EXPERT DECLARATION OF DR. KEVIN NEGUS
FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 7,796,512

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Hewlett Packard Enterprise Company v. Sovereign Peak Ventures, LLC

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I. INTRODUCTION

1. I, Dr. Kevin Negus, submit this declaration in support of a Petition for *Inter Partes* Review of United States Patent Nos. 7,796,512 (the "'512 Patent"), owned by Sovereign Peak Ventures, LLC ("SPV" or "Patent Owner"). I have been retained in this matter by counsel for Hewlett-Packard Enterprise Company ("HP" or "Petitioner"). I understand that Petitioner is the Real Party-in-Interest to this Petition.

2. I make this declaration based upon my personal knowledge. I am over the age of 21 and am competent to make this declaration.

3. The statements herein include my opinions and the bases for those opinions, which relate to at least the following documents of the pending *inter partes* review petition:

- U.S. Patent No. 7,796,512 by D. Komiya et al., entitled "Switching source device, switching destination device, high speed device switching system, and signaling method" (the "'512 Patent") (Ex. 1001).
- File History for U.S. Patent No. 7,796,512 (Ex. 1002).
- Ohta, K., Yoshikawa, T., Nakagawa, T., Isoda, Y., Sugimura, T., "Mobile Multimedia Middleware for Seamless Service", Mobile Computing and Wireless Communication No. 18-35, Intelligent Handoff System No. 6-35, IPSJ SIG Technical Report, Information Processing Society of Japan, Sep. 7, 2001 ("Ohta") (Ex. 1003 for the original Japanese publication and Ex. 1004 for the certified English translated version).
- Bluetooth Audio Video Working Group, "AUDIO/VIDEO REMOTE CONTROL PROFILE", published by Bluetooth SIG on May 22, 2003 ("AVRCP") (Ex. 1005).
- Kumar, C., Kline, P., Thompson, T., *Bluetooth Application Programming with the Java APIs*, Morgan Kaufmann Publishers, Sep. 17, 2003, ISBN 1-55860-934-2 ("Kumar")

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(Ex. 1006).

- Expert Declaration of Dr. Sylvia Hall-Ellis with respect to Inter Partes Review of U.S. Patent No. 7,796,512 (Ex. 1008).
- Plaintiff's Preliminary Infringement Contentions, Case No. 2:23-cv-00009, Feb. 28, 2023 (Ex. 1009).
- Plaintiff's Complaint, Case No. 2:23-cv-00009, Jan. 10, 2023 (Ex. 1010).
- Amended Docket Control Order, Case No. 2:23-cv-00009, Apr. 13, 2023 (Ex. 1011).

4. My materials considered for forming my opinions herein have included at least the above-referenced documents.

5. Although I am being compensated for my time at my normal and customary rate in preparing this declaration, the opinions herein are my own, and I have no stake in the outcome of the review proceeding. My compensation does not depend in any way on the outcome of the Petitioner's petition.

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II. QUALIFICATIONS

6. I am qualified by education and experience to testify as an expert in the field of telecommunications. Attached, as Attachment A, is a copy of my resume detailing my experience and education. Additionally, I provide the following overview of my background as it pertains to my qualifications for providing expert testimony in this matter.

7. I am currently a Full Professor of Electrical Engineering at Montana Tech University in Butte, MT. I lead research programs at Montana Tech that include developing communications solutions for extremely low power sensors in challenging locations such as alpine mountains and watersheds including federally-designated wilderness areas and for control of critical infrastructure distributed continentally and globally. I mentor, supervise and teach both senior undergraduate and graduate students of Electrical Engineering in the general fields of telecommunications and networking with an emphasis on wireless systems.

8. In 1988, I received my Ph.D. in Engineering from the University of Waterloo in Canada. The Departments of Electrical Engineering and Mechanical Engineering jointly supervised my Ph.D. research on the modeling of bipolar semiconductor devices. My graduate course work was primarily in Electrical Engineering and included such subjects as semiconductor device physics and fabrication, wireless circuit design, and wireless propagation analysis. For my Ph.D. work, I received the Faculty Gold Medal in 1988 for the best Ph.D. thesis in the entire Faculty of Engineering across all Departments for that year. My Ph.D. thesis research also formed the basis of a paper published in 1989 that won the award for Best Paper in 1989 for the IEEE (Institute of Electrical and Electronic Engineers) journal in which it was published.

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9. In 1984 and 1985, respectively, I received the B.A.Sc. and M.A.Sc. Degrees in Mechanical Engineering from the University of Waterloo in Canada. My coursework and research work included, amongst many other topics, extensive embedded firmware development for automation applications and implementation of networks and communications protocols. For my M.A.Sc. Degree research and academic achievements, I received the prestigious University Gold Medal in 1985 for the best Masters thesis in the entire University of Waterloo for that year.

10. In 1986, I joined the Palo Alto Research Center of Fairchild Semiconductor in Palo Alto, CA. At Fairchild, I participated in the development of devices and products for high-speed applications such as wired networking, RISC microprocessors and wireless communications.

11. In 1988, I took the position of Member of the Technical Staff at Avantek, Inc. in Newark, CA. I was hired to develop products for both wireless and wired data networking applications. Some of the components I developed early in my career at Avantek were used for 1st generation wireless local area network (WLAN) products, voice band modem equipment, wired data networking both in the LAN and WAN and 1st generation cellular handsets and base stations based on AMPS or TACS.

12. In 1991, the Hewlett-Packard Company purchased Avantek, Inc. I continued to work for Hewlett-Packard until 1998 in such roles as IC Design Manager, Director of Chipset Development and Principal System Architect. In 1992, Hewlett-Packard assigned me to work on the "Field of Waves" project, which was a major multi-division effort to build WLAN products for mobile computers. The project was cancelled in 1993. However, the work I did on the project was leveraged into producing the world's first IEEE 802.11 chipset, which my division at Hewlett-Packard first offered for sale in 1994. I led the project to develop and market this

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chipset for many early WLAN product companies including Proxim, Symbol (now part of Motorola) and Aironet (now part of Cisco). I also helped coordinate efforts within Hewlett-Packard to guide extensive research projects on WLAN protocols and technology at Hewlett-Packard's central research laboratories in Palo Alto, CA and Bristol, U.K.

13. In 1998, I joined Proxim, Inc. in Mountain View, CA. At that time, Proxim was engaged in the development and sale of wired and wireless products for home and enterprise networking applications based on several different wired and wireless networking protocols. I stayed at Proxim through 2002 and was the Chief Technology Officer for this publicly-traded company at the time of my departure. During my career at Proxim, I led or participated in the development of many WLAN and WWAN products and/or chipsets for network adapters, OEM design-in modules, access points, bridges, switches, and routers that used a wide variety of bus, LAN, or WAN wired interfaces. I have supervised many engineers including those responsible for embedded firmware development to implement various wired and wireless networking, reservation, and security protocols at the MAC layer and above, those responsible for HDL code creation of baseband chips to implement PHY and MAC algorithms, as well as other engineers that developed hardware reference designs, modem algorithms and chipsets.

14. I note that specific to this matter that while I was Chief Technology Officer at Proxim (1998-2002) that I led the development of products specifically related to the field of art for the '512 Patent such as "session mobility in communication technology" and "media transmission technology" including for "an IP network".

15. Since 2002, I have been an independent consultant and have provided services to a number of companies including some that have developed IEEE 802.11 products. In particular, from 2002 until 2007 I was Chairman of WiDeFi, Inc. – a company that developed chips and

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embedded firmware for 802.11 repeater products based on 802.11a, b, g and draft n amendments. From 2007-2011, I was Chairman of Tribal Shout – a company that delivered IP voice and audio streaming media using VoIP to any cellular or landline phone including those reachable only by the circuit-switched connections such as the PSTN and 2nd generation cellular radio. From 2010-2016, I was Chairman and Chief Technology Officer of CBF Networks, Inc. (dba Fastback Networks) – a company that developed fiber extension products for backhaul of data networks including Wi-Fi, HSPA, CDMA2000, WiMAX and LTE cellular radio systems.

16. I have been a Board Observer on behalf of the venture capital firm Camp Ventures at two companies that develop semiconductor components including one that developed technology specifically to improve the system performance of HSPA and LTE cellular radio systems (Quantance) and another that provides system on a chip (SOC) microcontrollers, OEM design-in modules and firmware with 802.11 and wired interfaces for embedded applications (GainSpan). I have also been a technology and/or business strategy advisor to multiple early stage companies that are developing such products as new wireless communications security systems (AirTight), RFID radio systems (Mojix), time/frequency reference components (SiTime), and application of machine learning to wireless communications (Aira).

17. I have actively monitored or participated in the IEEE 802.11 standards process continuously since 1989. I am a listed contributor to the highly successful IEEE 802.11g standard published in 2003 that describes a wireless communications protocol in use worldwide by over 5 billion devices. In 2002 and 2003, I participated in the IEEE 802.11 Wireless Next Generation Committee that was responsible for launching the 802.11n standards development process.

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18. I am an author or co-author of many papers that have been published in distinguished engineering journals or conferences such as those of the IEEE or ASME. An exemplary list of these publications is included in my resume.

19. I am also a former member of the Federal Communication Commission's Technological Advisory Committee as an appointee of then Chairman Michael Powell. I have also served on the Wyoming Telecommunications Council as an appointee of then Governor Jim Geringer after confirmation by the Wyoming State Senate.

20. I am named as an inventor on numerous U.S. patents all of which have related in at least some way to products for wired and/or wireless networks. I believe that the following is a complete list as of this date for my approximately 88 issued U.S. Patents: 4,839,717, 5,111,455, 5,150,364, 5,436,595, 5,532,655, 6,587,453, 7,035,283, 7,085,284, 7,187,904, 8,095,067, D704174, 8,238,318, 8,300,590, 8,311,023, 8,385,305, 8,422,540, 8,467,363, 8,502,733, 8,638,839, 8,649,418, 8,761,100, 8,811,365, 8,824,442, 8,830,943, 8,872,715, 8,897,340, 8,928,542, 8,942,216, 8,948,235, 8,982,772, 8,989,762, 9,001,809, 9,049,611, 9,055,463, 9,178,558, 9,179,240, 9,226,295, 9,226,315, 9,252,857, 9,282,560, 9,313,674, 9,325,398, 9,345,036, 9,350,411, 9,374,822, 9,408,215, 9,474,080, 9,490,918, 9,572,163, 9,577,700, 9,577,733, 9,578,643, 9,609,530, 9,655,133, 9,712,216, 9,713,019, 9,713,155, 9,713,157, 9,876,530, 10,051,643, 10,063,363, 10,129,888, 10,135,501, 10,237,760, 10,284,253, 10,306,635, 10,313,898, 10,356,782, 10,506,611, 10,548,132, 10,700,733, 10,708,918, 10,716,111, 10,720,969, 10,735,979, 10,736,110, 10,764,891, 10,785,754, 10,932,267, 10,966,201, 11,134,491, 11,160,078, 11,166,280, 11,271,613, 11,283,192, 11,303,322, 11,343,060, 11,343,684.

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21. I have provided expert testimony, reports or declarations in the cases of *Agere v. Sony* (on behalf of plaintiff Agere), *Linex v. Belkin et al.* (on behalf of defendant Cisco), *CSIRO v. Toshiba et al*. (multiple related cases on behalf of plaintiff CSIRO), *Freedom Wireless v. Cingular et al.* (on behalf of plaintiff Freedom Wireless), *Rembrandt v. HP et al*. (on behalf of defendant HP), *DNT v. Sprint et al.* (on behalf of the defendants Sprint, T-Mobile, US Cellular, Verizon and Novatel), *Teles v. Cisco* (on behalf of defendant Cisco), *WiAV v. HP* (on behalf of defendant HP), *SPH v. Acer et al*. (on behalf of defendants Sony, Nokia, Motorola, Novatel, Sierra and Dell), *LSI v. Funai* (on behalf of plaintiff LSI), *WiAV v. Dell and RIM* (on behalf of the defendants Dell and RIM), *Wi-LAN v. RIM* (on behalf of defendant RIM), *LSI v. Barnes & Noble* (on behalf of plaintiff LSI), *Novatel v. Franklin and ZTE* (on behalf of plaintiff Novatel), *LSI v. Realtek* (on behalf of plaintiff LSI), *Wi-LAN v. Apple et al.* (on behalf of defendants Apple, Sierra and Novatel), *EON v. Sensus et al*. (on behalf of defendants Motorola, US Cellular and Sprint), *M2M/Blackbird v Sierra et al*. (multiple related cases on behalf of defendants Sierra and Novatel), *Intellectual Ventures v. AT&T et al*. (on behalf of defendants AT&T, T-Mobile and Sprint), *Intellectual Ventures v. Motorola* (on behalf of defendant Motorola), *TQ Beta v. DISH et al*. (on behalf of defendant DISH), *Qurio v. DISH et al*. (on behalf of defendant DISH), *Fatpipe v. Talari* (on behalf of the defendant Talari), *EON v. Apple* (on behalf of defendant Apple), *Chrimar v. Dell* (on behalf of defendant Dell), *Nokia v. LGE* (on behalf of plaintiff Nokia), *PanOptis v. Blackberry* (on behalf of defendant Blackberry), *Customedia v. DISH et al.* (on behalf of defendant DISH), *Blackberry v. BLU* (on behalf of plaintiff Blackberry), *MTel v. Charter et al.* (on behalf of defendants Charter, Time Warner, Cox and Bright House), *Huawei v. Samsung* (on behalf of plaintiff Huawei), *Alacritech v. Wistron* (on behalf of defendant Wistron), *IPA v. DISH et al.* (on behalf of defendant DISH), *XR v. Ruckus et al.* (on behalf of defendants

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Ruckus, Netgear and Belkin), *Twilio v. Telesign* (on behalf of plaintiff Twilio), *Hera/Sisvel v. Arris et al.* (on behalf of defendants Arris/Ruckus, Netgear, Amazon, Roku and Belkin), *Intellectual Ventures v. Ericsson et al*. (on behalf of defendants Ericsson, T-Mobile and Sprint), *Sol IP v. AT&T et al*. (on behalf of defendants AT&T, Verizon and Sprint), *Soundview v DISH et al.* (on behalf of defendants DISH and Sling Media), *DISH v Peloton, iFIT and MIRROR* (on behalf of plaintiffs DISH and Sling Media) and *XR v. D-Link et al.* (on behalf of defendants D-Link, HP, Netgear and Belkin). I believe that the preceding list includes all cases that I have testified in as an expert at trial or by deposition at least during the past four years.

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III. PERSON OF ORDINARY SKILL IN THE ART

22. I understand that the content of a patent (including its claims) and prior art should be interpreted the way a person of ordinary skill in the art (or "POSITA") would have interpreted the material at the alleged time of invention.

23. I understand that the "alleged time of invention" here is no earlier than the date that the applicants for the '512 Patent first filed an application related to the '512 Patent, namely, Mar. 14, 2005.

24. A person of ordinary skill in the art (referred to herein as a "POSITA") at the alleged time of invention for the '512 Patent would have been a person familiar with telecommunication networking technology and media transmission technology, and would have had at least a working knowledge of the applicable standards-based protocols and architectures for common telecommunications networks at the time as well as an understanding of the components and subsystems within available network equipment.

25. For example, such a POSITA would have had at least a Bachelor's degree in Computer Science, Electrical Engineering or an equivalent field, and at least two years of work experience in developing network equipment. Alternatively, a POSITA would have had a more advanced degree, such as a Master's degree in Computer Science, Electrical Engineering or an equivalent field, combined with at least one year of work experience in developing network equipment.

26. In addition to my testimony as an expert, I am prepared to testify as someone who actually practiced in the field from 1986 to present, who actually possessed at least the knowledge of a POSITA within that time period including at the alleged time of invention, and

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who actually worked with others possessing at least the knowledge of a POSITA within that time period including at the alleged time of invention.

27. I understand that the POSITA is a hypothetical person who is assumed to be aware of all the pertinent information that qualifies as prior art. In addition, the POSITA makes inferences and takes creative steps.

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IV. LEGAL UNDERSTANDING

28. I have a general understanding of validity based on my experience with patents and my discussions with counsel.

29. I understand that the claims of a patent are presumed valid. I understand that one factor to be considered in challenging this presumption of validity is whether or not prior art references cited by Petitioner are cumulative to one or more prior art references considered by the U.S. Patent and Trademark Office (the "PTO") in allowing the claims at issue. I understand that prior art references not specifically considered by the PTO are presumed to be non-cumulative. I understand that if Patent Owner contends that certain prior art references are cumulative to one or more prior art references considered by the PTO, then Patent Owner has the burden to prove this contention with specificity, and further that Petitioner and/or its experts will be allowed to rebut the Patent Owner's contention.

30. I have a general understanding of prior art and priority date based on my experience with patents and my discussions with counsel.

31. I understand that inventors may be entitled to a priority date earlier than an actual date of filing of a patent application that provides written description support for a particular claim to the extent that they can show complete possession of such a particular claimed invention at such an earlier priority date and reasonable diligence to reduce such a particular claimed invention to practice between such an earlier priority date and such an actual date of filing. I understand that if Patent Owner contends that particular claims are entitled to such an earlier priority date than such an actual date of filing, then Patent Owner has the burden to prove this contention with specificity.

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32. I understand that an invention by another must be made before the priority date of a particular patent claim in order to qualify as "prior art" under 35 U.S.C. § 102 or § 103, that a printed publication must be publicly available before the priority date of a particular patent claim in order to qualify as "prior art" under 35 U.S.C. § 102(a), that a printed publication must be publicly available more than one year prior to the actual date of filing of a patent application that provides written description support for a particular claim in the United States in order to qualify as "prior art" under 35 U.S.C. § 102(b), or that the invention by another must be described in an application for patent filed in the United States before the priority date of a particular patent claim in order to qualify as "prior art" under 35 U.S.C. § 102(e). I understand that Petitioner has the burden of proving that any particular reference or product usage or offer for sale is prior art.

33. I have a general understanding of anticipation based on my experience with patents and my discussions with counsel.

34. I understand that anticipation analysis is a two-step process. The first step is to determine the meaning and scope of the asserted claims. Each claim must be viewed as a whole, and it is improper to ignore any element of the claim. For a claim to be anticipated under U.S. patent law: (1) each and every claim element must be identically disclosed, either explicitly or inherently, in a single prior art reference; (2) the claim elements disclosed in the single prior art reference must be arranged in the same way as in the claim; and (3) the identical invention must be disclosed in the single prior art reference, in as complete detail as set forth in the claim. Where even one element is not disclosed in a reference, the anticipation contention fails. Moreover, to serve as an anticipatory reference, the reference itself must be enabled, i.e., it must provide enough information so that a person of ordinary skill in the art can practice the subject matter of the reference without undue experimentation.

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35. I further understand that where a prior art reference fails to explicitly disclose a claim element, the prior art reference inherently discloses the claim element only if the prior art reference must necessarily include the undisclosed claim element. Inherency may not be established by probabilities or possibilities. The fact that an element may result from a given set of circumstances is not sufficient to prove inherency. I have applied these principles in forming my opinions in this matter.

36. I have a general understanding of obviousness based on my experience with patents and my discussions with counsel.

37. I understand that a patent claim is invalid under 35 U.S.C. § 103 as being obvious only if the differences between the claimed invention and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in that art. An obviousness analysis requires consideration of four factors: (1) scope and content of the prior art relied upon to challenge patentability; (2) differences between the prior art and the claimed invention; (3) the level of ordinary skill in the art at the time of the invention; and (4) the objective evidence of non-obviousness, such as commercial success, unexpected results, the failure of others to achieve the results of the invention, a long-felt need which the invention fills, copying of the invention by competitors, praise for the invention, skepticism for the invention, or independent development.

38. I understand that a prior art reference is proper to use in an obviousness determination if the prior art reference is analogous art to the claimed invention. I understand that a prior art reference is analogous art if at least one of the following two considerations is met. First a prior art reference is analogous art if it is from the same field of endeavor as the claimed invention, even if the prior art reference addresses a different problem and/or arrives at a

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different solution. Second, a prior art reference is analogous art if the prior art reference is reasonably pertinent to the problem faced by the inventor, even if it is not in the same field of endeavor as the claimed invention.

39. I understand that it must be shown that a person of ordinary skill in the art at the time of the invention would have had a reasonable expectation that a modification or combination of one or more prior art references would have succeeded. Furthermore, I understand that a claim may be obvious in view of a single prior art reference, without the need to combine references, if the elements of the claim that are not found in the reference can be supplied by the knowledge or common sense of a person of ordinary skill in the relevant art. However, I understand that it is inappropriate to resolve obviousness issues by a retrospective analysis or hindsight reconstruction of the prior art and that the use of "hindsight reconstruction" is improper in analyzing the obviousness of a patent claim.

40. I further understand that the law recognizes several specific guidelines that inform the obviousness analysis. First, I understand that a reconstructive hindsight approach to this analysis, i.e., the improper use of post-invention information to help perform the selection and combination, or the improper use of the listing of elements in a claim as a blueprint to identify selected portions of different prior art references in an attempt to show that the claim is obvious, is not permitted. Second, I understand that any prior art that specifically teaches away from the claimed subject matter, i.e., prior art that would lead a person of ordinary skill in the art to a specifically different solution than the claimed invention, points to non-obviousness, and conversely, that any prior art that contains any teaching, suggestion, or motivation to modify or combine such prior art reference(s) points to the obviousness of such a modification or combination. Third, while many combinations of the prior art might be "obvious to try", I

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understand that any obvious to try analysis will not render a patent invalid unless it is shown that the possible combinations are: (1) sufficiently small in number so as to be reasonable to conclude that the combination would have been selected; and (2) such that the combination would have been believed to be one that would produce predictable and well understood results. Fourth, I understand that if a claimed invention that arises from the modification or combination of one or more prior art references uses known methods or techniques that yield predictable results, then that factor also points to obviousness. Fifth, I understand that if a claimed invention that arises from the modification or combination of one or more prior art references is the result of known work in one field prompting variations of it for use in the same field or a different one based on design incentives or other market forces that yields predicable variations, then that factor also points to obviousness. Sixth, I understand that if a claimed invention that arises from the modification or combination of one or more prior art references is the result of routine optimization, then that factor also points to obviousness. Seventh, I understand that if a claimed invention that arises from the modification or combination of one or more prior art references is the result of a substitution of one known prior art element for another known prior art element to yield predictable results, then that factor also points to obviousness.

41. I understand that a dependent claim incorporates each and every limitation of the claim from which it depends. Thus, my understanding is that if a prior art reference fails to anticipate an independent claim, then that prior art reference also necessarily fails to anticipate all dependent claims that depend from the independent claim. Similarly, my understanding is that if a prior art reference or combination of prior art references fails to render obvious an independent claim, then that prior art reference or combination of prior art references also necessarily fails to render obvious all dependent claims that depend from the independent claim.

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42. I understand that claim elements may be expressed as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6. I further understand that for such a means-plus-function element, the element is to be construed to cover the corresponding structure, material, or acts described in the patent specification for performing that function and equivalents thereof. Thus, I understand that in the case of a means-plus-function element that the scope of the claim element is limited to only structure that is both actually disclosed in the patent specification and clearly linked to the claimed function(s).

43. I understand that a claim including a means-plus-function element is literally disclosed if the prior art is found to have a structure that performs the identical recited function wherein that structure is identical or equivalent to structure disclosed in the patent for performing the identical recited function. I further understand that structures are deemed equivalent if they are insubstantially different. One way of determining whether structures are equivalent is to determine whether each performs the identical recited function in a substantially similar way to obtain a substantially similar result. I understand that a structural equivalence analysis must be supported by specific evidence, and that a conclusory statement alleging that a structure within prior art is equivalent to structure disclosed in the patent for performing the identical recited function is insufficient.

44. I also understand that when construing means-plus-function limitations that concern a computer or a microprocessor that is programmed to carry out an algorithm, the structure is to be construed as the algorithm as disclosed in the patent specification. I further understand that disclosure of a means-plus-function claim limitation directed to a computer programmed to perform an algorithm requires that the software in the prior art uses an algorithm that performs the same steps as the algorithm disclosed in the patent specification.

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V. THE '512 PATENT

45. The '512 Patent, entitled "Switching source device, switching destination device, high speed device switching system, and signaling method" relates "a switching source device, a switching destination device, and a high speed device switching system for realizing session mobility in communication technology and media transmission technology, and the like, in an IP network, and a signaling method used for the same" (see, for example, Ex. 1001 at 1:11-16).

A. Overview of the '512 Patent

46. In the "**Background Art**" section, the '512 Patent notes that at the time of the invention that there was "a *strong demand* for a *seamless service* capable of *providing continuous services by freely switching various access networks and devices having various abilities* in a ubiquitous network environment" (emphasis added, see, for example, Ex. 1001 at 1:28-31).

47. For example, the '512 Patent observes that for "realizing a *seamless service*, *three technologies* have been *proposed*" wherein the "first technology is referred to as *network seamless*" such that "one *mobile terminal* can *switch between different networks seamlessly* in accordance with the movement" because this "mobile terminal has a *plurality of network interfaces* and can *switch access networks freely*", which "is also *referred to as terminal mobility*" (emphasis added, see, for example, Ex. 1001 at 1:32-40).

48. Additionally, the '512 Patent recites that "The second technology is referred to as *device seamless*" wherein "a *user can seamlessly switch terminals* in use" so that "a *session* used in one terminal can be *continuously used* in another terminal" which "is also referred to as *session mobility* because the *session is moved to another terminal*" (emphasis added, see, for example, Ex. 1001 at 1:41-46).

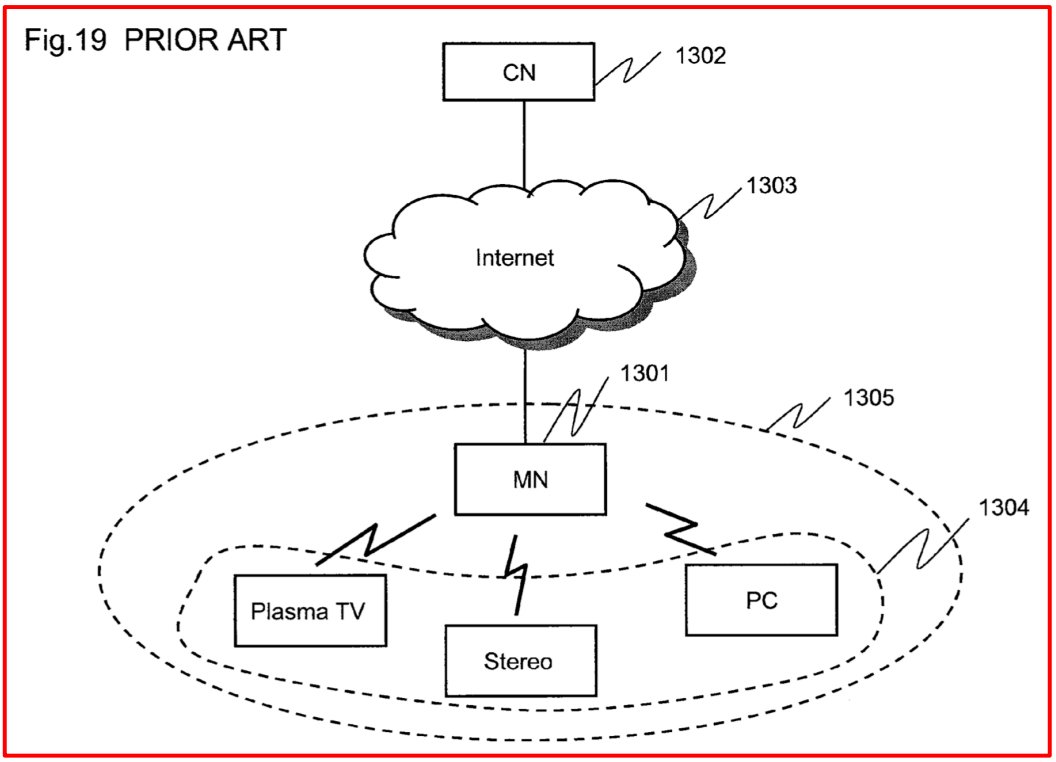
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49. Moreover, the '512 Patent recites that "The third technology is referred to as *contents seamless*" wherein "a *media format*, a *media type*, and the like, can be *switched seamlessly*" so that "*display and reproduction* can be carried out by switching media in accordance with a *network band*, *device ability*, a *peripheral environment*, and the like" which "may be also referred to as *media adaptive*" (emphasis added, see, for example, Ex. 1001 at 1:47-53).

50. The '512 Patent describes a specific example for "A *seamless service* employing *device seamless technology* (hereinafter, referred to as "*device switching*")" wherein "as soon as a *user*, who *comes home while viewing a streaming movie* by using a *mobile terminal* such as a portable telephone, enters the living room of his/her house, he/she *instantly switches the display to a large size television display* and views the *continuation of the movie*" (emphasis added, see, for example, Ex. 1001 at 1:58-65).

51. According to the '512 Patent, the **applicant admitted prior art** provides "A technology for satisfying" such an example as "described in *Japanese Patent Unexamined Publication No. 2003-304251*" using a "*conventional device switching method*" wherein "FIG. 19 is a diagram showing a *configuration of a conventional device switching system*" (emphasis added, see, for example, Ex. 1001 at 2:5-8, 2:20-21, FIG. 19 as reproduced below).

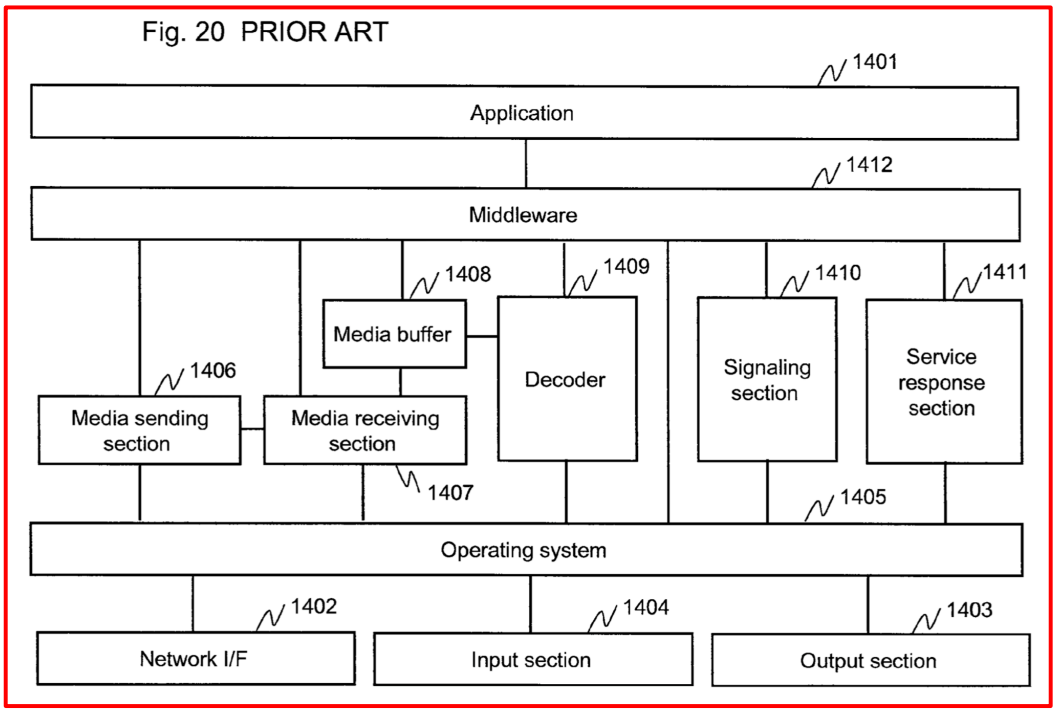
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52. In reference to FIG. 19 shown above, the '512 Patent explains that for this **applicant admitted prior art** that "This system includes *mobile node* (hereinafter, *referred to as "MN"*) **1301** that is a *switching source device*; *counterpart node* (hereinafter, *referred to as "CN"*) **1302** that is a *communication counterpart*; the Internet **1303**; *device group* **1304** that is a *switching destination device* for device switching, for example, plasma TV, stereo, and PC; and personal area network (hereinafter, referred to as "PAN") **1305** for mutually connecting between MN **1301** and device group **1304**" (emphasis added, see, for example, Ex. 1001 at 2:21-29).

53. More specifically, the '512 Patent explains that for this **applicant admitted prior art** that "*MN* **1301** and *device group* **1304** can freely *communicate with each other in PAN* **1305** by using PAN **1305**" while "*CN* **1302** and *MN* **1301** *communicate with each other via the Internet* **1303**" such that when "*CN* **1302** is, for example, a *streaming server*" then "*MN* **1301** *streaming receives a movie distributed from CN* **1302**" (emphasis added, see, for example, Ex. 1001 at 2:30-35).

