

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,  
Petitioner,

v.

AYLUS NETWORKS, INC.,  
Patent Owner

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Case IPR2014-01565  
Patent RE44,412 E

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Before BRIAN J. MCNAMARA, PATRICK R. SCANLON, and  
MICHAEL J. FITZPATRICK, *Administrative Patent Judges*.

FITZPATRICK, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
35 U.S.C. § 318(a)

## I. INTRODUCTION

Petitioner, Apple Inc., filed a Petition to institute an *inter partes* review of all claims (i.e., claims 1–33) of U.S. Patent No. RE44,412 E (“the ’412 patent”). Paper 1, “Pet.” Patent Owner, Aylus Networks, Inc., filed a Preliminary Response pursuant to 35 U.S.C. § 313. Paper 8, “Prelim. Resp.” In an April 22, 2015, Decision, we instituted trial on a subset of those claims, namely claims 1, 3, 5–20, 22, and 24–33, on Petitioner’s ground that they would have been obvious over UPnP Design.<sup>1</sup> Paper 10 (“Inst. Dec.”).

After institution, Patent Owner filed a Response (Paper 14, “PO Resp.”), Petitioner filed a Reply (Paper 18), and an oral hearing was held on December 16, 2015. *See* Paper 24.<sup>2</sup>

As discussed below, Petitioner has shown by a preponderance of the evidence that claims 1, 3, 5–20, 22, and 24–33 of the ’412 patent are unpatentable as obvious over UPnP Design.

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<sup>1</sup> The term “UPnP” alone refers to Universal Plug and Play. *See, e.g.*, Ex. 1001, 6:37–38; Pet. 3. Petitioner asserts, as prior art, multiple exhibits it collectively refers to as “UPnP Design.” More specifically, Petitioner uses the term “UPnP Design” to refer to a book titled *UPnP Design by Example: A Software Developer’s Guide to Universal Plug and Play* (“UPnP Design book,” Ex. 1008) along with a CD-ROM accompanying the book (image of CD-ROM provided as Exhibit 1009), and UPnP-related files on the CD-ROM that have been printed out and submitted as Exhibits 1010–1017.

<sup>2</sup> Also, Patent Owner filed a motion for observations (Paper 21) to which Petitioner filed a Response (Paper 22).

*A. Related Matters*

Patent Owner has asserted the '412 patent against Petitioner in *Aylus Networks, Inc. v. Apple, Inc.*, No. 3:13-cv-4700 (N.D. Cal.) (the “related lawsuit”). Pet. 1; Paper 4, 3. Also, the '412 patent was the subject of another petition for an *inter partes* review filed by Petitioner, which petition was denied. See IPR2014-01566.

*B. The '412 Patent*

As part of a “Summary” description, the '412 patent states the following:

The invention provides systems and methods for implementing digital home networks having a control point located on a wide area network. The control point may be implemented on a serving node connected to the wide area network, and have the capability of working in conjunction with one or more control point proxies that are located in handsets connected to a 3G wireless network, or in remote control units located within the home.

Ex. 1001, 5:35–42.

In its complaint in the related lawsuit, Patent Owner describes the '412 patent as relating to a system “whereby a user of a computer or mobile device can direct and control video signals from servers located on the internet to be rendered on a display device (e.g., a television).” Ex. 1002, 3:22–24. In that same complaint, Patent Owner further states that the patent “covers, *inter alia*, a system computer or mobile device that can direct and control video signals from a media server located on the internet to be rendered on a display device, such as a television, that is separate from the computer or mobile device.” *Id.* at 4:4–6.

