

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

TOUTVIRTUAL, INC.,	)	
	)	
<i>Plaintiff,</i>	)	No.
	)	
v.	)	
	)	JURY TRIAL DEMANDED
MICROSOFT CORPORATION,	)	
	)	
<i>Defendant.</i>	)	
_____	)	

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff ToutVirtual, Inc. (“Plaintiff” or “ToutVirtual”) files this Complaint for Patent Infringement and Demand for Jury Trial against Defendant Microsoft Corporation (“Defendant” or “Microsoft”) and alleges as follows:

THE PARTIES

1. ToutVirtual is a corporation organized and existing under the laws of Delaware, with its principal place of business located at 7033 Llama Street, Carlsbad, California 92009.

2. Microsoft is a corporation organized and existing under the laws of Washington, with its principal place of business located at 1 Microsoft Way, Redmond, Washington 98052-8300. Microsoft may be served through its agent for service of process, CSC Lawyers Incorporating Service Company, at 211 E. 7th Street, Suite 620, Austin, Texas 78701-3218. On information and belief, Microsoft directly and/or indirectly develops, designs, manufactures, distributes, markets, offers for sale, and/or sells infringing products and services in the United States, including in this District, and otherwise directs infringing activities to this District in connection with its product and services, set forth as follows.

JURISDICTION AND VENUE

3. This action for patent infringement arises under the patent laws of the United States, 35 U.S.C. § 101 *et seq.* This Court has original jurisdiction over this controversy pursuant to 28 U.S.C. §§ 1331 and 1338.

4. This Court has personal jurisdiction over Defendant because Defendant, directly and through its subsidiaries or intermediaries including distributors, retailers, and others, has committed acts within this District giving rise to this action and has established minimum contacts with this forum, such that exercise of jurisdiction over Defendant would not offend traditional notions of fair play and substantial justice.

5. Defendant does continuous and systematic business in this District, including by providing infringing products and services to the residents of this District that Defendant knew would be used within this District, and by soliciting business from the residents of this District. Defendant has made its products and services available for, at least, downloading and use within this District.

6. Venue is proper in the Eastern District of Texas under 28 U.S.C. §§ 1391(b) and (c) and/or 1400(b) because Defendant is subject to personal jurisdiction in this District as it has committed acts of patent infringement in this District and has a regular and established place of business in this District. Defendant, through its own acts, makes, uses, sells, and/or offers to sell infringing products within this District, regularly does and solicits business in this District, and has the requisite minimum contacts with this District, the State of Texas, and elsewhere in the United States, such that this venue is a fair and reasonable one.

7. For example, Defendant maintains millions of dollars of business and personal property in Collin County, within this District:

2025 Certified Values are now live!

Page 1 of 1 - Total: 5 (0.23 seconds)

Grid
List

Customize View
Year: 2025
Page Size: 25
Download Results

Property ID	Geo ID	Type	Owner Name	Owner ID	Address	Legal Description	Appraised
2716796	P-9000-215-3426-1	P	MICROSOFT CORPORATION	758841	2800 CENTRAL EXPY, PLANO TX 75074	BPP AT 2800 CENTRAL EXPY	\$46,083
2717892	P-9000-215-3502-1	P	MICROSOFT CORPORATION	758841	3333 PRESTON RD 00200, FRISCO TX 75034	BPP AT 3333 PRESTON RD	\$10,575
2734151	P-9000-216-1140-1	P	MICROSOFT CORPORATION	758841	1751 N CENTRAL EXPY 0000C, MCKINNEY TX 75070	BPP AT 1751 N CENTRAL EXPY	\$12,068
2734152	P-9000-216-1141-1	P	MICROSOFT CORPORATION	758841	190 E STACY RD 03000, ALLEN TX 75002	BPP AT 190 E STACY RD	\$7,243
2827989	P-9000-221-1449-1	P	MICROSOFT CORPORATION	758841	2800 SUMMIT AVE, PLANO TX 75074	BPP AT ALIGNED DATA CENTER	\$1,698,119

Ex. 6, *Property Search*, Collin Central Appraisal District,

<https://www.collincad.org/propertysearch> (last visited Aug. 4, 2025) (search results for “Microsoft”).

8. Defendant similarly maintains significant business and personal property in Denton County, within this District:


Denton Central Appraisal District
DENTON COUNTY, TEXAS

Home
Online Services >
Reports
Forms
News
Resources >
About >
Meetings

Property Search

Name: microsoft
2026

SEQ	Year	PropID	Type	GEO ID	Ref ID	Tax Office ID	Owner Name	ARB Hearing	DBA	Property Address	City	Legal Description
1	2026	668435	P			668435	MICROSOFT CORPORATION	No	MICROSOFT CORPORATION	2601 S STEMMONS FWY	LEWISVILLE	PERSONAL PROPERTY -
2	2026	668581	P			668581	MICROSOFT CORPORATION	No	MICROSOFT CORPORATION	1800 S LOOP 288	DENTON	PERSONAL PROPERTY -
3	2026	682720	P			682720	MICROSOFT CORPORATION	No	MICROSOFT CORPORATION	5299 ELDORADO PKWY	FRISCO	PERSONAL PROPERTY -
4	2026	685248	P			685248	MICROSOFT CORPORATION	No	MICROSOFT CORPORATION	6060 LONG PRAIRIE RD	FLOWER MOUND	PERSONAL PROPERTY -

Ex. 7, *Property Search*, Denton CAD, <https://www.dentoncad.com/property-search> (last visited Aug. 4, 2025) (search results for “Microsoft”).

9. Defendant has several corporate offices in the State of Texas, employing hundreds of persons. On information and belief, these offices are located in at least the following cities: Plano, Garland, Austin, Houston, Irving, and San Antonio.

10. Defendant offers its products and services throughout Texas, including this District, by shipping, distributing, offering for sale, selling, and advertising its products and services through its website that is accessible within this District, and through its physical business locations within this District.

11. For example, Defendant operates Microsoft Windows Stores within at least ten Best Buy retail locations throughout the State of Texas, including in this District, *e.g.*, 2800 N Central Expressway, Plano, Texas 75074; 3333 Preston Road, Suite 200, Frisco, Texas 75034; and 2601 S Stemmons Freeway, Suite 300, Lewisville, Texas 75067.

The screenshot displays the Best Buy website for the Plano store. At the top, it says 'Best Buy Plano' with a status bar indicating 'Open Now' and 'Closes at 9:00 PM'. Below this, the address '2800 N Central Expy, Plano, TX 75074' and phone number '(972) 578-8000' are listed. A 'Directions' button is also present. The main content area is divided into three sections: 'Store Hours', 'Curbside Hours', and 'Services Offered'. The 'Store Hours' section shows a table of hours for the week of August 1st to 7th. The 'Services Offered' section lists various services like Geek Squad, Apple Shop, and Windows Store.

Store Hours		Curbside Hours
Friday	Aug. 1	10:00 AM - 9:00 PM
Saturday	Aug. 2	10:00 AM - 9:00 PM
Sunday	Aug. 3	11:00 AM - 7:00 PM
Monday	Aug. 4	10:00 AM - 9:00 PM
Tuesday	Aug. 5	10:00 AM - 9:00 PM
Wednesday	Aug. 6	10:00 AM - 9:00 PM
Thursday	Aug. 7	10:00 AM - 9:00 PM

Services Offered:

- Geek Squad Services
- Apple Shop
- Windows Store
- Samsung Experience Shop
- Samsung Experience Only
- Sony Experience
- LG Experience
- Car & GPS Installation Services
- Samsung Open House
- Trade-In
- Premium Home Theater

See, *e.g.*, Ex. 8, <https://stores.bestbuy.com/tx/plano/2800-n-central-expy-202.html?ref=NS&loc=ns100> (last visited Aug. 1, 2025);

Best Buy Frisco

Open Now Closes at 9:00 PM 4.1 ★★★★★ (4122 reviews)

3333 Preston Rd
Frisco, TX 75034 (972) 712-3939

Directions

Store Hours		Curbside Hours
Open Now	Closes at 9:00 PM	
Friday	Aug. 1	10:00 AM - 9:00 PM
Saturday	Aug. 2	10:00 AM - 9:00 PM
Sunday	Aug. 3	11:00 AM - 7:00 PM
Monday	Aug. 4	10:00 AM - 9:00 PM
Tuesday	Aug. 5	10:00 AM - 9:00 PM
Wednesday	Aug. 6	10:00 AM - 9:00 PM
Thursday	Aug. 7	10:00 AM - 9:00 PM

Services Offered

- Geek Squad Services
- Camera Experience Shop
- Apple Shop
- Windows Store
- Samsung Experience Shop
- Samsung Experience Only
- Sony Experience
- LG Experience
- Car & GPS Installation Services
- Apple Authorized Service Provider
- Samsung Open House
- Trade-In
- Google Home Experience
- Amazon Alexa Experience
- Hearing Solutions Center
- Premium Design Center