54. According to the '512 Patent, the **applicant admitted prior art** also provides that "a *configuration* inside the device of MN **1301** that is a *switching source device* for *realizing device switching* is described with reference to FIG. 20" (emphasis added, see, for example, Ex. 1001 at 2:39-41, FIG. 20 as reproduced below).



55. In reference to FIG. 20 shown above, the '512 Patent explains that for this **applicant admitted prior art** that "MN **1301** includes *application* **1401**, at least one *network I/F* **1402**, *output section* **1403** for *outputting a display*, *input section* **1404** as an *interface (I/F) with respect to a user*, *operating system* **1405**, *media sending section* **1406** *communicating with an external device (not shown)* via operating system **1405**, *media receiving section* **1407**, *media buffer* **1408** for storing media data received by media receiving section **1407**, decoder **1409** for decoding data when media data are compressed, *signaling section* **1410** for *controlling a session*, *service discovery section* **1411** for *discovering a service provided by an external switching destination device (not shown)*, and *middleware* **1412** for *controlling so that media sending*

section **1406** *transfers received media data to the switching destination device*" (emphasis added, see, for example, Ex. 1001 at 2:42-55).

56. The '512 Patent informs in reference to the **applicant admitted prior art** as shown in FIG. 20 that "in the *device switching* in accordance with such a *conventional technology*" that "a *time necessary for switching*, that is, a *user's waiting time* becomes *considerably long*" (emphasis added, see, for example, Ex. 1001 at 4:26-34).

57. However, the '512 Patent admits in reference to the **applicant admitted prior art** as shown in FIG. 20 that "in order to *reduce the time necessary for switching devices*, a document "*Mobile Multimedia Middleware for Seamless Service*" (Ken *Ohta* et al., study report of Information Processing Society of Japan: "Mobile Computing and Wireless Communication" No. 18-35, Sep. 7, 2001, p 261-268) *discloses two technologies*, that is, a technology in which *service discovery has been periodically carried out in advance (technology A)* and a technology in which *session establishment and media processing preparation have been carried out previously with respect to all devices obtained as a result of the service discovery (technology B)*" (emphasis added, see, for example, Ex. 1001 at 4:39-49).

58. The '512 Patent further admits in reference to the **applicant admitted prior art** that "The *internal configuration* of MN **1301** or the terminal of a switching destination device in the document "*Mobile Multimedia Middleware for Seamless Service*" is *exactly the same as that described in FIG. 20 except for an operation of middleware* **1412**" and thus "*in order to distinguish this middleware* from middleware **1412** shown in FIG. 20, the middleware of the document "*Mobile Multimedia Middleware for Seamless Service*" is referred to as a "*high speed middleware*"" (emphasis added, see, for example, Ex. 1001 at 4:52-60).

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59. According to the '512 Patent, the **applicant admitted prior art** is further described by "FIG. 23" which "*shows a message sequence between MN* **1301** and *switching destination device group* **1304**", and by "FIG. 24" which "is a *flowchart* showing an *operation of a switching source device*", and by "FIG. 25" which "shows a *flowchart* of an *operation of a switching destination device*", wherein each of these figures are in reference to the document "*Mobile Multimedia Middleware for Seamless Service*" (emphasis added, see, for example, Ex. 1001 at 4:61-66, FIG. 23, FIG. 24, FIG. 25 as reproduced below).

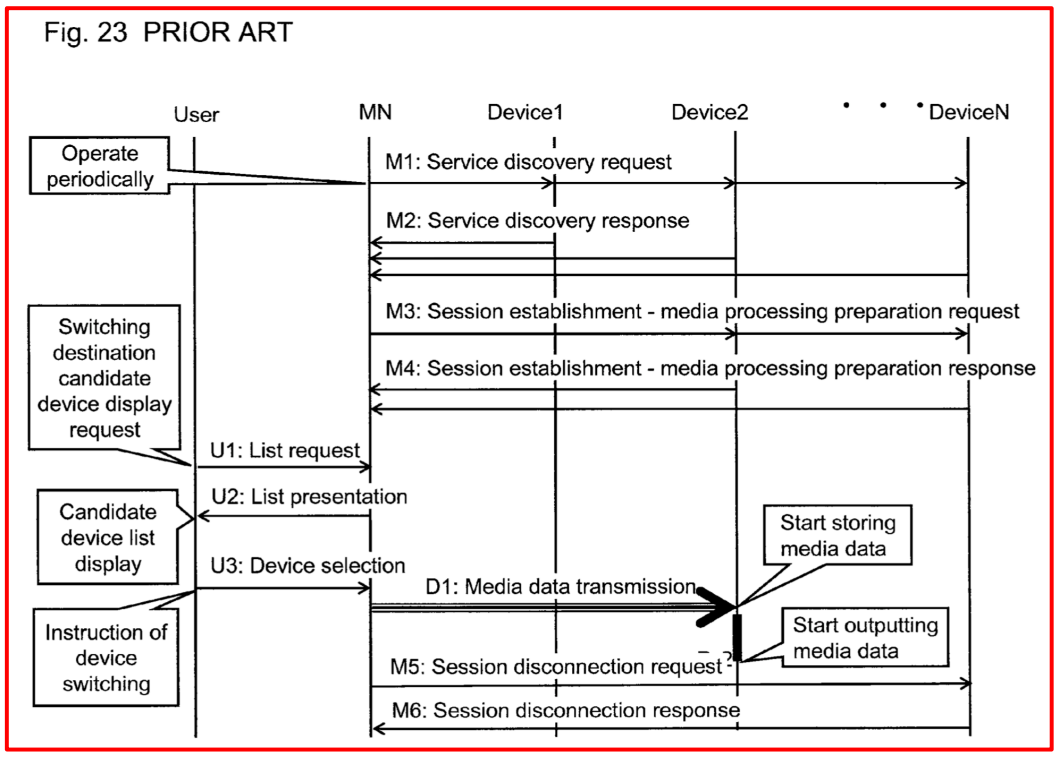


Fig. 24 PRIOR ART

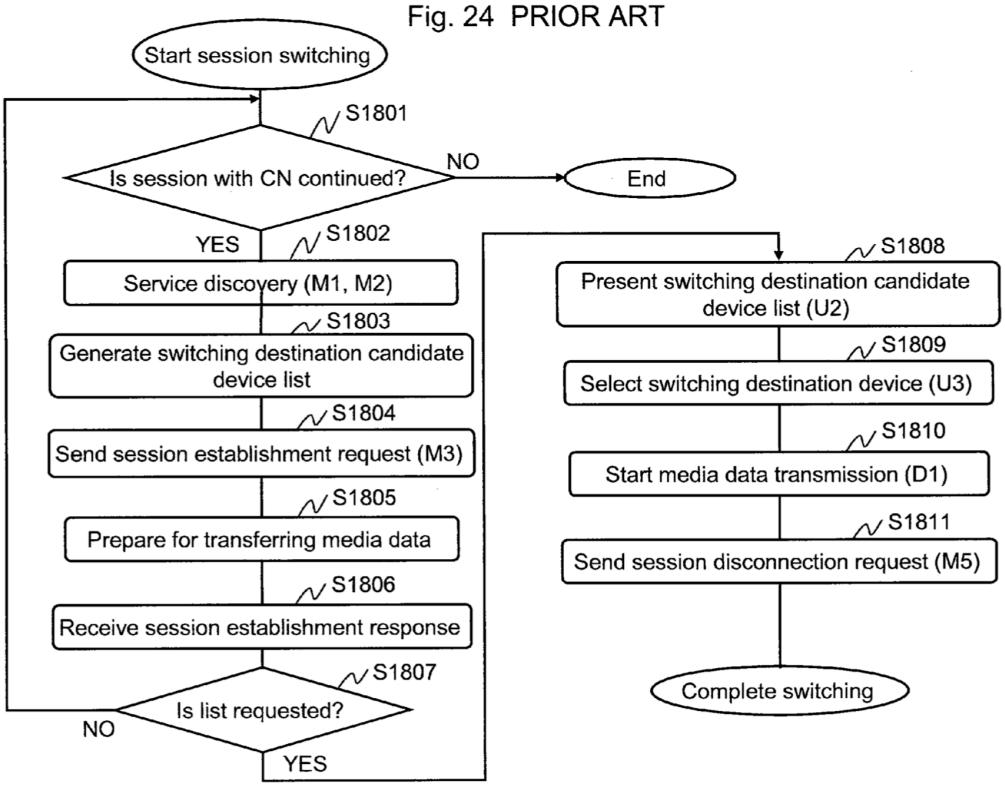
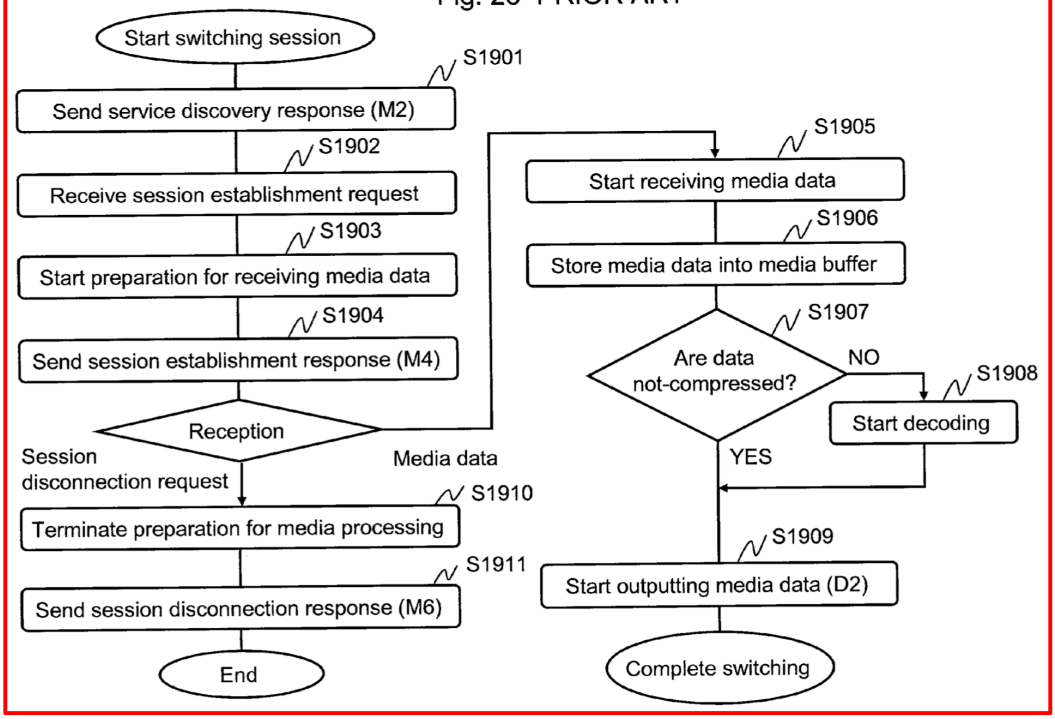


Fig. 25 PRIOR ART



60. In reference to FIG. 20, FIG. 23, FIG. 24 and FIG. 25 shown above, the '512 Patent explains that at the "*switching source device*" for this **applicant admitted prior art** that "When a *session* with CN **1302** is *continued* ("YES" in step **S1801**), in order to carry out *service discovery with respect to surrounding device group* **1304**, the *high speed middleware periodically sends service discovery request* (**M1**) to devices **1** to **N** in PAN **1305** at one time *through service discovery section* **1411** (step **S1802**)" such that "*Service discovery section* **1411** of the *switching destination device*, which *receives service discovery request* (**M1**), *sends service discovery response* (**M2**) to MN **1301** (step **S1901**)" (emphasis added, see, for example, Ex. 1001 at 5:9-14, 6:7-10).

61. Additionally, the '512 Patent explains that "As a *service discovery protocol* used by *service discovery section* **1411**, existing protocols such as SSDP (Simple Service Discovery Protocol) of UPnP (Universal Plug and Play), *SDP and SLP (Service Location Protocol) of Bluetooth* (trademark) *are used*" and similarly that for the "*signaling section* **1410**" that "an *existing protocol* such as *SIP* (session initiation protocol) *can be used*" (emphasis added, see, for example, Ex. 1001 at 3:22-26 and 3:53-55).

62. In further reference to FIG. 20, FIG. 23, FIG. 24 and FIG. 25 shown above, the '512 Patent explains that at the "*switching source device*" for this **applicant admitted prior art** that "*Service discovery section* **1411** *receives service discovery response* (**M2**) from the *switching destination device* and *notifies the high speed middleware* of it (step **S1802**)" such that "*Based on the notification*, the *high speed middleware generates a switching destination candidate device list* of devices *capable of providing a service* (step **S1803**)" and then next "The *high speed middleware sends session establishment—media processing preparation request* (**M3**) *through signaling section* **1410** to all the devices that are *switching destination candidates*

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described in the switching destination candidate device list in order to *establish a session and carry out media transmission* (step **S1804**)" and also "At the same time, the high speed middleware *notifies media receiving section* **1407** and *media sending section* **1406** to *start preparation for transferring the received media data to a switching destination candidate device* (step **S1805**)" (emphasis added, see, for example, Ex. 1001 at 5:17-36).

63. In continued reference to FIG. 20, FIG. 23, FIG. 24 and FIG. 25 shown above, the '512 Patent explains that at the "*switching destination candidate device*" for this **applicant admitted prior art** that then "*Signaling section* **1410** *receives session establishment—media processing preparation request* (**M3**) from MN **1301** (step **S1902**)" such that "the *high speed middleware*" for this "*switching destination candidate device*" then "*makes an instruction* to media receiving section **1407**, media buffer **1408** and decoder **1409** to *start preparation for media processing* (step **S1903**)" and subsequently "When the preparation for media processing is completed, the *high speed middleware sends session establishment—media processing preparation response* (**M4**) to the *switching source device through signaling section* **1410** (step **S1904**)" (emphasis added, see, for example, Ex. 1001 at 6:11-20).

64. In continued reference to FIG. 20, FIG. 23, FIG. 24 and FIG. 25 shown above, the '512 Patent explains that at the "*switching source device*" for this **applicant admitted prior art** that "When *signaling section* **1410** *receives session establishment—media processing preparation response* (**M4**) from the device in the *switching destination candidates* (step **S1806**), the *high speed middleware* is in a *waiting state*" wherein if "an instruction of *switching destination candidate device display request* (**U1**) is *not sent* from a user ("NO" in step **S1807**), the *service discovery is carried out again*" while conversely if "an instruction of *switching destination candidate device display request* (**U1**) is *sent* from a user ("YES" in step **S1807**), the

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high speed middleware *presents the switching destination candidate device list* held therein *to a user* (**U2**) through *output section* **1403** (step **S1808**)" (emphasis added, see, for example, Ex. 1001 at 5:37-50). Note that this is also shown as "**U2**: List presentation" in FIG. 23 for which the '512 Patent describes similarly for FIG. 21 as being when "the *list is presented* (**U2**) to a *user* by *output section* **1403** *via operating system* **1405**" wherein "the *switching destination candidate device list* is a *list* including *identifiers* (for example, a *device name*) specifying devices" (emphasis added, see, for example, Ex. 1001 at 3:32-36).

65. Next, with continued reference to FIG. 20, FIG. 23, FIG. 24 and FIG. 25 shown above, the '512 Patent explains that at the "*switching source device*" for this **applicant admitted prior art** that "The *user selects a switching destination device* (**U3**) from the switching destination *candidate device list* through *input section* **1404** (step **S1809**)" such that "Input section **1404** *notifies the high speed middleware* of the *name of the selected switching destination determined device* via *operating system* **1405**" wherein the example depicted in FIG. 23 above "illustrates the case in which *device **2** is selected*" (emphasis added, see, for example, Ex. 1001 at 5:51-57).

66. Accordingly, with continued reference to FIG. 20, FIG. 23, FIG. 24 and FIG. 25 shown above, the '512 Patent explains that next at the "*switching source device*" for this **applicant admitted prior art** that "The *high speed middleware notifies media sending section* **1406** to *start transmitting* (**D1**) *media data* received by media receiving section **1407** *from CN* **1302** (step **S1810**)" to the "*switching destination determined device* **2**" such that at the chosen "*switching destination determined device*" then "Media receiving section **1407** of switching destination device **2** *receives media data transferred from the switching source device* (step **S1905**) and starts *storing the media data into media buffer* **1408** (step **S1906**)" so that

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subsequently "Output section **1403** starts *outputting the received media data* (**D2**) (step **S1909**)" which "*completes the switching operation*" (emphasis added, see, for example, Ex. 1001 at 5:58-62, 6:21-24, 6:33-35).

67. Finally, with continued reference to FIG. 20, FIG. 23, FIG. 24 and FIG. 25 shown above, the '512 Patent explains that next at the "*switching source device*" for this **applicant admitted prior art** that "The *high speed middleware* sends *session disconnection request* (**M5**) through *signaling section* **1410** to *devices other than device* **2**" and then "receives *session disconnection response* (**M6**) from these devices" which "*completes the switching operation*" (emphasis added, see, for example, Ex. 1001 at 5:63-6:2).

68. The '512 Patent summarizes the above description of FIG. 20, FIG. 23, FIG. 24 and FIG. 25 shown above for this **applicant admitted prior art** by stating that "according to the technology described in the document "*Mobile Multimedia Middleware for Seamless Service*," it was *possible to switch from a switching source device to a switching destination device at a high speed*" because "above-mentioned technology A" enables that "the *time necessary for presenting a device list can be reduced*" and because "above-mentioned technology B" enables that "the *time necessary to start an output of media data at the selected switching destination device can be reduced*" (emphasis added, see, for example, Ex. 1001 at 6:49-7:9).

69. However, the '512 Patent observes for this **applicant admitted prior art** that "in the *technology described* in the document "*Mobile Multimedia Middleware for Seamless Service*," *from the time* the *selected switching destination device starts* to receive media data to the *time when the output section* of the switching destination device *starts outputting media data* (step **S1905** to step **S1909**), about *several hundreds milliseconds* are required" and also that "*media data* that have been *stored in the media buffer of the switching source device* and that

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have *not yet output* at switching source device are *not transferred to the switching destination device*", thereby "resulting in generating *discontinuous output*" (emphasis added, see, for example, Ex. 1001 at 7:17-34).

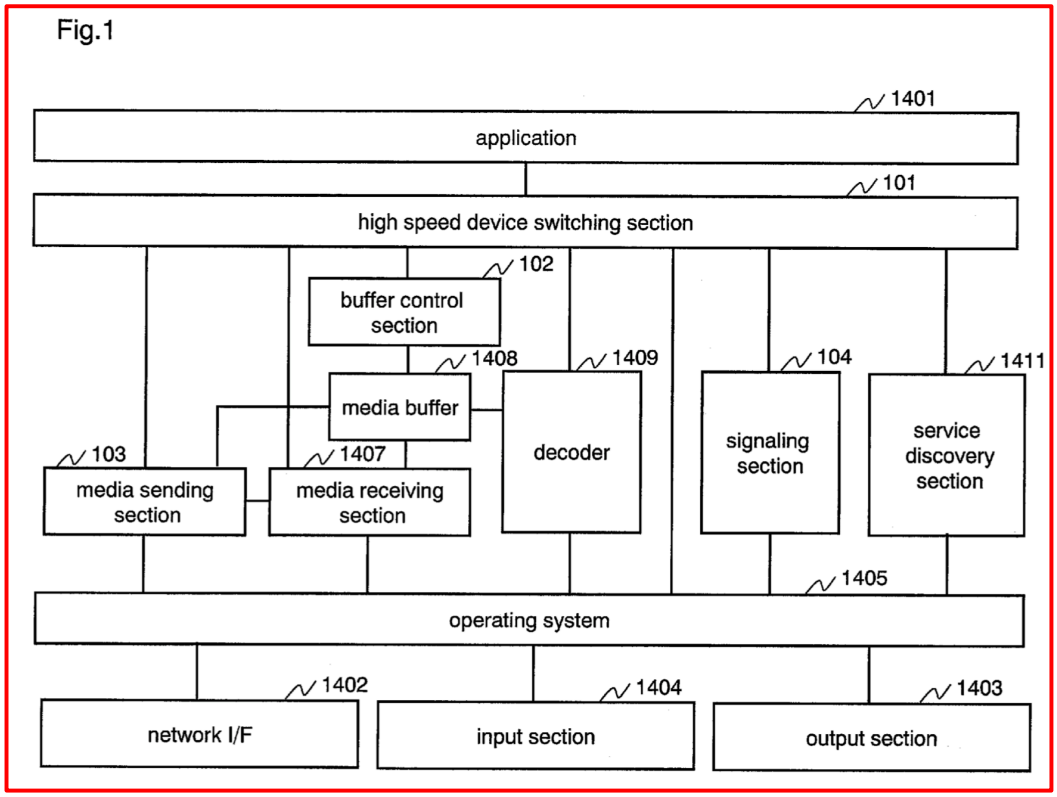
70. Accordingly, the '512 Patent purports in the "**Summary of the Invention**" section that "An object of the present invention is to provide a *switching source device*, a *switching destination device* and a *high speed device switching system* capable of *reducing* … a *time that elapses from the time when a user intends to switch devices* and inputs a device switch request to a switching source device *to the time when media data are output* to an output section of the *selected switching destination device*" while also "realizing device switching in which the *disconnection between media data* of the *switching source device* and media data output at the *switching destination device* is *prevented*" (emphasis added, see, for example, Ex. 1001 at 7:38-52).

71. In the "**First Exemplary Embodiment**" section, the '512 Patent states that "the *present invention is the same as that shown in FIG. 19*, and *mobile node (MN)* **1301** and *device group* **1304** correspond to a *switching source device* and a *switching destination device*" respectively (emphasis added, see, for example, Ex. 1001 at 12:9-14, and also see ¶ 51 above for FIG. 19 which also describes the **applicant admitted prior art**).

72. According to the '512 Patent, "FIG. 1 is a diagram showing an *internal configuration of the switching source device* in the high speed device switching system in accordance with this exemplary embodiment" wherein "*signaling section* **104**" is "for *controlling a session with the external device*" and "*high speed device switching section* **101**" is "for *outputting an instruction*, for *transferring media data* received by media receiving section

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1407 *to the switching destination candidate device*, to media sending section **103**" (emphasis added, see, for example, Ex. 1001 at 12:15-17, 12:29-36, FIG. 1 as reproduced below).



73. In reference to FIG. 1 shown above and to ¶ 51 above for FIG. 19, which describes the **applicant admitted prior art**, the '512 Patent explains that "*high speed device switching section* **101**, *buffer control section* **102**, *media sending section* **103** and *signaling section* **104** are *different component elements from those of a conventional configuration*" (emphasis added, see, for example, Ex. 1001 at 12:37-41).

74. More specifically, the '512 Patent explains that "Herein, *high speed device switching section* **101** *corresponds to a conventional high speed middleware* and *includes modified and added functions*" while "*Buffer control section* **102** is a *newly added* component" that "*generates buffer control information* which the *switching destination candidate device*

refers to when it controls the media buffer of the switching destination device" (emphasis added, see, for example, Ex. 1001 at 12:41-48).

75. Additionally, the '512 Patent explains that "*media sending section* **103** and *signaling section* **104** are obtained by *adding partial function* to conventional components" such that "media sending section **103** can *also carry out transferring of media data stored in media buffer* **1408**" and such that "Signaling section **104** further *carries out communication of buffer control information* generated by buffer control section **102**" (emphasis added, see, for example, Ex. 1001 at 12:48-54).

76. Accordingly, a POSITA would understand that at least this "**First Exemplary Embodiment**" of the '512 Patent is identical to the **applicant admitted prior art** including the system described by the document "*Mobile Multimedia Middleware for Seamless Service*" with respect to at least the "*application* **1401**", the "at least one *network I/F* **1402**", the "*input section* **1404**" (that is for "*receiving input from a user*"), the "*output section* **1403**" (that is for "*outputting a display*"), the "*operating system* **1405**", the "*media receiving section* **1407**", the "*media buffer* **1408**", and the "*service discovery section* **1411**" (compare, for example, FIG. 1 shown at ¶ 72 above with FIG. 20 shown at ¶ 54 above as well as corresponding text of Ex. 1001 at 2:39-55 with Ex. 1001 at 12:15-54).

77. Additionally, a POSITA would understand that for this "**First Exemplary Embodiment**" of the '512 Patent that at least the "*high speed device switching section* **101**", the "*media sending section* **103**", and the "*signaling section* **104**" are structurally identical compared to, respectively, the "*high speed middleware* **101**", the "*media sending section* **103**", and the "*signaling section* **104**" of the **applicant admitted prior art** including the system described by the document "*Mobile Multimedia Middleware for Seamless Service*" (compare, for example,

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FIG. 1 shown at ¶ 72 above with FIG. 20 shown at ¶ 54 above as well as corresponding text of Ex. 1001 at 2:39-55 with Ex. 1001 at 12:15-54).

78. According to the '512 Patent, "FIG. 2 is a view showing a *sequence relating to a message between the switching source device and the switching destination device group*" wherein "the *switching source device holds another session with CN* although not shown in the drawing", "FIG. 3 is a *flowchart to illustrate an operation of the switching source device*" and "FIG. 4 is a *flowchart to illustrate an operation of the switching destination device*" wherein "the *device group includes N* pieces of *devices*, that is, devices **1** to **N**" (emphasis added, see, for example, Ex. 1001 at 13:1-9, FIG. 2, FIG. 3, FIG. 4 as reproduced below).

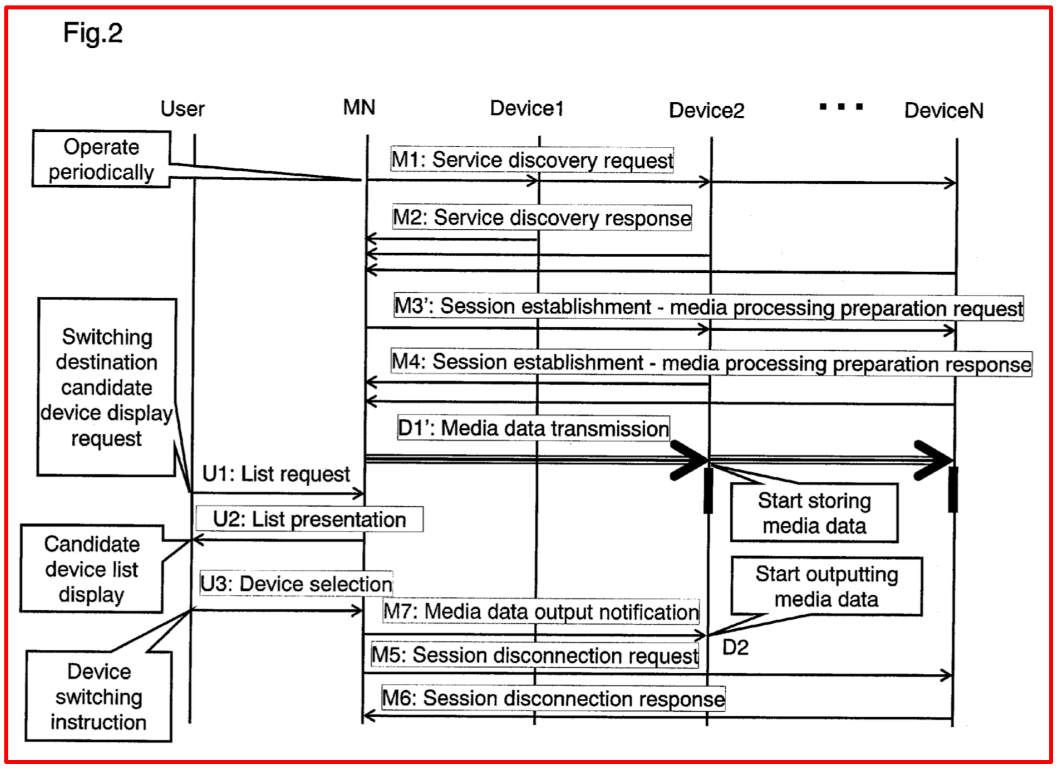


Fig.3

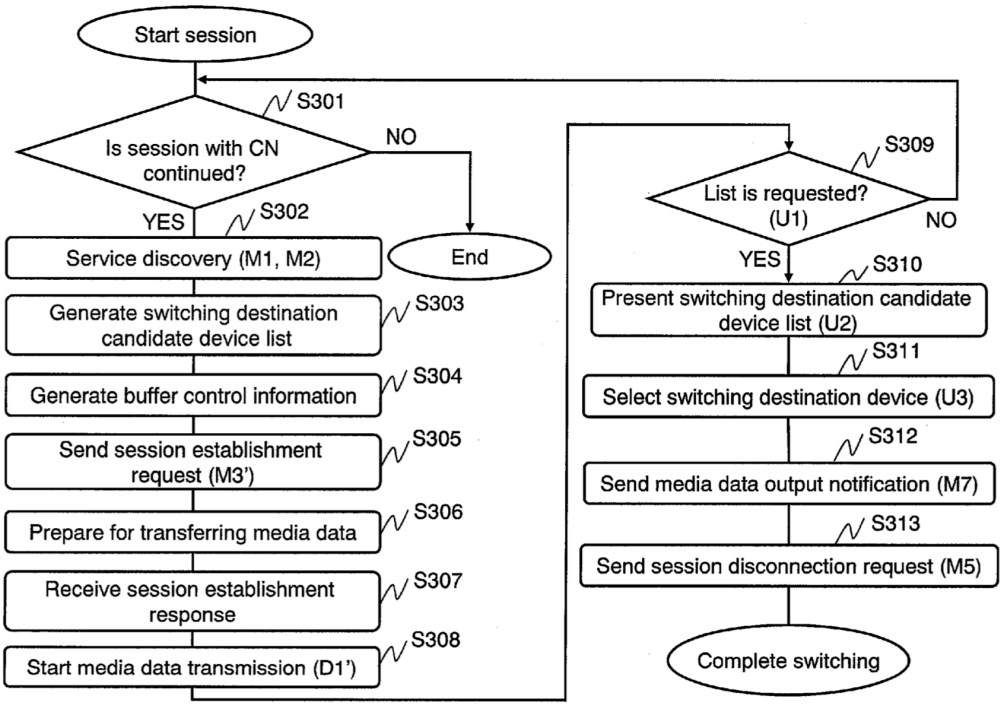
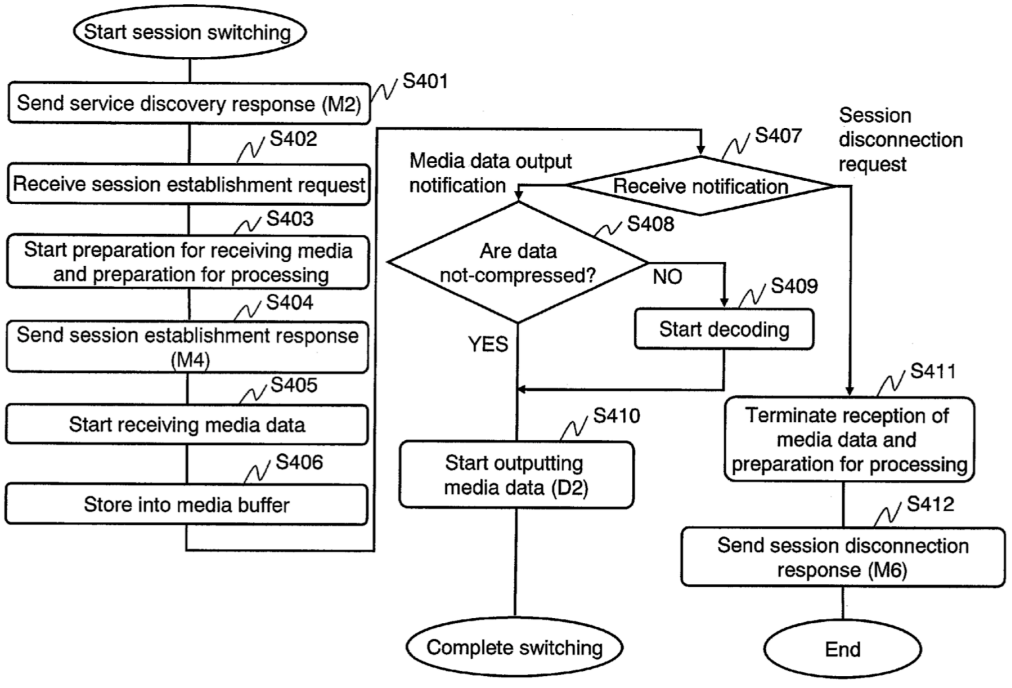

Start session
S301
Is session with CN continued?
NO
YES
S302
Service discovery (M1, M2)
End
Generate switching destination candidate device list
S303
Generate buffer control information
S304
Send session establishment request (M3')
S305
Prepare for transferring media data
S306
Receive session establishment response
S307
Start media data transmission (D1')
S308
S309
List is requested? (U1)
NO
YES
S310
Present switching destination candidate device list (U2)
S311
Select switching destination device (U3)
S312
Send media data output notification (M7)
S313
Send session disconnection request (M5)
Complete switching

Fig.4


Start session switching
Send service discovery response (M2)
S401
S402
Receive session establishment request
S403
Start preparation for receiving media and preparation for processing
S404
Send session establishment response (M4)
S405
Start receiving media data
S406
Store into media buffer
S407
Media data output notification
Receive notification
Session disconnection request
S408
Are data not-compressed?
NO
S409
Start decoding
YES
S410
Start outputting media data (D2)
S411
Terminate reception of media data and preparation for processing
S412
Send session disconnection response (M6)
Complete switching
End

79. With respect to the "*operation of the switching source device*" as "described with reference to FIGS. 2 and 3" for this "**First Exemplary Embodiment**", the '512 Patent admits that "*Unless otherwise specified*, the *operation is the same as* that of the *conventional switching source device* shown in FIG. 24" (emphasis added, see, for example, Ex. 1001 at 13:12-15).

