

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner,

v.

PORTSMOUTH NETWORK CORP.,
Patent Owner.

Case IPR2024-00505

Patent 6,917,986

PATENT OWNER'S SUR-REPLY

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Patent Owner Portsmouth Network Corp. ("Patent Owner") respectfully submits this Sur-Reply to Petitioner's Reply (Paper 20) filed by Petitioner Cisco Systems, Inc. ("Petitioner") regarding U.S. Patent No. 6,917,986 (EX1001, "'986 patent").

I. Introduction

Petitioner fails to demonstrate that the challenged claims of the '986 Patent are unpatentable. This is because Petitioner's only reference, *Gai*, is directed to a different problem and provides a different methodology to address that problem compared to the '986 Patent. Recognizing this deficiency, Petitioner relies on manufactured embodiments of *Gai* that are neither disclosed nor supported by the reference. However, these embodiments rely on mischaracterizations of *Gai* and comprise concepts that *Gai* specifically teaches away from. Thus, *Gai* fails to disclose the claims of the '986 Patent.

II. Arguments

A. *Gai* and the '986 Patent are Fundamentally Different

The '986 Patent improves and expands on existing prior art related to failure protection, and is fundamentally different from *Gai* because (1) the '986 Patent and *Gai* address failures that occur at different points in a network, and (2) the '986 Patent and *Gai* teach different methods for addressing those failures.

The '986 Patent addresses link failures on the active port of an edge switch in a network. Ex. 1001, cl. 1, 4:13-21. Specifically, the '986 Patent teaches a network system comprising “an edge switch [that]...is attached by redundant links to one or more access switches,” and “selects one of its access ports (i.e., the ports that are connected to the downstream links to the access switches) to be its active access port, while placing its remaining access port(s) in the blocking state.” *Id.*, 3:65-4:5. When the edge switch detects “a failure in its active link to the access switches, it immediately chooses one of the blocked links to serve as the new active link and blocks the failed port.” *Id.*, 4:13-17. In order to notify access switches and other downstream equipment of this port changeover, the edge switch “sends dummy frames through the new active link to the access switches.” *Id.*, 4:17-21. Thus, the invention of the '986 Patent is a method for fast failure protection on an edge switch by changing ports in the event of a failure, and sending dummy frames downstream so that downstream devices connected to the edge switch can redirect traffic to the new active port.

Gai, on the other hand, addresses link failure on the active port of an access switch or a backbone switch in a network, not an edge switch. Ex. 1005, 6:7-12. Specifically, *Gai* teaches a network system comprising “access switches...interconnected with each other through a plurality of backbone switches,” and including “a plurality of ports which, if coupled to a LAN...are referred to as

local ports... and if coupled to links...are referred to as trunk ports.” *Gai* further teaches that “only one port (local or trunk) that represents a path from the access switch to the root (i.e., provides connectivity to the root through links, shared media, switches, etc.) will be forwarding,” while “all other ports...that represent paths from the access switch to the root will be blocked.” *Id.*, 11:8-13. The root switch is defined as “the switch having the lowest switch ID numeric value.” *Id.*, 2:45-46. In the event of a failure “disabling the link coupled to a root port of an access switch,” *Gai* teaches that one of the other ports that are in the blocked state “will immediately transition to the forwarding state and being receiving and sending messages.” *Id.*, 11:49-52. To propagate the identity of the new port to other devices, the access switch with the newly updated port “informs other devices of its new forwarding address by transmitting dummy multicast packets through the new port” towards the root. *Id.*, 12:62-65. Thus, *Gai*’s invention is directed to failure protection on an access switch by changing the root port, i.e., the port that “gives the lowest cost path...from the switch to the root,” (*Id.*, 2:54-56), and sending dummy frames upstream towards the root in order to notify devices of its new forwarding port.

