

Inter Partes Review U.S. Patent No. 10,547,648

Oral Argument, October 28, 2025

Apple Inc. v. S.M.R Innovations Ltd and Y.M.R Tech Ltd
Case No. IPR2024-01048

Petitioner's Demonstrative Exhibits – Not Evidence

Petitioner's DX-I

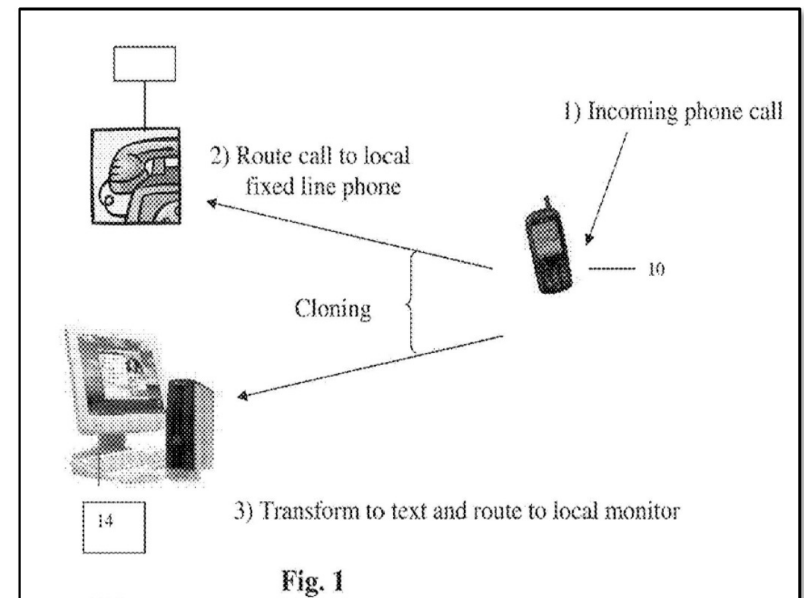
Apple EX1040

U.S. Patent No. 10,547,648 - Summary

The present invention relates to routing of data including multimedia between electronic devices, and more particularly but not exclusively to rerouting of incoming communications that may or may not include multimedia to devices other than the initial receiving device. Data may arrive from external sources via communication or generated by, or at, a device. Data may be a package or a stream. Such a stream may be unidirectional, bi-directional or multidirectional.

more, by rerouting to a more capable device, a user's satisfaction level may be increased in comparison to having to remain with a device that say is limited by inferior data rate, processing power, memory capacity or input/output facilities.

For example, the ability to route an incoming phone call, typically comprising voice, from a mobile device to a land/fixed line phone may generally be expected to upgrade the quality of the call.



U.S. Patent No. 10,547,648 – Claim 1

1. A method of informing a device about an availability of media content at a mobile device connected to a local area network (LAN), comprising:
using the mobile device for:
identifying one or more available devices compatible to handle the media content and connected to the LAN;
wirelessly communicating information to an intermediate routing device connected to the LAN for indirectly routing messages or media content to
at least one of the one or more available devices via said intermediate routing device; and
wirelessly signaling the one or more available devices indicating an availability of a media content at the mobile device;
wherein the media content is originated from an external source disconnected from the LAN;
wherein the media content selected from a group consisting of: audio content and video content.

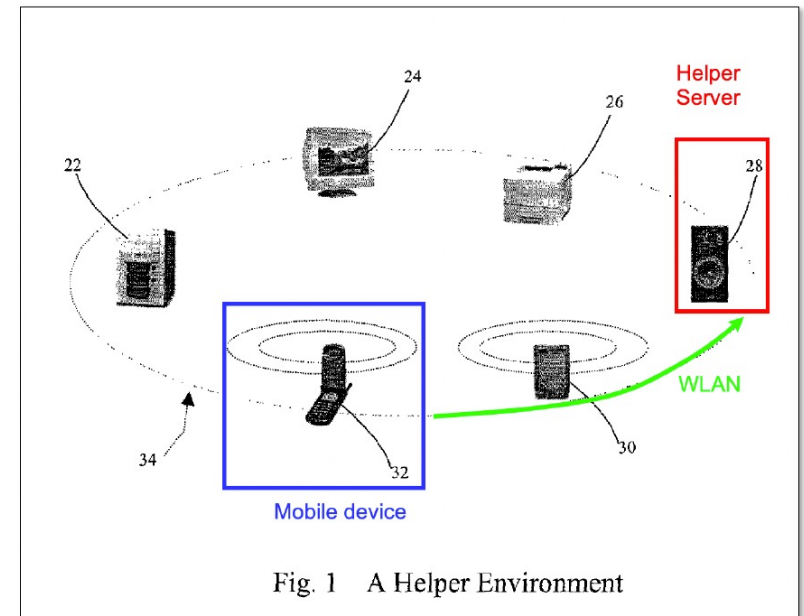
Petitioner's Grounds

Proposed Grounds	Basis	Disputed Claims
Ground 1: Zhang/Fillebrown/Pasanen	§ 103	1, 5-6, 15, 18
Ground 2: Zhang/Fillebrown/Pasanen/Skinner	§ 103	7, 11, 16, 19
Ground 3: Zhang/Fillebrown/Pasanen/Rofheart	§ 103	8, 10
Ground 4: Zhang/Fillebrown/Pasanen/Angelo	§ 103	13

Ground I:

Zhang in view of *Fillebrown* and *Pasanen*

- ▶ *Zhang*’s “helper environment” is focus in all grounds
 - ▶ *Zhang* expressly teaches mobile device, audio helper server, and WLAN (WiFi/HomeRF)
- ▶ *Fillebrown* provides express teaching of “intermediate routing device connected to the LAN”
- ▶ *Pasanen* relied on for use case of passing cellular call to audio helper server, satisfying “media content originated from an external source”



Zhang, Fig. 1 (annotated)

Ground I: Zhang's Helper Environment

2. Background and Related Art

Digital handheld devices, for example but not by way of limitation, Personal Digital Assistants (PDAs), cell phones, digital cameras and portable MP3 players, have become part of our daily lives. Although each type of handheld device has its own unique characteristics, they generally share common features such as being small in size, being utilized in mobile environments, and containing data processing engines. While these common features make handheld devices very useful and extremely popular, another commonality does not bode well for them: these devices are generally limited in capabilities, especially in terms of screen display, processing power, storage space and network access. Some of these limitations, such as the small screen sizes, are inherently difficult to improve given the usage model of these devices. Often, handheld devices are used near fixed devices that do not suffer from the aforementioned limitations. Accordingly, what is needed in the art is a framework for a handheld device to use the increased capabilities of nearby fixed devices without sacrificing its desirable characteristics such as its small size and mobility.

It is thus an object and advantage of the invention to provide a framework in which handheld mobile devices can identify and use their environment, the devices around them, to expand their limited capabilities. Such a framework is referred to as a “helper environment”, the services provided by the helper environment are referred to as “helper services” or “extension services”, and the devices providing these services are referred to as “helper servers”. The tasks performed in the helper environment are generally referred to as “extension tasks”.

Ground I: Zhang's Helper Environment (cont.)

