

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.

U.S. Patent No. 10,574,482

Title: MULTI-PERIMETER FIREWALL IN THE CLOUD

Inter Partes Review No.: IPR2024-00498

**PETITIONER’S REPLY TO PATENT OWNER’S PRELIMINARY
RESPONSE**

Mail Stop “PATENT BOARD”

Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Pursuant to the Board’s Order dated June 11, 2024 (Paper 9), Petitioner hereby provides a preliminary reply addressing (1) the proper scope and meaning of the term “*access point server*” recited in the Challenged Claims, and (2) Patent Owner’s (PO’s) arguments in its Patent Owner’s Preliminary Reply (POPR)(Paper 6) implicating the terms “*first perimeter firewall*” and “*second perimeter firewall*” also recited in the Challenged Claims. As set forth in this reply, Shieh discloses the recited *access point server* even under PO’s restrictive construction, and PO relies on that construction and ignores the embodiment relied upon in the Petition in its arguments implicating multiple firewall perimeters.

A. Shieh Discloses *Access Point Servers* Under PO’s Restrictive Construction

PO acknowledges that “[t]he term *access point server* was well understood at the time of filing and is not given a special meaning or definition in the ’482 Patent” but then relies on extrinsic evidence to separately define the terms “access point” and “server” to craft its restrictive definition: “[a]ccording to its plain meaning, skilled artisans understand that an *access point server* is a device that responds to other devices and provides services, including an entry point to a network, to other devices.” POPR 5. While Petitioner acknowledges that PO’s proposed definition could be one example within the scope of the plain and ordinary meaning, Petitioner disagrees that the plain and ordinary meaning of this

“well understood” term is limited to this one example. Nonetheless, the Board need not construe the term because Shieh discloses *access point servers* even under PO’s restrictive definition.

The security processing modules 309, 310 of Shieh meet the limitations recited with respect to *a first access point server* and *a second access point server* in claim elements [1.2] and [1.3] respectively. Pet. 33-35. In arguing that the security processing modules of Shieh do not constitute access point servers according to its definition, PO overlooks the disclosure of Shieh to the contrary. For example, with respect to the “server” aspect of PO’s definition, Shieh discloses that the security processing modules may be run on virtual machines and that the virtual machines are software hosted on **servers** in the cloud. Pet. 23-24. In addition, Shieh discloses that the security processing modules perform VPN processing which a POSITA understood to be an endpoint of a secure connection or tunnel of a virtual network, similar to the disclosure of the ’482 Patent which describes that the access point servers are endpoints of a virtual tunnel. Pet. 34.

To the extent that an *access point server* provides “services to another device on the network” as required by PO’s definition, the security processing modules of Shieh satisfies this requirement at least by providing VPN services.

With respect to the “access point” aspect of PO’s definition requiring that the *access point server* must “provide an entry point to a network, to other

devices,” Shieh discloses that the security processing modules may communicate directly with a destination device such as servers on LAN 320. Pet. 26.

Moreover, to the extent that PO asserts that an *access point server* must be a physical entry point to a network, such an assertion ignores that the claims require an *egress ingress point device* in communication with each *access point server* that provides the physical entry point to the network.

Thus, a POSITA understood that the security processing modules of Shieh constitute *access point servers* as recited in the Challenged Claims, even under the restrictive definition asserted by PO.

B. Shieh Discloses Multiple *Perimeter Firewalls*

The POPR raises two arguments implicating the terms *first perimeter firewall* and *second perimeter firewall* recited in the Challenged Claims. PO first argues that Shieh’s service processing modules do not form multiple perimeters. POPR 10-15. PO then relies on its contention that “Shieh’s security processing modules are not *access point servers* and that the only components of Shieh that could perform firewall functions are never connected to multiple perimeters.” POPR 15. However, in making these arguments, PO ignores the very embodiment described by Shieh that parallels the disclosure of the ’482 Patent.

Shieh expressly discloses that each of the security processing modules 309-311 perform major security processing functions (i.e. firewall functions) such as,

for example, network address translation (NAT), virtual private network (VPN), deep packet inspection (DPI), and/or anti-virus, etc. Pet. 25, 30, 34. Shieh also discloses one or more service processing modules are associated with a security processing module that is capable of performing the same security processing functions. Pet. 25.

PO acknowledges that a firewall perimeter is created by performing firewall functions, and argues that Shieh's service processing modules "do not and cannot define any functional perimeter or border" because the module is "optional and is invisible to the remainder of the network." POPR 12. However, PO ignores the embodiment where a service processing module performs firewall functions, and provides no explanation as to how the alleged "invisibilty" of the modules prevents the creation of a functional perimeter according to the claims.

Shieh discloses *a first perimeter firewall in communication with the first access point server ...* as recited in element [1.5]. The service processing module performs one or more security functions thus creating a first firewall perimeter that performs the functions recited in element [1.5].

Next, PO appears to argue that even though Shieh discloses multiple security processing modules and associated service processing modules, "[t]he Shieh system does not and cannot form multiple functional perimeters" because "Shieh discloses only a single security processing module (module 311 in the example

illustrated above right) that communicates directly with the access point server (the I/O module 303 in this example) to initiate a single security processing.” POPR 13.

However, the “example” relied upon by PO is a strawman scenario that has no basis in the Petition. Moreover, PO ignores the very embodiment of Shieh that parallels the ’482 Patent relied upon in the Petition.

With respect to element [1.3], Shieh expressly discloses that a security processing module may send packets to a second security processing module “[i]f the packets need to go through another security or service processing.” Pet. 35. Thus, as set forth with respect to element [1.6], a second perimeter firewall in communication with the second access point server is created performing the security functions recited in element [1.6].

To the extent the PO argues that the perimeter must delineate a physical boundary, this argument is inconsistent with the claims, which recite a **cloud** deployment of firewalls as part of a virtual network that is delineated with **logical** perimeters through which packets pass. However, even if logical boundaries are excluded, Shieh discloses physical boundaries because different processing modules in its distributed firewall architecture may be “in different networks” or even in “different locations” as long as they can reach one another. Pet 24.

June 17, 2024

/Patrick D. McPherson/

Patrick D. McPherson, Reg. No. 46,255
901 New York Ave. N.W., Suite 700 East
Washington, D.C. 20001

P: (202) 776-7800

F: (202) 776-7801

PDMcPherson@duanemorris.com

ATTORNEY FOR PETITIONER

CERTIFICATION OF SERVICE ON PATENT OWNER

Pursuant to 37 C.F.R. §§ 42.6(e), the undersigned certifies that on June 17, 2024, a complete and entire copy of Petitioner's Reply to Patent Owner's Preliminary Response, was served by electronic mail to the Patent Owner's counsel at the following addresses:

ggardella@gardellagrace.com
james.harris@headwaterllc.com
mdorfman@gardellagrace.com

June 17, 2024

By: /Patrick C. Muldoon/
Patrick C. Muldoon
Reg. No. 47,343
Duane Morris LLP
901 New York Ave. NW, Suite 700 E
Washington D.C., 20001
P: (202) 776-7800
F: (202) 776-7801

PCMuldoon@duanemorris.com