Ex. 9, <https://stores.bestbuy.com/tx/frisco/3333-preston-rd-180.html> (last visited Aug. 1, 2025);

Best Buy Lewisville

Open Now Closes at 9:00 PM 4.2 ★★★★★ (4853 reviews)

2601 S Stemmons Fwy
Lewisville, TX 75067 (214) 488-8624

Directions

Store Hours		Curbside Hours
Open Now	Closes at 9:00 PM	
Friday	Aug. 1	10:00 AM - 9:00 PM
Saturday	Aug. 2	10:00 AM - 9:00 PM
Sunday	Aug. 3	11:00 AM - 7:00 PM
Monday	Aug. 4	10:00 AM - 9:00 PM
Tuesday	Aug. 5	10:00 AM - 9:00 PM
Wednesday	Aug. 6	10:00 AM - 9:00 PM
Thursday	Aug. 7	10:00 AM - 9:00 PM

Services Offered

- Geek Squad Services
- Apple Shop
- Windows Store
- Samsung Experience Only
- Sony Experience
- LG Experience
- Car & GPS Installation Services
- Apple Authorized Service Provider
- Samsung Open House
- Trade-In
- Google Home Experience
- Amazon Alexa Experience
- Premium Home Theater

Ex. 10, <https://stores.bestbuy.com/tx/lewisville/2601-s-stemmons-fwy-258.html> (last visited Aug. 1, 2025).

12. The Microsoft Windows Stores operated by the Defendant within Best Buy stores are regular and established places of business for the Defendant. According to the Defendant, these Windows Stores are a “comprehensive store-within-a-store,” with dedicated “Microsoft specialists” serving Best Buy customers within this “unique environment.” Ex. 11,

Microsoft and Best Buy Announce the Windows Store Only at Best Buy, MICROSOFT (June 13, 2013), <https://news.microsoft.com/source/2013/06/13/microsoft-and-best-buy-announce-the-windows-store-only-at-best-buy-2/> (As Microsoft’s vice president of computing for Best Buy stated, “[t]he Windows Store creates the kind of retail destination we all want to shop in, combining great selection, the latest technology, the best service and the lowest prices.”).

13. Defendant maintains its distinct business identity at these locations, renting the space from Best Buy and holding out its Windows Stores as discrete retail locations. Ex. 12, Brandon LeBlanc, *Talking Retail: The New Windows Store Only at Best Buy*, MICROSOFT WINDOWS BLOGS (June 13, 2013), <https://blogs.windows.com/windowsexperience/2013/06/13/talking-retail-the-new-windows-store-only-at-best-buy/>.

14. Defendant is responsible for and controls the day-to-day operations of such stores. Defendant is responsible, *inter alia*, for its “own pricing and merchandise.” Ex. 13, Thomas Lee, *Best Buy Bets Big on Store-Within-Store Concepts*, MINN. STAR TRIBUNE (July 14, 2013), <https://www.startribune.com/best-buy-bets-big-on-store-within-store-concepts/215301161>.

15. Besides maintaining Microsoft Windows Stores within Best Buy retail locations, Defendant has approximately \$2 million of property at Aligned Data Center, at 2800 Summit Ave, Plano, Texas 75074, within this District. Defendant maintains data servers at this location. Ex. 14, Dave Montgomery, *Texas Lures Data Centers, Not for Jobs but for Revenue*, N.Y. TIMES (Apr. 26, 2016), <https://www.nytimes.com/2016/04/27/realestate/commercial/texas-lures-data-centers-not-for->

[jobs-but-for-revenue.html](#) (“a customizable customer pod containing servers at Aligned Data Centers in Plano, Tex.”).

16. As detailed in later sections, this case accuses the Microsoft Azure Cloud Computing products of infringement. There is a point of presence (“POP”)¹ location for the Azure network in Plano, Texas, within this District (likely at the data center discussed in the preceding paragraphs).

¹ POPs are part of content delivery networks: “a distributed network of servers that can efficiently deliver web content to users. A content delivery network store[s] cached content on edge servers in point of presence (POP) locations that are close to end users, to minimize latency.” Ex. 15, *What is a Content Delivery Network on Azure?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/cdn/cdn-overview> (last updated July 31, 2025).

Region	Cities
North America	Ettobicoke, Canada (2) Montreal, Canada Vancouver, Canada (2) Querétaro, Mexico (2) Atlanta, GA, USA (3) Boydton, VA, USA (2) Chaska, MN, USA (2) Cheyenne, WY, USA (2) Chicago, IL, USA (4) Dallas, TX, USA (4) Des Moines, IA, USA (3) Detroit, MI, USA Englewood, CO, USA (2) Honolulu, HI, USA Houston, TX, USA (3) Jacksonville, FL, USA (2) Las Vegas, NV, USA (3) Los Angeles, CA, USA (2) Manassas, VA, USA (3) Memphis, TN, USA Miami, FL, USA (4) Minneapolis, MN, USA (2) Needham Heights, MA, USA (2) Nashville, TN, USA Newark, NJ, USA New York, NY, USA (2) Philadelphia, PA, USA Phoenix, AZ, USA Plano, TX, USA Portland, OR, USA Quincy, WA, USA (3) San Antonio, TX, USA (4) San Jose, CA, USA (4) Salt Lake City, UT, USA (3) Seattle, WA, USA (2) Secaucus, NJ, USA (2) Southfield, MI, USA Tempe, AZ, USA

Ex. 16, *Azure Content Delivery Network Coverage by Metro*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/cdn/cdn-pop-locations> (last updated Mar. 31, 2025).

17. Finally, Defendant announced a multi-billion-dollar deal with specialist cloud provider, CoreWeave, to use its datacenters for some of Defendant’s Azure AI workloads—specifically, a datacenter in Plano, within this District. *See* Ex. 17, Sebastian Moss, *CoreWeave Plans \$1.6bn AI Cloud Data Center in Plano, Texas*, DATA CENTER DYNAMICS (July 25, 2023) <https://www.datacenterdynamics.com/en/news/coreweave-plans-16bn-ai-cloud-data-center-in-plano-texas/>; Ex. 18, Sebastian Moss, *Microsoft Signs Multi-Billion Dollar Deal*

with GP Cloud Provider CoreWeave to Meet AI Needs, DATA CENTER DYNAMICS (June 2, 2023) <https://www.datacenterdynamics.com/en/news/microsoft-signs-multi-billion-dollar-deal-withgpu-cloud-provider-coreweave-to-meet-ai-needs/>; Ex. 19, Faizan Farooque, *Microsoft to Invest \$10 Billion in CoreWeave for AI Cloud Infrastructure*, YAHOO FINANCE (Nov. 4, 2024), <https://finance.yahoo.com/news/microsoft-invest-10-billion-coreweave-205558909.html> (“Microsoft has greatly raised capital expenditures reaching \$20 billion” to cover “expenditures on data centers and infrastructure connected to artificial intelligence to enable tools driven by Azure and other services,” including Microsoft’s \$10 billion investment in CoreWeave “over the next six years.”).

18. Defendant regularly does and solicits business herein, and/or Defendant has engaged in persistent conduct and/or has derived substantial revenues from goods and services provided in the State of Texas and this District. Thus, Defendant is subject to this Court’s general and specific jurisdiction pursuant to due process and/or the Texas Long Arm Statute due, at least, to Defendant’s substantial business in the State of Texas and this District, including through its past and ongoing infringing activities.

19. Venue is likewise proper in this District because Defendant has regular and established physical places of business in this District and has committed acts of patent infringement in this District.

TOUTVIRTUAL’S VIRTUAL SYSTEM MANAGEMENT TECHNOLOGY

20. ToutVirtual was founded in 2005 by Jess Marinez and Vipul Pabari and is the leader in virtual system management for cloud computing. Significantly, ToutVirtual is the first mover in the cloud market with technology solutions that revolutionized the management of virtualization environments across computer networks.

21. In network systems with virtualization (*e.g.*, virtual instances of a computer system), physical resources are used to deploy virtual resources, which provide the functional equivalent of desktops, applications, operating systems, servers, and the like. With traditional systems, the management of these virtual resources was extremely complex, unwieldy, and outdated. As the industry commented, the “information technology industry [was] in a strange situation. We have enormously sophisticated engines we’re running[] in the form of CPUs and communications equipment and so forth, but the way we keep them running is through an outdated vision.” *See* Ex. 1, ’431 Patent at 2:48-53 (“’431 Patent” as defined in ¶ 30).² For example, the management of these engines (*e.g.*, network systems with virtualization) was performed by outdated virtualization software tools that required manual selection and implementation of virtual configurations. *Id.* at 2:62-3:22. In fact, these outdated virtualization software tools were proprietary and worked only with specific network virtualization environments, *e.g.*, CPUs or operating systems of machines hosting the virtual environment. *Id.*

22. Therefore, there was a need for virtual system management technology which (1) provides for the automated management of virtualization environments and (2) manages across different (heterogeneous) virtualization environments. *Id.* at 3:23-25 (“It would be advantageous if more efficient means for managing virtual environments across computer networks were available.”); *see* Ex. 20, *ToutVirtual Unveils New Software*, NETWORK COMPUTING (May 30, 2007), <https://www.networkcomputing.com/network-management/toutvirtual-unveils-new-software> (“The market is in need of more advanced virtualization management tools Multi-function tools that can manage across a variety of

² The Asserted Patents (as set forth below) share the same specification. Accordingly, for the

environments.”). And particularly, there was a need for a system that provides “a single view” of the managed virtualization environments because “you don’t want multiple management tools, repositories, teams of users. You want a single pane of glass.” Ex. 21, *Virtualization Management Takes Center Stage*, REUTERS (Aug. 26, 2009), <https://www.reuters.com/article/idUS1669466711/> (“[A]bout 75% of enterprises are grappling with virtualization management issues.”).