Petitioner ignores these critical differences between the two patents, which are directed to handling failures at different points in a network and in different manners. These differences are further highlighted by the ’986 Patent itself, which characterizes *Gai* as teaching a method in which switches “have multiple trunk ports

providing connectivity to the STP root via trunk switches,” and “the trunk ports are on the upstream side of each switch, i.e., the side leading toward the root.” Ex. 1001, 3:18-24. Unlike the '986 Patent, which teaches the propagation of failure information *downstream* from an edge switch to an access switch, *Gai* teaches the propagation of failure information *upstream* towards the root switch.¹

Moreover, Petitioner mischaracterizes *Gai*'s disclosures by presenting an example that is neither disclosed nor contemplated in *Gai*. Reply, 6-7. Specifically, Petitioner discusses a hypothetical embodiment of Figure 1 in *Gai*, in which there is a failure on the port of switch 124 that is connected to access switch 115. *Id.*, 6. Petitioner contends that in the event of such a failure, the port connecting switch 124 to switch 116 “may become the new forwarding port” and switch 124 “would send dummy multicast messages downstream to at least access switch 116.” *Id.*, 6-7. However, Petitioner fails to address Patent Owner's argument that *Gai* is not

¹ In fact, in a separate IPR challenging the '986 Patent, the Petitioner's expert recognized that *Gai* does not disclose downstream transmissions. *See, Juniper Networks, Inc. v. Portsmouth Network Corp.*, IPR2024-00893, Exhibit 2004 at 34:12-17. In fact, the Petition recognized that *Gai* did not disclose “downstream directionality” for dummy multicast messages, and suggested a motivation to modify using other references. IPR2024-00893, Pet., 45.

directed to a designated port failure, but rather is directed to failures on a root port and the mechanisms by which such a failure is corrected and communicated to the *root* switch. The example Petitioner provides does not include a single citation to *Gai*'s disclosure because it is completely unsupported by the reference. In fact, Petitioner relies on a continuation application of *Gai* filed after the publication of the '986 Application to support its hindsight driven hypothetical.

Petitioner fails to reconcile the differences between the inventions of the '986 Patent and *Gai*, and thus, fails to show how the '986 Patent is obvious over *Gai*.

B. Grounds 1A and 1B Are Not Based on the Express Disclosures of *Gai*

As discussed above, *Gai* is directed to the transmission of dummy frames upstream to a root switch in order to propagate port changeover information in the event of a failure. Petitioner contends that its proposed grounds are based on what a POSITA would reasonably understand from *Gai*'s express disclosures. Reply, 8. However, the inventors of the '986 Patent clearly discuss *Gai* as disclosing methods that “require network entities to be aware of and manage redundancies in their upstream ports,” which is the direct opposite of how Petitioner characterizes *Gai*. Thus, a POSITA would not readily understand or infer from *Gai* the contorted embodiments put forward by Petitioner to render limitations 1e and 12e obvious. In fact, Petitioner provides no evidence except for conclusory statements regarding

how a POSITA would understand and interpret *Gai*. This is because there is little evidence in *Gai* to support Petitioner's arguments regarding these limitations.

Petitioner further argues that it presents “no ‘modification’ to meet the ’986 patent’s dummy multicast messages sent downstream or to an access switch” limitation. Reply, 10. However, there is no embodiment disclosed in *Gai* that relates to either a failure on a backbone switch or to sending dummy traffic downstream from a backbone switch as presented in Petitioner’s drafted embodiment. Petitioner’s version of *Gai* is not apparent in *Gai*’s disclosure, and thus, Petitioner has modified *Gai* and is required to show that its proposed modifications would be obvious to a POSITA. Prior art “must clearly and unequivocally disclose the claimed [invention] or direct those skilled in the art to the [invention] without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference.” *Otonomy, Inc. v. Auris Med., AG*, 743 F. App’x 430, 439 (Fed. Cir. 2018) (quoting *In re Arkley*, 455 F.2d 586, 587 (C.C.P.A. 1972)). Petitioner is required to present a motivation to modify, irrespective of whether it is “combining disclosures from multiple references, [or] combining multiple embodiments from a single reference, or selecting from large lists of elements in a single reference.” *In re Stepan Co.*, 868 F.3d 1342, 1345-46 n.1 (Fed. Cir. 2017). “[A] patent can be obvious in light of a single prior art reference *if* it would have been obvious to modify that reference to arrive at the patented

invention.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016) (emphasis added). Petitioner not only bypasses showing a motivation to modify *Gai*, but admits to failing to do so under the misguided assumption that “*Gai* require[s] no motivation to modify.” Reply, 10.

