

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VMWARE, INC.
Petitioner,

v.

CIRBA IP INC.
Patent Owner.

Case: PGR2021-00098
Patent: 10,951,459

**PETITION FOR POSTGRANT REVIEW
OF U.S. PATENT NO. 10,951,459**

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LIST OF EXHIBITS

Description	Exhibit
U.S. Patent No. 10,951,459 (the “’459 patent”), filed as U.S. Patent Application No. 16/687,966 (the “’996 application”)	1001
’966 application as originally filed on November 19, 2019	1002
’966 application July 2, 2020 Preliminary Amendment	1003
’966 application October 5, 2020 Notice of Allowability	1004
’966 application December 10, 2020 Post-Allowance Amendment	1005
Declaration of Dr. Erez Zadok	1006
<i>Curriculum Vitae</i> of Dr. Erez Zadok	1007
U.S. Patent Application No. 14/341,471 (the “’471 application) as originally filed on July 25, 2014	1008
U.S. Patent Application No. 11/738,936 (the “’936 application) as originally filed on April 23, 2007	1009
U.S. Patent Application No. 11/535,355 (the “’355 application) as originally filed on September 26, 2006	1010
U.S. Patent Application No. 11/535,308 (the “’308 application) as originally filed on September 26, 2006	1011
U.S. Provisional Application No. 60/745,322 (the “’322 application”) as originally filed April 21, 2006	1012
Wood, T., et al., Black-box and Gray-box Strategies for Virtual Machine Migration, NSDI ’07: 4th USENIX Symposium on Networked Systems Design & Implementation, Technical Sessions, pp. 229- 242 (Apr. 11-13, 2007)	1013
Baker, M., et al., Cluster Computing Review, Syracuse University, Northeast Parallel Architecture Center, Version 1.1 (1995)	1014
U.S. Patent No. 7,836,452 (“Taylor”)	1015
U.S. Patent No. 7,616,583 (“Power”)	1016
U.S. Patent Application Publication No. 2004/0034577 (“Van Hoose”)	1017
Khanna, G., et al., Application Performance Management in Virtualized Server Environments, 10th IEEE/IFIP Network Operations & Management Symposium, Vancouver, Canada, pp. 373-381 (Apr. 3-7, 2006)	1018
Menascé, D. and Bennani, M., Autonomic Virtualized Environments, International Conference on Autonomous Systems, Silicon Valley, CA (July 19-21, 2006)	1019
Wolf, C. and Halter, E., Virtualization From the Desktop to the Enterprise, Apress (2005) (“PlateSpin”)	1020

Petitioner VMware, Inc. (“VMware”) respectfully petitions for post-grant review of all claims of U.S. Patent No. 10,951,459 (the “’459 patent” (Ex. 1001)) in accordance with 35 U.S.C. §§ 321-29 and 37 C.F.R. § 42.200 *et seq.*

I. INTRODUCTION

The ’459 patent issued from an application filed on November 19, 2019, but claims priority back to April 21, 2006 through a chain of five other applications. Each of these priority applications described an analytical procedure for calculating solutions for computer system consolidation. In particular, they disclosed a technique that evaluates “compatibility” for systems in a computing environment to determine the most efficient “transfers” of applications and data from one system to another, with the goal of reducing the total number of systems in the environment. The end product of this analysis was a set of compatibility scores for display on a user interface.

In an apparent effort to procure claims that would capture competitors’ products while claiming priority thirteen years backward, Patent Owner drafted the as-issued ’459 patent claims with drastic departures from the patent applications to which it claims priority. For the first time in its entire alleged priority chain, the ’459 patent claims include the concept of evaluating “source systems” that were “already placed” on a target system. This notion that a source system can continue to exist after consolidation with a target system diverges from the prior

applications, which describe only consolidating systems by transferring the *applications and data* of a source system, such that the source system can be removed from the environment. In addition, the '459 patent claims go beyond the disclosed methods of generating consolidation solutions to include the step of “issuing instructions to place” a “source system” on a “target system in accordance with [a] determined placement.”

These new concepts in the claims lack written description support not only in the '459 patent's priority applications, but also in the '459 patent itself. The '459 patent's priority date therefore is its 2019 filing date, rendering it an AIA patent and eligible for post grant review (“PGR”). The same lack of written description support also renders the '459 patent's claims invalid under 35 U.S.C. § 112.

II. GROUNDS FOR STANDING

Pursuant to 37 C.F.R. § 42.204(a), VMware certifies that the '459 patent is available for PGR and that VMware is not barred or estopped from requesting PGR on the grounds identified in this Petition. Additionally, (1) neither VMware nor any of its privies owns the '459 patent; and (2) neither VMware nor any of its privies has filed a U.S. civil action challenging the validity of any claim of the '459 patent.

Despite claiming priority to applications filed before the effective date of the AIA, the '459 patent is eligible for PGR, because the granted claims do not find section 112 support in any of the asserted priority applications. Thus, as explained below, the '459 patent has an effective filing date of November 19, 2019, rendering it eligible for PGR.

VMware is concurrently filing two IPR petitions (Case Nos. IPR2021-01210 and IPR2021-001211) against the '459 patent. Should the Board find that the '459 patent is an AIA patent and eligible for PGR, VMware acknowledges that the '459 patent is not eligible for IPR until December 16, 2021, and the concurrently filed IPR petitions should be denied on that ground.¹ Alternatively, should the Board find that the '459 patent is not an AIA patent and not eligible for PGR, the concurrently filed IPR petitions should be instituted for the reasons set forth in those petitions.

¹ For AIA patents, an IPR cannot be filed until nine months after a patent's issuance. 35 U.S.C. § 311(c)(1). The '459 patent issued on March 16, 2021. If it is an AIA patent, the nine month period ends December 16, 2021.

III. STATEMENT OF RELIEF REQUESTED

VMware requests review under 35 U.S.C. § 321 of claims 1-63 of the '459 patent and a finding that claims 1-63 are unpatentable as lacking written description support under 35 U.S.C. § 112(a).

IV. SUMMARY OF THE '459 PATENT

The '459 patent presents techniques for calculating “consolidation solutions” that can allegedly improve the efficiency of a computing environment with multiple computer systems. (Ex. 1001, 2:5-13, 2:66-3:10.) Specifically, these consolidation solutions are recommendations on where to move existing applications and data from certain systems (called “source systems”) to other systems (called “target systems”) in order to reduce the number of systems in the overall environment. (*Id.*, 5:16-24, 5:55-64, 6:35-51, 8:17-25.)

The '459 patent explains that a “system” can be a “physical system,” a “virtual system,” or a “hypothetical system” (i.e., a system that does not currently exist in the environment but is useful for analyzing hypothetical situations). (*Id.*, 5:65-6:10.) According to the '459 patent, managing an environment with many of these systems presents challenges in “optimizing efficiency” and “avoid[ing] redundancies and/or under-utilized hardware.” (*Id.*, 1:47-52.) For example, a sub-optimal environment may include “additional hardware” with “separate maintenance considerations” that require costly “incidental attention[.]” (*Id.*, 1:63-

67.) Too many systems means that “[h]eat production and power consumption can also be a concern.” (*Id.*, 1:67-2:1.)

The ’459 patent discloses analytical techniques that purportedly address these problems by calculating “roadmaps” for efficiently reducing the number of systems. (*Id.*, 5:16-24.) The roadmaps identify “source” systems, “from which applications and/or data are to be moved,” and “target” systems, “to which applications and/or data are to be moved.” (*Id.*, 5:57-60, 6:46-51.) Thus, for example, “an underutilized environment having two systems [] can be consolidated to a target system (one of the systems) by moving applications and/or data from the source system (the other of the systems) to the target system.” (*Id.*, 5:60-64.)

The ’459 patent discloses an “analysis program” that performs techniques for generating consolidation roadmaps. (*Id.*, 5:16-24.) The program starts by gathering technical, business, and workload parameters for each system in the collection of systems to be consolidated. (*Id.*) Next, the program uses the parameters to compute how compatible the systems are with each other. (*Id.*) Finally, the program produces consolidation roadmaps using the compatibility analyses. (*Id.*, Abstract, 5:16-24.) These steps are illustrated in Figure 1 and explained in further detail below:

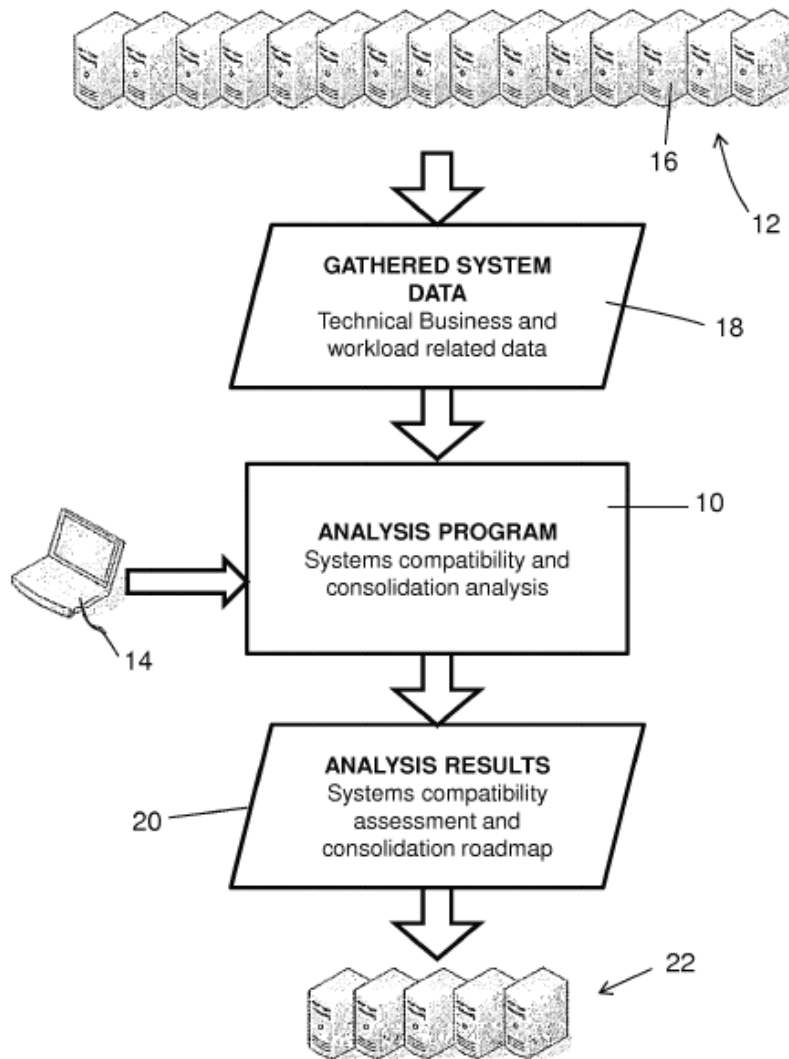


Figure 1

A. System Parameters

In the first step, the analysis program “gathers data 18 pertaining to a collection of systems to be consolidated,” including a “distinct data set” for each system. (*Id.*, 5:18-20, 5:29-30.) The analysis program may collect “technical” parameters such as a system’s “operating system, OS version, patches, application settings, hardware devices, etc.” (*Id.*, 5:40-42.) The program may also collect

“business” parameters, such as “physical location, organization department, data segregation requirements, owner, service level agreements, maintenance windows, hardware lease agreements, software licensing agreements, etc.” (*Id.*, 5:43-48.)

Finally, the program may collect “workload” parameters, including “resource utilization and capacity metrics related to the system processor, memory, disk storage, disk I/O throughput and network bandwidth utilization.” (*Id.*, 5:49-53.)

B. Compatibility Analyses

Using this data, the analysis program calculates systems’ compatibilities with each other. To do this, the program 10 applies “rule sets” to the systems’ technical and business parameters, as well as “workload stacking algorithms” to their workload parameters. (*Id.*, 6:66-7:7.) A rule set might, for example, consider whether systems run different operating systems, or are in different time zones, with different weights and penalties for each parameter when computing a compatibility score based on the rule set. (*Id.*, 14:7-16; *see also* Fig. 16.)

Similarly, a workload stacking algorithm might consider factors such as CPU usage and the effect that moving one system’s applications and data to another system would have on the latter’s CPU utilization. (*Id.*, 23:13-23, 23:45-55, 24:62-25:4.) Thus, for a set of two or more systems, the analysis program calculates a separate compatibility score for each rule set and each specified workload type,

and then combines the scores into an “overall compatibility score” for the set of systems. (*Id.*, 10:10-14, 29:46-54.)

The ’459 patent specification describes three types of compatibility analyses that are referenced in the claims. The first, *1-to-1*, analyzes the compatibility of each possible source-target pair in the set of systems to be consolidated. (*Id.*, 7:19-21.) In other words, every system is evaluated as a source against every other system as a target, and also as a target against every other system as a source, such that, for a set of N systems, the analysis generates an N-by-N matrix of compatibility scores. (*See, e.g., id.*, 7:19-21, 26:53-56 (“[T]he 1-to-1 compatibility analyses of N system[s] computes N×N compatibility scores by individually considering each system 16 as a consolidation source and as a target.”), Fig. 37.)

The patent refers to the other two types of compatibility analyses as “multi-dimensional compatibility analysis.” (*Id.*, 7:26-31.) These analysis types focus on “transfer sets,” meaning sets of “one or more transfers that involve a common target, wherein the set specifies one or more source entities, the target and a transfer type.” (*Id.*, 6:42-45.) While an *N-to-1* analysis evaluates the compatibility of each source system in a transfer set with the target system, an *N-by-N* analysis evaluates the compatibilities of source systems with each other. (*Id.*, 30:36-44.) For example, in the exemplary embodiment discussed in the ’459 patent’s specification, a transfer set includes source systems s1, s2, and s3 and target

system s16, and the exemplary N-to-1 analysis evaluates s1 against s16, s2 against s16, and s3 against s16. (*Id.*, 31:40-46.) In the '459 patent's exemplary N-by-N analysis, on the other hand, the system evaluates s1 against s2, s2 against s1, s2 against s3, s3 against s2, s1 against s3, and s3 against s1. (*Id.*, 32:40-43.) N-to-1 and N-by-N analyses may be combined into a single multi-dimensional analysis, depending on the applicable rule sets and workload types. (*Id.*, 30:46-49.) As with 1-to-1 analyses, multi-dimensional analyses compute a compatibility score for each rule set and workload type as well as an overall compatibility score, but do so for transfer sets instead of source-target pairs. (*Id.*, 29:59-62.)

C. Consolidation Analyses

In the last step of the '459 patent's disclosed techniques, the analysis program uses the scores generated through compatibility analyses to identify a consolidation roadmap 20 that “maximizes the number of transfers” while meeting any pre-defined constraints. (*Id.*, 33:60-64.)

The consolidation analysis first filters out combinations of incompatible systems from the universe of possible transfers. (*Id.*, 35:32-48.) It then “compiles a collection of candidate transfer sets” from the remaining pool of potential sources and targets through the use of a heuristic “auto fit algorithm” that generates candidate transfer sets based on “auto fit parameters” that govern how transfer sets can be created (e.g., minimum allowable score, minimum transfers permitted,

maximum transfers permitted, etc.). (*Id.*, 35:14-48.) Next, the analysis compares the candidate transfer sets and “chooses the ‘best’ transfer set,” according to pre-defined criteria, such as the number of transfers in the set or the set’s overall compatibility score. (*Id.*, 35:57-63.) This “best” transfer set then becomes part of an “intermediate consolidation solution,” and the systems involved “are removed from the list of available sources and targets.” (*Id.*, 35:65-36:2.)

This process repeats until “all the sources or targets are consumed or ruled out,” thereby creating a complete “consolidation solution.” (*Id.*, 36:4-6.) The user may then choose to create additional consolidation solutions, utilizing different “auto fit parameters” for generating different candidate transfer sets to add to a consolidation solution. (*Id.*, 36:6-9.) The process can then select a “best consolidation solution” from among the different consolidation solutions. (*Id.*, 36:10-16.)

Ultimately, the ’459 patent’s techniques produce a set of analytical results that include the consolidation solution and its associated compatibility scores, as shown in Figure 29, annotated below. This allows the computing environment “to operate with few systems” (*id.*, 8:24-25) and “can save a significant amount of cost on a yearly basis” (*id.*, 2:1-4).

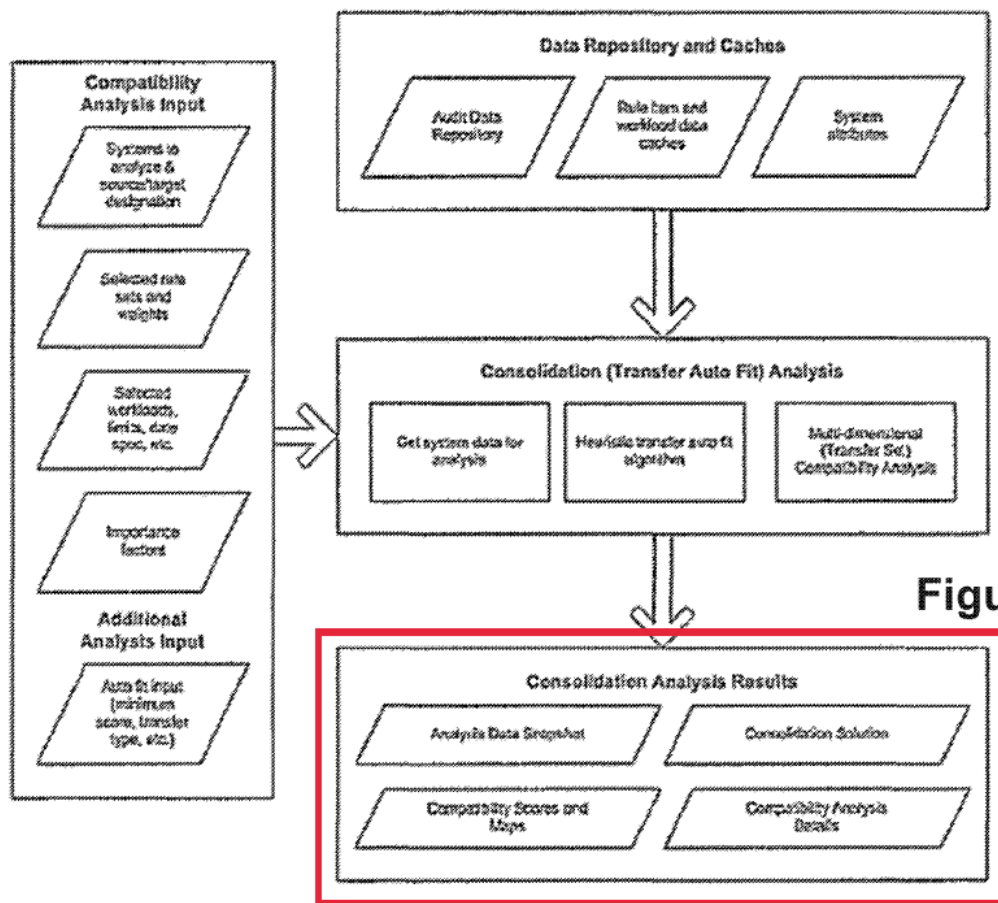


Figure 29

D. Visualization

Optionally, according to the '459 patent, its analytical techniques can include visualizing or reporting the results of the analyses at a user interface. (*Id.*, 26:52-28:62.) The '459 patent does not describe any further steps beyond performing the analysis and presenting the analysis results for the user's consideration.