80. For example, as described similarly for the system described by the document "*Mobile Multimedia Middleware for Seamless Service*" in FIG. 23 and FIG. 24, the '512 Patent at FIG. 2 and FIG. 3 describes to "*Operate periodically*" to send the message "*M1: Service discovery request*" from "MN" to each of "Device 1, Device 2, … Device N" (compare, for example, FIG. 23 and FIG. 24 shown at ¶ 59 above with FIG. 2 and FIG. 3 shown at ¶ 78 above), which the '512 Patent also describes as "*sends*, at an *arbitrary timing*, *service discovery request (M1)* to devices 1 to N in PAN 1305 *at one time* through *service discovery section* **1411** (step **S302**)" wherein an example of such "*service discovery request (M1)*" being "sent at an *arbitrary timing or periodically*" is that "it is *sent at intervals of 10 minutes*" or "*right after a session is established*" (emphasis added, see, for example, Ex. 1001 at 13:19-25).

81. For example, as described similarly for the system described by the document "*Mobile Multimedia Middleware for Seamless Service*" in FIG. 23 and FIG. 24, the '512 Patent at FIG. 2 and FIG. 3 describes the step "**U1**" as a "*List request*" (see, for example, ¶¶ 59 and 78 above) but also subsequently clarifies that this "*list request* is *input* into the switching source device *from a user*" (emphasis added, see, for example, Ex. 1001 at 16:16-17).

82. Accordingly, a POSITA would understand that this "**First Exemplary Embodiment**" of the '512 Patent is the **same** as the **applicant admitted prior art** including the system described by the document "*Mobile Multimedia Middleware for Seamless Service*" except for three alleged "differences" that I note below.

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83. First, the '512 Patent describes that an alleged "difference" with reference to FIG. 2, FIG. 3, and FIG. 4 for this "**First Exemplary Embodiment**" compared to the **applicant admitted prior art** described by the document "*Mobile Multimedia Middleware for Seamless Service*" at FIG. 23, FIG. 24 and FIG. 25 is that when "*High speed device switching section* **101** sends *session establishment—media processing preparation request* (**M3′**) to *switching destination candidate devices* through *signaling section* **104** in order to *establish a session* and *transmit media data* with respect to the switching destination candidate devices described in the switching destination candidate device list (step **S305**)" that such "*session establishment—media processing preparation request* (**M3′**)" of this "**First Exemplary Embodiment**" compared to the "*session establishment—media processing preparation request* (**M3**)" of the **applicant admitted prior art** described above differs in that "*signaling section* **104**" now also includes "*media output control information* in a *header* or a *payload* of session establishment—media processing preparation request (**M3′**) message" that "*instructs* that the *output section of the switching destination candidate device prohibit the output of media data transferred in the session*" (emphasis added, see, for example, Ex. 1001 at 13:44-59).

84. Second, the '512 Patent describes that another alleged "difference" with reference to FIG. 2, FIG. 3, and FIG. 4 for this "**First Exemplary Embodiment**" compared to the **applicant admitted prior art** described by the document "*Mobile Multimedia Middleware for Seamless Service*" at FIG. 23, FIG. 24 and FIG. 25 is that "when *signaling section* **104** *receives session establishment—media processing preparation response* (**M4**) from the *switching destination candidate device* (step **S307**), *high speed device switching section* **101** *notifies media sending section* **103** to *start transmission* (**D1′**) of the *media data* (step **S308**)", which includes the "media data stored in media buffer **1408** and media data received by media receiving section

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1407 from CN **1302**", to "the *switching destination candidate devices* described in the *switching destination candidate device list* by *multicast or broadcast*" (emphasis added, see, for example, Ex. 1001 at 14:11-24).

85. Third, the '512 Patent describes that yet another alleged "difference" with reference to FIG. 2, FIG. 3, and FIG. 4 for this "**First Exemplary Embodiment**" compared to the **applicant admitted prior art** described by the document "*Mobile Multimedia Middleware for Seamless Service*" at FIG. 23, FIG. 24 and FIG. 25 is that after "A *user selects a switching destination device* (**U3**) from the *switching destination candidate device list* through *input section* **1404** (step **S311**)" such as when, for example, "device **2** is selected", then "*High speed device switching section* **101** sends the *media data output notification* (**M7**) to device **2** through *signaling section* **104** so that *switching destination device* **2** selected as the switching destination device *starts outputting media data* (step **S312**)" (emphasis added, see, for example, Ex. 1001 at 14:36-46).

86. In the "**Second Exemplary Embodiment**" section, the '512 Patent states that "The *configuration of a high speed device switching system* in accordance with a *second exemplary embodiment* of the present invention is *the same as* that shown in the *first exemplary embodiment except* that a *switching source device is different*" in that "*preference information holding section* **1001** is *provided*" which "*holds previously set user's preference information*" (emphasis added, see, for example, Ex. 1001 at 22:41-53).

87. In the "**Third Exemplary Embodiment**" section, the '512 Patent states that "The *configuration of a high speed device switching system* in accordance with a *third exemplary embodiment* of the present invention is *the same as* that of the *first exemplary embodiment* shown in FIG. 19" except for the "difference" that "MN 1301 corresponds to a *switching source*

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device" that "*completes service discovery, session establishment with a switching destination candidate device and the media processing preparation*, and thereafter *understands the state of the switching destination candidate device*" (emphasis added, see, for example, Ex. 1001 at 24:17-30).

88. The '512 Patent also lists 17 claims of which Claims 1, 13, 16 and 17 are independent claims (see, for example, Ex. 1001 at 27:28-30:40). For example, independent Claim 1 of the '512 Patent recites limitations for a "*switching source device*" as shown below (from Ex. 1001 at 27:28-60):

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The invention claimed is:

1. A switching source device for moving a session established with a communication counterpart to a switching destination device, comprising:

a service discovery section for obtaining information as to whether a service can be provided from a neighboring communication device;

a high speed device switching section for instructing the service discovery section at an arbitrary timing to inquire whether a service can be provided, determining a switching destination candidate device that is a switching destination of a session based on the obtained information as to whether the service can be provided, generating a switching destination candidate device list describing the switching destination candidate devices, and making an instruction for establishing a session with the switching destination candidate device;

a signaling section for establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section and;

an input section for receiving a switching destination candidate device list request from a user; and

an output section for presenting the switching destination candidate device list when the high speed device switching section receives the switching destination candidate device list request through the input section;

wherein when the high speed device switching section receives a device switching request from a user through the input section, it notifies the signaling section of the device selected from the switching candidate device list, and the signaling section sends a switching instruction to the selected device.

89. In my opinion, a POSITA would understand that Claim 1 of the '512 Patent does not recite limitations that encompass two of the three alleged "differences" described above for the "**First Exemplary Embodiment**" or any of the "differences" described above for the "**Second Exemplary Embodiment**" and/or the "**Third Exemplary Embodiment**" in comparison to the **applicant admitted prior art** described by the document "*Mobile Multimedia Middleware for Seamless Service*" (see, for example, ¶¶ 79-87 above).

90. For example, the first alleged "difference" I summarized above for the "**First Exemplary Embodiment**" describes that the "*session establishment—media processing preparation request*", in contrast to the **applicant admitted prior art** described by the document "*Mobile Multimedia Middleware for Seamless Service*", "*instructs* that the *output section of the switching destination candidate device prohibit the output of media data transferred in the session*" (see, for example, ¶ 83 above).

91. However, no concept of any "*request*" that "*instructs*" that "*the switching destination candidate device prohibit the output of media data transferred in the session*", or equivalent thereof, appears in Claim 1 of the '512 Patent (see, for example, ¶ 88 above). Instead, this general concept appears within the limitations expressed within dependent Claim 3 which depends (indirectly) from Claim 1 (see, for example, Ex. 1001 at 28:9-15).

92. For example, the second alleged "difference" I summarized above for the "**First Exemplary Embodiment**" describes that "when *signaling section* **104** *receives session establishment—media processing preparation response* (**M4**) from the *switching destination candidate device* (step **S307**), *high speed device switching section* **101** *notifies media sending section* **103** to *start transmission* (**D1′**) of the *media data* (step **S308**)", in contrast to the **applicant admitted prior art** described by the document "*Mobile Multimedia Middleware for Seamless Service*" wherein the "*media sending section*" does not "*start transmission*" of the "*media data*" until after the "*user selects a switching destination device*" (see, for example, ¶¶ 65-66 and 84 above).

93. However, Claim 1 of the '512 Patent does not recite any "*media sending section*" and does not require that any element of the "*switching source device*" must "*start transmission*" of the "*media data*" at any time, whether "when *signaling section* **104** *receives session*

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establishment—media processing preparation response (**M4**) from the *switching destination candidate device*" or otherwise (see, for example, ¶ 88 above). Instead, this general concept appears within the limitations expressed within dependent Claim 2 which depends from Claim 1 (see, for example, Ex. 1001 at 27:61-28:8).

94. For example, the "difference" that the '512 Patent contends for the "**Second Exemplary Embodiment**", in contrast to the **applicant admitted prior art** described by the document "*Mobile Multimedia Middleware for Seamless Service*", as I summarized above describes that a "*preference information holding section* **1001** is *provided*" which "*holds previously set user's preference information*" (see, for example, ¶ 86 above).

95. However, no concept of any "*preference information holding section*" or any "*previously set user's preference information*", or equivalent thereof, appears in Claim 1 of the '512 Patent (see, for example, ¶ 88 above). Instead, this general concept appears within the limitations expressed within dependent Claim 5 which depends (indirectly) from Claim 1 (see, for example, Ex. 1001 at 28:22-25).

96. For example, the "difference" that the '512 Patent contends for the "**Third Exemplary Embodiment**", in contrast to the **applicant admitted prior art** described by the document "*Mobile Multimedia Middleware for Seamless Service*", as I summarized above describes that the "*switching source device*" "*understands the state of the switching destination candidate device*" (see, for example, ¶ 87 above).

97. However, no limitation of Claim 1 of the '512 Patent expresses any concept that the "*switching source device*" "*understands the state of the switching destination candidate device*" (see, for example, ¶ 88 above). Instead, this general concept appears within the

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limitations expressed within Claims 13 and 15 of the '512 Patent (see, for example, Ex. 1001 at 29:4-30:5).

98. Accordingly, a POSITA would understand that the only possible alleged "difference" compared to the **applicant admitted prior art** description of the document "*Mobile Multimedia Middleware for Seamless Service*" within the '512 Patent "**Background Art**" section that is expressed within the limitations of Claim 1 of the '512 Patent is the third alleged "difference" that I summarized above for the "**First Exemplary Embodiment**" as possibly reflected by certain aspects of the last element of Claim 1 of the '512 Patent which recites "**wherein when the high speed device switching section receives a device switching request from a user through the input section, it notifies the signaling section of the device selected from the switching candidate device list, and the signaling section sends a switching instruction to the selected device**" to the extent that an example of such a "**switching instruction**" within the specification of the '512 Patent is the "*media data output notification*" message that results when the "*user selects a switching destination device*" (emphasis added, see, for example, Ex. 1001 at 27:55-60 and ¶ 85 above).

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B. Prosecution File History of the '512 Patent

99. I understand that on Sep. 11, 2007 that U.S. Patent Application No. 11/908,354 by D. Komiya et al., entitled "Switching source device, switching destination device, high speed device switching system, and signaling method" was filed (see, for example, Ex. 1002 at p. 19).

100. I understand the following to be original claim 1 of U.S. Patent Application No. 11/908,354 (from Ex. 1002 at p. 3):

> 1. (Original) A switching source device for moving a session established with a communication counterpart to a switching destination device, comprising:
>
> a service discovery section for obtaining information as to whether a service can be provided from a neighboring communication device;
>
> a high speed device switching section for instructing the service discovery section at an arbitrary timing to inquire whether a service can be provided, determining a switching destination candidate device that is a switching destination of a session based on the obtained information as to whether the service can be provided, generating a switching destination candidate device list describing the switching destination candidate devices, and making an instruction for establishing a session with the switching destination candidate device;
>
> a signaling section for establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section and;
>
> an input section for receiving a switching destination candidate device list request from a user; and
>
> an output section for presenting the switching destination candidate device list when the high speed device switching section receives the switching destination candidate device list request through the input section;
>
> wherein when the high speed device switching section receives a device switching request from a user through the input section, it notifies the signaling section of the device selected from the switching candidate device list, and the signaling section sends a switching instruction to the selected device.

101. I understand that applicants included an "Information Disclosure Statement" dated Sep. 10, 2007 which included the **applicant admitted prior art** "*Japanese Patent*

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Unexamined Publication No. 2003-304251" and "*Mobile Multimedia Middleware for Seamless Service*" as summarized by the excerpt below (from Ex. 1002 at pp. 9-10):

The following Japanese references are not in the English language:

1) 2004-240906

2) 2003-303143

3) 2003-298676

4) 2003-304251

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5) OHTA, et al., "Mobile Multimedia Middleware for Seamless Service," Study Report of Information Processing Society of Japan: "Mobile Computing and Wireless Communication" No. 18-35, September 7, 2001, pp. 261-268

References 1) to 5) include English language abstracts.

References 4) and 5) are not in the English language, but a "concise explanation" under 37 CFR Section 1.98(a)(3) is set forth in the background portion of the above specification.

102. Accordingly, a POSITA would understand that the US PTO possessed during the prosecution of U.S. Patent Application No. 11/908,354 only the Japanese language version (Ex. 1003 herein), as opposed to an English language version (such as Ex. 1004 herein), for "*Mobile Multimedia Middleware for Seamless Service*" (referred to as "Ohta" herein). In my opinion, this deficiency materially affected the ability of an examiner to assess the prior art Ohta reference in view of the knowledge of a POSITA at least because Ohta comprises additional

disclosure relevant to at least then-pending Claim 1 of U.S. Patent Application No. 11/908,354 per my descriptions and analyses herein.

103. I understand that on Jan. 21, 2010 that the US PTO notified the applicants that then-pending Claims 1-13, 16 and 17 were allowed while then-pending Claims 14-15 were rejected for U.S. Patent Application No. 11/908,354 (see, for example, Ex. 1002 at pp. 360-365). I understand the following to be then-pending Claim 14 of U.S. Patent Application No. 11/908,354 (from Ex. 1002 at p. 82):

> **14. A high speed device switching system for moving a session held by a switching source device with respect to a communication counterpart to a switching destination device other than the switching source device, comprising:**
>
> **the switching source device for transmitting media data relating to the session to a switching destination device of a switching destination candidate by multicast or broadcast prior to device switching; and**
>
> **a switching destination device, when it is selected as switching destination device by a user, for presenting the transmitted media data to a user based on an output notification from the switching source device.**

104. I understand that the US PTO examiner stated that "Claim 14 is rejected under 35 U.S.C. 102(a) as being unpatentable over the admitted prior art of paragraphs [0009]-[0055] of applicant's background and Figures 19-26 (hereinafter "AAPR")" (see, for example, Ex. 1002 at p. 362).

105. I understand that applicants responded to the US PTO on Apr. 21, 2010 with at least an amendment to and remarks regarding then-pending Claim 14 of U.S. Patent Application No. 11/908,354 (see, for example, Ex. 1002 at pp. 376-386).

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106. I understand the following to be amended Claim 14 of U.S. Patent Application No. 11/908,354 as of Apr. 21, 2010 (from Ex. 1002 at p. 381):

> 14. (Currently Amended) A high speed device switching system for moving a session held by a switching source device with respect to a communication counterpart to a switching destination device other than the switching source device, comprising:
>
> the switching source device for transmitting media data relating to the session to a switching destination device of a switching destination candidate by multicast or broadcast prior to a user selecting the switching destination device ~~switching~~; and
>
> wherein when the ~~a switching destination device, when it is selected as~~ switching destination device is selected by a user, ~~for presenting~~ the ~~transmitted~~ switching destination device presents the media data received from the switching source device prior to selection to the user ~~to a user~~ based on an output notification from the switching source device.

107. I understand that applicants responded to the US PTO on Apr. 21, 2010 with at least the following remarks specific to amended Claim 14 of U.S. Patent Application No. 11/908,354 (from Ex. 1002 at pp. 384-385):

Applicants' invention, as recited by claim 14, includes features which are neither disclosed nor suggested by the art of record, namely:

> **... the switching source device for transmitting media data ... to a switching destination device ... prior to a user selecting the switching destination device ...**
>
> **... wherein when the switching destination device is selected by a user, the switching destination device presents the media data received from the switching source device prior to selection to the user ...**
> ***(Emphasis Added)***

Claim 14 relates to a source device which transmits media to a destination device. Specifically, the transmission of data is performed prior to a user actually selecting the destination device. Upon being selected by a user, the destination device presents the media data received from the source device prior to selection. Support for this feature can be at least found on page 30, line 22 - page 31, line 20 of Applicants' specification and furthermore shown in Figs. 2 and 3. No new matter has been added.

In AAPA Fig. 24, step 1810 recites that data is transmitted before switching is complete "*complete switching*." Thus, the Examiner is interpreting that the data is transmitted in step S1810 before the switching step in Fig. 24. With respect to Donovan, the Examiner believes that an instruction is utilized which prohibits the output of media data (see Fig. 1 paragraphs [0021-0032] of Donovan).

Neither AAPA, Donovan, nor their combination, however, suggests transmitting data to a device before the device is selected. Specifically, neither AAPA nor Donovan suggest a source device transmitting media data to a destination device prior to a user selecting the destination device.

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108. Accordingly, a POSITA would understand that applicants admit that the "AAPA", or hence Ohta herein by applicants' reference to FIG. 24 in the remarks shown above, discloses the limitation of at least a "**switching source device for transmitting media data relating to the session to a switching destination device of a switching destination candidate by multicast or broadcast prior to device switching**" but applicants do not admit that the "AAPA" discloses such limitation when amended to include the additional limitation of "**prior to a user selecting the switching destination device**" instead of "**prior to device switching**".

109. However, a POSITA would also understand that Claim 1 of U.S. Patent Application No. 11/908,354 does not recite a limitation of a "**switching source device for transmitting media data relating to the session to a switching destination device of a switching destination candidate by multicast or broadcast**", or equivalent thereof, whether "**prior to device switching**" or "**prior to a user selecting the switching destination device**".

110. I understand that on Jul. 26, 2010 that the US PTO notified the applicants that then-pending Claims 1-7, 9, 10, 8, 16, 17 and 11-15 were allowable but would be renumber to 1-17 respectively (see, for example, Ex. 1002 at pp. 398-401).

111. I understand that U.S. Patent Application No. 11/908,354 issued as U.S. Patent No. 7,796,512 on Sep. 14, 2010 (see, for example, Ex. 1001 at [45]).

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C. Asserted Claims and Priority Date

112. The '512 Patent includes 17 claims. I understand that Claim 1 of the '512 Patent is asserted in the District Court litigation (see, for example, Ex. 1009 at p. 2) and is subject to this *Inter Partes* Review petition. I may refer to Claim 1 of the '512 Patent as the "challenged claim" herein.

113. The '512 Patent was filed on Mar 13, 2006 (see, for example, Ex. 1001 at [22]). However, I understand that in the District Court litigation that the Patent Owner alleges the priority date of the '512 Patent to be Mar. 14, 2005 (see, for example, Ex. 1009 at p. 4). For purposes of this declaration, I assume Mar. 14, 2005 as the priority date of the '512 Patent.

D. Objective Indicia of Non-obviousness

114. I understand that in the District Court litigation, Patent Owner has not yet provided any information regarding this topic. As of this writing, I am unaware of any information that would provide objective indicia of non-obviousness for any of the challenged claims of the '512 Patent. However, to the extent that Patent Owner (or its expert) provides opinions and/or analysis with respect to this topic, I reserve the right to supplement my opinions and analyses on this topic.

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VI. CLAIM CONSTRUCTION

115. I understand that claim construction is a matter of law. I further understand that in a *Inter Partes* Review proceeding that the claims are to be given their ordinary and customary (or "plain and ordinary") meaning, as would be understood by a POSITA in the context of the entire disclosure and intrinsic record. I also understand that limitations from the specification of the patent are not to be read into the claims, and that conversely, not all claims necessarily encompass all material disclosed within the specification. The specification, however, can inform a POSITA as to the plain and ordinary meaning of the claims. In addition, I understand that a POSITA would look to statements made by the applicants during the prosecution file history to inform as to the plain and ordinary meaning of the claims.

116. I understand that at least indefiniteness and lack of written description and/or enablement are potential invalidity issues that cannot be addressed as part of an *Inter Partes* Review proceeding. Therefore, solely for the purposes of my prior art invalidity analyses herein as relevant to this *Inter Partes* Review proceeding, I have assumed claim constructions as appropriate for an *Inter Partes* Review proceeding even for such claims and/or claim elements that I may otherwise believe to be indefinite, lacking written description and/or non-enabled as may be set forth in the District Court litigation.

117. I understand that in the District Court litigation involving the Petitioner that Patent Owner has not, as of this writing, identified any claim terms alleged to require constructions nor proposed any claim constructions thereof for the '512 Patent. However, Patent Owner has provided an allegation of infringement for at least Claim 1 of the '512 Patent. Thus, Patent Owner appears to believe that the claim terms of the challenged claim of the '512 Patent is at least as broad as would be necessary for such allegation of infringement to apply.

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118. I have applied a plain and ordinary meaning to all claim terms for the purposes of this *Inter Partes* Review proceeding. In my opinion, my analysis of obviousness herein would apply to any reasonable construction of the claim terms as well.

119. I have also been asked to consider, in the alternative, that certain claim elements may be subject to interpretation as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6. I have not been asked to opine as to which claim elements, if any, should be subject to such interpretation. I have also not been asked to opine as to what, if anything, within the specification of the '512 Patent may constitute sufficient disclosure of structure linked to performing the recited functions for such claim elements.

120. However, I am informed by counsel for the Petitioner that claim elements of the challenged claims of the '512 Patent that may be subject to interpretation as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6 may include at least the "**service discovery section**", the "**high speed device switching section**", the "**signaling section**", the "**input section**" and the "**output section**" of Claim 1.

121. Accordingly, I have also considered in my analyses herein, in the alternative, each of the above listed claim elements as subject to interpretation as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6.

122. In the event that one or more of these constructions is changed, or in the event that additional terms not specifically construed herein receive a proposed construction, I reserve the right to revisit my analysis under such additional construction(s).

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VII. STATE OF THE ART

123. As of Mar. 14, 2005, which the Patent Owner alleges to be the priority date of the '512 Patent, the state of the art in the field of "realizing session mobility in communication technology and media transmission technology" already fully encompassed the elements of the asserted claims of the '512 Patent, as evidenced in even the small sample of the art described herein.

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A. Ohta (Ex. 1003 and Ex. 1004)

124. For example, amongst the numerous prior art references in this field, "Mobile Multimedia Middleware for Seamless Service", by Ohta, K., Yoshikawa, T., Nakagawa, T., Isoda, Y., Sugimura, T. ("Ohta") was published by Mobile Computing and Wireless Communication No. 18-35, Intelligent Handoff System No. 6-35, IPSJ SIG Technical Report, Information Processing Society of Japan on Sep. 7, 2001 (see, for example, Ex. 1003 at p. 1 or Ex. 1004 at p. 1). Thus, I understand that Ohta qualifies as prior art to the '512 Patent at least under 35 U.S.C. §§ 102(a) and 102(b).

125. In my opinion, a patent examiner, whether a POSITA or otherwise, would not be able to meaningfully assess the disclosures of Ohta in its Japanese language version without a fluent ability to understand written Japanese. For example, Figure 3 and its description within Ohta are highly relevant to my analysis of invalidity of Claim 1 of the '512 Patent in view of Ohta but I note that this figure and its description in its Japanese language version appears as follows (from Ex. 1003 at p.4):

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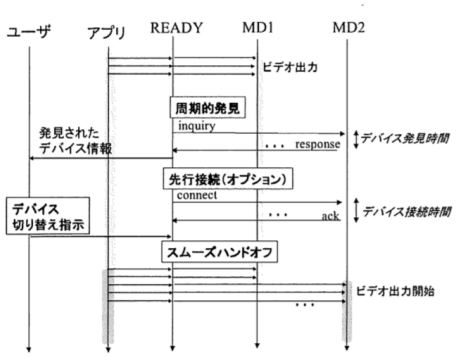


図 3: スムーズデバイスハンドオフ手順

3.1 代替サービス発見・予約方式 READY

READY はデバイス切り替え時と障害時、それぞれにおいてメディア転送が途切れる問題を解決する。

3.1.1 デバイス切り替え時

デバイスハンドオフは外部デバイスの発見・接続プロセスを考慮して実行する必要がある。接続処理中の準備の完了していないデバイスにメディア入出力を切り替えた場合、メディア入出力の途切れが起きる。新たなデバイスとの接続中は、元のデバイスを利用し続け，準備完了後にメディア転送先を切り替える必要がある。これは、ユーザがデバイス切り替え指示をしても、すぐにそのデバイスを利用できるわけではないことを意味している。外部デバイスの発見・接続時間は、 MH と MD 間の接続確立のためのやりとりの数や、 MH と MD 間の通信遅延、 MD の準備時間に依存する。遅延が大きい場合は数秒、プロジェクタやプリンタ等の待機状態からの復帰に時間のかかるデバイスの場合、数十秒から数分待たなければならない。

以上の問題に対して、 READY は周期的なデバイス発見、デバイス接続完了後のメディア転送先の切り替え（スムーズハンドオフ）、予約オプションによる先行接続を行う。図 3は、外部デバイス MD1 にビデオ出力をしていたアプリケーションが、新たに発見したデバイス MD2 に出力を切り替える手順を示している。

1. 周期的発見： READY は周期的に (例えば 30 秒) サービス発見プロトコルを駆動し、発見した MD2 の情報をユーザに通知する。バックグラウンドで自動的にデバイス発見を行うことで、デバイス発見に関するユーザの体感待ち時間を削減する。
2. 先行接続 (オプション) ：予約オプションが設定されている場合、 MD2 の発見後、即座に MD2 との接続処理を開始する。ユーザのデバイス切り替え指示後の待ち時間の削減を目的としている。
3. デバイス切り替え指示：ユーザは、 MMM が提供するデバイスの選択・切り替えを制御するためのユーザインタフェースを通して， MD2 へのハンドオフを指示する。
4. スムーズハンドオフ： MD1 と MD2 の両方の接続が確立されている状態で、 READY はメディア出力先を MD1 から MD2 に切り替える。予約オプションが設定されていない場合は、 MD2 との接続処理完了後にハンドオフが実行されるため、ユーザの切り替え指示後に、遅延が発生する可能性がある。先行接続により接続が完了している場合、ユーザのデバイス切り替え指示から即座にハンドオフが実行される。

3.1.2 デバイス障害時

外部デバイスの障害によるサービス中断時間を短くし、サービスの連続性を向上させるには、障害を検出して直ちに代替デバイスへの切り替えを行うことが必要である。 READY は周期的なデバイス障害の監視、代替デバイスの準備により、この問題を解決する。

- 周期的監視: 利用中のデバイスに周期的にステータスを問い合わせる。異常が通知されたり、応答が帰ってこない場合，デバイス障害と判断し、代替デバイスへのハンドオフを実行する。
- 代替デバイス準備：利用中のデバイスのバックアップとして，代替デバイスとの接続を保持するオプションを提供する。利用中のデバイス障害時に代替デバイスとの接続処理が必要ないため、即座にハンドオフが可能になり、サービス中断時間を削減できる。

3.2 ミドルウェア設計

READY をミドルウェアとして設計する理由は、デバイス切り替えをアプリケーションから隠蔽し、アプリケーション開発をシンプルにするためである。デバイス切り替えの度に、アプリケーションがデバイスにアクセスするためのアドレスやインタフェース (API) が変化するのでは、アプリケーションの負担が大きい。例えば， Web カメラと内蔵ビデオキャプチャデバイスのような同種のビデオ入力

http://id.nii.ac.jp/1001/00044036/

126. Accordingly, my description of Ohta as would be understood to a POSITA proceeds herein from the certified English language translation thereof.

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127. Ohta is directed to "*Mobile phones* with *limited input/output capabilities* can provide *high-quality multimedia services* that take advantage of next-generation mobile broadband by *using information-related home electronics to perform media input/output*" (emphasis added, see, for example, Ex. 1004 at p. 1).

128. More specifically, Ohta proposes the use of "*mobile multimedia middleware* (MMM)" known as "*READY*" that provides an "*alternate service finding and reserving* method that *reduces interruptions* and *improves service continuity* in *media transfers* when *switching to a new device*" (emphasis added, see, for example, Ex. 1004 at p. 1).

129. In the "**Introduction**" section, Ohta informs that "even though *mobile phone terminals* ARE moving toward *handling more multimedia*, the *input/output devices such as screens, speakers*, microphones, and cameras built into mobile phones are *limited in terms of size and quality* compared to information-related home electronics and PCs i*n order to ensure portability*" (emphasis added, see, for example, Ex. 1004 at ¶ 2).

130. Accordingly, Ohta recommends the "use of *nearby large-screen televisions or speakers* to *output high-quality content* obtained from a *video/music distribution service via Bluetooth*" in order "to *provide high-quality multimedia over mobile broadband* using mobile phones" (emphasis added, see, for example, Ex. 1004 at ¶ 2).

131. Additionally, in this "**Introduction**" section, Ohta describes "*READY*" as "*mobile multimedia middleware* (MMM)" that "is used to *input and output media* so that *applications can seamlessly provide service without device switching concerns*" (emphasis added, see, for example, Ex. 1004 at ¶ 4).

132. Therefore, in my opinion, a POSITA would understand even before considering the detailed disclosure of Ohta to follow that Ohta is from the same field of endeavor as the '512

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Patent and that Ohta is reasonably pertinent to the problem faced by the '512 Patent (see, for example, ¶¶ 46-50 above regarding the '512 Patent in comparison with the above-summarized introduction to Ohta). Accordingly, Ohta is analogous art to the '512 Patent.

133. In the "**Background**" section, Ohta introduces a "*study model*" that "consists of *three elements*: a *mobile host*, a *multimedia device*, and a *companion host*" in reference to Figure 1 (emphasis added, see, for example, Ex. 1004 at ¶ 6, Figure 1 as reproduced below).