23. These needs were solved by ToutVirtual’s virtual system management technology, VirtualIQ products, which provides a unified management console that automatically manages different virtualization environments. *See generally* Ex. 22, VirtualIQ Pro Datasheet.pdf, https://web.archive.org/web/20100816020145/http://www.toutvirtual.com/resources/docs/ToutVirtual_VirtualIQ_Pro_Datasheet.pdf; Ex. 67, VirtualIQ Pro Users Guide.pdf, https://web.archive.org/web/20091229110928/http://www.toutvirtual.com/resources/docs/VirtualIQ_Pro_Users_Guide.pdf. Specifically, the VirtualIQ products enables “server virtualization assessment, asset management, performance management, capacity management” across different platforms, including Microsoft, Citrix, Oracle, and VMware. Ex. 23, *ToutVirtual Announces VirtualIQ Pro 3*, TOUTVIRTUAL (Jan. 13, 2009), <https://www.toutvirtual.com/company/pr/VirtualIQ-Pro-January-13-2009.pdf>; *see also* Ex. 24, *ToutVirtual to Offer Product Suite via BT Engage IT*, PRESS RELEASE (June 1, 2012), <https://www.pr.com/press-release/417010> (VirtualIQ provides for a “single pane of glass” across physical and virtual infrastructure, including support for all leading hypervisors from Citrix, Microsoft, Oracle and VMware.”).

purposes of this section, only the disclosure of the ’431 Patent is cited.

24. The industry took notice of ToutVirtual's innovating VirtualIQ products, as industry experts remarked:

ToutVirtual's VirtualIQ Pro console addresses a very important need in the support of heterogeneous virtualization environments," says Andi Mann, research director at Enterprise Management Associates. "In an easy-to-use, functional and affordable interface, VirtualIQ Pro helps users get greater value from virtualization deployments by integrating, in a single console, several core disciplines like capacity planning, load balancing and automated VM management.

Ex. 23, *ToutVirtual Announces VirtualIQ Pro 3*, TOUTVIRTUAL (Jan. 13, 2009),

<https://www.toutvirtual.com/company/pr/VirtualIQ-Pro-January-13-2009.pdf>.

ToutVirtual's products have helped us manage our physical and virtual IT infrastructure," says Rakesh Shah, vice president of IT operations for eGain, Inc. . . . "We have a heterogeneous IT environment with different virtual platforms and various stages of virtualization. ToutVirtual's VirtualIQ Pro has provided us with a unified console to control server capacity, manage incidents, create and execute policies and ultimately optimize our virtualization environment.

Id.

The key challenges faced by customers are around management processes for virtualization and cloud. ToutVirtual's VirtualIQ products help by offering a 'single pane of glass' to give holistic visibility and control of their infrastructure.

Ex. 24, *ToutVirtual to Offer Product Suite via BT Engage IT*, PRESS RELEASE (June 1, 2012),

<https://www.pr.com/press-release/417010>.

25. ToutVirtual was chosen as one of the "Top 10 Virtualization Companies to Watch" by Network World in August 2007. Ex. 25, Joanne Cummings, *10 Virtualization Companies to Watch*, NETWORKWORLD (Aug. 20, 2007),

<https://www.networkworld.com/article/824596/data-center-10-virtualization-companies-to-watch.html>. ToutVirtual was also named as one of Computerworld's companies to watch

because of its management of different virtual computing infrastructures. Ex. 26,

Computerworld Horizon Awards 2006 Honorees, COMPUTERWORLD (Aug. 21, 2006), <https://www.computerworld.com/article/1649654/computerworld-horizon-awards-2006-honorees.html>.

26. Defendant was also keenly interested in ToutVirtual's virtual system management technology. ToutVirtual was among the first companies to join the Defendant's Virtual Hard Disk ("VHD") Test Drive Program. *See* Ex. 27, *ToutVirtual Among First Companies to Join Microsoft Virtual Hard Disk Test Drive Program*, TOUTVIRTUAL (Mar. 15, 2007), https://www.toutvirtual.com/company/pr/ToutVirtual_news_Microsoft_VHD_Test_Drive_April_5_2007.pdf.

27. In 2007, ToutVirtual provided a pre-configured VirtualIQ appliance image as part of Defendant's VHD Test Drive Program, which is a program that lets users download and test pre-configured software on Defendant's virtualization platform. *See* Ex. 28, *ToutVirtual Adds Microsoft Virtual Image*, SOCALTECH (Apr. 5, 2007), https://socaltech.com/toutvirtual_adds_microsoft_virtual_image/s-0008448.html.

28. In 2008, ToutVirtual announced its partnership with Defendant as an Independent Software Vendor ("ISV"), with ToutVirtual's VirtualIQ products supporting Microsoft Windows Server 2008 Hyper-V, which is Defendant's then systems virtualization product. *See* Ex. 29, *ToutVirtual Extends Support to Microsoft*, SOCALTECH (Oct. 27, 2008), https://www.socaltech.com/toutvirtual_extends_support_to_microsoft/s-0018154.html; Ex. 30, *ToutVirtual Announces Support for Microsoft Windows Server 2008 Hyper-V Virtualization*, TOUTVIRTUAL (Oct. 27, 2008), <https://www.toutvirtual.com/company/pr/ToutVirtual-VirtualIQ-Microsoft-Windows-2008-Hyper-V-Virtualization.pdf> (Defendant's director for

virtualizations solutions stated, “[w]e are pleased that ToutVirtual is delivering support for Windows Server 2008 Hyper-V. . . . ToutVirtual’s VirtualIQ products help our customers running Hyper-V assess and optimize applications for their environments, assisting them in making the right planning decisions.”); *see also* Ex. 31, *ToutVirtual and Microsoft VHD Test Drive*, VMBLOG.COM (Jan. 18, 2007), <https://vmblog.com/archive/2007/01/18/toutvirtual-and-microsoft-vhd-test-drive.aspx>.

29. After 2008, ToutVirtual strived to increase its client base and continued to seek partnership with other major software technology companies such as Symantec and BT Engage IT. *See, e.g.*, Ex. 32, *ToutVirtual Signs OEM Agreement with Symantec Corporation to Deliver Next Generation Business Continuity Solutions*, TOUTVIRTUAL (July 13, 2010), <https://www.toutvirtual.com/company/pr/ToutVirtual-Symantec-OEM-Agreement-Business-Continuity.pdf>; Ex. 33, *ToutVirtual Inks Deal With Symantec*, SOCALTECH (July 13, 2010), https://www.socaltech.com/toutvirtual_inks_deal_with_symantec/s-0029798.html; Ex. 24, *ToutVirtual to Offer Product Suite via BT Engage IT*, PRESS RELEASE (June 1, 2012), <https://www.pr.com/press-release/417010>.

TOUTVIRTUAL’S ASSERTED PATENTS

30. ToutVirtual is the owner and assignee of all rights, titles, and interests in U.S. Patent Nos. 8,799,431 (the “’431 Patent”); 9,444,762 (the “’762 Patent”); 10,810,050 (the “’050 Patent”); 11,656,915 (the “’915 Patent”); and 12,079,667 (the “’667 Patent”) (collectively, the “Asserted Patents”).

31. All Asserted Patents are patent eligible, valid, and enforceable. The Asserted Patents are not abstract and specifically claim inventive concepts that cover technological

solutions that address problems grounded in the management of computer network virtualization environments.

32. As established above, there was a need for virtual system management that provides automated management of virtual resources across different virtualization environments.

33. The Asserted Patents cover a specific improvement in virtualization management by automatically determining an inventory of resources at a virtualization layer across multiple virtualization environments, assigning priorities among available network configuration elements, allocating virtual assets accordingly, and then monitoring real-time performance metrics to dynamically reallocate resources as needed. The Asserted Patents and their claims also improve the operation of a computer network's virtualization environment, including, but not limited to, compute virtualization, storage virtualization, application virtualization, and network virtualization, by automatically monitoring performance in real time and adjusting the configuration of virtual resources without regard to the underlying processors, operating systems, virtualization platforms, or application software.

