

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMCAST CABLE COMMUNICATIONS, LLC,
Petitioner

v.

PROMPTU SYSTEMS CORPORATION,
Patent Owner

Case No. IPR2018-00344

DECLARATION OF DR. DAVID CHAIKEN

I, David Chaiken, state and declare as follows:

1. I received my Ph.D. in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology in 1994. After earning my Ph.D. degree, I worked at Digital Equipment Corporation (DEC) as a Principal Software and Hardware Engineer from 1994 to 1998, where I developed software and hardware for certain information appliances. In 1998, I left DEC to join AT&T Labs as a Research Group Manager. My work at AT&T included development of a set-top box that used AT&T's network to provide certain financial services.

2. I left AT&T in May 2000 to become the co-founder and Chief Technology Officer of Aeroprise Inc., a company that specified and prototyped a wireless data product and software architecture for providing information technology (IT) services.

3. In November 2000, I left Aeroprise to work at Promptu Systems Corporation ("Promptu") when it was previously known as AgileTV Corporation ("AgileTV"). I use the words "AgileTV" and "Promptu" interchangeably in this declaration, since AgileTV changed its name to Promptu in 2006. My first position at AgileTV was Vice President and Chief Software Architect. In September 2004, I was promoted to Vice President and Chief Technology Officer, a position I held until I left Promptu in September 2006.

4. Our overall goal at AgileTV was to specify, develop, implement,

optimize, measure, test, deploy, and sell AgileTV's speech-recognition products and capabilities. My work contributed to the development of AgileTV's solution for a large-scale distributed voice navigation system that could be used in cable television network broadcasting systems.

5. During my tenure at AgileTV, some of my responsibilities involved accelerating, and in certain instances, leading many critical-path technical activities, including (a) client and server software engineering, (b) Linux stabilization and optimization, (c) speech recognition performance optimization, (d) network protocol specification, (e) printed circuit board engineering, (f) cable television integration and deployment, and (g) mobile phone integration and deployment. More generally, I had either directly or indirectly worked on most of the technical development of the speech recognition system created, developed, and implemented by AgileTV for cable network television.

I. The AgileTV Solution Solved a Long-Felt But Unmet Need for Using Voice Recognition in Cable Television Network Systems

6. As early as 2000, AgileTV recognized that as the amount of digital content available to cable subscribers continued to increase, the existing tools to navigate that content were impractical. It had been known for years in the industry that manually navigating a large volume of content using an electronic program guide was unwieldy and required excessive keystrokes on the remote control. And existing voice recognition technology suffered several disadvantages, including

limited vocabulary, low accuracy, and awkward navigation. AgileTV further recognized that, given the increasing amount of content that cable television network companies were offering, traditional remote control devices and cable infrastructure to access television content were inefficient. By using speech recognition technology, one of AgileTV's objectives was to simplify users' ability to find and view desired television programming on the cable television network.

7. At the time I joined AgileTV in 2000, there were not any known competitors attempting to incorporate voice recognition technology into cable television network systems for accessing digital content, such as television programs or videos on demand. I recall our closest competitor in the early 2000s was a company called Integra5, which had demonstrated a product requiring an out-of-band telephone call to request digital content from the cable television network. To my knowledge, Integra5's solution was not successful.

8. In view of the existing problems, AgileTV created a voice-enabled search and navigation solution for the cable industry that was large-scale, distributed, and scalable, and intended to accommodate millions of cable subscribers and digital-content choices. Before AgileTV's solution, no one had addressed speech recognition for the cable industry from a comprehensive, system-wide perspective: from microphone, through transport and to the server-side speech recognition engine.

9. The AgileTV solution was implemented using hardware and software components installed at the customer's premises and in the cable headend. A user could speak voice commands for content into a voice-enabled remote control, which transmitted the voice commands to the user's set-top box. The set-top boxes in the AgileTV solution were connected through the cable television network to the cable headend, where the user's voice command could be used, for example, to derive a set-top box command function based on the voice command, fetch the user-requested content, and return the command and content to the customer's set-top box for displaying the content on a television.

10. The architecture adopted by mid-2000 and used by AgileTV comprised several devices located at a customer's home, for example, a television, a set-top box and a remote device into which words were spoken. Signals derived from these spoken words were sent through the network connected to the cable head end, where content corresponding to these signals was fetched and sent back through the set-top box and into the customer's television. This architecture was used throughout AgileTV's existence.

11. AgileTV deployed and tested this solution in cable network systems. I personally recall installing AgileTV's systems in cable network systems operated by at least four cable companies, including Comcast.

12. For most solutions using the AgileTV technology, the voice

recognition functionality was implemented in an AgileTV platform (referred to as the “Agile engine,” which was initially envisioned as being powered by a super computer and later powered using X86 processors).

II. The AgileTV Solution Is Described in Promptu’s ’196 Patent

13. Counsel for Promptu asked me to review U.S. Patent No. 7,047,196 (Exhibit 1001, “the ’196 patent”) relative to the AgileTV solution as it existed in the early 2000s.