V. SUMMARY OF THE '459 PATENT PROSECUTION HISTORY

As originally filed, the application for the '459 patent included only one claim directed to a “computer-implemented method for determining a consolidation solution[.]” (U.S. Patent Application No. 16/687,966 as originally filed (the “'966 Application”) (Ex. 1002) at 63.) This claim reflected the analysis program described above and in the rest of the specification. The full claim is reproduced below:

A computer-implemented method for determining a consolidation solution for a plurality of computer systems comprising:

- a) obtaining a data set comprising a compatibility score for each pair of said plurality of computer systems, each said compatibility score having been computed using parameters of said plurality of computer systems to indicate a comparable compatibility of respective parameters of one of said plurality of computer systems with respect to another of said plurality of computer systems;
- b) using said compatibility scores to determine one or more candidate transfer sets from said plurality of computer systems and, each candidate transfer set indicating one or more source computer systems having compatible parameters that enable the source computer system(s) to be transferred to a target computer system;
- c) selecting a desired one of said one or more candidate transfer sets according to a predetermined selection criterion and adding said desired one of said one or more candidate transfer sets to a first candidate consolidation solution;
- d) repeating b) and c) by, at each iteration, removing computer systems included in said desired one of said one or more candidate transfer sets and using said compatibility scores corresponding to remaining computer systems to generate at least one additional desired candidate transfer set to be added to said first candidate consolidation solution; and

- e) providing said first candidate consolidation solution as a desired consolidation solution when no additional candidate transfer sets can be determined in b).

(*Id.*)

This lone claim, submitted in the original application to the Patent Office on November 19, 2019, focused on calculating a consolidation solution specifying sets of transfers of applications and data from source computer systems to target computer systems. It notably did *not* refer to a source system that was “placed,” let alone “already placed,” on a target system. Nor did it refer to “issuing instructions” to place a source system onto a target system according to a determined placement.

In an amendment on July 2, 2020, the Patent Owner canceled the single originally filed claim and added 57 new claims. (’966 application July 2, 2020 Preliminary Amendment (Ex. 1003), 2-58.) These new claims included, for the first time, the limitation in the as-issued ’459 patent claims relating to “evaluat[ing] compatibility” between a source system and another source system that was “already placed” on a target system by evaluating the “impact on resource utilization of the target system[.]” (*See, e.g., id.*, 2.) The new claims also included, for the first time, limitations for “issu[ing] instructions to place the at least one source system on the at least one target system in accordance with” a determined placement. (*See, e.g., id.*) The examiner allowed the claims on

October 5, 2020. ('966 application October 4, 2020 Notice of Allowability (Ex. 1004), 2.) But on December 10, 2020, the Patent Owner made further amendments that added an additional “already placed” limitation for evaluating compatibility between a source system and another source system. ('966 application December 10, 2020 Post-Allowance Amendment (Ex. 1005), 2.)

The Patent Owner did not identify specific parts of the specification as written description support for the newly-claimed subject matter as the MPEP instructs. MPEP § 2163 (explaining that for “newly added or amended claims, applicant should show support in the original disclosure for the new or amended claims.”).

VI. LEGAL STANDARDS

A. Post-Grant Review Eligibility

A patent is eligible for post-grant review if it “contains or contained at any time . . . a claim to a claimed invention that has an effective filing date as defined in section 100(i) of title 35, United States Code, that is on or after [March 16, 2013].” AIA §§ 3(n)(1), 6(f)(2)(A). The “effective filing date” of a patent is defined under 35 U.S.C. § 100(i)(1)(B) as “the filing date of the earliest application for which the patent . . . is entitled, as to such invention, to a right of priority under section 119, 365(a), 365(b), 386(a), or 386(b) or to the benefit of an earlier filing date under section 120, 121, 365(c), or 386(c).” In order for a patent application to

be entitled to a “right of priority” or “an earlier filing date” based on an earlier filed application, the earlier filed application must have been disclosed “in the manner provided by section 112(a) (other than the requirement to disclose the best mode)[.]” 35 U.S.C. § 119(e)(1); 35 U.S.C. § 120.

Accordingly, for purposes of determining PGR eligibility, a patent application may rely on the filing date of an earlier filed application under § 100(i)(1)(B) only if it is described in the manner provided by 35 U.S.C. § 112(a), including written description support for the claims. And if § 100(i)(1)(B) does not apply—where there is no entitlement to an earlier filing date, as here—the “effective filing date” is the actual filing date of the patent. 35 U.S.C. § 100(i)(1)(A). That means that here, the ’459 patent’s effective filing date is November 19, 2019, the filing date of the application from which it issued (i.e., 16/687,966, or the ’966 application). The patent is thus eligible for PGR.

That the ’966 application is a continuation “transition” application—with identical disclosure to a pre-AIA application—does not affect the requirements for PGR eligibility. As the Board found in *Eli Lilly & Co. v. Genentech, Inc.*, a patent may still be PGR-eligible even if it “does not introduce new matter as compared to the applications from which it claims priority[.]” PGR2019-00043, Paper No. 11, at 10 (PTAB Oct. 7, 2019). Where, as here, the patent’s priority applications fail to satisfy section 112, the effective filing date for the patent under the AIA is the

actual filing date of the application giving rise to the patent, “even if the disclosure of [pre-AIA] prior applications is identical to that of the specification of a challenged patent.” *Id.*

The Board has consistently instituted PGR trials in these circumstances. *See, e.g., Collegium Pharm., Inc. v. Purdue Pharma L.P. et al.*, PGR2018-00048, Paper No. 18, at 8-17 (PTAB Oct. 4, 2018) (rejecting patent owner’s argument that “‘transitional’ continuation patents . . . are not PGR-eligible”); *Schul Int’l Co., LLC v. Emseal Joint Sys., Ltd.*, PGR2017-00053, Paper No. 10, at 10–20 (PTAB Apr. 9, 2018); *Arkema Inc. et al. v. Honeywell Int’l, Inc.*, PGR2016-00011, Paper No. 54, at 20–51 (PTAB Aug. 31, 2017) (final written decision); *US Endodontics, LLC v. Gold Standard Instruments, LLC*, PGR2015-00019, Paper No. 17, at 7–21 (PTAB Jan. 29, 2016); *Inguran, LLC d/b/a Sexing Techs. v. Premium Genetics (UK) Ltd.*, PGR2015-00017, Paper No. 8, at 8–18 (PTAB Dec. 22, 2015); *Intex Recreation Corp. et al. v. Team Worldwide Corp.*, PGR2019-00015, Paper No. 7, at 9–37 (PTAB May 14, 2019); *Minerva Surgical, Inc. v. Hologic, Inc.*, PGR2017-00002, Paper No. 9, at 7–18 (PTAB May 10, 2017); *B.R.A.H.M.S. GMBH v. Becton, Dickinson and Co.*, PGR2016-00018, Paper No. 8, 10–12 (PTAB Nov. 2, 2016); *LifeScan Global Corp. v. Ikeda Food Research Co., Ltd. et al.*, PGR2019-00032, Paper No. 11, at 7–8 (PTAB Aug. 15, 2019).

B. Written Description

The test for whether a patent contains adequate written description is whether the description of the claimed invention contains “sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.” *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997). To make this determination, the Board evaluates the content within the “four corners of the specification” from the perspective of a person of ordinary skill to ensure that all claim elements are described. *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010); *see also Lockwood*, 107 F.3d at 1572.

It is not sufficient for a description merely to render the claimed invention obvious. *Lockwood*, 107 F.3d at 1572; *Ariad*, 598 F.3d at 1352. It is also not enough to point to fragmented language in the written description that separately covers each limitation. The test for adequate written description is not about “the presence or absence of literal support in the specification for the claim language,” *In re Kaslow*, 707 F.2d 1366, 1375 (Fed. Cir. 1983) (citation omitted), but rather whether the specification conveys possession of the full scope of the “complete and final invention with all its claimed limitations.” *Ariad*, 598 F.3d at 1353. Thus, the Federal Circuit routinely invalidates patents for lack of written description where the specification does not disclose the claim elements in a

particular location, configuration, or sequence. *See, e.g., Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1479-80 (Fed. Cir. 1998) (location); *Rivera v. Int’l Trade Comm’n*, 857 F.3d 1315 (Fed. Cir. 2017) (configuration); *PIN/NIP v. Platte Chem. Co.*, 304 F.3d 1235, 1247-48 (Fed. Cir. 2002) (sequence).

The written description requirement is “especially meaningful when a patentee is claiming entitlement to an earlier filing date[.]” *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 323 F.3d 956, 969 (Fed. Cir. 2002). To ensure that applicants do not retroactively seek to broaden the scope of their invention, each application in a patent’s priority chain must describe the claimed features of the patent. *Lockwood*, 107 F.3d at 1571–72; *Chiron Corp. v. Genentech, Inc.*, 363 F.3d 1247, 1255 (Fed. Cir. 2004) (“The written description requirement prevents applicants from using the amendment process to update their disclosures (claims or specifications) during their pendency before the patent office. Otherwise applicants could add new matter to their disclosures and date them back to their original filing date, thus defeating an accurate accounting of the priority of invention.”).

VII. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSITA”) for the technology of the ’459 patent would have had at least a bachelor’s degree in computer science, computer engineering, electrical engineering, or a related degree and 2-3 years of experience with administering remote computing environments. This experience

could include, for example, work in cloud computing, virtualization, network communications, client-server communication analysis, load balancing, stress testing, and/or system consolidation. A POSITA would have been familiar with designing, implementing, monitoring, evaluating, optimizing, and managing physical and virtual computing environments. More education would be acceptable in place of work experience and vice versa. (Declaration of Dr. Erez Zadok (Ex. 1006), ¶ 59.)

