

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MICROSOFT CORPORATION,
Petitioner,

v.

TOUTVIRTUAL, INC.,
Patent Owner.

Case IPR2026-00296
U.S. Patent No. 10,810,050

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

EXHIBIT	DESCRIPTION
2001	First Amended Docket Control Order, <i>ToutVirtual, Inc. v. Microsoft Corporation</i> , No. 25-cv-00943-RWS-RSP, Dkt. No. 35 (E.D. Tex. Feb. 23, 2026)
2002	Declaration of Vipul Pabari in Support of Patent Owner's Request for Discretionary Denial PROTECTIVE ORDER MATERIAL
2003	Declaration of James Hannah in Support of Patent Owner's Request for Discretionary Denial
2004	Docket Navigator webpage, Time to Trial in the Eastern District of Texas, dated January 1, 2024 through May 9, 2026
2005	Excerpts from U.S. District Court – Federal Case Management Statistics, Median Time from Filings to Trial (E.D. Tex.), 12-Month Periods Ending December 31, 2025, available at https://www.uscourts.gov/data-news/data-tables/2025/12/31/statistical-tables-federal-judiciary/t-3
2006	Summons in a Civil Action, <i>ToutVirtual, Inc. v. Microsoft Corp.</i> , No. 25-cv-00943-RWS-RSP, Dkt. No. 5 (E.D. Tex. Sep. 8, 2025)
2007	Excerpts from Defendant's Preliminary Invalidity Contentions, <i>ToutVirtual, Inc. v. Microsoft Corp.</i> , No. 25-cv-00943-RWS-RSP (E.D. Tex.), served on March 12, 2026
2008	U.S. Patent No. 8,799,431
2009	U.S. Patent No. 9,444,762
2010	ToutVirtual – VirtualIQ Pro 3 – Virtual Intelligence Best Practices

EXHIBIT	DESCRIPTION
2011	Reuters webpage, "Virtualization management takes center stage," dated August 26, 2009, available at https://www.reuters.com/article/business/environment/virtualization-management-takes-center-stage-idUS1669466711/
2012	ToutVirtual press release, "ToutVirtual Announces VirtualIQ Pro 3," dated January 13, 2009, available at https://www.toutvirtual.com/company/pr/VirtualIQ-Pro-January-13-2009.pdf
2013	Network Computing webpage, "ToutVirtual Unveils New Software," dated May 30, 2007, available at https://www.networkcomputing.com/network-management/toutvirtual-unveils-new-software
2014	PR.com press release, "ToutVirtual to Offer Product Suite via BT Engage IT," dated June 1, 2012, available at https://www.pr.com/press-release/417010
2015	Computer World webpage, "Computerworld Horizon Awards 2006 Honorees," dated August 21, 2006, available at https://www.computerworld.com/article/1649654/computer-world-horizon-awards-2006-honorees.html
2016	Network World webpage, "10 virtualization companies to watch," dated August 20, 2007, available at https://www.networkworld.com/article/824596/data-center-10-virtualization-companies-to-watch.html
2017	Network Computing webpage, "ToutVirtual Offered with Microsoft," dated April 5, 2007, available at https://www.networkcomputing.com/network-infrastructure/toutvirtual-offered-with-microsoft
2018	ToutVirtual press release - "ToutVirtual Announces Support for Microsoft Windows Server 2008 Hyper-V Virtualization," dated October 27, 2008

EXHIBIT	DESCRIPTION
2019	ToutVirtual, Inc. presentation, "Virtual Problems – Real Solutions," dated November 2006 PROTECTIVE ORDER MATERIAL
2020	E-mail from V. Pabari to T. Bailey and M. Neil, dated November 15, 2006 PROTECTIVE ORDER MATERIAL
2021	Excerpts of File History for U.S. Patent No. 8,799,431
2022	Excerpts of File History for U.S. Patent No. 11,656,915
2023	Order, <i>Maxell, Ltd. v. Samsung Elecs. Co.</i> , No. 5:25-cv-00052-RWS, Dkt. No. 64 (E.D. Tex. Dec. 15, 2025)
2024	Intentionally Omitted
2025	Intentionally Omitted
2026	Default Protective Order
2027	Additional excerpts from Defendant's Preliminary Invalidity Contentions, <i>ToutVirtual, Inc. v. Microsoft Corp.</i> , No. 25-cv-00943-RWS-RSP (E.D. Tex.), served on March 12, 2026
2028	Excerpts from VMWare's GSX Server 3 Administration Guide (Version 3.0), https://dn790007.ca.archive.org/0/items/manualzilla-id-7300686/7300686.pdf

I. INTRODUCTION

The Board should deny institution because Petitioner's ("Microsoft's") Petition grounds fail at three levels.¹ First, Microsoft advances inconsistent claim construction positions between the PTAB and district court forums with no explanation for why it should be allowed to do so. In the co-pending district court litigation, Microsoft alleges that several claim limitations are indefinite but here expressly construes terms in these limitations and measures the asserted art against their claim scope. Second, Microsoft's Ground 3 challenge against Claim 9 relies on Pabari, the parent publication, which is not prior art. Third, Microsoft's asserted art mappings are inconsistent with the constructions Microsoft itself proposed.

Ground 3 (Pabari, Independent Claim 9): this ground fails because Pabari is the parent publication and is not prior art. To try to break the priority chain, Microsoft alleges that Claim 9's "the processor"—which performs the claimed provisioning operations—is the host's processor, which Microsoft alleges lacks written description support. But the prosecution record forecloses this challenge. It establishes that "the processor" belongs to the control center computer in view of an amendment identifying the control center computer as the structure corresponding

¹ Microsoft advances eight grounds, four of which—Grounds 1A, 1B, 2A, and 3—challenging Independent Claims 1 and 9. Pet. at 1-2.

to the provisioning operations, which overcame a means-plus-function rejection for lack of corresponding structure in the specification.

Grounds 1A and 1B (Khandekar, Independent Claims 1 and 9): this ground fails because Microsoft's Khandekar mappings are, on their face, inconsistent with its own constructions for several claim terms, including "manage" and "without regard to." Because of these internal inconsistencies, Microsoft fails to show how Khandekar meets the independent claims under its own proposed constructions. Apart from this, Grounds 1A and 1B fail because Khandekar's provisioning server architecture does not provide user access to the provisioned virtual machine, as Claims 1 and 9 require. Ground 1B separately fails because Microsoft identifies the host's processor as performing the provisioning operations, but Claim 9 requires the "control center computer's" processor to perform those operations (as Ground 3 establishes). Microsoft identifies the wrong processor.

Ground 2A (Hirschfeld, Independent Claim 1): this ground fails because Hirschfeld fails the requirements of Claim 1: "physical resources and virtual assets managed by a virtualization layer running on the physical resources." **First**, its virtualization software runs on the operating system layer, not on the physical resources, which places it squarely within the same architectural deficiency the Applicant expressly distinguished during prosecution when overcoming prosecution art on identical grounds. **Second**, Hirschfeld's management architecture is

bifurcated between the virtualization software and the separate Server Cloud Manager (“SCM”) managing the logical servers. The SCM manages the logical servers (the alleged “virtual assets”), not the virtualization software (the alleged “virtualization layer”) as in the manner required by the claims.

