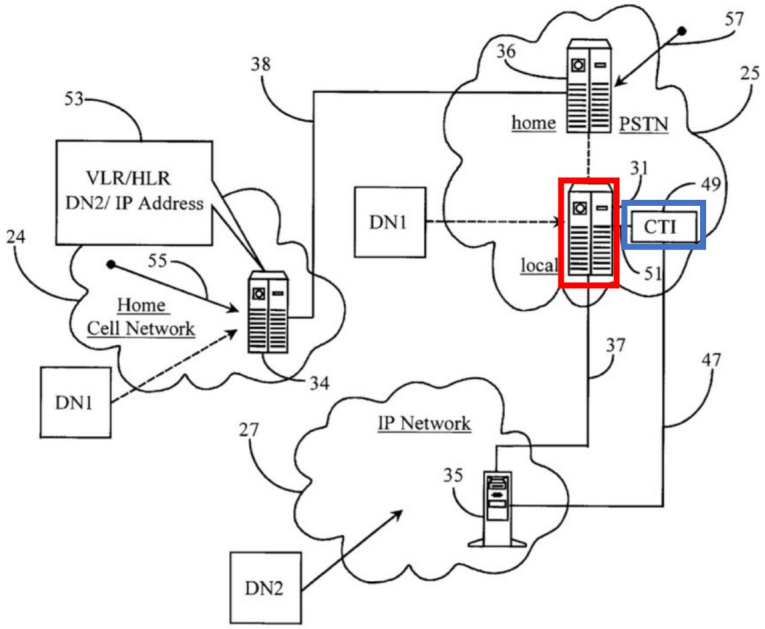


Fig. 3

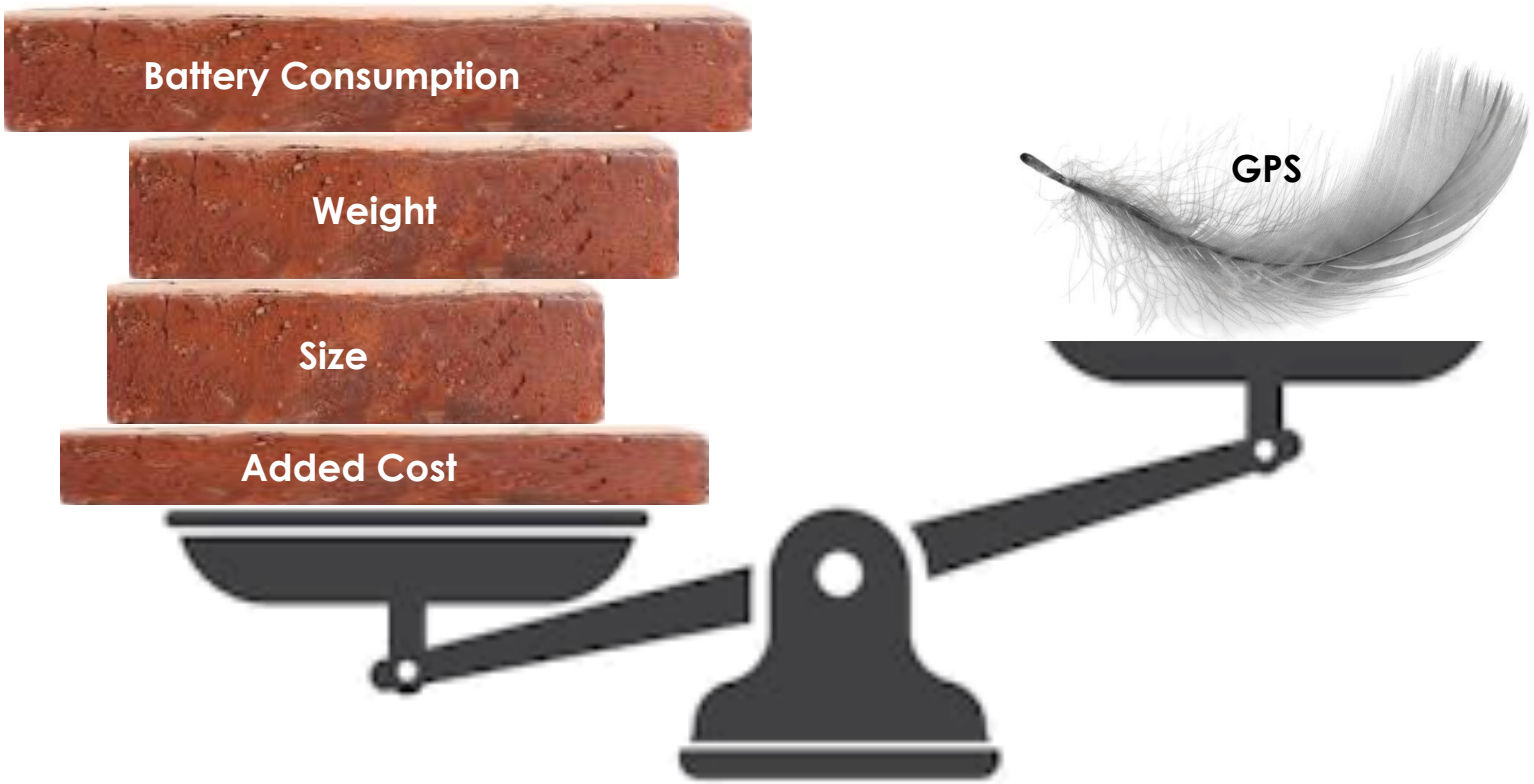
Yegoshin's cellular and WLAN are built in the network with added "CTI processor 49" for routing. Unincorporated cellular/WLAN from Bernard's cradle is not shown to have any benefit.

Bernard's Cradle Is Not Intended For A Mobile Device Like Yegoshin With Built-In Cellular And WLAN Capabilities

DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

87. That Bernard's cradle is not intended for a mobile device with already existing cellular and WLAN capabilities is further evident by the fact that Bernard states that its cradle is designed for use with PDAs which, at the time of Bernard in 1994, had limited communication capabilities. Ex. 1007 [Bernard] Fig. 10, 1:31-32 ("Examples of such PDAs include the Apple™ Newton™ and the Sharp™ Expert Pad™."); 2:65-3:4; Ex 2024 [PC-Magazine] ("Most [PDAs] included no form of built-in wireless communications functionality, though that changed around 2005."); Ex. 2025 [Ars-Technica] ("With the original [Apple] Newton, you could take notes, use the calculator, run some simple formulas, update and search contacts in an address book, and keep track of appointments in a calendar. And that was about it."). In the context of those types of devices, adding a cradle that brings in cellular and WLAN capabilities is a significant advantage. But that is not so in the context of Yegoshin's phone.

No Motivation To Add Bernard's Cradle To Yegoshin's Phone With Built-In Cellular And WLAN Capabilities



Reply: Changes The Combination From Yegoshin's Phone To A PDA That Does Not Have Cellular And WLAN

PETITIONER'S REPLY

communication via wireless and or wired connection." EX-1004, 5:4-9. A POSITA would have understood and found obvious that a PDA, such as that of Bernard, would be one of the "type of wireless communication device" that can replace Yegoshin's cellular phone. EX-1051, ¶49.

Petitioner's Attempt To Rely On An Unspecified PDA Instead Of Yegoshin's Phone Is Untimely

"Petitioner ***may not submit new*** evidence or ***argument*** in reply that it could have presented earlier, *e.g.* ***to make out a prima facie case of unpatentability***."

Consolidated Trial Practice Guide, 73 (Nov. 2019)

"***Shifting arguments in this fashion is foreclosed by statute, our precedent, and Board guidelines***."

Wasica Fin. GmbH v. Cont'l Auto. Sys., 853 F.3d 1272, 1286 (Fed. Cir. 2017)

The Petition Expressly Relied On Yegoshin's Phone (Not Some PDA), And Precisely Because It Had Cellular And WLAN Capabilities

PETITION FOR *INTER PARTES* REVIEW

14[pre]

To the extent the preamble is limiting, Yegoshin's "[c]ellular telephone 9 is … capable of communicating on an IP [Internet Protocol] data network" and thus teaches an ***Internet-enabled mobile communication device***. EX-1004, 4:63-5:3, 1:9-14, 1:30-57; EX-1003, ¶59.

Pet., 8

Therefore, a POSITA would have understood or found obvious that Yegoshin's phone maintains an IP address for access to the IP-LAN so that

Pet., 18

Additionally, Yegoshin's phone uses IP for cellular communication because it is capable of "taking all cellular calls in IP format." EX-1004, 8:47-56. There-

Pet., 18

A POSITA would have been motivated to modify Yegoshin's cellular phone

Pet., 18

Petitioner Fails To Prove A Motivation For Modifying Yegoshin's Internal Circuitry To Include A Serial Interface 701

PETITION FOR *INTER PARTES* REVIEW

A POSITA would have found it obvious to modify Yegoshin-Johnston-Billström's phone based on Bernard's teachings in at least two alternative ways. EX-1003, ¶132. In a first scenario, the phone in the combination would have been modified to be used with Bernard's cradle to provide multiple network connections. *Id.* Yegoshin actually suggests two alternative configurations to implement

In a second scenario, it would have been obvious to implement or modify the internal circuitry of Yegoshin-Johnston-Billström's phone to include the multiplexing features of Bernard, so that the phone integrally contains the functionality executed in Bernard's cradle. EX-1003, ¶133. In fact, Yegoshin does not present

Bernard Uses Serial Interface 701 Because It Is A Physical Connection Between Two Devices

