

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner

v.

DYNAMIC MESH NETWORKS, INC.
D/B/A MESHDYNAMICS,
Patent Owner

Inter Partes Review No. IPR2025-01523
U.S. Patent No. 7,420,952

PATENT OWNER'S PRELIMINARY RESPONSE

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TABLE OF AUTHORITIES

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PATENT OWNER’S EXHIBIT LIST

Exhibit No.	Description
2001	[Reserved]
2002	Cisco’s Answer to Dynamic Mesh Networks, Inc.’s Complaint for Patent Infringement, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781 (EDTX), Dkt. 29 (September 18, 2025)
2003	Declaration of Mr. Francis daCosta in Support of Patent Owner’s Request for Discretionary Denial
2004	June 22, 2022 Letter to Chief Executive Officer of Cisco Systems, Inc., Charles H. Robbins, from Mr. Francis daCosta, founder of MeshDynamics
2005	August 2009 Presentation entitled “High Level Overview” provided to Cisco Systems, Inc.
2006	Cisco’s Amended Complaint, <i>Cisco Systems, Inc. v. Dynamic Mesh Networks, Inc. d/b/a MeshDynamics et al.</i> , No. 5-25-cv-06441 (NDCA), Dkt. 5 (July 31, 2025)
2007	MeshDynamics’ Notice of Readiness, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781 (EDTX), Dkt. 32 (September 19, 2025)
2008	Judge Wise’s Civil Standing Order in Northern District of California, available at https://cand.uscourts.gov/sites/default/files/standing-orders/NW-CivilStandingOrder_05-06-25.pdf
2009	Docket, <i>Cisco Systems, Inc. v. Dynamic Mesh Networks, Inc. d/b/a MeshDynamics et al.</i> , No. 5-25-cv-06441 (NDCA)
2010	MeshDynamics’ Local Rule 3-1 and 3-2 Initial Disclosures, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00472 (EDTX) (July 18, 2025)
2011	Judge Gilstrap’s Order Setting Scheduling Conference, <i>Dynamic</i>

	<i>Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781 (EDTX), Dkt. 35 (October 29, 2025)
2012-2015	[Reserved]
2016	Docket Control Order, <i>Dynamic Mesh Networks, Inc. et al. v. Cisco Systems, Inc.</i> , No. 2:25-cv-00781 (EDTX), Dkt. 40 (Dec. 11, 2025)

Pursuant to 37 C.F.R. § 42.107, Dynamic Mesh Networks, Inc. d/b/a MeshDynamics (“MeshDynamics” or “PO”) files this preliminary response setting forth reasons why the Petition for *inter partes* review (“IPR”) challenging claims 1-21 (the “challenged claims”) of U.S. Patent No. 7,420,952 (“the ’952 patent”), as requested by Petitioner Cisco Systems, Inc. (“Cisco”), should be denied.

I. INTRODUCTION

The Petition fails to demonstrate a reasonable likelihood that any of the challenged claims are unpatentable. None of the asserted prior art references expressly disclose the limitation “determining that a first one of the plurality of relay nodes in the wireless mesh network requires a channel selection change” which is present in both independent claims. The Petition relies solely on expert testimony—rather than “prior art consisting of patents or printed publications”—to supply this missing claim limitation, violating the requirements of 37 C.F.R. § 42.104(b)(4). Pursuant to the July 31, 2025 Memorandum by the Acting Director, the Petition should be denied for this reason alone.

Moreover, each of the Petition’s asserted grounds of unpatentability are based on its primary reference Ganz, which is directed towards centralized-control networks, but not distributed mesh networks as described in the ’952 patent. Unlike the ’952 patent’s claimed invention, which configures and re-configures its network topology based on parent-child relationships dynamically formed between relay

nodes, Ganz's network topology is static and is based on the network's repeaters' physical location and line-of-sight between the repeaters. Ganz thus does not disclose the claimed "dynamic selection" of nodes to form a parent-child relationship, as required by every challenged claim.

Accordingly, the Director should deny institution on the merits.

