

**United States Court of Appeals
for the Federal Circuit**

IXI IP, LLC,
Appellant

v.

**SAMSUNG ELECTRONICS CO., LTD., SAMSUNG
ELECTRONICS AMERICA, INC., APPLE INC.,**
Appellees

2017-1665

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. IPR2015-
01444.

Decided: September 10, 2018

GOUTAM PATNAIK, Pepper Hamilton LLP, Washing-
ton, DC, argued for appellant. Also represented by
BRADLEY THOMAS LENNIE; WILLIAM D. BELANGER, Boston,
MA.

MICHAEL J. MCKEON, Fish & Richardson, PC, Wash-
ington, DC, argued for appellees. Also represented by
CRAIG E. COUNTRYMAN, OLIVER RICHARDS, San Diego, CA.

Before O'MALLEY, MAYER, and REYNA, *Circuit Judges*.

REYNA, *Circuit Judge*.

Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Apple Inc. filed a petition to institute an *inter partes* review of certain claims of U.S. Patent No. 7,039,033. The Patent Trial and Appeal Board instituted review that resulted in a final written decision that the reviewed claims are invalid. Patent owner IXI IP, LLC appeals the final written decision. We find that the Patent Trial and Appeal Board's decision is supported by substantial evidence. We affirm.

I. THE '033 PATENT

Appellant IXI IP, LLC ("IXI") owns U.S. Patent No. 7,039,033 ("the '033 patent"), titled "System, Device And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals." The '033 patent is directed to "a system that accesses information from a wide area network ('WAN'), such as the Internet, and local wireless devices in response to short-range radio signals." '033 patent col. 4 ll. 8–11. The system includes a wireless gateway device (i.e., a cellphone), which is coupled to a cellular network, which in turn connects to the Internet through a carrier backbone. *Id.* col. 4 ll. 36–39, 49–54, Fig. 1. The cellphone also forms part of a personal area network ("PAN"), which is a local network made up of the cellphone and one or more terminal devices, such as a laptop computer, a personal digital assistant (PDA), or a printer. *Id.* col. 4 ll. 17–25. The system disclosed in the '033 patent allows the terminal devices of the PAN to access the cellular network through the cellphone. *Id.* Abstract. Thus, the '033 patent discloses a system that contains both a PAN and a WAN, connected via the cellphone. *Id.* col. 4 ll. 8–19.

Software architecture for the cellphone may include network management software including, *inter alia*, a PAN application server. *Id.* col. 5 l. 61–col. 6 l. 5, col. 6 ll. 36–42, col. 6 ll. 58–63, Figs. 4, 5a. In turn, the PAN

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application server includes a service repository software component, which allows applications that run on the cellphone or the terminal devices to discover what services are offered by the PAN, and to determine the characteristics of the available services. *Id.* col. 10 ll. 1–9, col. 12 ll. 9–14, Fig. 7; *see also id.* col. 12, ll. 33–67 (enumerating the many functions of the service repository software component).

Appellant and Appellees agree that independent claim 1 is representative of all challenged claims. Claim 1 recites:

1. A system for providing access to the Internet, comprising:

a first wireless device, in a short distance wireless network, having a software component to access information from the Internet by communicating with a cellular network in response to a first short-range radio signal, wherein the first wireless device communicates with the cellular network and receives the first short-range radio signal; and,

a second wireless device, in the short distance wireless network, to provide the first short-range radio signal,

wherein the software component includes a network address translator software component to translate between a first Internet Protocol (“IP”) address provided to the first wireless device from the cellular network and a second address for the second wireless device provided by the first wireless device,

wherein the software component includes a service repository software component to

identify a service provided by the second wireless device.

Id. col. 15 ll. 40–59.

II. PRIOR ART

Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Apple Inc. (collectively, “Samsung”) filed a petition to institute an *inter partes* review (“IPR”) of certain claims of the ’033 patent on the basis of the following prior art references: PCT Publication No. WO 01/76154 to Marchand (“Marchand”); K. Arnold et al., The Jini™ Specification, Addison-Wesley (“JINI Spec.”); U.S. Patent No. 6,560,642 to Nurmann (“Nurmann”); U.S. Patent No. 6,771,635 to Vilander, filed Mar. 27, 2000, issued Aug. 3, 2004 (“Vilander”); Handley et al., Request For Comments 2543 SIP: Session Initiation Protocol, The Internet Society (“RFC 2543”); and U.S. Patent No. 6,836,474 to Larsson (“Larsson”).

Relevant to this appeal, Marchand, titled “Ad-hoc Network and Gateway,” discloses “an ad-hoc network and a gateway that provides an interface between external wireless IP networks and devices in the ad-hoc network.” Marchand, p. 1 ll. 5–7. The ad-hoc network, also called “Bluetooth Piconet,” is a PAN that includes a gateway device (i.e., a cellphone) and other terminal devices such as a laptop computer or a printer. *See id.* p. 3, ll. 22–30. The devices on the ad-hoc network can communicate via Bluetooth radio link. *Id.* Abstract, p. 7 ll. 9–11. The cellphone acts “as a gateway between the ad-hoc network and a 3G wireless IP network [] such as the General Packet Radio Service (GPRS) network.” *Id.* p. 7 ll. 12–14.

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The ad-hoc network utilizes Bluetooth, IP, and JINI¹ technologies to enable its terminal devices to access the cellular network through the cellphone. *Id.* p. 7 ll. 7–9. For IP address translation, IP packets from the GPRS are received at the cellphone through its public IP address, and are then forwarded to the private IP address of the terminal device on the ad-hoc network. *Id.* p. 7 ll. 14–16. Address translation in the opposite direction is handled similarly. *Id.* p. 7 ll. 16–17. “JINI (Java) technology is utilized to publish and share services between the devices” in the ad-hoc network, and this technology “provid[es] the capability for an application [] to discover, join, and download services [] from a JINI LUS [“Lookup Service”].” *Id.* p. 6 ll. 3–4, 21–22. “The LUS contains a list of available services provided by other devices on the network.” *Id.* p. 3 ll. 11–12. Devices in the ad-hoc network “announce not only value-added services, but also their attributes and capabilities to the network,” whereupon these services are published through the LUS. *Id.* p. 3 ll. 12–15, p. 10 ll. 17–18. The LUS also provides interfaces for services that are available to the devices in the ad-hoc network. *Id.* p. 3 ll. 13–14, p. 8 ll. 12–15.

For example, Figure 4 of Marchand depicts “a simplified functional block diagram of a connection between two devices such as the laptop computer [] and the [cell]phone [] utilizing the ad-hoc network.” *Id.* p. 7 ll. 26–28. The cellphone publishes in the Bluetooth Piconet the call control services that it offers “[u]tilizing the JINI Lookup Service (LUS).” *Id.* p. 8 ll. 11–12.

¹ JINI is a specific architecture “designed for deploying and using services in a network.” J.A, 523.

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