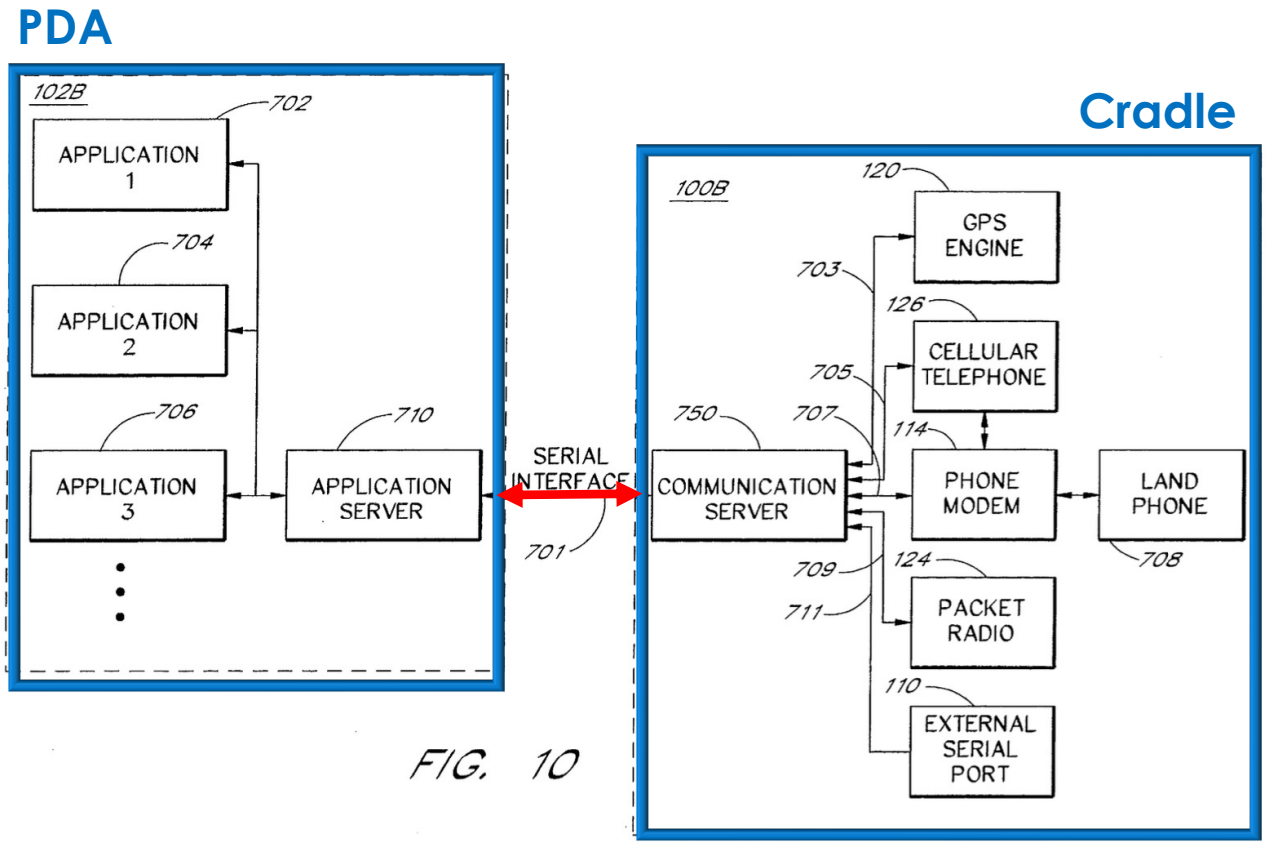


FIG. 10

There Is No Reason To Create A Serial Interface Bottleneck Inside Yegoshin When There Is No External Or Peripheral Device

DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

51. Even if Bernard's cradle were to be integrated in Yegoshin's phone, however, the POSITA would recognize that there would no longer be an external device or peripheral necessitating a serial interface. Rather, the POSITA would have recognized that other interfacing techniques, including, *inter alia*, Direct Memory Access (DMA), memory-mapped interface, shared memory interface, or even a parallel interface would be far more efficient, and a serial interface would be comparatively very disadvantageous. *See* Ex. 2012 [Valvano] (serial

There Is No Reason To Create A Serial Interface Bottleneck Inside Yegoshin When There Is No External Or Peripheral Device

Input and output for microprocessors

STEVE GOLDBAND
State University of New York, Buffalo, New York 14226

Serial I/O methods are typically slower than parallel, and require somewhat more complex and expensive hardware. Their primary advantage is that they require only one signal wire in each direction and one ground wire. As a result, it is feasible to convert the TTL level to a more robust signal or frequency modulated tone (using a MODEM) and transmit it over a distance without degrading. Most timesharing systems on large computer systems use serial interfaced terminals. Another advantage of serial I/O is that a standard exists (RS-232) for connectors and signal levels which facilitates interconnection of microcomputers to peripherals made by a large number of manufacturers, including those of mini and full-size computers. Serial I/O is frequently used in relatively low-speed devices such as terminals, Teletypes, printers, and cassette storage systems.

Ex 2013 [Goldband] 253

Reply: Detrimental Disadvantage Of An Internal Serial Interface Is Not Sufficient to Defeat Obviousness

PETITIONER'S REPLY

Second, Patent Owner relies on an alleged disadvantage ("unnecessary and detrimental bottleneck") of a serial interface as a single reason against the modification to include Bernard's multiplexing features. POR, 32-37. Assuming, *arguendo*, that there were such a disadvantage, simply raising a disadvantage does not obviate the Petition's obviousness analysis. EX-1051, ¶51 The test for obviousness is whether a person having ordinary skill in the art would have been motivated to combine the "teachings" of the references to arrive at the claimed solution. *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016). Even if a modification would have "simultaneous advantages and disadvantages," that would not make the modification nonobvious. *Id.*

Reply, 26

Petitioner Has Failed To Raise Any Advantage For An Internal Bottleneck, Or Any Weighing Of Benefits And Drawbacks

"[t]he Board must ***weigh the benefits and drawbacks*** of the modification against each other, to determine whether there would be a motivation to combine."

Arctic Cat Inc. v. Polaris Indus., 795 Fed. App'x. 827, 833 (Fed. Cir. 2019)

Petitioner Has Failed To Raise Any Advantage For An Internal Bottleneck, Or Any Weighing Of Benefits And Drawbacks

"Coupled with testimony confirming the ***potential problems*** of automatic throttle reapplication and suggesting ***an alternative approach might reduce those same problems***, J.A. 2230-32, a jury could find ***a skilled artisan would not have been motivated to combine*** the Challenger system with a PWC to arrive at the claimed combination."

Arctic Cat Inc. v. Bombardier Rec. Prods., 876 F.3d 1350, 1363 (Fed. Cir. 2017)

"***Though each of the battery's elements was well known*** in the prior art, ***to combine them as Adams did required that a person reasonably skilled in that art ignore*** that open-circuit batteries which heated in normal use were not practical …."

U.S. v. Adams, 383 U.S. 39, 51-52 (1966)

Petitioner's Reliance On Serial Connections Inside Bernard Is Misplaced Because They Are One Input-One Output Connections And Do Not Create A Bottleneck

United States Patent

Bernard

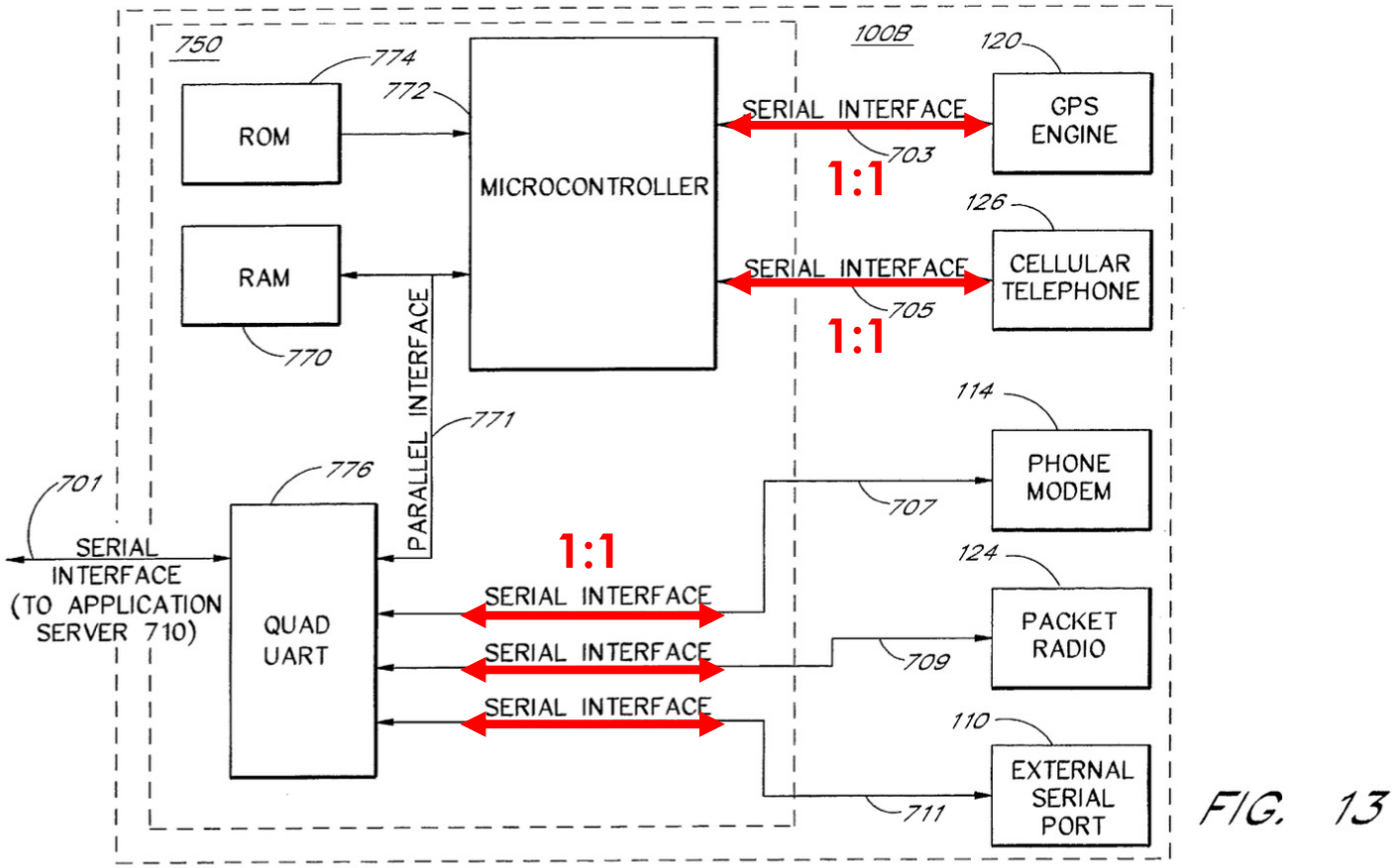


FIG. 13

Table Of Contents

Claim 17: The Processor Be Configured To Combine The Data Paths "Into A Single Transmission Interface To" The Application

Patent No.: US 8,842,653 B1

17. A mobile communication device, comprising:
a memory;
a display electronics;
at least two or more antennas;
at least one or more processors; and
a plurality of wireless transmit and receive unit including a first wireless transmit and receive unit and a second wireless transmit and receive unit, wherein each wireless transmit receive unit is configured to communicate using one or more protocols;
wherein the device is configured for multi-band wireless communication;
wherein the device is enabled for communication using Internet Protocol (IP);
wherein the device is enabled for wireless communication on a local area network;
wherein the first wireless transmit and receive component is configured to communicate using a plurality of antennas; and
wherein the first wireless transmit and receive component is configured to communicate over Internet Protocol with a remote system over a first net
second wireless transmit and receive
figured to communicate with the sa
remote system using a second network
the processor on the mobile device is c
bine the data paths into a single transmission interface to one or more applications on the mobile device.

the processor on the mobile device is configured to combine the data paths into a single transmission interface to one or more applications on the mobile device.