II. THE '952 PATENT

A. Dynamic Node Selection and Dynamic Channel Selection in the Specification

The '952 patent discloses a "distributed system" where each relay node in the system uses a dynamic process to select a parent from a number of available parents "based on latency/throughput requirements." Ex. 1001, 6:57-8:67, 9:63-65. The '952 patent discloses that each relay node in the network periodically runs a parent selection algorithm to determine the best parent for its throughput/latency requirements. *Id.*, 7:59-8:67.

The '952 patent further discloses processes for dynamic channel allocation. *Id.*, 11:53-12:48. Each node "sends out a beacon on all channels to inform all neighboring devices that it is intending to select a channel." *Id.* The neighboring devices respond to this beacon with the channel numbers they are using. *Id.* "The node then takes care to select a channel, from a list of available channels that does not conflict with channels selected by neighboring devices." *Id.*

B. The Claims of the '952 Patent

The '952 patent contains two independent claims—claim 1 (from which claims 2-11 depend) and claim 12 (from which claims 13-21 depend). Ex. 1001, claims 1-21. Claim 1 is directed to “a method of controlling a wireless mesh network,” while claim 12 is directed to “a computer program product for controlling a wireless mesh network.” *Id.*, claims 1, 12. The limitations of claims 1 and 12 are otherwise substantively the same. *Id.*

Claim 1 of the '952 patent is reproduced below:

[1.0] A method of controlling a wireless mesh network, comprising:

[1.1] a) configuring the wireless mesh network with a first configuration, the wireless mesh network comprising a plurality of relay nodes, each of the relay nodes being capable of relaying traffic from a child node associated with the relay node,

[1.2] each of the relay nodes including a first radio interface configurable to relay traffic to a parent relay node and a second dual purpose radio interface configurable to both relay traffic from the child relay node and to communicate with a client node that is not a relay node,

[1.3] and at least one of the relay nodes is configured in the first configuration to relay traffic from a child relay node to a parent

relay node;

[1.4] b) determining that a first one of the plurality of relay nodes in the

wireless mesh network requires a channel selection change;

[1.5] c) dynamically selecting a second one of the plurality of relay

nodes in the wireless mesh network to form a parent-child

relationship with the first relay node;

[1.6] d) making a channel selection change;

[1.7] wherein prior to being dynamically selected, the second relay

node was a sibling node of the first relay node;

[1.8] and making a channel selection includes making a channel

selection change to meet a performance requirement.

III. LEVEL OF ORDINARY SKILL

Petitioner provides the following level of ordinary skill:

A Person of Ordinary Skill in The Art (“POSITA”) in October 2002 would have had a working knowledge of the wireless networking art that is pertinent to the ’952 Patent, including familiarity with standards such as IEEE 80b2.11. A POSITA would have had a bachelor’s degree in computer science, computer engineering, electrical engineering, or equivalent training, and approximately two years of professional experience working in the field of network communications. Additional work experience could have been substituted for educational experience, and vice versa.

Pet., 12 (citing Ex. 1003, ¶¶19-21). For purposes of this preliminary response, Patent Owner does not dispute Petitioner’s level of ordinary skill.

IV. CLAIM CONSTRUCTION

Petitioner alleges that “no claim terms require formal construction.” Pet., 12-13. For purposes of this preliminary response, PO does not argue that any terms require construction.

V. PETITIONER FAILED TO DEMONSTRATE A REASONABLE LIKELIHOOD THAT THE CHALLENGED CLAIMS ARE OBVIOUS

While there are a number of deficiencies in Petitioner’s unpatentability allegations, this preliminary response focuses on two. Both issues demonstrate that the Petition has failed to demonstrate a reasonable likelihood that any challenged claims are obvious under any of the asserted ground.