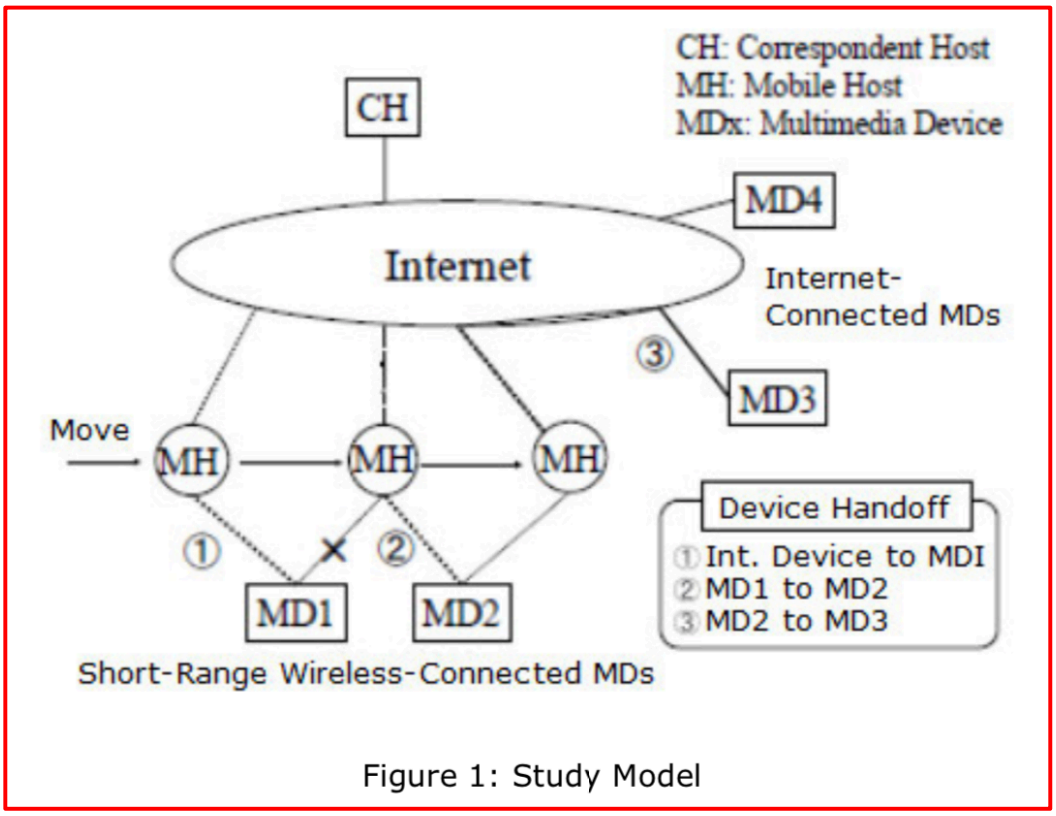


Figure 1: Study Model

134. In reference to Figure 1 shown above, Ohta describes the "*Mobile Host (MH)*" as being "a mobile terminal such as a *mobile phone or PDA* that is equipped with *several wireless interfaces* such as *Bluetooth*, IrDA, *wireless LAN*, and *cellular*, etc., and that *can connect to the Internet*" (emphasis added, see, for example, Ex. 1004 at ¶ 7).

135. Additionally, Ohta describes the "*Multimedia Device (MD)*" as being "*information-related home electronics* such as a camera or *speaker* that is equipped with *media*

input/output and a *network interface*, and that *can be connected to the mobile host* (MH) indirectly via the Internet or *directly via Bluetooth*" wherein such "multimedia devices (MD) also *support service finding and control protocols*" (emphasis added, see, for example, Ex. 1004 at ¶ 8).

136. Also, Ohta describes the "*Companion Host (CH)*" as being "a *host on the Internet* that is *used to realize services* in conjunction with a *mobile host* (MH), such as a remote terminal for video telephony service or a *content distribution server for a music distribution service*" (emphasis added, see, for example, Ex. 1004 at ¶ 9).

137. In further reference to Figure 1 shown above, Ohta teaches that "*Services are provided* by an *application running on a mobile host* (MH) and an *application running on* a *servers on a companion host* (CH) cooperating with each other" including when "services are provided by *switching the media input/output destination of an application in a mobile host* (MH) from an *internal device* to an *external device* and then to *another external device*" (emphasis added, see, for example, Ex. 1004 at ¶ 10).

138. More specifically, Ohta explains that one example of "triggers for *device switching*" is "when a *device more suitable than the current device is found* (device finding)" such that "The *switching is performed when an instruction is received from the user*" (emphasis added, see, for example, Ex. 1004 at ¶ 10).

139. For example, in specific reference to Figure 1 shown above, Ohta teaches that in one example "when the *user gets into a car*, the mobile host (MH) *connects to the Bluetooth car speakers* in the car and changes the music output from the built-in speaker to the car speakers" but "when the *user gets out of the car* and the car speakers become unusable, the *user switches to a portable Bluetooth headset* to continue listening to music" while in another example "the

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mobile host (MH) *accesses the stereo speakers in a living room* via a home wireless LAN and *switches the music output destination from the headset to the stereo speakers*" (emphasis added, see, for example, Ex. 1004 at ¶ 10).

140. Ohta also notes that "it *targets handoffs between mobile terminals and external devices* in a *personal area network* (PAN)" and thus since "*Bluetooth*" has "been *proposed as device (service) finding and access techniques*", then "this research uses these as a *starting point*" (emphasis added, see, for example, Ex. 1004 at ¶ 12).

141. In the "**Mobile Multimedia Middleware**" section, Ohta teaches that "*Continuity*, *adaptability*, and *versatility* are requirements for *devices*, *media*, and *networks*, respectively" but "As this *paper focuses on devices*, we *propose the READY alternate service finding and reserving method to solve continuity*" (emphasis added, see, for example, Ex. 1004 at ¶ 13).

142. For example, Ohta describes for "*Continuity*" that "*Uninterrupted media transfer* is provided *to the user* even *when devices are switched* or a device failure occurs", for "*Adaptability*" that "Content or transfer *media is provided* that is *compatible with device capabilities and communication speeds*", and for "*Versatility*" that "Supporting *different links* used to connect with *devices* and *different handoff mechanisms* for heterogeneous wireless access, such as *switching from Bluetooth to cellular*" (emphasis added, see, for example, Ex. 1004 at ¶ 13).

143. Ohta teaches that "*READY manages connections* to both *current and new devices*" and also "provides a *mechanism for smooth device switching*" and further that "By using the MMM API (*Application Program Interface*) to perform *media input/output processing*, the application can entrust device *switching processing to the MMM*" such that "the *application*

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can run without having to be aware of device changes" (emphasis added, see, for example, Ex. 1004 at ¶ 14).

144. Ohta states that "Figure 2 shows the environment-adaptive *mobile terminal architecture*" wherein "The MMM consists of *three layers*, and *READY corresponds to the device seamless layer*" (emphasis added, see, for example, Ex. 1004 at ¶ 15, Figure 2 as reproduced below).

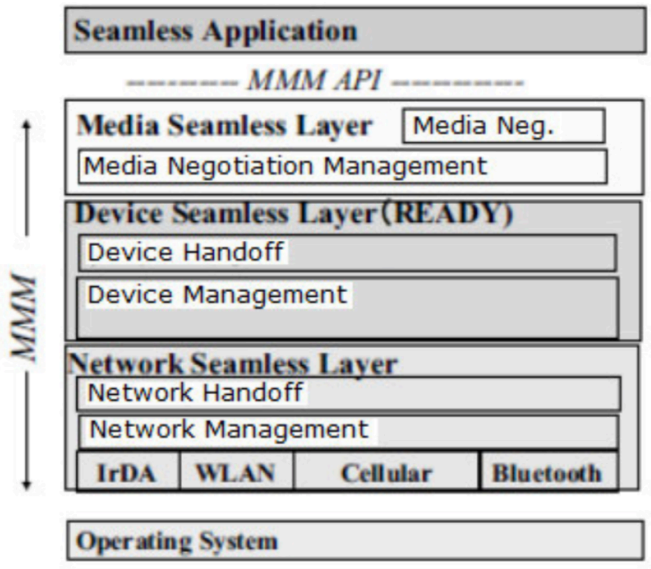


Figure 2: Environment-Adaptive Mobile Terminal Architecture

145. In reference to Figure 2 shown above, Ohta teaches that "The *media seamless layer* resolves *compatibility issues* by negotiating content quality with, for example, a content delivery server and *performing media conversion based on device capabilities*" while "The *network seamless layer* resolves versatility issues by enabling device connection and network *handoff using various wireless interfaces included in mobile terminals*" (emphasis added, see, for example, Ex. 1004 at ¶ 15).

146. Ohta explains that "*Device handoff* has to take into consideration the *external device finding* and *connection process*" because "*If media I/O is switched* to a *device that is not*

ready during the connection process, *media I/O will be interrupted*" and thus "While *connecting with a new device*, it is *necessary to continue using the original device* and to *switch the media transfer destination once the new device is ready*" (emphasis added, see, for example, Ex. 1004 at ¶ 17).

147. Additionally, Ohta observes that "even if the *user gives a device switching instruction*, the *device cannot be used immediately*" due to "*external device finding and connection time*" which "*depends on the number of exchanges* between a mobile host (MH) and a multimedia device (MD) required to *establish a connection*, communication delays between the mobile host (MH) and the multimedia device (MD), and the *multimedia device (MD) preparation time*" such that "If the delay is long, it *may take several seconds*" (emphasis added, see, for example, Ex. 1004 at ¶ 17).

148. Accordingly, Ohta teaches that "*To solve these problems*, *READY* performs a *periodic device search*, *media transfer destination switching* (smooth handoff) after device connection is completed, and *pre-connection with a reservation option*" wherein "Figure 3" shows an example of a "*procedure followed* when an *application* that has been *outputting video to an external device MD1 switches output to a newly found device MD2*" (emphasis added, see, for example, Ex. 1004 at ¶ 18, Figure 3 as reproduced below).

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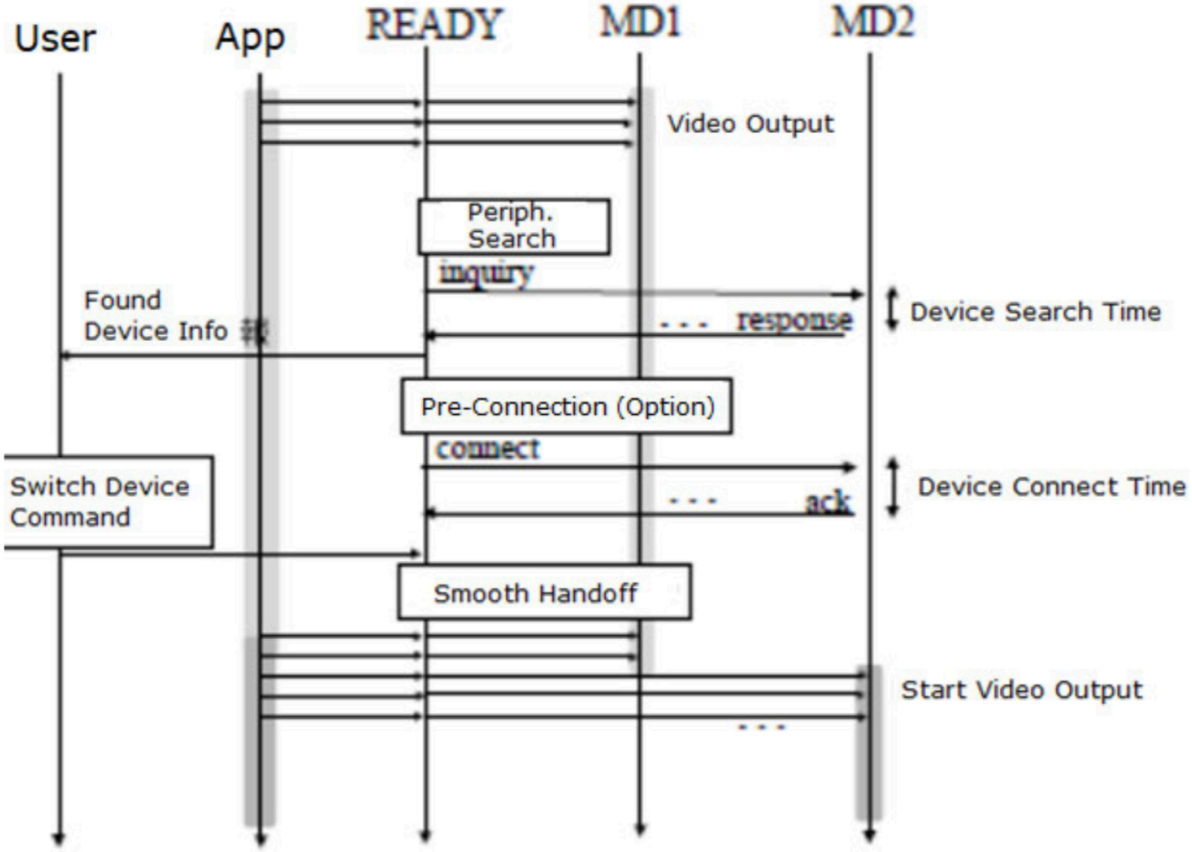


Figure 3: Smooth Device Handoff Procedure

149. In reference to the example of Figure 3 shown above, Ohta describes "*Periodic searching*" as being when "*READY periodically* (for example, every 30 seconds) *activates the service search protocol* and *notifies the user* of *information* on *MD2 which has been found*" wherein such "device search is *performed automatically in the background* to *reduce the user's perceived waiting time* for *discovery of a new device*" (emphasis added, see, for example, Ex. 1004 at ¶ 18).

150. In further reference to the example of Figure 3 shown above, Ohta describes "*Pre-connection*" as being when "the *connection process with MD2* is *started immediately* after MD2 has been *found*" so as "to *reduce the waiting time after the user gives an instruction to switch* devices" (emphasis added, see, for example, Ex. 1004 at ¶ 18).

151. Also, in reference to the example of Figure 3 shown above, Ohta describes the "*Device switching instruction*" (or "*Switch Device Command*") as when "The *user instructs the device to handoff to MD2* *via the user interface* used to *control device selection* and *switching provided by the MMM*" (emphasis added, see, for example, Ex. 1004 at ¶ 18).

152. Finally, in reference to the specific example of Figure 3 shown above, Ohta describes "*Smooth handoff*" as being when "With connections established to both MD1 and MD2, *READY switches the media destination from MD1 to MD2*" such that "handoff is *executed immediately after the user's device switching instruction*" (emphasis added, see, for example, Ex. 1004 at ¶ 18).

153. Ohta also explains that "The reason for designing *READY as middleware* is to *hide device switching from the application* and simplify application development" because "*If the address or interface (API) used by the application* to access a device has to be *changed each time a device is switched*, the *burden* on the application is *significant*" (emphasis added, see, for example, Ex. 1004 at ¶ 20).

154. Consequently, Ohta teaches that "*READY*" is "based on object orientation and *treats devices of the same type*, such as *built-in speakers and headsets*, as *wrapped objects* (real device objects) that *provide a common API*" such that "While *access to real device objects is dynamically created and eliminated* through device discovery and failure, *virtual device objects logically guarantee permanent access*" (emphasis added, see, for example, Ex. 1004 at ¶ 21).

155. More specifically, Ohta explains that "A *real device object* is *bound to a virtual device object in READY*, and the *media input/output* from the *application* is inputted and outputted to a real device object *via a virtual device object*" and thus "By *binding a new real*

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device object to the virtual device, a *device can be switched without the application having to be aware of it*" (emphasis added, see, for example, Ex. 1004 at ¶ 21).

156. In the "**Installation and Evaluation**" section, Ohta describes that "To *evaluate the effectiveness of READY* and the MMM, we *implemented a streaming music playback application* in a MMM prototype and *measured media playback continuity during device switching*" wherein "Figure 4 shows the *implemented streaming music playback application*" while "Fig. 5 shows the *test environment*" (emphasis added, see, for example, Ex. 1004 at ¶¶ 24-25, Figures 4 and 5 as reproduced below).

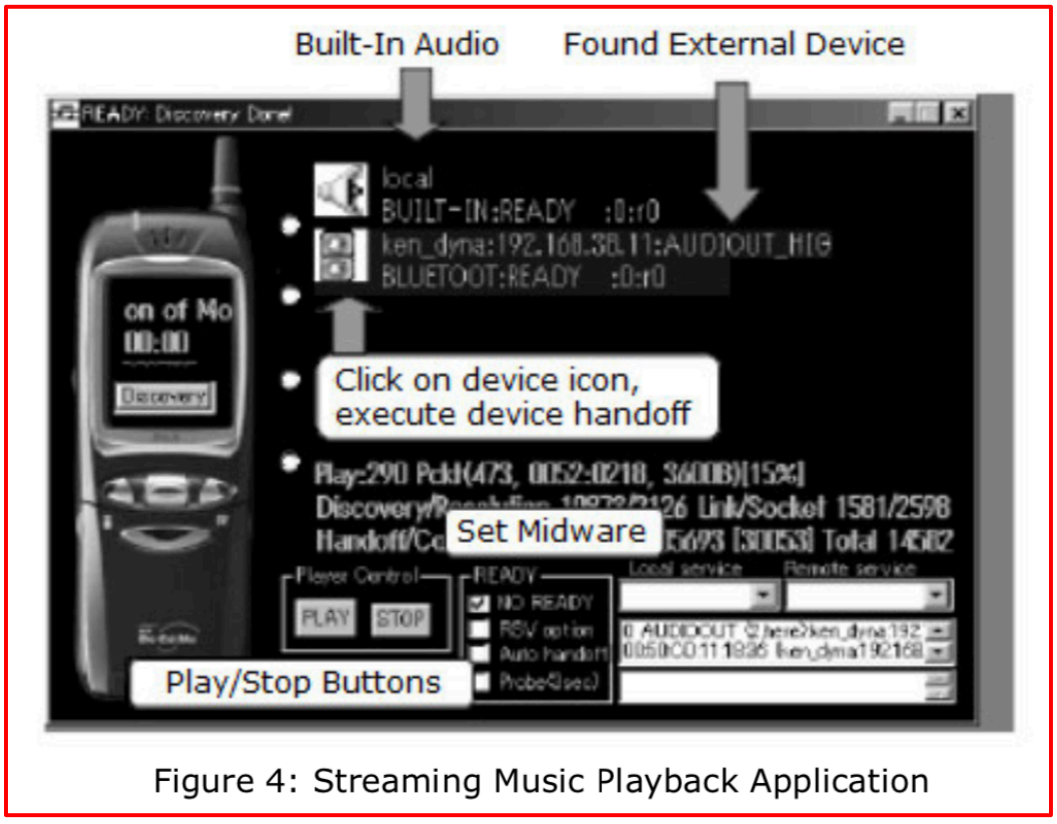


Figure 4: Streaming Music Playback Application

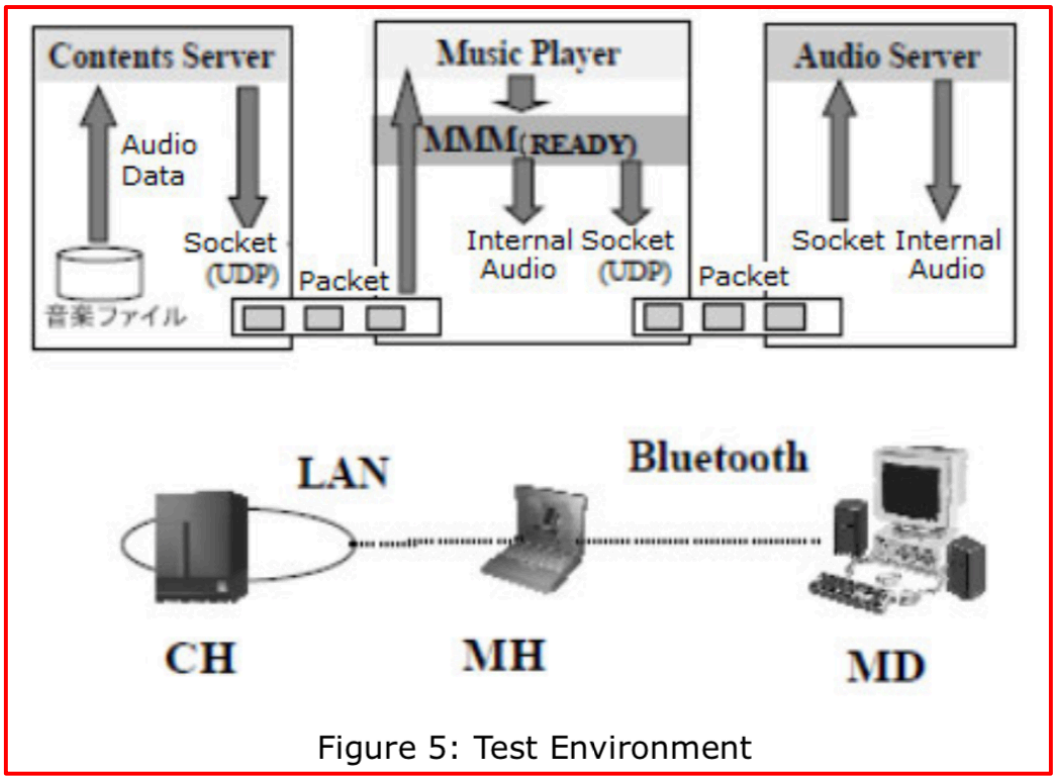


Figure 5: Test Environment

157. In reference to the example of Figure 4 shown above, Ohta describes that "*Icons indicating external devices and built-in devices found by READY* and their *device status* are *displayed on the right side of the screen*" so that "The *user can then switch the music output destination device* (issue a *device handoff instruction*) by *clicking on an icon*" (emphasis added, see, for example, Ex. 1004 at ¶ 24).

158. In reference to the example of Figure 5 shown above, Ohta describes that "*Two PCs equipped with Bluetooth* are arranged within communication range of each other" that include "a *mobile terminal MH* and an *external device MD*" wherein initially "The *streaming music playback application* described above is *executed on MH*, and *when the user presses the play button*, *starts receiving audio* packets from CH and *writes audio data to the virtual device for audio output*" (emphasis added, see, for example, Ex. 1004 at ¶¶ 25-26).

159. More specifically, Ohta describes that subsequently "*After a Bluetooth device search and device name resolution*, the *MH establishes a Bluetooth link to the MD* using a network profile that emulates Ethernet, and *performs a socket connection on that link*" wherein "the *MD Bluetooth* device name includes *information on the socket connection* such as an IP address and port number, and *device quality information* (e.g. "AudioDev1 : 192:168:38:12 : 8017 : *16 bit; 8 KHz; Stereo*")" provided via a "*device response*" so that "A *device connection is established immediately after the device is found*, and the *switch occurs immediately after a device switching instruction is received from the user*" (emphasis added, see, for example, Ex. 1004 at ¶¶ 28-29).

160. For example, in one specific test, Ohta reports that "the *device search process* was *executed* in the *background five seconds after playback starts*, and a *device switching instruction* was *issued after 30 seconds had elapsed*" but "While the *conventional method* had a *playback gap of 0.5 seconds* from the playback positions at 32.3 seconds to 32.8 seconds, *READY ensured continuity without any gaps*" (emphasis added, see, for example, Ex. 1004 at ¶ 30).

161. Finally, Ohta concludes that "we performed *streaming music playback testing* and confirmed that *READY can guarantee media transfer continuity when switching devices*" and thus because "*information-related home electronics* around us are expected in the future to be *connected to the Internet* and to *have wireless communication functions such as Bluetooth*" then "*device handoff mechanisms* such as *READY* will become even *more important*" (emphasis added, see, for example, Ex. 1004 at ¶¶ 34-35).

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B. AVRCP (Ex. 1005)

162. For example, amongst the numerous prior art references in this field, "AUDIO/VIDEO REMOTE CONTROL PROFILE", by Bluetooth Audio Video Working Group ("AVRCP") was published by Bluetooth SIG on May 22, 2003 (see, for example, Ex. 1005 at pp. 1, 5). In my opinion, a POSITA in either May 2003 or at the alleged time of invention for the '512 Patent would have been aware of the Bluetooth standard and its corresponding profiles. As discussed herein, the purpose of Bluetooth profiles like AVRCP is to ensure interoperability between devices using Bluetooth technology, and as such adopted profiles like AVRCP were made widely available on the Bluetooth website and developments in Bluetooth technology were (and still are) followed by interested POSITAs. Also, the Kumar reference, as described herein, for example, was published shortly after the adoption of AVRCP and cites it in its References section, further demonstrating that interested POSITAs followed and were able to access such Bluetooth profiles. Thus, I understand that AVRCP qualifies as prior art to the '512 Patent at least under 35 U.S.C. §§ 102(a) and 102(b).

163. In the "**Introduction**" section, AVRCP informs that "The *Audio/Video Remote Control Profile (AVRCP)* defines the *features and procedures* required in order to *ensure interoperability between Bluetooth devices with audio/video control functions* in the Audio/Video distribution scenarios" wherein "This profile *adopts the AV/C device model and command format for control messages*, and those messages are *transported by the Audio/Video Control Transport Protocol (AVCTP)*" (emphasis added, see, for example, Ex. 1005 at § 1.1).

164. For example, AVRCP describes that even though AVRCP "does *not handle* the *audio/video streaming*" that "In this profile, the *controller translates the detected user action* to the *A/V control signal*, and then *transmits it to a remote Bluetooth device*" wherein such

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"*protocol signals* are *exchanged by initiating procedures* in communicating devices and *by exchanging messages*" (emphasis added, see, for example, Ex. 1005 at §§ 1.1, 1.3.3).

165. Therefore, in my opinion, a POSITA would understand even before considering the detailed disclosure of AVRCP to follow that AVRCP is from the same field of endeavor as the '512 Patent at least because AVRCP addresses "Audio/Video distribution scenarios" involving a "*remote Bluetooth device*" (see, for example, ¶ 50 above) and that AVRCP is reasonably pertinent to the problem faced by the '512 Patent at least because AVRCP addresses "*protocol signals*" that "are *exchanged by initiating procedures* in communicating devices" (see, for example, ¶¶ 61 and 85 above).

166. In the "**Profile Overview**" section, AVRCP describes in reference to Figure 2.1 that "The *Baseband, LMP, and L2CAP* are the *OSI layer 1 and 2 Bluetooth protocols*", "*AVCTP defines the procedures and messages* to be exchanged for *controlling A/V devices*", "*SDP* is the *Bluetooth Service Discovery Protocol*" and "*AV control*", which is specified by AVRCP in this profile, "is the entity *responsible for A/V device control signaling*" (emphasis added, see, for example, Ex. 1005 at § 2.1, Figure 2.1 as reproduced below).

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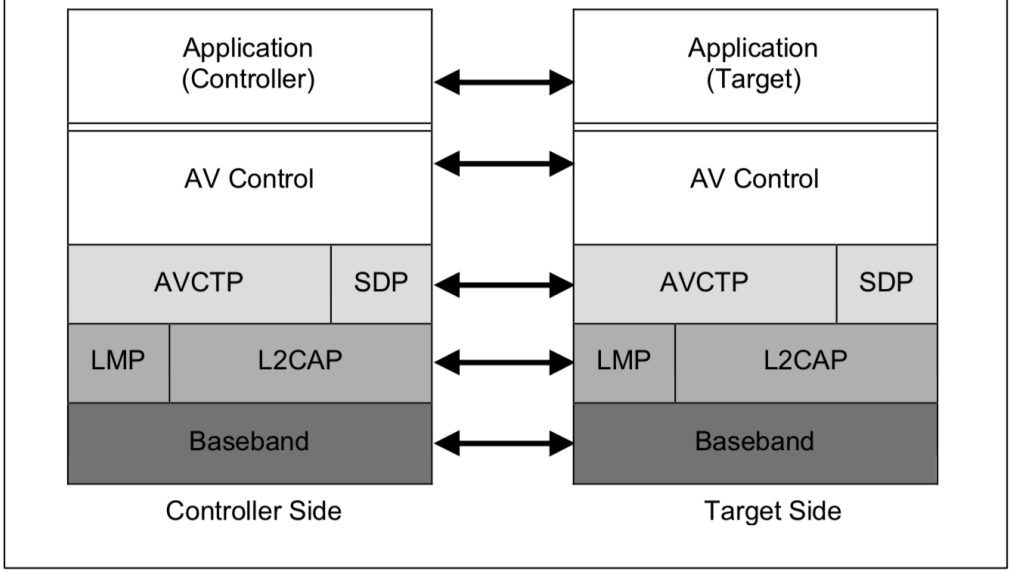


Figure 2.1: Protocol Model

167. For example, AVRCP describes "for devices that comply with this profile" that "The *controller (CT)* is a device that *initiates a transaction by sending a command frame to a target*" wherein "*Examples for CT*" include "a *personal computer*, a *PDA*, a *mobile phone*" while "The *target (TG)* is a device that *receives a command frame* and accordingly *generates a response frame*" wherein "*Examples for TG*" include "an *audio player*/recorder, a video player/recorder, a TV, a tuner, an *amplifier* or a *headphone*" (emphasis added, see, for example, Ex. 1005 at § 2.2).

168. AVRCP also explains that "The *usage model* of AVRCP is specific in a way that *user action manipulates the control*" and "A *user can learn the status information* of a device *using display* on the body such as LED or LCD, as well as OSD (On Screen Display) method" (emphasis added, see, for example, Ex. 1005 at § 2.3.1).

169. AVRCP further explains that "in most cases, an *A/V distribution profile co-exists* in a device" (emphasis added, see, for example, Ex. 1005 at § 2.3.2).

170. For example, AVRCP informs that "A *controller may support several targets*, and the detail of control such as *target selection is not defined in AVRCP*" (emphasis added, see, for example, Ex. 1005 at § 2.3.2.1).

171. Additionally, AVRCP informs that "The *user action is required in most cases* in AVRCP" and thus "*Applications shall* be designed *based on this characteristic*" (emphasis added, see, for example, Ex. 1005 at § 2.3.2.4).

172. AVRCP also requires that "A *link shall be established before commands can be initiated or received*" (emphasis added, see, for example, Ex. 1005 at § 2.4).

173. In the "**Application Layer**" section, AVRCP recites that "*Support in CT*" for "*Sending PASS THROUGH command*" is "M" (or "mandatory") while "*Support in TG*" for "*Receiving PASS THROUGH command*" is "M" (or "mandatory") (emphasis added, see, for example, Ex. 1005 at § 3.1).

174. In the "**Control Interoperability Requirements**" section, AVRCP informs that "An L2CAP *connection establishment* for AVCTP *may be initiated by the CT*" such that "An *internal event* or an *event generated by a user*, such as turning the power on, *initiates the connection establishment*" as shown in Figure 4.1 (emphasis added, see, for example, Ex. 1005 at § 4.1.1, Figure 4.1 as reproduced below).

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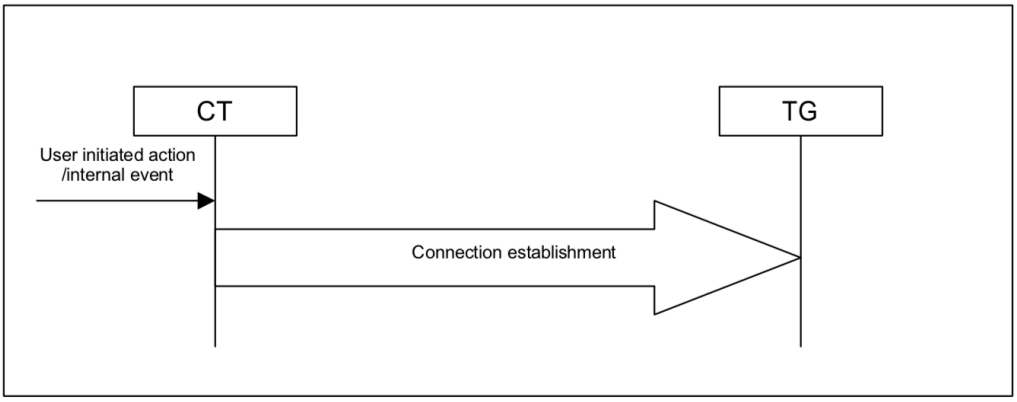


Figure 4.1: Connection Establishment Initiated by CT

175. AVRCP further informs that "Once the *connection is established*, it is *able to send a AV/C command*" as shown in Figure 4.4 (emphasis added, see, for example, Ex. 1005 at § 4.1.3, Figure 4.4 as reproduced below).

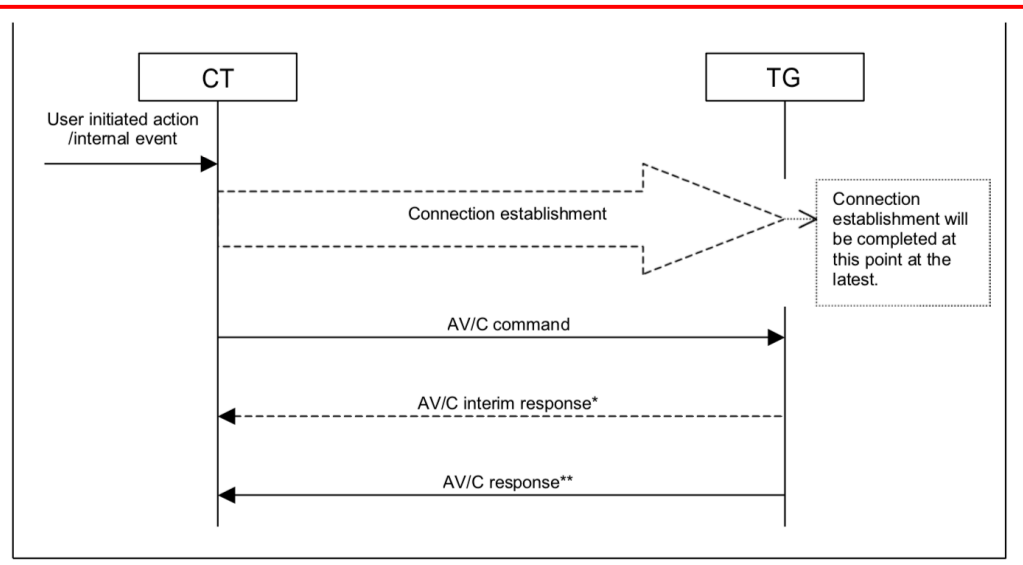


Figure 4.4: Procedure of AV/C Command

176. AVRCP also provides a "list of possible AV/C commands to be exchanged in this profile" as shown in Table 4.1 (emphasis added, see, for example, Ex. 1005 at § 4.1.3, Table 4.1 as reproduced below).