Figure 11 of the '412 patent is reproduced below:

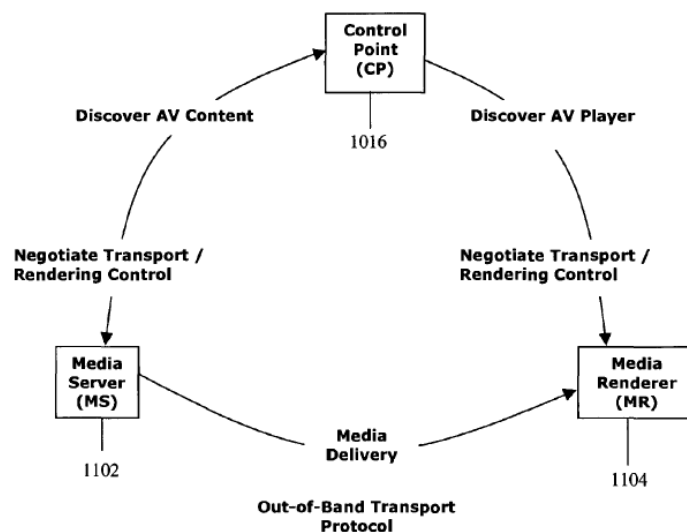


Figure 11 shows a UPnP<sup>3</sup> AV architecture that includes media server 1102 (“MS”), media renderer 1104 (“MR”), and control point 1016 (“CP”). Ex. 1001, 16:36–39. The MS could be a video player, the MR could be an LCD display, and the CP could be an (advanced) “remote control unit.” *Id.* at 16:59–61.

A UPnP device added to a network will advertise its presence on the network. *Id.* at 21:23–25. The UPnP architecture allows the CP to discover the existence of the MS and MR on the network. *Id.* at 21:25–43.

The CP queries the MS for a directory of content and presents that content to a user on a display (MR), allowing the user to select content for rendering. *Id.* at 16:61–63. Upon such selection of content, the CP negotiates content delivery with the MS and instructs the MS to deliver content to the MR. *Id.* at 13:64–66. The CP also negotiates media rendering with the MR, instructing the MR to start

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<sup>3</sup> The ’412 patent states that “Universal Plug and Play (UPnP)” was the “industry standard” for automated network and service discovery mechanism. Ex. 1001, 10:41–43.

expecting content from the MS and to present such. *Id.* at 14:2–5. The MS then delivers media content to the MR. *Id.* at Fig. 11. Direct communication between the MS and the MR is “out of band” because it employs a protocol other than UPnP, such as RTSP/RTP. *Id.* at 16:55–58.

The '412 patent also describes an extension of the UPnP architecture as shown in Figure 12, reproduced below.