VIII. CLAIM CONSTRUCTION

The terms “source system” and “target system” appear in each claim of the ’459 patent. The specification expressly defines each of these terms. According to the specification, a “source system” is “a system from which applications and/or data are to be moved[.]” (Ex. 1001, 5:57-58.) Similarly, the specification defines a “target system” as “a system to which [a source system’s] applications and/or data are to be moved.” (*Id.*, 5:59-60.)

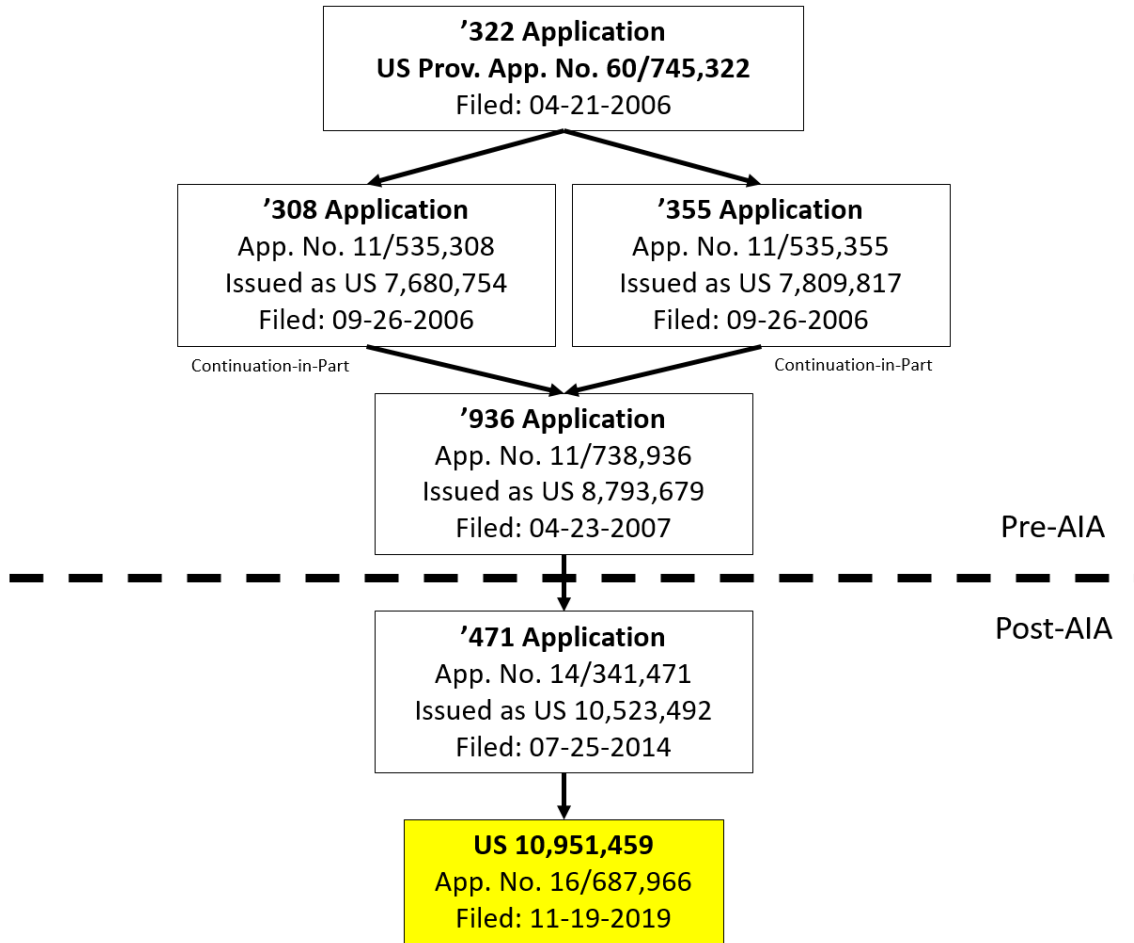
In its Patent Owner’s Preliminary Response responding to an IPR challenging U.S. Patent No. 10,523,492 (the parent patent to the ’459 patent sharing an identical specification), the Patent Owner adopted these definitions as express constructions. *See VMware, Inc. v. Cirba IP Inc.*, Case No. IPR2021-00008, Paper No. 8, Patent Owner’s Preliminary Response, at 5 (PTAB Feb. 18, 2021) (“‘Sources’ or ‘source systems’ are systems from which applications and/or

data are to be moved, and ‘targets,’ ‘target servers’ or ‘target systems’ are systems to which such applications and/or data are to be moved.”); *id.* at 17-18 (patent specification expressly defines these terms). The Board did the same in its decision instituting IPR of the ’492 patent. *VMware, Inc. v. Cirba IP Inc.*, Case No. IPR2021-00008, Paper No. 10, Decision Granting Institution of *Inter Partes* Review, at 8 (PTAB May 7, 2021). These terms should be given the same construction here.

IX. THE ’459 PATENT IS ELIGIBLE FOR PGR BECAUSE ITS PRE-AIA PRIORITY APPLICATIONS LACK WRITTEN DESCRIPTION FOR THE CLAIMS

The ’459 patent issued from the ’966 application, filed November 19, 2019, and is a continuation of application 14/341,471 (the “’471 application” (Ex. 1008)) filed July 25, 2014. The ’471 application is itself a continuation of application 11/738,936 (the “’936 application,” Ex. 1009), which was filed on April 23, 2007. The ’936 application is a continuation-in-part of two applications filed on September 26, 2006: applications 11/535,355 (the “’355 application,” Ex. 1010) and 11/535,308 (the “’308 application,” Ex. 1011). In addition, the ’459 patent claims benefit to a provisional application, 60/745,322 (the “’322 application,” Ex. 1012), filed April 21, 2006. The family tree for the ’459 patent is shown in the figure below:

Thus, the application that issued as the '459 patent claims priority to one post-AIA application and four pre-AIA applications. The '936 application



(which issued as the '679 patent) is the last filed pre-AIA application to which the '459 patent claims priority. But as detailed below, the '936 application does not provide written description support for the '459 patent claims. Specifically, it lacks written description support for the following limitations, which appear in substantially identical form in each of the '459 patent's independent claims (1, 32, and 63):

- “evaluate compatibility between the specific source system from the plurality of source systems and one or more other source systems either *already placed* on the specific target system”² (Ex. 1001, 40:18-22 (emphasis added));
- “evaluate compatibility . . . by evaluating the impact on resource utilization of the specific target system of placing the specific source system on the specific target system, in combination with the one or more other source systems, either *already placed* on the specific target system” (*id.*, 40:28-35 (emphasis added)); and

² Although this limitation and the subsequent limitation recite an “already placed” source system as one of two optional alternatives, the specification must provide written description support for both the “already placed” limitations and the alternatives. *See Messagephone, Inc. v. SVI Sys., Inc.*, 243 F.3d 556, 2000 WL 1141046, at *6 (Fed. Cir. 2000) (“To satisfy the written description requirement, the specification must describe *every element* of the claimed invention in sufficient detail so that one of ordinary skill in the art would recognize that the inventor possessed the claimed invention at the time of filing.” (emphasis added)).

- “*issue instructions to place* the at least one source system on the at least one target system in accordance with the determined placement” (*id.*, 40:37-39 (emphasis added)).

Nor do the ’355 application (which issued as the ’817 patent), the ’308 application (which issued as the ’754 patent), or the ’322 application (which is the provisional application) provide written description support for the ’459 claims.³ Thus, the ’459 patent cannot claim the benefit of the ’936 application’s filing date, breaking its priority chain to any pre-AIA applications and rendering it eligible for post-grant review.

A. The ’936 Application Lacks Written Description Support for Claims 1-63

The ’936 application fails to provide written description support for claims 1-63 of the ’459 patent for two independent reasons.

First, the ’459 patent’s claims all include evaluations that involve source systems “*already placed* on the specific target system.” These evaluations are between: a “specific source system” and a source system “*already placed* on the specific target system”; or a “specific source system” and the target system that has a source system “*already placed* on the specific target system.” But the ’936

³ The ’936 application incorporates by reference the ’355, ’308, and ’322 applications. (Ex. 1009, [0001].)

application does not disclose any analysis between a source system and an “already placed” source system, or even the concept of “already placed” source systems in general. Instead, the ’936 application is entirely devoted to calculating how best to *transfer* source systems to target systems by moving the source systems’ applications or data to the target systems.

Second, the ’459 patent’s claims all require “issuing instructions to place the at least one source system on the at least one target system in accordance with the determined placement.” But the ’936 application discloses a process that ends with the formulation of a consolidation solution, stopping short of disclosing any instructions, such as through software code, that could be used to transfer applications and data from one system to another to achieve that consolidation solution.

1. The ’936 application does not disclose evaluating a source system with “other source systems [] already placed on the specific target system.”

The ’459 patent claims include the steps of:

evaluating compatibility between the specific source system from the plurality of source systems and one or more other source systems either *already placed on the specific target system*, or being evaluated for placement onto the specific target system . . .[; and]

evaluating compatibility . . . by evaluating the impact on resource utilization of the specific target system of placing the specific source system on the specific target system, in combination with the one or more other source

systems, either *already placed on the specific target system*, or being evaluated for placement onto the specific target system . . .

(*See, e.g.*, Ex. 1001, 42:51-67) (emphasis added).) But the '936 application does not describe any evaluations for a source system that account for a source system “already placed” on a target system. In fact, the '936 application does not describe “already placed” source systems at all, much less in a sufficient level of detail to have informed a person of ordinary skill in the art that the named inventors were in possession of an invention that worked with “already placed” source systems.

i. None of the analyses disclosed in the '936 application involves evaluating a source system with another “already placed” source system.