	Possible AV/C Command
1.	UNIT INFO command
2.	SUBUNIT INFO command
3.	VENDOR DEPENDENT command
4.	PASS THROUGH command

Table 4.1: List of Possible AV/C Commands

177. More specifically, AVRCP describes that "The *main feature of this profile* is the *remote control* performed by the *PASS THROUGH command*" whereby "A *controller conveys a user operation* to a *TG* by the PASS THROUGH command" when "The *user manipulates the user interface on the display or operates a button*, and then the *controller sends commands*" (emphasis added, see, for example, Ex. 1005 at § 4.1.4).

178. In one example, AVRCP describes the "*frame structure*" for the "*PASS THROUGH command*" as "a *command sent* when a *"PLAY" button* on a CT is *pushed by a user*" according to Figure 18.5 (emphasis added, see, for example, Ex. 1005 at § 18.3, Figure 18.5 as reproduced below).

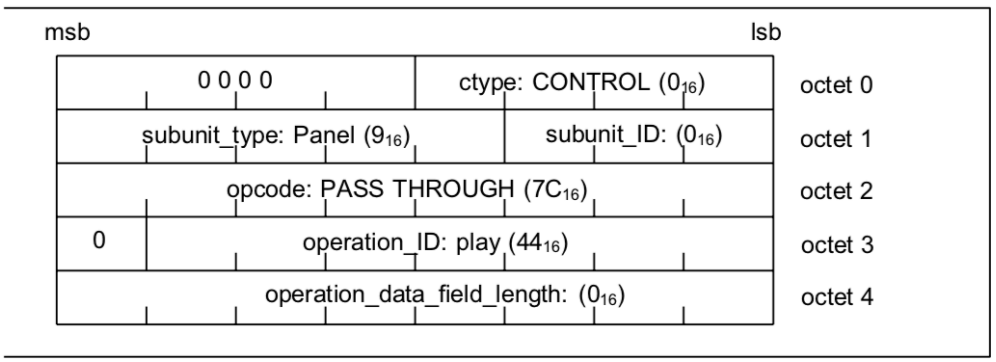


Figure 18.5: PASS THROUGH Command Frame

179. In reference to Figure 18.5 shown above, AVRCP describes that "A *CT sends a command frame* with its *state_flag* field in *value 0 when a button is pushed*, and in *value 1 when the button is released*" (emphasis added, see, for example, Ex. 1005 at § 18.3).

180. AVRCP also provides a list of "*commands*" as "*defined* by the *operation_ids* in the *PASS THROUGH command*" in, for example, Table 4.6 (emphasis added, see, for example, Ex. 1005 at § 4.7.5, excerpt of Table 4.6 as reproduced below).

operation_id
select
up
down
left
right
right-up
right-down
left-up
left-down
root menu
setup menu
contents menu
favorite menu
exit
0
1
2
3
4
5
6
7
8
9
dot
enter
clear
channel up
channel down
previous channel
sound select
input select
display information
help
page up
page down
power
volume up
volume down
mute
play
stop
pause
record
rewind
fast forward

181. Accordingly, in addition to the "*play*" command noted above, other AVRCP "*commands*" as "*defined* by the *operation_ids* in the *PASS THROUGH command*" include at

least "*mute*", "*pause*", "*stop*" and "*power*" (emphasis added, see, for example, Ex. 1005 at § 4.7.5).

182. In the "**L2CAP Interoperability Requirements**" section, AVRCP recites certain "*mandatory requirements* with regard to this profile" as shown in the table below (emphasis added, see, for example, Ex. 1005 at § 6, including table as reproduced below).

	Procedure	Support in CT/TG
1.	Channel types	
	Connection-oriented channel	M
	Connectionless channel	X1
2.	Signalling	
	Connection establishment	M
	Configuration	M
	Connection Termination	M
	Echo	M
	Command Rejection	M
3.	Configuration Parameter Options	
	Maximum Transmission Unit	M
	Flush Timeout	M
	Quality of Service	O

X1: Connectionless channel is not used within the execution of this profile, but concurrent use by other profiles/applications is not excluded.

183. Accordingly, in reference to the table above, AVRCP requires that "In this profile, *only connection-oriented channels shall be used*" and that for "*Signalling*" that "*Only the CT may issue* an L2CAP *Connection Request* within the execution of this profile" (emphasis added, see, for example, Ex. 1005 at §§ 6.1, 6.2).

C. Kumar (Ex. 1006)

184. For example, amongst the numerous prior art references in this field, *Bluetooth Application Programming with the Java APIs*, by Kumar, C., Kline, P., and Thompson, T. ("Kumar") was published by Morgan Kaufmann Publishers on September 17, 2003 (see, for example, Ex. 1008 at ¶ 52). Thus, I understand that Kumar qualifies as prior art to the '512 Patent at least under 35 U.S.C. §§ 102(a) and 102(b).

185. Kumar discloses that "*Bluetooth wireless technology* is an *open specification* for a low-cost, low-power, short-range *radio technology*" that is "*publicly available* and *royalty free*" (emphasis added, see, for example, Ex. 1006 at § 1.2).

186. Kumar describes that "Bluetooth wireless technology was originally developed as a *cable replacement technology for connecting* devices such as *mobile phone handsets, headsets, and portable computers with each other*" wherein an example of a "*usage model*" is when "a *user* who is *talking on a cell phone* approaches his or her automobile but wants to *continue the phone conversation in the hands-free mode*" by "using the *microphone and speakers equipped in the dashboard of the automobile*" (emphasis added, see, for example, Ex. 1006 at § 1.2.2).

187. Kumar explains that the "*Bluetooth specification* defines the *over-the-air behavior* to ensure *compatibility of Bluetooth devices* from different vendors" based upon the "Bluetooth *protocol stack*" and the "Bluetooth *profiles*" that "describe *how applications are to use the Bluetooth stack*" (emphasis added, see, for example, Ex. 1006 at § 1.2.3).

188. For example, Kumar explains that "The Bluetooth protocol stack can be broadly divided into two components: the *Bluetooth host* and the *Bluetooth controller* (or Bluetooth radio module)" wherein a "*Host Controller Interface* (HCI) provides a standardized interface between

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the Bluetooth host and the Bluetooth controller" (emphasis added, see, for example, Ex. 1006 at § 1.3, Figure 1.3 as reproduced below).

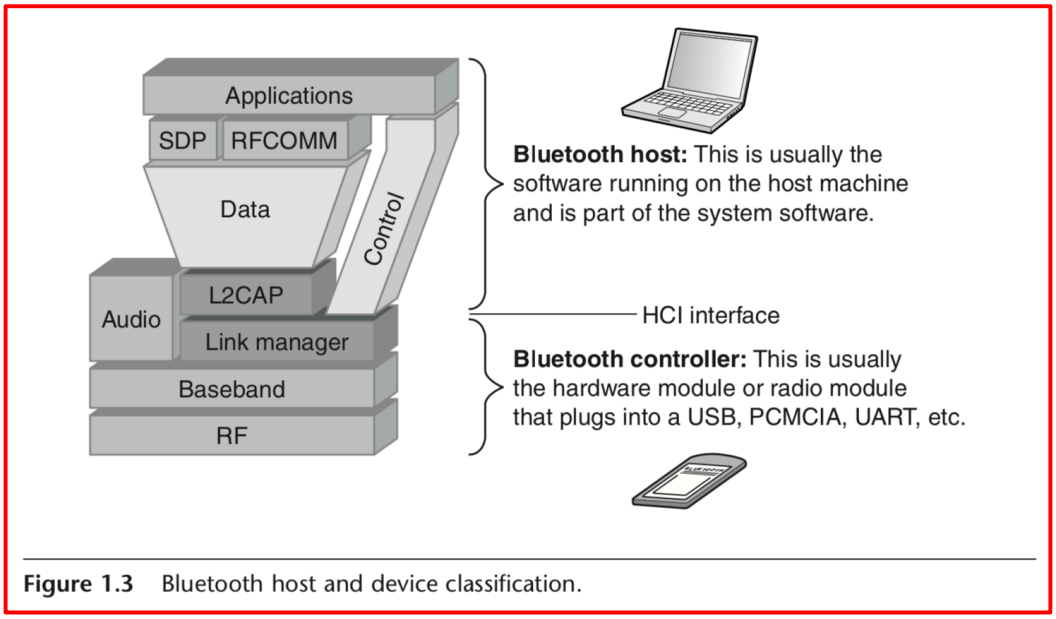


Figure 1.3 Bluetooth host and device classification.

189. More specifically, Kumar describes that the "*Bluetooth host* is also known as the *upper-layer stack* and usually is *implemented in software*" such that when "a *laptop computer or a phone* would be the *host device*" then this "Bluetooth host would be *integrated with the operating system* on the laptop or the phone" (emphasis added, see, for example, Ex. 1006 at § 1.3).

190. Additionally, Kumar describes in reference to the "Bluetooth *protocol stack*" that the "*Service Discovery Protocol* (SDP)" is "*built on top of L2CAP*" as "a means for *applications to query services* and characteristics of services" (emphasis added, see, for example, Ex. 1006 at § 1.3.1).

191. Similarly, Kumar describes that the "*RFCOMM protocol* provides emulation of serial ports over L2CAP" or thus "*transport capabilities for upper-level services* that use a serial interface as a transport mechanism" and further that other "*protocols*" are also "*built on top of*

L2CAP" including "*Audio/Video Control Transport Protocol*" and "*Audio/Video Distribution Transport Protocol*" (emphasis added, see, for example, Ex. 1006 at § 1.3.1).

192. For example, Kumar explains that "*L2CAP* stands for *logical link control and adaptation protocol*" wherein "L2CAP is a *multiplexing layer* that allows several *higher-level protocols or applications* to use Bluetooth communications" such that "*All Bluetooth data communications use L2CAP*" (emphasis added, see, for example, Ex. 1006 at § 8.1).

193. More specifically, Kumar describes that "L2CAP *establishes L2CAP channels* that *connect these higher-level entities to their counterparts* on the remote device" using, for example, "*connection-oriented channels*" that "support L2CAP *packet transmission in both directions*" wherein "the L2CAP packets transmitted are *intended for use only by the single device at the other end*" (emphasis added, see, for example, Ex. 1006 at § 8.1.1).

194. For example, Kumar explains that "*Bluetooth profiles* are *built on top of the protocols*" and "are generally *in software* and run on the host device hardware" wherein a "Bluetooth profile defines *standard ways of using selected protocols and protocol features* that enable a *particular usage model*" or thus "defines *how different parts of the Bluetooth specification can be used* for a particular use case" (emphasis added, see, for example, Ex. 1006 at §§ 1.3, 1.3.2).

195. More specifically, Kumar describes that "the *Generic Access Profile* (GAP)" is "the *basis of all other profiles*" and "defines the generic *procedures* related to *establishing connections* between two devices, including the *discovery of Bluetooth devices*, *link management* and *configuration*" (emphasis added, see, for example, Ex. 1006 at § 1.3.2).

196. Similarly, Kumar describes that "the *Service Discovery Application Profile* (SDAP)" "defines the protocols and procedures to be *used by applications to locate services in other Bluetooth-enabled devices*" (emphasis added, see, for example, Ex. 1006 at § 1.3.2).

197. Additionally, Kumar describes that "Bluetooth *profiles are hierarchical*" such that "basic profiles", including "*GAP, SDAP*", are "known as *transport profiles*, *upon which* other profiles, known as *application profiles*, *can be built*" wherein "Figure 1.5 shows the relationships among the various Bluetooth profiles" and "More *details on these profiles* can be obtained from www.bluetooth.com" (emphasis added, see, for example, Ex. 1006 at § 1.3.2, Figure 1.5 as reproduced below).

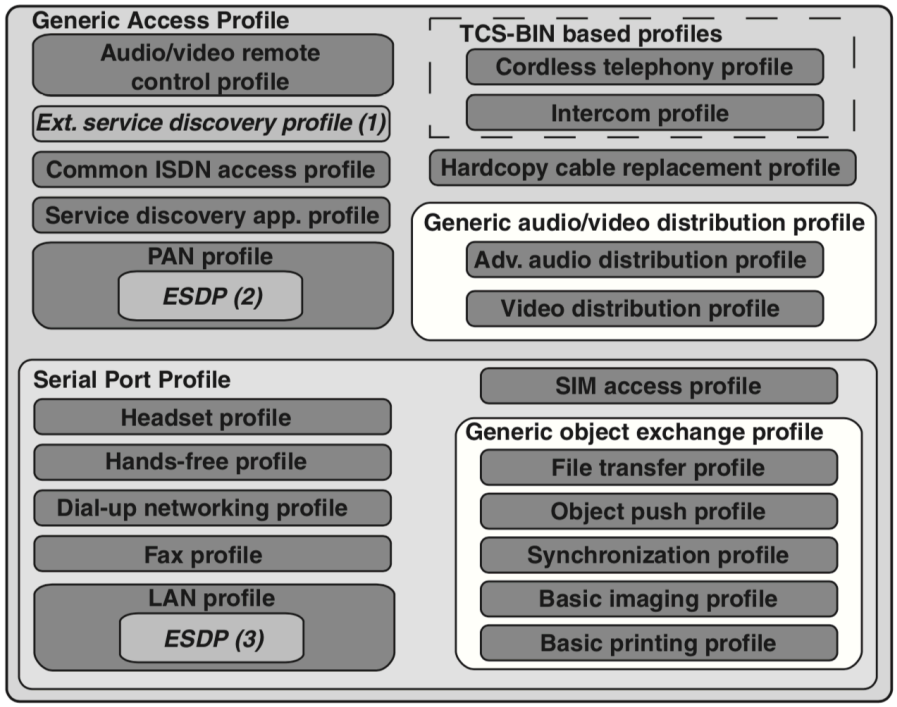


Figure 1.5 Bluetooth profile hierarchy.

198. For example, Kumar explains that "A number of *Bluetooth protocols* are *defined on top of the L2CAP protocol*" wherein "The first column of Table 8.1 lists the *current Bluetooth protocols* that are *layered on top of L2CAP*" while "The second column of Table 8.1 lists the

current Bluetooth profiles that *use the protocol listed* in the first column" (emphasis added, see, for example, Ex. 1006 at § 8.1.2, Table 8.1 as reproduced below).

Table 8.1 Protocols and Profiles above Line Are Candidates for L2CAP API

Protocols That Use L2CAP Directly	Profiles Using the Protocol
Telephony Control Protocol Specification (TCS-BIN) [1]	Cordless Telephony Profile [3]
	Intercom Profile [3]
Bluetooth Network Encapsulation Protocol (BNEP) [6]	Personal Area Networks [36]
	Extended Service Discovery Profile [37]
Hardcopy Control Channel [7]	Hardcopy Cable Replacement Profile [7]
Hardcopy Notification Channel [7]	Hardcopy Cable Replacement Profile
Audio/Video Control Transport Protocol [8]	Audio/Video Remote Control Profile [38]
Audio/Video Distribution Transport Protocol [9]	Generic Audio/Video Distribution Profile [39]
	Advanced Audio Distribution Profile [40]
RFCOMM [1]	Serial Port Profile [3]
	Dial-up Networking Profile [3]
	FAX Profile [3]
	Headset Profile [3]
	Hands-Free Profile [41]
Service Discovery Protocol [1]	Service Discovery Application Profile [3]

199. More specifically, Kumar discloses that the "*Audio/Video Remote Control Profile* [38]" that uses the "Audio/Video Control Transport Protocol" as shown in Table 8.1 above is given by reference "38. *Bluetooth SIG*, Audio/Video Remote Control Profile, *Revision 1.0*, *2003*", which is the AVRCP prior art reference described herein (emphasis added, see, for example, Ex. 1006 at § 8.1.2, p. 492, ¶ 162 above).

200. For example, Kumar explains that "The Bluetooth specification *separates discovery of devices and discovery of services* into separate processes" such that "In the *device discovery process*, the local Bluetooth device *finds the other Bluetooth devices* in the area" while "In the *service discovery process*, the Bluetooth device *determines which services the other devices have* running on them" (emphasis added, see, for example, Ex. 1006 at § 6.1).

201. More specifically, Kumar describes that "*device discovery* is known as an *inquiry*" to which "the other *devices in the area respond* to the inquiry requests" with "their *Bluetooth address* and *class of device record*" wherein "The Bluetooth address is a *6-byte unique identifier* assigned to every Bluetooth device" and "The class of device record describes the *type of Bluetooth device* and provides a *general indication of the types of services available* on the device" (emphasis added, see, for example, Ex. 1006 at § 6.1).

202. Additionally, Kumar describes that "If a *service is defined by a Bluetooth profile*, then the *profile specification describes* the requirements for the *service record*" such that during the "*service discovery process*" then "If a *remote device has a service with the attributes specified*, the *remote device returns the service record* describing the service" including its "multiple attributes" (emphasis added, see, for example, Ex. 1006 at §§ 7.1, 7.1.2).

203. In particular, Kumar describes that the "*service record*" includes as an "*attribute*" the "*BluetoothProfileDescriptorList*", which "*Specifies all the profiles this service implements*" (emphasis added, see, for example, Ex. 1006 at § 7.2.3).

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VIII. OBVIOUSNESS OF THE '512 PATENT UNDER 35 U.S.C. § 103 DUE TO OHTA AND/OR AVRCP

204. In my opinion, Ohta renders obvious at least Claim 1 of the '512 Patent for at least the reasons described herein.

205. In my opinion, Ohta in view of AVRCP renders obvious at least Claim 1 of the '512 Patent for at least the reasons described herein.

206. Ohta is analogous art to the '512 Patent (see ¶ 132 above). Similarly, AVRCP is also analogous art to the '512 Patent (see ¶ 165 above).

207. A general overview of Ohta is given at ¶¶ 124-161 above.

208. A general overview of AVRCP is given at ¶¶ 162-183 above.

209. In my opinion, a POSITA at the alleged time of invention for the '512 Patent would have been highly motivated to combine Ohta and AVRCP for at least the following reasons.

210. First, each of Ohta and AVRCP addresses the same field of art for audio/video media distribution to external devices using the Bluetooth protocol (see, for example, ¶¶ 130, 135, 139, 159, 161, 163-164 and 167 above).

211. Second, each of Ohta and AVRCP are directed to solving similar but complementary deployment challenges for the same basic system architecture of Bluetooth connections to external devices from a mobile phone.

212. For example, Ohta discloses that "*Mobile phones* with *limited input/output capabilities* can provide *high-quality multimedia services* that take advantage of next-generation mobile broadband by *using information-related home electronics to perform media input/output*" such as the "use of *nearby large-screen televisions or speakers* to *output high-quality content*

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obtained from a *video/music distribution service via Bluetooth*" (see, for example, ¶¶ 127 and 130 above).

213. Additionally, in one example, Ohta describes that "when the *user gets into a car*, the mobile host (MH) *connects to the Bluetooth car speakers* in the car and changes the music output from the built-in speaker to the car speakers" but "when the *user gets out of the car* and the car speakers become unusable, the *user switches to a portable Bluetooth headset* to continue listening to music" (see, for example, ¶ 139 above).

214. More specifically, Ohta teaches that for an example "*mobile terminal*" and "*external device*" combination "*equipped with Bluetooth*" that the "*streaming music playback application*" "*writes audio data to the virtual device for audio output*" only "*when the user presses the play button*" (see, for example, ¶ 158 above).

215. For example, AVRCP discloses that "The *Audio/Video Remote Control Profile (AVRCP)* defines the *features and procedures* required in order to *ensure interoperability between Bluetooth devices with audio/video control functions*" thereby supporting when a "*controller*" (or "CT" such as "a *personal computer*, a *PDA*, a *mobile phone*") "*translates the detected user action* to the *A/V control signal*, and then *transmits it to a remote Bluetooth device*" (or "TG" such as "an *amplifier* or a *headphone*") (see, for example, ¶ 163-167 above).

216. More specifically, AVRCP teaches that "The *main feature of this profile* is the *remote control* performed by the *PASS THROUGH command*" such that when "The *user manipulates the user interface on the display or operates a button*, and then the *controller sends commands*" which "*conveys a user operation* to a *TG*" as in the example of "a *command sent* when a *"PLAY" button* on a CT is *pushed by a user*" (see, for example, ¶¶ 177-178 above).

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217. Accordingly, in my opinion, a POSITA would have been highly motivated to combine Ohta and AVRCP at least because Ohta describes a system where the "***user switches***" to an "***external device***" for "***video/music distribution service via Bluetooth***" that relies upon "***when the user presses the play button***" while AVRCP describes "***features and procedures required in order to ensure interoperability between Bluetooth devices with audio/video control functions***" including the specific case wherein the "***user manipulates the user interface on the display or operates a button***" such that a "***command***" is "***sent***" to a "***remote Bluetooth device***" "***when a "PLAY" button***" on a "***mobile phone***" is "***pushed by a user***", thereby providing exactly the signaling capability needed for the system of Ohta to operate as described.

218. Third, Ohta and AVRCP together propose compatible solutions for these deployment challenges that would lead to predictable and successful results if combined.

219. For example, Ohta proposes the use of "*mobile multimedia middleware* (MMM)" known as "*READY*" that provides an "*alternate service finding and reserving* method that *reduces interruptions* and *improves service continuity* in *media transfers* when *switching to a new device*" and that "is used to *input and output media* so that *applications can seamlessly provide service without device switching concerns*" (see, for example, ¶¶ 128 and 131 above).

220. More specifically, Ohta teaches for "*READY*" that "By using the MMM API (*Application Program Interface*) to perform *media input/output processing*, the application can entrust device *switching processing to the MMM*" such that "the *application can run without having to be aware* of device changes" wherein such "***READY***" "***middleware***" resides within a protocol stack of the "***Mobile Host***" underneath a "***Seamless Application***" as depicted in Figure 2 of Ohta (see, for example, ¶¶ 143-144 above).

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221. For example, AVRCP discloses that "*AV control*" is also a "***middleware***" that resides within a protocol stack of the "***mobile phone***" underneath an "***Application***" as depicted in Figure 2.1 of AVRCP (see, for example, ¶ 166 above).

222. Accordingly, in my opinion, a POSITA would have had a high degree of confidence that combining the teaching of "***AV control***" "***protocol signals***" as described in AVRCP with the "***READY***" "***middleware***" of Ohta would have produced predictable and successful results at least because the protocol stack architectures were completely compatible with each other as both are specified to support applications for "***video/music distribution service via Bluetooth***".

223. Fourth, additional prior art also would have highly motivated a POSITA to combine Ohta and AVRCP.

224. For example, Kumar teaches that "*Bluetooth profiles* are *built on top of the protocols*" and "are generally *in software* and run on the host device hardware" wherein a "Bluetooth profile defines *standard ways of using selected protocols and protocol features* that enable a *particular usage model*" or thus "defines *how different parts of the Bluetooth specification can be used* for a particular use case" (see, for example, ¶ 194 above).

225. More specifically, Kumar notes that the "*Audio/Video Remote Control Profile* [38]" uses the "Audio/Video Control Transport Protocol" wherein this reference "38. *Bluetooth SIG*, Audio/Video Remote Control Profile, *Revision 1.0*, *2003*" is the AVRCP prior art reference described herein (see, for example, ¶ 199 above).

226. Additionally, Kumar teaches that during the "*service discovery process*" that "If a *remote device has a service with the attributes specified*, the *remote device returns the service record* describing the service" including the "*BluetoothProfileDescriptorList*", which "*Specifies*

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all the profiles this service implements", thereby further confirming for a POSITA that the Bluetooth-based "*service discovery process*" of Ohta would be compatible with using "the *remote control* performed by the *PASS THROUGH command*" of AVRCP for a combination with Ohta where the "***user switches***" to an "***external device***" for "***video/music distribution service via Bluetooth***" as described herein (see, for example, ¶¶ 135, 166 and 202-203 above).

227. Accordingly, in my opinion, a POSITA would have been highly motivated to combine Ohta and AVRCP at least because the prior art specifically teaches the predictability of this combination to address market forces such as seamless Bluetooth-based, user-directed device switching to external devices that provides "***service continuity in media transfers when switching to a new device***" (see, for example, ¶ 128 above).

228. In my opinion, a POSITA at the alleged time of invention for the '512 Patent would have combined Ohta and AVRCP to create middleware for a mobile host device that was based upon at least the READY protocol to perform seamless Bluetooth-based, user-directed device switching to external devices as disclosed in Ohta combined with at least the specific AV Control protocol details as disclosed in AVRCP for conveying audio/video control functions to such external devices when the user manipulates the user interface on the display or operates a button of such mobile host device after discovery of such external devices and their supported profiles such as AVRCP using Bluetooth SDP and after establishing connections with L2CAP.

229. My specific analyses of Ohta and the knowledge of a POSITA and of Ohta in view of AVRCP and the knowledge of a POSITA with respect to every claim element of Claim 1 of the '512 Patent is given herein.

230. Note that for purposes of my analysis herein that I have provided subsection headings for claim elements in the form "1(a)", "1(b)", etc. for the convenience of the reader even though such headings do not exist in the actual '512 Patent claims themselves.

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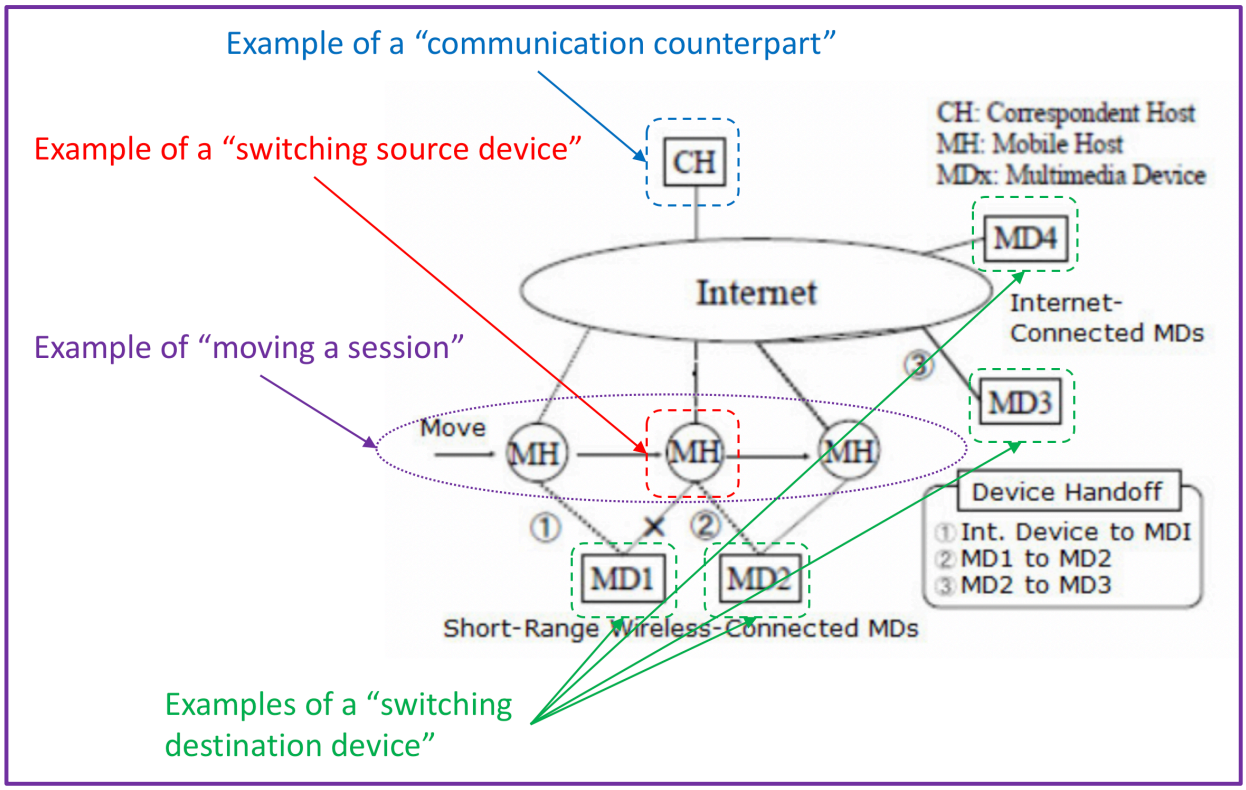
‘512 Patent: Claim 1

> 1. A switching source device for moving a session established with a communication counterpart to a switching destination device, comprising:
>
> a service discovery section for obtaining information as to whether a service can be provided from a neighboring communication device;
>
> a high speed device switching section for instructing the service discovery section at an arbitrary timing to inquire whether a service can be provided, determining a switching destination candidate device that is a switching destination of a session based on the obtained information as to whether the service can be provided, generating a switching destination candidate device list describing the switching destination candidate devices, and making an instruction for establishing a session with the switching destination candidate device;
>
> a signaling section for establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section and;
>
> an input section for receiving a switching destination candidate device list request from a user; and
>
> an output section for presenting the switching destination candidate device list when the high speed device switching section receives the switching destination candidate device list request through the input section;
>
> wherein when the high speed device switching section receives a device switching request from a user through the input section, it notifies the signaling section of the device selected from the switching candidate device list, and the signaling section sends a switching instruction to the selected device.

1. A switching source device for moving a session established with a communication counterpart to a switching destination device, comprising:

231. I have considered that this preamble claim element may be limiting.

232. Ohta describes a system that “consists of *three elements*: a *mobile host*, a *multimedia device*, and a *companion host*” in reference to Figure 1 (see, for example, ¶ 133 above, annotated Figure 1 shown below).



233. In reference to Figure 1 shown above, Ohta describes the "*Mobile Host (MH)*" as being "a mobile terminal such as a *mobile phone or PDA* that is equipped with *several wireless interfaces* such as *Bluetooth*, IrDA, *wireless LAN*, and *cellular*, etc., and that *can connect to the Internet*" (see, for example, ¶ 134 above).

234. Additionally, Ohta describes the "*Multimedia Device (MD)*" as being "*information-related home electronics* such as a camera or *speaker* that is equipped with *media input/output* and a *network interface*, and that *can be connected to the mobile host* (MH) indirectly via the Internet or *directly via Bluetooth*" wherein such "multimedia devices (MD) also *support service finding and control protocols*" (see, for example, ¶ 135 above).

235. Also, Ohta describes the "*Companion Host (CH)*" as being "a *host on the Internet* that is *used to realize services* in conjunction with a *mobile host* (MH), such as a remote terminal

for video telephony service or a *content distribution server for a music distribution service*" (see, for example, ¶ 136 above).

236. Accordingly, a POSITA would understand that the "***Mobile Host (MH)***" of Ohta such as a "***mobile phone or PDA***" is an example of a "**switching source device**", that each "***Multimedia Device (MD)***" of Ohta such as a "***speaker***" that is "***connected … directly via Bluetooth***" is an example of a "**switching destination device**", and that the "***Companion Host (CH)***" of Ohta such as a "***content distribution server for a music distribution service***" is an example of a "**communication counterpart**".

237. In further reference to Figure 1 shown above, Ohta teaches that "*Services are provided* by an *application running on a mobile host* (MH) and an *application running on* a *servers on a companion host* (CH) cooperating with each other" including when "services are provided by *switching the media input/output destination of an application in a mobile host* (MH) from an *internal device* to an *external device* and then to *another external device*" (see, for example, ¶ 137 above).

238. For example, in specific reference to Figure 1 shown above, Ohta teaches that in one example "when the *user gets into a car*, the mobile host (MH) *connects to the Bluetooth car speakers* in the car and changes the music output from the built-in speaker to the car speakers" but "when the *user gets out of the car* and the car speakers become unusable, the *user switches to a portable Bluetooth headset* to continue listening to music" while in another example "the mobile host (MH) *accesses the stereo speakers in a living room* via a home wireless LAN and *switches the music output destination from the headset to the stereo speakers*" (see, for example, ¶ 139 above).

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239. Accordingly, a POSITA would understand that the "***Services***" that "***are provided***" from "***an application running on a mobile host (MH) and an application running on a servers on a companion host (CH)***" are an example of a "**session established with a communication counterpart**" and further that when such "***services are provided by switching the media input/output destination of an application in a mobile host (MH) from an internal device to an external device and then to another external device***" such as corresponding with "***into a car***", then "***out of the car***", and then "***in a living room***" that this is an example of "**moving**" such a "**session**".