First, the limitation “determining that a first one of the plurality of relay nodes in the wireless mesh network requires a channel selection change” is present in each independent claim. *See supra* Element [1.4]. The Petition does not allege that any express description in the prior art discloses this limitation, and instead relies solely on expert testimony to supply this missing claim limitation. Pet., 39-44. 37 C.F.R. § 42.104(b)(4) requires that a petition “must specify where each element of the claim is found in the prior art patents or printed publications relied upon.” Because the Petition does not allege that this limitation is disclosed in the prior art patents or printed publications relied upon, it does not meet the requirements of 37 C.F.R. §

42.104(b)(4) and may not be instituted. *See* July 31, 2025 Memorandum.¹

Second, all of the asserted grounds involve the same combination of Ganz and Srikrishna. Pet., 14-15. Petitioner’s allegations for each ground have same defect. The primary reference, Ganz, fails to disclose the claimed “dynamic selection” of parent-child nodes required by each independent claim. *See supra* Element [1.5].

At least for these reasons, Petitioner has failed to demonstrate a reasonable likelihood that any of the asserted grounds render the challenged claims obvious.

A. Ganz Alone or in Combination with Srikrishna Does Not Disclose the Claimed Channel Selection Change

Independent claims 1 and 12 each require, *inter alia*, “determining that a first one of the plurality of relay nodes in the wireless mesh network requires a channel selection change.” Ex. 1001, claims 1, 12. Petitioner alleges that Ganz alone or in combination with Srikrishna renders this limitation obvious. Pet., 39-44. However, this limitation is completely missing from Ganz and Srikrishna. Petitioner’s

¹“Enforcement and Non-Waiver of 37 C.F.R. § 42.104(b)(4) and Permissible Uses of General Knowledge in Inter Partes Reviews” (“July 31, 2025 Memorandum”) available at https://www.uspto.gov/sites/default/files/documents/aapa_memo_final_signed.pdf. The July 31, 2025 Memorandum applies to any Petition filed on or after September 1, 2025. *Id.* This IPR was filed on September 8, 2025 (Pet., 88), thus, the July 31, 2025 Memorandum applies.

obviousness analysis is thus fatally deficient as it relies solely on expert testimony to fill the gap between the prior art and the claim limitation. As confirmed in the July 31, 2025 Memorandum, Petitioner’s sole reliance on expert testimony to supply a missing claim limitation violates 37 C.F.R. § 42.104(b)(4). *Id.* (“enforcement of Rule 104(b)(4) means that applicant admitted prior art (AAPA), expert testimony, common sense, and other evidence that is not “prior art consisting of patents or printed publications” (collectively, “general knowledge”) may not be used to supply a missing claim limitation. Per 35 U.S.C. § 312(a)(4), the Board shall deny an IPR petition that fails to comply with Rule 104(b)(4).”).

To begin, Ganz merely discloses that its repeaters include a “medium access control (MAC) circuit 192,” which “controls channel allocation procedures.” Ex. 1005, 8:44-53. Ganz is silent as to when such “channel allocation procedures” occur. More importantly, Ganz nowhere discloses or suggests that its network may determine that any particular repeater “requires a channel selection change,” as required by the claims.

Petitioner tacitly acknowledges this because the Petition does not allege that Ganz expressly discloses that any particular repeater “requires a channel selection change.” Pet., 39-44. Rather, the Petition alleges that it would have been obvious to a POSITA to modify Ganz: (1) for Ganz’s “repeater, when switching to a back-up link with another repeater, to determine to change to the channel (‘channel selection

change’) associated with that back-up link;” and (2) to configure “the back-up links to be on different channels than the channels used for the respective primary links.” Pet., 40-41.

Thus, Petitioner is not alleging Ganz discloses the limitation “determining that a first one of the plurality of relay nodes in the wireless mesh network requires a channel selection change.” Instead, Petitioner is alleging that based on Ganz, it would have been obvious for a POSITA to modify Ganz to include the missing limitation. Pet., 40-42. But even assuming that Ganz’s back-up links and primary links are on different channels, switching to a back-up link in the event of primary link failure nonetheless does not disclose “determining that a first one of the plurality of relay nodes ... requires a channel selection change.” Ganz discloses switching to back-up links “in the event that one of the primary radio links 18, 22 were to fail.” Ex. 1005, 3:56-59. To the extent Ganz’s switching process involves any determination, it is that the primary radio link has failed—not that a *channel* selection requires a change. *Id.* Even if the back-up link were on a different channel than the failed primary link (which Ganz does not discuss), the change in channel would merely be incidental to the switch to the back-up link. Thus, switching to a back-up link in the event of primary link failure, as described in Ganz, does not involve the determination that a repeater “requires a channel selection change.”