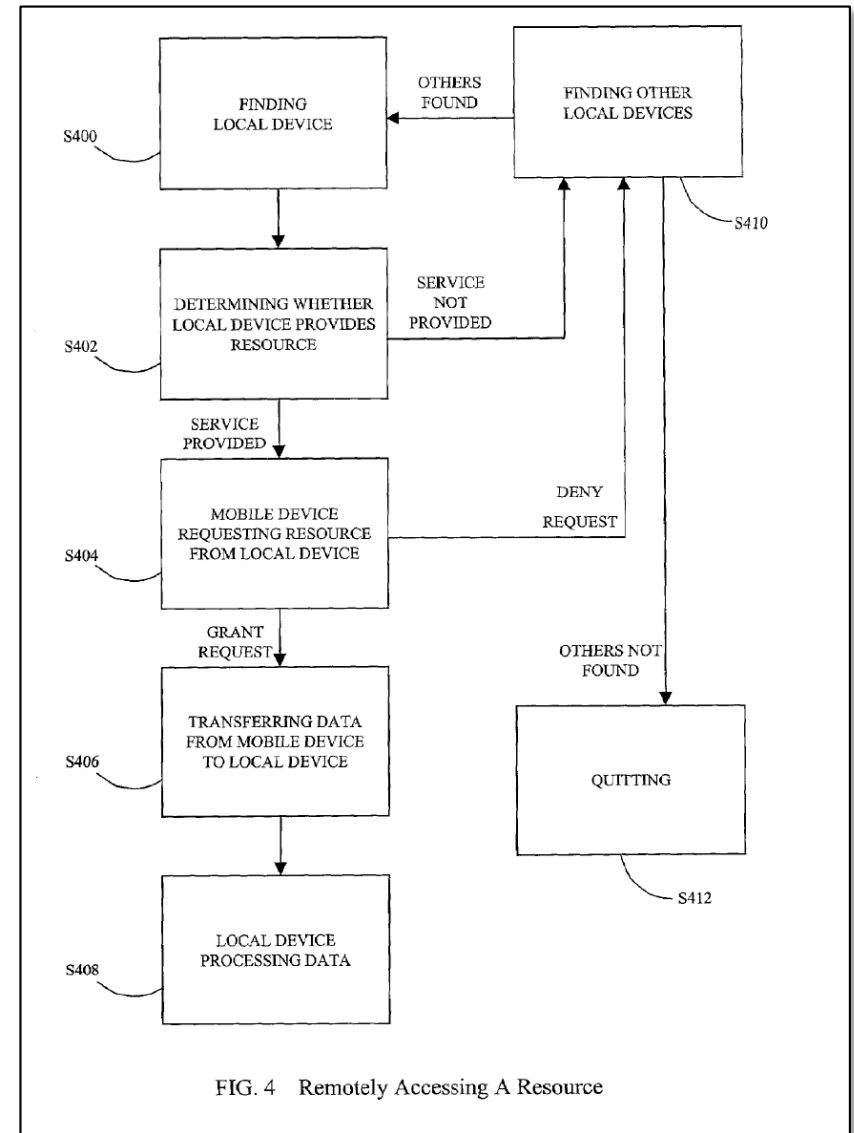
As shown in the above example, the essential steps taken by a handheld device to interact with its helper environment are as follows:

(1) Device discovery: The handheld device identifies the nearby helper servers.

(2) Service query: The handheld device queries the identified helper servers to determine if they are capable of providing the helper service.

(3) Request transfer: The handheld device selects a helper server and delegates the task to it.

(4) Remote control: The helper server returns a remote control interface description to the handheld device. The handheld device builds a Graphical User Interface (GUI) from the interface description and remotely controls the task on the helper server according to user interaction with the handheld device.

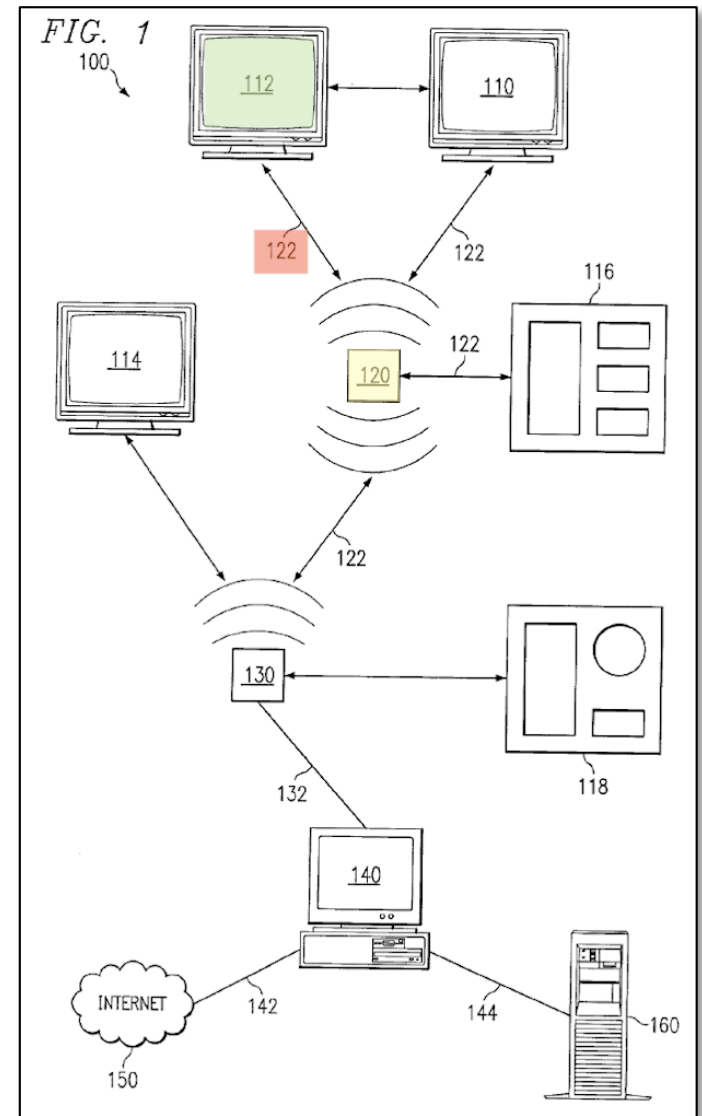


Ground I:

Fillebrown's Intermediate Routing Device

[0016] The present invention achieves technical advantages as systems, devices, methods, and software that implement a personal wireless network. The personal wireless network generally comprises a lightweight wireless tablet (that preferably provides a color touch-screen display), and incorporates wireless technology, such as Bluetooth or 802.11, to send and receive audio and video from another system component.