Exemplary Embodiment: Data Rate Is Improved By Partitioning Data And Transmitting It Across Multiple Paths, Combining At Destination

Patent No.: US 8,842,653 B1

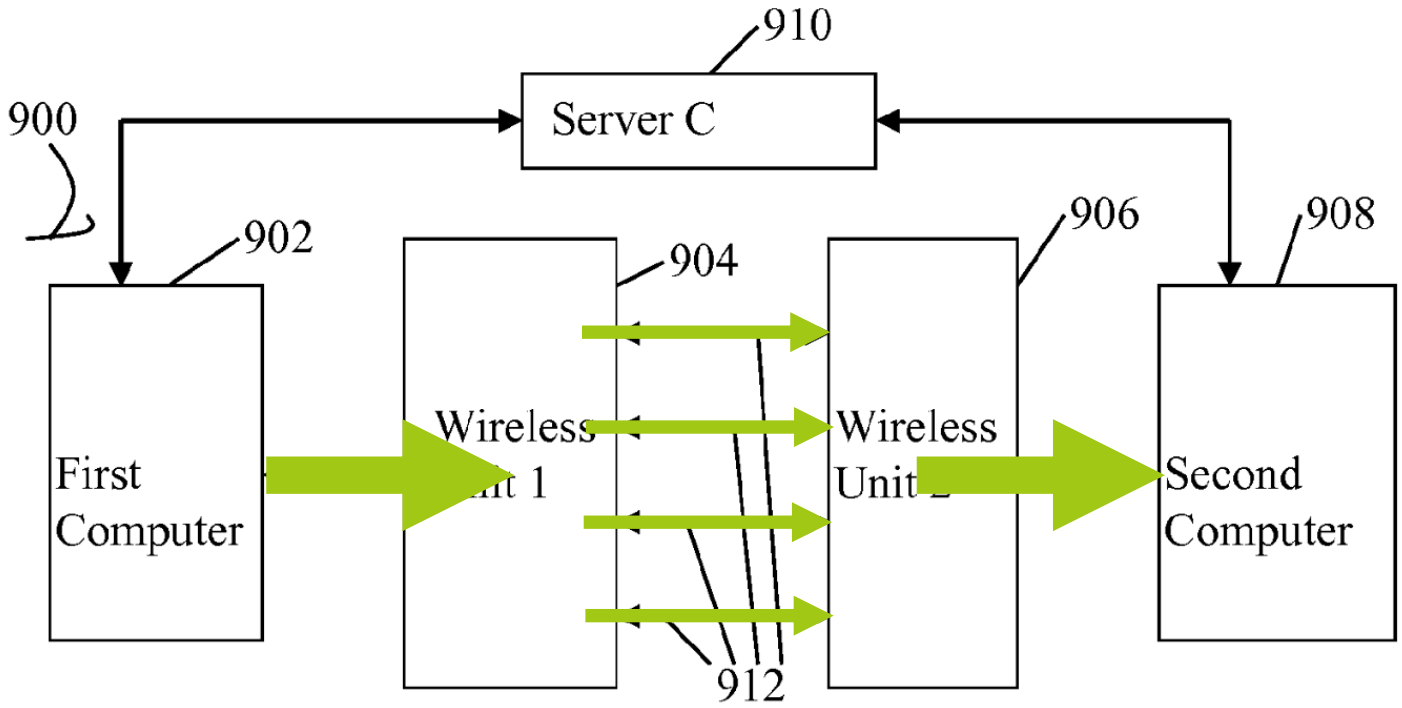


FIG. 9

Yegoshin Expressly "Coordinates Activity Between The Two Paths" By Rejecting One Path, Not Combining Them

United States Patent
Yegoshin

In one embodiment of the present invention cell phone **9** is capable of taking some calls via cellular path while receiving other calls via IP path. In such a situation, integrating software is provided to coordinate activity between the two paths. For example, if engaged with an IP call, an incoming cell call would get a busy signal and so on, or it would be redirected to the IP call point, where it would then be presented as a call-waiting call, if that feature set is available and enabled. In a preferred embodiment, phone **9** may be switched from one network capability to another at the user's discretion.

Ex. 1004 [Yegoshin] 5:55-65

In Yegoshin, The Second Path Is Always Rejected, And Never Combined

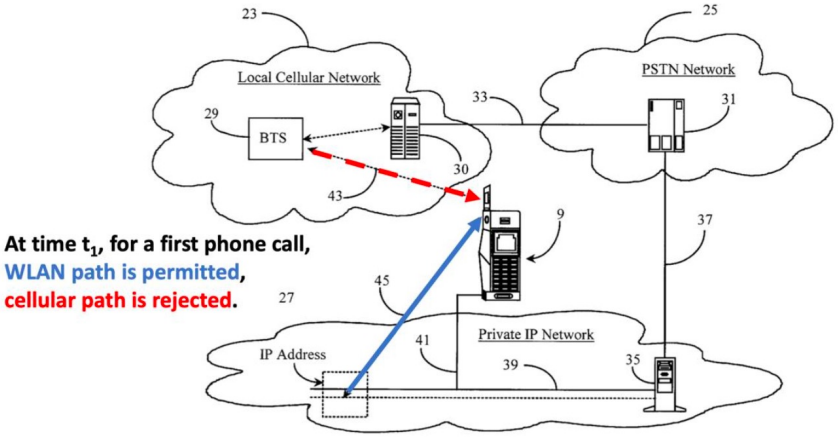


Fig. 2

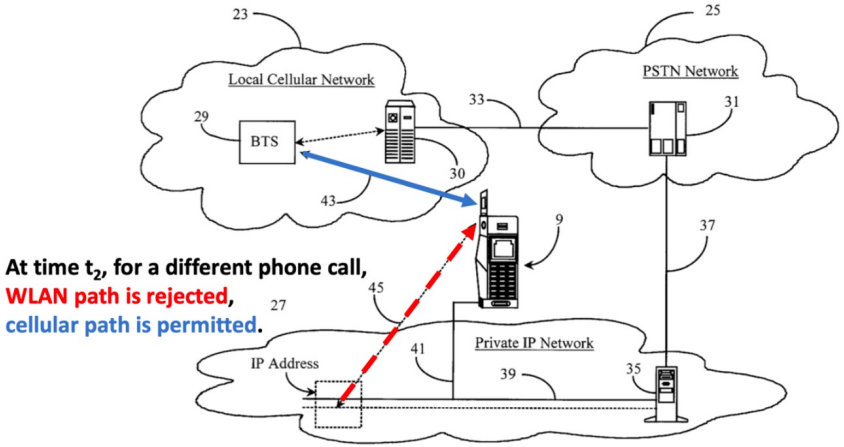


Fig. 2

Reply: Yegoshin Necessarily Combines Data Paths Simply Because The Application Can Use Two Networks

PETITIONER'S REPLY

Indeed, in Yegoshin, a cellular call can be handled by the cellular path (e.g., when not connected to the WLAN) or handled by the WLAN path (e.g., when connected to the WLAN) and it makes no difference to Yegoshin's phone because the cellular and WLAN paths combine into a single interface to the application handling the cellular call. EX-1051, ¶16.

Reply, 9-10

Where Is The Interface Into Which The Paths Are Combined?

Pressed At Deposition, Petitioner's Expert Opined That The Phone Application Itself Is The "Transmission Interface" Into Which The Data Paths Are Combined

DEPOSITION OF MICHAEL JENSEN, PH.D.

Q Okay. So you have mapped the claim single transmission interface to the phone app on Yegoshin's phone; is that correct?

A Yes, sir. That's -- that's -- at least as an example, that's one that I identified, yes, sir.

Q And you haven't identified any other examples as far as I could tell; correct?

A I -- no, I don't recall identifying another example.

Ex. 2032 [2nd-Jensen-Depo.] 64:9-17

The Application Cannot Itself Be The "Transmission Interface To" The Application

Patent No.: **US 8,842,653 B1**

the processor on the mobile device is configured to combine the data paths into a single transmission interface to one or more applications on the mobile device.

Ex. 1001 ['653 Pat.] cl. 17

"***The district court erred***, however, when it later held that its claim construction ***did not require a spring means that was a distinct*** structural element from the hinged arm."

Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP, 616 F.3d 1249, 1254 (Fed. Cir. 2010)

The Reply's Alternate Argument Fails

Patent Owner does not assert that "combining" requires simultaneous communication and this argument should therefore be disregarded.

PETITIONER'S REPLY

Lastly, even if Patent Owner's assumption (that "combining" requires simultaneous data communications) is correct (it is not), a POSITA would have found it obvious to communicate simultaneously over Yegoshin's cellular and WLAN paths. EX-1051, ¶20. The Petition provided why it would have been obvious to transmit data simultaneously using Yegoshin's cellular and WLAN interfaces. Pet., 26, 31-32, 48-49, 80. Indeed, Yegoshin's cellular and WLAN

An argument to modify Yegoshin to simultaneously use cellular and WLAN is both untimely and incorrect on the merits

Bernard Does Not Disclose The Concept Of Combining Two Data Paths

DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

100. The concept of combining two data paths into a single transmission interface to one or more applications is absent from Bernard, and Petitioner does not point to anything to the contrary. At a conceptual level, Bernard does not disclose the concept of combining two data paths such as cellular and Wi-Fi, nor does it disclose any use for such a combination, for example to increase the data rate by servicing a data request through two networks instead of one. *Contra* Ex. 1001 ['653] 6:64-7:10, FIG. 9. That in Bernard, because of connection to an external cradle, a serial connection happens to be used, and therefore, the data that is transmitted at different times all happen to pass through the same connection, albeit never at the same time, has no relevance to the claimed invention.