Petitioner provides no citations to *Gai* to support the modified figure presented as the basis of its argument in Ground 1A, and thus, Petitioner fails to show that its modified figure is disclosed in *Gai*.

Similarly, Ground 1B relates to an embodiment of *Gai* showing an access switch coupled to and sending a dummy message to another access switch, rather than an edge switch sending a dummy message downstream to an access switch as required by the claims. Petitioner mischaracterizes switch 114 in *Gai* as an “edge switch” despite citing to a section of *Gai* that repeatedly defines switch 114 as an “access switch.” Reply, 10-11; Ex. 1005, 13:50-66. Here again, Petitioner is modifying *Gai* without providing any basis or disclosure in *Gai* to support this modification.

Finally, Petitioner argues that even if *Gai* is modified in the Petition, which it is, a POSITA would be motivated to modify *Gai* in that manner. Reply, 11. Petitioner asserts that its reliance on prior art not included in the Ground is for the purpose of establishing that a POSITA would have understood that a failure “can happen at any link or port” and modifying *Gai* in this manner would be successful because

“messages could be sent in both the upstream and downstream directions.” *Id.*, 11-12. However, as discussed above, Petitioner fails to identify any disclosure in *Gai* that discusses failures at non-root ports or even suggests the modifications proposed by Petitioner to address such failures. Petitioner further fails to explain why a POSITA would not simply rely on the existing Spanning Tree Protocol to address such failures and choose to modify *Gai* in the manner described by Petitioner.

Thus, *Gai* does not disclose the modifications proposed by Petitioner nor would a POSITA be motivated to modify *Gai* in the manner proposed by Petitioner.

C. *Gai* Does Not Disclose or Render Obvious Claim Limitation 12e

Petitioner argues that the '986 Patent mischaracterizes *Gai* as only directed to sending upstream traffic. Reply, 12. However, this is not a mischaracterization. As discussed above, the invention in *Gai* is directed to propagating port changeover information to a root switch, which is upstream of an access switch. Ex. 1005, 12:62-65. The '986 patent does not account for “a single preferred embodiment of *Gai*,” but rather takes into consideration *Gai* as a whole and its detailed discussion of root port failures and the establishment of alternate communication links between access switches and root ports. *Gai* does not disclose downstream communications from edge switches to access switches, nor does it disclose any methodologies directed to circumventing failures at a non-root port.

The crux of Petitioner's rebuttal to Patent Owner's argument is that Patent Owner focuses on a "single embodiment within *Gai* to counter Petitioner's embodiment." Reply, 15. However, *Gai* only presents a single embodiment of its invention, and as discussed in detail above, *Gai* is directed to failures at root ports and discusses the transmission of dummy messages upstream to notify the root switch of a root port change. POR, 18; Ex. 2001, ¶54. In fact, *Gai* does not discuss failures at non-root ports and *Gai* does not explain how and to which ports a downstream dummy message would be sent to in the event of a non-root port failure. Petitioner's proposed example showing a non-root port failure is at best a hypothetical driven by hindsight gained from the disclosure of the '986 Patent.

Petitioner pushes its hindsight driven embodiment even further by arguing that access switch 117 can be a root switch. Reply, 17-18. This is in stark contrast to the teaching in *Gai*, which discloses that "[t]o reduce the average distance and avoid partitioning of the backbone switches, it is desirable to locate the root at a backbone switch." Ex. 1005, 3:29-31. In fact, *Gai* teaches away from using an access switch as the root noting that "[i]f the root is located at an access switch and the principal server utilized by the end stations (i.e., clients) is coupled to a backbone switch, the average distance between end stations and the primary server may be quite high, resulting in inefficient network operation. In addition, the backbone switches may become partitioned as ports between them are blocked." *Id.*, 3:23-29; POR, 28-29.

Not only does Petitioner ignore this teaching, it also fails to provide any reason for why a POSITA would deviate from the explicit teachings of the reference.