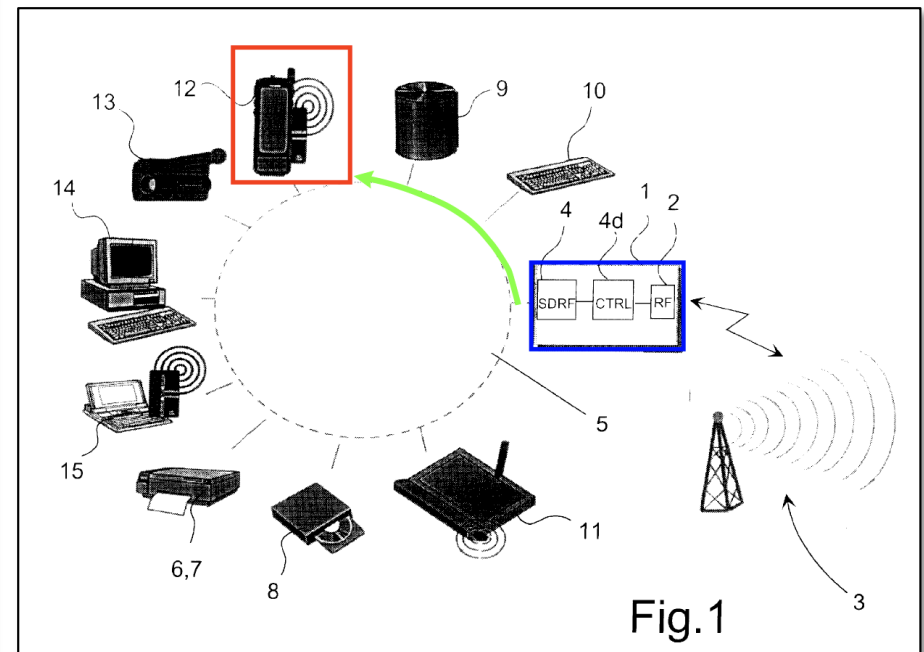
[0049] FIG. 1 illustrates a typical personal wireless network 100. Generally, in the personal wireless network 100, a plurality of wireless clients, such as wireless tablets and wireless smart appliances communicate via a wireless routing means, such as a wireless router 120, with a wireless server 140, sometimes through a wireless transceiving means 130. Communication standards in the personal wireless network 100 are preferably broadcastable wireless protocols, such as Bluetooth, IEEE 802.11, Home RF, or other wireless protocols.



Ground I:

Pasanen's Use Case—Wireless Speaker/Microphone Invoked for Cellular Voice Call

FIG. 1 is a reduced schematic view on the system according to an advantageous embodiment of the invention. The system comprises a server device 1, such as a mobile station MS, comprising e.g. means 2 for setting up a data transmission connection with a mobile communication network 3, and means 4 for setting up a local area network 5 between the server device 1 and the peripheral devices. Further, the mobile station comprises advantageously a display 53 and a key-pad 54. The peripheral devices in the system of FIG. 1 include a printer 6, a telecopier device 7, a CD-ROM reading device 8, a mass storage 9, an auxiliary keyboard 10, an auxiliary display device 11, and a wireless audio interface 12 equipped with e.g. a microphone and an earpiece to be used instead of the microphone 1a and earpiece 1b of the mobile station 1 for example during a call. FIG. 1 shows also



Remaining Grounds

- ▶ Ground 2: Claims 7, 11, 16, 19

- ▶ Adds *Skinner* for alerting user of rerouted media (e.g., flashing light, ring)

- ▶ Ground 3: Claims 8, 10

- ▶ Further modifies *Zhang's* process pursuant to *Rofheart*
 - ▶ Allows user to choose which helper server, rather than automatically rerouting to first compatible and available device

- ▶ Ground 4: Claim 13

- ▶ Adds *Angelo* for encrypting rerouted media

Remaining Questions

▶ Ground 1: Claims 1, 15

- ▶ Question: Must the mobile device confirm a receiving device is “available” *before* signaling it?
 - ▶ Answer: No, but Ground 1 satisfies claims regardless of mandated order (as the Board preliminarily found).
- ▶ Question: Is *Zhang’s* hardware *incapable* of transcoding voice (an unclaimed implementation detail)?
 - ▶ Answer: No, in *Zhang’s* HomeRF implementation, voice devices include native voice transcoding functionality.

▶ Ground 1: Claim 5

- ▶ Question: Did Petitioner procedurally err by incorporating too much of Claim 1’s mapping?
 - ▶ Answer: No, *Zhang’s* process of rerouting media to an available device unambiguous in Claim 1 mapping.

▶ Ground 1: Claim 6

- ▶ Question: Should Petitioner have relied on *Rofheart* in Claim 6 mapping?
 - ▶ Answer: No, Claim 6 requires only user choice of whether to reroute media. *Rofheart* relied on in Ground 3 for allowing user to decide where to reroute media.

▶ Ground 2: Claim 19

- ▶ Question: Does Claim 19 mandate giving the receiving device user an option to reject rerouting?
 - ▶ Answer: No, the Board should make its preliminary finding on this point final.



Ground I: Limitations I(b) and I(d)

▶ Ground I: Claims I, 15

- ▶ “identifying one or more available devices” (Claims I(b), 15(b))
- ▶ “wirelessly signaling the one or more available devices” (Claims I(d), 15(d))

- ▶ PO: must confirm a device is “available” *before* “signaling” it.

- ▶ If no order required, PO does not dispute *Zhang* satisfies limitations
 - ▶ PO’s ordered limitations argument twice rejected—at institution and (implicitly) in denial of director review request

- ▶ Even if an order were required, the *Zhang* combination teaches it:
 - ▶ 1) Under the Board’s interpretation that I(b) merely requires identifying devices that happen to be available
 - ▶ 2) Under PO’s interpretation that “available” does not require confirming that the device is free to receive media

Ground I: Limitations I(b) and I(d)

Antecedent basis insufficient to require order

▶ Case law:

- ▶ “Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one.” *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369 (Fed. Cir. 2003).
- ▶ “[T]he court engages in extensive analysis to determine if logic dictates a sequential order without relying on antecedent basis as a strong indicator, if any.” *Apple Inc. v. Seven Networks, LLC*, No. IPR2020-00156, Paper 10 at 31 (PTAB June 15, 2020).
- ▶ Order may be required if one step cannot occur until another completes:
 - ▶ *Hytera*: “preparing to transmit a particular payload type in a timeslot” must occur before “determining whether the timeslot is a current desired timeslot for the TDMA system”
 - ▶ *Wi-LAN*: “produc[ing] modulated data symbols” must be performed before “combin[ing] the modulated data symbols”

Ground I: Limitations I(b) and I(d)

Antecedent basis insufficient to require order

- ▶ Logically and grammatically, no order is required
 - ▶ I(b) and I(d) can be performed as part of a single inquiry—neither one entirely preceding the other

1(pre): A method of informing a device about an availability of *media content* at a mobile device connected to a local area network (LAN), comprising:

1(b): identifying *one or more available devices* compatible to handle *the media content* and connected to the LAN;

1(d): wirelessly signaling *the one or more available devices* indicating an availability of *a media content* at the mobile device;

'648 Patent, Claim 1.

- ▶ “identifying one or more available devices” ≠ “identifying one or more devices as available”

Ground I: Limitations I(b) and I(d)

Antecedent basis insufficient to require order

► '648 Patent's confusing and inconsistent use of antecedents:

1(pre): A method of informing a device about an availability of *media content* at a mobile device connected to a local area network (LAN), comprising:

1(b): identifying *one or more available devices* compatible to handle *the media content* and connected to the LAN;

1(d): wirelessly signaling *the one or more available devices* indicating an availability of *a media content* at the mobile device;

'648 Patent, Claim 1.