Ex. 2019 [2nd-Cooklev-Decl.] ¶ 100

Bernard Expressly Discloses That A Phone Application May Only Use One Data Path For Each Call

United States Patent

Bernard

The telephone server **730** can be used to process incoming and outgoing phone calls using either the cellular telephone interface **720** or the land phone interface **724**, depending on

Ex. 1007 [Bernard] 21:55-59

Similarly, the fax server **732** can be used to send and receive data using the phone modem interface **722** and either the cellular telephone interface **720** or the land phone interface **724**. The fax server **732** also provides functions

Ex. 1007 [Bernard] 22:5-7

Petitioner Relies On Data From Different Networks Going Through Serial Interface 701

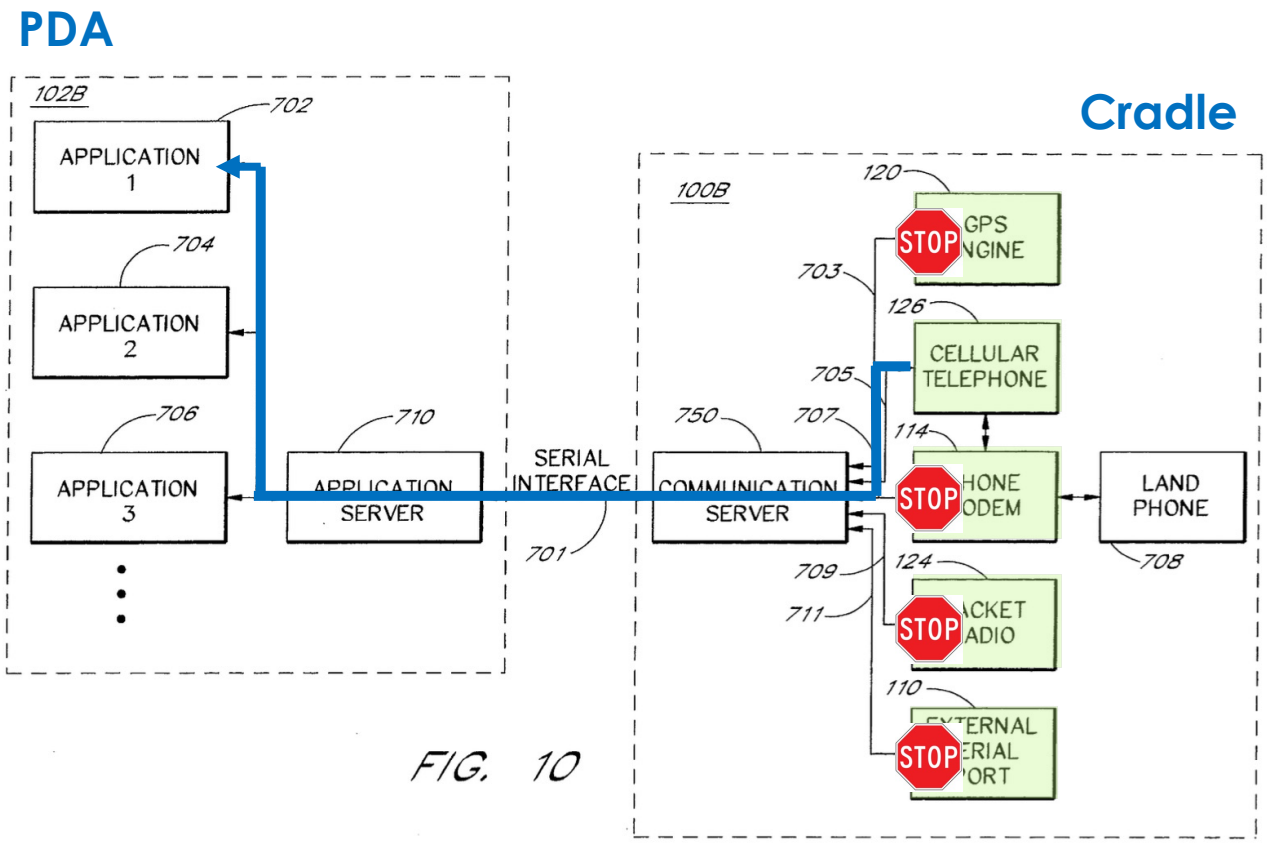


FIG. 10

At The Phone, Data From Serial Interface 701 Is Separated Into Different Paths, One For Each Network Interface

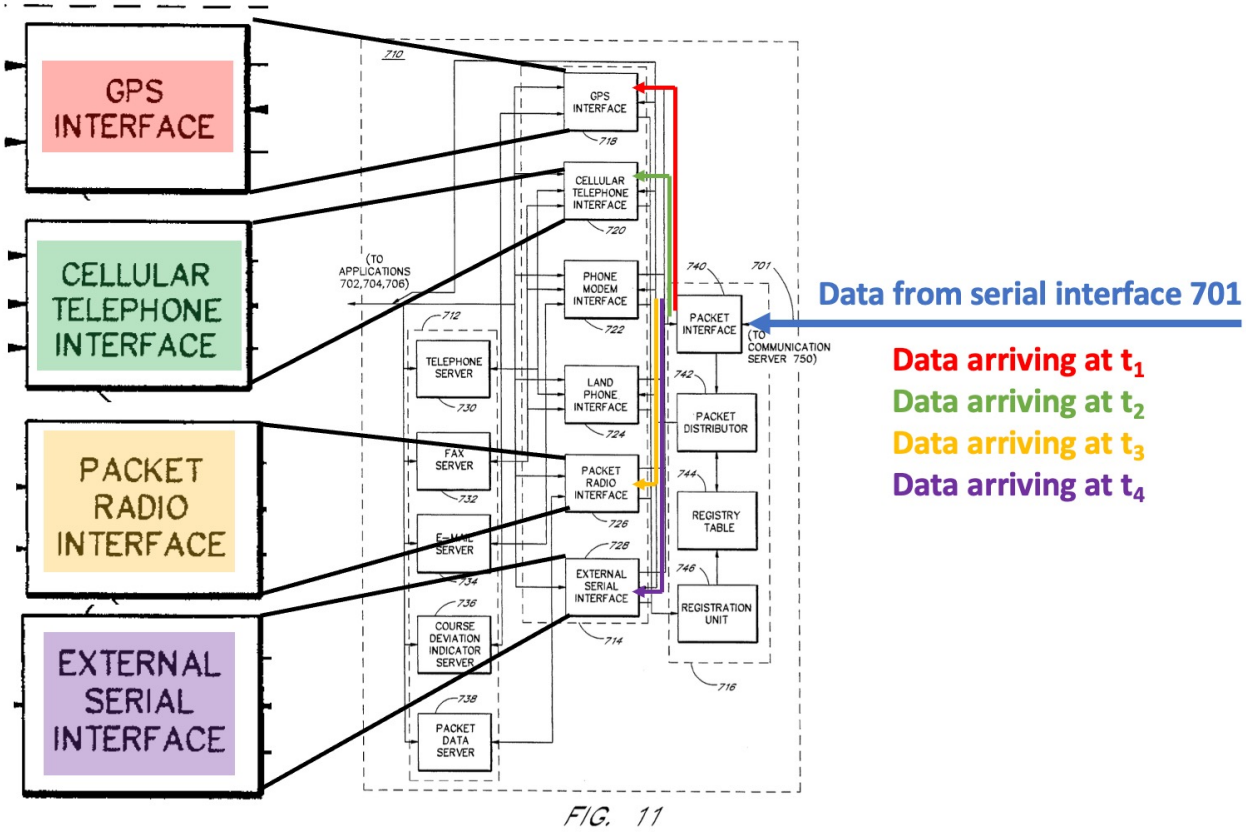


FIG. 11

No "Single Transmission Interface To" An Application

Even If An Application Utilizes Two Networks, Their Data Paths Are Separated Based On Network Type Upon Arrival From Serial Interface 701

United States Patent

Bernard

circuits **114**, **120**, **124**, **126**. For example, the first application **702** may utilize the GPS engine **120** and the packet radio **124**, while the second application **704** utilizes the phone modem **114**. In the second embodiment communication

Ex. 1007 [Bernard] 17:66-18:1

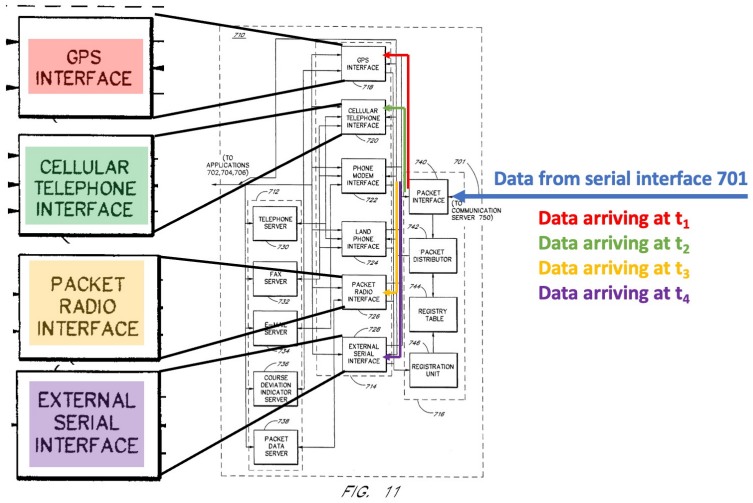


FIG. 11

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Claim 27 Requires Two "Network Paths" To A "Remote Server"

Patent No.: US 8,842,653 B1

27. An IP-enabled communication device comprising:
a memory;
one or more processors;
display electronics;
a plurality of wireless communication units, wherein the wireless device supports a plurality of transmit and receive frequencies and a plurality of wireless protocols;
wherein a first wireless communication unit is coupled to a first set of antennas configured to trans
a first network and wherein a second
nication unit is coupled to a second s
configured to transmit and receive on
wherein the at least one wireless com
configured for radio frequency comm
wherein the first wireless communicati
ured to operate at a lower frequency
wireless communication unit such tha
communication unit and second wir
tion unit operate as complementary s
wherein the device is capable of voice, data, and Internet connectivity; and
wherein the first wireless transmit and receive unit operates on a first network path to a remote server and the second wireless transmit and receive unit communicates to the remote server on a second network path at the same time and wherein a plurality of signal are multiplexed to increase throughput and enable simultaneous multi path communication.

wherein the first wireless transmit and receive unit operates on a first network path to a remote server and the second wireless transmit and receive unit communicates to the remote server on a second network path at the same time and wherein a plurality of signal are multiplexed to increase throughput and enable simultaneous multi path communication.

Petition And Dr. Jensen: Yegoshin's "PSTN Switch" Is The "Remote Server"

PETITION FOR *INTER PARTES* REVIEW

27[i]

As described in 17[j], Yegoshin's first and second communication interfaces (***first and second wireless transmit and receive units***) in the phone communicate with the PSTN switch (***remote server***) on the cellular and LAN respectively. EX-1003, ¶241; EX-1004, 5:33-54, 5:66-7:25, 7:48-58, 8:47-56, 3:35-4:42.

DECLARATION OF DR. MICHAEL ALLEN JENSEN

lar network (corresponding to the first network path) to the PSTN switch (corresponding to the remote server), and Yegoshin's second communication interface (corresponding to the second wireless transmit and receive unit) communicates to the same PSTN switch (corresponding to the remote server) on the LAN (corresponding to the second network path). EX-1004, 5:33-37, 5:49-54, 5:66-7:25, 7:48-

247. In addition, as described in 27[i], the phone in the combination is in communication with the PSTN switch, which corresponds to the remote server.

