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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

UNWIRED PLANET LLC, a Nevada limited
liability company,

Plaintiff,

v.

APPLE INC., a California corporation,

Defendant.

Case No. 3:13-cv-4134-VC (JCS)

**UNWIRED PLANET'S FURTHER
BRIEFING ON `446 "VOICE
CHANNEL"**

JUDGE: Hon. Vince Chhabria

Case No. 3:13-cv-4134-VC (JCS)

UNWIRED PLANET'S FURTHER BRIEFING ON `446
"VOICE CHANNEL"

1 **I. BACKGROUND**

2 The Court recognizes that a “voice channel” does not necessarily require a telephone call.
3 Dkt. 363 at 1. When the inventor filed the ’446 application, cell phones *generally* established voice
4 channels by making phone calls. ’446 Patent at 6:22–25 (“This communication channel is generally
5 established and coordinated using the infrastructure and procedures generally known in the art for
6 setting up a phone call.”). But some mobile devices (*e.g.*, palm sized computing devices and
7 personal digital assistants) also established voice channels through other means. ’446 Patent at 4:67–
8 5:3. These mobile devices establish a voice channel by accessing “a variety of wireless [(*e.g.*, WiFi)]
9 and wire-line networks, most notably the Internet and private networks.” ’446 Patent at 1:21–27.
10 Thus, through cellular networks, private networks, or the Internet,¹ “local applications resident
11 within the mobile device [] establish and coordinate a voice channel between the subject mobile
12 device and a remote server system running a speech recognition application.” ’446 Patent at 3:5–8.

13 Whether a voice channel exists is determined by an overall assessment of the
14 communication. And importantly, the voice channel exists independently of the medium, as Figure 1
15 of the patent discloses a wireless connection from a mobile device to a cellular base station, then a
16 wired backhaul connection from the cellular base station to the speech recognition server.

17 A little technical background is necessary for context in responding to the Court’s questions:
18 multiple channels exist simultaneously on many different levels, or layers, of the communication
19 stack.² Communications require physical channels (such as copper wire, optical fiber, or radio
20 waves), logical channels established over physical channels, and additional logical sub-channels
21 established over other logical channels. Voice channels use “channels” and “sub-channels” in the
22
23
24

25 ¹ When performed through the Internet, the Internet Protocol (IP) would be used. Many “private
26 networks” also use IP.

27 ² The OSI model defines communications with regard to seven different levels of abstraction:
28 Physical, Data Link, Network, Transport, Session, Presentation, and Application. See
http://en.wikipedia.org/wiki/OSI_model.

1 same way.³

2 Multiple physical channels are employed in the “simple” example of connecting a cell phone
3 to a speech recognition server using a phone call. From the cell phone to the base station, the voice
4 channel travels over a physical channel of radio waves traveling through the air. At the cellular base
5 station, the voice channel travels over another physical channel (copper or fiber optic cable) as it is
6 routed from the cellular carrier’s network to the PSTN (Public Switched Telephone Network), which
7 is a collection of multiple interconnected physical channels that relay the phone call to the server.

8 In addition, multiple layers of logical channels are employed at each stage of the process.
9 Logical channels such as DTCH/UL (Dedicated Traffic CHannel/UpLink) operate over the physical
10 channel between the cell phone and cellular base station. Dkt. 325-34 (Ex. 21 – Jones Infr. ’446) at
11 D-42. The DTCH/UL channel is used for both cellular telephone calls and for transmission of Siri
12 voice input. *Id.* These logical channels ensure that the voice input for the telephone call’s voice
13 channel is properly encoded, packetized, and routed through the various physical channels until it
14 arrives at the server, where it is depacketized and decoded.⁴ A similar process with multiple
15 physical and logical channels occurs when transmitting voice over IP.

16 **A. Question: Does VoIP technology send voice input over a voice channel?**
17 **Answer: Yes.**

18 VoIP sends voice input over a voice channel. Dkt. 325-36 (Ex. 23 – Jones Reply ’446) at D-
19 11–12. Skype is a well-known example of a VoIP application that sends voice input over a voice
20 channel. Dkt. 325-34 (Ex. 21 - Jones Infr. ’446) at D-41–42. A Skype call can be routed entirely
21 over a networked connection (Internet + “private network”), such as computer-to-computer, or also
22 partially routed over the PSTN, such as connecting to a traditional land-line phone.

23
24 ³

25 http://lookup.computerlanguage.com/host_app/search?cid=C999999&term=voice+channel&lookup.x=0&lookup.y=0

26 ⁴ Additionally, the voice signal exists in both analog form (speaking into the cell phone’s
27 microphone) and digital form (digitized bits sent over the cellular network and PSTN).