II. OVERVIEW OF THE '050 PATENT AND ASSERTED GROUNDS

A. The '050 Patent Solved an Industry's Need for a Cross-Platform Virtualization Management Tool

The '050 Patent describes methods and apparatus for automatic management of computer network virtualization environments. '050 Patent at 3:45-65, 4:12-25, 6:38-59. By the late 2000s, the proliferation of different hypervisors had driven the industry need for a unified, cross-platform virtualization management tool. Ex. 2011 at 2. For example, VMware, a virtualization vendor, only “focuse[d] on boosting its capabilities for managing its own hypervisors.” *Id.* at 3². Yet only “7% of respondents [in a survey conducted in mid-2008] had only one virtualization supplier in their test and development and production environments.” *Id.* at 2. The industry thus was moving away from vendor-specific management since it “prefer[s] different types of hypervisors for different types of applications” which “require[]

² VMware is the assignee of Khandekar asserted in Grounds 1A and 1B, which as explained above suffers from these very issues. *See* Khandekar at Cover.

that you have a single view, and from an IT perspective you don't want multiple management tools, repositories, teams of users. You want a single pane of glass."

Id. at 2.

ToutVirtual's VirtualIQ answered that need by delivering a unified management console that can automatically manage virtualization environments across different vendors of platforms and platform-types, and was met with industry praise. Paper 8 ("PO Discretionary Brief") at 9-11; *see also* Ex. 2002 at ¶ 5 (citing Ex. 2010), ¶ 4 (citing Ex. 2011 at 2, Ex. 2013 at 2), ¶ 7 (citing Ex. 2013 at 2, Ex. 2012 at 1, Ex. 2014 at 2). Specifically, ToutVirtual's VirtualIQ technology includes a unified management console that, *inter alia*, carries out automatic provisioning, server virtualization assessment, asset management, performance management, and capacity management in cross-platform environments. Ex. 2012 at 1; *see also* Ex. 2014 at 1-2 ("VirtualIQ provides a 'single pane of glass' across physical and virtual infrastructure . . .").

ToutVirtual's VirtualIQ technology is built directly on the '050 Patent's management architecture platform. *See* Ex. 2019 at 6. The '050 Patent—and by extension VirtualIQ—discloses and claims a control center that manages "multiple virtual environments can be managed through a single user interface . . . even where the underlying CPU of the system physical resources are different from that of the control center, even where the operating systems of the control center, physical

resources, and virtual assets are different, and even where the virtualization environments being managed are different from each other.” ’050 Patent at 3:45-65. This environment-level, cross-platform management is achieved through control center 202 (red), which serves as the unified management console; the control agent 324 (blue), which resides on each host 300 and acts as the universal adapter between the control center and the host’s virtualization layer; and the virtualization layer 322 (green) that runs on the host 300, as reproduced below:

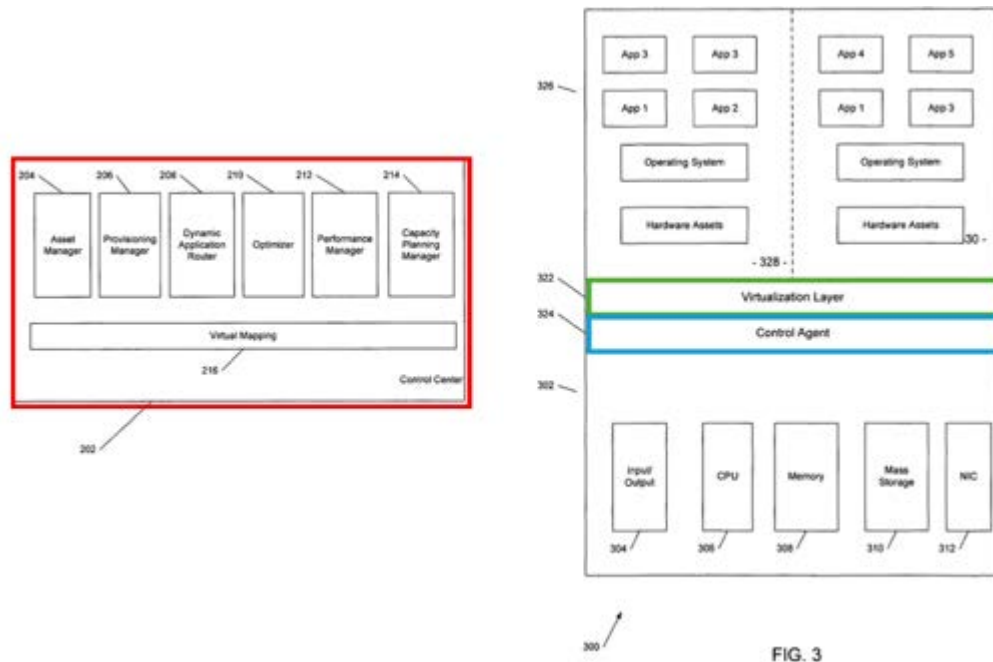


FIG. 3

Id. at Figs. 2 and 3 (annotated). This management architecture is the foundational platform for ToutVirtual’s VirtualIQ technology.

The control center serves as the centralized management console for one or more virtualization environments. ’050 Patent at 7:1-13. The control center comprises a collection of management components—including asset manager 204,

provisioning manager 206, dynamic application router 208, optimizer 210, performance manager 212, and capacity planning manager 214 (as shown above)—each of which provides a discrete management function across the different virtualization environments. *Id.* at 3:66-4:3, 7:33-9:38, Fig. 2.

The control center's processor collectively executes these management components across virtualization environments and does so “without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment”—environment-level, platform-independent management. *Id.* at 4:11-36 (emphasis added); *Id.* at 6:38-59 (“The present invention provides automated management of network-based virtual environments through Control Center software that . . . is **platform-independent**”) (emphasis added). For example, the control center can manage across different types of virtualization platforms—server (physical hosts to virtual machines), storage (physical disks to logical units), and network (physical routers to virtual network paths)—or across different vendors of each platform type (VMWare, Xen, Microsoft, or IBM), all without regard to the processors, operating systems, virtualization platforms, and application software of the virtualization environment. *Id.* at 6:38-59, 18:53-62 (“the Control Center virtualization management application being described can also be used to manage other virtual assets, such as user desktops (user interfaces), data storage . . . and network traffic devices such as routers and

switches”), 20:12-15 (server virtualization management), 20:33-37, 20:38-40 (storage virtualization management), 20:64-67 (network router virtualization management), Figs. 11-14.

To accomplish this management, the control center communicates with and instructs the virtualization layer running on each host through control agent 324, as one embodiment details. *Id.* at 10:18-25. The control agent is installed on each host to “facilitate[] communication between the external Control Center components 204-214 and the Virtualization Layer 322 of the host machine.” *Id.* at 10:25-32. That is, the control agent “provides a common interface to the variety of virtualization software that might be available on the host machine”—for example, virtualization layers provided by VMWare, Xen, Microsoft, or IBM.” *Id.* at 10:27-42. In this way, the control center computer thus instructs the virtualization layer to carry out the management operations on each host, and does so regardless of the platform present (“platform-independent”). *Id.* at 6:38-59; *see also id.* at 3:45-65, 4:12-25.

Independent Claims 1 and 9 capture the core of the management architecture. Independent Claim 9 recites, *inter alia*: “automatic management,” by a “control center computer” that is done “without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment” through a “virtualization layer . . . that manages the virtual assets.” *Id.* at Claim 9.

Likewise, Independent Claim 1 recites, *inter alia*, “on demand provisioning of virtual asset via a self-service portal” which allows “automatically provisioning of a particular virtual asset to a particular physical resource in the virtualization system” through a virtualization layer that manages the “physical resources and virtual assets.” *Id.* at Claim 1.