Undisputed: Yegoshin's "PSTN Switch" Is Not The Server

DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

127. Yegoshin never describes PSTN switch 31 as a server. Rather, it explains that switch 31 is connected to a "routing server." Ex. 1004 [Yegoshin] 3:43 ("a PSTN-connected routing server"); 4:6-10 (same). Switch 31 is connected to CTI processor 49 which "provides intelligent routing capability to switch 31 by virtue of added software known as T-server software to the inventor." *Id.*, 7:30-32. Switch 31 is connected to CTI processor 49 "via a CTI connection 51." *Id.*, 7:29-30. But switch 31 (boxed in red) is a distinct element from CTI 49 (boxed in blue):

United States Patent
Yegoshin

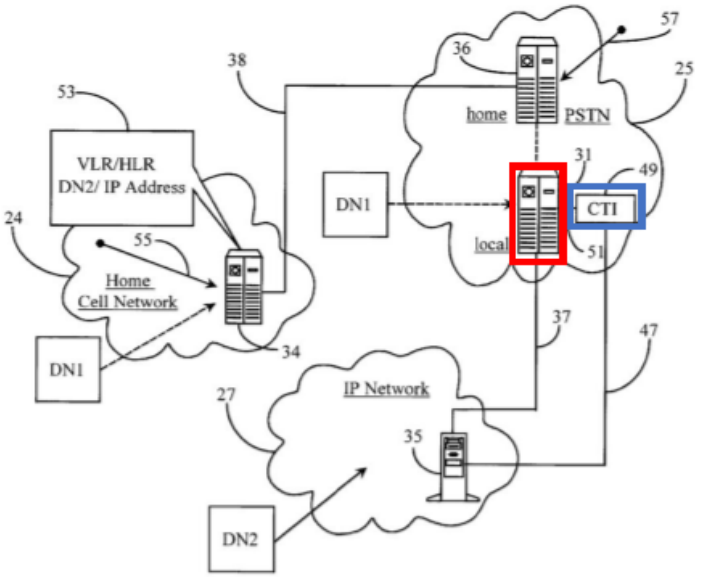


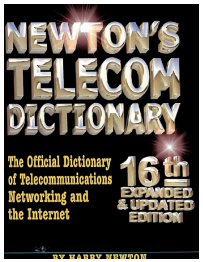
Fig. 3

In an other aspect of the invention a system for telephone communication is provided, comprising an IP-LAN including an IP telephony server; a dual-mode communication device comprising first apparatus for conducting telephone calls on a cell-phone network, including a cell-phone number, and second apparatus for conducting telephone calls over the IP-LAN; a publicly-switched telephone network (PSTN) having a trunk connection to the IP telephony server; and a PSTN-connected routing server. The IP tele-

Undisputed: A "Switch" Is Not A "Server"

Switch

Switch A mechanical, electrical or electronic device which opens or closes circuits, completes or breaks an electrical path, or selects paths or circuits. Switches work at Layers 1



Server

Server 1. Hardware definition of server: A server is a shared computer on the local area network that can be as simple as a regular PC set aside to handle print requests to a single printer. Or, more usually, it is the fastest and brawniest PC around. It may be used as a repository and distributor of oodles of data. It may also be the gatekeeper controlling access to voice mail, electronic-mail, facsimile services. At one stage, a local area network had only one server. These days networks have multiple servers. Servers these days have multiple brains, large arrays of big disk drives (often in redundant arrays) and other powerful features. New powerful servers are called super-

DECLARATION OF HARRY BIMS IN SUPPORT OF DEFENDANTS' OPENING CLAIM CONSTRUCTION BRIEFS

24. In this field, the word "server" generally refers to a computer that "serves" client devices through a network.[1] It generally connotes to persons of skill in the art a particularly powerful computer capable of storing lots of data and providing that data to many client devices. Both now and at the time of the asserted patents, servers form the backbone of the Internet, in that servers store websites, enabling client devices to access those websites from anywhere in the world.

POR, 61-63; Sur-Reply, 26; Ex. 2027, 757, 815; Ex. 2028, 24

Reply Newly Maps "Remote Server" To The "PSTN-connected Routing Server" And The "IP Telephony Server"

PETITIONER'S REPLY

Patent Owner mischaracterizes Petitioner's mapping for "remote server" (27[i]) by asserting that the Petition only considered "PSTN switch 31" to be the "remote server." POR, 60-63. Patent Owner ignores the entirety of Petitioner's analysis, which references the analysis of the same term in other claims (17[j] and claims 4 and 15). Pet., 23, 47, 55-56. The Petition explained that "Yegoshin's phone is in communication with several remote systems" (citing claims 4 and 15), identifying "servers," such as "PSTN-connected routing server" and "IP telephony server." Pet., 23 (citing EX-1004, 3:35-4:34, 5:66-6:4, 6:38-64, 7:15-37, Figure 2), 47, 55-56. As ***generally*** illustrated in annotated Figure 2 below and also recognized by Patent Owner (POR, 60-61), "PSTN switch 31" is included in or associated with the "PSTN-connected routing server" along with "T-server software." EX-1004, 3:35-4:34, 7:26-37, 9:1-12; EX-1051, ¶12.

But, The Petition And Dr. Jenson Plainly, And Incorrectly, Identified The PSTN Switch As The "Remote Server"

Reply

"The Petition explained that 'Yegoshin's phone is in communication with several **remote systems**' (citing claims 4 and 15), **identifying 'servers' such as 'PSTN-connected routing server' and 'IP telephony server**.'"

Reply, 7

Petition and Dr. Jensen

Petition: Yegoshin's interfaces "**communicate with the PSTN Switch (*remote server*)**"

Pet., 79-80

Expert Decl.: Yegoshin's first interface operates on the cellular network "to **the PSTN switch (corresponding to the remote server)**" and Yegoshin's second interface "communicates to **the same PSTN switch (corresponding to the remote server)**"

Ex. 1003, ¶241

Expert Decl.: Yegoshin's phone "is in communication with **the PSTN switch, which corresponds to the remote server**."

Ex. 1003, ¶247

Reply: Patent Owner Ignores Petitioner's Analysis For Claims 17[j], 4, And 15

PETITIONER'S REPLY

Patent Owner mischaracterizes Petitioner's mapping for "remote server" (27[i]) by asserting that the Petition only considered "PSTN switch 31" to be the "remote server." POR, 60-63. Patent Owner ignores the entirety of Petitioner's analysis, which references the analysis of the same term in other claims (17[j] and claims 4 and 15). Pet., 23, 47, 55-56. The Petition explained that "Yegoshin's phone is in communication with several remote systems" (citing claims 4 and 15), identifying "servers," such as "PSTN-connected routing server" and "IP telephony server." Pet., 23 (citing EX-1004, 3:35-4:34, 5:66-6:4, 6:38-64, 7:15-37, Figure 2), 47, 55-56. As ***generally*** illustrated in annotated Figure 2 below and also recognized by Patent Owner (POR, 60-61), "PSTN switch 31" is included in or associated with the "PSTN-connected routing server" along with "T-server software." EX-1004, 3:35-4:34, 7:26-37, 9:1-12; EX-1051, ¶12.

Claim 17[j] Discusses A "System" Which Petitioner Maps To "PSTN Switch 31"

PETITION FOR *INTER PARTES* REVIEW

As illustrated in Figure 2, Yegoshin's phone is in communication with several remote systems. EX-1004, 5:66-7:25; EX-1003, ¶179; *see* claims 4 and 15. Particularly, the phone communicates with "PSTN switch 31" (***remote system***) through MSC and BTS (***remote systems***) via a cellular network (***first network path***). EX-1004, 5:66-7:25, Figure 2, 7:26-9:12, Figure 3, 3:35-4:42. Therefore, in the combination, Yegoshin's "first communication interface" (***first wireless transmit and receive component***) communicates over the IP-enabled cellular network (as taught by Billström). EX-1003, ¶179.

Yegoshin's phone also communicates with "IP switch 35" (***different remote system***) via WLAN (***second network path***). EX-1004, 6:52-7:25. Additionally, the phone communicates with "PSTN switch 31" (***same remote system***) through "IP switch 35." *Id.*; *see also* 7:26-9:12, Figure 3, 3:35-4:42. Therefore, in the combination, Yegoshin's "second communication interface" (***second wireless transmit and receive component***) communicates over IP-enabled WLAN. EX-1003, ¶180.

Similarly, Claims 4 And 15 Are Cited In Connection With "Remote Systems"

PETITION FOR *INTER PARTES* REVIEW

As illustrated in Figure 2, Yegoshin's phone is in communication with several remote systems. EX-1004, 5:66-7:25; EX-1003, ¶179; *see* claims 4 and 15.

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Claims 1 And 14 Require Multiple IP Addresses

Patent No.: US 8,842,653 B1

14. An Internet-enabled mobile communication device comprising:

a memory;

a display;

at least two or more antennas;

at least one or more processors; and

a plurality of wireless transmit and receive components including a first wireless transmit and receive component and a second wireless transmit and receive component, wherein each wireless transmit receive component is configured to communicate using one or more protocols;

wherein the device is enabled for communication using Internet Protocol (IP);

wherein the device is enabled for wireless communication on a wireless local area network;

wherein the first wireless transmit and receive component is enabled to communicate using one or more antennas simultaneously; and

wherein the mobile device maintains multiple IP addresses, wherein the first wireless component is accessible on a first IP address and the second wireless transmit and receive component is accessible on a second IP address and wherein the mobile device operates using a plurality of ports.

wherein the mobile device maintains multiple IP addresses, wherein the first wireless component is accessible on a first IP address and the second wireless transmit and receive component is accessible on a second IP address and wherein the mobile device operates using a plurality of ports.

Petitioner: Yegoshin And Billström Each Provide One IP Address On Yegoshin's Phone

PETITION FOR *INTER PARTES* REVIEW

Therefore, a POSITA would have understood or found obvious that Yegoshin's phone maintains an IP address for access to the IP-LAN so that Yegoshin's "second communication interface" for WLAN (***second wireless transmit and receive component***) is accessible on that IP address (***second IP address***). EX-1003, ¶81.

