

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.
Petitioner,

v.

UMBRA TECHNOLOGIES LTD
Patent Owner.

Inter Partes Review No.: IPR2024-00270
U.S. Patent No. 11,108,595

PETITIONER’S REPLY TO PATENT OWNER’S RESPONSE

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Patent Trial and Appeal Board
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TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
II. HANKINS DISCLOSES LIMITATION [15.3]	3
III. HANKINS, ALONE OR IN VIEW OF KOMMULA, DISCLOSES LIMITATION [15.5]	6
Hankins Alone	7
Hankins in view of Kommula.....	9
IV. HANKINS IN VIEW OF KOMMULA DISCLOSE DEPENDENT CLAIMS 19 AND 20.....	12
V. THE PETITION IS FULLY SUPPORTED BY RECORD EVIDENCE	14

I. INTRODUCTION

The Petition included two grounds. The Challenged Claims of Ground 1, Claims 1-14, are directed to a high level method performed by a computer processor including the steps of (1) “receiving” a request for a list of available servers from a network device; (2) “retrieving” the list of available servers; (3) “retrieving” one or more records associated with the network device; (4) “dynamically ordering” the list of available servers based on the one or more records; and (5) “transmitting” the ordered list of available servers to the network device, all as recited in Claim 1. Pet. 1-2 (citing EX-1001 32:49- 61). Kommula discloses a global server load balancing switch that in combination with a domain name server provides IP addresses of available host servers to a client program which requested access to an application hosted on one of the host servers. The available host services are based on a selected set of performance metrics. When the domain name server (DNS) resolves a host name in a query and returns one or more IP addresses, the GSLB switch returns a ranked or weighted list of IP addresses to the requesting computer. Pet. 20-21 (citing EX-1004 [0008]; EX-1003 ¶ 71). Prior to institution, Patent Owner disclaimed Claims 1-14.

The Challenged Claims of Ground 2, Claims 15-18, are very similar to the claims of Ground 1, but are directed to a server that dynamically orders a list of available access point servers which can be used to form tunnels between first and

second endpoint devices. Pet. 37-38 (citing EX-1005 25:7-25; 5 24:39-57, 25:15-55). The Petition demonstrates how Hankins, alone or in combination with Kommula discloses Claims 15-18.

The POR is based on a misrepresentation of the Petition and the prior art.

For example, the POR asserts that limitation [15.3], which recites *wherein the control server is configured to receive a request for a list of available servers*, is not disclosed by Hankins. However, the POR inaccurately describes that the Petition “conflates” the claimed *request for available servers* with a “request for services.” The Petition does no such thing. Instead, the Petition equates the claimed *request for available servers* with Hankin’s “request for available tunnel servers.” Pet. 45-47.

Next, the Patent Owner asserts that the Petition improperly relies on the teachings of the ’595 Patent as a roadmap to the claimed invention. This is not accurate. Instead, the Petition demonstrates how Hankins’ disclosure is consistent with the express teachings of the ’595 Patent that show the following: when a device makes a request to the server availability module, what it is really asking for is a list of available servers, and specifically an IP and port which it could use to build a tunnel. Pet. 46. The basis for the Patent Owner’s argument is that Hankins does not use the identical words used by the ’595 Patent.

The POR also asserts that neither Hankins nor Kommula discloses limitation [15.5]. The POR ignores the specific examples identified in the Petition that demonstrate that Hankins discloses a list of available servers. Moreover, Patent Owner's assertion that Kommula is non-analogous art is unsupported in view of Kommula serving as the primary reference for Ground 1. POR 14.

The POR's argument that Hankins in view of Kommula does not disclose dependent claims 19 and 20 mischaracterizes the evidence cited in the Petition.

Finally, the POR's procedural attack that the Petition is not factually supported is unpersuasive in view of the detailed pin cites to record evidence throughout the Petition.