Thus, Petitioner fails to render limitation 12e obvious.²

D. Gai Does Not Disclose or Render Obvious Claim Limitation 1e

As discussed above, *Gai* does not disclose sending dummy traffic from the edge switch or to the one or more access switches. *See supra* II.A. The embodiment that Petitioner relies on to support this limitation is not disclosed or suggested by *Gai*.

Moreover, Petitioner's upstream embodiment of *Gai* Figure 1 mischaracterizes switch 120 as an access switch, when it is clearly described in *Gai* as a **backbone switch** and is further described as the root switch. Ex. 1005, 8:57-59. The purported definition of "access switch" in the '986 Patent relied on by Petitioner is irrelevant in the context of *Gai*, which explicitly provides that switch 120 is not an access switch, and defines other switches as "access switches." Reply, 22; *Apple Inc. v. MPH Techs. Oy*, 28 F.4th 254, 259 (Fed. Cir. 2022) (holding that "[c]laim terms are generally given their plain and ordinary meaning, which is the meaning one of ordinary skill in the art would ascribe to a term when read in the context of

² The same arguments apply to limitation 24e, which, as discussed in the Patent Owner's Response is substantially similar to limitation 12e. POR, 38.

the claim, specification, and prosecution history.”) Petitioner does not present any arguments to address this discrepancy.

Thus, Petitioner fails to render claim limitation 1e obvious.³

E. Defendant Claims 6 and 18

Petitioner incorrectly argues that “Patent Owner’s claim that Gai only teaches dummy traffic originating at access switch 114 is rebutted by Gai’s disclosures.” Reply, 24. In fact, Petitioner points to no disclosure from *Gai*, but rather relies on its own manufactured embodiment based on what it purports are *Gai*’s teachings. *Id.* Moreover, Patent Owner is not relying on “Gai’s preferred embodiment,” but is instead relying on Gai’s express disclosure that switch 114 is an access switch and not an edge switch. POR, 39. Thus, for the same reasons as discussed above, Petitioner fails to render obvious claims 6 and 18.

III. Dependent Claims 5 and 17

In its Reply, Petitioner raises new arguments with respect to dependent claims 5 and 17 that were not raised in its Petition. Pet., 57-58. Not only is that improper, but Petitioner’s new arguments fail to establish that *Gai* discloses claims 5 and 17, which recite “wherein [updating the database comprises changing]/[the protocol

³ The same arguments apply to limitation 13f, which, as discussed in the Patent Owner’s Response is substantially similar to limitation 1e. POR, 36-37.

processor is adapted to update] the entries in the database to point to the second [access] port before receiving the communication traffic from the one or more access switches on the second port.” Ex. 1001, claims 5, 17. Petitioner points to no disclosure in *Gai* teaching that the switch implementing the method for rapid recovery updates its filtering database before receiving communication traffic from access switches. As cited by the Petitioner, the disclosure in *Gai* only suggests that the switch “informs *other devices* of its new forwarding port by transmitting dummy multicast packets through the new port,” (Reply, 26 (emphasis added)) and not that the switch updates “the entries in [its] database to point to the second port before receiving the communication traffic from the one or more access switches son the second port” as required by the claims 5 and 17. The remainder of Petitioner’s argument is comprised entirely of conclusory statements assuming that its purported “edge switch” 124 “updates its database before contemporaneously with sending the dummy multicast messages to the access

Switches,” which were already rejected by the Board. Reply, 26-27; ID, 59. Petitioner points to no support in *Gai* for these statements because there is none.

Thus, the Petitioner has failed to show that claims 5 and 17 are rendered obvious by *Gai*.

IV. CONCLUSION

For the reasons stated in POR and above, Petitioner has failed to carry its burden to establish that any of the claims of the '986 Patent are invalid over the prior art. The claims should be upheld as patentable.

Date: April 1, 2025

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CERTIFICATION UNDER 37 C.F.R. § 42.24

Under the provisions of 37 C.F.R. § 42.24, the undersigned hereby certifies that the foregoing document contains 3,013 words, and thus complies with the word-count limits of 37 C.F.R. § 42.24.

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing PATENT OWNER'S SUR-REPLY was served on April 1, 2025 by filing this document through the P-TACTS platform as well as by delivering a copy via the delivery method indicated to the attorneys of record for the Petitioner as follows:

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