The sole support for Petitioner’s conclusion that it would have been obvious

to modify Ganz is Petitioner's expert declaration. Pet., 40-44. While Petitioner's expert provides explanations why a POSITA would have allegedly modified Ganz, Petitioner's expert provides no independent basis for that "obvious" conclusion. Ex. 1003, ¶¶100-106. This sole reliance on an expert declaration is improper under the July 31, 2025 Memorandum.

Combining Ganz with Srikrishna does not cure this deficiency. Petitioner does not allege that Srikrishna discloses the "determining" claim element. Instead, Petitioner merely argues that it would have been obvious to a POSITA in view of Srikrishna to modify Ganz "to use different channels for [Ganz's] primary and back-up links to achieve a more effective use of frequency resources in a wireless network." Pet., 42-43. But again, the sole support for concluding that a POSITA would have modified Ganz based on Srikrishna to include the "determining" element comes from Petitioner's expert. Ex. 1003, ¶¶107-113. An expert may not provide an element of the claims missing from the alleged prior art references relied upon. July 31, 2025 Memorandum.

However, as explained above, even if the combined Ganz-Srikrishna system assigns different channels to its primary and back-up links, switching to a back-up link due to primary link failure nonetheless does not disclose or suggest the claimed "determining that a first one of the plurality of relay nodes ... requires a channel selection change." Neither Ganz nor Shrikrishna discloses any channel selection

change, let alone determining that a channel selection change is required. Petitioner is using knowledge of a POSITA to supply this missing limitation.

Because the Petition fails to allege that Ganz or Srikrishna discloses the claimed “determining that a first one of the plurality of relay nodes ... requires a channel selection change,” and instead relies solely on expert testimony to (unavailingly) fill this gap between the prior art and the claims (Pet., 39-44), institution must be denied. 37 C.F.R. § 42.104(b)(4); July 31, 2025 Memorandum.

B. Ganz Does Not Disclose the Claimed Dynamic Selection of Node to Form Parent-Child Relationship

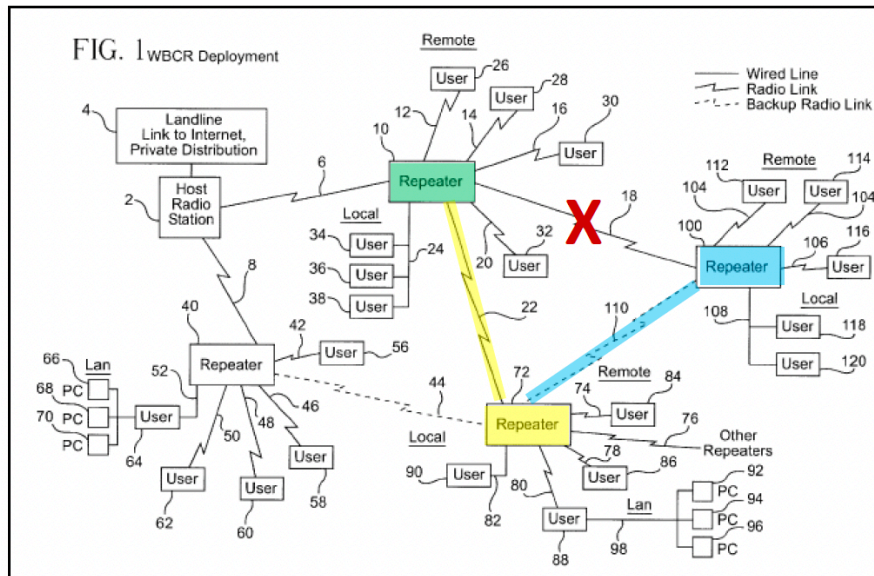
Independent claims 1 and 12 each require, *inter alia*, “dynamically selecting a second one of the plurality of relay nodes in the wireless mesh network to form a parent-child relationship with the first relay node.” Ex. 1001, claims 1, 12 (“a child relay node,” “a parent relay node”). Petitioner asserts that Ganz alone discloses this limitation because Ganz’s repeater may switch to “back-up links” when the repeater’s primary radio link fails. Pet., 45-49. However, as explained below, Ganz’s back-up links are *static* and *pre-established*, and switching thereto from a failed primary link is neither “dynamic[]” nor a “select[ion]” as claimed. Ganz does not disclose the claimed parent-child relationship, let alone dynamic selection of nodes to form the same. A static hierarchy is the opposite of a dynamic selection.