B. The Asserted Grounds

The Petition asserts eight grounds, four of which challenge Independent Claims 1 and 9 (bolded):

Ground	Claims	Basis/Asserted Reference(s)
1A	1 , 3-4, 6-8	§ 102: Khandekar
1B	9 , 11, 12, 14, 16	§ 103: Khandekar
1C	2, 5, 10, 13	§ 103: Khandekar, Vasilevsky
1D	7, 15	§ 103: Khandekar, Tremain
2A	1 , 3	§ 103: Hirschfeld
2B	2, 5	§ 103: Hirschfeld, Vasilevsky
2C	6, 7	§ 103: Hirschfeld, Tremain
3	9-16	§ 103: Pabari, Bonazzola

Pet. at 1-2.

As discussed in Section VI below, Microsoft's **Khandekar** (Grounds 1A and 1B), **Hirschfeld** (Ground 2A), and **Pabari** (Ground 3) fail to demonstrate a reasonable likelihood that Microsoft would prevail with respect to any claim because Khandekar and Hirschfeld are structurally different from the claimed invention's

management architecture and the '050 Patent enjoys priority to Pabari (the parent publication). The '050 Patent family has examined at the USPTO for roughly two decades, during which time the same or substantially the same art and arguments asserted here were previously before the Office. PO Discretionary Brief at 13-20. The Petition's grounds repackage the same art and arguments that previously were before the Office and overcome. *Id.*

Because Grounds 1A, 1B, 2A, and 3 challenge the independent claims, the dependent claim grounds, which depend from the independent claims, also fail. Therefore, the arguments addressed herein regarding the independent claim grounds apply equally to the dependent claim grounds.

C. The Relevant Asserted Art

1. Khandekar (Grounds 1A and 1B): It Provides Host-Level, Platform-Dependent Management

VMware—and by extension Khandekar (a VMware patent)—is focused on the management of its own virtualization environment. Ex. 2011 at 3; Khandekar at Cover. The industry's "real goal," however, was for a unified, cross-platform virtualization management. Ex. 2011 at 2; § II.A, *supra*. Khandekar is thus the vendor-specific architecture that the industry moved away from.

A closer look at Khandekar's architecture reveals its host-level management, tethered to VMware-specific platform.³ Each host is installed with a VMware-specific Virtual Machine Monitor ("VMM"), which is the VMware-specific platform for its server virtualization. *See* Khandekar at 7:7-27, 13:17-25. VMware provides the VMM that is installed on every host to ensure VMware compatibility and configuration when creating and loading virtual machines. *Id.* at 7:7-9, 13:17-25 ("[A] VMM is already pre-installed on each host . . . so as to ensure compatibility and proper configuration," with products "from VMware" providing that VMM). Every management operation depends on the VMware-specific VMM at each host. Every resource request a virtual machine ("VM") issues—for memory, processor time, storage, or network access—passes through the VMware VMM on that host, which schedules and handles all requests by its VM for machine resources as well as various faults and interrupts. *Id.* at 7:18-47, 13:17-35.

³ Khandekar's VMware-dependency is illustrative of its broader platform dependency—it is tethered to a vendor's server virtualization platform and does not extend to storage, network, or other virtualization platform types. *See, e.g.*, Khandekar at 5:25-49, 9:26-35, 11:20-35 (provisioning architecture directed to server virtualization). Thus, while ToutVirtual addresses herein Khandekar's vendor-specific dependency, that dependency also extends to platform type.

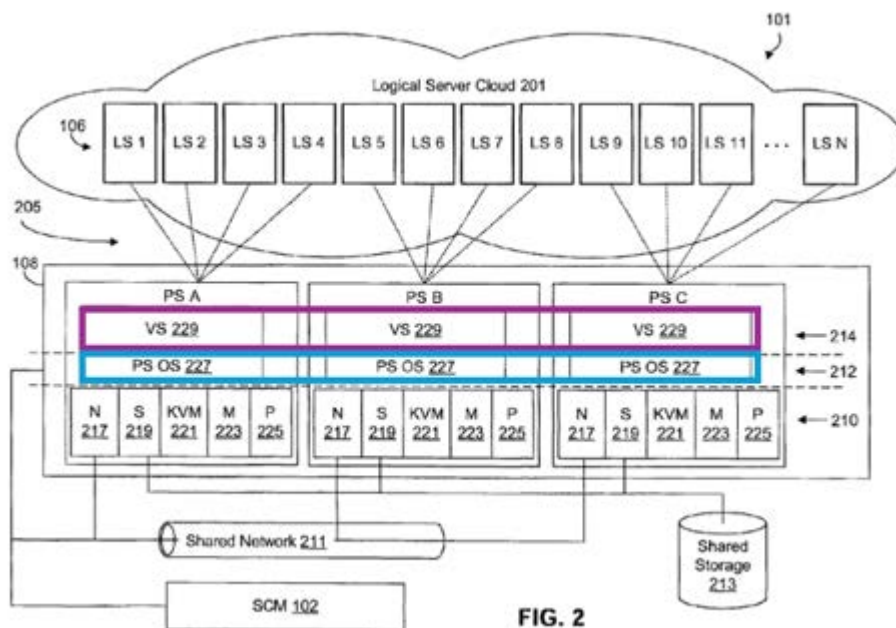
The VMware-specific platform dependency extends upward through the provisioning architecture operational sequence. It is platform dependent. For example, the provisioning server's heuristics engine reaches the physical hosts (1000-1003) through the vendor-specific VMM interface to determine the host with enough memory and disk space to host the VM about to be deployed on the host. *Id.* at 20:16-58. Because the provisioning architecture communicates only with its VMware-specific platform, its provisioning operations are limited to the vendor-specific platform.

2. Hirschfeld (Ground 2A): Its Virtualization Software Runs on the Operating System and Manages only the Physical Resources of Each Host

Hirschfeld's architecture is, on its face, distinct from Independent Claim 1 that imposes two requirements of a virtualization layer: (1) that it runs on the physical resource, and (2) manages both the physical resources and virtual assets. '050 Patent at Claim 1. As a preliminary matter, during prosecution of a related family member imposing the same requirements, the Applicant articulated that virtualization software running on an OS layer "cannot equate to" a virtualization layer running on the physical resource. Ex. 2022 at 52-53.