Further, Billström's mobile station ("MS") stores an IP address "such that an MS's IP address identifies the MS as belonging to a particular public land mobile network (or group of MSCs)." EX-1006, 5:60-6:2, 21:26-24:28, Figures 2-3, 14-15. Therefore, it would have been predictable and obvious to modify Yegoshin's phone to maintain another IP address for access to the cellular network, as taught by Billström, so that Yegoshin's "first communication interface" for cellular (***first wireless transmit and receive component***) is accessible on that IP address (***first IP address***). EX-1003, ¶84; EX-1030; EX-1031; EX-1032; EX-1033.

Petition's Combination Relies On Implementing Billström's Network

PETITION FOR *INTER PARTES* REVIEW

Third, a POSITA would have been prompted to apply Billström's teaching because it "provide[s] a 'separated' system concept that provides the new packet data services with minimum impact on the current TDMA cellular infrastructure, by primarily utilizing the base station portion of the cellular system and for the remaining network parts relying on a separate mobile packet data infrastructure."

EX-1006, 4:5-4:20; EX-1003, ¶89.

United States Patent

Billström et al.

Another object of the invention is to provide a "separated" system concept that provides the new packet data services with minimum impact on the current TDMA cellular infrastructure, by primarily utilizing the base station portion of the cellular system and for the remaining network parts relying on a separate mobile packet data infrastructure. As the base station portion (including sites) constitutes a major part of a cellular system investment, the advantage of capitalizing on the cellular infrastructure applies also for this system concept. The remaining separate infrastructure may be based on available mobile packet data network technology.

Dr. Jensen Confirms That Yegoshin's Phone Operates On Billström's Network

VIDEOCONFERENCED DEPOSITION OF
DR. MICHAEL A. JENSEN
SEPTEMBER 29, 2023

That is the combination of the Yegoshin and Billstrom proposed only modify the Yegoshin's phone and does not make any modification to another part of the network?

A Well, to the extent that the combination is Yegoshin's phone, that needs to be modified to communicate on Billstrom's network. So the modification is to the phone.

the question. But the question is, does the combination of Yegoshin and Billstrom that you propose only modify Yegoshin's phone and not any other part of the network?

A The reason I answered it in my own words is -- so the answer is yes, it modifies Yegoshin's phone. And that's the modification that needs to be done. Obviously, in that case, Yegoshin's phone would be able to function in Billstrom's network. But the modification the petitioner needs to do is to the phone in order to communicate in that network.

Petitioner's Combination Requires Billström's Network Because The Mobile Device Would Not Be "Accessible" Or "Enabled For Wireless Communication" Without An Operational Network

Patent No.: US 8,842,653 B1

14. An Internet-enabled mobile communication device comprising:
a memory;
a display;
at least two or more antennas;
at least one or more processors; and
a plurality of wireless transmit and receive components including a first wireless transmit and receive nent and a second wireless transmit and receive nent, wherein each wireless transmit receive co is configured to communicate using one or more protocols;
wherein the device is enabled for communication using Internet Protocol (IP);
wherein the device is enabled for wireless communication on a wireless local area network;
wherein the first wireless transmit and receive co is enabled to communicate using one or more simultaneously; and
wherein the mobile device maintains mul addresses, wherein the first wireless comp accessible on a first IP address and the second transmit and receive component is accessible ond IP address and wherein the mobile device using a plurality of ports.

wherein the device is enabled for wireless communication on a wireless local area network;

wherein the mobile device maintains multiple IP addresses, wherein the first wireless component is accessible on a first IP address and the second wireless transmit and receive component is accessible on a second IP address and wherein the mobile device operates using a plurality of ports.

Petitioner: "A POSITA Would Have Understood How To Implement Billström's Network Employing IP"

PETITION FOR *INTER PARTES* REVIEW

A POSITA would have understood how to implement Billström's cellular network employing IP with a reasonable expectation of success because significant overlap exists across the teachings of Yegoshin-Johnston and Billström in the same technical field of cellular communication technology. EX-1003, ¶91. The modification would require only routine knowledge of wireless technologies, which were

Undisputed: A POSITA Has A Bachelor's Degree And Two Years Of Experience

DECLARATION OF DR. MICHAEL ALLEN JENSEN

27. Based on my knowledge and experience in the field and my review of the '653 patent and its file history, I believe that a person of ordinary skill in the art at the time of alleged invention ("POSITA") would have had a Bachelor's degree in electrical engineering, computer engineering, computer science, or a related field, and at least two years of experience related to the design or development of wireless communication systems, or the equivalent. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education.

Dr. Jensen: "It Would Take A Fairly Extraordinary Person" To Implement Billström's Network

REMOTE DEPOSITION OF MICHAEL JENSEN, PH.D.

PROVO, UTAH

THURSDAY, APRIL 13, 2023

Q. So let me ask the question more precisely. Do you believe an average person with a bachelor degree in electrical engineering, computer engineering, computer science or related field, and only two years of experience related to the design and development of wireless communication systems, would be able to modify an existing GSM type architecture system with the necessary additional hardware and software to implement Billstrom's first embodiment?

A. I believe that -- so to be -- to be fair, I believe it would take a fairly extraordinary person to have enough knowledge to single-handedly do that in that education and time horizon. A little more experience might be necessary in order to implement this.

Experts Agree: Implementing Billström's Network Would Have Been Beyond The Skills Of A POSITA

Dr. Todor Cooklev
Purdue University

DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

123. In my opinion, a POSITA as defined by Petitioner and Dr. Jensen would have encountered challenges that would have been far beyond their skill level. Indeed, I agree with Dr. Jensen that Billström's apparatus "was relatively complicated" and that "it would take a fairly extraordinary person to have enough knowledge to single-handedly [implement Billström's apparatus] in that education and time horizon." Ex. 2020 [Jensen-Depo.] 100:4-9, 102:12-103:2. The person implementing Billström's apparatus would need at least a thorough understanding of the GSM system in order to add Billström's "relatively complicated" apparatus. I believe each of these requirements is far beyond the level of skill of a POSITA as defined by Petitioner and Dr. Jensen because they involve at least complex technical and system design aspects that well exceed the knowledge and experience of a POSITA.

Reply: Patent Owner's Argument Is "Based Solely On Dr. Cooklev's Unsubstantiated Testimony"

PETITIONER'S REPLY

Based solely on Dr. Cooklev's unsubstantiated testimony, Patent Owner alleges that the modification would have been beyond a POSITA's skill, and there would be no reasonable expectation of success. POR, 54-60 (citing EX-2019, ¶¶120-123). Notably, Patent Owner requires Petitioner's demonstration of

Wrong

Petitioner Attempts To Erase Dr. Jensen's Deposition Admissions

Reply: Combination Only Modified Yegoshin's Phone To Use Billström's IP Address

PETITIONER'S REPLY

providing packet data communication services over cellular systems. *Id.* This represents an overly narrow view of the combination because, as discussed above, Petitioner's combination simply modifies Yegoshin's *phone* to use Billström's *IP address* for IP-based cellular communication. EX-1051, ¶8. Patent Owner's

Reply's Argument Contradicts Petition And Dr. Jensen's Testimony

Reply	Petition and Dr. Jensen
"Petitioner's combination simply modifies **Yegoshin's phone to use Billström's IP address for IP-based cellular communication**." Reply, 4	**Petition:** POSITA would have understood how to "**implement Billström's cellular network employing IP** with a reasonable expectation of success" Pet., 21 **Petition:** Billström's teaches "'separated' system ... that provides the **new packet data services with minimum impact on the current TDMA cellular infrastructure**." Pet., 20-21 **Expert Depo.:** Yegoshin's phone modified "to communicate **on Billstrom's network**" Ex. 2032, 33:23-34:5, 34:13-24

Petitioner Also Failed To Explain How The Combination Routes Data Packets Using Two IP Addresses

DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

Dr. Todor Cooklev
Purdue University

110. Yegoshin and Billström each teach a device with only a single IP address. Because each reference only has a device with a single IP address, each reference only teaches how to route using one IP address, not two. I do not see any recognition from Petitioner or Dr. Jensen of this disconnect, much less any explanation of how a POSITA could resolve it such that Yegoshin's phone decides and enforces which IP address to use to route each data packet.

Yegoshin Routes Voice Calls On A Call-By-Call Basis Based On The Originating Phone Number

United States Patent
Yegoshin

The example described above of an instance of a cellular call **55** placed to cell phone **9** assumes that the user is taking all cellular calls in IP format while logged-on to IP network **27**. All such calls would then be routed via PSTN **25** to IP network **27**. However, it may be that certain cellular calls will be exempt from IP delivery at the user's discretion. In this case, callers from known origination numbers will be routed to local cell network **23**, local to the visited IP network, and therefore may be received by the user of telephone **9** in normal cell-phone mode.

Ex. 1004 [Yegoshin] 8:51-56

Billström Routes Packet Data Through Its Single IP Address

United States Patent
Billström et al.

A PD mode establishment procedure may also be initiated when a PD router in an MSC, currently serving an MS in idle mode, receives a packet addressed to the MS. The PD router

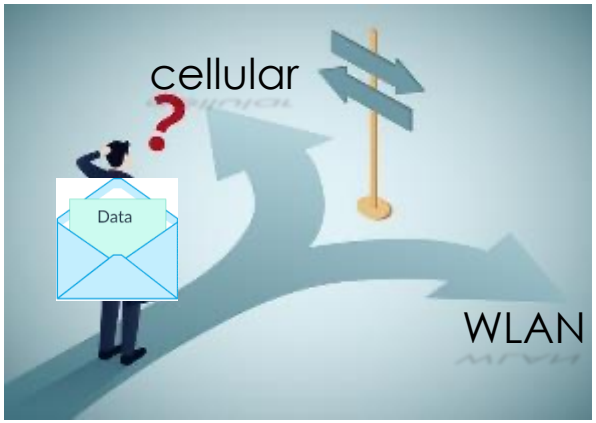
Ex. 1006, 10:62-64

DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

two separate modes, a GSM mode and a packet data mode. *Id.*, 8:47-49. Billström does not associate packet addresses with the device's phone number, but, instead, each packet designates the IP address of the recipient device. *Id.*, 10:62-64. When a call is received by the device, the packet data mode is kept "pending" during the call. *Id.*, 14:26-31.

Ex. 2019, ¶ 112

Petitioner Fails To Account For The Difference Between Yegoshin and Bernard's Routing



DECLARATION OF PROFESSOR TODOR V. COOKLEV, PH.D.

115. Thus, the system in Petitioner's proposed combination needs to decide, for data packets, which IP address should be used to transmit each and every data packet. I do not see any suggestion in Yegoshin of how its device would choose between a first IP address and a second IP address when determining how to route a data packet. Nor is any such suggestion in any other reference in Petitioner's combinations. Moreover, I do not see any suggestion from Petitioner or Dr. Jensen of how a POSITA would modify Yegoshin or its Yegoshin-Billström combination to do so.