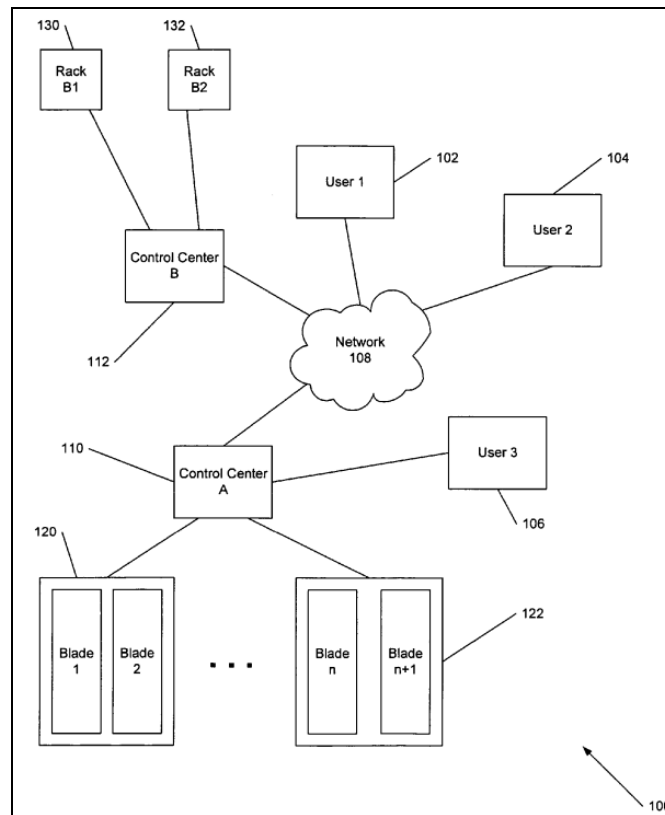
The '431 Patent

34. On August 5, 2014, the United States Patent and Trademark Office ("USPTO") duly and legally issued the '431 Patent, entitled "Virtual systems management." Attached hereto as Exhibit 1 is a true and correct copy of the '431 Patent.

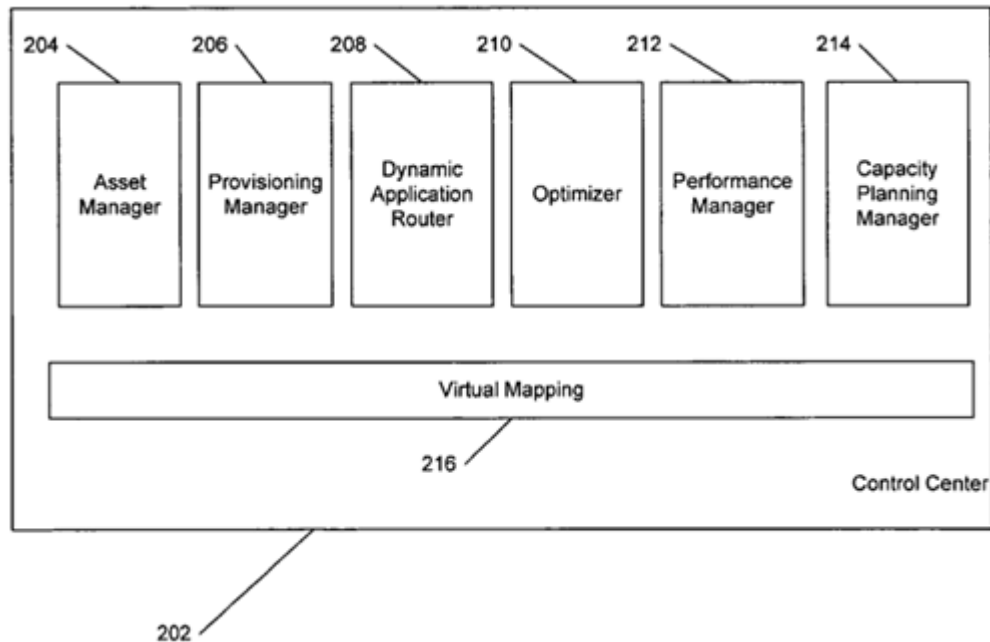
35. The '431 Patent claims priority to provisional U.S. Patent Application 60/708,471 (the "'471 Appl."), filed on August 15, 2005. '431 Patent at Cover.

36. The '431 Patent discloses and specifically claims non-abstract, inventive virtual system management devices that incorporate ToutVirtual's control center that allows for

platform independence. *See id.* at Figs. 1, 2 (reproduced below). These devices represent significant improvements over conventional virtualization management tools which were tied to specific CPUs, operating systems, and/or virtualization platforms. The efficiency, flexibility, and scalability of managing diverse virtual environments are improved by “initiating automatic responses to operational situations that influence dynamic demands on the physical and virtual assets.” *Id.* at 3:37-41.



Id. at Fig. 1.



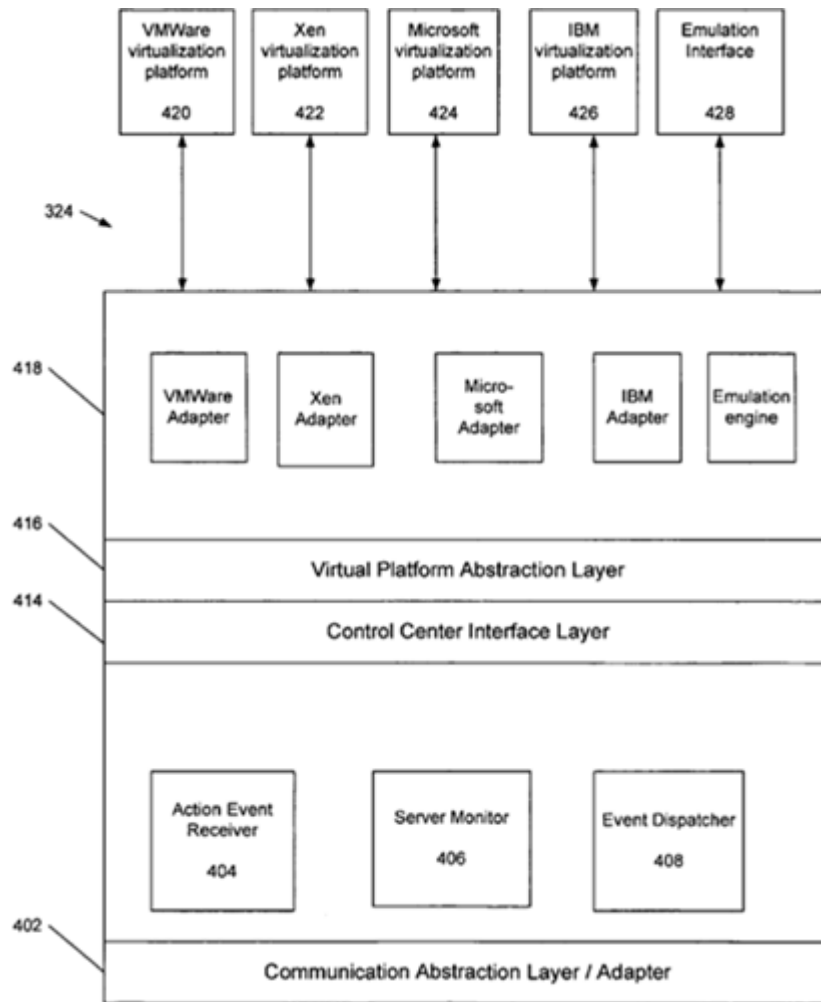
Id. at Fig. 2.

37. ToutVirtual solved the problem posed in the prior art when virtualization management required multiple proprietary tools specifically tied to particular CPUs, operating systems, and/or virtualization platforms. This approach was inefficient and increasingly unwieldy as environments diversified. Thus, there was a long-felt need for “more efficient means for managing virtual environments across computer networks” from a single, unified control center. *Id.* at 3:23-25.

38. ToutVirtual addressed this need by incorporating a single control center, that can be independent from one or more platforms, with various modular components that identifies resources and assets and initiate automatic policy-driven responses to operational conditions. These integrated, automated, and cross-platform management capabilities provided a significant improvement to the efficiency, scalability, and flexibility of administering the virtual infrastructures on each host machine regardless of the virtualization environment, *e.g.*, VMware, Xen, Microsoft, or IBM (*see id.* at Fig. 4 as shown below). *Id.* at 3:29-48 (disclosing

“methods and apparatus for management of one or more virtual environments regardless of any underlying central processing unit (CPU) specification and regardless of any underlying operating system (OS) or virtualization environment”).

39. These automatically responsive control mechanisms, that can operate independent of one or more platforms, were not routine, conventional, or previously known or understood in the art. For each claim of the '431 Patent, the claim elements, individually and in combination, result in a concrete, technological management system that performs various 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,” thereby producing an improvement in computer-network functionality. *Id.* at 3:61-4:6.



Id. at Fig. 4.