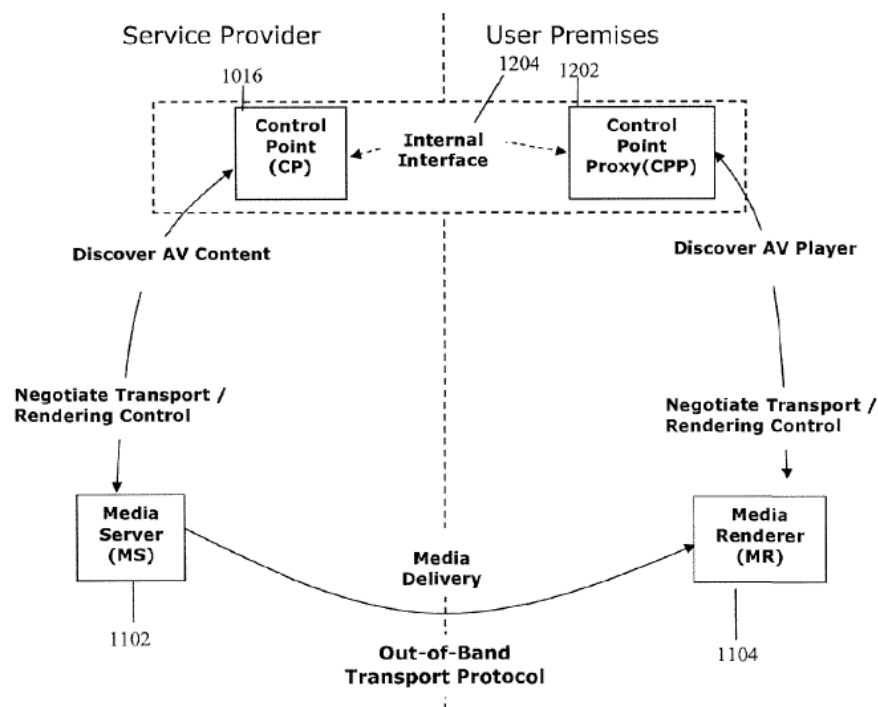


Figure 12 shows the CP located in a wide area network via “Service Provider” and control point proxy 1202 (“CPP”) within “User Premises.” Ex. 1001, 17:7–12. The CP communicates with the MS, the CPP communicates with the MR, and the CP and CPP communicate with each other. *Id.* at 17:12–17, 20–24, 45–47. The CPP resides in a “handset” or User Entity (“UE”), not shown in Figure 12. *Id.* at 17:52. The handset may have VCR-type controls for controlling the presentation of the media content rendered on the MR. *Id.* at 5:55–62, 17:35–37.

Moving the control point into the wide area network enables a user to connect to services provided by media servers that are not located in the home. *Id.* at 17:25–27.

### *C. Illustrative Claims*

Trial was instituted on claims 1, 3, 5–20, 22, and 24–33. Claims 1, 20, and 27 are independent. Independent claim 1 is illustrative and reproduced below with italics preserved to indicate matter added during reissue:<sup>4</sup>

1. A method of controlling and delivering media content from a media server (MS) to a media renderer (MR) utilizing a wide area network for control, comprising the acts of:

provisioning a serving node in the *wide area* network with control point (CP) logic that includes logic to negotiate media content delivery with at least one of the MS and the MR, wherein the CP logic, MS, and MR resides outside of a user endpoint (UE) and the CP logic resides in the signaling domain and serves as a first proxy;

provisioning the UE of the *wide area* network with control point proxy (CPP) logic that includes (i) logic to negotiate media content delivery with at least one of the MS and the MR, (ii) logic to cooperate with CP logic to negotiate media content delivery between the MS and the MR, and (iii) video cassette recorder (VCR) controls to control a presentation of content provided by the MS and rendered by the MR, wherein the CPP logic resides in the UE and serves as a second proxy;

in response to a media content delivery request, determining a network context of the UE and a network connectivity of the MS and MR;

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<sup>4</sup> In subsequent quotations (or partial quotations) of a claim of the '412 patent, italics are not used to indicate matter added during reissue.

invoking the CPP logic and the CP logic to cooperatively negotiate media content delivery between the MS and the MR if one of the MS and MR are not in communication with the UE via a local wireless network; and

once media content delivery is negotiated, controlling a presentation of delivery via the VCR controls on the UE.

## II. ANALYSIS

### A. Claim Construction

“A claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b). Pursuant to that standard, the claim language should be read in light of the specification, as it would be interpreted by one of ordinary skill in the art. *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1260 (Fed. Cir. 2010). Thus, we generally give claim terms their ordinary and customary meaning. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (“The ordinary and customary meaning is the meaning that the term would have to a person of ordinary skill in the art in question.”) (internal quotation marks omitted).

In instituting trial, we construed several claim terms, as follows:

| Term                                  | Construction                                                                                                             |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| serving node                          | <i>a node configured to establish communication with the user endpoint (UE)</i>                                          |
| in the wide area network              | <i>using the wide area network or accessible via the wide area network</i>                                               |
| control point (CP) logic (“CP logic”) | Inclusive of but not necessarily limited to: <i>logic used to control UPnP devices or transmit UPnP control messages</i> |

| Term                                    | Construction                                                                                 |
|-----------------------------------------|----------------------------------------------------------------------------------------------|
| determining a network context of the UE | Inclusive of but not necessarily limited to:<br><i>determining connectivity to a network</i> |

Inst. Dec. 8–12.