Petitioner Was Required To Explain How A POSITA Would Have Been Able To Make The Combination

- "Although proof of physical or bodily incorporation is not required," **petitioner failed "to explain sufficiently how a POSA would have implemented Hieda's source/drain contact areas in Inaba's device**," where compatibility of references was neither "self-evident" nor explained. *Samsung Elecs. Co. Ltd. v. KAIST IP US LLC*, IPR2017-01046, Papers 12 at 18-20 (Oct. 2, 2017) and 14 at 7 (Jan. 22, 2018)

- "the evidence supports that it would have been no[t] simple or well-understood or obvious matter to make the combination" where "**Petitioner never satisfactorily explains just how the combination would work**" *Alcon Inc. v. AMO Dev., LLC*, IPR2021-00853, Paper 48, 50-56 (Dec. 2, 2022)

- "**Petitioner has not provided sufficient details about how its proposed combination would work.**" *Canon, Inc. v. WSOU Invests., LLC*, IPR2022-01532, Paper 14, 18-21 (Apr. 14, 2023) (denying institution)

- the Petition's "allegations amount to little more than an opinion that one would have combined the references in a manner to allow performance of the claimed method step, **without sufficient guidance as to how** and why **[a POSITA] would do so.**" *Acclarent, Inc. v. Albritton*, IPR2018-00268, Paper 12, 7-8 (Jan. 31, 2019)

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Claim 2 Requires "Simultaneously Transmitting And Receiving"

Patent No.: US 8,842,653 B1

2. The device of claim **1**, wherein a single transmission connection is further comprised of at least two or more wireless transmit and receive connections simultaneously transmitting and receiving using the plurality of antennas, and wherein the processor multiplexes the receiving signals into the single transmission connection.

Petitioner Relies Upon Yegoshin's Alleged Teaching Of "Simultaneous Transmission"

Claim 2

As described in 1[j], the combination modifies or implements Yegoshin's phone to use a single interface (e.g., serial interface 701) (***single transmission connection***) to couple to multiple wireless networks, such as cellular and WLAN. EX-1003, ¶143; EX-1007, 17:40-51, 19:31-46, 20:17-58, 21:9-15, 23:60-24:1, 24:19-25:25, 27:3-46. As also described in 1[j], Yegoshin's cellular and WLAN connections can be used to transmit/receive signals for calls over respective paths simultaneously. EX-1004, 5:55-65. Therefore, the single interface in the combination would enable both cellular and WLAN communications simultaneously, thereby rendering obvious the ***single transmission connection comprised of at least two wireless transmit and receive connections for simultaneous data transmission and reception***. EX-1003, ¶143.

Pet., 45

Institution Decision Agreed: Yegoshin Does Not "Simultaneously" Use Cellular And WLAN Networks

DECISION
Granting Institution of *Inter Partes* Review

The portion of Yegoshin quoted above regarding "a busy signal" or "call-waiting call" undermines Petitioner's argument that Yegoshin's "phone multiplexes the signals communicated on two network paths." Petitioner appears to focus on the phrase "cell phone 9 is capable of taking some calls via cellular path while receiving other calls via IP path," without considering Yegoshin's further elaboration on how IP and cell calls are handled.

Paper 13 [Institution Decision] 21

Yegoshin Does Not "Simultaneously" Transmit Or Receive

United States Patent
Yegoshin

In one embodiment of the present invention cell phone **9** is capable of taking some calls via cellular path while receiving other calls via IP path. In such a situation, integrating software is provided to coordinate activity between the two paths. For example, if engaged with an IP call, an incoming cell call would get a busy signal and so on, or it would be redirected to the IP call point, where it would then be presented as a call-waiting call, if that feature set is available and enabled. In a preferred embodiment, phone **9** may be switched from one network capability to another at the user's discretion.

Ex. 1004 [Yegoshin] 5:55-65

In Yegoshin's System, A User Cannot Even Select Two Networks For Simultaneous Communication

United States Patent
Yegoshin

A client software suite **19** enables a user to select a type of network for communication, to select a protocol for voice communication, and to set-up a temporary IP address on a network for the purpose of identifying and registering the device for normal operation on the network. Client software

Ex. 1004 [Yegoshin] 5:33-37

Institution Decision: Petitioner Disregards Yegoshin's Disclosure To A POSITA As A Whole, Takes One Sentence Out Of Context

DECISION
Granting Institution of *Inter Partes* Review

The portion of Yegoshin quoted above regarding "a busy signal" or "call-waiting call" undermines Petitioner's argument that Yegoshin's "phone multiplexes the signals communicated on two network paths." Petitioner appears to focus on the phrase "cell phone 9 is capable of taking some calls via cellular path while receiving other calls via IP path," without considering Yegoshin's further elaboration on how IP and cell calls are handled.

Paper 13 [Institution Decision] 21

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Claim 9 Requires A "Plurality Of Remote Systems"

Patent No.: US 8,842,653 B1

9. The device of claim 1, wherein the use of two or more wireless transmit and receive units create connections to a plurality of remote systems simultaneously and transmit and receive data in a parallel path to increase the rate at which data is transferred.

Petitioner Relies Upon Its Argument For Claim 4, Which Requires "Remote Servers"

PETITION FOR *INTER PARTES* REVIEW

Claim 9

See claim 4; EX-1003, ¶160. Although phrased differently, claim 9 is substantially the same as claim 4 except it recites ***remote systems*** instead of ***servers***.

EX-1003, ¶160; *see infra* 17[j].

Petitioner Never Identifies A "Plurality Of Remote Systems"

The Petition Does Not Explain A Plurality Of "Servers" Discloses A Plurality Of "Remote Systems"

Yegoshin Specifically Teaches That Its Servers Are Part Of One "System"

United States Patent
Yegoshin

In an other aspect of the invention a system for telephone communication is provided, comprising an IP-LAN including an IP telephony server; a dual-mode communication device comprising first apparatus for conducting telephone calls on a cell-phone network, including a cell-phone number, and second apparatus for conducting telephone calls over the IP-LAN; a publicly-switched telephone network (PSTN) having a trunk connection to the IP telephony server; and a PSTN-connected routing server. The IP tele-

Ex. 1004, 3:35-43

connected routing server. In this system the PSTN-connected routing server may be hosted by a cell-phone network or may be a part of a PSTN service control point (SCP). The LAN may be a wireless network. In this system the IP telephony server associates the cell number of the cell phone-capable device with the IP address, and delivers calls received for the cell number to the cell-phone-capable device connected on the LAN.

Ex. 1004, 4:7-14

1. A system for telephone communication, comprising:
an IP-LAN including an IP telephony server;

Ex. 1004, cl. 1

Reply: Dr. Cooklev Acknowledged That "A Server Could Be A System"

PETITIONER'S REPLY

However, as acknowledged by Dr. Cooklev, the term "remote systems" mean "systems that are remote," and "a server could be a system." EX-1054, 79:18-20, 8:3-4. Therefore, a POSITA would have understood that Yegoshin's servers are "remote" from the phone and correspond to the "remote systems" in claim 9. Pet., 51-52; EX-1051, ¶55.

The Reply Does Not Explain Why Yegoshin's Servers Would Be A Plurality Of Remote Systems

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Claim 10 Recites "Multiple Wireless Transmit And Receive Components Are Presented To The Application As A Single Connection Interface"

Patent No.: US 8,842,653 B1

10. The device of claim **1**, wherein multiple wireless transmit and receive components are presented to the application as a single connection interface such that the multiple transmission interfaces are virtualized into a single transmission interface.

Petition: Only Identifies A Single Transmission Interface To The Phone, Not To An Application

PETITION FOR *INTER PARTES* REVIEW

Therefore, a POSITA would have understood or found it obvious that, from the perspective of the phone receiving the signals, the cellular and WLAN interfaces (***multiple transmission interfaces***) appear to be (thus is ***virtualized into***) ***a single transmission interface*** because the phone only receives the multiplexed signals via the single interface that connects the applications on the phone with the cellular and WLAN interfaces. EX-1003, ¶162; *see infra* 17[j].

Institution Decision: Petitioner's Showing Not Sufficient

DECISION
Granting Institution of *Inter Partes* Review

claim 10. However, we find that, in addition to the multiplexing problem in claim 1, Petitioner's showing on claim 10 would ***not*** have been sufficient to establish a reasonable likelihood that Petitioner will prove this claim unpatentable.

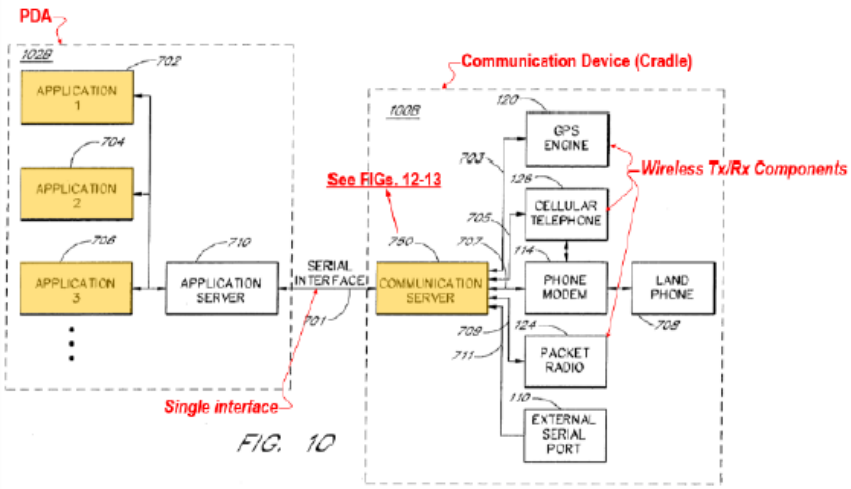
The claim is directed to presenting the components "to the application" as a single connection interface. Petitioner argues that the cellular and WLAN interfaces would virtualized into a single transmission interface "from the perspective of the phone," but does not explain how that relates to an "application," or even identify an application.[11]

ID, 33-34

Reply: Bernard's Applications Only See The Serial Interface 701

PETITIONER'S REPLY

1051, ¶56; EX-1003, ¶¶161-162, 127-128, 131, 134-135. Therefore, it would have been apparent to a POSITA that the cellular and WLAN interfaces ("***multiple wireless transmit and receive components***") ***are presented to the application*** that runs at the phone, and from the perspective of the application running at the phone, these interfaces would be invisible and appear only as ***a single connection interface*** because the application can only see Bernard's single, serial interface 701 and receive the multiplexed signals via the same. EX-1051, ¶56. That is, from the perspective of the application running on the phone, the cellular and IP interfaces (***multiple transmission interfaces***) are ***virtualized into a single transmission interface*** in the form of Bernard's serial interface 701. *Id.*; EX-1050, ¶¶61-62.



