UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RED HAT, INC.
Petitioner

v.

COMPETITIVE ACCESS SYSTEMS, INC.
Patent Owner

Case No. IPR2025-01370
U.S. Patent No. 11,582,343

# DECLARATION OF ERIC M P. DELANGIS

Red Hat, Inc. v. Competitive Access Systems, Inc.
IPR2025-01381
Exhibit 2023

I, Eric M P. DeLangis, declare as follows:

1. I am over the age of eighteen and competent to make this declaration. The statements herein are based on my personal knowledge and on contemporaneous documents I created or maintained in the ordinary course of research and development at Competitive Access Systems, Inc. ("CAS"). If called to testify, I could and would testify competently as to the matters stated below.

2. In connection with the making of this declaration, I have reviewed the documents and records referenced in this declaration to refresh my recollection of events and dates. Such documents include records kept by CAS's development team in the ordinary course of business, including records or summaries of regularly conducted activities and events that occurred on the dates indicated. Such records were made at or around the time of the events that occurred by people with knowledge of the events at issue.

3. I graduated from the University of Southern California in 1983 with a B.S. in Chemistry. My career subsequently has focused on telecommunications system architecture and productization, including voice and data switching and access platforms. For example, I was the founder of AMT Communications, where I led the design of Class 5 central office switching systems. I also held engineering roles at Symbios Logic, Level 3 Communications, and Hughes Aircraft.

4. In October 1997, I founded CAS in Longmont, Colorado to develop next-generation broadband access systems. At CAS, I serve as President and CEO and led product architecture for CAS's gateway technology known as CopperJet.

5. I conceived and reduced to practice of the CopperJet gateway and related subsystems as described herein and in the supporting documents. The CopperJet project resulted in inventions covered by U.S. Patent Nos. 7,606,156; 8,228,801; 8,861,349; 9,350,649; 10,868,908; 11,418,641; and 11,582,343 (the "CAS Patents"). I am the sole inventor of the CAS Patents.

6. Between 1996 and 1999, I began developing what we were calling the CopperJet gateway. A significant focus at the time was to develop voice over internet (VoIP), although it was my intention that the eventual CopperJet would be an all-in-one communications device (i.e., that it would provide both voice and data services).

7. Accordingly, I was considering interfaces that a personal communications device, such a telephone or personal computer, could use to connect to the CopperJet gateway at a first location. I was also considering how the CopperJet gateway could route voice circuits and data circuits over different channels. However, I had yet to conceive ideas such as having broadband traffic be transmitted through a telephone line or relying on bandwidth availability to determine which

channel to use. Rather, at this time, the contemplated invention involved using separate lines for voice and data.

8. I also began considering what network protocol the CopperJet system would use. I eventually decided to create my own protocol rather than relying on an existing network protocol, creating what was eventually referred to in the CAS Patents.

9. As I continued developing the eventual CopperJet Gateway, I knew from my prior experience in the industry that the CopperJet Gateway would need to be built using a pre-assembled circuit board ("development board"). A development board is a pre-assembled circuit board designed to help developers test, prototype, and develop applications. These boards provide a ready-to-use platform that eliminates the need to design and build an entire circuit from scratch. Throughout 1999, I was researching possible development boards for development of the CopperJet Gateway.

10. During 2000, the Motorola M5272C3 became available publicly, which is the development board that I ultimately chose for development of CopperJet.

11. The Motorola M5272C3's contained pre-loaded initial Linux kernel and Motorola based microprocessors (known as ColdFire line processors) and served as an ideal circuit board for residential gateway development.

12. In January 2001, I conceived the idea that ultimately led to the invention claimed in the CAS Patents and embodied in the CopperJet. Specifically, after buying a home in Loveland, CO, and while standing on my front porch, I realized that all houses have their own dial-up internet connection and that I could speed up my internet connection if I could wirelessly connect to the other houses and use their connections simultaneously. This is when I had the idea for an RCG device and protocol that not only would combine voice, data, and video communications but would pair one or more POTS lines with a wireless port RF/802.11 interface to send broadband data efficiently to a remote server by routing data over simultaneous multiple connections and combining the received data for the intended receiving device.