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UNWIRED PLANET'S FURTHER BRIEFING ON '446
“VOICE CHANNEL”

“VoIP” literally means “Voice over Internet Protocol.” Setting up a voice channel over the Internet Protocol is implicitly disclosed in the ’446 Patent’s discussion of using a URI (Uniform Resource Indicator) to establish a voice channel:

According to the preferred embodiment of the present invention a mobile device (e.g. mobile device 102 or 103) desiring to receive speech recognition services from speech recognition server system 109, first establishes a voice channel generally represented by voice channel 126. The contact information for speech recognition server system 109 (e.g. a phone number or a uniform resource indicator (URI)) may be embedded in software loaded on the mobile device, retrieved from link server device 106 or input by the user directly.

’446 Patent at 6:35–44 (emphasis added). A URI identifies a resource on a network (including the Internet), such as the URL for a website.⁵ The URI identifies the speech recognition server’s IP address, so that the invention establishes a voice channel using the IP protocol. Dkt. 325-34 (Ex. 21 - Jones Infr. ’446) at D-3.

The ’446 Patent describes VoIP applications⁶—“local applications resident within the mobile device”—that “establish and coordinate a voice channel,” then the user “is queued to begin speaking into the microphone of the mobile device.” ’446 Patent at 3:4–12. These applications on the mobile devices use “wireless and wire-line networks, most notably the Internet and private networks” (in addition to cellular networks) to establish voice channels. ’446 Patent at 1:21–27. As traffic on the Internet and many “private networks,” is sent using IP (Internet Protocol). The voice channel is established by the VoIP application over the Internet and “private networks,” such as home networks or business networks, both of which employ the Internet Protocol.

The ’446 Patent also teaches that voice channels can exist on packet networks, giving further support to the notion that the voice channel is not limited to a traditional phone call. The patent discloses the use of CDPD, which sends voice over a packetized network, ’446 Patent at 5:16–21,

⁵ http://en.wikipedia.org/wiki/Uniform_resource_identifier

⁶ VoIP was used at the filing of the ’446 Patent. Detlef (U.S. Patent No. 6,351,523), one of the references cited in prosecution of the ’446 Patent, discusses “conversion of voice-to-data in preparation for real-time transmission across an IP network.”

1 further disclosing that technologies such as VoIP (that use packets to transmit information) may be
 2 used for the voice channel. Dkt. 325-34 (Ex. 21 - Jones Infr. '446) at D-3.

3 **B. Question: Is there a different answer depending on whether or not**
 4 **VoIP uses TCP/IP protocols?**

Answer: No.

5 VoIP's voice channel is a voice channel when TCP/IP is being used. The "IP" in VoIP is the
 6 same "IP" in TCP/IP—both refer to using the Internet Protocol. Thus Voice over TCP/IP is Voice
 7 over IP.⁷ Generally, no distinction is made regarding the protocols used beyond IP (*i.e.*, not called
 8 VoTCP/IP or VoUDP/IP or VoRTP/IP or even VoRTP/TCP/IP).

9 Skype, for example, will establish its voice channel for a Skype call using TCP/IP in some
 10 circumstances. *Id.* at D-10. TCP and IP are protocols (Transmission Control Protocol and Internet
 11 Protocol), not channels. Protocols at this layer do not determine or control the presence or absence of
 12 a voice channel. Dkt. 325-36 (Ex. 23 - Jones Reply '446) at D-9. Furthermore, at the time of the '446
 13 Patent, RTP was understood as a protocol for transmitting voice in real-time, and RTP can be sent
 14 over TCP (effectively RTP/TCP/IP). *Id.* at D-9–10 (citing <http://www.webrtc.org/faq> (WebRTC
 15 supports "RTP-over-TCP"); <http://tools.ietf.org/html/rfc4571> (July 2006) ("This memo defines a
 16 method for framing Real-time Transport Protocol (RTP) and RTP Control Protocol (RTCP) packets
 17 onto connection-oriented transport (such as TCP).")).

18 **C. Question: Other than a cellular telephone call, what are other examples of**
 19 **voice input being sent over a voice channel?**

Answer: Discussed below.