The ’952 patent describes a process of selecting a parent where potential parent nodes are discovered and evaluated based on changing variables. Ex. 1001,

7:59-8:67. That process is “*dynamic*” because each time these steps are taken, the “active nearby nodes,” “routing paths” for these nodes, “total throughput for each routing [path],” and “the node that provides the best latency or max throughput or combination of both” may be different. *Id.* As a result, the same node running this process may select a different parent node based on changing variables and conditions at any given time.

In contrast, the back-up links in Ganz are *static* and *pre-established* based on physical constraints of the network. As described in connection with Figure 1, Ganz’s repeaters form radio links with every other repeater that is within line of sight. Ex. 1005, Abstract, 2:46-53, Fig. 1. Ganz only teaches changing links if the primary radio links fail. Ganz discloses that “[b]ecause of a multiple access circuit within each WBCR, back-up links 44 and 110 can be established between repeaters 40 and 72 in the event that one of the primary radio links 18, 22 were to fail.” Ex. 1005, 3:56-59. But switching to a back-up link because the primary link fails as described in Ganz does not involve any “dynamic[] select[ion]” of relay nodes as claimed. Ganz simply defaults to a pre-existing connection.

As shown in Figure 1 (annotated by Petitioner), where a repeater only has a single pre-existing back-up link (e.g., repeater 100), in the event the primary radio link (e.g., link 18) fails, the repeater uses the only available back-up link (e.g., link 110):



Ex. 1005, Fig. 1 (annotated by Petitioner). In this case, there is no “select[ion]” because there is nothing to select—back-up link 110 is the only option available to repeater 100 if primary link 18 fails. There is certainly no “dynamic[] select[ion]” because Ganz’s backup links are static, and thus, are pre-existing.

Where a repeater (e.g., repeater 72) has more than one pre-existing back-up link (e.g., links 44 and 110), Ganz is silent on how the repeater determines which back-up link to use. Petitioner tries to fill this gap by arguing that the repeater would default to the back-up link that “has fewer hops back to the host radio station” (e.g., link 44). Pet., 47. Only “if back-up link 44 was unavailable or a connection was unsuccessful,” would it allegedly “have been obvious for the repeater 72 to select the other back-up link 110.” *Id.* Notwithstanding that the above is attorney argument supported only by *ipse dixit* expert testimony (*id.*), switching from a failed primary radio link to a preestablished back-up link that has the least hops back to the host

radio station is neither “dynamic[]” nor a select[ion]”—the back-up links are static and pre-established, and the switch from the primary link to the back-up link is allegedly based on a hierarchy of hops predetermined based on network topology.

For the foregoing reasons, Ganz does not disclose the claimed dynamic selection of nodes to form a parent-child relationship, as required by every challenged claim.

VI. CONCLUSION

For the foregoing reasons, institution of this *inter partes* review should be denied.

Dated: December 18, 2025

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), Patent Owner certifies that this Patent Owner Preliminary Response has 3,322 words as counted by the word-processing system used to prepare this document. This word count complies with the 14,000 word limit under 37 C.F.R. § 42.24(b)(1).

Dated: December 18, 2025

Respectfully Submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that the foregoing Patent Owner Preliminary Response was served electronically via email on December 18, 2025, on the following counsel of record for Petitioner:

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