40. The use of a centralized control center with coordinating modular components, as disclosed in the '431 Patent, provides a novel and non-obvious solution to the problems with prior proprietary, tool-sprawl approaches to virtualization administration. For instance, the '431 Patent addresses the shortcomings of platform-locked tools by enabling a single control center to actively manage multiple different computer network virtualization environments through automated responses to changing conditions “without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.”

Id. at 3:61-4:16; *see also id.* at 3:29-48.

The '762 Patent

41. On September 13, 2016, the USPTO duly and legally issued the '762 Patent, entitled "Computer network systems to manage computer network virtualization." Attached hereto as Exhibit 2 is a true and correct copy of the '762 Patent.

42. The '762 Patent claims priority through a series of continuations to the '471 Appl. '762 Patent at Cover.

43. The '762 Patent discloses and specifically claims non-abstract, inventive virtual system management devices that incorporate ToutVirtual's physical control center with modular virtualization-management components, including physical resources, that allows for platform independence. *See id.* at Fig. 2. These devices represent significant improvements over conventional virtualization management tools which were tied to specific CPUs, operating systems, and/or virtualization platforms. The efficiency, flexibility, and scalability of managing diverse virtual environments are improved by "initiating automatic responses to operational situations that influence dynamic demands on the physical and virtual assets." *Id.* at 3:47-51.

44. ToutVirtual solved the problem posed in the prior art when virtualization management required multiple proprietary tools specifically tied to particular CPUs, operating systems, and/or virtualization platforms. This approach was inefficient and increasingly unwieldy as environments diversified. Thus, there was a long-felt need for "more efficient means for managing virtual environments across computer networks" from a single, unified control center. *Id.* at 3:33-35.

45. ToutVirtual addressed this need by incorporating a single, physical control center (*see id.* at 6:17-23 (disclosing "[d]eployment of the [c]ontrol [c]enter on physical

devices is typical . . .’)), that can be independent from one or more platforms, with various modular components that identifies resources and assets and initiate automatic policy-driven responses to operational conditions. These integrated, automated, and cross-platform management capabilities provided a significant improvement to the efficiency, scalability, and flexibility of administering the virtual infrastructures on each host machine regardless of the virtualization environment, *e.g.*, VMware, Xen, Microsoft, or IBM (*see id.* at Fig. 4). *Id.* at 3:39-59 (disclosing “methods and apparatus for management of one or more virtual environments regardless of any underlying central processing unit (CPU) specification and regardless of any underlying operating system (OS) or virtualization environment”).

46. These automatically responsive control mechanisms, that can operate independent of one or more platforms, were not routine, conventional, or previously known or understood in the art. For each claim of the ’762 Patent, the claim elements, individually and in combination, result in a concrete, technological management system that performs various 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,” thereby producing an improvement in computer-network functionality. *Id.* at 4:5-18.

47. The use of a centralized physical control center with coordinating modular components, as disclosed in the ’762 Patent, provides a novel and non-obvious solution to the problems with prior proprietary, tool-sprawl approaches to virtualization administration. For instance, the ’762 Patent addresses the shortcomings of platform-locked tools by enabling a

single physical control center to actively manage multiple different computer network virtualization environments through automated responses to changing conditions “without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.” *Id.* at 3:39-59, 4:5-28.

The '050 Patent

48. On October 20, 2020, the USPTO duly and legally issued the '050 Patent, entitled “Virtual systems management.” Attached hereto as Exhibit 3 is a true and correct copy of the '050 Patent.

49. The '050 Patent claims priority through a series of continuations to the '471 Appl. '050 Patent at Cover.

50. The '050 Patent discloses and specifically claims non-abstract, inventive virtual system management devices that incorporate ToutVirtual's control center with modular virtualization-management components that allows for platform independence. *See id.* at Fig. 2. These devices represent significant improvements over conventional virtualization management tools which were tied to specific CPUs, operating systems, and/or virtualization platforms. The efficiency, flexibility, and scalability of managing diverse virtual environments are improved by “initiating automatic responses to operational situations that influence dynamic demands on the physical and virtual assets” (*id.* at 3:53-57) and providing “an on-demand solution for provisioning of virtual assets for an automated workflow management” (*id.* at 8:17-19).

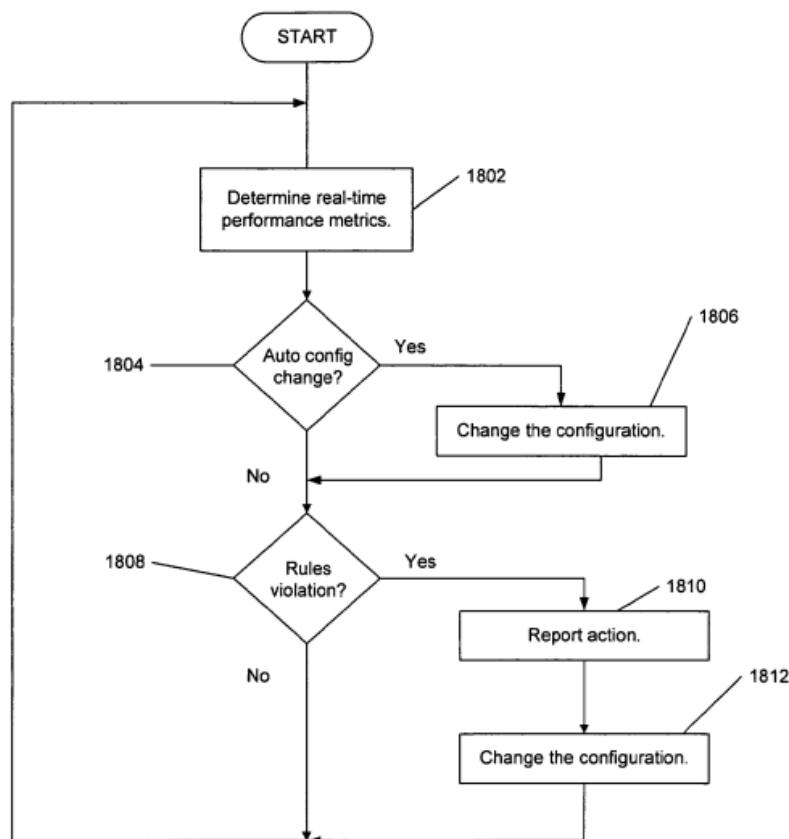
51. ToutVirtual solved the problem posed in the prior art when virtualization management required manual selection and implementation of configurations and multiple proprietary tools specifically tied to particular CPUs, operating systems, and/or virtualization

platforms. This approach was inefficient and increasingly unwieldy as environments diversified. Thus, there was a long-felt need for “more efficient means for managing virtual environments across computer networks” from a single, unified control center. *Id.* at 3:39-41.

52. ToutVirtual addressed this need by incorporating a single control center, that can be independent from one or more platforms, with various modular components that identifies resources and assets and initiate automatic policy-driven responses to operational conditions. These integrated, automated, and cross-platform management capabilities provided a significant improvement to the efficiency, scalability, and flexibility of administering the virtual infrastructures on each host machine regardless of the virtualization environment, *e.g.*, VMware, Xen, Microsoft, or IBM (*see id.* at Fig. 4). *Id.* at 3:45-65 (disclosing “methods and apparatus for management of one or more virtual environments regardless of any underlying central processing unit (CPU) specification and regardless of any underlying operating system (OS) or virtualization environment”).

53. These automatically responsive control mechanisms, that can operate independent of one or more platforms, were not routine, conventional, or previously known or understood in the art. For each claim of the '050 Patent, the claim elements, individually and in combination, result in a concrete, technological management system that performs various 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,” thereby producing an improvement in computer-network functionality. *Id.* at 4:11-24.

54. The use of a centralized control center with an on-demand ability to provision virtual assets to support automated workflow management, as disclosed in the '050 Patent, provides a novel and non-obvious solution to the problems with fragmented, proprietary tool-sprawl approaches that characterized prior virtualization administration. For instance, the '050 Patent overcomes the limitations of manual selection and implementation of configurations by enabling a single centralized control center to automatically and efficiently manage virtualization environments across a computer network “without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment” (*id.* at 4:11-24), by allocating available resources and assets based on real time performance metrics to create an optimized virtualization environment (*id.* at 4:24-34).



Id. at Fig. 18.

The '915 Patent

55. On May 23, 2023, the USPTO duly and legally issued the '915 Patent, entitled "Virtual systems management." Attached hereto as Exhibit 4 is a true and correct copy of the '915 Patent.

56. The '915 Patent claims priority through a series of continuations to the '471 Appl. '915 Patent at Cover.

57. The '915 Patent discloses and specifically claims non-abstract, inventive virtual system management devices that incorporate ToutVirtual's control center with modular virtualization-management components, which allow for platform independence and provide users access to virtual resources over a network. *See id.* at Fig. 2. These devices represent significant improvements over conventional virtualization management tools which were tied to specific CPUs, operating systems, and/or virtualization platforms. The efficiency, flexibility, and scalability of managing diverse virtual environments are improved by "initiating automatic responses to operational situations that influence dynamic demands on the physical and virtual assets" (*id.* at 3:49-4:3) and providing a customizable control center that allows users to select certain desired components (*id.* at 7:60-67).