13. After conceiving the idea of exchanging broadband data over multiple simultaneous connections (e.g., POTS and Wi-Fi) using my new protocol to increase bandwidth, I set about further developing the protocols, software, and hardware to implement my idea. I also diligently pursued patent protection and business development of my idea including seeking investor funding.

14. On January 31, 2001, I emailed a document titled, CAS Executive Summary CopperJet VIP Home Gateway ("Executive Summary") to Holland & Hart, lawyers who were to help locate financing partners for the CopperJet gateway. The Executive Summary alluded to some of the generalized concepts of the

invention that I had just conceived. True and accurate copies of this document and the email with which it was sent are attached as **Exhibit 2017 (Executive Summary)**. For example, the document corroborates that at the time I had already conceived of the gateway employing one POTS line and one wireless port [RF]/802.11 interface to send data. See **Exhibit 2017 (Executive Summary)** ("The CopperJet™ VIP Home Gateway features: . . . Home PNA and Bluetooth interfaces for home networking over home telephone wires or RF" . . . [and] would "combine all of a typical home user's voice and data services" [and] "provide[s] multi-line services with enhanced calling features.").

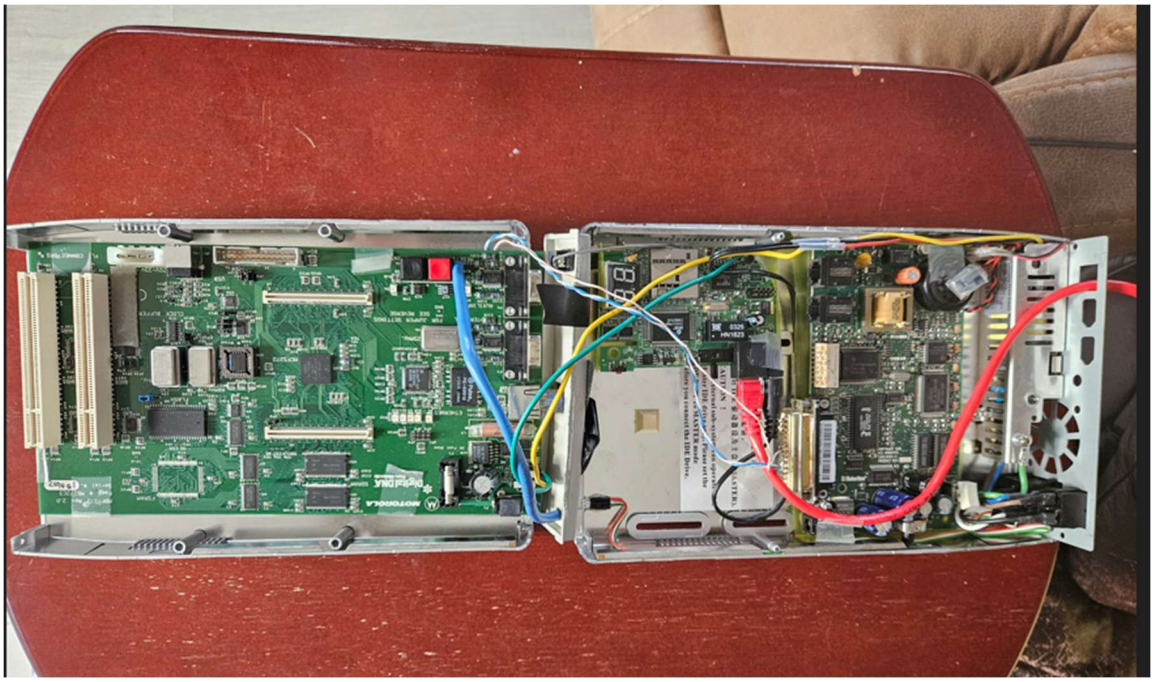
15. The Executive Summary also outlines business plans, including capital, plant and equipment needs and a detailed financial forecast and revenue plan for promoting the CopperJet gateway. See **Exhibit 2017 (Executive Summary)** ("CAS needs investment from private individuals and/or companies to move the CopperJet™ VIP Home Gateway into the marketplace. Initial seed capital of $4 million dollars is needed for completion of the design and development, working capital, plant and equipment needs, as well as marketing and sales efforts through 2001.")