Ground I: Limitations I(b) and I(d)

- ▶ Prosecution history unrelated to ordered steps
 - ▶ Applicant simply resolved ambiguity as to whether device(s) in I(b) and I(d) are the same (the parties agree they *are*)
- ▶ §112 Rejection:

Claim 4 recites, “connecting the one or more devices” and “signaling the one or more devices”. Claim further recites to identify one or more available devices. It is not clear whether the claimed “one or more devices” indicates the one or more available devices or different one or more devices.

Claim 4 recites the limitation “the one or more devices” in lines 6 and 9. There is insufficient antecedent basis for this limitation in the claim.

Ground I: Limitations I(b) and I(d)

► Responsive Amendment:

4. (Currently Amended) A method of informing a device about an availability of media content at a mobile device, comprising:

- using the mobile device for:
 - identifying one or more available devices compatible to handle the media content;
 - wirelessly communicating information to an intermediate routing device connected to a local area network (LAN) or a wide area network (WAN) for indirectly routing messages or media content to
 - ~~wirelessly connecting at least one of the one or more available devices with the mobile device indirectly via said intermediate routing device a local area network (LAN) or a wide area network (WAN) infrastructure;~~ and
 - wirelessly signaling the one or more available devices indicating an availability of a media content at the mobile device;
 - wherein the media content is originated from an external source;
 - wherein the media content selected from a group consisting of: audio content and video content.

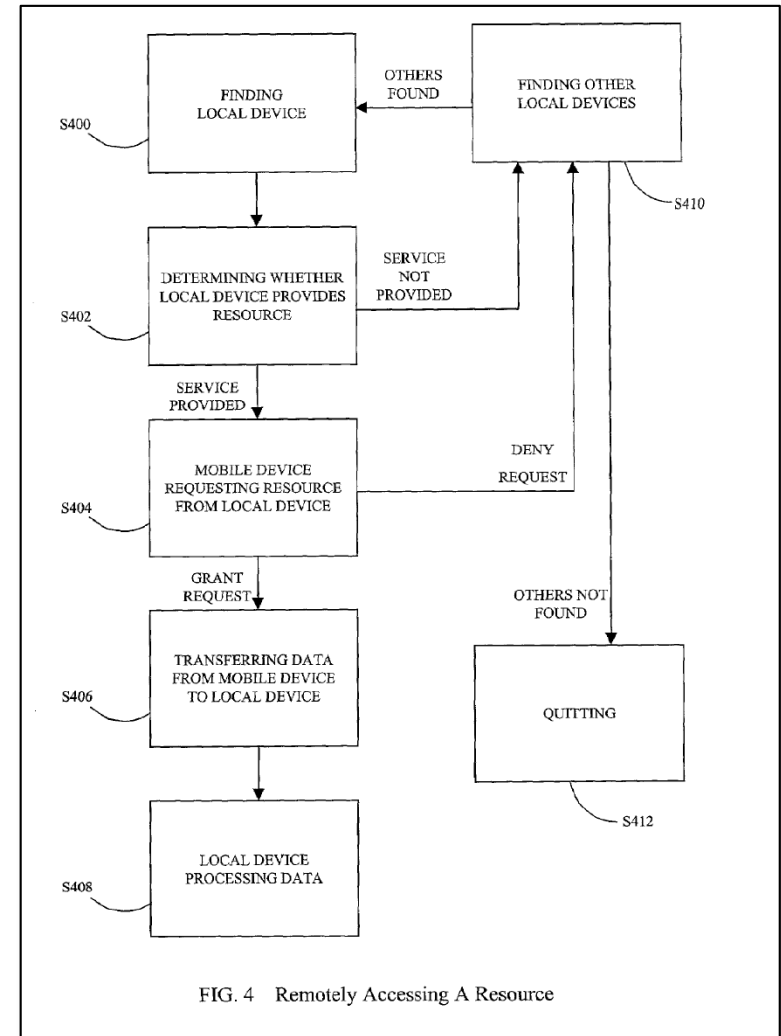
Ground I: Limitations I(b) and I(d)

Claim I allows signaling unavailable devices

- ▶ Disclosed embodiment aligns with *Zhang's* process—both communicate with devices *until* a free device is located

As shown in the above example, the essential steps taken by a handheld device to interact with its helper environment are as follows:

- (1) Device discovery: The handheld device identifies the nearby helper servers.
- (2) Service query: The handheld device queries the identified helper servers to determine if they are capable of providing the helper service.
- (3) Request transfer: The handheld device selects a helper server and delegates the task to it.
- (4) Remote control: The helper server returns a remote control interface description to the handheld device. The handheld device builds a Graphical User Interface (GUI) from the interface description and remotely controls the task on the helper server according to user interaction with the handheld device.



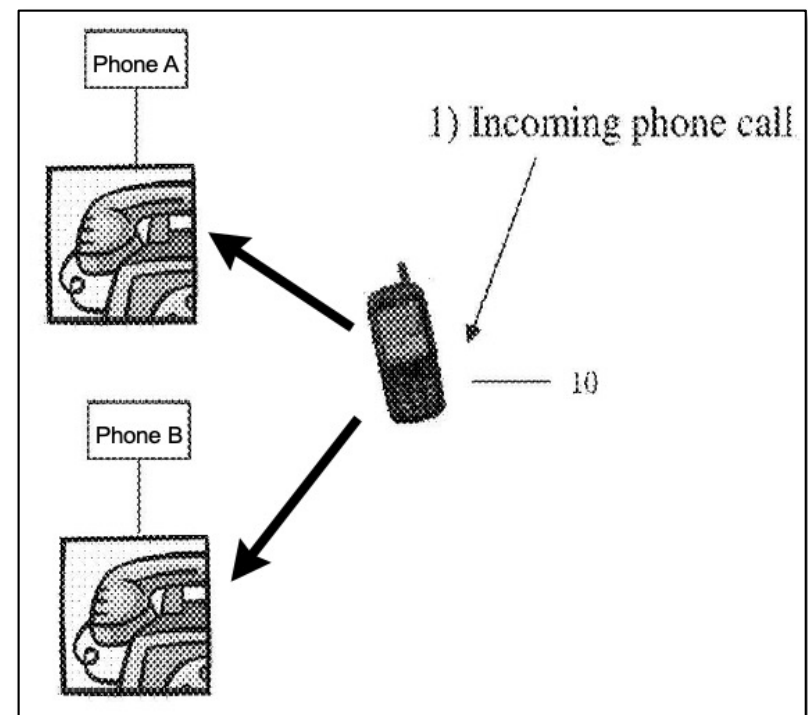
Ground I: Limitations I(b) and I(d)

Claim I allows signaling unavailable devices

- ▶ Disclosed embodiment aligns with *Zhang's* process—both communicate with devices *until* a free device is located

Scenario 3

1. A person, say Smith, carrying a cell phone is sitting in a hotel lobby
2. In the lobby there are four land/fixed line phones
3. A phone call arrives at the person's cell phone
4. Option A:
 - a. The person points his phone at one of the land/fixed line phones
 - b. The cell phone detects the said phone as busy
 - c. The person points his phone at another land/fixed line phones
 - d. The phone call is routed to that, available, land/fixed phone
 - e. The chosen land/fixed phone rings, or flashes to indicate the rerouted call
7. The person receives the call on the available/chosen land/fixed line phone



'648 Patent, Fig. I (edited)

Ground I: Limitations I(b) and I(d)

PO's Expert Admits Scenario 3 is Consistent with Claim I

Q Okay. Does this example scenario three option A that we just discussed, is that consistent with Claim 1 of the '648 patent?