The '936 application describes only three types of “compatibility analyses” (“1-to-1,” “N-to-1,” and “N-by-N”) as well as a “consolidation analysis.” But none of these involves evaluating a source system with another source system “already placed” on a target system.⁴ Thus, the '936 application does not provide

⁴ Although neither this section nor the following section depend on the construction of “placed,” as noted in Section IX.A.1.iii, *infra*, the '459 patent does not describe what it means to “place” a source system on a target system, or even use the word “place” anywhere outside of the claims. Nor does the concept of placement appear in the '936 application. Nevertheless, for purposes of this

written description support for evaluations involving “already placed” source systems, as required by the ’459 patent’s claims.

The first type of compatibility analysis, 1-to-1, produces a compatibility score for each possible pairing of a source system and a target system. (Ex. 1009, [0116].) For example, in an environment with N systems, each system is “considered as a target (T=1 to N) and compared to each other system 16 in the data set 18 as the source (S=1 to N).” (*Id.*, [0284].) Thus, the 1-to-1 analysis evaluates only source systems with target systems. (*Id.*) And because it does not evaluate a source system with another source system of any kind, it follows that the 1-to-1 analysis does not evaluate any source system with another source system that is “already placed.” (Ex. 1006, ¶ 67.) Moreover, in a 1-to-1 analysis, each system is evaluated as both a source and a target, which would make no sense if any of the systems were a source system “already placed” on a target system. (Ex. 1009, [0296].)

section and the following section, “placing” a source on a target will be understood to be similar to “transferring” a source to a target, which is the closest concept described in the ’936 application. The ’936 application states that transfer can be accomplished by moving the source’s applications and/or data to the target. (*See, e.g.,* Ex. 1009, [0081].)

N-to-1 analyses also do not evaluate a source system with another “already placed” source system. The ’936 application explains that N-to-1 analyses are performed on “transfer sets,” defined as “one or more transfers that involve a common target, wherein the set specifies one or more source entities, the target and a transfer type.” (*Id.*, [0087].) Like 1-to-1 analyses, N-to-1 analyses evaluate the compatibility of “each source against the target,” and does not involve evaluating a source system against any other source system, including source system that are “already placed.” (*Id.*, [0255]-[0256].)

The ’936 application illustrates this with an example involving a transfer set with three source systems, s1, s2, and s3, stacked onto a target system, s16. (*Id.*, [0263].) For this transfer set, the exemplary embodiment of the N-to-1 analysis evaluates “s1 against s16, s2 against s16 and s3 against s16.” (*Id.*, [0330].) The results of the analysis are shown in Table 14, annotated below:

TABLE 14

<u>Matched Items - Multi-Dimensional N-to-1 example</u>							
#	Source	Target	Rule Item	Source Value	Target Value	Mutex	Weight
1	S1	S16	Different Patch Levels	SP2	SP3	Y	0.03
2	S1	S16	Different Default Gateways	10.0.0.1	192.168.0.1	N	0.02
3	S2	S16	Different Patch Levels	SP2	SP3	Y	0.03
4	S3	S16	Different Patch Levels	SP4	SP3	Y	0.03
5	S3	S16	Different Default Gateways	10.0.0.1	192.168.0.1	N	0.02
6	S3	S16	Different Boot Settings	TRUE	FALSE	N	0.01

As the table shows, the N-to-1 analysis only evaluates source systems against a target system, and does not evaluate multiple source systems against each other. Furthermore, none of the source systems S1, S2, or S3 has been assigned to a target system during the evaluation. (Ex. 1006, ¶ 68.) Thus, N-to-1 analyses do not evaluate any source systems against other source systems that have been matched with a target system, let alone source systems that have been “already placed.”

The final type of compatibility analysis disclosed in the '936 application, N-by-N, also operates on transfer sets, but unlike N-to-1, evaluates source systems of a transfer set against each other. (Ex. 1009, [0333].) But none of these source systems have been “already placed” on a target system, nor have the applications or data been “already” transferred to the target system. The '936 application states

clearly that source systems in a transfer set are systems “*to be transferred to the target.*” (*Id.*, [0321] (emphasis added).) This express definition excludes source systems that have been *already transferred* to the target system. (Ex. 1006, ¶ 69.)

Likewise, the ’936 application’s consolidation analysis does not involve source systems that have been “already placed” or transferred to a target system. As with the ’459 patent’s identical disclosures, the ’936 application describes a process by which its analysis program uses the results of compatibility analyses to identify a consolidation solution. (Ex. 1009, [0342].) The process involves compiling “valid source and target candidates,” setting up “auto fit parameters,” compiling “candidate transfer sets,” choosing the “best candidate transfer set,” adding the transfer set to a “consolidation solution,” repeating some or all of these steps to generate one or more possible consolidation solutions, and choosing the “best consolidation solution.” (*Id.*, [0354]-[0361].) At no point does this process involve evaluating a source system against another source system that has been “already placed” on a target system. (*Id.*) In fact, no “placement,” or other transfer, occurs as part of the consolidation analysis at all. Rather, the fact that the last step is *choosing* a consolidation solution from the set of possible consolidation solutions shows that no actual “placement” or transfer occurs, and that the analysis is a purely theoretical exercise.

Moreover, when the consolidation analysis identifies even a *potential* transfer of one or more source systems to a target system, it excludes the source and target systems involved in the transfer from subsequent evaluation steps. As the '936 application explains, the analysis identifies a “best” transfer set (i.e., a specific set of source systems to be consolidated onto a specific target system) by evaluating various candidate transfer sets that meet certain auto fit parameters. (*Id.*, [0355]-[0358].) After choosing that “best” transfer set, the analysis adds it “to the intermediate consolidation solution,” thereby *removing* the source and target systems that comprise the transfer set from “the list of available sources and targets.” (*Id.*, [0358].) The analysis then repeats the previous steps to identify more “best” transfer sets to add to the consolidation solution in subsequent iterations. (*Id.*) Because the analysis removes the source systems and target system of a “best” transfer set from the pool of available systems in each iteration, no subsequent iteration will evaluate any source system that has *already* been designated for transfer; rather, each subsequent iteration will evaluate only source systems that have not yet been assigned. Thus, there is no point where the analysis evaluates a source system against an “already placed” (or already transferred) source system. The '936 application does not describe—and in fact expressly excludes—evaluating source systems with other source systems that even have been *temporarily assigned* to a target system, let alone source systems whose

applications and data have been “already placed” on a target system.⁵ (Ex. 1006, ¶¶ 70-71.)

⁵ As part of its discussion of consolidation analysis, the ’936 application notes that the analysis “can be performed on an analysis with pre-existing source-target transfers.” (*Id.*, [0345].) This, however, does *not* describe source systems that are “already placed” on target systems. Rather, it simply notes that consolidation analyses may be performed using predefined transfer sets, rather than being limited to transfer sets generated using auto fit parameters. The surrounding context in the ’936 application makes this clear. For example, the immediately preceding sentences state that “systems can be designated for consideration as a source only, as a target only or as either a source or a target,” and that these designations “serve as constraints when defining transfers” in the consolidation analysis. (*Id.*) The very next sentence, meanwhile, explains that analyses where certain systems are “designated as source or target-only” are “referred to as ‘directed analysis.’” (*Id.*) Thus, this disclosure solely concerns how transfer sets are defined or chosen. Both here and elsewhere, the ’936 application lacks description of any analysis where a source system is evaluated against another source system that is “already placed” on a target system.

In short, neither the compatibility nor the consolidation analyses disclosed in the '936 application involve evaluating a source system with another source system that has been “already placed” a specific target system. These analyses thus fail to inform a person of ordinary skill in the art that the '459 patent’s named inventors were in possession of an invention that included this feature.

ii. The '936 application’s definition of a “source system” is incompatible with the idea of “already” transferred systems.

It is not coincidental that none of the '936 application’s analyses involve source systems that have been “already placed” or transferred. Indeed, the '936 application defines “source system” such that the term can only be meaningful in the context of a future or potential transfer, and not a transfer that has already occurred.

According to the '936 patent, a “source system” is “a system from which applications and/or data are *to be moved*[.]” (Ex. 1009, [0081] (emphasis added).) The term “target system” which is likewise defined specifically in the context of future or potential transfers: “a system to which [a source system’s] applications and/or data are *to be moved*.” (*Id.* (emphasis added).) Thus, a system can only be a “source” while it is being considered as an actual source of applications or data. A system whose applications and/or data have *already* been moved to another system is no longer a “source.” (Ex. 1006, ¶¶ 74-77.)

Furthermore, as these definitions of “source system” and “target system” imply, a system’s applications and data are distinct from the system itself. This is true whether the system is physical or virtual—either way, it comprises elements that are neither applications nor data, such as tangible components for a physical system or configuration parameters for a virtual system. (*Id.*, ¶ 74.) When consolidation occurs, *only* the applications and data of the source system are moved to the target system. As the ’936 application explains, “an underutilized environment having two systems 16 can be consolidated to a target system (one of the systems) by moving applications and/or data from the source system (the other of the systems) to the target system.”⁶ (Ex. 1009, [0081].) The now-empty source system, meanwhile, remains where it was and can be removed from the computing environment. Having a source system continue to persist on a target system after a

⁶ Although the ’936 application elsewhere describes “movement of a single source entity onto a target,” this can only properly be understood to refer to movement of applications or data. (Ex. 1009, [0086].) Indeed, the notion of moving an entire system makes little sense here, given the ’936 application’s express inclusion of “physical systems” in its list of possible “computer systems.” (*Id.*, [0082].) It would be nonsensical to attempt consolidation of systems by moving, for example, a physical computer onto another physical computer.

transfer would be contrary to the specification's stated consolidation goal that results in a computing environment with "with fewer systems[.]" (*Id.*, [0104].) Accordingly, the '936 application logically excludes, and thus fails to provide written description support for, evaluations involving source systems that have "already" been transferred.

iii. The concept of "placement" is not described in the '936 application.