16. Between January and the filing of my provisional application, I also continued to work on hardware-side development. By late 2002, I had created a version of a demo system of what would later become the CopperJet gateway. I built

the demo system by pairing a Motorola M5272C3 development board with a Linksys WET11 Wireless Ethernet Bridge and a four port ethernet switch.

17. As its name indicates, the Linksys WET11 is a wireless device that provides internet connectivity. My demo system, through the Linksys WET11 that it incorporated, provided an "RF" 802.11 type Wi-Fi connection to end users. In the same way, my demo system used a One Reverse SMA Antenna to provide IEEE 802.11b compliant Wi-Fi access.

18. A true and accurate copy of a photograph of an aspect of the demo system is attached and incorporated as **Exhibit 2018** and reproduced below.



19. Throughout 2001 and 2002, I continued to engage in research and development for the CopperJet gateway, focusing on improvements to system

specification, controller and software architecture, and component selection as well as experimenting with Wi-Fi technology to link multiple POTS lines. During this time, I was also drafting the specification for this technology and drafting other aspects of the patent application associated with the invention embodied in CopperJet.

20. Importantly, it was also during this time that I wrote code to run on the Motorola M5272C3's Linux kernel to create software that supported Multilink connectivity.

21. It is my recollection that by at least as early as January 2002, I had programmed the demo system to incorporate the protocols to practice the invention disclosed in Figure 7 of the CAS Patents.[1]

22. I had built a uClinux kernel on the Motorola development system which could be downloaded onto another gateway for independent use by our future customers by customizing the existing Kernel to support the Wi-Fi features that we added to the M5272C3 by pairing it with a Linksys WET11 Wireless Ethernet Bridge.

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[1] I am continuing to recover and search decades-old hard drives for the versions of the code as it existed in 2001and 2002.

23. For example, the demo gateway develops and updates a network table that lists other nearby residential communications gateways and their characteristics. This is performed by the Linux kernel built into the demo gateway. When the demo gateway's driver initiates a scan, it invokes the relevant 802.11 operation (e.g., scan or sched_scan). It then reports found Basic Service Sets (BSSs) (i.e., access points) to the cfg80211 (a Linex API configuration), which maintains the list of BSSs visible to user space. These network tables are known as Iptables.

24. The demo gateway was also capable of connecting another demo gateway via a URL and notifying it that the demo gateway will be configuring a multilink connection. When initiating such a connection, the demo gateway also negotiated the pertinent multilink parameters such as compression, packet size, sync/async, link quality monitoring, and bit stuffing with the remote server. This was performed by the modems of the demo gateways.

25. The demo gateway was also capable of sending a multilink session ID to the requesting RCG, which is used to identify this particular multilink session and is also used for adding or removing links from the multilink session. This also occurs during the initial connection detailed above.

26. The demo gateway also could send a multilink request to one or more other RCGs to participate in the multilink session. The supporting RCG listed in the

cfg80211 maintained list of BSSs visible to userspace is selected and a multilink packet is sent to it requesting that it participate in a multilink session. The demo gateway does this when it connects to the second demo device.

27. The demo gateway was able to receive a response back from another gateway with acceptance or denial. The supporting RCG acknowledges to requesting RCG that it will support the multilink session via a packet to the requesting RCG.

28. The demo gateway was able to send a multilink initialization packet containing the address of the destination as well as the multilink session ID (magic number) and any other pertinent information required for the other RCG to join in the existing multilink session. Further, the remote server that the demo gateways connected to could accept a request from each RCG and begins sending data packets to each of the RCGs over their respective paths or links. The data source server sends the session data across both paths to the separate RCGs.

29. The other RCG relays the data packets to the requesting RCG. The secondary RCG sends session packets to the requesting RCG and the requesting RCG assembles the packets.

30. In February of 2002, I developed a presentation concerning CopperJet Communications Gateway. The presentation slides are attached and incorporated as **Exhibit 2019**.

31. The slides show that, by February of 2002, I had fully reduced to practice the invention conceived of back in January of 2001. **Exhibit 2019 (Presentation Slides)**, Slide 3 ("CopperJetTM converges users' voice and data services into a unified service that is sent over any Carrier's network."); Slide 1 (listing features such as Local and long-distance services, 24/7 instant Internet Access and ISP services, and ***Broadband***) (emphasis added).