58. ToutVirtual solved the problem posed in the prior art when virtualization management required multiple proprietary tools specifically tied to particular CPUs, operating systems, and/or virtualization platforms. This approach was inefficient and increasingly unwieldy as environments diversified. Thus, there was a long-felt need for "more efficient means for managing virtual environments across computer networks" from a single, unified control center. *Id.* at 3:43-45.

59. ToutVirtual addressed this need by incorporating a single control center with various modular components that identifies resources and assets and initiate automatic policy-driven responses to operational conditions. These integrated, automated, and cross-platform management capabilities provided a significant improvement to the efficiency, scalability, and flexibility of administering the virtual infrastructures on each host machine regardless of the virtualization environment, *e.g.*, VMware, Xen, Microsoft, or IBM (*see id.* at Fig. 4). *Id.* at 3:49-61 (disclosing “methods and apparatus for management of one or more virtual environments regardless of any underlying central processing unit (CPU) specification and regardless of any underlying operating system (OS) or virtualization environment”). As such, users could access and manage multiple virtualization environments through a single control center “even where the underlying CPU of the system physical resources are different from that of the [c]ontrol [c]enter” and “even where the virtualization environments being managed are different from each other.” *Id.* at 3:61-4:3.

60. These automatically responsive control mechanisms were not routine, conventional, or previously known or understood in the art. For each claim of the '915 Patent, the claim elements, individually and in combination, result in a concrete, technological management system that performs various 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,” thereby producing an improvement in computer-network functionality. *Id.* at 4:16-29.

61. The use of a centralized control center with an on-demand ability to provision virtual and physical assets to support automated workflow management, as disclosed in the '915 Patent, provides a novel and non-obvious solution to the problems with fragmented, proprietary tool-sprawl approaches that characterized prior virtualization administration. For instance, the '915 Patent overcomes the limitations of platform-locked tools by enabling a single centralized control center to automatically and efficiently manage multiple different computer-network virtualization environments. *Id.* at 4:16-39; *see also id.* at 3:49-4:3.

The '667 Patent

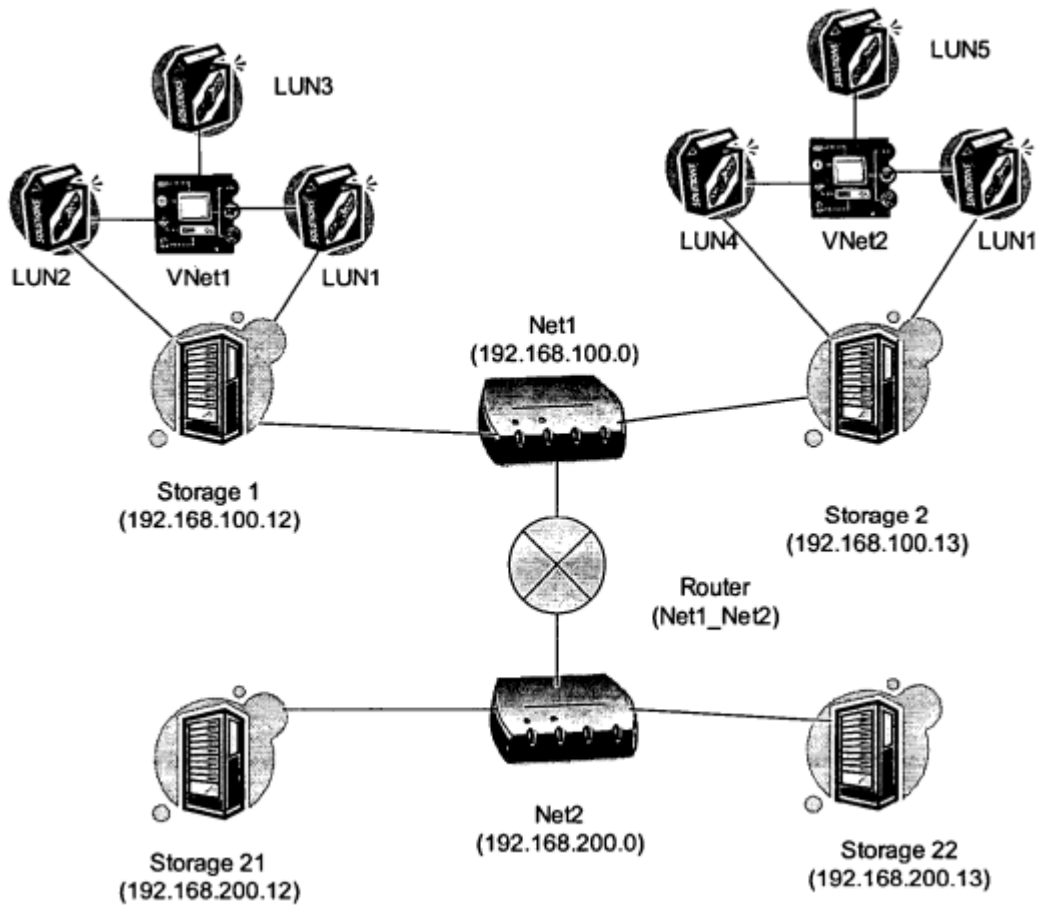
62. On September 3, 2024, the USPTO duly and legally issued the '667 Patent," entitled "Virtual systems management." Attached hereto as Exhibit 5 is a true and correct copy of the '667 Patent.

63. The '667 Patent claims priority through a series of continuations to the '471 Appl. '667 Patent at Cover.

64. The '667 Patent discloses and specifically claims non-abstract, inventive virtual system management devices that incorporate ToutVirtual's control center that allows for platform independence and that provides data storage across one or more virtual system resources over a network. *See id.* at Fig. 2. This control center represents significant improvements over conventional virtualization management tools which were tied to specific CPUs, operating systems, and/or virtualization platforms. The efficiency, flexibility, and scalability of managing diverse virtual environments are improved by "initiating automatic responses to operational situations that influence dynamic demands on the physical and virtual assets." *Id.* at 3:61-65.

65. ToutVirtual solved the problem posed in the prior art when virtualization management required multiple proprietary tools specifically tied to particular CPUs, operating systems, and/or virtualization platforms. This approach was inefficient and increasingly unwieldy as environments diversified. Thus, there was a long-felt need for “more efficient means for managing virtual environments across computer networks” from a single, unified control center. *Id.* at 3:47-49.

66. ToutVirtual addressed this need by incorporating a single control center with various modular virtualization-management components, including a control agent, that identifies resources and assets and initiate automatic policy-driven responses to operational conditions. These integrated, automated, and cross-platform management capabilities provide a significant improvement to the efficiency, scalability, and flexibility of administering the virtual infrastructures on each host machine regardless of the virtualization environment, *e.g.*, VMware, Xen, Microsoft, or IBM (*see id.* at Fig. 4). *Id.* at 3:53-65 (disclosing “methods and apparatus for management of one or more virtual environments regardless of any underlying central processing unit (CPU) specification and regardless of any underlying operating system (OS) or virtualization environment”). As such, multiple virtual environments and virtual resources can be put into and retrieved from virtualized storage. *Id.* at 3:65-4:6; *see id.* at Fig. 15 (reproduced below); *see also id.* at 4:32-42, 17:65-67 (disclosing the control center that “operates as a virtual controller that can mediate between physical server, network, applications, and storage resources”).



Id. at Fig. 15.

67. These automatically responsive control mechanisms were not routine, conventional, or previously known or understood in the art. For each claim of the '667 Patent, the claim elements, individually and in combination, result in a concrete, technological management system that performs various 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,” thereby producing an improvement in computer-network functionality. *Id.* at 4:19-32.

68. The use of a centralized control center with an on-demand ability to provision virtual assets to support automated workflow management, as disclosed in the ’667 Patent, provides a novel and non-obvious solution to the problems with fragmented, proprietary tool-sprawl approaches that characterized prior virtualization administration. For instance, the ’667 Patent overcomes the limitations of platform-locked tools by enabling a single centralized control center to “provide[] a centralized repository for virtual infrastructure configuration change management” and to automatically and efficiently manage multiple different computer network virtualization environments. *Id.* at 17:59-62; *see also id.* at 3:53-4:6, 4:19-42.

69. As shown above, the claims of the Asserted Patents are rooted in computer technology that cover specific hardware architectures with novel applications that improve the management of virtualization environments, such that the claimed solutions allow for a new kind of virtualization system management that was not previously possible.