As discussed above, the '936 application fails to disclose evaluating a source system against another source system whose applications and data have "already" been transferred to a target system. But the '936 application also suffers from a different flaw—the concept of "placing" systems is not discussed. The '936 application never uses the term "placement." It only discloses analytical techniques for recommending *transfers*, i.e., the movement of "applications and/or data" from source systems to target systems. (*Id.*, Abstract, [0081].)

"Placement," on the other hand, implies moving the entire source system itself (i.e., not just a part of it). That concept appears nowhere in the '936 application and is inconsistent with the application's express definitions of "source system" and "target system." (*Id.*) As previously noted, a "transfer" entails moving a system's *applications and data*, and allows the computing environment to run without that system, thereby consolidating the number of systems. (*Id.*, [0074], [0081], [0104]; Ex. 1006, ¶¶ 74, 76.) Thus, once the transfer occurs, the

source system is removed from the computing environment, with only its applications and data remaining (now as part of the target system). (*Id.*) The notion of the *source system itself*, rather than its applications and data, being placed on and persisting in the environment as part of another system following a transfer is completely absent from the '936 application.⁷ Thus, the '936 application has no written description for the '459 patent's claims, which all involve "already placed" source systems.

2. The '936 application does not disclose the claims' "issuing instructions" limitation.

The '936 application also does not contain written description support for the '459 patent's requirement of "issuing instructions to place the at least one source system on the at least one target system in accordance with the determined placement." As noted above, the idea of "placement" does not appear in the '936

⁷ Moreover, the '936 application does not include any disclosure of repeating its overall consolidation process after system transfers are implemented from a previous consolidation solution. The '936 application describes only a single-pass of its consolidation process. (*See, e.g.*, Ex. 1009, Figs. 1, 2 (omitting any indication of running its analysis program repeatedly or recursively to produce a new consolidation solution after implementing a previous consolidation solution); *see also* Ex. 1006, ¶ 71.)

application, and the '936 application instead discloses and focuses on the concept of “transfer.” (See Section IX.A.1.iii, *supra*.) But the '936 application does not even describe any sort of instructions to *transfer* a source to a target in accordance with a consolidation solution. Rather, the application describes an analytical technique that results in recommendations, and is silent as to implementation of those recommendations.

As discussed above, the '936 application discloses a process that generates a “roadmap” that specifies how to consolidate a set of systems “to a smaller number of systems.” (Ex. 1009, [0074].) This roadmap identifies “chosen transfer sets” as depicted, for example, in Figures 51 and 52 of the '936 application, showing which systems would be affected “should the proposed transfers be applied.” (*Id.*, [0381], 63:19-24.)

This is the end result of the '936 application’s analytical techniques. At no point does the application describe issuing instructions to actually move applications or data between systems according to a consolidation solution.⁸ In

⁸ The claims of the '459 patent would preempt any attempt by the Patent Owner to argue that the consolidation solution or roadmap itself constitutes “instructions to place the at least one source system.” That is because each claim requires both “instructions” and a “determined placement.” (See, e.g., Ex. 1001, 40:8-10, 40:37-

fact, it consistently stops short of providing any explanation of how a consolidation solution would be implemented to carry out a transfer. (Ex. 1006, ¶ 81-82.) For example, the application provides a detailed explanation of “how a variant of the auto fit algorithm searches for a consolidation solution,” describing each step of the process all the way up to choosing the “Best Consolidation Solution” based on some “pre-defined criteria.” (*Id.*, ¶ 82 (describing output of example at Ex. 1009, [0362]-[0372]).) But the explanation ends there, without any step for implementing the chosen solution.

39 (claiming a system that “determine[s] a placement” and *then* “issue[s] instructions to place the at least one source system on the at least one target system in accordance with the determined placement”).) It is plain from the claim language that “instructions” and “the determined placement” are distinct elements—the instructions act “in accordance with” the determined placement. Thus, the ’936 application’s disclosure of consolidation solutions or roadmaps cannot provide written support for both. At best, a consolidation solution or roadmap is analogous to a set of “determined placements” for multiple source systems. But the ’459 patent separately requires instructions to carry out the determined placements—instructions which are absent from the ’936 application.

The '936 application also provides illustrative examples of different compatibility and consolidation analyses, but ends each example with a discussion of the analytical results. (*Id.* (describing output of example at Ex. 1009, [0373]-[0381]).) Neither example mentions actually carrying out any of the transfers involved in those results. (*Id.*)

Nor does the '936 application identify any components or devices responsible for issuing the instructions required by the '459 patent's claims. For instance, Figure 7, reproduced below, shows a "schematic block diagram of an underlying architecture" for the analysis program that performs the '936 application's analytical techniques (Ex. 1009, [0025]), including memory structures like a "Report Engine," an "Audit Data Repository," a "Rule Data Cache," and a "Workload Data Cache," as well as a web interface and various software modules:

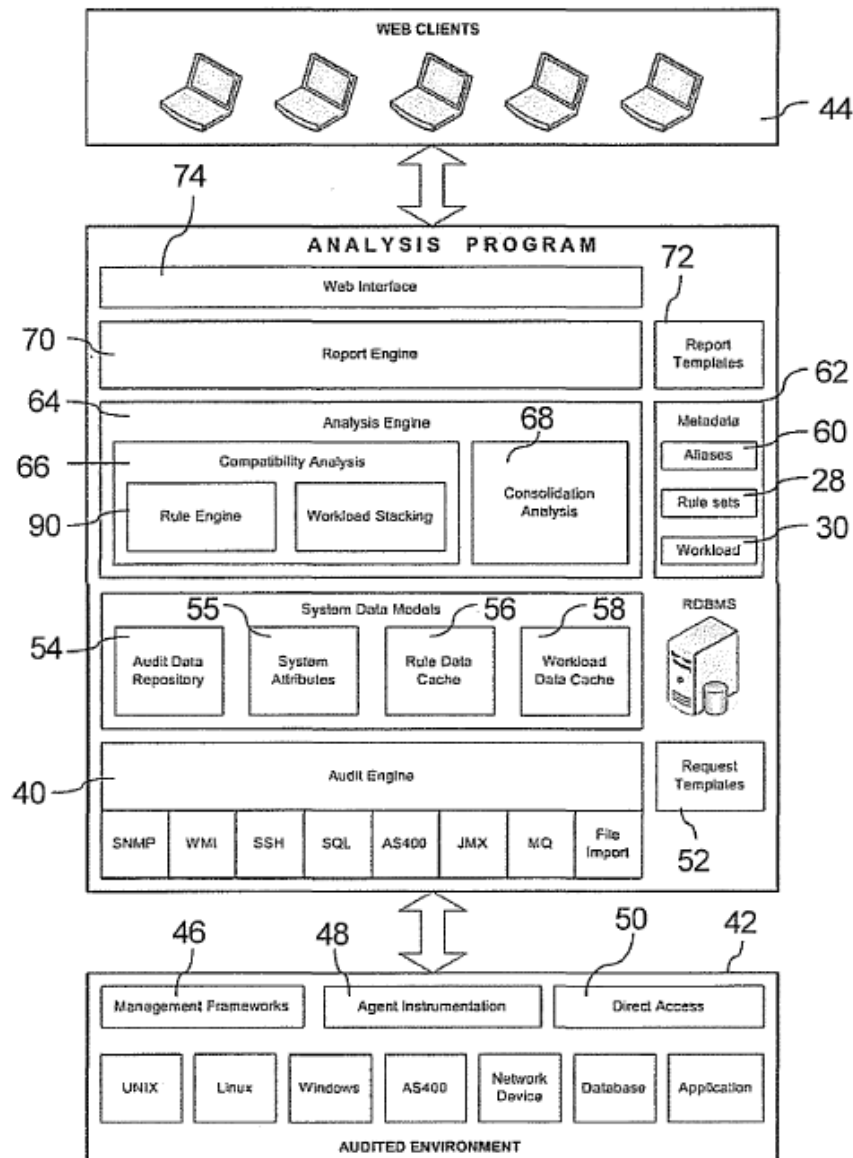


Figure 7

But Figure 7 does not show any components that issue instructions to move applications or data from source systems to target systems according to the analysis program's recommendations. (Ex. 1006, ¶ 83.) In fact, Figure 7 shows the output of the analysis program not as instructions for carrying out transfers, but

as “a report engine 70 that utilizes report templates 72 for ***generating reports that convey the analysis results.***” (Ex. 1009, [0105] (emphasis added); *see also id.*, Fig. 9 (showing output as “Analysis Results” or “Consolidation Solution”), Figs. 11, 17, 21, 24(a)-(d), 29 (showing output as “Analysis Results”); Figs. 14-15 (showing output as “Compatibility Results”); Fig. 18 (showing output as “Compatibility score”); Fig. 30 (showing output as “Consolidation Solution”); *see also* Ex. 1006, ¶¶ 81-82.)

Nor does the '936 application implicitly disclose issuing instructions through descriptions of structures that would receive and execute those instructions to carry out the transfers. Even when discussing specific uses of its analytical techniques, the '936 application fails to provide any detail regarding how to implement those uses. For example, the '936 application identifies “virtualization strategies, operating system (OS) level stacking strategies, database consolidation strategies, application stacking strategies, physical consolidation strategies, and storage consolidation strategies” as ways to consolidate resources and save costs using its disclosed techniques. (Ex. 1009, [0007].) The application then describes each strategy in detail, explaining what it means and providing examples of technologies to which it may be relevant. (*See id.*, [0008]-[0012].) But the '936 application provides no information about how the strategies are to be implemented, including what instructions would be issued, what components

would issue them, what components would receive them, etc. (Ex. 1006, ¶ 83.) In other words, the '936 application fails to describe, implicitly or explicitly, any step where instructions are issued to carry out a transfer.