II. HANKINS DISCLOSES LIMITATION [15.3]

Limitation [15.3] recites *wherein the control server is configured to receive a request for a list of available servers from a first endpoint device among the one or more endpoint devices, the list of available servers including the access point server.*

Hankins discloses that a network device may request content from a server located in a different logical broadcast domain. EX-1005 8:12-37. Hankins further discloses that a gateway 311 in one logical broadcast domain may request services from gateway 321 in a different logical broadcast domain. EX-1005 8. Further, Hankins discloses a controller may initiate provisioning of one or more

tunnel servers for a network device and may initiate transmission of one or more network addresses for one or more tunnel servers to a gateway device. EX-1005 28:56-61. Hankins discloses that the controller may generate the list of one or more available tunnel servers based at least in part on a host of considerations, such as cost, capability, efficiency, compatibility, resources, proximity, latency, bandwidth (e.g., throughput), utilization, others or combinations thereof. EX-1005 26:55-65. Finally, Hankins discloses that the provisioning of the tunnel servers by the controller via execution of one or more software applications EX-1005 25:20-22. Based on this disclosure, a POSITA understood that Hankins discloses that a request for services from a network device (e.g., content from a server) would be sent from a gateway (endpoint device) to a controller, that would use a software module to provision one or more tunnel servers to connect the gateway with another gateway to receive the services. Thus, Hankins discloses limitation [15.3]. Moreover, this example in Hankins is identical to the example disclosed in the '595 Patent. [assume we will provide citations to support these statements] For example, the '595 patent discloses that the host (client) 101 in Client-Server (C-S) relationship makes a request to access content from a remote host (server) or sends data to remote host (server) via a universal resource locator (URL) or other network reachable address. EX-1001 8:46-50. Thus, the request to access content from a remote server is sent to the availability module and treated as a request for

available servers. The Server Availability 32-280 module examines current allocation of IP address and port combinations while taking account actual use, load, and other factors of the live production environment. It further analyzes the potential impact of assigned but standby allocations to predict the impact of those resource demands going live. EX-1001 23:11-16; Pet. 41-49.

Thus, the Petition demonstrates how Hankins has a parallel disclosure to that of the '595 Patent that discussed the identical concept but uses different words. Therefore, the POR's argument that the Petition conflates "servers" with "services" has no factual basis, as the Petition never asserted that a server and services are interchangeable terms.

Further, the POR's additional arguments that Hankins does not use the word "list" is legally irrelevant. POR 8. Hankins discloses that the controller may provision more than one tunnel server for a gateway in order to potentially enhance communications by providing alternate paths between gateway devices. Further, Hankins discloses that a gateway device may communicate with more than one tunnel server concurrently, which means that the controller is providing more than one tunnel server to a gateway e.g., a list of available tunnel servers. EX-1005 26:65-27:9; Pet. 47-48.

Further, Hankins discloses that gateway 311 may be provisioned to use tunnel server one 360, and in the alternative be provisioned to use tunnel server

two 370, in case tunnel server one is unavailable. Thus, a POSA understood that the controller provides multiple tunnels servers to a gateway, even though Hankins does not use the word “list.” Pet. 48-49.

The POR asserts that the Petition impermissibly uses the ’595 Patent as a roadmap because a “server availability module” within a control server has “no analogue in the prior art.” POR 12-13. However, this argument ignores the disclosure of Hankins, discussed above, that its control server also contains a software module that provisions a list of available servers to a gateway. The POR also ignores that Hankin’s control server operates the same way as the control server of the ’595 Patent, i.e., enhancing communications channels by using contextual information. *Compare* EX-1001 23:11-24 to EX-1005 25:7-25; 26:55-65. Thus, the disclosure of Hankins demonstrates that a server availability module was known in the art, and therefore the POR’s assertion to the contrary is without factual support.

III. HANKINS, ALONE OR IN VIEW OF KOMMULA, DISCLOSES LIMITATION [15.5]

The POR argues that neither Hankins, nor Hankins in combination with Kommula, disclose limitation [15.5]. The POR makes this argument by mischaracterizing the Petition and the cited art.