Hirschfeld's architecture does not meet either claim requirement because its virtualization software runs on the operating system (OS) layer and manages only the physical resources of each physical server. Hirschfeld's virtualized logical

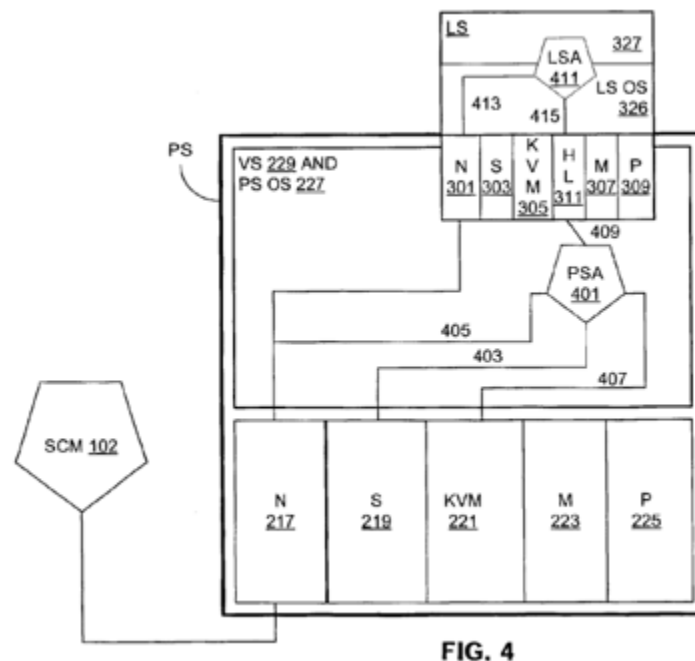
server cloud architecture is built on the concept that logical servers exist as abstractions from the physical servers. Hirschfeld at 1:15-20, 7:63-8:11, Fig. 2. Each physical server 108 includes three distinct architectural layers: a hardware layer 210, an operating system layer 212, and a software layer 214. *Id.* at 8:39-9:46, Fig. 2. Hirschfeld's virtualization software 229 (purple, below) resides in the software layer 214 and runs on the OS layer (blue, below), as shown below.



Hirschfeld at Fig. 2 (annotated), *see also id.* at 9:35-46. Because the virtualization software runs on the OS layer—not the physical resource—it does not meet claim requirement 1.

Hirschfeld also does not meet claim requirement 2 because its virtualization software's management is expressly limited to the physical resources: it “manages ***physical resources*** of the logical servers 106 linked thereto.” Hirschfeld at 9:44-46

(emphasis added). The logical servers are managed by the server cloud manager (“SCM”) 102, a component located on a separate plane. *Id.* at Abstract, 11:45-46, 12:45-49. As shown in figure 4 below, the logical server (“LS”) includes a logical server agent (“LSA”) 411 that runs on the logical server’s OS and extends control of the logical server to SCM 102. *Id.* at 11:27-30; *see also id.* at 11:45-46 (“The SCM 102 manages all of the LSAs 411”).



Id. at Fig. 4.

III. LEVEL OF ORDINARY SKILL IN THE ART

For purposes of this Preliminary Response only, ToutVirtual uses Microsoft’s proposed definition of a person of ordinary skill in the art (“POSITA”), which is a person who had “(1) at least a bachelor’s degree in computer science, computer engineering, electrical engineering, or a related field, and (2) at least two years of

industry experience in virtualization systems. MS-1003, ¶¶21-23. Additional education could substitute for professional experience, and professional experience could substitute for education.” Pet. at 6. ToutVirtual reserves the right to propose its own definition of a POSITA if trial is instituted.

IV. CLAIM CONSTRUCTION

For purposes of this Preliminary Response only, ToutVirtual applies Microsoft's proposed constructions. See Pet. at 2-6.⁴ Microsoft represents that its constructions “demonstrate subject matter that falls within the metes and bounds of these terms.” *Id.* at 3. Microsoft further represents that “[t]he mappings included below in § III are not inconsistent with these constructions.” *Id.*

By providing express construction under 37 C.F.R. § 42.104(b)(3), and by affirmatively representing that its mappings are “not inconsistent with these constructions” for § 42.104(b)(4) purposes, Microsoft holds itself to these constructions. These constructions identify the subject matter that Microsoft contends falls within the claim scope and to which its mappings are purportedly

⁴ ToutVirtual does not adopt Microsoft's constructions and expressly reserves the right to propose constructions if trial is instituted. ToutVirtual only applies these constructions here for the limited purpose of demonstrating that Microsoft's mappings are internally inconsistent with its own constructions.

consistent. Any mapping therefore that fails to reach these constructions is “inconsistent with these constructions.” Pet. at 2-3. As explained below, Microsoft’s mappings for the “without regard to” and “managed” / “manages” terms are inconsistent with Microsoft’s own constructions set forth in the following table:

Term	Construction
“Without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment”	A POSITA would have understood that the claimed “without regard to . . .” at least encompasses “irrespective of any.” See MS-1001, 4:11-36, 6:42-63; MS-1003, ¶63. See Pet. at 3.
“managed”/“manages”	The management of computer network virtualization environments is provided by performing one or more functions, including: (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment, such that the functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment. MS-1001, 4:16-39. A POSITA would have understood that the claimed “managed” and “manages” at least encompasses the management features noted in the passage above. MS-1003, ¶63. See Pet. at 5-6.

Notably, Microsoft's managed construction captures the "management features" in the "management of computer network virtualization environments" (***at the environment-level***) that are "carried out without regard to." Its "without regard to" construction—"irrespective of any"—in turn captures the control center's "***platform-independent***" disclosure under which the control center operates irrespective of whichever "processors, operating systems, virtualization platforms, and application software" are present. Pet. at 3 (citing '050 Patent at 6:38-59), *id.* at 5-6. These constructions thus set the standard for Microsoft's mappings that follow.

V. INSTITUTION SHOULD BE DENIED BECAUSE MICROSOFT'S CLAIM CONSTRUCTION POSTURE IS INCONSISTENT ACROSS FORUMS

The Board should deny institution on the grounds that Microsoft takes ***unexplained, inconsistent*** claim construction positions in the co-pending district court proceeding, particularly alleging indefiniteness under 35 U.S.C. § 112, ¶ 2 of the claim limitations in the table below. *Tesla, Inc. v. Intell. Ventures II, LLC*, No. IPR2025-00340, Paper 18 at 3 (P.T.A.B. Nov. 5, 2025) (informative) (denying institution and observing "Petitioner's statement that it cannot raise indefiniteness challenges in an *inter partes* review is not a sufficient explanation"); *Ford Motor Co. v. Autoconnect Holdings LLC*, No. IPR2026-00171, Paper 11 at 2-3 (P.T.A.B. May 13, 2026) (denying institution where the petitioner failed to address the "terms that it argues are indefinite in the district court"); *Am. Airlines, Inc. v. Intell. Ventures*

I LLC, No. IPR2025-01055, Paper 11 at 12 (P.T.A.B. Nov. 21, 2025) (denying institution where “[c]ontrary to its position in this case, in district court, Petitioner argues that several limitations in the Challenged Claims . . . are indefinite, and *not* subject to reasonable interpretation”).

Claim Limitation	Microsoft's District Court Position
Claim 1, Claim 9: receiv[/ing] a virtual asset provisioning request that specifies parameters to be considered for the virtual asset provisioning request.	Indefinite under 35 U.S.C. § 112 (¶ 2)
Claim 1, Claim 9: automatically provision[/ing] [of] a particular virtual asset to a particular physical resource in the virtualization system that matches the parameters in the virtual asset provisioning request.	Indefinite under 35 U.S.C. § 112 (¶ 2)
Claim 9: the control center computer executing a virtual mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment.	Indefinite under 35 U.S.C. § 112 (¶ 2)
Claim 9: without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.	Indefinite under 35 U.S.C. § 112 (¶ 2)

Ex. 2027 (Microsoft's invalidity contentions) at 90, 95.

Notably, the claim limitations Microsoft alleges are indefinite in the district court forum contain terms that Microsoft expressly construes in the Petition, including “manage” and “without regard to” identified above. It is impossible to reconcile Microsoft's apparent position that it cannot understand these claim limitations in the district court forum, but here propose constructions and attempt to

show how its mappings fall within the claim scope. “[W]hen a petitioner takes alternative positions before the Board and a district court, that petitioner should, at a minimum, explain why alternative positions are warranted.” *Revvo Techs., Inc. v. Cerebrum Sensor Techs., Inc.*, No. IPR2025-00632, Paper 20 at 3-4 (P.T.A.B. Nov. 3, 2025) (precedential). Microsoft makes no attempt to explain why alternative positions are warranted here. Institution therefore should be denied.