Patent Owner states that it “does not contest” the initial constructions for certain terms set forth in our Institution Decision, but Patent Owner does not address our construction of the term CP logic. PO Resp. 19. More particularly, Patent Owner states the following:

In its Decision, the Board set forth initial constructions for certain terms and phrases recited in the claims under review, namely: (i) “serving node”; (ii) “in the wide area network”; and (iii) “determining a network context of the UE.” [Institution] Decision at 7–12. For the purposes of this *inter partes* review proceeding, Patent Owner does not contest the Board’s constructions for these claim terms.

PO Resp. 19.

Contrary to Patent Owner’s characterization of the Institution Decision, however, it additionally included a construction for CP logic. Inst. Dec. 10–11. In particular, the Institution Decision stated the following:

Petitioner proposes that “control point (CP) logic” should be construed to mean “logic used to control UPnP devices or transmit UPnP control messages.” Pet. 9. Patent Owner does not dispute that Petitioner’s proposed definition falls within the scope of the limitation. Prelim. Resp. 21. It merely argues that the limitation is broader and not limited to a UPnP context. *Id.* For purposes of this decision, which relates to asserted art from a UPnP context, we need not decide the full scope of “control point (CP) logic.”

Inst. Dec. 10–11.

Prior to institution, Patent Owner agreed that the scope of CP logic is inclusive of “logic used to control UPnP devices or transmit UPnP control messages.” Prelim. Resp. 21.

The independent claims also recite “control point proxy (CPP) logic” or “control point proxy logic” (both, “CPP logic”). The disagreement between the parties prior to institution regarding CPP logic paralleled that regarding CP logic. More specifically, Petitioner argued that CPP logic “should be construed to mean ‘logic used to communicate with UPnP devices using the UPnP protocol or to transmit UPnP control messages’” (Pet. 9), and Patent Owner disputed that the term is so limited but conceded that it was inclusive of Petitioner’s construction. Prelim. Resp. 22–23.

Now, post-institution, the dispute centers on whether CP logic and CPP logic are met by the asserted prior art features. *See, e.g.*, PO Resp. 5–6. In particular, the dispute is whether:

(1) the asserted CP logic (i.e., Device Relay of UPnP Design) “includes logic to negotiate media content delivery with at least one of the MS and the MR,” as required, for example, by claim 1 (*id.* at 5); and

(2) the asserted CPP logic (i.e., Device Spy and A/V Media Controller of UPnP Design) “includes . . . logic to cooperate with CP logic to negotiate media content delivery between the MS and the MR,” as required, for example, by claim 1 (*id.* at 6).

With respect to the first issue, Petitioner construes “negotiate media content delivery with at least one of the MS and the MR” as “coordinate transport of media content from the MS to the MR,” which is one of two ways Patent Owner proposed

that it be construed in the related lawsuit. Pet. 10; Ex. 1007, 22. And, the court ultimately did so construe it in the related lawsuit. Paper 9, 10. With respect to second issue, the parties agree that “cooperate with CP logic to negotiate media content delivery between the MS and the MR,” means “work with the CP logic to coordinate transport of media content from the MS to the MR.” Pet. 10; PO Resp. 28–29. These proposed constructions are reasonable and we adopt them.

In sum, we apply our constructions from our Institution Decision and the following additional constructions.

| <b>Term</b>                                                                           | <b>Construction</b>                                                                          |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| negotiate media content delivery with at least one of the MS and the MR               | <i>coordinate transport of media content from the MS to the MR</i>                           |
| cooperate with CP logic to negotiate media content delivery between the MS and the MR | <i>work with the CP logic to coordinate transport of media content from the MS to the MR</i> |

### *B. Obviousness*

At issue is whether Petitioner has shown by a preponderance of the evidence that claims 1, 3, 5–20, 22, and 24–33 would have been obvious in view of UPnP Design. See Inst. Dec. 19–20 (setting forth ground for trial); 35 U.S.C. § 316(e) (burden of persuasion applies). In assessing obviousness, “the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent

art resolved.” *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966).<sup>5</sup>