240. Thus, Ohta discloses a "**switching source device**" (for example, the "***Mobile Host (MH)***" depicted in annotated Figure 1 of Ohta such as a "***mobile phone or PDA***") "**for moving a session established with a communication counterpart**" (for example, when the "***Mobile Host (MH)***" is shown to "***Move***" as depicted in annotated Figure 1 of Ohta while the "***Services***" that "***are provided***" from "***an application running on a mobile host (MH) and an application running on a servers on a companion host (CH)***" also "***Move***" from "***an internal device to an external device and then to another external device***" while still "***provided***" from the same "***companion host (CH)***") "**to a switching destination device**" (for example, any "***Multimedia Device (MD)***" depicted in annotated Figure 1 of Ohta such as a "***speaker***" that is "***connected … directly via Bluetooth***" which may include "***Bluetooth car speakers***", a "***portable Bluetooth headset***" and/or "***stereo speakers in a living room***").

241. Therefore, in my opinion, Ohta discloses the limitations of this claim element, if any.

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242. Additionally, I note that the '512 Patent admits that the limitations of this claim element, if any, were known in the art in view of at least Ohta at the alleged time of invention (see, for example, ¶¶ 51-53, 58 and 71 above).

243. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA also renders obvious the limitations of this claim element, if any.

244. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

245. At least because Ohta discloses and/or renders obvious the limitations of this claim element, if any, then Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element, if any.

1(a) a service discovery section for obtaining information as to whether a service can be provided from a neighboring communication device;

246. I note that the '512 Patent discloses "*SDP and SLP (Service Location Protocol) of Bluetooth*" as an example of a "*service discovery protocol* used by *service discovery section*" (see, for example, ¶ 61 above).

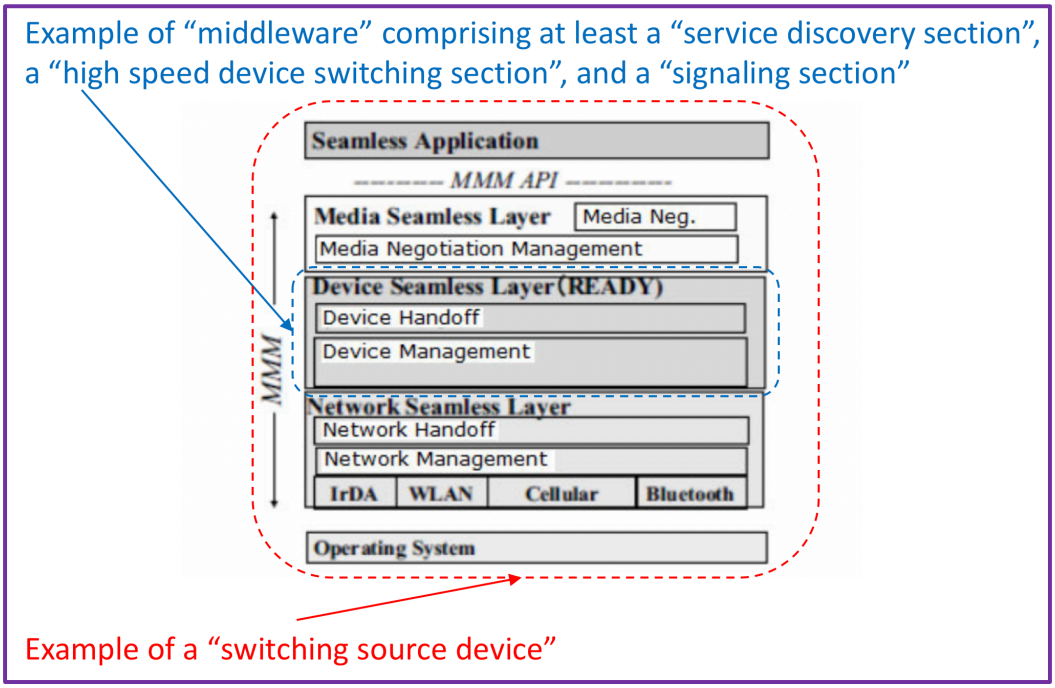
247. I also note that the '512 Patent describes Ohta as comprising a "*service discovery section*" for "*discovering a service provided by an external switching destination device*" (see, for example, ¶¶ 54-55 and 58 above).

248. See my analysis of Ohta for the preamble claim element at ¶¶ 232-241 above, which also applies to this claim element.

249. Ohta proposes the use of "*mobile multimedia middleware* (MMM)" known as "*READY*" that provides an "*alternate service finding and reserving* method that *reduces interruptions* and *improves service continuity* in *media transfers* when *switching to a new device*" (see, for example, ¶ 128 above).

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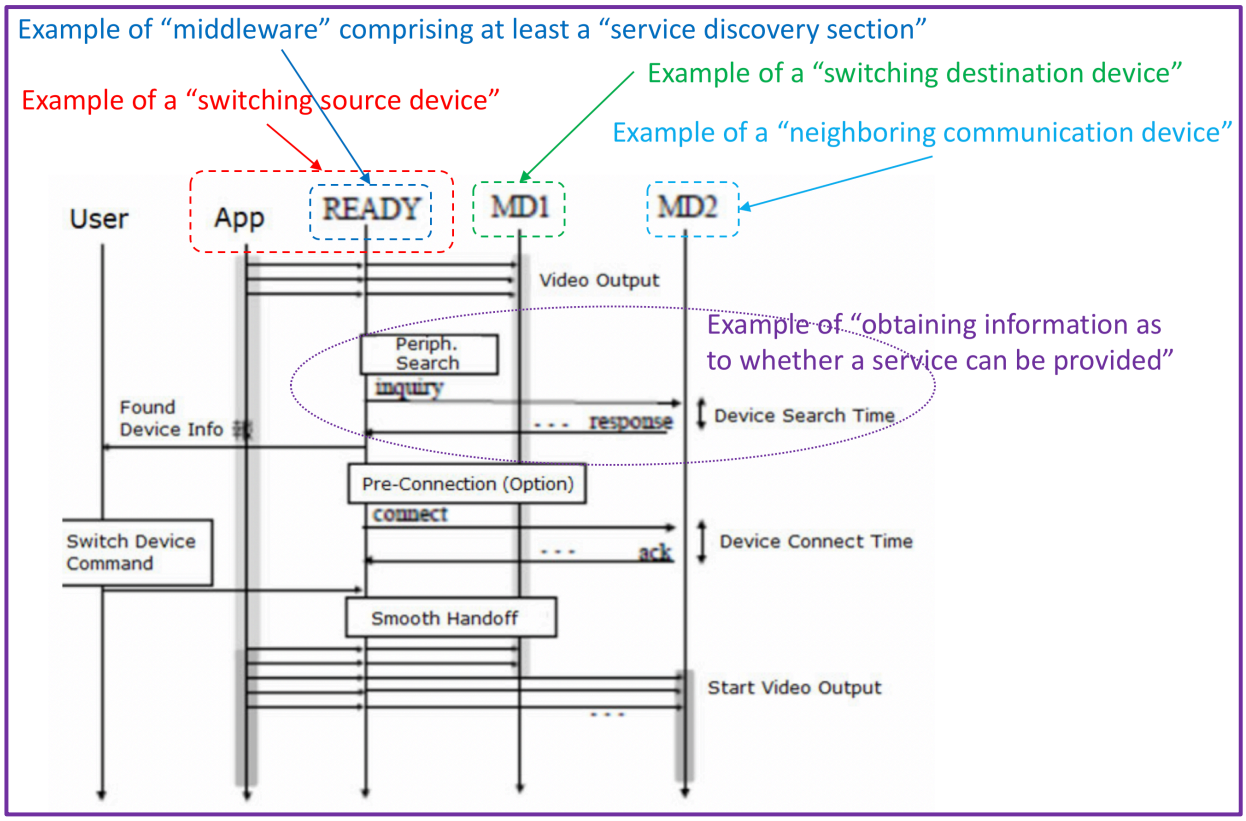
250. Ohta describes that "The MMM consists of *three layers*, and *READY corresponds to the device seamless layer*" (see, for example, ¶ 144 above, annotated Figure 2 shown below).



251. More specifically, Ohta discloses that at least because "it *targets handoffs between mobile terminals and external devices* in a *personal area network* (PAN)" that "*Bluetooth*" has "been *proposed as device (service) finding and access techniques*" (see, for example, ¶ 140 above).

252. Ohta explains that "*Device handoff* has to take into consideration the *external device finding* and *connection process*" because "*If media I/O is switched* to a *device that is not ready* during the connection process, *media I/O will be interrupted*" (see, for example, ¶ 146 above).

253. Ohta teaches that "READY performs a *periodic device search*" using the "*procedure followed*" in "Figure 3" wherein, for example, "*READY periodically* (for example, every 30 seconds) *activates the service search protocol*", which provides "*information* on *MD2 which has been found*" (see, for example, ¶¶ 148-149 above, annotated Figure 3 shown below).



254. Ohta further describes for a specific example that "*After a Bluetooth device search and device name resolution*" that "the *MD Bluetooth* device name includes *information on the socket connection* such as an IP address and port number, and *device quality information* (e.g. "AudioDev1 : 192:168:38:12 : 8017 : *16 bit; 8 KHz; Stereo*")" (see, for example, ¶ 159 above).

255. Thus, Ohta discloses a "**service discovery section**" (for example, the section(s) of the "***mobile multimedia middleware (MMM)***" known as "***READY***" as depicted in annotated Figures 2 and 3 of Ohta that support "***device (service) finding***" using "***Bluetooth***") "**for obtaining information as to whether a service can be provided**" (for example, when such "***device (service) finding***" using "***Bluetooth***" sends an "***inquiry***" that returns a "***response***" providing "***device quality information***" such as "***16 bit; 8 KHz; Stereo***" for an "***AudioDev***" as depicted for "***MD2***" in annotated Figure 3 of Ohta) "**from a neighboring communication**

device" (for example, "***external devices in a personal area network (PAN)***" such as "***MD1***" and "***MD2***" as depicted in annotated Figure 3 of Ohta).

256. Therefore, in my opinion, Ohta discloses the limitations of this claim element.

257. Additionally, I note that the '512 Patent admits that the limitations of this claim element were known in the art in view of at least Ohta at the alleged time of invention (see, for example, ¶¶ 51-53, 58-62, 71-72, 76 and 78-79 above).

258. For example, the '512 Patent admits that a "*service discovery section*" in Ohta "*periodically sends service discovery request* (**M1**) to devices **1** to **N** in PAN" and "*receives service discovery response* (**M2**) from the *switching destination device*" using a "*service discovery protocol*" such as "*SDP*" in "*Bluetooth*" using substantially similar "*steps*" as shown in FIG. 23, FIG. 24 and FIG. 25 for Ohta as described by the '512 Patent and in FIG. 2, FIG. 3, and FIG. 4 for the "**First Exemplary Embodiment**" as described by the '512 Patent (see, for example, ¶¶ 59-62 and 78-79 above).

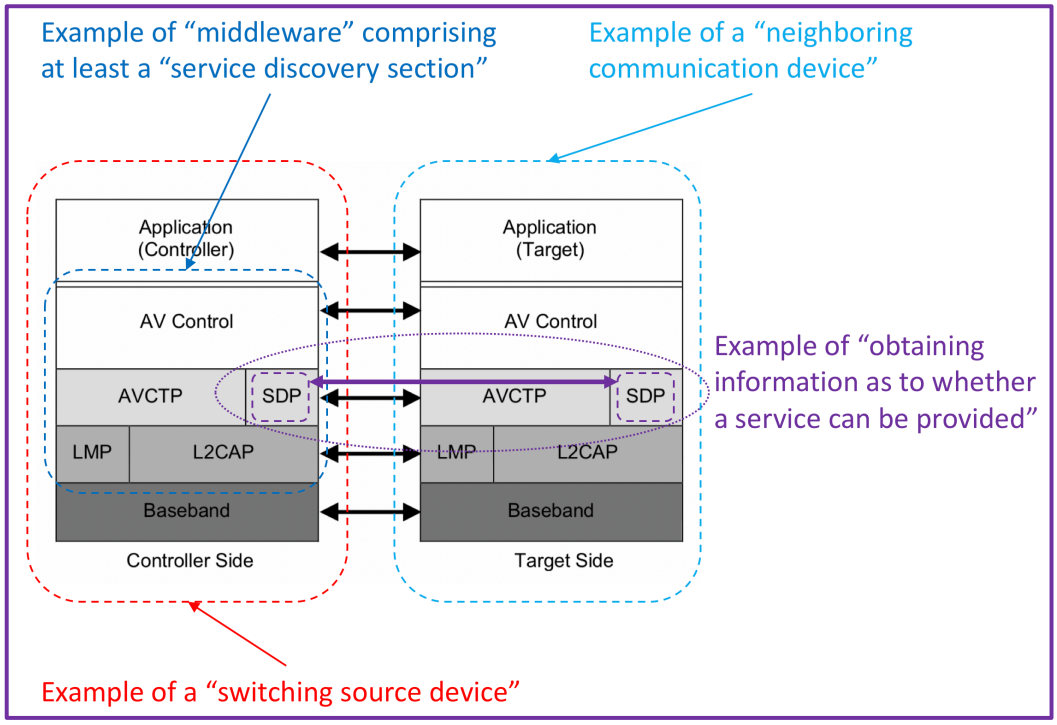
259. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA also renders obvious the limitations of this claim element.

260. AVRCP informs that "The *Audio/Video Remote Control Profile (AVRCP)* defines the *features and procedures* required in order to *ensure interoperability between Bluetooth devices with audio/video control functions* in the Audio/Video distribution scenarios" (see, for example, ¶ 163 above).

261. AVRCP describes in reference to Figure 2.1 that "The *Baseband, LMP, and L2CAP* are the *OSI layer 1 and 2 Bluetooth protocols*", "*AVCTP defines the procedures and messages* to be exchanged for *controlling A/V devices*", "*SDP* is the *Bluetooth Service Discovery Protocol*" and "*AV control*", which is specified by AVRCP in this profile, "is the entity

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responsible for A/V device control signaling" (see, for example, ¶ 166 above, annotated Figure 2.1 shown below).



262. Additionally, the knowledge of a POSITA would include that the "Bluetooth *protocol stack*" uses the "*Service Discovery Protocol* (SDP)" that is "*built on top of L2CAP*" as "a means for *applications to query services* and characteristics of services" such that "In the *service discovery process*, the Bluetooth device *determines which services the other devices have* running on them" (see, for example, ¶¶ 190 and 200 above).

263. More specifically, such knowledge of a POSITA regarding the Bluetooth "*Service Discovery Protocol* (SDP)" would include that "If a *remote device has a service with the attributes specified*, the *remote device returns the service record* describing the service" wherein such "*service record*" includes as an "*attribute*" the "*BluetoothProfileDescriptorList*", which "*Specifies all the profiles this service implements*", and wherein the "*Audio/Video Remote*

Control Profile (AVRCP)" specifically was a known Bluetooth "*profile*" at the alleged time of invention (see, for example, ¶¶ 197-199 and 202-203 above).

264. Thus, AVRCP in view of the knowledge of a POSITA discloses a "**service discovery section**" (for example, the section(s) within the middleware of the "***Controller***" denoted as "***Bluetooth Service Discovery Protocol***" or "***SDP***" as depicted in annotated Figure 2.1 of AVRCP) "**for obtaining information as to whether a service can be provided**" (for example, receiving service records specifying all supported profiles including AVRCP) "**from a neighboring communication device**" (for example, a "***Target***" as depicted in annotated Figure 2.1 of AVRCP).

265. Therefore, in my opinion, AVRCP in view of the knowledge of a POSITA also renders obvious the limitations of this claim element.

266. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

267. I note that when Ohta and AVRCP are combined to create middleware for a mobile host device that such mobile host device would perform discovery of external devices and their supported profiles such as AVRCP specifically using Bluetooth SDP (see, for example, ¶ 228 above).

268. Therefore, in my opinion, Ohta in view of AVRCP and the knowledge of a POSITA renders obvious the limitations of this claim element.

269. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that this claim element may be construed as a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6, wherein the recited function would be "**obtaining information as to whether a service can be provided from a neighboring communication device**" and the proposed structure in the

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specification of the '512 Patent for performing such function as a "**service discovery section**" that the "**switching source device compris[es]**" would be described by step "**S302**" in FIG. 3 as well as the applicable text in 13:16-31 of the '512 Patent (see, for example, ¶¶ 58-62 and 78-80 above).

270. Under the alternative claim construction of ¶ 269 above, I note that Ohta discloses and/or renders obvious the recited function of "**obtaining information as to whether a service can be provided from a neighboring communication device**" as I have described herein (see, for example, ¶¶ 246-259 above).

271. Ohta also discloses structure for a "**service discovery section**" that the "**switching source device compris[es]**" by at least the descriptions of Figures 2 and 3 of Ohta as I have annotated herein (see, for example, ¶¶ 250-254 above).

272. Under the alternative claim construction of ¶ 269 above, I believe a POSITA would understand the "way" that the proposed structure in the specification of the '512 Patent would be deemed to perform the function of "**obtaining information as to whether a service can be provided from a neighboring communication device**" is by "*middleware*" that operates between the "*application*" and the "*operating system*" to implement at least a "*service discovery protocol*" such as "*SDP*" in "*Bluetooth*", thereby leading to the "result" of one or more "*service discovery response(s)*" from "*devices **1** to **N** in PAN*" being received at such "*middleware*" (see, for example, ¶¶ 58-62 and 78-80 above).

273. Similarly, one exemplary "way" that the structure for a "**service discovery section**" that the "**switching source device compris[es]**" in Ohta performs the function of "**obtaining information as to whether a service can be provided from a neighboring communication device**" is by "***middleware***" that operates between the "***Seamless Application***"

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and the "***Operating System***" to perform at least "***discovery of a new device***" using a "***Bluetooth device search***", thereby leading to the "result" of one or more "***device response(s)***" comprising "***device quality information***" from "***external devices in a personal area network (PAN)***" being received at such "***middleware***" (see, for example, ¶¶ 140, 144, 149 and 159 above).

274. In my opinion, a POSITA would understand that the "way" such "***middleware***" operates between the "***Seamless Application***" and the "***Operating System***" to perform at least "***discovery of a new device***" using a "***Bluetooth device search***" in Ohta is substantially similar to the "way" the "*middleware*" operates between the "*application*" and the "*operating system*" to implement at least a "*service discovery protocol*" such as "*SDP*" in "*Bluetooth*" in the '512 Patent, and that such "result" of receiving one or more "***device response(s)***" comprising "***device quality information***" from "***external devices in a personal area network (PAN)***" at such "***middleware***" in Ohta is substantially similar to the "result" of receiving one or more "*service discovery response(s)*" from "*devices **1** to **N** in PAN*" at the "*middleware*" in the '512 Patent, or thus that the structure in Ohta for performing the function of "**obtaining information as to whether a service can be provided from a neighboring communication device**" is at least equivalent to the proposed structure in the specification of the '512 Patent under the alternative claim construction of ¶ 269 above.

275. I also note that the '512 Patent describes Ohta as comprising a "**service discovery section**" that the "**switching source device compris[es]**" that is structurally identical to that of preferred embodiments of the '512 Patent (see, for example, ¶ 76 above).

276. Therefore, in my opinion, Ohta discloses and/or renders obvious the limitations of this claim element under the alternative claim construction of ¶ 269 above.

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277. Additionally, I note that per my analysis herein that AVRCP discloses at least "***middleware***" that implements the "***Bluetooth Service Discovery Protocol***" or "***SDP***", thereby further informing a POSITA that the structure in Ohta for performing the function of "**obtaining information as to whether a service can be provided from a neighboring communication device**" when combined as noted herein to implement at least the AV Control signaling of AVRCP would similarly include a "way" and a "result" that are each substantially similar to those of the proposed structure in the specification of the '512 Patent under the alternative claim construction of ¶ 269 above.

278. Therefore, in my opinion, Ohta in view of AVRCP and the knowledge of a POSITA renders obvious the limitations of this claim element under the alternative claim construction of ¶ 269 above.

1(b) a high speed device switching section for instructing the service discovery section at an arbitrary timing to inquire whether a service can be provided,

279. I note that the '512 Patent describes a "**high speed device switching section**" as corresponding to "*high speed middleware*" (see, for example, ¶ 74 above).

280. I also note that the '512 Patent discloses both "*periodically*" such as "*intervals of 10 minutes*" and "*right after a session is established*" as examples of "**arbitrary timing**" with respect to a "*service discovery request (M1)*" (see, for example, ¶ 80 above).

281. I further note that the '512 Patent describes structurally that "*high speed device switching section* **101** *corresponds to a conventional high speed middleware*" wherein such "*conventional high speed middleware*" is a reference to the "*Mobile Multimedia Middleware*" of Ohta (see, for example, ¶¶ 58 and 74 above).

282. See my analysis of Ohta for claim element 1(a) at ¶¶ 246-256 above, which also applies to this claim element.

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283. Ohta describes "*READY*" as "*mobile multimedia middleware* (MMM)" that in one example "*periodically* (for example, every 30 seconds) *activates the service search protocol*" while in another example "*execute[s]*" the "*device search process*" in the "*background five seconds after playback starts*" wherein for both examples such "*search* is *performed automatically in the background* to *reduce the user's perceived waiting time* for *discovery of a new device*" (see, for example, ¶¶ 131, 149 and 160 above).

284. Ohta also describes that the "use of *nearby large-screen televisions or speakers* to *output high-quality content* obtained from a *video/music distribution service via Bluetooth*" in order "to *provide high-quality multimedia over mobile broadband* using mobile phones" is accomplished using "*READY*" to "*input and output media* so that *applications can seamlessly provide service without device switching concerns*" (see, for example, ¶¶ 130-131 above).

285. Also, as I noted in my analysis of claim element 1(a), Ohta specifically illustrates that "***READY***" issues an "***inquiry***" message via "***Bluetooth***" for such "***device (service) finding***" (see, for example, ¶¶ 251 and 253 above).

286. Accordingly, a POSITA would understand that the "***service***" that can be "***provided***" from such "***external devices in a personal area network (PAN)***" (or thus "**whether a service can be provided**") is determined when "***READY***" (or thus a "**high speed device switching section**") issues an "***inquiry***" message via "***Bluetooth***" for such "***device (service) finding***" (or thus performs "**instructing the service discovery section … to inquire**") either "***periodically***" or at "***five seconds after playback starts***" (or thus examples of "**at an arbitrary timing**").

287. Thus, Ohta discloses a "**high speed device switching section**" (for example, the section(s) of the "***mobile multimedia middleware (MMM)***" known as "***READY***" as depicted in

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annotated Figures 2 and 3 of Ohta) "**for instructing the service discovery section at an arbitrary timing to inquire**" (for example, when issuing an "***inquiry***" message via "***Bluetooth***" for "***device (service) finding***" as depicted in annotated Figure 3 of Ohta) "**whether a service can be provided**" (for example, to determine what "***service***" that can be "***provided***" from "***external devices in a personal area network (PAN)***" such as "***MD1***" and "***MD2***" as depicted in annotated Figure 3 of Ohta).

288. Therefore, in my opinion, Ohta discloses the limitations of this claim element.

289. Additionally, I note that the '512 Patent admits that the limitations of this claim element were known in the art in view of at least Ohta at the alleged time of invention (see, for example, ¶¶ 51-53, 58-60, 71-72, 74 and 78-80 above).

290. For example, the '512 Patent specifically admits that at the "*switching source device*" of Ohta that "When a *session* with CN **1302** is *continued* ("YES" in step **S1801**), in order to carry out *service discovery with respect to surrounding device group* **1304**, the *high speed middleware periodically sends service discovery request* (**M1**) to devices **1** to **N** in PAN **1305** at one time *through service discovery section* **1411** (step **S1802**)" (see, for example, ¶ 60 above).

291. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA also renders obvious the limitations of this claim element.

292. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

293. At least because Ohta discloses and/or renders obvious the limitations of this claim element, then Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element.

294. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that this claim element may be construed as

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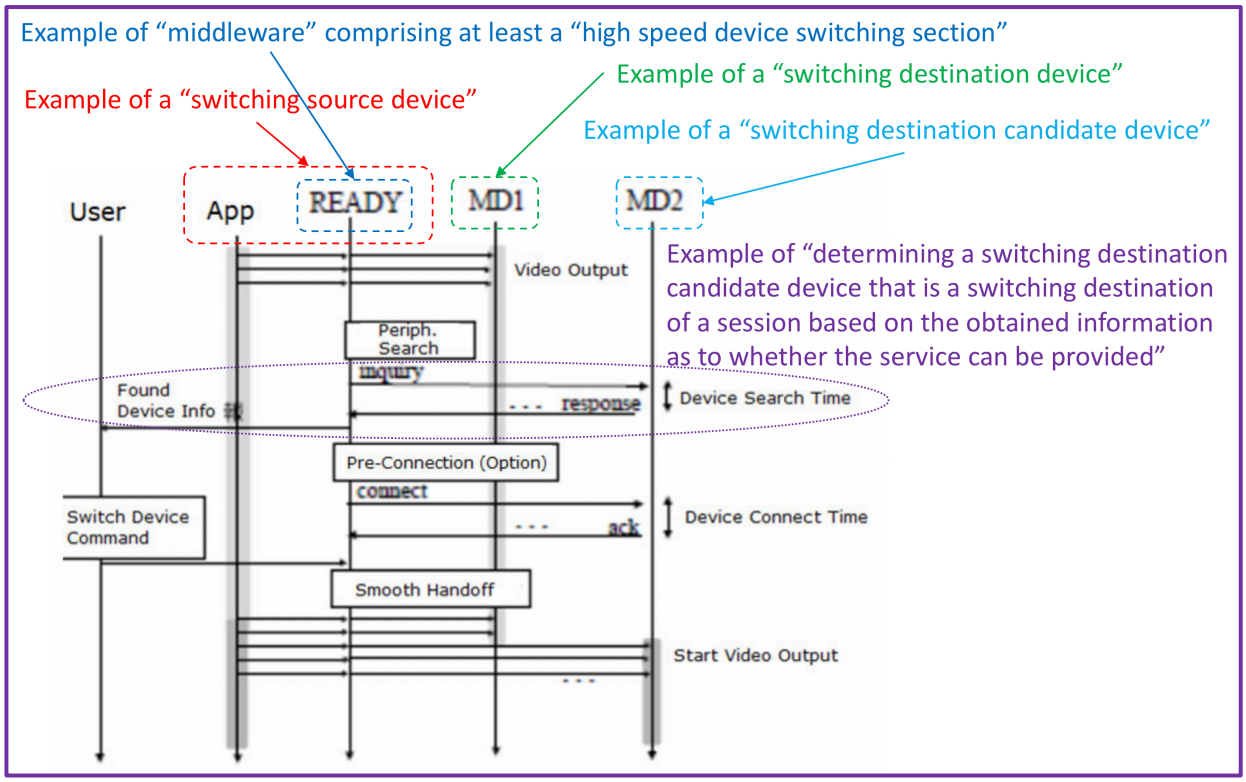
a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6. However, I defer this analysis to claim element 1(i) below where I consider the function recited for this claim element as well as the functions recited for other claim elements in aggregate for the "**high speed device switching section**".

1(c) a high speed device switching section for … determining a switching destination candidate device that is a switching destination of a session based on the obtained information as to whether the service can be provided,

295. See my analysis of Ohta for claim element 1(b) at ¶¶ 279-288 above, which also applies to this claim element.

296. Ohta discloses "Figure 3" as an example of a "*procedure followed* when an *application* that has been *outputting video to an external device MD1 switches output to a newly found device MD2*" after "*READY* … *activates the service search protocol*" to determine "*information* on *MD2 which has been found*" such as the "*Found Device Info*" shown in Figure 3 given the additional disclosure of Ohta that "the *connection process with MD2* is *started immediately* after MD2 has been *found*" (see, for example, ¶¶ 148-150 above, annotated Figure 3 shown below).

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297. Accordingly, a POSITA would understand that the entire "***procedure***" shown in Figure 3 above is an exemplary disclosure of a "**session**" in Ohta. Additionally, a POSITA would understand that when "***READY***" (or thus a "**high speed device switching section**") issues an "***inquiry***" message to "***MD2***" and then "***the connection process with MD2 is started immediately after MD2 has been found***" in view of the "***response***" message received from "***MD2***" that included information on the "***service***" that can be "***provided***", that this portion of the disclosed "***procedure***" indicates that "***READY***" has determined that "***MD2***" was an "***external device***" for which "***switching the media input/output destination of an application in a mobile host (MH) from an internal device to an external device and then to another external device***" is possible (or thus "**determining a switching destination candidate device that is a switching destination of a session based on the obtained information as to whether the service can be provided**").

298. Thus, Ohta discloses a "**high speed device switching section**" (for example, the section(s) of the "***mobile multimedia middleware (MMM)***" known as "***READY***" as depicted in annotated Figures 2 and 3 of Ohta) for "**determining a switching destination candidate device that is a switching destination of a session**" (for example, when "***switching the media input/output destination of an application in a mobile host (MH) from an internal device to an external device and then to another external device***" such that "***the connection process with MD2 is started immediately after MD2 has been found***" as depicted in annotated Figure 3 of Ohta) "**based on the obtained information as to whether the service can be provided**" (for example, based upon the "***service***" that can be "***provided***" per the "***response***" message received from "***MD2***" as depicted in annotated Figure 3 of Ohta).

299. Therefore, in my opinion, Ohta discloses the limitations of this claim element.

300. Additionally, I note that the '512 Patent admits that the limitations of this claim element were known in the art in view of at least Ohta at the alleged time of invention (see, for example, ¶¶ 51-53, 58-62, 71-72, 74 and 78-80 above).

301. For example, the '512 Patent specifically admits that at the "*switching source device*" of Ohta that "*Service discovery section* **1411** *receives service discovery response* (**M2**) from the *switching destination device* and *notifies the high speed middleware* of it (step **S1802**)" such that "*Based on the notification*, the *high speed middleware generates a switching destination candidate device list* of devices *capable of providing a service* (step **S1803**)" (see, for example, ¶ 62 above).

302. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA also renders obvious the limitations of this claim element.

303. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

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304. At least because Ohta discloses and/or renders obvious the limitations of this claim element, then Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element.

305. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that this claim element may be construed as a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6. However, I defer this analysis to claim element 1(i) below where I consider the function recited for this claim element as well as the functions recited for other claim elements in aggregate for the "**high speed device switching section**".

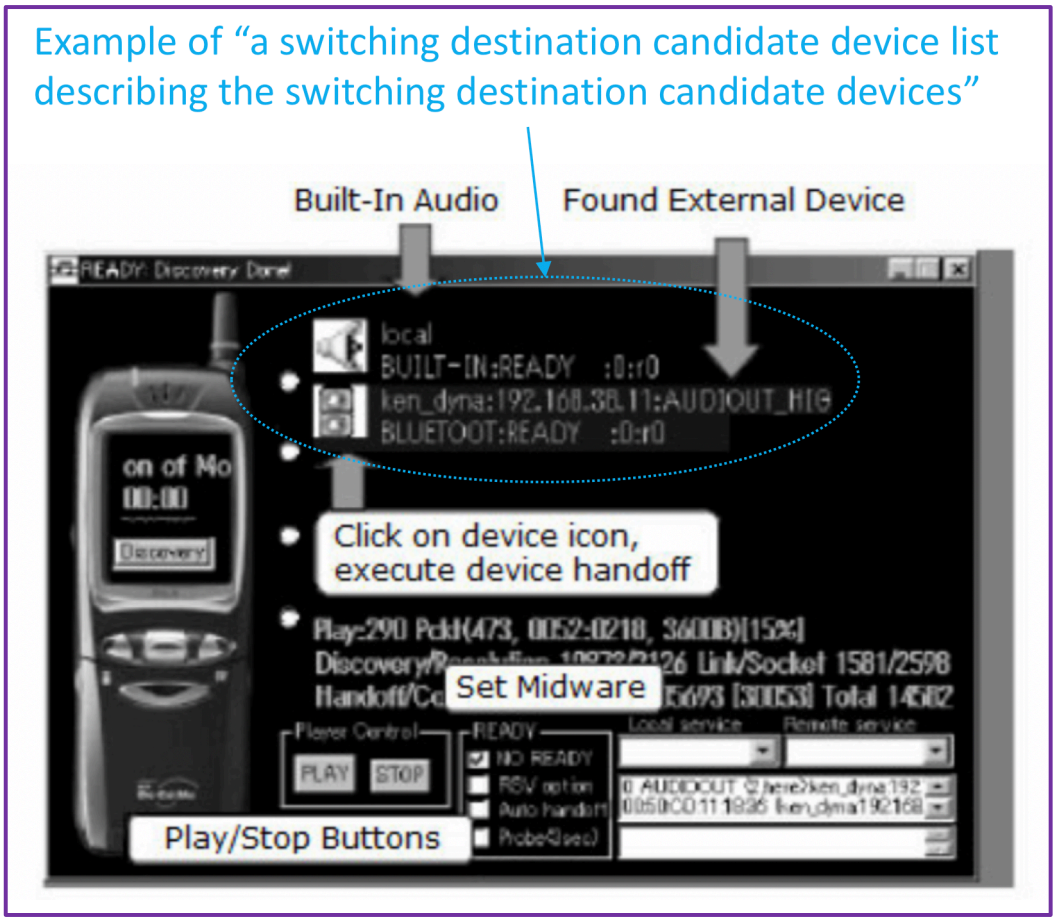
1(d) a high speed device switching section for … generating a switching destination candidate device list describing the switching destination candidate devices,

306. I note that the '512 Patent describes a "**switching destination candidate device list**" as corresponding to a "*list* including *identifiers* (for example, a *device name*) specifying devices" (see, for example, ¶ 64 above).