14. The embodiments described in the ’196 patent describe the foundations of the design of the AgileTV solution. The ’196 patent describes the initial architecture of the AgileTV solution, which was subsequently extended and improved by AgileTV.

15. By 2003, the AgileTV system architecture partitioned a received back channel to a multiplicity of received identified speech channels, processed those to create a multiplicity of identified speech content, and responded to the multiplicity of identified speech content to create a unique identified speech content response for each identified speech content. For example, users could send different voice commands, such as “Find CNN” and “Find ESPN,” upstream to the cable headend to request digital content. The user voice commands were multiplexed on a back channel received by the AgileTV voice processing system, which would partition the different voice commands from the back channel, process those commands to

identify the users' respective requested content (e.g., CNN or ESPN), and respond with a unique response for each user with the appropriate requested content.

16. In view of the above, my experience working on the AgileTV solution in the early 2000s, the architecture and solution described in the '196 patent accurately reflect the AgileTV solution by 2003. Although the AgileTV solution evolved during my time at Promptu to add new features and capabilities, the architecture and solution described in the '196 patent also describes the AgileTV system from that time throughout my time at Promptu including the AgileTV solution that was successfully installed in Comcast's cable network system.

III. The AgileTV Solution Received Substantial Industry Praise

17. The AgileTV solution was widely praised within the cable industry because it provided advantages that previously were unavailable.

18. I recall that during my tenure at AgileTV, it employed Scott Maddux. Some of the AgileTV documents I reviewed from AgileTV included research I believe was either commissioned or actually done by Mr. Maddux, concerning customers who received the AgileTV solution in their homes. For example, as shown in Exhibit 2010, Mr. Maddux observed in June 2003 that: "To date, user acceptance has exceeded our expectations. The price/value relationship is high and consistent with what we have experienced in our Focus Groups. We are continuing to find the more programming, products and services the cable operator is offering,

the higher the value the consumer places on their ability to easily navigate by voice.”

19. By mid-2003, Comcast requested that AgileTV deploy its voice recognition system into portions of Comcast’s cable television network. I was responsible for these early installations. This technology was deployed into Comcast’s New Media Department (“NMD”), which I understand was assigned the responsibility to test new technologies and make recommendations to Comcast’s management. As indicated in Exhibit 2011, after the AgileTV solution was demonstrated in the NMD deployment for Comcast, the head of Comcast’s NMD department commented: “I could fall in love with this.” Exhibit 2012 includes a photograph of the AgileTV system that we demonstrated to Comcast in the NMD Department in September 2003. On some occasions, Comcast even demonstrated the AgileTV voice recognition system to senators. *See, e.g.*, Exhibit 2013; Exhibit 2014.

20. In December 2003, I attended the Comcast Christmas party to deploy and demonstrate the AgileTV system to Comcast executives to show off the technology, including Comcast’s CEO Brian Roberts and other executives, including Steve Burke (EVP & President). Mr. Roberts, in particular, commented favorably regarding the AgileTV system following this deployment and demonstration. *See, e.g.*, Exhibit 2014.

21. Following that demonstration of the AgileTV system in 2003, Comcast invited AgileTV to deploy its system in a company-wide strategy meeting in February 2004. I was responsible for deploying the AgileTV technology into the Comcast network to function at this meeting in Phoenix, Arizona, where the AgileTV system was demonstrated to many of Comcast's senior managers. In my review of AgileTV documents, I saw one that revealed that Comcast told Promptu's Chief Executive Officer that it intended to invest in AgileTV and eventually deploy the AgileTV voice recognition technology so that all of its 21 million subscribers could access cable television content using AgileTV's voice recognition technology. *See, e.g., Exhibit 2015.*

22. I reviewed additional AgileTV documents including the following: one showing that Comcast's CEO, Brian Roberts, publicly praised the distributed voice recognition technology provided in the AgileTV solution. *See, e.g., Exhibit 2016, Boston Globe article, dated Mar. 13, 2004, "Comcast Chief Remains Interested in Disney Prefers Patience to a Bidding War"; see also Exhibit 2017, of an AgileTV excerpt of a Boston Globe article.* According to the excerpt of the Boston Globe article from March 2004, Comcast's CEO stated "at a management conference in Phoenix last week with 550 Comcast executives, 'one of my favorite' new pieces of technology was a TV remote control that includes a speech recognition feature." Exhibit 2016.

23. AgileTV also received praise for its solution in public media. For example, AgileTV's former CEO (Paul Cook) and current CTO (Harry Printz) were invited to the Kudlow & Cramer show on CNBC in 2004 to talk about the AgileTV solution and to demonstrate the technology. I personally remember this event, having watched the piece on CNBC. Exhibit 2018 is a video of this event and Exhibit 2019 (dated May 2004) is transcript of this event.