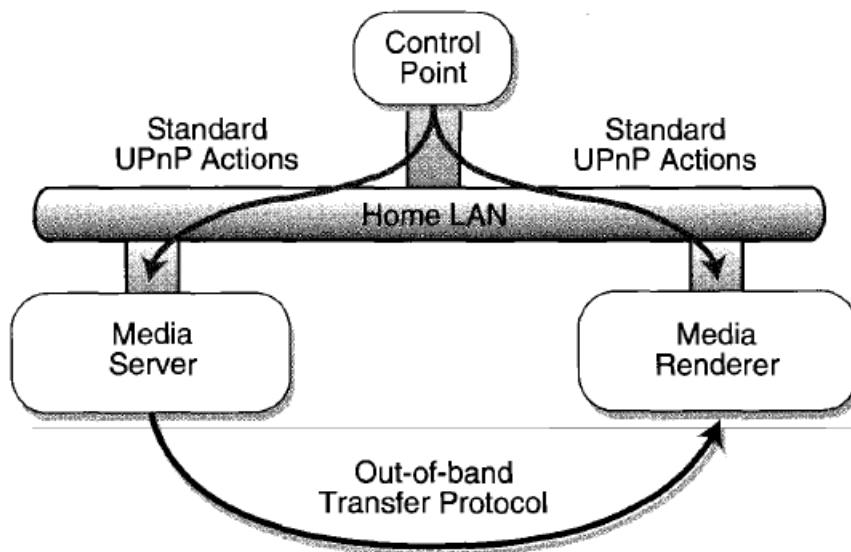
The UPnP Design book was sold with a CD-ROM accompanying the book (image of CD-ROM provided as Exhibit 1009), and UPnP-related files on the CD-ROM that have been printed out and submitted as Exhibits 1010–1017. Thus, all of the references that Petitioner collectively refers to as “UPnP Design,” in fact, expressly relate to UPnP architecture and were grouped together for consumption by a person of ordinary skill in the art. Pet. 13–14.

The book discloses “being able to use your home PC as a control center from which you can direct audio or video content (music, movies, and so on) from the Internet or your hard drive to play on your stereo or TV.” Ex. 1008, at xv.

Figure 17.1 of the book is reproduced below.

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<sup>5</sup> Additionally, secondary considerations such as “commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.” *Graham*, 383 U.S. at 17–18. The record, however, lacks such evidence.



*Id.* at 360.

Figure 17.1 shows a UPnP architecture. The UPnP Design book discloses a “Device Spy” and an “A/V Media Controller” (a device spy for audio/video devices) that cooperate with a “Device Relay” to negotiate media content delivery between, for example, an “A/V Media Server” and an “A/V Media Renderer” “over the Internet” or “over the WAN.” *Id.* at 185–86. The book discloses that such media content may include video and may be controlled with VCR controls such as “Stop,” “Play,” “Pause,” “Seek,” “Next,” and “Previous.” *Id.* at 374.

“Device Relay can mirror UPnP devices onto a different network that [] also has an instance of a running Device Relay.” Ex. 1016, 1. Thus, UPnP Design teaches the person of ordinary skill in the art that the Device Relay “effectively bridges two UPnP networks” “by making the device that exists over the WAN interface appear to exist on your own LAN” so that one can “test and debug your device remotely.” Ex. 1008, 185; Ex. 1016, 1. UPnP Design further teaches the person of ordinary skill in the art that the Device Spy and A/V Media Controller

cooperate with the Device Relay to control devices “remotely from any location in the world over the Internet by making the device that exists over the WAN interface appear to exist on your own LAN.” Ex. 1008, 185.

The Petition identifies the above disclosures as well as additional disclosures in its claim charts to support its assertion that claims 1, 3, 5–20, 22, and 24–33 would have been obvious over UPnP Design. Pet. 13–31. UPnP Design provides express teachings of how to extend the UPnP architecture over the Internet from one UPnP network to another. Ex. 1008, 185; Ex. 1016, 1. Thus, we agree with Petitioner’s conclusion of obviousness, stated as follows:

[I]t would have been obvious to one of skill in the art to modify the disclosures of UPnP Design . . . in order to extend the accessibility and operability of UPnP networks beyond a local network or single sub-network and/or have multiple UPnP networks communicate with each other, especially because a goal of UPnP was to have UPnP devices automatically and universally interact with each other, *as discussed by UPnP Design itself*.