A I believe it is, subject to the -- as I said, the earlier proviso that I said is that there is -- it is an IR link. You would, if you didn't have IR, if you had an actual PAN, you wouldn't do -- be doing the pointing, P-A-N, all caps. And actually technically it's a WPAN, being for wireless PAN.

Q And so the fact that the cellphone communicates with a first desktop phone and learns that that first desktop phone is not available, that's okay in the context of Claim 1?

A Oh, yeah.

Ground I: Under Board's interpretation of limitations I(b) and I(d), *Zhang* sufficient even if order required

► Institution Decision:

Even assuming Patent Owner were correct that step 1b must precede step 1d, Patent Owner's position that device(s) must be identified *as available* does not appear to be commensurate with the claims. According to its plain meaning, limitation 1b does not appear to require identifying devices *as available*; the claim merely requires identifying "available devices." See *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (rejecting arguments "not based on limitations appearing in the claims"). In other words, the claim does not appear to require identifying (i.e., determining) whether devices are available but merely requires identifying devices that happen to be available. According to our preliminary understanding, Zhang's mobile device 1) discovers (identifies) connected available and unavailable helper servers, and then 2) sends (wirelessly signals) service requests to compatible available and unavailable helper servers. Ex. 1004, 3:44–4:8, 6:51–7:13. Thus, Zhang identifies and then wirelessly signals available devices (Zhang also identifies and then wirelessly signals unavailable devices). As such, we preliminary determine that Zhang meets the claim language "identifying one or more available devices" and "wirelessly signaling the one or more available devices."

Ground I: Under PO's interpretation of "available," *Zhang* sufficient even if order required

Q (By Mr. Hart) Sure. In your opinion, limitation 1(b) does not require that the mobile device identifies another device that is instantly available to serve as a sync for rerouted media. Is that right?

A I do not --

MR. ALEXANDER: Same objection.

A I don't believe that it requires that it be fully available.

Q What is required of the communication between the mobile device and the other device known to be compatible in order for the mobile device to have identified that device as available pursuant to limitation 1(b)?

A Okay.

MR. ALEXANDER: Objection, outside the scope of the witness' direct testimony.

A You have to have established that there is a round trip communication, that the device is actually present and turned on and working.

And, you know, and then that's pretty much what you have to -- what you have to establish.

Ground I: Under PO's interpretation of "available," *Zhang* sufficient even if order required (cont.)

7. A POSITA would have understood that *Zhang's* device discovery process alone is sufficient for the mobile device to determine that a helper server is powered on and connected to the network. *Zhang* is unambiguous that the device discovery process step confirms that helper server(s) are powered on, connected to the network, and able to communicate with the mobile device.

8. Under the interpretation of Claim 1(b) discussed above, *Zhang's* device discovery process in step S400 would have determined that a helper server is turned on and able to communicate with the mobile device via the network. Further, *Zhang's* device discovery step S400 provides the mobile device with the capabilities of helper servers.

9. In particular, *Zhang* describes a device discovery process where both the existence and capabilities of helper servers are communicated during device discovery. For example, *Zhang* teaches that the mobile device maintains an "environment capability" table from service discovery. *Zhang*, 6:6-20. *Zhang* also teaches the helper servers "register with the Bluetooth² service discovery database (SDDB) about its *existence and capabilities*." *Zhang*, 6:21-27 (emphasis added). Thus, in *Zhang*, when a helper server is identified/discovered in step S400, the mobile device already knows of the device's capabilities because such information was already transmitted prior to the request to initiate a helper service (e.g., rerouting a phone call). After the existence and capabilities of nearby helper servers are identified, *Zhang's* service query step S402 "determine[s] whether there is a helper device in its environment that can fulfill *the requested task*." Paper 1, 15 (emphasis added); *Zhang*, 4:35-45; Ex. 1003, 91-95, 100-01, 113-14. Thus, step S402 determines if a device is *currently/immediately* available to handle the task.

Ground I: *Zhang* is capable of voice transcoding

► PO challenges an unclaimed implementation detail:

However, in order for a GSM phone call to be sent digitally over an 802.11 or HomeRF network (as is the case under Petitioner's proposed combination), raw digital signals from the GSM receiver (which would be encoded in their telephony encoding scheme) would require transcoding to a digital audio format compatible with the intended recipient. EX2009, ¶72. Thus, the rate-sensitive encoding of the voice transmission over GSM would have to be transcoded into a format recognizable by the receiving device. *Id.* For example, the analog audio output of the phone call that would normally go to the speaker would have to be sampled into digital form and transcoded to the desired media format (e.g., G.711 or MP3). *Id.*

While Petitioner's expert asserts that "modifying *Zhang-Fillebrown* per *Pasanen*'s teachings would have utilized *Zhang-Fillebrown*'s existing hardware" (EX1003, ¶124), neither *Zhang* nor any of the other references in the proposed combination refer to such a transcoding process nor provide the necessary hardware/software. EX2009, ¶73. This is not surprising since none of the references

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- POR, 33-35; see also *id.* at 32 ("Modifying *Zhang* in the manner proposed . . . would require a Petitioner's DX-24 technique called transcoding); Reply, 16-22.

Ground I: *Zhang* is capable of voice transcoding

'648 Patent confirms transcoding was routine

⁵ The '648 Patent discloses, at a high level, transforming media to accord with the requirements of a receiving device. Ex. 1001, 2:50-59, 3:55-59, 6:49-7:25, 9:56-10:9. The patent fails to describe any implementation details, teaching only that software packages to transform media were “well known and commercially available.” *Id.*, 5:4-6.

That the '648 Patent does not itself disclose the alleged implementation details of transcoding reinforces that such a concept was well-understood, routine, and conventional at the time of the invention. Indeed, the absence of detail in the specification demonstrates that a POSITA would have no difficulty implementing the described functionality using known techniques. *Uber Techs., Inc. v. X One, Inc.*, 957 F.3d 1334, 1339 (Fed. Cir. 2020) (“The specification [] is entirely silent on [claimed function,]...suggesting that a person of ordinary skill in the art was more than capable of selecting between the known methods of accomplishing this.”);