24. My further review of the AgileTV documents revealed a study of Comcast by the Buckingham Research Group in May 2005. As indicated, the study referred to "a beta service called Promptu, which Comcast is developing in collaboration with a third party vendor," i.e., AgileTV Corporation. Exhibit 2020 at -41673. The study included the following highlights of the AgileTV service:

Promptu is in essence a voice-activated EPG. By speaking specific command and tag words into a mic built into the remote, *users can look up specific programs or channels far more quickly than the more conventional interface that often involves hitting several keys on the remote*. Promptu works by converting the voice commands into meta tags that are directed via a separate infrared eye (that would eventually be integrated into all boxes) to a server stored at the head-end. This is similar to the way VOD commands are currently serviced, although *the latency on the Promptu service was noticeable lower* than on the VOD service. Legacy boxes would require a software download as well as a sidecar infrared device, in addition to the special remote. *What we found really interesting about the Promptu*

demo was the ease with which it could conduct searches (e.g. for all programs starring Julia Roberts).

Id. (emphasis added).

25. I recall that Scott Maddux performed and commissioned studies, surveys and focus groups regarding customer reaction to the AgileTV solution. One of the AgileTV documents I reviewed stated that as early as June 2003, “user acceptance has exceeded our expectations.” See, e.g., Exhibit 2010.

IV. The AgileTV Solution Was Commercially Valuable

26. I also reviewed AgileTV documents that revealed some of its history. One such document showed that AgileTV, founded in 2000, raised over \$35 million to develop its AgileTV solution. See, e.g., Exhibit 2003 at -134235. Another set of documents revealed that AgileTV raised additional rounds of funding. See, e.g., Exhibit 2021; see also Exhibit 2002 at -38140 (“Our focused efforts in the Cable Industry have resulted in investment from industry players including Motorola, Insight Communications and SpeechWorks; and most recently a commitment to invest from Comcast in our Series D round,” anticipating “revenues of over \$100 million by 2006”). I also recall that Comcast made an investment in AgileTV. See, e.g., Exhibit 2022, “License and Development Agreement” between AgileTV and Comcast. The history described in these documents is consistent with my understanding and recollection.

V. AgileTV Successfully Licensed its Solution to Comcast

27. Comcast entered into a “Marketing Trial Agreement for Voice Activated Television Control Service” (Exhibit 2023) with AgileTV. According to the Marketing Trial Agreement, “Comcast wishes to conduct a field trial of limited scope and duration in which it evaluates AgileTV’s voice-activated remote control and programming interface products and services (the ‘AgileTV System’) . . .” Exhibit 2023 at 1. The field trial would utilize the AgileTV Promptu service for approximately 275 Comcast customers. Exhibit 2023 at Attachment A.

VI. The AgileTV Solution Was Successfully Deployed by Comcast

28. After Comcast and AgileTV entered the agreements above, the AgileTV solution was successfully deployed and tested in the Comcast system. By October 2005, for example, AgileTV’s search service, Promptu, had been in the field with various cable operators for three years, including Comcast’s Torresdale (sometimes referred to as “Willow Grove”) headend for a year and half, Insight Communications and Sunflower Broadband. Exhibit 2024, “A Voice in the Navigation Wilderness,” dated Oct. 27, 2005.

29. I personally supervised the installation of the AgileTV solution in the field. Attached as Exhibit 2025 is a video of me supervising a successful installation of the AgileTV solution in a Comcast employee’s home around 2004-05.

30. AgileTV provided Comcast with a server at the headend, customer premises equipment configured with the AgileTV User Interface, VoiceRemote controls, and VoiceLink receiver, and supporting documentation, such as release notes, reference guides, user guides, and the like, for operating the AgileTV solution. *See, e.g.*, Exhibit 2023, Marketing Trial Agreement, Attachment A, at 2. AgileTV also provided technical support and assistance with setting up and deploying the AgileTV solution in the Comcast cable system.

31. As part of AgileTV's relationship with Comcast, the AgileTV solution was deployed in hundreds of households. I was specifically involved with ensuring the installation into these households was done correctly and that the deployment was successful.

32. As part of the deployment, each household received a box that included a voice-activated remote, the Promptu receiver, an installation DVD, quick start guide, user's guide, and voice reference card. The installation DVD included a video demonstrating the technology and showing users how to set up and use the AgileTV solution. Attached as Exhibit 2026 to this declaration is the video that was included on the installation DVD. The video accurately depicts the state of the AgileTV solution in 2005 and also accurately depicts the box that each household received in addition to the contents of that box. Exhibit 2027 is a copy

of the quick start guide. Exhibit 2028 is a copy of the user's guide. Exhibit 2029 is a copy of the voice reference card.

33. Despite the success of these field trials of the AgileTV solution, I understand Comcast did not exercise its option to license additional rights under the AgileTV Patents beyond the scope and duration of the trials in the Comcast cable system.

34. After Comcast released its speech recognition functionality in 2015, acquaintances of mine who were aware of the scope of my work at AgileTV told me they confused Comcast's functionality with the AgileTV solution I had developed and deployed in 2005 in connection with my employment at AgileTV.

35. Counsel for Promptu has informed me that Promptu has asserted a lawsuit in federal district court based, in part, on a complaint that Comcast's current products infringe patents relating to AgileTV's voice recognition technology.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on September 26, 2018:

/David Chaiken/

David Chaiken