307. See my analysis of Ohta for claim element 1(c) at ¶¶ 295-299 above, which also applies to this claim element.

308. Ohta describes having "*implemented a streaming music playback application* in a MMM prototype" in order to "*evaluate the effectiveness of READY*" wherein "*After a Bluetooth device search and device name resolution*" a list is shown in Figure 4 "*indicating external devices and built-in devices found by READY* and their *device status*" (see, for example, ¶¶ 156-157 and 159 above, annotated Figure 4 shown below).

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309. Accordingly, a POSITA would understand that the "***device name***" and "***device status***" combinations shown in annotated Figure 4 of Ohta above such as "***local***"/"***BUILT-IN:READY***" (or "***Built-In Audio***") and "***ken_dyna***"/"***BLUETOOT:READY***" (or "***Found External Device***") are an example of "**describing the switching destination candidate devices**" and together such "***device name***" and "***device status***" combinations are an example of "**a switching destination candidate device list**" that has been generated by "***READY***" (or thus a "**high speed device switching section**").

310. Thus, Ohta discloses a "**high speed device switching section**" (for example, the section(s) of the "***mobile multimedia middleware (MMM)***" known as "***READY***" as depicted in annotated Figures 2 and 3 of Ohta) for "**generating a switching destination candidate device**

list" (for example, a list "***indicating external devices and built-in devices found by READY***" such as the device labeled "***Found External Device***" as depicted in annotated Figure 4 of Ohta) "**describing the switching destination candidate devices**" (for example, according to the "***device name***" and "***device status***" combinations as depicted in annotated Figure 4 of Ohta).

311. Therefore, in my opinion, Ohta discloses the limitations of this claim element.

312. Additionally, I note that the '512 Patent admits that the limitations of this claim element were known in the art in view of at least Ohta at the alleged time of invention (see, for example, ¶¶ 51-53, 58-62, 71-72, 74 and 78-80 above).

313. For example, the '512 Patent specifically admits that at the "*switching source device*" of Ohta that "the *high speed middleware generates a switching destination candidate device list* of devices *capable of providing a service* (step **S1803**)" (see, for example, ¶ 62 above).

314. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA also renders obvious the limitations of this claim element.

315. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

316. At least because Ohta discloses and/or renders obvious the limitations of this claim element, then Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element.

317. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that this claim element may be construed as a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6. However, I defer this analysis to claim element 1(i) below where I consider the function recited

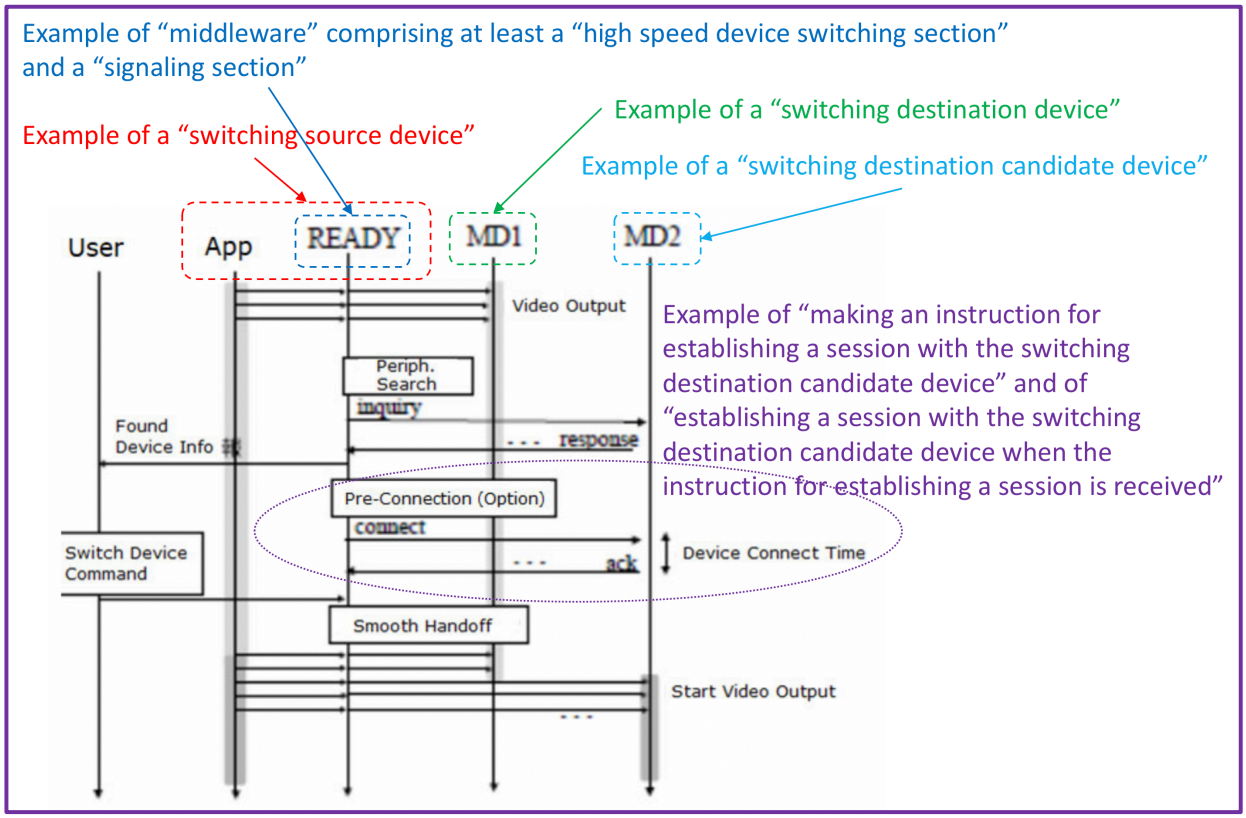
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for this claim element as well as the functions recited for other claim elements in aggregate for the "**high speed device switching section**".

1(e) a high speed device switching section for … making an instruction for establishing a session with the switching destination candidate device;

318. See my analysis of Ohta for claim element 1(d) at ¶¶ 306-311 above, which also applies to this claim element.

319. Ohta teaches that "*READY* performs a … *pre-connection with a reservation option*" wherein such "*Pre-connection*" occurs when "the *connection process with MD2* is *started immediately* after MD2 has been *found*" so that "A *device connection is established immediately after the device is found*" wherein "*MH establishes a Bluetooth link to the MD*" (see, for example, ¶¶ 148, 150 and 159 above, annotated Figure 3 shown below).



320. Accordingly, a POSITA would understand that "***READY***" (or thus a "**high speed device switching section**") performs "***pre-connection***" with "***MD2***" (or thus a "**switching**

destination candidate device") as shown in Figure 3 above so that a "***device connection is established***" as a "***Bluetooth link***" (i.e. "**making an instruction for establishing a session**").

321. Thus, Ohta discloses a "**high speed device switching section**" (for example, the section(s) of the "***mobile multimedia middleware (MMM)***" known as "***READY***" as depicted in annotated Figures 2 and 3 of Ohta) for "**making an instruction for establishing a session**" (for example, creating a "***connect***" message to be sent to "***MD2***" so that a "***device connection is established***" as depicted in annotated Figure 3 of Ohta) "**with the switching destination candidate device**" (for example, with "***MD2***" as depicted in annotated Figure 3 of Ohta).

322. Therefore, in my opinion, Ohta discloses the limitations of this claim element.

323. Additionally, I note that the '512 Patent admits that the limitations of this claim element were known in the art in view of at least Ohta at the alleged time of invention (see, for example, ¶¶ 51-53, 58-59, 62-63, 71-72, 74 and 78-80 above).

324. For example, the '512 Patent specifically admits that at the "*switching source device*" of Ohta that "The *high speed middleware sends session establishment—media processing preparation request* (**M3**) *through signaling section* **1410** to all the devices that are *switching destination candidates* described in the switching destination candidate device list in order to *establish a session and carry out media transmission* (step **S1804**)" (see, for example, ¶ 62 above).

325. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA also renders obvious the limitations of this claim element.

326. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

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327. At least because Ohta discloses and/or renders obvious the limitations of this claim element, then Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element.

328. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that this claim element may be construed as a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6. However, I defer this analysis to claim element 1(i) below where I consider the function recited for this claim element as well as the functions recited for other claim elements in aggregate for the "**high speed device switching section**".

1(f) a signaling section for establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section;

329. I note that the '512 Patent describes structurally that the "*signaling section* **104**" of the "**First Exemplary Embodiment**" is structurally identical to a "*signaling section* **104**" ascribed to Ohta although described "by *adding partial function* to conventional components" (see, for example, ¶¶ 72-77 above).

330. See my analysis of Ohta for claim element 1(e) at ¶¶ 318-322 above, which also applies to this claim element.

331. Accordingly, a POSITA would understand that "***READY***" "***middleware***" (or thus a "**signaling section**" as well as a "**high speed device switching section**") performs at least the depicted "***connect***" / "***ack***" message exchange with "***MD2***" (or thus a "**switching destination candidate device**") as shown in annotated Figure 3 (see ¶ 319 above) such that a "***device connection is established***" as a "***Bluetooth link***" "***immediately after the device is found***" (i.e. "**establishing a session with the switching destination candidate device when the instruction for establishing a session is received**").

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332. Thus, Ohta discloses a "**signaling section**" (for example, the section(s) of the "***mobile multimedia middleware (MMM)***" known as "***READY***" as depicted in annotated Figures 2 and 3 of Ohta) for "**establishing a session**" (for example, sending a "***connect***" message to "***MD2***" and receiving an "***ack***" message in response so that a "***device connection is established***" as a "***Bluetooth link***" as depicted in annotated Figure 3 of Ohta) "**with the switching destination candidate device**" (for example, with "***MD2***" as depicted in annotated Figure 3 of Ohta) "**when the instruction for establishing a session is received from the high speed device switching section**" (for example, "***immediately after the device is found***" by the "***mobile multimedia middleware (MMM)***" known as "***READY***" as depicted in annotated Figures 2 and 3 of Ohta).

333. Therefore, in my opinion, Ohta discloses the limitations of this claim element.

334. See my analysis of Ohta for claim element 1(e) at ¶¶ 323-325 above, which also applies to this claim element.

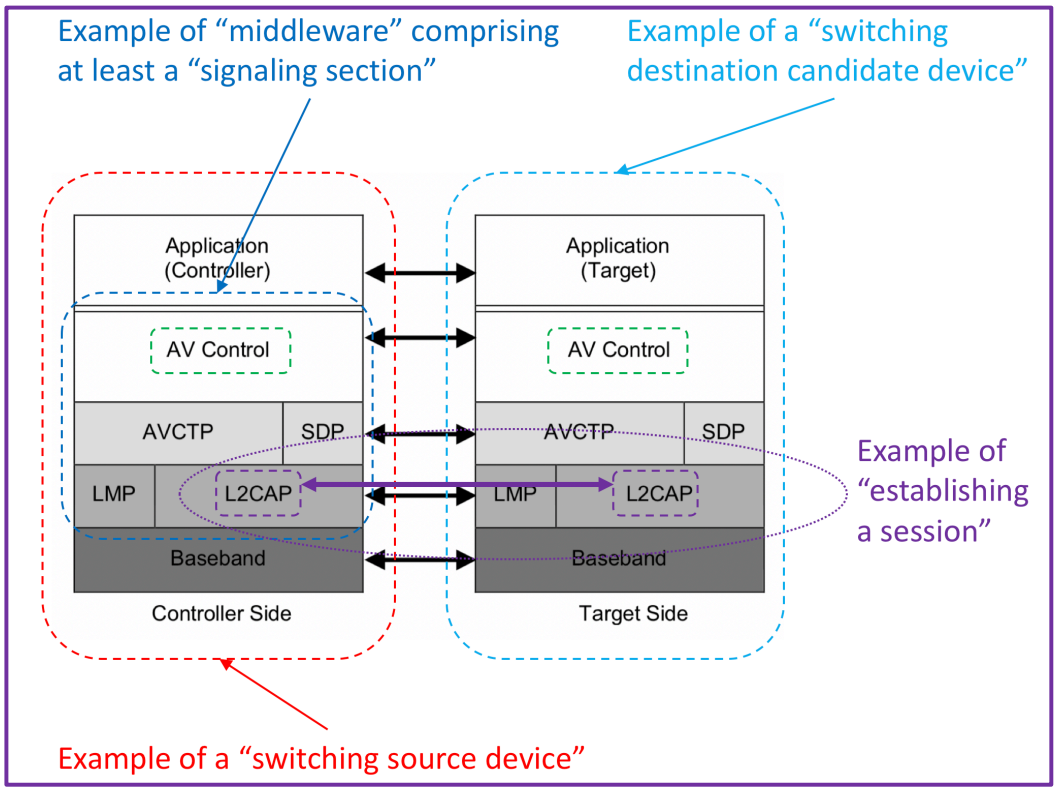
335. Additionally, the '512 Patent specifically admits that the "*switching destination candidate device*" of Ohta "*receives session establishment—media processing preparation request* (**M3**) from MN **1301** (step **S1902**)" and subsequently "*sends session establishment—media processing preparation response* (**M4**) to the *switching source device*" (see, for example, ¶ 63 above).

336. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA also renders obvious the limitations of this claim element.

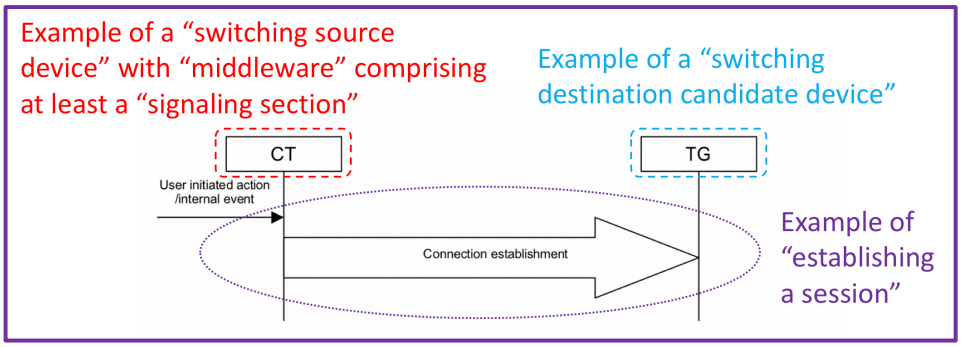
337. See my analysis of AVRCP for claim element 1(a) at ¶¶ 260-268 above, which also applies to this claim element.

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338. AVRCP describes in reference to Figure 2.1 that "The *Baseband, LMP, and L2CAP* are the *OSI layer 1 and 2 Bluetooth protocols*", "*AVCTP defines the procedures and messages* to be exchanged for *controlling A/V devices*", "*SDP* is the *Bluetooth Service Discovery Protocol*" and "*AV control*", which is specified by AVRCP in this profile, "is the entity *responsible for A/V device control signaling*" (see, for example, ¶ 166 above, annotated Figure 2.1 shown below).



339. AVRCP informs that "An L2CAP *connection establishment* for AVCTP *may be initiated by the CT*" such that "An *internal event* or an *event generated by a user*, such as turning the power on, *initiates the connection establishment*" as shown in Figure 4.1 (see, for example, ¶ 174 above, annotated Figure 4.1 shown below).



340. Additionally, the knowledge of a POSITA would include that with the "Bluetooth *protocol stack*" that "*All Bluetooth data communications use L2CAP*" which "*establishes L2CAP channels* that *connect these higher-level entities to their counterparts* on the remote device" (see, for example, ¶¶ 192-193 above).

341. Accordingly, a POSITA would understand in view of annotated Figures 2.1 and 4.1 above for AVRCP that a "***Controller***" or "***CT***" with "***middleware***" (or thus a "**switching source device**" comprising at least a "**signaling section**") causes the "***connection establishment***" for a "***Bluetooth link***" to a "***Target***" device using "***L2CAP***" based upon an "***internal event***" (or thus "**establishing a session with the switching destination candidate device when the instruction for establishing a session is received**").

342. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

343. I note that when Ohta and AVRCP are combined to create middleware for a mobile host device that such mobile host device would perform connection establishment with Bluetooth-based external devices using L2CAP (see, for example, ¶ 228 above).

344. Therefore, in my opinion, Ohta in view of AVRCP and the knowledge of a POSITA renders obvious the limitations of this claim element.

345. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that this claim element may be construed as

a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6. However, I defer this analysis to claim element 1(i) below where I consider the function recited for this claim element as well as the functions recited for other claim elements in aggregate for the "**high speed device switching section**" and the "**signaling section**".

1(g) an input section for receiving a switching destination candidate device list request from a user;

346. I note that the '512 Patent describes an "*input section*" as an "*interface (I/F) with respect to a user*" that is for "*receiving input from a user*" (see, for example, ¶¶ 55 and 76 above).

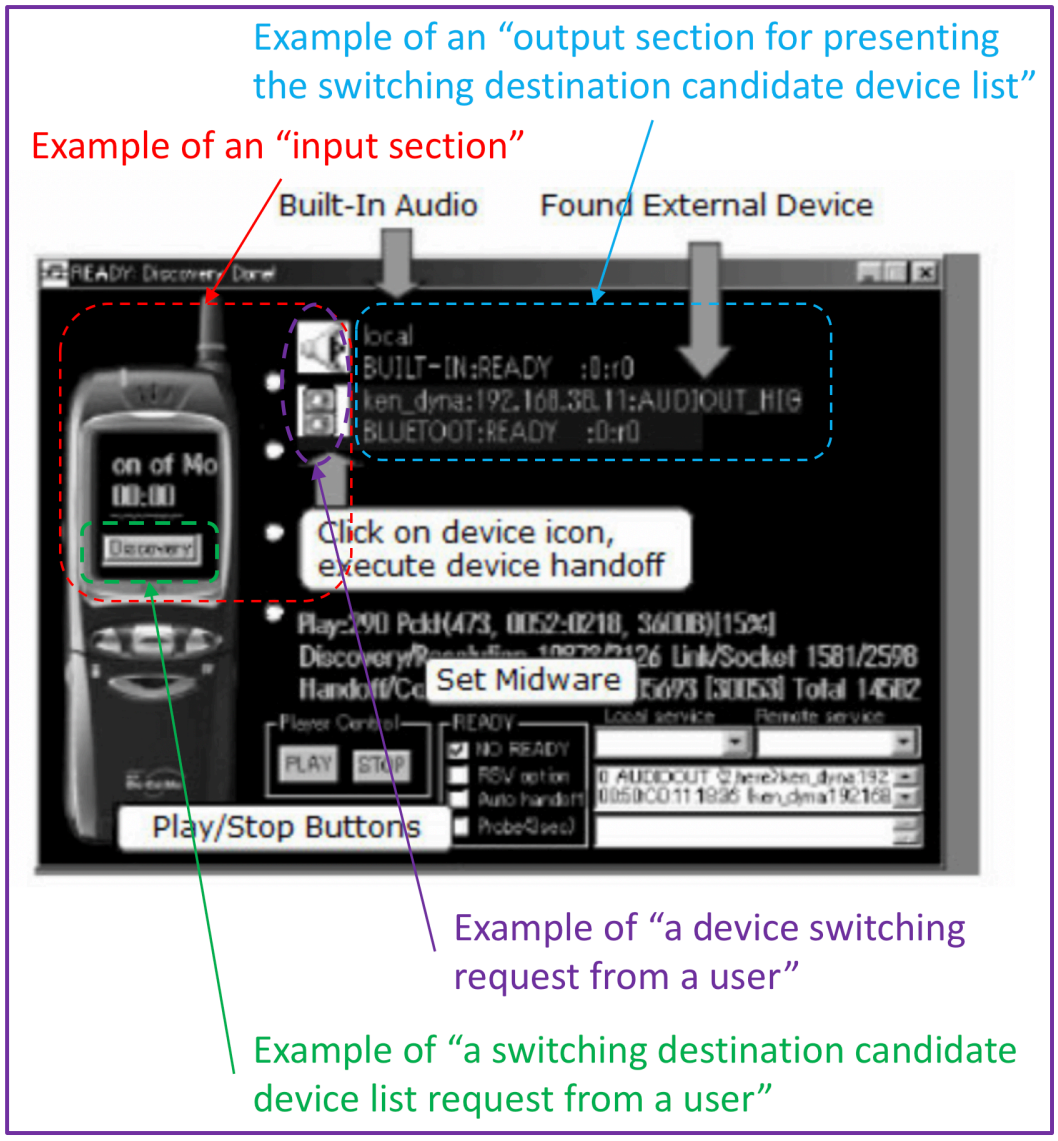
347. I also note that the '512 Patent describes the step "**U1**" as a "*List request*" but also subsequently clarifies that this "*list request* is *input* into the switching source device *from a user*" (see, for example, ¶ 81 above).

348. I further note that the '512 Patent describes structurally that the "*input section* **1404**" of the "**First Exemplary Embodiment**" is identical to an "*input section* **1404**" ascribed to Ohta (see, for example, ¶ 76 above).

349. See my analysis of Ohta for claim element 1(d) at ¶¶ 306-311 above, which also applies to this claim element.

350. Ohta describes having "*implemented a streaming music playback application* in a MMM prototype" in order to "*evaluate the effectiveness of READY*" wherein a list is shown in Figure 4 "*indicating external devices and built-in devices found by READY* and their *device status*" as well as an "*icon*" labeled "*Discovery*" as part of a "*user interface* used to *control device selection*" by "*clicking on an icon*" (see, for example, ¶¶ 151 and 156-157 above, annotated Figure 4 shown below).

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351. Accordingly, a POSITA would understand from Figure 4 and its description in Ohta as shown above that the "***user interface used to control device selection***" (or thus an "**input section**") includes at least an "***icon***" labeled "***Discovery***" that causes a list "***indicating external devices and built-in devices found by READY and their device status***" to display when the "***user***" performs "***clicking on an icon***" for such "***icon***" labeled "***Discovery***" (i.e. "**receiving a switching destination candidate device list request from a user**").

352. Thus, Ohta discloses an "**input section**" (for example, the "***user interface used to control device selection***" as depicted in annotated Figure 4 of Ohta) for "**receiving a switching destination candidate device list request from a user**" (for example, when the "***user***" performs "***clicking on an icon***" for such "***icon***" labeled "***Discovery***" thereby causing a list "***indicating external devices and built-in devices found by READY and their device status***" to display as depicted in annotated Figure 4 of Ohta).

353. Therefore, in my opinion, Ohta discloses the limitations of this claim element.

354. See my analysis of Ohta for claim element 1(d) at ¶¶ 312-314 above, which also applies to this claim element.

355. Additionally, I note that the '512 Patent admits that the limitations of this claim element were known in the art in view of at least Ohta at the alleged time of invention (see, for example, ¶¶ 51-53, 58-59, 64-65, 71-72 and 76 above).

356. For example, the '512 Patent specifically admits that at the "*switching source device*" of Ohta that when "an instruction of *switching destination candidate device display request* (**U1**) is *sent* from a user ("YES" in step **S1807**), the high speed middleware *presents the switching destination candidate device list* held therein *to a user* (**U2**) through *output section* **1403** (step **S1808**)" (see, for example, ¶ 64 above).

357. Moreover, the '512 Patent specifically labels at FIG. 23 in reference to Ohta that the step "**U1**" as a "*List request*" is a "**switching destination candidate device list request**" that originates "**from a user**" (see, for example, ¶ 59 above).

358. Additionally, a POSITA would have understood at the alleged time of the invention of the '512 Patent that there were only a few practical options for an event that would cause a middleware such as "***READY***" in Ohta to cause a display of a "**switching destination**

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candidate device list" for a "**user**" to select from. For example, a list "***indicating external devices and built-in devices found by READY and their device status***" could be displayed at all times, at periodic intervals, upon background discovery of a new "***external device***", or when the "***user***" performs "***clicking on an icon***".

359. Accordingly, with so few practical options, a POSITA would have been highly motivated to at least consider and try such options given that each were straightforward to implement in view of known interfaces for known devices such as mobile phones and laptop computers using known operating systems at that time such as Windows, MacOS, Symbian or Blackberry OS and each of these options would produce predictable results. This is particularly relevant in view of Ohta which discloses its "***mobile host***" as a "***mobile phone or PDA***" and thus a POSITA would have known and been motivated to specifically look to clickable icons (i.e. for "***clicking on an icon***" per Ohta) that were in use in such devices.

360. Moreover, displaying a list "***indicating external devices … and their device status***" as candidate "***Bluetooth links***" per the disclosure of Ohta wherein such display is initiated when the "***user***" performs "***clicking on an icon***" or a menu item was at the alleged time of the invention of the '512 Patent (and remains to this day) the most common modality for selecting any candidate "***Bluetooth link***" for any purpose on such mobile phone or laptop computer devices, thereby further motivating a POSITA specifically to try this option.

361. In my opinion, a POSITA would further understand that displaying a list "***indicating external devices and built-in devices found by READY and their device status***" when the "***user***" performs "***clicking on an icon***" is particularly advantageous for the user scenario described in Ohta wherein "***services are provided by switching the media input/output destination of an application in a mobile host (MH) from an internal device to an external***

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device and then to another external device" such as corresponding with "***into a car***", then "***out of the car***", and then "***in a living room***" (see, for example, ¶ 239 above) because at each change in location (such as "***into a car***", then "***out of the car***", and then "***in a living room***") a "***user***" naturally would interact with the mobile phone or laptop computer device and thus desire a display of such candidate "***external devices***".

362. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA also renders obvious the limitations of this claim element.

363. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

364. At least because Ohta discloses and/or renders obvious the limitations of this claim element, then Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element.

365. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that this claim element may be construed as a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6. However, I defer this analysis to claim element 1(i) below where I consider the function recited for this claim element as well as the functions recited for other claim elements in aggregate for the "**input section**".

1(h) an output section for presenting the switching destination candidate device list when the high speed device switching section receives the switching destination candidate device list request through the input section;

366. I note that the '512 Patent describes an "*output section*" as being for "*outputting a display*" wherein specific examples of a "*display*" include the "*display*" of a "*mobile terminal* such as a portable telephone" and a "*large size television display*" (see, for example, ¶¶ 50, 55 and 76 above).

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367. I also note that the '512 Patent describes the step "**U2**" as a "*List presentation*" but also subsequently clarifies that this as a "list" that "*is presented* (**U2**) to a *user* by *output section* **1403** *via operating system* **1405**" (see, for example, ¶ 64 above).

368. I further note that the '512 Patent describes structurally that the "*output section* **1403**" of the "**First Exemplary Embodiment**" is identical to an "*output section* **1403**" ascribed to Ohta (see, for example, ¶ 76 above).

369. See my analysis of Ohta for claim element 1(g) at ¶¶ 346-353 above, which also applies to this claim element.

370. Ohta discloses generally that one example of an "*output device*" is a "*screen*" (see, for example, ¶ 129 above).

371. More specifically, Ohta describes that "*Icons indicating external devices and built-in devices found by READY* and their *device status* are *displayed on the right side of the screen*" (see, for example, ¶ 157 above, annotated Figure 4 shown at ¶ 350 above).

372. Accordingly, a POSITA would understand from Figure 4 and its description in Ohta as shown above that the "***Icons indicating external devices***" including their "***device name***" and "***device status***" (i.e. "**switching destination candidate device list**") are "***displayed***" on a "***screen***" (or thus disclose an "**output section for presenting the switching destination candidate device list**") when the "***user***" performs "***clicking on an icon***" for the "***icon***" labeled "***Discovery***" as I showed for claim element 1(g) above (i.e. "**when the high speed device switching section receives the switching destination candidate device list request through the input section**").

373. Thus, Ohta discloses an "**output section**" (for example, the "***screen***" as depicted in annotated Figure 4 of Ohta) for "**presenting the switching destination candidate device list**"

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(for example, when "***Icons indicating external devices***" including their "***device name***" and "***device status***" are "***displayed***" as depicted in annotated Figure 4 of Ohta) "**when the high speed device switching section receives the switching destination candidate device list request through the input section**" (for example, when the "***user***" performs "***clicking on an icon***" for the "***icon***" labeled "***Discovery***" as depicted in annotated Figure 4 of Ohta).

374. Therefore, in my opinion, Ohta discloses the limitations of this claim element.

375. See my analysis of Ohta for claim element 1(g) at ¶¶ 354-362 above, which also applies to this claim element.

376. Moreover, the '512 Patent specifically describes at FIG. 23 in reference to Ohta that the step "**U2**" as a "*List presentation*" is a "*Candidate device list display*" that is made immediately in time upon receipt of the "**switching destination candidate device list request**" that originates "**from a user**" (see, for example, ¶ 59 above).

377. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA also renders obvious the limitations of this claim element.

378. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

379. At least because Ohta discloses and/or renders obvious the limitations of this claim element, then Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element.

380. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that this claim element may be construed as a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6, wherein the recited function would be "**presenting the switching destination candidate device list**" and the proposed structure in the specification of the '512 Patent for performing such

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function as an "**output section**" that the "**switching source device compris[es]**" would be described by step "**S310**" in FIG. 3 as well as the applicable text in 12:20 and 14:30-35 of the '512 Patent (see, for example, ¶¶ 58-59, 64, 76 and 78-79 above).

381. Under the alternative claim construction of ¶ 380 above, I note that Ohta discloses and/or renders obvious the recited function of "**presenting the switching destination candidate device list**" as I have described herein (see, for example, ¶¶ 366-377 above).

382. Ohta also discloses structure for an "**output section**" that the "**switching source device compris[es]**" by at least the description of Figure 4 of Ohta as I have annotated herein (see, for example, ¶¶ 369-372 above).

383. Under the alternative claim construction of ¶ 380 above, I believe a POSITA would understand the "way" that the proposed structure in the specification of the '512 Patent would be deemed to perform the function of "**presenting the switching destination candidate device list**" is by "*outputting a display*", thereby leading to the "result" that a "*user*" can view a "*list*" (see, for example, ¶¶ 58-59, 64, 76 and 78-79 above).

384. Similarly, one exemplary "way" that the structure for an "**output section**" that the "**switching source device compris[es]**" in Ohta performs the function of "**presenting the switching destination candidate device list**" is by "***display[ing]***" on a "***screen***", thereby leading to the "result" that a "***user***" can view "***Icons indicating external devices***" (see, for example, ¶¶ 148 and 156-157 above).

385. In my opinion, a POSITA would understand that the "way" such "***display[ing]***" on a "***screen***" operates in Ohta is substantially similar to the "way" the "*outputting a display*" operates in the '512 Patent, and that such "result" that a "***user***" can view "***Icons indicating external devices***" in Ohta is substantially similar to the "result" that a "*user*" can view a "*list*" in

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the '512 Patent, or thus that the structure in Ohta for performing the function of "**presenting the switching destination candidate device list**" is at least equivalent to the proposed structure in the specification of the '512 Patent under the alternative claim construction of ¶ 380 above.

386. I also note that the '512 Patent describes Ohta as comprising an "**output section**" that the "**switching source device compris[es]**" that is structurally identical to that of preferred embodiments of the '512 Patent (see, for example, ¶ 76 above).

387. Therefore, in my opinion, Ohta discloses and/or renders obvious the limitations of this claim element under the alternative claim construction of ¶ 380 above.

388. Similarly, in my opinion, Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element under the alternative claim construction of ¶ 380 above.

1(i) wherein when the high speed device switching section receives a device switching request from a user through the input section, it notifies the signaling section of the device selected from the switching candidate device list, and the signaling section sends a switching instruction to the selected device.