EX-1007, Figure 10 (annotated)

Bernard Expressly Shows That The Application Sees Different Interfaces For Each Network

United States Patent
Bernard

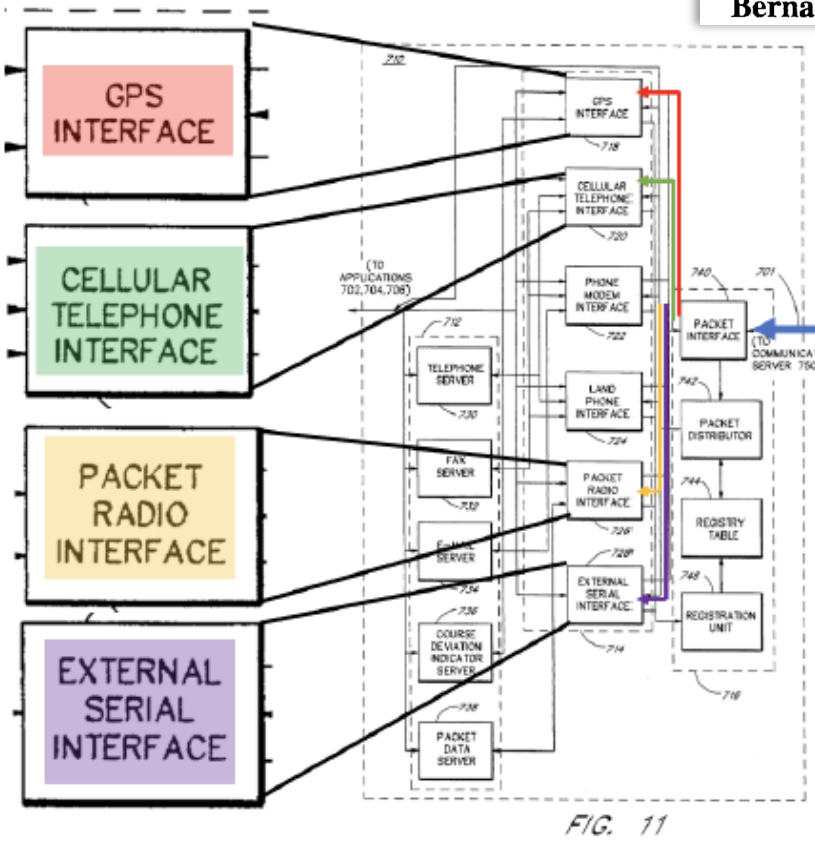


FIG. 11

Data from serial interface 701

FIG. **11** is a functional block diagram of the application server **710** of FIG. **10**. The application server **710** comprises a set of service routines **712**, a set of interface units **714**, and an arbitrator **716**. The set of service routines **712** comprises a telephone server **730**, a fax server **732**, an e-mail server **734**, a course deviation indicator server **736**, and a packet data server **738**. The set of interface units **714** comprises a GPS interface **718**, a cellular telephone interface **720**, a phone modem interface **722**, a land phone interface **724**, a packet radio interface **726**, and an external serial interface **728**. The arbitrator **716** comprises an application packet interface **740**, an application packet distributor **742**, a registry table **744**, and a registration unit **746**.

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Claims 21 And 26 Require Combined Voice And Non-Voice Data Paths To An Application

Patent No.: US 8,842,653 B1

17. A mobile communication device, comprising:
a memory;
a display electronics;
at least two or more antennas;
at least one or more processors; and
a plurality of wireless transmit and receive unit including a first wireless transmit and receive unit and a second wireless transmit and receive unit, wherein each wireless transmit receive unit is configured to communicate using one or more protocols;
wherein the device is configured for multi-band wireless communication;
wherein the device is enabled for communication using Internet Protocol (IP);
wherein the device is enabled for wireless communication on a local area network;
wherein the first wireless transmit and receive component is configured to communicate using a plurality of antennas; and
wherein the first wireless transmit and receive component is configured to communicate over Internet Protocol with a remote system over a first network path and the second wireless transmit and receive component is configured to communicate with the same or a different remote system using a second network path and wherein the processor on the mobile device is configured to combine the data paths into a single transmission interface to one or more applications on the mobile device.

21. The communication device of claim **17**, wherein one of the plurality of communication paths is used for wireless signals representing voice data, and another of the plurality of communication paths is used for wireless signals representing non-voice data.

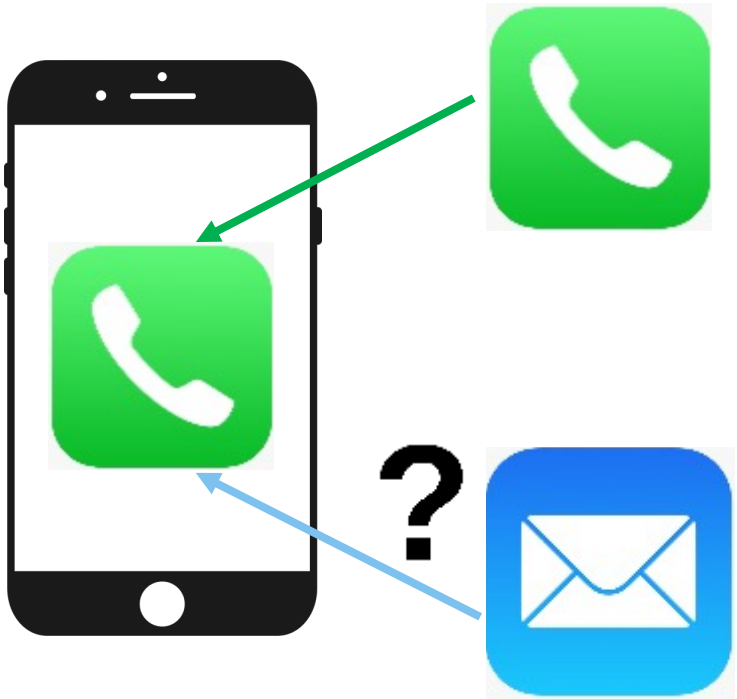
26. The communication device of claim **17**, wherein the one or more processors are programmed to process voice data represented by wireless signals received via one of the plurality of communication paths, and to process non-voice data represented by wireless signals received via another of the plurality of communication paths.

Petition: Yegoshin's Phone Application Would Receive The Combined Data Path For Voice And Non-Voice Data

PETITION FOR *INTER PARTES* REVIEW

1003, ¶186. It would have been obvious that "data-data" (***non-voice data***) and "voice-data" (***voice data***) are two types of data that Yegoshin's phone can communicate over either or both of the cellular and WLAN paths. EX-1003, ¶186.

The Petition Did Not Show Why Yegoshin's Phone App Would Need Non-Voice Data



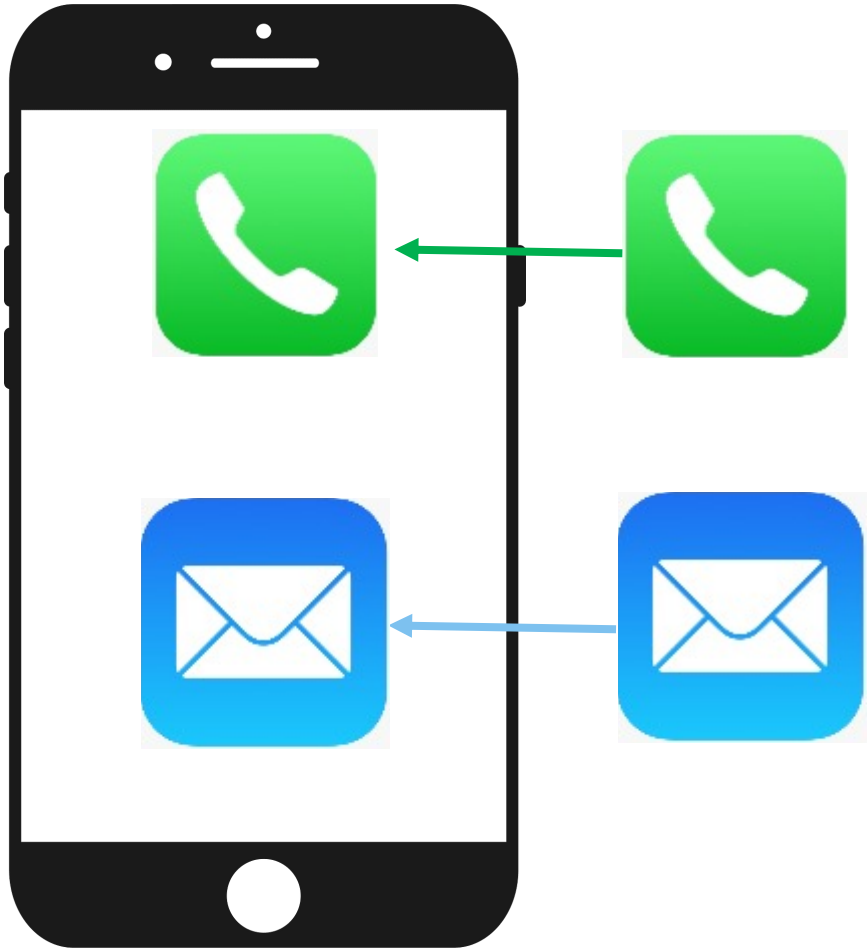
Reply: Combination's Phone Can Transmit Non-Voice Data

PETITIONER'S REPLY

D. Claims 21 and 26

As discussed above (§II), the modified phone in the combination would at least use WLAN for a call ("***voice-data***") based on Yegoshin's call forwarding, and further use IP-based cellular network for cellular data transfer ("***non-voice data***") as taught by Billström. EX-1051, ¶57. In addition, as discussed above (§V), the proposed combination renders obvious claim 17's requirement of "combin[ing] the data paths into a single transmission interface to one or more applications." *Id.* Therefore, Patent Owner's argument is meritless. *Id.*

Petitioner Still Has Not Identified An Application Receiving A Combined Path For Both Voice And Non-Voice Data



Reserve

VoIP Was Not Available At The Time Of The Invention

VIDEOCONFERENCED DEPOSITION OF
DR. MICHAEL A. JENSEN

Q And do they explain that the IMS network is what is used for Voice over IP and was introduced in the 3G cell phone networks?

A Based on the brief read that we have just done, my understanding of what it discloses is that this IP Multimedia Subsystem, IMS, created this generic architecture for offering VoIP and multimedia systems over IP services. So -- and that was part of the 3GPP project. So, I mean, that's what -- that's what it discloses.