Limitation [15.5] recites that a processor is caused to *dynamically order the list of available servers for the first endpoint device based on the one or more records associated with the network device.*

Hankins Alone

Hankins describes that a controller can provision one or more tunnel servers to a gateway using the records received from the gateways that provide contextual information. Pet. 48-52. Hankins also describes why it would provide more than one server to a gateway including considerations such as geography, latency, utilization, bandwidth (e.g., throughput), availability, efficiency, cost, etc. EX-1005 25:34-45; 26:49-27:9. Hankins specifically describes that that the controller “may provision tunnel servers in a manner to improve performance and/or reduce costs without human intervention.” EX-1005 25:34-55. The Petition identifies several examples of Hankins provisioning more than one tunnel server and dynamically ordering the servers. For example, Hankins describes that gateway 311 is provisioned with tunnel server one 360 and tunnel server two 370, based on information obtained from the network devices (gateway, tunnel servers, etc.) such as proximity of the gateway device to tunnel server one 360. Pet. 48 (citing EX-1005 24:39-57, 25:15-55). Normally, when gateway device 311 transmits signal packets to gateway 321 it does so via tunnel server one 360 since tunnel server one 360 is more proximate to both gateway device 311 and gateway device 321. In the

event that tunnel one 360 is unavailable, gateway device may transmit signal packets via tunnel sever two 370. Pet. 48 (citing EX-1005 25:56-67). Based on these disclosures of Hankins, a POSA understood that controller 350 would provision tunnel servers one 360 and two 370 to gateway 311 and 321 with tunnel server one 360 being the primary path and tunnel server two 370 being the secondary path because that achieves one of the express goals of Hankins to “provision tunnel servers in a manner to improve performance and/or reduce costs without human intervention.” EX-1005 25:34-55.

The Petition provides another example of dynamic ordering of servers in order to achieve load balancing. Hankins may provision multiple tunnel servers to a gateway for load balancing purposes, where a first broadcast domain may communicate packet transmissions to a second broadcast domain using a plurality of tunnel servers in a manner so that every n^{th} signal packet from the first broadcast domain is transmitted to the second broadcast domain via the n^{th} tunnel server. Pet. 49 (citing EX-1005 26:21-48). Based on these disclosures of Hankins, a POSA understood that controller 350 would provision tunnel servers to the gateways in a specific order to ensure load balancing across the tunnel servers because that achieves one of the express goals of Hankins to “provision tunnel servers in a manner to improve performance and/or reduce costs without human intervention.” EX-1005 25:34-55.

In another example, the Petition identifies how Hankins dynamically orders the available tunnel servers based on the capability of the tunnel server. Hankins discloses that different tunnel servers could provide different services, e.g., tunnel server one 360 may specialize in file serving, and tunnel server two 370 may specialize in message serving. Pet 49 (citing EX-1005 26:49-65). Based on these disclosures of Hankins, a POSA understood that the controller would dynamically order a gateway to use tunnel server one 360 for file serving, and tunnel server two 370 for message serving because that achieves one of the express goals of Hankins to “provision tunnel servers in a manner to improve performance and/or reduce costs without human intervention.” EX-1005 25:34-55.

The POR ignores these examples provided by Hankins discussed in the Petition, and instead bases its arguments on the faulty premise that Hankins failed to disclose a list of available servers. POR 14.

Hankins in view of Kommula

With respect to the Petition’s alternative basis—showing Hankins as modified by Kommula discloses this limitation—the POR asserts several arguments, none of which are factually supported.