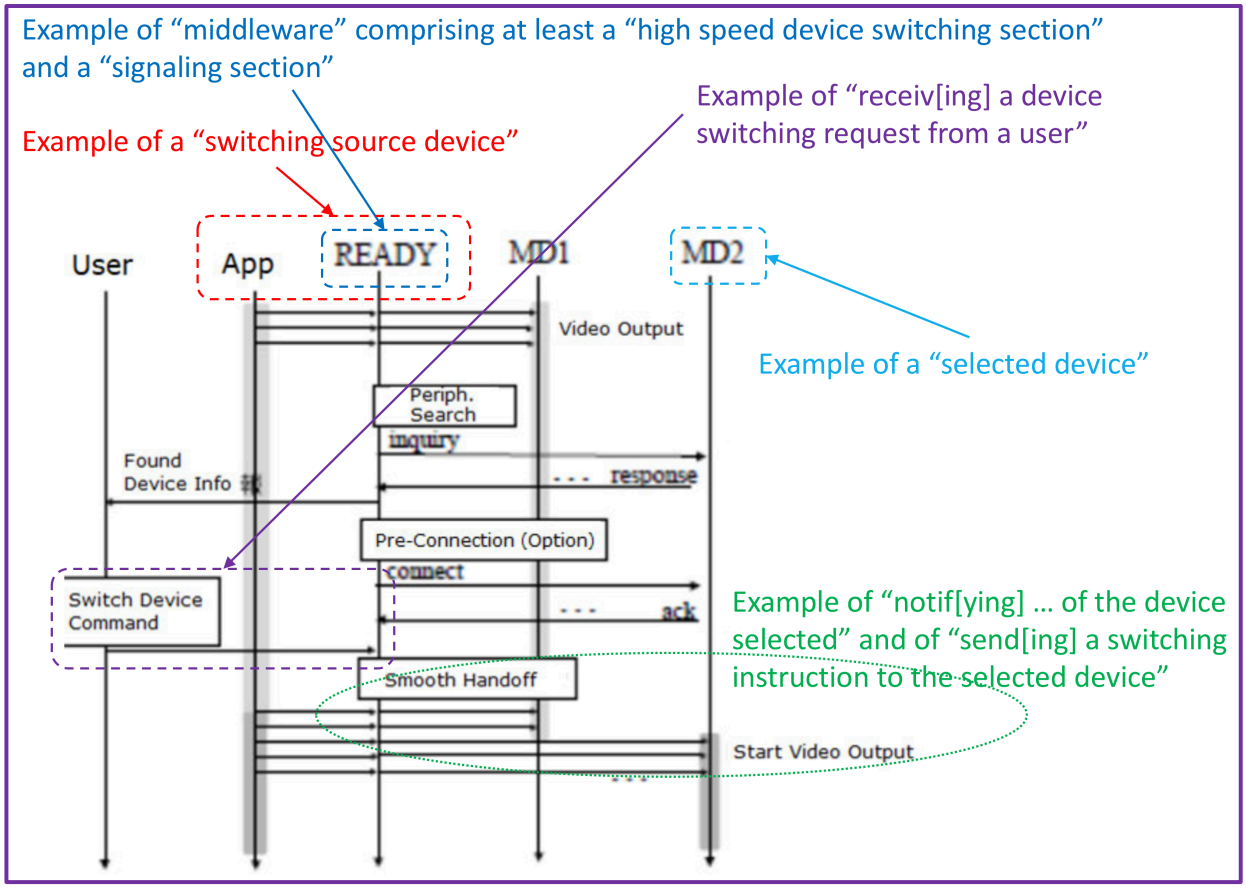
389. I note that the '512 Patent illustrates a "**switching instruction**" for a "**device**" in FIG. 2 and FIG. 3 as being when "A *user selects a switching destination device* (**U3**) from the *switching destination candidate device list* through *input section* **1404** (step **S311**)" and then "*High speed device switching section* **101** sends the *media data output notification* (**M7**)" through "*signaling section* **104**" in "step **S312**" (see, for example, ¶ 85 above).

390. See my analysis of Ohta for claim element 1(f) at ¶¶ 329-333 above, which also applies to this claim element.

391. See my analysis of Ohta for claim element 1(g) at ¶¶ 346-353 above, which also applies to this claim element.

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392. Ohta teaches that "*READY* performs … *media transfer destination switching* (smooth handoff) after device connection is completed" wherein "Figure 3" shows an example of a "*procedure followed* when an *application* that has been *outputting video to an external device MD1 switches output to a newly found device MD2*" (see, for example, ¶ 148 above, annotated Figure 3 shown below).



393. In reference to Figure 3 (see annotated version above), Ohta describes the "*Device switching instruction*" (or "*Switch Device Command*") as when "The *user instructs the device to handoff to MD2 via the user interface* used to *control device selection* and *switching provided by the MMM*" and describes the "*Smooth Handoff*" as when "With connections established to both MD1 and MD2, *READY switches the media destination from MD1 to MD2*" such that "handoff

is *executed immediately after the user's device switching instruction*" (see, for example, ¶¶ 151-152 above).

394. Additionally, Ohta teaches in reference to Figure 4 (see annotated version at ¶ 350 above) that "*Icons indicating external devices and built-in devices found by READY* and their *device status* are *displayed on the right side of the screen*" so that "The *user can then switch the music output destination device* (issue a *device handoff instruction*) by *clicking on an icon*" so that "the *switch occurs immediately after a device switching instruction is received from the user*", as also documented within native Figure 4 of Ohta by its own annotation of "*Click on device icon, execute device handoff*" (see, for example, ¶¶ 157 and 159 above).

395. Accordingly, a POSITA would understand from Figure 3 and Figure 4 and their description in Ohta as shown above that "***a device switching instruction is received from the user***" in the form of a "***Switch Device Command***" at the "***READY***" "***middleware***" when the "***user***" performs "***clicking on an icon***" of one of the "***Icons indicating external devices***" that are "***displayed***" on a "***screen***" as a "***user interface used to control device selection***" (or thus "**the high speed device switching section receives a device switching request from a user through the input section**").

396. Additionally, a POSITA would understand from Figure 3 and and Figure 4 and their description in Ohta as shown above that when a "***user***" does "***Click on device icon***" then such "***a device switching instruction is received from the user***" in the form of a "***Switch Device Command***" that the "***READY***" "***middleware***" (or thus a "**signaling section**" as well as a "**high speed device switching section**") next "***immediately***" (i.e. "**when**") "***switches the media destination from MD1 to MD2***" among such "***external devices***" to "***execute device handoff***" by sending depicted messages from "***READY***" to "***MD2***" during the "***Smooth Handoff***"

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"***procedure***" such that "***Start Video Output***" at "***MD2***" begins upon receipt of such messages (or thus such "**high speed device switching section**" also "**notifies the signaling section of the device selected from the switching candidate device list**" such that "**the signaling section sends a switching instruction to the selected device**").

397. Thus, Ohta discloses that "**when the high speed device switching section receives a device switching request from a user through the input section**" (for example, when "***a device switching instruction is received from the user***" in the form of a "***Switch Device Command***" at the "***READY***" "***middleware***" from the "***user interface used to control device selection***") then "**it [the high speed device switching section] notifies the signaling section of the device selected from the switching candidate device list**" (for example, the "***READY***" "***middleware***" "***immediately***" "***executes***" the "***Smooth Handoff***" "***procedure***" that "***switches the media destination from MD1 to MD2***") and "**the signaling section sends a switching instruction to the selected device**" (for example, the "***READY***" "***middleware***" "***immediately***" sends messages from "***READY***" to "***MD2***" during the "***Smooth Handoff***" "***procedure***" such that "***Start Video Output***" at "***MD2***" begins upon receipt of such messages).

398. Therefore, in my opinion, Ohta discloses the limitations of this claim element.

399. See my analysis of Ohta for claim element 1(f) at ¶¶ 334-336 above, which also applies to this claim element.

400. See my analysis of Ohta for claim element 1(g) at ¶¶ 354-362 above, which also applies to this claim element.

401. As I have noted herein, the '512 Patent in its description of the disclosures of Ohta does not explicitly recite that Ohta discloses the limitation of this claim element that "**the**

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signaling section sends a switching instruction to the selected device" (see, for example, ¶ 85 above).

402. More specifically, the '512 Patent in its description of the disclosures of Ohta does not explicitly recite that Ohta discloses that its "***high speed middleware***", which the '512 Patent admits to correspond to the "**high speed device switching section**" (see, for example, ¶ 74 above), "sends the *media data output notification* (**M7**) to device **2** through *signaling section* **104** so that *switching destination device* **2** selected as the switching destination device *starts outputting media data* (step **S312**)" (see, for example, ¶ 85 above).

403. To the extent that this limitation of this claim element requires explicit disclosure that the "**high speed device switching section**" of this claim element "sends the *media data output notification* (**M7**) to device **2** through *signaling section* **104** so that *switching destination device* **2** selected as the switching destination device *starts outputting media data* (step **S312**)", as opposed to other disclosure of "**the signaling section sends a switching instruction to the selected device**" as I have shown above for Ohta, then I believe Ohta in view of the knowledge of a POSITA renders obvious this limitation of this claim element for at least the following reasons.

404. First, although the '512 Patent does not explicitly define a "*media data output notification*", which per FIG. 2 of the '512 Patent appears originate from a "*Device switching instruction*" from a "*User*" at a "*mobile node (MN)*" (see, for example, ¶ 78 above), a POSITA would at least understand that "the switching destination device *starts outputting media data*" upon receipt of such "*media data output notification*", or thus that this is effectively a "***play***" command with respect to "*media data*".

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405. A POSITA would also understand from the disclosures of Ohta that a "*Companion Host (CH)*" is a "*content distribution server for a music distribution service*" and that the "*streaming music playback application*" is "*executed on MH*" (or "*Mobile Host*") that "*starts receiving audio* packets from CH and *writes audio data to the virtual device for audio output*" only "*when the user presses the play button*" (see, for example, ¶¶ 136 and 158 above).

406. Accordingly, a POSITA would further understand from Figure 3 of Ohta (see, for example, ¶ 392 above) that the messages depicted as sent from the "***READY***" "***middleware***" to the first "***external device***" "***MD1***" that result in the depicted "***Video Output***" must also comprise an "***instruction***" that represents a "***play***" command resulting from "***when the user presses the play button***", or thus effectively an instance of a "*media data output notification*" by the terminology of the '512 Patent.

407. Similarly, a POSITA would further understand from Figure 3 of Ohta (see, for example, ¶ 392 above) that the messages depicted as sent from the "***READY***" "***middleware***" to the second "***external device***" "***MD2***" that result in the depicted "***Start Video Output***" at "***MD2***" must similarly comprise another such "***instruction***" that represents a "***play***" command resulting from the "***device switching instruction***" that was "***received from the user***", or thus effectively another instance of a "*media data output notification*" by the terminology of the '512 Patent.

408. Second, a POSITA would also understand from the disclosures of Ohta that at least one example of sending messages from the "***READY***" "***middleware***" to the second "***external device***" "***MD2***" in order to "***Start Video Output***" at "***MD2***" as shown in Figure 3 of Ohta (see, for example, ¶ 392 above) would be via "***Bluetooth link***" (see, for example, ¶¶ 134-135, 139, 142, 158-159 and 161 above).

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409. A POSITA would further understand that if the "***READY***" "***middleware***" is only sending "***media transfer***" messages (see, for example, ¶ 148 above) to the second "***external device***" "***MD2***" via "***Bluetooth link***", as apparently the '512 Patent describes (see, for example, ¶¶ 59 and 66 above), that there would be no "***Start Video Output***" at "***MD2***" during the "***Smooth Handoff***" "***procedure***" as shown in Figure 3 of Ohta (see, for example, ¶ 392 above) at least because a POSITA would know that "***Bluetooth***" does not normally start "***outputting video to an external device***" based upon receipt of "***media transfer***" messages alone and Ohta does not disclose the "***external device***" implementation as being non-standard. Moreover, if "***Bluetooth***", or a non-standard implementation thereof, whether disclosed in Ohta or otherwise, did support causing "***Start Video Output***" at "***MD2***" as shown in Figure 3 of Ohta (see, for example, ¶ 392 above) upon receipt of "***media transfer***" messages alone, then such behavior would by definition already disclose the this limitation of this claim element that "**the signaling section sends a switching instruction to the selected device**" in the form of a "*media data output notification*".

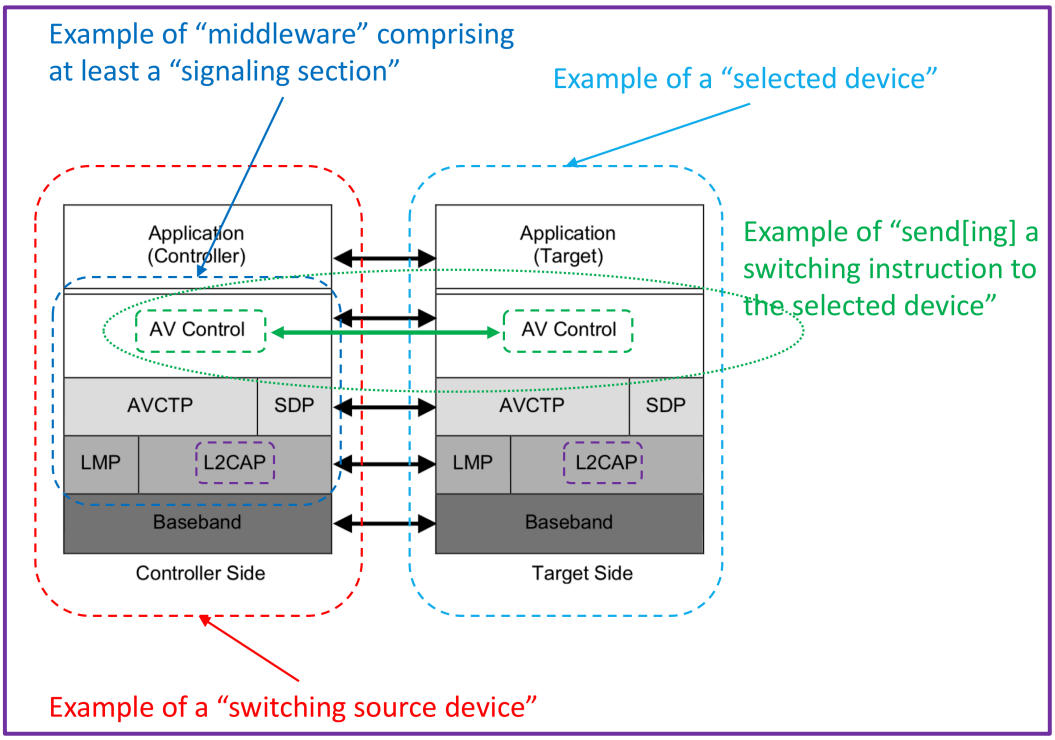
410. Instead, a POSITA would understand that the use of a "***Bluetooth link***" to send such "***media transfer***" messages to either of the first "***external device***" "***MD1***" or the second "***external device***" "***MD2***" necessarily requires a "***play***" command (or thus a "*media data output notification*" by the terminology of the '512 Patent), such as that of "***Bluetooth***" AVRCP (see, for example, ¶¶ 177-179 above), be sent from the "***READY***" "***middleware***" to such "***external devices***" in order to realize the depicted "***Video Output***" and "***Start Video Output***" conditions illustrated in Figure 3 of Ohta (see, for example, ¶ 392 above).

411. Therefore, in my opinion, Ohta in view of the knowledge of a POSITA renders obvious the limitations of this claim element.

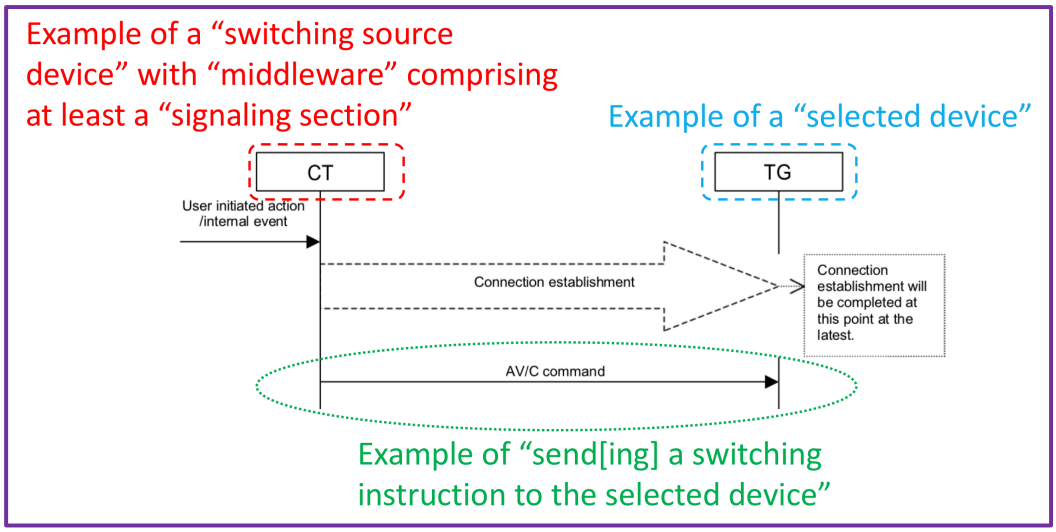
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412. See my analysis of AVRCP for claim element 1(f) at ¶¶ 337-344 above, which also applies to this claim element.

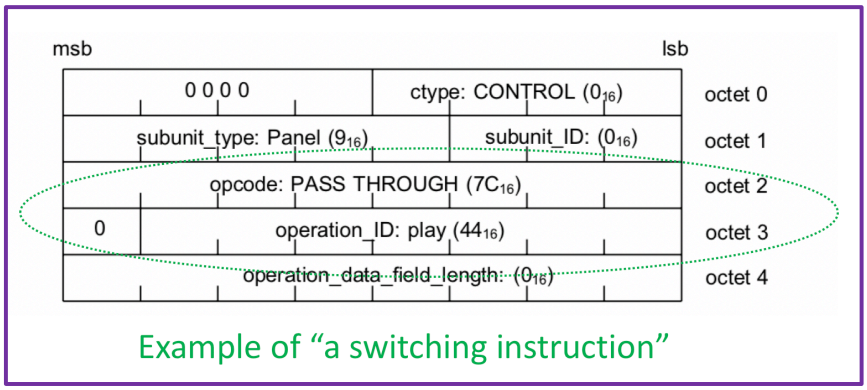
413. AVRCP describes that even though AVRCP "does *not handle* the *audio/video streaming*" that "In this profile, the *controller translates the detected user action* to the *A/V control signal*, and then *transmits it to a remote Bluetooth device*" wherein such "*protocol signals* are *exchanged by initiating procedures* in communicating devices and *by exchanging messages*" such that the depicted "*AV control*" layer in Figure 2.1 "is the entity *responsible for A/V device control signaling*" (see, for example, ¶¶ 164-166 above, annotated Figure 2.1 shown below).



414. AVRCP describes that "Once the *connection is established*, it is *able to send a AV/C command*" as shown in Figure 4.4 (see, for example, ¶ 175 above, annotated Figure 4.4 shown below).



415. AVRCP describes that "The *main feature of this profile* is the *remote control* performed by the *PASS THROUGH command*", which is one of the "*possible AV/C commands to be exchanged in this profile*", whereby "A *controller conveys a user operation* to a *TG* by the PASS THROUGH command" when "The *user manipulates the user interface on the display or operates a button*, and then the *controller sends commands*" wherein a list of "*commands*" as "*defined* by the *operation_ids* in the *PASS THROUGH command*" include at least "*mute*", "*pause*", "*stop*", "*power*" and "*play*", as also shown in Figure 18.5 (see, for example, ¶¶ 176-177 and 180-181 above, annotated Figure 18.5 shown below).



416. Accordingly, a POSITA would understand that the depicted "*AV control*" layer in Figure 2.1 of AVRCP (i.e. a "**signaling section**") "*conveys a user operation*" by the "*PASS*

THROUGH command" as "*defined* by the *operation_id*" for "*play*" when a "*user manipulates the user interface on the display or operates a button*" and then "*transmits it to a remote Bluetooth device*" (or thus "**sends a switching instruction to the selected device**").

417. See at least ¶¶ 209-228 above regarding the combination of Ohta and AVRCP.

418. As I noted above, Ohta discloses a need to have "***a device switching instruction***" that "***is received from the user***" in the form of a "***Switch Device Command***" at the "***READY***" "***middleware***" when the "***user***" performs "***clicking on an icon***" cause a "***play***" or "***Start Video Output***" action at an "***external device***" connected via "***Bluetooth link***". AVRCP discloses a complementary solution to the teaching of Ohta that specifically discloses an "***AV control***" layer that "***conveys a user operation***" by the "***PASS THROUGH command***" for "***play***" when a "***user manipulates the user interface on the display or operates a button***" and then "***transmits it to a remote Bluetooth device***".

419. Accordingly, a POSITA would understand that the combination of Ohta and AVRCP as described herein would disclose "**when the high speed device switching section receives a device switching request from a user through the input section**" (for example, when "***a device switching instruction is received from the user***" in the form of a "***Switch Device Command***" at the "***READY***" "***middleware***" from the "***user interface used to control device selection***") then "**it [the high speed device switching section] notifies the signaling section of the device selected from the switching candidate device list**" (for example, the "***READY***" "***middleware***" "***immediately***" "***executes***" the "***Smooth Handoff***" "***procedure***" that "***switches the media destination from MD1 to MD2***") and "**the signaling section sends a switching instruction to the selected device**" (for example, the "***READY***" "***middleware***" combined with

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the "***AV control***" layer "***immediately***" composes the "***PASS THROUGH command***" for "***play***" and "***transmits it to a remote Bluetooth device***").

420. Therefore, in my opinion, Ohta in view of AVRCP and the knowledge of a POSITA renders obvious the limitations of this claim element.

421. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that the "**input section**" of this claim element, as well as claim element 1(g) above, may be construed as a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6, wherein the recited functions would be "**receiving a switching destination candidate device list request from a user**" and "**receiv[ing] a device switching request from a user**" and the proposed structure in the specification of the '512 Patent for performing such functions as an "**input section**" that the "**switching source device compris[es]**" would be described by steps "**S309**" and "**S311**" in FIG. 3 as well as the applicable text in 12:20-21, 14:25-30 and 14:36-41 of the '512 Patent (see, for example, ¶¶ 58-59, 64-65, 76 and 78-79 above).

422. Under the alternative claim construction of ¶ 421 above, I note that Ohta discloses and/or renders obvious the recited functions of "**receiving a switching destination candidate device list request from a user**" and "**receiv[ing] a device switching request from a user**" as I have described herein (see, for example, ¶¶ 346-362 and 389-398 above).

423. Ohta also discloses structure for an "**input section**" that the "**switching source device compris[es]**" by at least the description of Figure 4 of Ohta as I have annotated herein (see, for example, ¶¶ 350-352 above).

424. Under the alternative claim construction of ¶ 421 above, I believe a POSITA would understand the "way" that the proposed structure in the specification of the '512 Patent

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would be deemed to perform the functions of "**receiving a switching destination candidate device list request from a user**" and "**receiv[ing] a device switching request from a user**" is by an "*interface (I/F) with respect to a user*", thereby leading to the "result" that an "*input from a user*" can be "*received*" (see, for example, ¶¶ 55, 58-59, 64-65, 76 and 78-79 above).

425. Similarly, one exemplary "way" that the structure for an "**input section**" that the "**switching source device compris[es]**" in Ohta performs the functions of "**receiving a switching destination candidate device list request from a user**" and "**receiv[ing] a device switching request from a user**" is by a "***user interface***" as depicted in annotated Figure 4 of Ohta whereby the "***user***" performs "***clicking on an icon***", thereby leading to the "result" that a "***selection***" from the "***user***" will "***execute***" (see, for example, ¶¶ 148, 151 and 156-157 above).

426. In my opinion, a POSITA would understand that the "way" such "***clicking on an icon***" within a "***user interface***" operates in Ohta is substantially similar to the "way" the "*interface (I/F) with respect to a user*" operates in the '512 Patent, and that such "result" that a "***selection***" from the "***user***" will "***execute***" in Ohta is substantially similar to the "result" that an "*input from a user*" can be "*received*" in the '512 Patent, or thus that the structure in Ohta for performing the functions of "**receiving a switching destination candidate device list request from a user**" and "**receiv[ing] a device switching request from a user**" is at least equivalent to the proposed structure in the specification of the '512 Patent under the alternative claim construction of ¶ 421 above.

427. I also note that the '512 Patent describes Ohta as comprising a "**input section**" that the "**switching source device compris[es]**" that is structurally identical to that of preferred embodiments of the '512 Patent (see, for example, ¶ 76 above).

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428. Therefore, in my opinion, Ohta discloses and/or renders obvious the limitations of this claim element under the alternative claim construction of ¶ 421 above.

429. Similarly, in my opinion, Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element under the alternative claim construction of ¶ 421 above.

430. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that the "**high speed device switching section**" of this claim element, as well as claim elements 1(b), 1(c), 1(d) and 1(e) above, may be construed as a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6, wherein the recited functions would be "**instructing the service discovery section at an arbitrary timing to inquire whether a service can be provided**", "**determining a switching destination candidate device that is a switching destination of a session based on the obtained information as to whether the service can be provided**", "**generating a switching destination candidate device list describing the switching destination candidate devices**", "**making an instruction for establishing a session with the switching destination candidate device**", "**receiv[ing] a device switching request from a user through the input section**" and "**notif[ying] the signaling section of the device selected from the switching candidate device list**" and the proposed structure in the specification of the '512 Patent for performing such functions as a "**high speed device switching section**" that the "**switching source device compris[es]**" would be described by steps "**S302**", "**S303**", "**S305**", "**S311**", and "**S312**" in FIG. 3 as well as the applicable text in 12:32-43, 13:31-36, 13:44-50, 14:6-10, 14:32-35 and 14:42-46 of the '512 Patent (see, for example, ¶¶ 58-59, 62-65, 72-74 and 77-79 above).

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431. Under the alternative claim construction of ¶ 430 above, I note that Ohta discloses and/or renders obvious the functions as also recited at ¶ 430 above as I have described herein (see, for example, ¶¶ 279-288, 295-299, 306-311, 318-322 and 389-398 above).

432. Ohta also discloses structure for a "**high speed device switching section**" that the "**switching source device compris[es]**" by at least the description of Figure 2 and Figure 3 of Ohta as I have annotated herein (see, for example, ¶¶ 249-250, 296, 319 and 392-393 above).

433. Under the alternative claim construction of ¶ 430 above, I believe a POSITA would understand the "way" that the proposed structure in the specification of the '512 Patent would be deemed to perform the functions as also recited at ¶ 430 above is with "*middleware*" that resides within a protocol stack of the "**switching source device**" between an "*application*" and an "*operating system*", thereby leading to the "result" that "*media data*" is "*transferred*" to the "*switching destination candidate device*" while "*continuously used*" (see, for example, ¶¶ 48, 58-59, 62-65, 72-74 and 77-79 above).

434. Similarly, one exemplary "way" that the structure for a "**high speed device switching section**" that the "**switching source device compris[es]**" in Ohta performs the functions as also recited at ¶ 430 above is with the "***READY***" "***middleware***" that resides within a protocol stack of the "***Mobile Host***" between a "***Seamless Application***" and an "***Operating System***" as depicted in Figure 2 and Figure 3 of Ohta, thereby leading to the "result" of "***media transfer destination switching***" with "***media transfer continuity when switching devices***" (see, for example, ¶¶ 137, 144, 148 and 161 above).

435. In my opinion, a POSITA would understand that the "way" such "***READY***" "***middleware***" operates in Ohta is substantially similar to the "way" the "*middleware*" operates in the '512 Patent, and that such "result" of "***media transfer continuity when switching devices***" in

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Ohta is substantially similar to the "result" that "*media data*" is "*transferred*" to the "*switching destination candidate device*" while "*continuously used*" in the '512 Patent, or thus that the structure in Ohta for performing the functions as also recited at ¶ 430 above is at least equivalent to the proposed structure in the specification of the '512 Patent under the alternative claim construction of ¶ 430 above.

436. I also note that the '512 Patent describes Ohta as comprising a "**high speed device switching section**" that the "**switching source device compris[es]**" that is structurally identical to that of preferred embodiments of the '512 Patent (see, for example, ¶ 77 above).

437. Therefore, in my opinion, Ohta discloses and/or renders obvious the limitations of this claim element under the alternative claim construction of ¶ 430 above.

438. Similarly, in my opinion, Ohta in view of AVRCP and the knowledge of a POSITA also renders obvious the limitations of this claim element under the alternative claim construction of ¶ 430 above.

439. As an alternative claim construction, I have been asked by Counsel for the Petitioner to also analyze this claim while assuming that the "**signaling section**" of this claim element, as well as claim element 1(f) above, may be construed as a matter of law as a means for performing a recited function as set out in 35 U.S.C. § 112, ¶ 6, wherein the recited functions would be "**establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section**" and "**send[ing] a switching instruction to the selected device**" and the proposed structure in the specification of the '512 Patent for performing such functions as a "**signaling section**" that the "**switching source device compris[es]**" would be described by steps "**S305**",

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"**S307**", and "**S312**" in FIG. 3 as well as the applicable text in 12:48-50, 13:53-56 and 14:42-46 of the '512 Patent (see, for example, ¶¶ 58-59, 61-64, 72-75 and 77-79 above).

440. Under the alternative claim construction of ¶ 439 above, I note that Ohta discloses and/or renders obvious the recited functions of "**establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section**" and "**send[ing] a switching instruction to the selected device**" as I have described herein (see, for example, ¶¶ 329-336 and 389-411 above).

441. Ohta also discloses structure for an "**signaling section**" that the "**switching source device compris[es]**" by at least the description of Figure 2 and Figure 3 of Ohta as I have annotated herein (see, for example, ¶¶ 249-250, 319 and 392-394 above).

442. Under the alternative claim construction of ¶ 439 above, I believe a POSITA would understand the "way" that the proposed structure in the specification of the '512 Patent would be deemed to perform the functions of "**establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section**" and "**send[ing] a switching instruction to the selected device**" is by using "an *existing protocol* such as *SIP* (session initiation protocol)", thereby leading to the "result" that "*a session with the external device*" is "*controlled*" (see, for example, ¶¶ 58-59, 61-64, 72-75 and 77-79 above).

443. Similarly, one exemplary "way" that the structure for an "**signaling section**" that the "**switching source device compris[es]**" in Ohta performs the functions of "**establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section**" and "**send[ing] a switching instruction to the selected device**" is by the "***READY***" "***middleware***"

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in cooperation with the existing and known "***Bluetooth***" "***control protocol***" disclosed in Ohta, thereby leading to the "result" that a "***connection***" with "***external devices***" is "***managed***" (see, for example, ¶¶ 135, 140, 143 and 146-147 above).

444. In my opinion, a POSITA would understand that the "way" such "***Bluetooth***" "***control protocol***" operates in Ohta is substantially similar to the "way" the "an *existing protocol* such as *SIP* (session initiation protocol)" operates in the '512 Patent, and that such "result" that a a "***connection***" with "***external devices***" is "***managed***" in Ohta is substantially similar to the "result" that "*a session with the external device*" is "*controlled*" in the '512 Patent, or thus that the structure in Ohta for performing the functions of "**establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section**" and "**send[ing] a switching instruction to the selected device**" is at least equivalent to the proposed structure in the specification of the '512 Patent under the alternative claim construction of ¶ 439 above.

445. I also note that the '512 Patent describes Ohta as comprising a "**signaling section**" that the "**switching source device compris[es]**" that is structurally identical to that of preferred embodiments of the '512 Patent (see, for example, ¶ 77 above).

446. Therefore, in my opinion, Ohta discloses and/or renders obvious the limitations of this claim element under the alternative claim construction of ¶ 439 above.

447. Additionally, I note that per my analysis herein that AVRCP discloses at least "***middleware***" that implements the "***AV control***" layer in Figure 2.1 of AVRCP, thereby further informing a POSITA that the structure in Ohta for performing the functions of "**establishing a session with the switching destination candidate device when the instruction for establishing a session is received from the high speed device switching section**" and

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"**send[ing] a switching instruction to the selected device**" when combined as noted herein to implement at least the AV Control signaling of AVRCP would similarly include a "way" and a "result" that are each substantially similar to those of the proposed structure in the specification of the '512 Patent under the alternative claim construction of ¶ 439 above.

448. Therefore, in my opinion, Ohta in view of AVRCP and the knowledge of a POSITA renders obvious the limitations of this claim element under the alternative claim construction of ¶ 269 above.

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IX. CONCLUSION

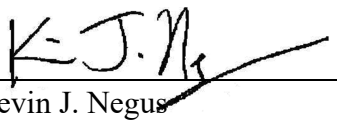
449. In my opinion, the claims of the '512 Patent are invalid for at least the reasons stated above.

450. I reserve the right to supplement my opinions in the future to respond to any arguments raised by Patent Owner or its experts and to take into account new information that becomes available to me.

451. I declare under penalty of perjury that all statements made herein are of my own knowledge and are true and correct and were made with the knowledge that willful false statements are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Respectfully submitted,

Date: July 31, 2023



Kevin J. Negus

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