70. Defendant has been aware of the Asserted Patents prior to the service of this Complaint. Since 2007, several patent applications and issued patents owned by Microsoft Technology Licensing LLC cited the Asserted Patents as prior art pursuant to 35 U.S.C. §§ 102 and 103. For example, Defendant’s U.S. Patent No. 9,870,263, issued on January 16, 2018, cited ToutVirtual’s patent application publication (U.S. Pub. No. 2007/0043860, published on February 22, 2007 and issued as the ’431 Patent) as prior art. *See* Ex. 34, U.S. Patent No. 9,870,263 at Cover (References Cited). As another example, Defendant’s U.S. Patent No. 10,565,021, issued on February 18, 2020, also cited ToutVirtual’s ’762 Patent and its corresponding patent application publication (U.S. Pub. No. 2014/0344462, published on

November 20, 2014) as prior art. *See* Ex. 35, U.S. Patent No. 10,565,021 at Cover (References Cited). On information and belief, Defendant knew of ToutVirtual's patent portfolio and became aware of ToutVirtual's Asserted Patents starting in 2007.

71. ToutVirtual also gave Defendant notice of the Asserted Patents on December 4, 2024, by sending notice letter regarding the licensing of ToutVirtual's patents (the "Notice Letter"). Ex. 36. On December 23, 2024, Defendant acknowledged receipt of the Notice Letter. Ex. 37.

72. Despite having knowledge of the Asserted Patents, at least by the time of the Notice Letter, Defendant continued to infringe the Asserted Patents without taking reasonable measures to avoid infringement.

73. Further discovery may reveal additional evidence of Defendant's knowledge of the Asserted Patents prior to the Notice Letter and service of this Complaint.

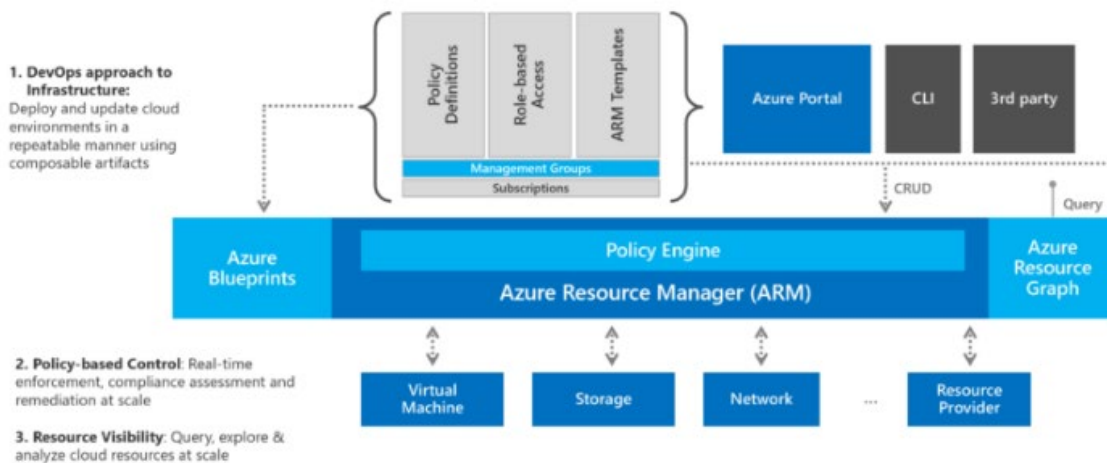
DEFENDANT'S CLOUD COMPUTING TECHNOLOGIES

74. Defendant's cloud computing platform, Azure, provides a set of integrated tools for providing and managing virtualized computer environments. Azure is a unified cloud platform that exposes different functionalities as "services" and/or "subscriptions" to its customers. Examples of virtualized computer environments provided and managed by Azure includes virtual machines and virtual desktops. Azure can be managed using different management programs, such as Azure Resource Manager, Azure Portal, and Windows Admin Center, among others. The following describes examples of functionality that Azure provides to customers.

Azure Resource Manager

75. Azure Resource Manager (“ARM”) is the unified “deployment and management service for Azure[]” and “provides a management layer that helps[] create, update, and delete resources” such as “virtual machines, storage accounts, web apps, databases, and virtual networks” by using “management features like access control, locks, and tags to secure and organize[] resources after deployment.” Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025). This service ensures consistent, automated, and reliable resource management across tools like Azure Portal and other Azure products. See Ex. 44, *Azure Resource Manager*, MICROSOFT, <http://azure.microsoft.com/en-us/get-started/azure-portal/resource-manager> (last visited Aug. 26, 2025).

Azure Governance Architecture



1. Azure Management Groups: Management Groups provide a hierarchical structure for organizing and managing subscriptions. They allow centralized policy assignment and access control across multiple subscriptions.
2. Azure Subscriptions: Subscriptions are containers for Azure resources and services. They serve as the unit of ownership and billing in Azure. Each subscription can have its own policies, access controls, and resource limits.
3. Azure Policy: Azure Policy helps enforce compliance by defining and applying rules and guidelines for resource configurations. It ensures that resources deployed within Azure adhere to specific standards, regulatory requirements, or organizational policies.
4. Azure Blueprints: Azure Blueprints enable the rapid deployment of cloud environments based on predefined templates. Blueprints include a set of artifacts, such as resource groups, policies, and role assignments, that can be easily deployed and managed.
5. Azure Resource Manager: Azure Resource Manager (ARM) is the management layer that handles the creation, update, and deletion of Azure resources. It provides a unified API and control plane for managing resources across subscriptions.
6. Azure Role-Based Access Control (RBAC): RBAC allows fine-grained access control by assigning roles to users, groups, or applications. It ensures that only authorized individuals can perform specific actions on Azure resources.
7. Azure Cost Management + Billing: This service provides cost transparency and optimization capabilities. It helps track resource usage, monitor spending, and implement cost control measures to optimize cloud costs.
8. Azure Monitor: Azure Monitor provides comprehensive monitoring and insights into the performance and health of Azure resources. It enables organizations to track metrics, set alerts, and gain visibility into the operational state of their Azure environment.
9. Azure Security Center: Azure Security Center offers unified security management and threat protection across Azure resources. It provides security recommendations, threat detection, and advanced analytics to help organizations protect their cloud infrastructure.

Ex. 68, *The Architecture of Azure Governance*, IZMIR SADIGOV (July 1, 2023),

<https://www.izmirsadigov.com/2023/07/01/the-architecture-of-azure-governance/>. Azure

Resource Manager includes various functions including:

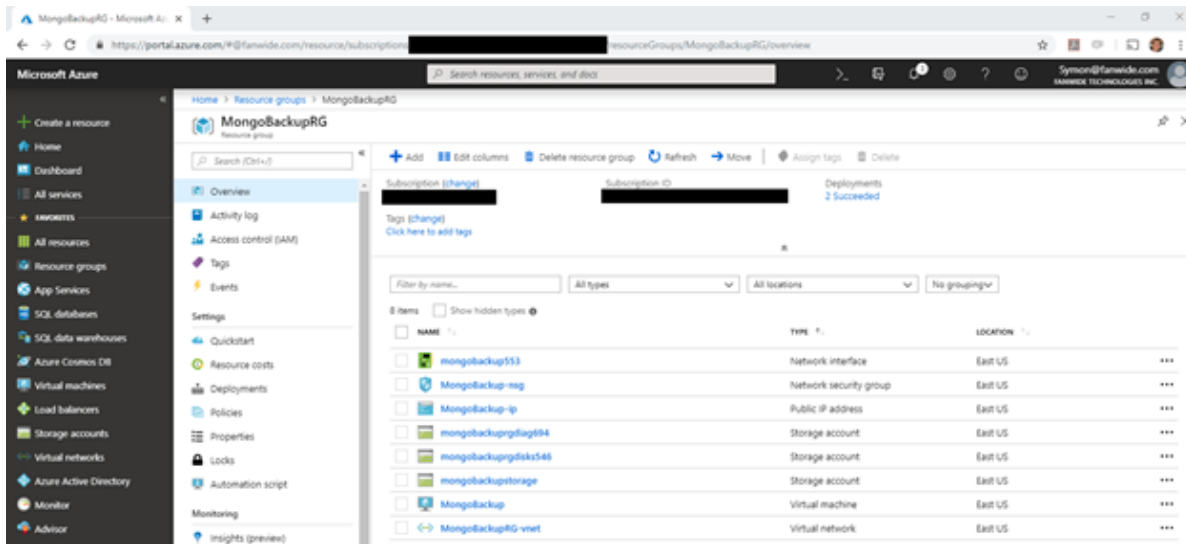
[m]anage your infrastructure through declarative templates rather than scripts[; d]eploy, manage, and monitor all the resources for your solution as a group, rather than handling these resources individually[; r]edeploy your solution throughout the development lifecycle and have confidence your resources are deployed in a consistent state[; d]efine the dependencies between resources so they're deployed in the correct order[; a]pply access control to all services because Azure role-based access control (Azure RBAC) is natively integrated into the management platform[; a]pply tags to resources to logically organize all the resources in your subscription[; and c]larify your organization's billing by viewing costs for a group of resources that share the same tag.

Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025); *see also*

Ex. 69, *Azure Guidance for Secure Isolation*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-government/azure-secure-isolation-guidance> (last updated July 14, 2023).