First, the POR asserts that Kommula is non-analogous to Hankins. The POR arbitrarily deems Kommula to be “DNS server art” and Hankins to be “transport network art” and asserts that the reference have nothing to do with each

other. POR 1-2, 15-17. The Petition sets forth the reason why Kommula and Hankins are analogous:

Hankins and Kommula are analogous art. Both Hankins and Kommula are directed to identifying available servers to provide a communication path through a network. EX-1005 12:9-16, 24:39-57, 25:15-55; EX-1004 [0008], [0019], [0026], [0027]; EX-1003 ¶ 154. Both Hankins and Kommula use contextual information to identify available servers such as the proximity of the server to the endpoint device or gateway. EX-1005 25:7-25; 26:55-65; EX-1004 [0009]; EX-1003 ¶ 155

Pet. 50.

Moreover, the disclosure and claims of the '595 Patent confirm that the disclosures of Hankins and Kommula are analogous. The '595 Patent includes the prior art teachings of **both** Kommula and Hankins. For example, the Petition demonstrated how Claims 1-14 of the '595 Patent, which are directed to a processor for dynamically ordering a list of available servers, were obvious over Kommula's disclosure of a DNS server dynamically ordering a list of available servers. Pet. 19-37. Rather than arguing that the Kommula reference was not analogous to the '595 Patent, or that Claims 1-14 do not read on DNS server art, the Patent Owner disclaimed Claims 1-14. Claims 15-20 of the '595 Patent are directed to a processor for dynamically ordering a list of available tunnel servers. In other words, Claims 15-20 are directed to a species (available tunnel servers) of

the genus (available servers) claimed in Claims 1-14. Rather than being non-analogous art, the claims of the '595 Patent demonstrate that the teachings of Kommula and Hankins fit together like hand-in-glove.

Second, the POR asserts that Kommula's DNS server only identifies host servers and would never identify an access point server, and its DNS list is not based on stored records of an endpoint device. POR 15-16. Thus, the POR's arguments are based on a physical incorporation of the DNS server of Kommula, or the DNS list of host servers (POR 15-16). However, the Petition is not based on physical incorporation of Kommula's DNS server into Hankins' system. Instead, the Petition explains how both Hankins and Kommula are directed to identifying available servers to provide a communication path through a network and both Hankins and Kommula use contextual information to identify available servers such as the proximity of the server to the endpoint device or gateway. Pet. 51 (citing EX-1005 12:9-16, 24:39-57, 25:7-25, 25:15-55, 26:55-65; EX-1004 [0008], [0009], [0019], [0026], [0027]; EX-1003 ¶ 154-155). The Petition expressly identifies that it is Kommula's teaching of dynamically ordering the list of available servers based on the contextual information such as proximity that would be used to modify the teachings of Hankins. Pet. 51 (citing EX-1004 [0009], [0095], [0135]; EX-1003 ¶ 156). The Petition does not assert that a POSITA would physically incorporate the DNS server of Kommula into Hankins. Instead,

the Petition states that a POSITA would be motivated to modify the teaching of Hankins to identify available tunnel servers based on contextual information by dynamically ordering the servers as taught by Kommula because it results in a more efficient use of network resources. Pet. 50.

Further, the Petition provides specific examples of why it would be desirable to implement Kommula's teaching of dynamically ordering available tunnel servers, including to improve performance by provisioning tunnel servers based on contextual records, e.g., proximity, and in order to implement in real-time network policies. Pet. 51 (citing EX-1005 8:12-37, 18:46-63, FIGs. 4, 5; EX-1004 [0013], [0026], FIGs. 2A-2D; EX-1003 ¶ 159, 162, 163). Further, the Petition explains how it could be successfully implemented using a simple software implementation accessing the stored contextual information. *Id.* While the POR attacks the disclosure of Hankins and Kommula individually, it does not address the Petition's stated rational for combining the references, nor address the expected success in such combination.

Thus, the Petition factually supports that Hankins, alone, or in view of Kommula discloses dynamically ordering the available tunnel servers.

IV. HANKINS IN VIEW OF KOMMULA DISCLOSE DEPENDENT CLAIMS 19 AND 20

The POR asserts that the Petition does not demonstrate that Claims 19 and 20 are disclosed by Hankins in view of Kommula.