Nor do the '936 application's descriptions of user interfaces provide support for "issuing instructions." For example, the '936 application's "Summary" section describes "a client for displaying the compatibility score on an interface," and states that the interface may "enable a user . . . to define and initiate a transfer of one or more of the computer systems to a target computer system." (Ex. 1009, [0017].) But this merely refers to an interface that displays analytical results to a user. This information enables users to independently define and initiate any transfer of their choosing. But that is not equivalent to "issuing instructions" in accordance with a "determined placement" that has been calculated using the precise methods described in the rest of the specification and that the '459 patent claims require. The '936 application's passing reference to an interface makes no mention of instructions at all. Nor does it mention implementing transfers "in accordance with" any consolidation solution. Thus, it is insufficient to provide written support for the '459 patent's claims.

Moreover, issuing instructions to carry out a transfer would not have been a trivial step at the time of the '936 application. If such a step were actually part of the techniques disclosed in the '936 application, one would expect there to have

been some or even substantial disclosure of how to accomplish it. (Ex. 1006, ¶ 83.) Unlike visualizing a set of analytical results on a local interface, transferring applications and data to run or reside on a new system would have been an involved process. (*Id.*) Because of this, a person of ordinary skill in the art would have sought guidance from the specification on how to issue instructions to execute such complex and involved transfers. And while it may seem obvious to include a step for issuing instructions, the Federal Circuit has repeatedly held that a description that “renders obvious a claimed invention is not sufficient to satisfy the written description requirement of that invention.” *Knowles Elecs. LLC v. Cirrus Logic, Inc.*, 883 F.3d 1358, 1365 (Fed. Cir. 2018) (affirming PTAB’s finding of no written description support) (quoting *Regents of the Univ. of Cal. v. Eli Lilly & Co.*, 119 F.3d 1559, 1567 (Fed. Cir. 1997)). Thus, the absence of any mention in the ’936 application of issuing instructions shows that the Patent Owner was not in possession of an invention that included this step.

Therefore, the ’936 application lacks written description support for “issuing instructions to place the at least one source system on the at least one target system in accordance with the determined placement.”

B. The ’936 Application’s Incorporation of the ’355 Application Does Not Provide Written Description Support for Claims 1-63

The ’936 application incorporates the ’355 application by reference. The ’355 application relates to calculating compatibility scores for pairs of computer

systems, with some embodiments also providing a user interface that visualizes the results of that analysis. (*See* Ex. 1010, [0009]-[0013].) In the end, the '355 application's analytical technique generates a "roadmap," including a "system compatibility index," a "workload compatibility index," and a "co-habitation index" (which combines the first two indices) for each possible pair of systems in the environment. (*Id.*, [0061], [0122].) For the same reasons discussed with respect to the '936 application, the '355 application fails to provide written description support for multiple limitations of the claims of the '459 patent and cannot cure the '936 application's own lack of written description support for those claims.

1. The '355 application does not disclose evaluating a source system with "other source systems" that have "already" been "placed on the specific target system."

The '355 application makes no mention of the concept of "placement," let alone evaluating a source system against another source system that has "already" been "placed" on the target system. Instead, the '355 application describes analyses that calculate compatibility scores for each possible pairing of a source system and a target system: "A configuration analysis . . . of N systems 18 computes NxN system compatibility scores by individually considering each system 18 as a consolidation source and as a target." (*Id.*, [0063].) This is analogous to the '936 application's description of a "1-to-1" compatibility analysis

discussed above. Like the 1-to-1 analysis, this process does not evaluate a source system against any other source system. Rather, each compatibility calculation involves one possible source system and one possible target system. There is no mention of any “other source system,” including “already placed” ones.

Although the '355 application also briefly describes a procedure it calls “multi-stacking,” this likewise does not involve an “already placed” source system. Instead, it only involves evaluating source systems that are *to be moved to* the target. As the '355 application states, a “multi-stacking procedure considers the workload usage limit” given a set of parameters. (*Id.*, [0123].) It “may include any number of sources stacked on a target.” (*Id.*) The '355 application’s technique computes an “aggregate score for the multi-stack” to determine “if such a multi-stack of systems can be supported by the target.” (*Id.*) A multi-stack analysis therefore involves evaluating multiple source systems for possible consolidation with a target system. But it does not involve evaluating any source system that has *already* undergone consolidation with the target system.

Thus, the '355 application makes no mention of, and lacks written description support for, the '459 patent’s limitations involving evaluating a source system against an “already placed” source system. Nor does the '355 application even discuss “already placed” source systems at all. Although the application mentions iterative steps, none of those steps involves any actual consolidation of

systems or movement of applications or data from one system to another. Rather, each iteration is part of the purely analytical process of computing compatibility scores and generating a consolidation roadmap.

For example, the '355 application notes that as part of a system consolidation analysis, for “each rule that applies to the candidate server pair, the pair’s [system compatibility index] score is reduced by iteratively applying the corresponding rule weight at each iteration (i.e., for each rule), from an initial value to a final value, the final value being the score.” (*Id.*, [0137].) This is plainly part of the analysis itself and does not involve moving applications or data from a source to a target. Nor does it disclose the concept of “placement” or an “already placed” source system at all, much less in sufficient detail to meet the written description requirement.

As another example, the '355 application discloses system co-habitation compatibility analyses, which uses a configuration score for each server pair to compute a co-habitation scores for that pair. (*Id.*, [0121].) The analysis repeats this process to include additional servers as needed. (*Id.*) But again, while repetitive, this process is still part of the overall compatibility analysis, all of which is purely analytical and does not involve any actual consolidation.

Moreover, the '355 application defines “source system” and “target system” in exactly the same way as the '936 application: A “source system” is “a system

from which applications and/or data are to be moved,” and a “target system” is “a system to which [a source system’s] applications and/or data are to be moved.”

(*Id.*, [0058].) As with the ’936 application, a “source system” ceases to be part of the computing environment after undergoing transfer; only its applications and data remain on the target system. Thus, the very concept of a source system that was “already placed” on a target system is missing from the ’355 application.

2. The ’355 application does not disclose “issuing instructions to place the at least one source system on the at least one target system in accordance with the determined placement.”

Like the ’936 application, the ’355 application does not disclose issuing instructions to carry out a “determined placement” (or the concept of “placement” in general). The scope of the system in the ’355 application is limited to generating recommendations for system consolidation and visualizing those recommendations; the system does not implement the recommendations.

For example, the “Summary of the Invention” section of the ’355 application identifies five embodiments of its alleged invention. The first is “a method for determining compatibilities for a plurality of computer systems,” and ends with “generating a co-habitation score for each pair of the plurality of systems,” indicating “an overall compatibility for each system with respect to the others of the plurality of systems.” (*Id.*, [0009].) The second is “a computer program” for “determining compatibilities for a plurality of computer systems.” (*Id.*, [0010].)

The third is a “method for determining configuration compatibilities” that generates a “rule set” and ends with “computing a configuration score for each pair of the plurality of systems according to the weights in the rule set.” (*Id.*, [0011].)

The fourth is a “method for determining workload compatibilities” that ends with “computing a workload score for each pair of the plurality of systems using [] stacked workload values.” (*Id.*, [0012].) Finally, the fifth embodiment is “a graphical interface for displaying compatibility scores” in the form of “a matrix of cells.” (*Id.*, [0013].) None of these embodiments includes actual consolidation of systems. Consistent with the ’355 application’s objective of providing compatibility analyses, these embodiments compute compatibility indices for the user to consider.

At no point does the ’355 application describe instructions to carry out a consolidation, let alone a “determined placement.” The ’355 application instead stops well before any potential implementation step. As the application notes, at the end of the analysis, the “results may then be used to identify the best server consolidation candidates.” (*Id.*, [0061].) It would then be up to the user whether or not to consolidate those candidates, but that process is not described or discussed in the ’355 application.

C. The '936 Application's Incorporation of the '308 Application Does Not Provide Written Description Support for Claims 1-63

The '936 application also incorporates the '308 application by reference.

But like the others, the '308 application lacks written description support for each claim of the '459 patent.

1. The '308 application does not disclose evaluating a source system with “other source systems” that have “already” been “placed on the specific target system.”

The '308 application does not disclose the concept of “placement” and makes no mention of evaluating a source system against another source system that was “already placed” on a target system. Like the '355 application, the '308 application discusses analyses that calculate a compatibility score for each possible pair of systems. In fact, most of the application's disclosures regarding compatibility analyses appear in identical form in the '355 application.

For example, the '308 application summarizes the analysis by noting that, for “N systems,” it “computes NxN system compatibility scores by individually considering each system 18 as a consolidation source and as a target.” (Ex. 1011, [0067].) As with the identical disclosure in the '355 application, this is analogous to the '936 application's description of a “1-to-1” compatibility analysis discussed above. And like a 1-to-1 analysis in the '936 application, this does not involve an evaluation of a source system against another source system (of any kind, “already placed” or otherwise). Unlike the '355 application, however, the '308 application

does not discuss any other type of compatibility analysis. Because the '308 application only describes computations that evaluate a source system with a target system, it lacks written description support for the '459 patent's claims.

In addition, as with the '936 and '355 applications, the concept of a source system that was "already placed" on a target system is absent from the '308 application. The '308 application includes some of the same disclosures of iterative steps that form part of the disclosed compatibility analysis (*see, e.g., id.*, [0102]), but like the '355 application, none of these steps even involves the consolidation of systems or movement of applications or data from one system to another, not to mention the completely foreign concept of "placement."

2. The '308 application does not disclose "issuing instructions to place the at least one source system on the at least one target system in accordance with the determined placement."