VI. INSTITUTION SHOULD BE DENIED BECAUSE MICROSOFT FAILS TO DEMONSTRATE THAT ANY CHALLENGED CLAIM IS UNPATENTABLE

A. Pabari (Ground 3): Independent Claim 9 Enjoys Priority to Pabari⁵

Ground 3 fails because Pabari is the parent publication that shares the same specification as the '050 Patent and is not prior art. Ex. 1003 at ¶ 54 (illustrating the continuation chain between Pabari and the '050 Patent). Microsoft's priority date challenge is premised on the contention that an amendment made during prosecution

⁵ ToutVirtual addresses Ground 3 first because Microsoft's Khandekar Ground 1B is predicated on the incorrect belief that the host's processor performs the provisioning operations. To the contrary, “the processor” is the “control center computer's” processor that corresponds to the claimed provisioning operations as addressed herein.

attributed “the processor’s” provisioning operations to the host processor and that there is insufficient written description support. Pet. at 35-36 (alleging that the “applicant’s submission of amendments to claim 9 attributed the operations . . . to the host’s ‘processor’”), *id.* at 73-75. However, the prosecution record shows just the opposite: the amendment attributed the provisioning operations to the control center computer’s processor in responding to and overcoming a means-plus-function rejection with no corresponding structure in the specification.

That amendment and its purpose are dispositive because a POSITA is “deemed to read the claim terms in the context of the entire patent, including the . . . prosecution history.” *Computer Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1373-74 (Fed. Cir. 2008). Here, a POSITA reading “the processor” in this context would understand that it corresponds to the control center computer, not the host’s processor for at least the reasons that follow.

Written description involving “the processor” was directly before the Examiner who rejected the original Claim 9 based on means-plus-function language that lacked corresponding structure in the written description. Claim 9 originally recited “a provisioning manager executed by **a processor . . . the processor** being configured to receive a virtual asset provisioning request.” Ex. 1002 at 249 (emphasis added). The Examiner rejected the original claim on the grounds that the “provisioning manager executed by a processor” limitation is a means-plus-function

with no corresponding structure disclosed in the written description. *Id.* at 179-80.

In response to the rejection, the Applicant amended the claim to identify the corresponding structure as the ***control center computer (and therefore its processor) which executes the provisioning manager:***

the control center computer executing a provisioning manager ~~executed by a processor~~ that communicates with the virtual mapping layer, the processor being configured to receive a virtual asset provisioning request that specifies parameters to be considered for the virtual asset provisioning request, automatically provision a particular virtual asset to a particular physical resource in the virtualization system that matches the parameters in the virtual asset provisioning request, assign the provisioned virtual asset to the virtual asset provisioning request and provide user access to the provisioned virtual asset.

Id. at 164.

The entire purpose of this amendment was to identify the control center computer as the structure corresponding to the claimed provisioning operations. As amended, the claims clarified that the “control center computer” executes the provisioning manager, which “receive[s] a virtual asset provisioning request,” “automatically provision[s] a particular virtual asset to a particular physical resource,” and “assign[s] the provisioned virtual asset” and “provide[s] user access to the provisioned virtual asset.” ’050 Patent at 24:48-58. Because the provisioning operations are grammatically predicated on the control center computer executing

the provisioning manager, a POSITA would understand that “the processor” is the control center computer’s processor.

Indeed, Microsoft’s expert, Dr. Mitzenmacher confirms that the amendment “specified that the control center computer executes the provisioning manager,” and therefore is the structure corresponding to the manager’s provisioning operations. Ex. 1003 at ¶ 75. “In order to qualify as corresponding, the structure must not only perform the claimed function, but the specification must clearly associate the structure with performance of the function.” *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 296 F.3d 1106, 1113 (Fed. Cir. 2002). Dr. Mitzenmacher likewise confirms the specification’s clear association between the control center and the provisioning operations. Ex. 1003 at ¶ 137 (“Pabari describes a Control Center application that manages provisioning of virtual assets across host machines through a Provisioning Manager 206”), ¶ 70 (“The Control Center computer includes components such as a ‘Provisioning Manager 206’”), ¶ 72 (“The Control Center includes modular components such as a Provisioning Manager 206, which ‘provides an on-demand solution for provisioning of virtual assets for an automated workflow management’ and provides ‘a portal for users’ virtual asset requests showing available virtual assets.”); *see also* Pet. at 75 (“when addressing those [provisioning] operations, which it does, the specification calls out the central computer system

processor”). Thus, the control center computer is the structure executing the provisioning operations, as Dr. Mitzenmacher confirms.

Despite confirming the corresponding structure, Dr. Mitzenmacher concludes that “the processor” refers to the host’s processor. *See* Ex. 1003 at ¶ 75. The two positions are incompatible. Dr. Mitzenmacher cannot simultaneously: (1) confirm that the control center computer is the structure that executes the provisioning manager (and the provisioning operations); but (2) conclude the host’s processor performs the provisioning operations.

Dr. Mitzenmacher’s host processor opinion is solely predicated on what the antecedent of “the processor” is. *Id.* That question is answered through the amendment’s purpose of identifying the control center computer as the antecedent structure to overcome the means-plus-function written description rejection. Dr. Mitzenmacher completely omits the § 112 written description rejection in his declaration and therefore his opinion is isolated from the amendment purpose and context. *Compare id.* at ¶ 56 (citing Vasilevsky-Yan § 103 rejection, omitting the § 112 written description rejection for no corresponding structure in the written description) *with* Ex. 1002 at 179-180 (the Examiner issuing a § 112 rejection in conjunction with the Vasilevsky-Yan § 103 rejection). Dr. Mitzenmacher’s narrow textual reading of the “the processor” being the host’s processor is thus resolved through a complete reading of the prosecution record.

Cardiac Pacemakers is instructive here as it resolved possible alternative interpretations of a term by looking to “[a] series of amendments” to understand what the retained claim language meant. *Cardiac Pacemakers*, 296 F.3d at 1114-15 (looking at the deletion of “monitoring” to establish that the “activating” language “must have constituted a claimed function because, without construing it as such, there would have been no claimed function.”).

In this case, “the processor” must be the “control center computer’s” processor that executes the provisioning manager, because without reading it this way, the amendment would not have cured the § 112 rejection that drove it. The “processor” recited in this provisioning limitation is unambiguously the control center computer’s processor—as confirmed by the purpose of the amendment, the claim’s grammatical structure, and the specification corresponding structure qualification.

In view of the foregoing, because “the processor” belongs to the “control center computer,” Pabari is not prior art. On that basis, Ground 3 is disqualified.

B. Khandekar (Grounds 1A and 1B): Independent Claims 1 and 9 are Patentable Over Khandekar

These grounds fail because Independent Claims 1 and 9 are patentable over Khandekar for at least several different reasons.