32. On April 23, 2002, I wrote to Michael McEntee, transmitting a draft of the patent application. Of note, I told him that "I want to get a provisional [application] on file ASAP to protect myself." A true and accurate copy of the cover letter I sent is attached as **Exhibit 2020 (Letter to McEntee)**. A true and accurate copy of a Word document created April 11, 2002 and last edited April 12, 2002 titled CopperJet Patent Application Rev-1a is attached as **Exhibit 2021 (April 2002 Draft Application)**. A true and accurate copy of a Word document created April 20, 2002 titled CopperJet Patent Application Dwgs 2 is attached as **Exhibit 2022 (Application Drawings)**. It is my recollection that I sent Mr. McEntee both the application and the drawings with the April 23, 2002 letter.

33. Notably, the drawings included figures that would ultimately be incorporated into the issue patents, which are copied below.

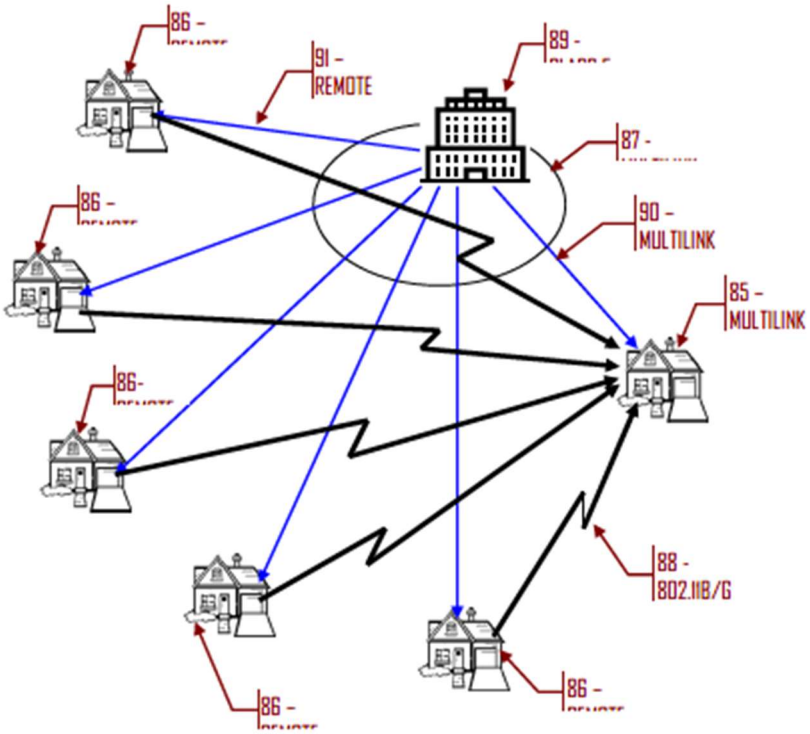


Figure 7 – Ad-hoc wireless LAN with broadband over POTS using 802.11b/g 11/54 Mbps wireless connections