Like the '936 and '355 applications, the '308 application is concerned with an analytical process that results in computations of compatibility scores for pairs of systems in a computing environment. It does not describe or mention implementing consolidations or transfers, or instructions for doing so. Indeed, the '308 application does not even describe the use of compatibility scores for *consolidation*. Instead, the '308 application more generally discloses a process for "evaluating differences between a first data set and a second data set for one or more computer system[s.]" (*Id.*, [0007].) It is silent as to any processes for

combining systems, let alone “placing” them in accordance with a “determined placement.”

D. The '936 Application's Incorporation of the '322 Application Does Not Provide Written Description Support for Claims 1-63

Finally, the '936 application incorporates by reference the '322 provisional application. As with the '355 and '308 applications, the '322 application cannot cure the '936 application's lack of written description support for the '459 patent's claims, because it suffers from the same defect.

1. The '322 application does not disclose evaluating a source system with “other source systems” that have “already” been “placed on the specific target system.”

The '322 application refers to a “source server” and a “target server,” which are equivalent to “source system” and “target system” as used in the later applications discussed above. (*See, e.g.*, Ex. 1012, 26.) At no point does the '322 application discuss analyzing a source server against a second source server that was “already placed” on a target server. Indeed, like the previous applications, the '322 application does not contain the concept of “placement” in general.

Furthermore, as with the '355 and '308 applications, the '322 application only describes an “N-to-N comparison of all systems” (akin to the “1-to-1 compatibility analysis” of the '936 application) that “yields a comparison matrix that indicates the complete set of differences between each server and all of its counterparts.” (*Id.*, 7.) The analysis computes a compatibility score for each

potential source-target pairing—one source and one target. (*See id.*, 8.) It does not involve evaluating any source server against another source server.

Also like the other applications, the '322 application does not disclose the notion of a source system that was “already” undergone consolidation of any kind. Specifically, there is no context in the '322 application's disclosures in which the phrase “already placed” has meaning. The '322 application discusses a method that is purely analytical, and does not disclose any prior steps that have altered the status or characteristics of one of the source servers being analyzed.

For instance, the '322 application discloses a “Quantitative and Statistical” method with four steps: discovery, configuration comparison, workload analysis, and scoring. (*Id.*, 6.) The last step, scoring, results in the “creation of a scorecard based on the combination of configuration and workload data.” (*Id.*) In addition, the “draft claims” of the application are directed to purely analytical methods and ways to display the results of those methods. (*See id.*, 21.) They do not include any step for combining or consolidating systems. Likewise, flowcharts included in the '322 application stop at “analysis,” “results” or a “determination.” (*See id.*, 24-31.)

In short, the method described in the '322 application only performs analysis. It does not include any “placement” or any other consolidation or rearranging of systems. Thus, there are no systems that have “already” been

“placed.” The concept of an “already placed” source system, as appears in the ’459 patent’s claims, has no written description support in the ’322 provisional application.

2. The ’322 application does not disclose “issuing instructions to place the at least one source system on the at least one target system in accordance with the determined placement.”

As noted above, the ’322 application describes a method that does not include any steps for combining or consolidating systems. The method is purely analytical, and involves evaluating the compatibility of system pairs, and “what-if” (i.e., purely hypothetical) analyses for “workload stacking” on “candidate systems.” (*Id.*, 6.) This results in the “creation of a scorecard based on the combination of configuration and workload data.” (*Id.*) The ’322 application’s method ends there—there is no additional step for implementing any particular changes to the systems according to the analysis.

The draft claims of the ’322 application and each of its figures are similarly limited to analysis and lack any implementation step. (*See id.*, 21-22 (claiming a “method for analyzing computer system configurations and system resource utilization in order to determine inter-system compatibilities”); *id.*, 24-31 (flowcharts that end with “Analysis Results,” “Configuration Compatibility Score Cards,” etc.) Nor does the ’322 application disclose any components, modules, or programs that would issue instructions for the implementation.

Thus, the '322 application lacks written description support for the '459 claims' requirement of "issuing instructions to place the at least one source system on the at least one target system in accordance with the determined placement."

* * *

Accordingly, none of the pre-AIA applications provides adequate written description support for the '459 patent claims. The patent is therefore eligible for PGR.

X. CLAIMS 1-63 FAIL TO SATISFY THE WRITTEN DESCRIPTION REQUIREMENT

The '459 patent's specification does not contain any additional information beyond the information in the priority applications. Nor does the '459 patent's only post-AIA priority application, the '471. Indeed, other than the claims, both the '459 patent specification and the '471 application specification are identical to that of the '936 application.

Thus, the '459 patent fails the written description requirement for the same reasons as the applications to which it claims priority. The same written description failures establish both eligibility for PGR and also invalidity under section 112. This arises as a direct consequence of a Patent Owner's choice to amend the claims to include subject matter not present in the specification, which

renders that patent both subject to the AIA and its challenged claims unpatentable under section 112(a).⁹

XI. MANDATORY NOTICES

A. Real Party-in-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), the real party-in-interest in this proceeding is VMware, Inc. VMware, Inc. is the sole party who has funded this Petition and has full and exclusive control over this proceeding. Out of an abundance of caution, VMware discloses that it is a majority-owned subsidiary of EMC Corporation, which is a wholly-owned subsidiary of Dell Technologies, Inc. VMware does not believe that either EMC Corporation or Dell Technologies, Inc. are real parties-in-interest and, as far as VMware is aware, neither EMC

⁹ The as-issued claims of the '459 patent were the result of amendments made by the applicant during prosecution. As they were not part of the specification as originally filed, the claims of the '459 patent cannot provide the missing written description support. *See Rivera*, 857 F.3d at 1319 (“The specification of a patent as filed must ‘contain a written description of the invention.’” (quoting 35 U.S.C. § 112)); MPEP § 2163(I)(B) (“New or amended claims which introduce elements or limitations that are not supported by the as-filed disclosure violate the written description requirement.”).

Corporation nor Dell Technologies, Inc. has ever been served with a complaint accusing them of infringing the '459 patent.

B. Related Matters

Pursuant to 37 C.F.R. § 42.8(b)(2), Petitioner identifies the following related matters.

- VMware concurrently filed with this PGR petition IPR petitions (Case Nos. IPR2021-01210 and -001211) challenging claims 1-63 of the '459 patent.
- VMware filed an IPR petition (Case No. IPR2021-00008) challenging the '459 patent's parent patent, the '492 patent, which was instituted on May 7, 2021.
- Patent Owner is asserting the '459 and '492 patents against VMware in the consolidated cases entitled *Cirba Inc. et al v. VMware, Inc.*, D. Del. Case No. 1:19-cv-00742-LPS and *VMware, Inc. v. Cirba Inc.*, D. Del. Case No. 1:20-cv-00272-LPS. Those cases have a trial date of April 23, 2021.

C. Lead and Back-Up Counsel and Service Information

Pursuant to 37 C.F.R. § 42.8(b)(3), Petitioner identifies the following counsel (and a power of attorney accompanies this Petition).

Lead Counsel for Petitioner	Backup Counsel for Petitioner
<p>Diek O. Van Nort Registration No.: 60,777 dvannort@mofo.com MORRISON & FOERSTER LLP 425 Market Street San Francisco, CA 94105-2482 Tel.: (415) 268-7000 Fax: (415) 268-7522</p>	<p>Alex S. Yap Registration No.: 60,609 ayap@mofo.com Mehran Arjomand Registration No.: 48,231 marjomand@mofo.com MORRISON & FOERSTER LLP 707 Wilshire Boulevard Los Angeles, CA 90017-3542 Tel.: (213) 892-5200 Fax: (213) 892-5454</p> <p>Richard S.J. Hung Registration No.: 43,684 rhung@mofo.com Matthew I. Kreeger Registration No.: 56,398 mkreeger@mofo.com MORRISON & FOERSTER LLP 425 Market Street San Francisco, CA 94105-2482 Tel.: (415) 268-7000 Fax: (415) 268-7522</p>

Pursuant to 37 C.F.R. § 42.8(b)(4), service information for lead and back-up counsel is provided above. Petitioner consents to electronic service by email to VMware-Cirba-IPR@mofo.com.

The USPTO is authorized to charge any required fees, including the fee as set forth in 37 C.F.R. §42.15(a) and any excess claim fees, to Deposit Account No. **03-1952** referencing Docket No. **642120000265**.

XII. CONCLUSION

Because there is a reasonable likelihood that VMware will prevail on its asserted ground with respect to at least one claim, VMware requests that the Board institute post grant review of claims 1-63 of the '459 patent.

Dated: July 6, 2021

Respectfully submitted,

/s/ Diek Van Nort

Diek O. Van Nort

Registration No.: 60,777

MORRISON & FOERSTER LLP

425 Market Street

San Francisco, CA 94105-2482

Tel.: (415) 268-7000

Fax: (415) 268-7522

Certification of Word Count (37 C.F.R. §42.24)

I hereby certify that this Petition for Post Grant Review has 11,143 words (as counted by the “Word Count” feature of the Microsoft Word™ word-processing system), exclusive of “a table of contents, a table of authorities, mandatory notices under §42.8, a certificate of service or word count, or appendix of exhibits or claim listing.”

Dated: July 6, 2021

By: /s/ Diek Van Nort
Diek O. Van Nort

Certificate of Service (37 C.F.R. §42.6(e)(4) and 42.205(a))

I hereby certify that the attached Petition for Post Grant Review and supporting materials were served as of the below date by UPS, which is a means at least as fast and reliable as U.S. Express Mail, on the Patent Owner at the correspondence address indicated for U.S. Patent No. 10,951,459.

CPST Intellectual Property Inc.
181 Bay Street, Suite 2425
Toronto, ON M5J 2T3

Dated: July 6, 2021

By: /s/ Diek Van Nort
Diek O. Van Nort
Registration No.: 60,777
MORRISON & FOERSTER LLP
425 Market Street
San Francisco, CA 94105-2482
Tel.: (415) 268-7000
Fax: (415) 268-7522