To start, Microsoft’s mappings are inconsistent with its own constructions—despite Microsoft’s representation that they were “not inconsistent with [its] constructions.” Pet. at 3. Microsoft expressly construes “managed” and “manages”

of Claims 1 and 9 to cover environment-level management features carried out “without regard to”—“irrespective of any” (platform-independent). *See* § IV, *supra*. But its Khandekar VMM mapping is directed to host-level, platform-dependent management. Microsoft's construction of “without regard to” of Claim 9 to cover irrespective of any processor, OS, virtualization platform, and application software present is also incompatible with its Khandekar mapping. *Id.* Yet its Khandekar mapping is focused only on substantial independence from hardware.

Next, Microsoft cannot show how its Khandekar user access mapping satisfies “provid [i]ng user access to the provisioned virtual asset” (which Khandekar's provisioning architecture is relied on for). Khandekar's provisioning architecture does not provide user access to a provisioned virtual machine (“VM”). Rather, the user's device directly accesses the VM on the host. Finally, for “the processor” of Claim 9, Microsoft identifies a host's processor in Khandekar. But Claim 9 refers to the control center computer's processor. Microsoft thus identifies the wrong processor.

1. Khandekar Does Not Satisfy Microsoft's Own Construction of “Managed” and “Manages” (Claims 1 and 9)

Khandekar does not satisfy Independent Claims 1 and 9, which require that the physical resources and virtual assets are *managed* by the virtualization layer. *See* '050 Patent at Claims 1, 9. Microsoft's managed construction covers environment-level management features carried out “irrespective of any” (platform-

independent). *See* § IV, *supra*. Microsoft's own construction defines what it believes falls within the claim scope, and Microsoft's own mapping shows Khandekar's structural inconsistencies with that scope.

While Microsoft maps Khandekar's VMM to the term, it fails to show how its mapping is consistent with its own construction. *See* 37 C.F.R. § 42.104(b)(4). For the management limitations, Microsoft alleges that the virtual machine monitor ("VMM") "manages VMs . . . by "schedule[ing] and handl[ing] all requests by its VM." Pet. at 13 (Ground 1A); *see also id.* at 29 (Ground 1B). However, scheduling and handling requests at the host level does not address a single element of its own construction. Microsoft does not argue that Khandekar's VMM performs the management features at the environment-level nor does so independent of the platform as its construction demands. That is not a simple oversight; it is a gap that cannot be bridged because Khandekar is structurally incapable of satisfying Microsoft's own construction.

Khandekar is a VMware patent, and its VMM platform is designed to operate exclusively within a VMware server virtualization environment, binding every operation to the host-level. *See* § II.C.1, *supra* (describing Khandekar's VMM as a VMware-specific server virtualization platform). Because Khandekar's vendor-specific VMM performs every operation at the host-level—e.g., scheduling and handling requests for VMs on its host—it is incapable of meeting what Microsoft's

own construction demands: environment-level, platform-independent management features. *See* Khandekar at 7:18-47, 13:17-35. That is the structural gap that produces the inconsistency. Microsoft's Khandekar's VMM mapping shows host-level, vendor-dependency which is structurally inconsistent with its own claim construction election.

In view of the foregoing, because Microsoft's Khandekar mapping is inconsistent with its own managed construction, Khandekar cannot satisfy the managed/manages limitations of Independent Claims 1 and 9.

2. Khandekar Does Not Satisfy Microsoft's Own Construction of "Without Regard to" (Ground 1B, Claim 9)

Khandekar does not satisfy Microsoft's own construction of "without regard to" in the claim limitation: "***the control center computer*** execute[s] a virtual mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment . . . ***without regard to*** processors, operating systems, virtualization platforms, and application software of the virtualization environment." '050 Patent at Claim 9 (emphasis added). Microsoft construes "without regard to" to cover "irrespective of any"—that is irrespective of whichever processor, OS, platform, and application software is present. *See* § IV,

supra.⁶ Microsoft's Khandekar mapping, however, is inconsistent with its construction because its mapping concerns only hardware.

Specifically, Microsoft argues that Khandekar's provisioning architecture (the alleged control center) is "substantially independent" of the hardware. Pet. at 32-33 (alleging that Khandekar's provisioning architecture is "independent" because the VMM on each host exports a hardware interface such that the "VM deployment is designed to be '**substantially independent** of the actual physical hardware configuration.'") (citing Ex. 1003 at ¶¶ 201-203); *see also id.* at 24 (relying on the VMM for exporting a hardware interface for the "**substantial[] independence**") (emphases added). But substantial independence of hardware concerns only processors, leaving entirely unaddressed how Khandekar manages irrespective of whichever OS, virtualization platform, and application software are present. Thus,

⁶ Microsoft's construction goes hand in hand with Microsoft's "manages" construction for Claim 9, which, read together, capture the control center computer directing the inventory management functionality and doing so irrespective of whichever processors, operating systems, virtualization platforms, and application software are present. *See* § IV, *supra* (Microsoft's "managed" construction capturing inventory management functionality carried out "without regard to"—"irrespective of any").

Microsoft's Khandekar mapping is facially inconsistent with what its own construction demands.

Microsoft's Khandekar mapping inconsistency stems from the fundamental architectural differences between Khandekar and the '050 Patent's claimed architecture. Khandekar's provisioning operations are dependent on the vendor-specific VMM (and its server virtualization platform type). The starting point is dispositive. Every provisioning operation that Khandekar's provisioning architecture directs is dependent on the VMware VMM. The provisioning architecture communicates only with the VMware-specific VMM platform on that host, which then virtualizes the machine's resources and exports a known hardware interface to the deployed VM. Khandekar at 7:7-27, 13:17-25. In contrast, where the claimed control center directs management operations it does so irrespective of the vendor of the platform or the platform type present—it is “platform independent.” '050 Patent at 6:38-59; *see also* § IV, *supra*.

The Petition's footnote 5 does not provide Microsoft an escape hatch. *See* Pet. at 33 n.5. Microsoft elected to expressly construe “without regard to” under § 42.104(b)(3) and committed its Khandekar mapping to that construction. *See id.* at 3; § IV, *supra*. Microsoft cannot invoke *Wellman* in footnote 5 to escape its own construction. *Id.* at 33 n.5. To the extent that Microsoft is invoking a negative claim limitation with no patentable weight argument in footnote 5, that also is foreclosed

by its own construction. *Id.* at 3. Microsoft's "without regard to" construction cites the control center's "platform-independent" disclosure under which the control center operates irrespective of whichever processor, operating system, virtualization platform, and application software are present. *Id.* (citing '050 Patent at 6:38-59). That is, its construction captures how the management operates: irrespective of whichever is present, not what it excludes.

In view of the foregoing, because Microsoft's Khandekar mapping is inconsistent with its "without regard to" construction, Khandekar cannot satisfy a "control center computer" that performs inventory operations "without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment."

3. Microsoft's User Access Mapping Does Not Satisfy a Self-Service Portal / Control Center Computer that Provides User Access to the Provisioned Virtual Assets (Claims 1 and 9)

Because Khandekar's provisioning server architecture is removed from the user access path to a provisioned VM, Khandekar cannot satisfy the independent claims that require the "self-service portal"/ "control center computer" to provide user access. '050 Patent at Claims 1, 9. Microsoft identifies Khandekar's remote access software but that software is installed on the user's client workstation, not the provisioning server. Pet. at 19-20 (identifying "remote console software" / "remote access software"). The remote access software installed on the user's workstation

creates a direct path to the VM on the host—which is separate from any provisioning server path.