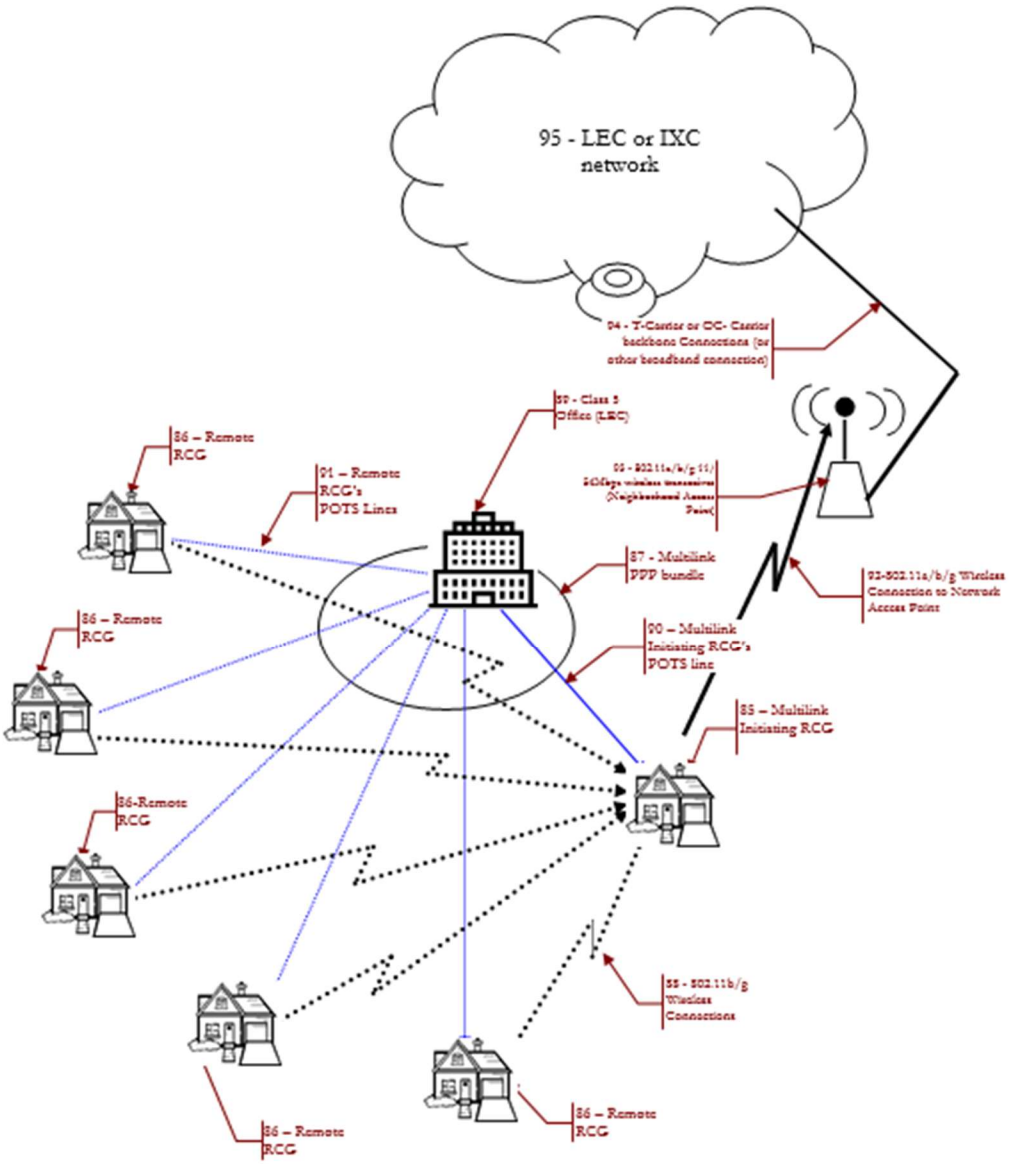


Figure 8 - Broadband over POTS w/ 802.11a/b/g 11/54Mbps wireless connections w/ broadband backbone connection to LEC or IXC

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34. The draft application documents an embodiment of the invention, which involved using one POTS line and one the 802.11 wireless interface to efficiently exchange data with a remote server. *See* **Exhibit 2021 (Draft Application)** ("The RCG employs a large display with at least a 320 X 480 pixel resolution to provide video telephone services. The device is placed in a residence

and connected to the **primary POTS line** coming from the LEC. Up to three standard telephones or FAX machines (or any combination) can be connected into the RCG. It also has a Universal Serial Bus (USB) and/or a 10-100 Ethernet interface for connection to a computer or a Local Area Network (LAN). In addition, it has **an 802.11b wireless interface** for wireless home networking as well as broadband-to-the-home services.") (emphasis added).

35. After failing to receive a response from Mr. McEntee , I contacted him to inquire about the original draft and learned that he was retiring and winding down his practice. He said that he was unable to assist me due to the winding down of his practice and instead gave me specific steps to submit the application to the PTO.

36. On October 15, 2002, I filed the first provisional patent application which led to US Patent No. 7,606,156.

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 or Title 18 of the United States Code.

Executed on 11/6/2025, at 4011 S. Custer Dr. #7202, McKinney TX 75070.

Eric M P. DeLangis