Pet. 16 (emphasis added).

Patent Owner disputes only Petitioner’s assertion that UPnP Design discloses CP logic and CPP logic, as required by the independent claims. See PO Resp. 34 (“Because UPnP Design does not teach or suggest CP logic or CPP logic as claimed in each of the independent claims of the ’412 Patent, Petitioner has also failed to meet its burden of proving that any of the dependent claims under review are unpatentable.”).

### *1. Whether UPnP Design Discloses a Serving Node with CP Logic*

Independent claims 1 and 20 recite “provisioning a serving node in the wide area network with control point (CP) logic that includes logic to negotiate media

content delivery with at least one of the MS and the MR,” and claim 27 similarly recites a “serving node having control point (CP) logic that includes logic to negotiate media content delivery with at least one of a media server (MS) and a media renderer (MR).”

Petitioner relies on Device Relay to meet these limitations. Specifically, Petitioner notes that “Device Relay serves data at least by ‘mirror[ing] all other devices from one network on to the other’ and is accessible ‘over the Internet’ and ‘over the WAN.’” Pet. 17 (first quoting Ex. 1008, 185; and then quoting Ex. 1017, 3). Petitioner further notes “that using Device Relay (CP logic of a serving node), ‘[c]ontrol points on the other network can interact with mirrored devices’ because ‘events and action invocations are forwarded to the source relay using SOAP.’”<sup>6</sup> *Id.* (first quoting Ex. 1016, 1; and then quoting Ex. 1017, 3). Petitioner argues that the Device Relay controls UPnP devices on a remote local area network on behalf of a local area network control point and, therefore, constitutes control point (CP) logic. *Id.* at 18 (citing Ex. 1012 (Mayer-Patel Decl.) ¶ 57). Dr. Mayer-Patel relies on UPnP’s teaching that “[a]ny entity that invokes the services of a UPnP device is a control point.” Ex. 1022 ¶ 57 (quoting Ex. 1008, 19). Dr. Mayer-Patel further notes that “[e]ach mirrored device actually handles the action invocations and subscription requests on the remote network.” *Id.* ¶ 57 (quoting Ex. 1016, 1).

Patent Owner argues that Device Relay lacks the required logic to negotiate because it only relays commands and does not originate commands, stating, for example:

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<sup>6</sup> Simple Object Access Protocol, which is an Internet protocol. Ex. 1008, 14, 19.

Device Relay is merely a conduit that passes commands generated by the control point on one local network, *e.g.* Network B, to a device located on another local network, *e.g.*, Network A. Device Relay has no logic other than that necessary to blindly invoke whatever actions it receives from that control point. Indeed, Device Relay can take no actions on its own and “does not know or understand” whether the actions it invokes are for negotiating media content delivery or for some other purpose.

PO Resp. 24. Patent Owner argues that, in contrast, “negotiating media content delivery typically involves a number of steps, which might include, for example, getting the renderer’s supported protocols and formats; comparing/matching the protocols and formats supported by the renderer and those of the desired content; and providing the URI for the selected content to the renderer.” *Id.* at 21–22 (citing Ex. 2005; Ex. 2008; Ex. 1010).

Patent Owner’s argument is divorced from the specification of the ’412 patent, which does not define “logic to negotiate media content delivery with at least one of the MS and the MR” or otherwise shed light on any specific steps that must be carried out by the CP logic.<sup>7</sup> Instead, over and over, the ’412 patent refers to the logic by what it helps accomplish (media content delivery) and not by how it does it. *See, e.g.*, Ex. 1001, 5:42–46, 6:9–12, 6:18–22. Also, there is no basis, evident from the specification of the ’412 patent, for limiting the required CP logic to that which can originate commands regarding media delivery as opposed to relaying them.

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<sup>7</sup> As discussed above, we construe “negotiate media content delivery with at least one of the MS and MR” to mean “coordinate transport of media content from MS to MR.”