Khandekar itself makes this separation plain. Khandekar describes that once the provisioning server completes its work, the user “is so informed, for example, via the browser from which he submitted the request, or by email”; only then can the user “access the VM using *remote access software*.” Khandekar at 14:27-38 (emphasis added), 15:35-38; *see also id.* at 14:15-27 (“The user can then access the newly created VM via *any known remote access software*, such as the *remote console software available from VMware, Inc.*”) (emphases added). This access is direct. At the time of Khandekar’s filing, VMware’s remote access software functioned as a client-side access tool that, when installed on the client workstation, connected the user directly to the VMware VMM running on the host (e.g., a server hosting virtual machines). *See* Ex. 2028 at 50-53 (the VMware Virtual Machine Console installed on a client workstation connects to the server host over port 902). That direct path—from the user’s workstation to the VM on the host—does not involve the provisioning server.

Thus, while Microsoft is correct that the user can connect with the provisioning server to request provisioning tasks (Pet. at 19-20), the provisioning server is removed once the provisioning tasks end. When the “VM is deployed,” the client’s workstation, installed with the “remote console software,” directly connects

with the VM on the host. *Id.* (citing Khandekar at 14:4-18); Ex. 2028 at 50-53. The provisioning server architecture thus does not provide user access to the VM on the host.

In view of the foregoing, Microsoft's user access mapping does not satisfy the claimed "self-service portal" / "control center computer" that provides user access to the VM on the host.

4. Microsoft Identifies the Wrong Processor in its Host Processor Mapping (Ground 1B, Claim 9)

Khandekar cannot even facially satisfy Independent Claim 9 because Microsoft identifies the wrong processor: the host's processor. As shown in VI.A, above, "the processor" corresponds to the "control center computer" which "executing a provisioning manager . . . the processor being configured to" perform the provisioning operation. '050 Patent at Claim 9. Thus, Microsoft's Khandekar mapping under which the host processor allegedly performs the provisioning operations is deficient on its face. *See* Pet. at 35-38.

Specifically, Microsoft's mapping is grounded in "'configur[ing] the host's processor to perform provisioning-related operations within the coordinated workflow described in Khandekar.'" *Id.* at 36-37 (citing Ex. 1003 at ¶ 219). In this configuration, Khandekar's host's processor is alleged to carry out the provisioning operations. Yet Claim 9 tasks these provisioning operations with the control center

computer's processor—as this is the corresponding structure that performs the provisioning operations. *See* § VI.A, *supra*.

Because Microsoft's Khandekar host processor mapping is inconsistent with Claim 9, Khandekar does not satisfy Independent Claim 9.

C. Hirschfeld (Ground 2A): Independent Claim 1 is Patentable Over Hirschfeld

1. Hirschfeld's Virtualization Software Runs on the Operating System Layer, Not the Physical Resource

Claim 1 is patentable over Hirschfeld because its virtualization software 229—which Microsoft identifies as the “virtualization layer”—runs on the operating system (OS) rather than “running on the physical resources,” as claimed. Pet. at 55-56. The prosecution record draws the architectural boundary of the claim: virtualization software running on the OS layer “cannot equate to” virtualization layer running on the physical resource. Ex. 2022 at 52-53.

During prosecution of the application that matured into related U.S. Patent No. 11,656,915 (“’915 Patent”),⁷ the Examiner applied the Singh reference against substantially the same limitation, which was overcome, in part, because its virtualization software runs on the operating system. Ex. 2022 at 7, 9, 51-53, 66; *Microsoft Corp. v. Multi-Tech Sys. Inc.*, 357 F.3d 1340, 1349-50 (Fed. Cir. 2004)

⁷ The ’050 Patent and the ’915 Patent share the same specification.

(confirming that prosecution history of related application is relevant to claim construction).

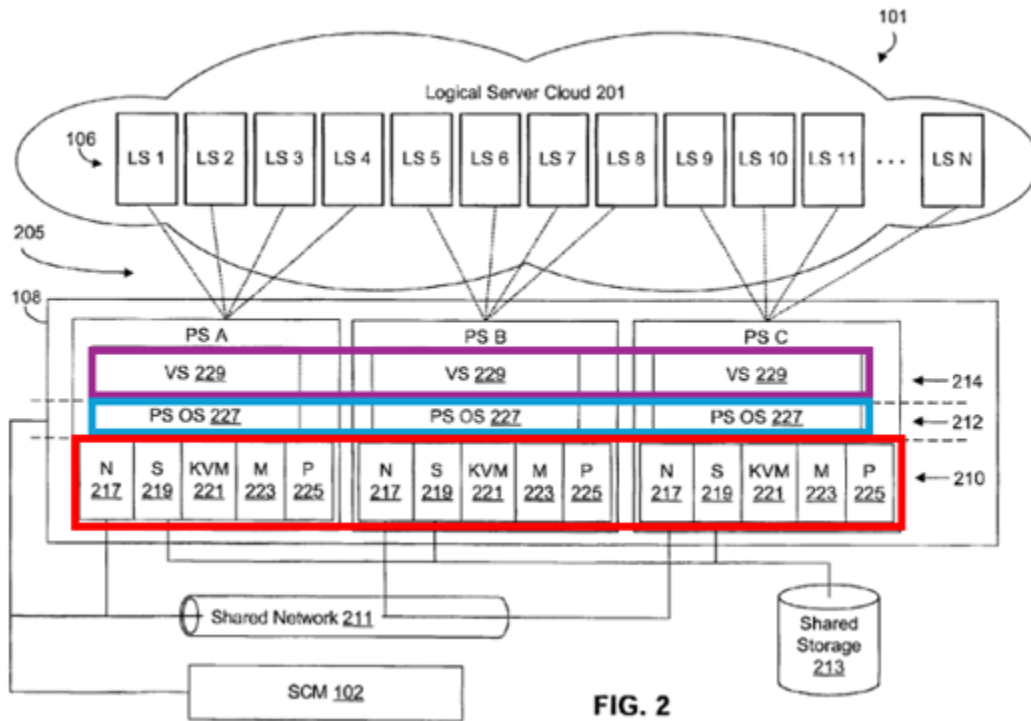
During prosecution, the Applicant argued that Singh provides “virtual system software [that] runs on the operating system” which “cannot equate” to “virtualization layer instances running on each of the physical resources.”

Singh explicitly fails to teach or suggest the virtual assets are managed by ***virtualization layer instances running on each of the physical resources***, as recited in claim 1 Singh requires that the server runs an operating system, ***and that the virtual system software runs on the operating system. Such a disclosure cannot equate to the virtual assets are managed by virtualization layer instances running on each of the physical resources***, as recited in claim 1 as amended.

Ex. 2022 at 52-53 (emphasis modified). The prosecution record clearly laid out the architectural boundary the virtualization layer runs on—the physical resources, not the OS—and thereby provided the scope of the claim. *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995) (“The prosecution history limits the interpretation of claims so as to exclude any interpretation that was disclaimed during prosecution.”). Hirschfeld falls outside the claim scope because its virtualization software 229 runs on the OS, just like the Singh reference.

Each of Hirschfeld's physical servers 108 includes three distinct architectural layers, a hardware layer 210 (red, below), an OS layer 212 (blue, below), and a

software layer 214 with the virtualization software 229 (purple, below), as shown below. Hirschfeld at 8:39-41, 9:35-46, Fig. 2. The virtualization software (purple) runs on the OS layer (blue).



Id. at Fig. 2 (annotated).

Because Hirschfeld's virtualization software runs on the OS layer, "[s]uch a disclosure cannot equate to" the virtualization layer running on the physical resources. Ex. 2022 at 53.