Claim 19 recites: *The network system of claim 15, the one or more records are retrieved based on a unique device identity associated with the first endpoint device.*

The Petition explains when discussing limitation [15.5] that Hankins and Kommula both teaching using software implementation to identify available servers by accessing stored contextual data, including closest proximity. The Petition references the reasons discussed with respect to Claim 7 and Kommula's teaching which identifies that in order to determine which network device is in closest proximity, it is necessary to know the identity of each of the network device and thus teaches a POSITA that a unique device identifier would be used. Pet. 33.

Claim 20 recites: *The network system of claim 15, wherein the control server receives tunnel information associated with the one or more first tunnels via the global virtual network, and wherein dynamically ordering the list of available servers is further based on the tunnel information.*

The Petition explains when discussing claim 15, that the gateway collects broadcast domain configuration, including status of network device (limitation [15.2]), identifies tunnels and tunnels servers based on utilization and throughput (limitation [15.4]), and selecting available servers based on load balancing (limitation [15.5]). The Petition references the reasons discussed with respect to Claim 4 and Kommula's teaching which explains that dynamic ordering can be

based on performance metrics like anticipated load. Thus, a POSITA understood that the anticipated load of a tunnel server can be used as a performance metric to dynamically order the tunnel server. Pet. 29-30.

V. THE PETITION IS FULLY SUPPORTED BY RECORD EVIDENCE

The POR's final arguments attack the factual support of the Petition by asserting that (1) some arguments in the Petition "are missing a citation to the relevant exhibit or any expert support whatsoever"¹, or (2) some arguments in the Petition "are supported by citations that do not support the Petitioner's allegation." Neither of the POR's arguments are persuasive.

Ironically, the POR makes these two arguments without any citation to the evidence of record or its expert, and thus these arguments are unsupported attorney argument. With respect to the first argument, the POR cherry picks isolated sentences out of context and argues that each statement is unsupported because there is no citation immediately after the sentence. However, every one of these

¹ To the extent that the POR is referencing Petitioner's citations on pp. 47-48 that inadvertently swapped EX-1004 (Kommula) for EX-1004 (Hankins), as the Board pointed out in the Institution Decision, this is a clear typographical error because Kommula is a patent publication with paragraph numbers while Hankins is a patent with column/line numbers. DI. 15 fn. 8.

sentences is directed to the subject matter of the paragraph in which it is contained, **each of which concludes with a citation to record evidence as well as Petitioner's expert.** In fact, most of the identified sentences are topic sentences directed to subject matter previously discussed, where the next sentence begins with "For example....." that conclude with the pin cites that the POR asserts is missing.

With respect to the POR's second argument that the citations do not support the Petition's arguments, the POR does not include one example showing how the citation does not support the Petition. Even though the POR includes a declaration from Patent Owner's expert, Patent Owner's expert does not address any of the citations that the POR asserts do not support the Petition's arguments. Likewise, even though the Patent Owner cross-examined the Petitioner's expert, it did not ask any questions regarding the citations that the expert used to support his statements identified in the POR. Thus, the POR does nothing more than state that the Patent Owner's attorney disagrees with Petitioner's expert's understanding of the '595 Patent and the cited prior art, which is not competent evidence sufficient to rebut the Petitioner's expert's factually supported opinions.

February 21, 2025

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CERTIFICATION OF SERVICE ON PATENT OWNER

Pursuant to 37 C.F.R. §§ 42.6(e), the undersigned certifies that on February 21, 2025, a complete and entire copy of Petitioner's Reply to Patent Owner's Response, was served by filing in P-TACTS and an electronic copy via electronic mail to the Patent Owner's counsel at the following addresses:

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24 et seq., the undersigned certifies that this document complies with the type-volume limitations. This document contains 3361 words as calculated by the “Word Count” feature of Microsoft Word 2010, the word processing program used to create it.

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