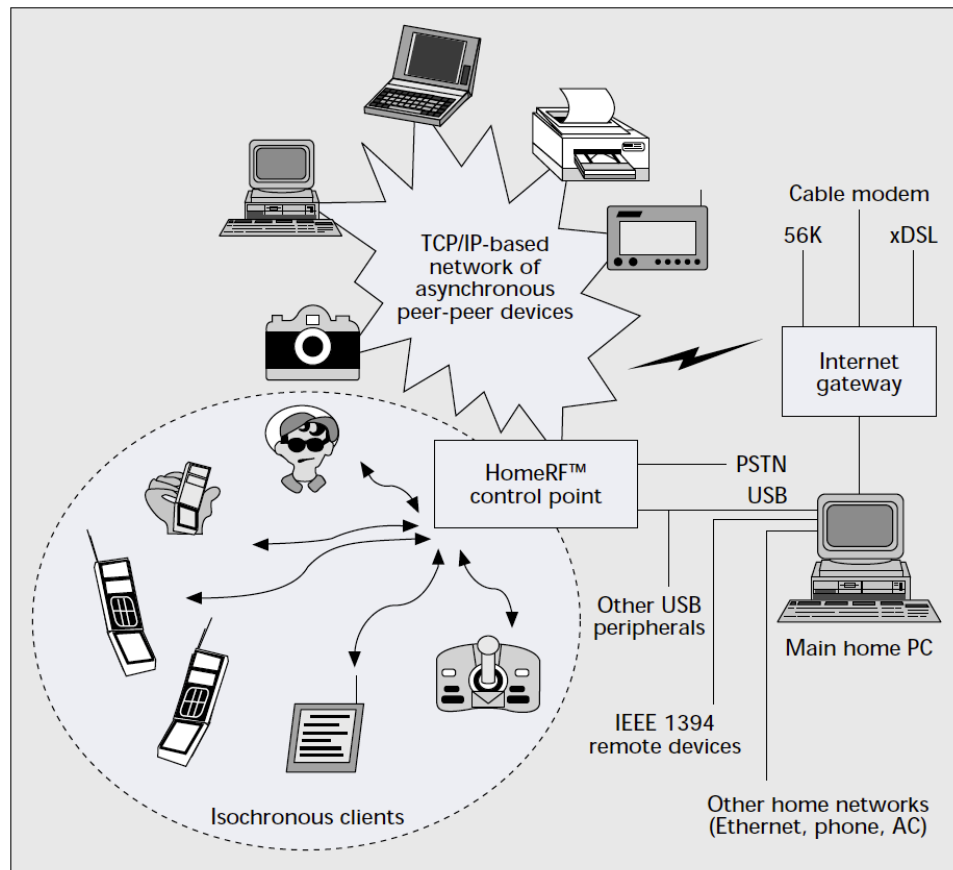
Ground I: *Zhang* is capable of voice transcoding

Zhang teaches HomeRF devices, which include transcoders

13. As discussed in my original declaration, *Zhang* expressly contemplates HomeRF as its wireless local area network, which necessarily means its devices (i.e., mobile device and helper servers) were HomeRF-compliant. See Ex. 1003, ¶¶96-97, 99, 106, 109, 115. I have been asked to assess whether *Zhang*'s HomeRF-compatible devices would have been capable of transcoding voice call audio in *Zhang*'s mobile device to convert from the voice encoding used in the cellular network to voice encoding compliant with the local HomeRF wireless network (i.e., the link between *Zhang*'s mobile device and audio helper server). For example, HomeRF has voice encoding, voice companding including compression and decompression, and a ADPCM voice transcoder. *HomeRF Specification*, 406-408. In my opinion, HomeRF would indeed have provided the functionality for transmitting phone call audio from *Zhang*'s mobile phone to *Zhang*'s helper server (via a wireless router, such as taught by *Fillebrown*, which also teaches HomeRF). Paper 1, 13-14, 16-23, 42. Below, I discuss HomeRF in more detail.

Ground I: Zhang is capable of voice transcoding

HomeRF voice devices communicate through central control point



■ Figure 1. The SWAP vision for home networking.

Ex. 1039 (Negus), Fig. 1

The SWAP networking vision is also apparent in Fig. 1. The HomeRF technology supports both isochronous clients that are slaves to the main home PC and an asynchronous network of peer devices which is effectively a wireless Ethernet. In most cases the system starts with a control point, usually connected to the main home PC via USB. This control point is not absolutely necessary for devices in the asynchronous network of Fig. 1, but even in that case it offers some interesting power saving options for ultra-portable devices, as will be described in the medium access control (MAC) overview later. The isochronous clients, such as cordless telephones, wireless headsets, or remote I/O devices to the home PC (a consumer personal information manager, PIM), are always bound to the control point, which assigns them guaranteed bandwidth for bounded latency communication. The asynchronous peers can also com-

Ex. 1039 (Negus), 2

Ground 1: *Zhang* is capable of voice transcoding

HomeRF voice devices communicate through central control point

15. HomeRF systems included a “control point” that was used as an intermediary routing device to route toll quality voice (phone calls), audio, video, and data to a wireless node, such as an isochronous node (I-node) including a mobile phone, cordless telephone, and wireless headset. *Negus*, 2-3. *Negus*’s Fig. 2 below depicts a control point in communication with various networks (e.g., PSTN, Internet) and a variety of isochronous devices such as the aforementioned wireless headset and cordless telephones.

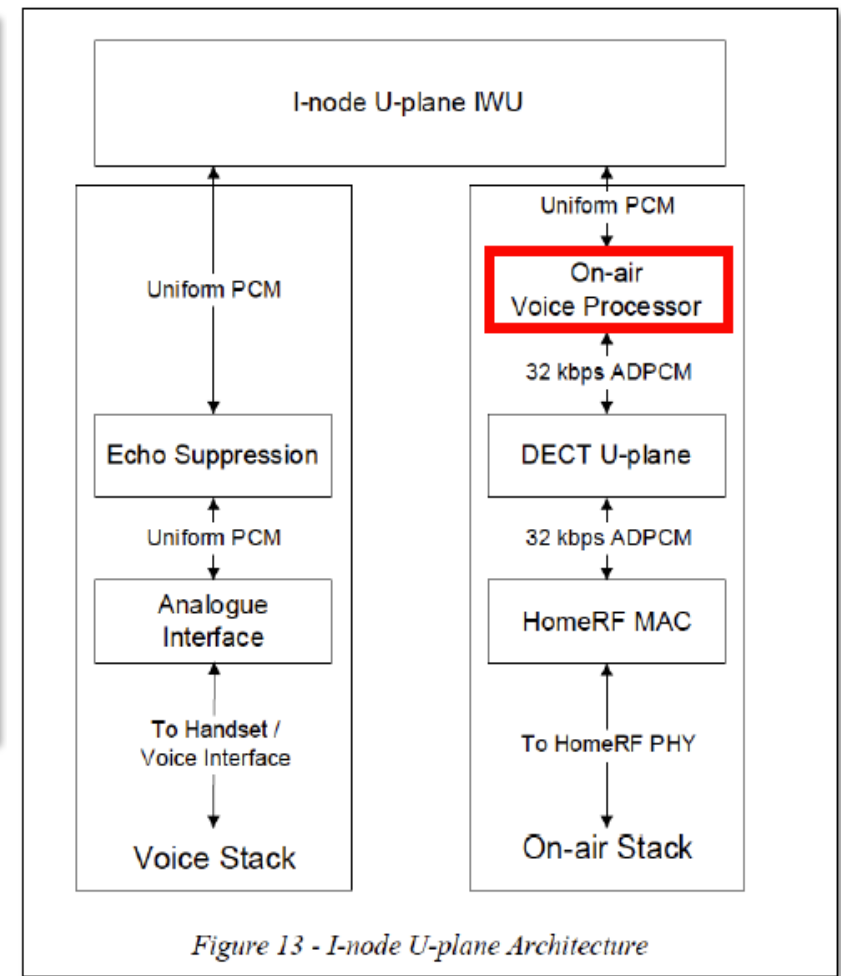
Ex. 1037 (Kiaei Supp. Dec.), ¶15

Ground I: *Zhang* is capable of voice transcoding

HomeRF voice devices perform transcoding

17. The HomeRF specification provides additional details on the I-node architecture. For example, Fig. 13 below depicts I-node architecture as including a voice stack (left) going to and from the handset/voice interface and including PCM (Pulse Code Modulation) audio encoding and an analog interface to receive audio from a microphone or render audio at a device's speaker. The I-node architecture also includes an on-air stack (right) that includes ADPCM (Adaptive Differential Pulse Code Modulation) audio encoding as well as DECT U-plane encoding, where the on-air stack is used for transmitting to and receiving from a control point, for example. The I-node U-plane Interworking Unit (IWU) in an I-node device ties the stacks together.