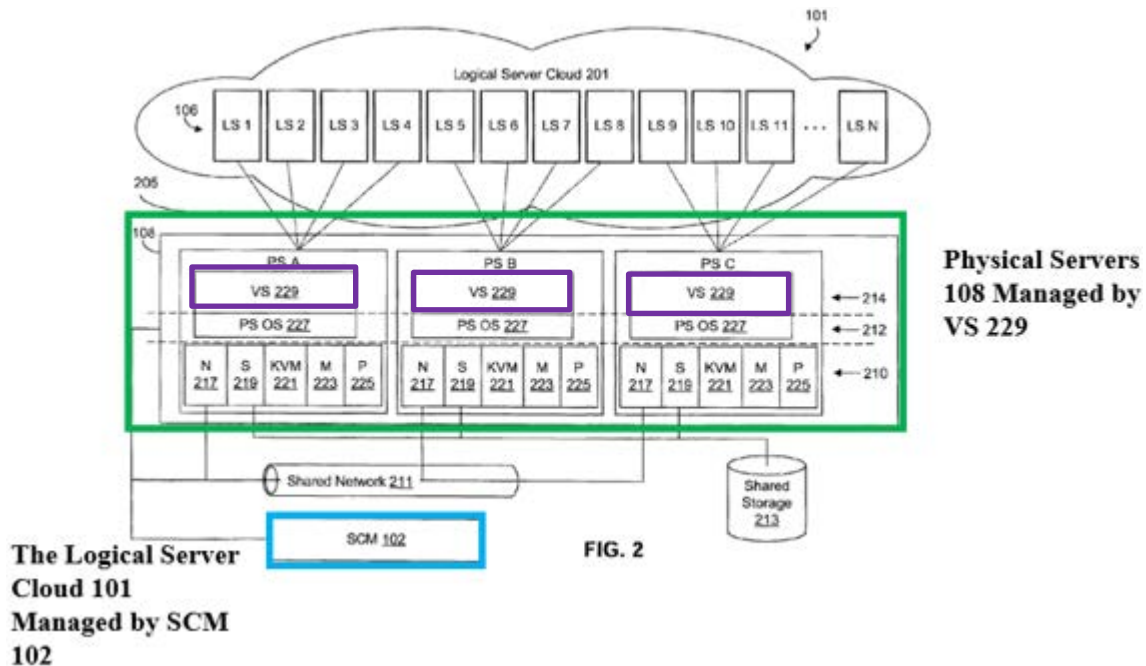
2. Hirschfeld's Virtualization Software Does Not Manage the Logical Servers Under Any Construction of "Managed"

Even if Hirschfeld's virtualization software ran on the physical resources as opposed to the OS (it does not), Ground 2A fails for at least two other reasons. **First**, Hirschfeld does not disclose "physical resources and virtual assets managed by a

virtualization layer running on the physical resources” because Hirschfeld’s alleged virtualization layer does not manage virtual assets. **Second**, Microsoft fails to show how its Hirschfeld mapping even facially satisfies its own construction of “managed,” covering management features at the environment-level and carried out “irrespective of any” (platform-independent). See § IV, *supra*.

a) Hirschfeld’s Virtualization Software Does Not Manage the Logical Servers

Hirschfeld’s virtualization software 229 (the alleged “virtualization layer”) does not manage the logical servers (the alleged “virtual assets”) because it only manages the physical servers. Hirschfeld’s management architecture is structurally bifurcated : (1) the SCM (blue, below) manages the logical servers on the cloud, and (2) the per-host virtualization software (purple, below) manages each physical server (green, below) it is located on. See § II.C.2, *supra*.



Hirschfeld at Fig. 2 (annotated).

As figure 2 shows above, the virtualization software is implemented in the OS layer of each physical server, and its management is expressly limited to the physical resources: “**manages physical resources** of the logical servers 106 linked thereto.” Hirschfeld at 9:44-46. The server cloud manager (SCM) is a separate entity that sits on a separate architectural plane and “**manages” the logical servers**. *Id.* at 12:45-49 (emphasis added); *see also id.* at 9:58-10:8 (“The SCM 102 is shown as a separate entity interfaced to the shared network 211 and the physical servers 108.”).

Microsoft cannot credibly dispute that the virtualization software manages the logical server cloud rather than the SCM. Although Microsoft alleges on the surface that the logical servers are managed by the virtualization software (Pet. at 56), it pivots altogether to the server cloud manager (“SCM”) for the logical server

management. *See id.* at 60-61 (acknowledging that the SCM “**manage[s]** [the] physical and logical attributes of **logical servers.**”), 63 (“**SCM-managed** data structures”), 62 (“The SCM also **automatically orchestrates procedures** to associate logical servers with physical servers, including move procedures in which the SCM copies a disk image.”) (emphases added). Thus, Microsoft’s conclusory allegation that the logical servers are managed by Hirschfeld’s virtualization software 229 is contradicted by its own analysis and evidentiary support.

Accordingly, because in this bifurcated management approach, the virtualization software only manages the physical servers, Hirschfeld does not disclose “physical resources and virtual assets managed by a virtualization layer.” Therefore, Hirschfeld does not disclose “physical resources and virtual assets [that are] managed by a virtualization layer.”

b) Hirschfeld Does Not Satisfy Microsoft’s Own
Construction of “Managed”

While Microsoft expressly construes “managed,” it fails to show how its Hirschfeld mapping is consistent with and satisfies its construction as required under § 42.104(b)(4). *See* § IV, *supra*. As detailed in the Khandekar section, Microsoft’s construction of “managed” entails environment-level, platform-independent management. *See* § VI.B.1, *supra*. Despite Microsoft having committed its mappings to that construction, it fails to show how its Hirschfeld virtualization software mapping is consistent with and satisfies its own construction. Like for its

Khandekar analysis, Microsoft does not address a single element of its construction here.

Instead, Microsoft advances a single, bare-bone conclusion that Hirschfeld's virtualization software manages both the physical resources and logical servers—Pet. at 56 (concluding that the “physical servers with resources (e.g., network, storage, processor) (physical resources) and logical servers (virtual assets) are managed by” the virtualization software) (emphasis omitted). Microsoft does not attempt to show how its mapping is consistent with the “management features” from its own construction that are performed at the environment-level and carried out irrespective of any (platform-independent), which it holds itself to. *See* § IV, *supra*. Microsoft, therefore, has not met its burden under § 42.104(b)(4).

VII. CONCLUSION

For at least the foregoing reasons, Microsoft fails to demonstrate that there is a reasonable likelihood that it would prevail with respect to any challenged claim. Therefore, ToutVirtual respectfully requests that the Board deny institution of *inter partes* review of the '050 Patent.

Respectfully submitted,

Date: June 16, 2026

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CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24

The undersigned hereby certifies that the portions of the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE** has 7,495 words in compliance with the word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using the Microsoft Word word-processing system used to prepare this paper.

Dated: June 16, 2026

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CERTIFICATE OF SERVICE

The undersigned certifies, in accordance with 37 C.F.R. § 42.6(e), service was made on Petitioners as detailed below.

<i>Date of service</i>	June 16, 2026
<i>Manner of service</i>	Electronic Mail (IPR42342-0155IP1@fr.com)
<i>Documents served</i>	PATENT OWNER'S PRELIMINARY RESPONSE
<i>Persons Served</i>	Fish & Richardson P.C.: W. Karl Renner Usman Khan Ryan Chowdhury

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