20 Skype and Apple's FaceTime send voice input over a voice channel using VoIP technology
 21 without making a cellular telephone call. Dkt. 325-34 (Ex. 21 - Jones Infr. '446) at D-41–42.
 22 Apple's on-line documentation for iOS App developers explains that Apple's GameKit "provides a
 23 voice channel that allows a set of players in a match to speak with each other" (Dkt. 325-36 (Ex. 23 -
 24 Jones Reply '446) at D-11) using "wireless and wire-line networks, most notably the Internet and
 25

26 ⁷ See http://www.webopedia.com/DidYouKnow/Internet/VoIP_POTS_Difference_Between.asp;
 27 http://en.wikipedia.org/wiki/Voice_over_IP

private networks,” not a cellular telephone call (’446 Patent at 1:26–27). Apple’s own source code calls the transmission of voice on its “private networks” between its servers an “audio channel.” *Id.* at D-81. Beyond these identifications in the record, there are numerous other programs commonly used by gamers to send voice input over a voice channel without making a telephone call.⁸

In addition, the ’446 Patent specifically identifies “palm sized computing devices” and “personal digital assistants” as practicing the invention without making a cellular telephone call. ’446 Patent at 4:67–5:3. When the inventor filed the ’446 application, landline telephones, cordless telephones, and CB radios would have been examples of voice input being sent over a voice channel without using a cellular telephone call.

D. Question: What are examples of voice input being sent over a data channel?
Answer: Downloading MP3 of oral arguments recorded the day before.

Merely downloading an MP3 file of oral arguments recorded the day before, in order to listen to it later, would be one example of voice input (the oral arguments) being sent over a data channel (downloading from a server) that does not use a voice channel. Or similarly, downloading a MP3 music file to play on a portable music player would be downloading over a data channel.

E. Question: Are there discernible limits on what constitutes a voice channel, and, if so, what are they?
Answer: Yes, by performing a multi-factor analysis.

As discussed at the April 22 hearing, a person of skill in the art, such as Dr. Jones, determines the presence (or absence) of a voice channel through an overall assessment of various factors. This is a fact-intensive inquiry to determine if the identified channel is configured for the transmission of voice.⁹ Unwired Planet and its expert identified some of the factors that define a voice channel, such as (1) transmission of voice, (2) transmission of “silence” between voice

⁸ TeamSpeak (<http://www.teamspeak.com/>); Ventrilo (<http://www.ventrilo.com/>); Mumble ([http://en.wikipedia.org/wiki/Mumble_\(software\)](http://en.wikipedia.org/wiki/Mumble_(software))); Xbox (<http://support.xbox.com/en-US/xbox-360/xbox-live/chat>).

⁹ Before the fact-intensive analysis, there is also the foundational issue of identifying the proper channel to analyze, or alternatively, analyzing all the possible channels.

utterances, (3) any delay in transmission, (4) if packetization and transmittal are continuous, (5) use of a codec specialized for encoding and packetization of voice, (6) any special configuration of the channel, and (7) same or different physical or logical channels used for transmission of phone calls, Skype, FaceTime, or other acknowledged voice channels. Dkt. 325-4 (Unwired Planet's MSJ Response) at 18. A person of ordinary skill in the art would analyze these, and possibly additional factors, to determine if an identified channel is a voice channel.

For example, one can analyze possible hypothetical variations of the example offered above of downloading a MP3 file of oral arguments recorded the day before. A person of ordinary skill might come to a different conclusion if the user were listening to the MP3 file as it downloaded, or if it was being streamed instead of downloaded, or if it was being streamed live during oral arguments, or if it was being streamed live via Skype during the oral arguments, or if the user listened and responded using Skype, or if the user is listening and responding by dialing in over a normal telephone line. Each of these variations presents a slightly different analysis, possibly yielding different results dependent on the specific details of the hypothetical. All of these circumstances lie on a spectrum between a data transfer, on one end, and a telephone call over a voice channel, on the other end. Determining where a voice channel ends and becomes a data channel requires an overall assessment of these factors. Unwired Planet's expert performed this assessment and concluded that Siri, like Skype, uses a voice channel. Dkt. 325-34 (Ex. 21 – Jones Infr. '446) at D-40–45; Dkt. 325-36 (Ex. 23 – Jones Reply '446) at D-9–16.

The nature of this fact-intensive multifactor analysis demonstrates why determining whether a voice channel is employed is a task for a person of ordinary skill in the art.¹⁰

¹⁰ As discussed at the April 22, 2015 Hearing, Unwired Planet believes repeated constructions of the claims (revising constructions or providing constructions of previous constructions) are inappropriate. Unwired Planet further respectfully requests that if the Court construes its construction of "voice input," Unwired Planet be provided the opportunity to provide a supplemental expert report applying the Court's construction.

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1 DATED: May 1, 2015

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the above and foregoing document has been served on May 1, 2015 to all counsel of record who are deemed to have consented to electronic service via the Court's CM/ECF system. Any other counsel of record will be served by electronic mail, facsimile, U.S. Mail and/or overnight delivery.

/s/ Theodore Stevenson

McKool Smith Hennigan, P.C.
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