Ex. 1037, ¶17



Ground I: *Zhang* is capable of voice transcoding

HomeRF voice devices perform transcoding

18. I-node devices also included hardware/software such as the On-Air Voice Processor for performing audio processing. The On-Air Voice Processor in the I-node device provided a “componder” (compressor/expander) for compressing and expanding audio as well as an ADPCM transcoder for encoding and decoding ADPCM audio. Thus, any HomeRF-enabled I-node device (e.g., wireless headset, cordless telephone, speaker, mobile phone) would necessarily have included the CODECs and capabilities for processing and transmitting toll quality voice over a wireless network connection (e.g., *Zhang’s* HomeRF WLAN).

Ex. 1037, ¶18

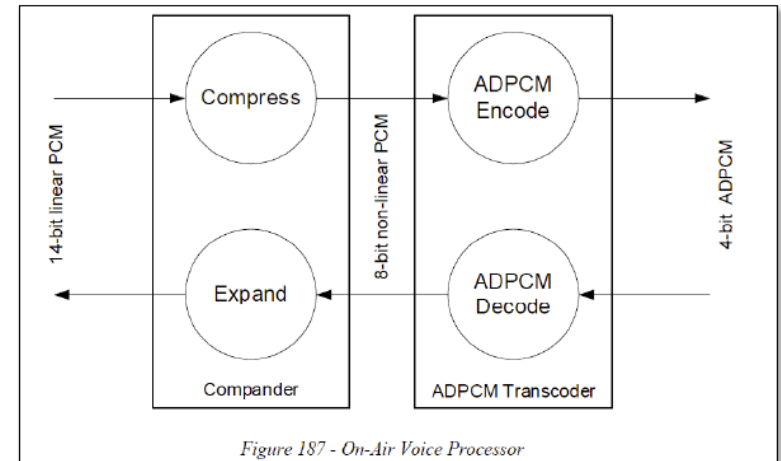


Figure 187 - On-Air Voice Processor

HomeRF Specification, 407.

Ground 1: Claim 5

Zhang's “essential steps” route data responsive to signaling

5. The method of claim 1, wherein the media content is a phone call; further comprising routing the phone call to the one or more available devices in response to a receipt of a response to the signaling received from the one or more device.

- ▶ PO challenges the Petition's incorporation of Claim 1's mapping, citing *Apple Inc. v. ContentGuard Holdings, Inc.*, IPR2015-00440, Paper No. 13 (PTAB Dec. 21, 2015).
 - ▶ There, institution was denied because “the Petition's citations to ABYSS were to nearly the entire article.”
- ▶ Here, no such ambiguity exists. Mapping clearly relies on Zhang's “essential steps.”

Ground 1: Claim 5

Zhang's “essential steps” route data responsive to signaling

► Petition relied on Ex. 1003, ¶126:

wireless audio interface 12. *See* Claim 1. A POSITA would have understood that a phone call would have been routed to an available device after receipt of a response to the signaling received from the one or more available devices (e.g., wireless audio interface 12) in accordance with the mapping above. *See* Claim 1. A POSITA would have understood that *Zhang's* signaling is provided through several “essential steps” that the mobile device takes to interact with helper servers, where in one step *Zhang* performs a “service query,” where the mobile device “queries the identified helper servers to determine if they are capable of providing the helper service.” *Zhang*,

Ground I: Claim 5 properly relies on Claim 1 “essential steps” mapping

113. In general, Zhang teaches several “essential steps” the mobile device takes to interact with helper servers. First, the mobile device performs device discovery and “identifies the nearby helper servers.” Zhang, 3:44-48. Second, Zhang performs a “service query,” where the mobile device “queries the identified helper servers to determine if they are capable of providing the helper service.” Zhang, 3:49-51. Zhang teaches that if a located helper server “does offer the needed helper service, the handheld device requests the helper service S404.” Zhang, 4:1-8.

114. Regarding wirelessly signaling a helper server indicating an availability of a media content at the mobile device, Zhang teaches transmitting a service request to a helper server, and when a server accepts, a session is set up between a “helper client” (mobile device) and helper server using TCP.

117. Further, Zhang teaches that during a session, a mobile device transmits data and control commands to a helper server. Zhang, 3:32-43

118. Specifically, accepting a service request prepares a helper server for receiving content and commands from a mobile device by initiating a session between said handheld device and said helper server. For example, Zhang teaches a