Further, the limitations at issue are satisfied by CP logic that includes logic to negotiate media content delivery with only the MS or only the MR. Thus, it is clear from the claim language itself that the CP logic need not include all logic necessary to negotiate media content delivery from the MS to MR.

We find that Device Relay of UPnP Design satisfies “provisioning a serving node in the wide area network with control point (CP) logic that includes logic to negotiate media content delivery with at least one of the MS and the MR,” as required by claims 1 and 20 and a “serving node having control point (CP) logic that includes logic to negotiate media content delivery with at least one of a media server (MS) and a media renderer (MR),” as required by claim 27 because it contains logic that facilitates media content delivery with the MS and MR.

## *2. Whether UPnP Design Discloses a User Endpoint with CPP Logic*

Independent claim 1 recites “provisioning the UE of the wide area network with control point proxy (CPP) logic that includes . . . logic to cooperate with CP logic to negotiate media content delivery between the MS and the MR,” and claims 20 and 27 recite similar limitations.

Petitioner relies on Device Spy and A/V Media Controller to meet these limitations. Pet. 18–19. Specifically, Petitioner notes that Device Spy “acts as a universal control point” and A/V Media Controller is a “Device Spy [i.e., a control point] for A/V devices” that “allow[s] you to discover and setup connections between UPnP A/V Media Renderers and UPnP Media Servers.” *Id.* at 19 (quoting Ex. 1008, 185–86). Petitioner argues that “Device Spy and A/V Media Controller (CPP logic) cooperate with Device Relay (CP logic) to control devices

‘remotely from any location in the world over the Internet by making the device that exists over the WAN interface appear to exist on your own LAN.’” *Id.* (quoting Ex. 1008, 185). To further support this argument, Petitioner notes that “UPnP Design discloses that with Device Relay, ‘[c]ontrol points on the other network can interact with mirrored devices.’” *Id.* (quoting Ex. 1016, 1).

Patent Owner argues that Device Spy and A/V Media Controller lack CPP logic for similar reasons that it argues Device Relay lacks CP logic. Specifically, Patent Owner argues that Device Spy and A/V Media Controller do not cooperate (or work with) Device Relay but rather “unknowingly” use Device Relay as a “conduit.” PO Resp. 29. As discussed above, the parties agree that “cooperate with CP logic to negotiate media content delivery between the MS and the MR” means “work with the CP logic to coordinate transport of media content from the MS to the MR.” Thus, Patent Owner’s argument is premised on an implicitly narrow yet unarticulated construction for cooperate (or work with).

We find that Device Spy and A/V Media Controller include CPP logic to work with CP logic (in the Device Relay) to coordinate transport of media content from UPnP A/V Media Servers to UPnP Media Renderers, because Device Spy and A/V Media Controller do, in fact, work with Device Relay to cause media content delivery to happen. Thus, we additionally find that Device Spy and A/V Media Controller satisfy “provisioning the UE of the wide area network with control point proxy (CPP) logic that includes . . . logic to cooperate with CP logic to negotiate media content delivery between the MS and the MR,” as required by claim 1, “user endpoint (UE) [being] provisioned with control point proxy (CPP) logic that includes . . . logic to cooperate with network control point (CP) logic to

negotiate media content delivery between the MS and the MR,” as required by claim 20, and “control point proxy logic configured to: . . . cooperate with the serving node CP logic to negotiate media content delivery between the MS and the MR,” as required by claim 27.

### III. CONCLUSION

For the reasons discussed above, we conclude that Petitioner has shown by a preponderance of the evidence that claims 1, 3, 5–20, 22, and 24–33 of the ’412 patent would have been obvious in view of UPnP Design.

### IV. ORDER

Accordingly, it is

ORDERED that claims 1, 3, 5–20, 22, and 24–33 of U.S. Patent No. RE44,412 E are unpatentable; and

FURTHER ORDERED that, because this Decision is final, a party to the proceeding seeking judicial review of the Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2014-01565  
Patent RE44,412 E

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