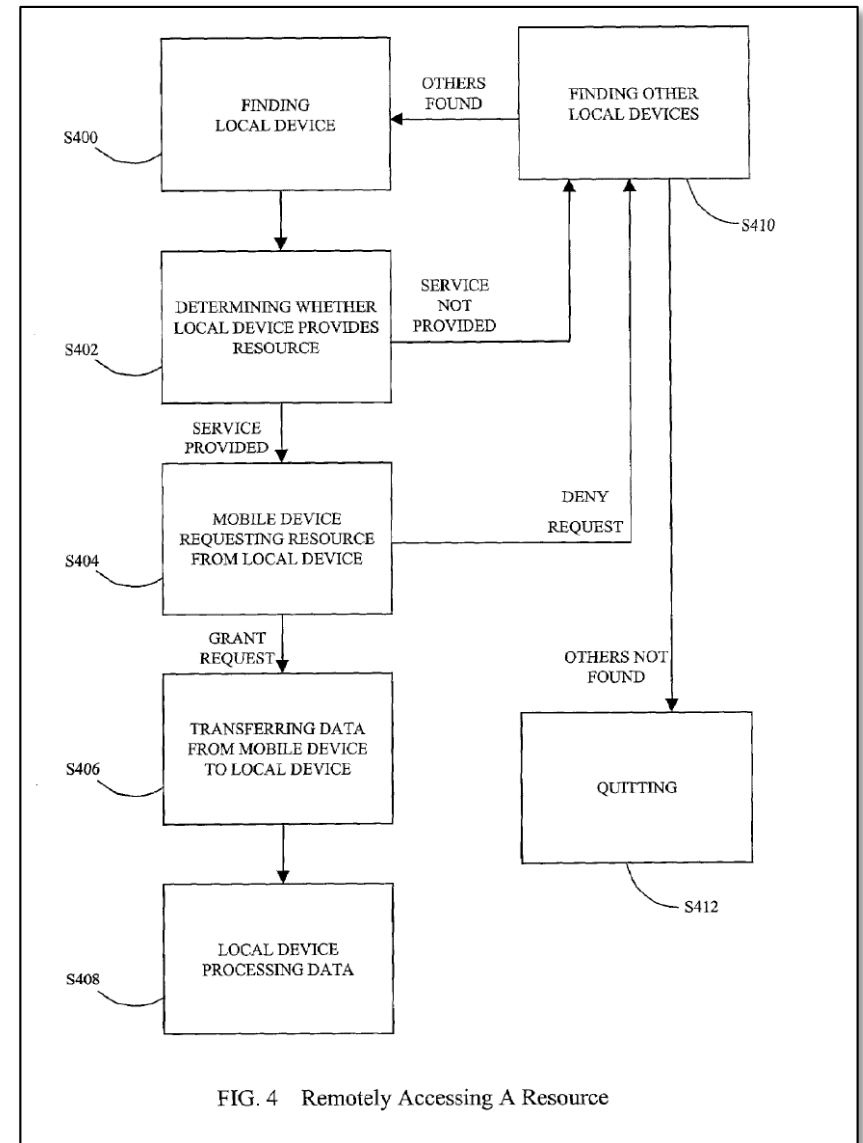


FIG. 4 Remotely Accessing A Resource

Ground 1: Claim 6

6. The method of claim 1, wherein the media content is a phone call; further comprising routing the phone call to the one or more available devices while the phone call is ongoing using the mobile device.

A POSITA would have been motivated to provide the user an option to invoke the helper server when the phone call is ongoing, providing the user control of whether and when to use the wireless speaker/microphone, rather than the mobile device's native input/output. *Dec.*, ¶127.

Petition, 33

A POSITA would have understood that routing a phone call to helper server during the phone call would provide greater expanded abilities allowing the user to start the call using the mobile device's input/output and to invoke the wireless helper server only if its improved audio capabilities are necessary (or beneficial) on a call-by-call basis.

Ex. 1003, ¶127

Ground I: Claim 6

Rofheart not required for user selection

Petitioner asserted that “*Zhang-Fillebrown-Pasanen* would have been modified per *Rofheart*’s teachings to select a device to route the phone call to (e.g., wireless audio interface).” Petition, 60. Thus, Petitioner admitted that its proposed combination of *Zhang-Fillebrown-Pasanen* did not have this capability. Yet its argument that *Zhang-Fillebrown-Pasanen* would have provided a user the ability to choose to route a call while it is ongoing necessarily depends on the user having this very control. See Petition, 33.

Ground 1: Claim 6

Rofheart not required for user selection

► *Zhang* has native user controls:

Further, *Zhang* teaches that during a session, a mobile device transmits data and control commands to a helper server. *Zhang*, 3:32-43 (“[T]he PDA 30 becomes a remote control device to control the display of the content on the helper server 24.”), 3:55-60 (“The handheld device builds a Graphical User Interface (GUI) from the interface description and remotely controls the task on the helper server according to user interaction with the handheld device.”), 6:14-20, 6:27-34, 8:50-61 (“[I]f the client device is a PDA, a simple graphical interface with control buttons such as ‘play’, ‘pause’ and ‘fast forward’.”), 9:54-60, 2:31-45, Figs. 6A-6B, 7.

Petition, 80-81

► *Rofheart* required only to choose which device:

In sum, PO ignores the meaningful difference between choosing *when* data is sent to an available device (Claim 6) and choosing *which* specific device to send data to (Claim 8).

Reply, 23-24

Ground 1: Claim 6

PO misunderstands reliance on mobility embodiment

► Petition, 33:

Implementing the proposed combination such that a phone call is ongoing when the user routes audio to a helper server is also necessary to support *Zhang's* “seamless” mobility embodiment, where “continuity” is maintained across multiple devices while media is streamed. *See* Claim 1; *Dec.*, ¶127 (opining that such seamless mobility would also apply to a phone call).

► User interaction w/ seamless mobility irrelevant:

Petitioner's expert also incorrectly asserted that “[i]mplementing the proposed combination such that a phone call is ongoing when the user routes audio to a helper server is also necessary to support *Zhang's* ‘seamless’ mobility embodiment, where ‘continuity’ is maintained across multiple devices while media is streamed.”

EX1003, ¶127. *Zhang's* description of the seamless-mobility embodiment includes no statement that the user has control over the transition between helper servers;

POR, 41-42

U.S. Patent No. 10,547,648 – Claim 19

19. A computer program product for a device for informing a user about an availability of media content at a mobile device, the computer program product comprising:

a non-transitory computer readable storage medium having stored thereon:

first program instructions executable by a processor to wirelessly communicating information to an intermediate routing device connected to a local area network (LAN) for indirectly receive messages or media content routed from one or more available devices connected to the LAN via the intermediate routing device; and

second program instructions executable by the processor to wirelessly receive signal from the mobile device indicating an availability of a media content at the mobile device;

third program instructions executable by the processor to inform the user of said device about an availability of a media content at the mobile device with one or more of the following: flash light, ring, and play a loud-speaker sound;

wherein the media content is originated from an external source disconnected from the LAN;

wherein the media content selected from a group consisting of: audio content, text content and video content.

► PO:

Claim 19(d), in turn, recites instructions by which the device informs its user about availability of media content at the mobile device. Since the user of the (secondary) device is informed about *availability* of media content at the mobile device, it means that the media content has not yet been rerouted to the user's device

Ground 2: Claim 19

Intrinsic record rejects PO's ring-before-route interpretation

► POR, 47:

This is consistent with the specification, including, for example, the embodiment described at '648 patent col. 12, lines 1-10. EX2009, ¶112. In that embodiment, when a call comes into a cell phone (corresponding to the mobile device recited in claim 19), the nearby phone (corresponding to the user's device recited in claim 19) rings to indicate that a call is coming into the cell phone.

► Actual disclosure:

Scenario 3

1. A person, say Smith, carrying a cell phone is sitting in a hotel lobby
2. In the lobby there are four land/fixed line phones
3. A phone call arrives at the person's cell phone

6. Option C:
 - a. The call is automatically routed to an available nearby phone
 - b. The person is notified of the routing on the cell phone display
 - c. In parallel, the nearby phone uses a loudspeaker to announce the call by calling out Smith's name
 - d. The nearby phone rings, or flashes to indicate the rerouted call
7. The person receives the call on the available/chosen land/fixed line phone

Ground 2: Claim 19

Board's preliminary finding should be made final

▶ ID, 24:

- ▶ 1) “[W]e see nothing in claim 19 that requires providing the user with the ability to choose whether to accept or decline the media content.”
 - ▶ Record materially unchanged post-institution.
- ▶ 2) “Zhang’s media content remains available at the mobile device, even after the media content has been routed to the first helper server, because other helper servers are able to later obtain the media content from the mobile device.”

The Board also correctly rejected PO’s view that ringing the receiving device when the call is routed means the media is no longer available at the mobile device, having already been rerouted. *Id.* This is particularly true in the context of the proposed combination’s phone call in which media routed *through* the mobile phone continues to be “available” at the mobile device *throughout* the call.