76. Azure Resource Manager “lets you see and manage everything for this workload’s life cycle in a single operation, including deployment, updating and deleting.” Ex. 70, Symon Perriman, *Introduction to Microsoft Azure Resource Manager (ARM)*, VIRTUALIZATION DOJO, https://virtualizationdojo.com/hyper-v/azure-resource-manager/#Centralized_Management_with_Azure_Resource_Manager_ARM (last updated Feb. 15, 2019). Azure Resource Manager also “gives organizations the ability to tag any resource so that it can quickly be discovered, along with its related components[]” and “can categorize their resources to make them easier to sort by resource group, type, location, development state, organizational department, or cost center.” *Id.*

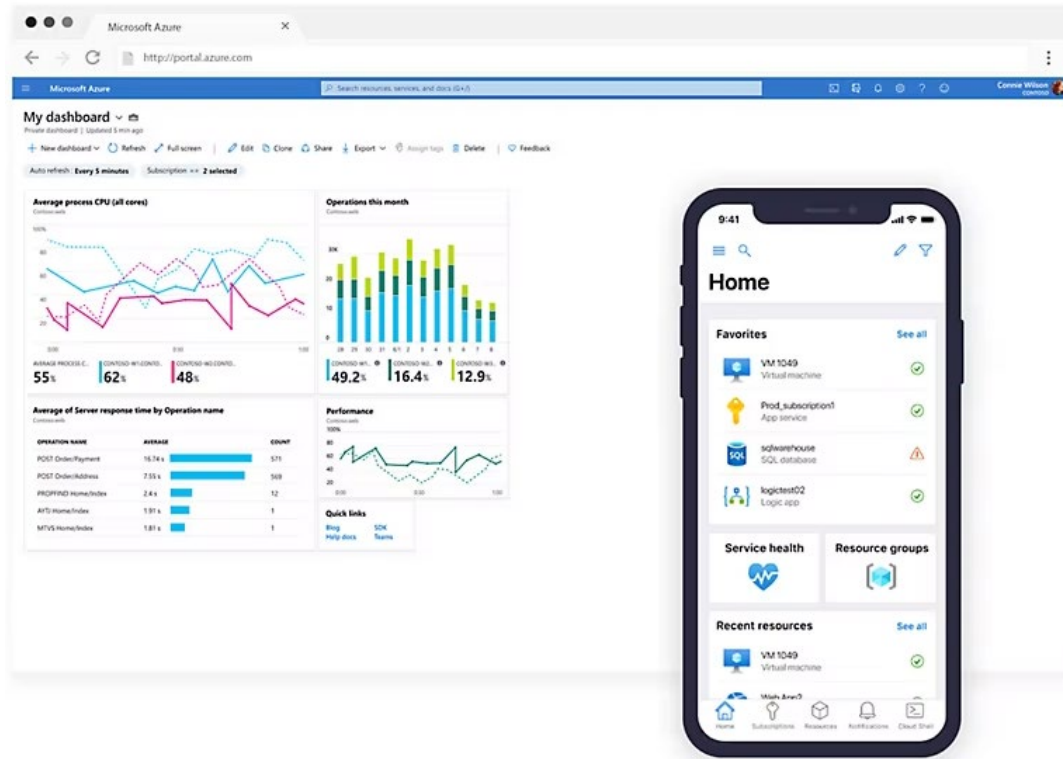
77. For example, when deploying a new application in Azure through Azure Resource Manager, “[a]ll of the core components of cloud infrastructure . . . such as virtual machines, networks, network interfaces, IP addresses, and storage accounts” are “organized into an Azure Resource Group, which is the logical management container for the related components of this distributed application.” *Id.* As shown below, Azure Resource Group “was created as a backup from a production MongoDB database in a different geographic region[]” and “includes a virtual machine, virtual network, storage account, public IP address, network interface and network security group.” *Id.*;



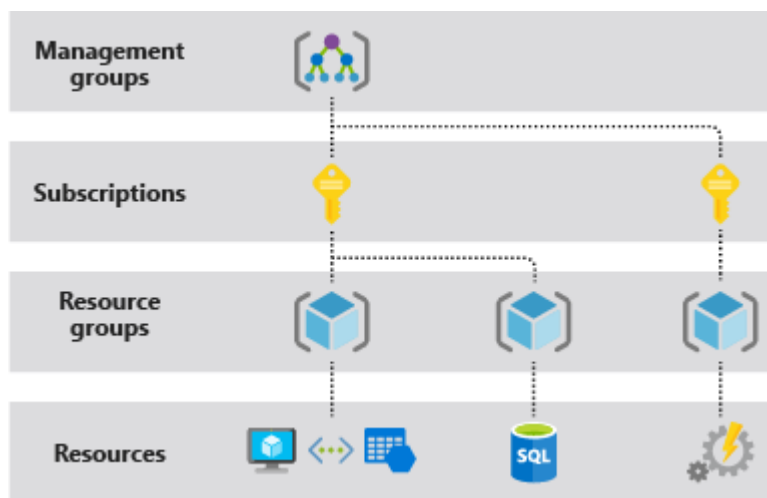
see *id.*

Azure Portal

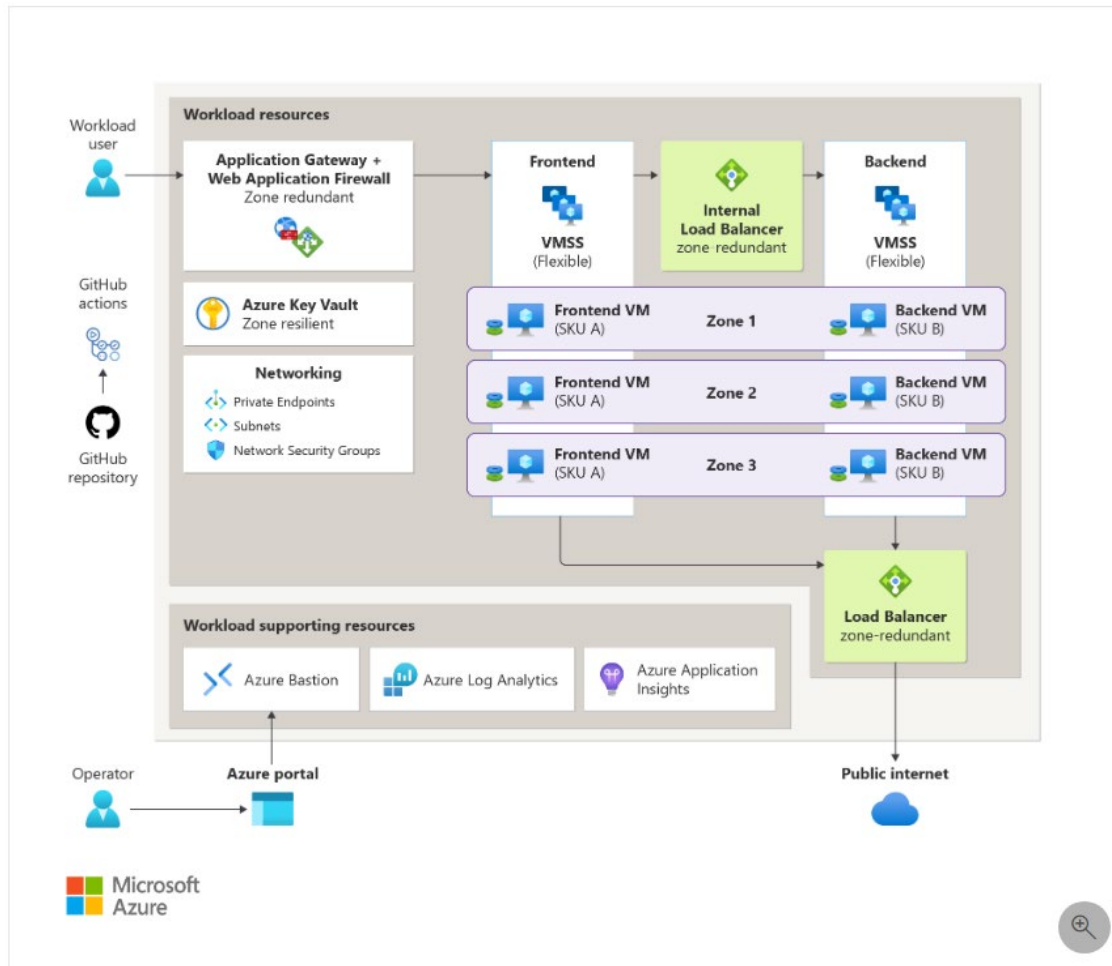
78. Azure Portal is a unified, web-based console for creating, managing, and monitoring Azure resources, ranging from simple web apps to complex deployments through a graphical interface with integrated support. See Ex. 39, *What is the Azure Portal?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-portal/azure-portal-overview> (last updated Sept. 19, 2024) (“For example, [users] can set up a new database, increase the compute power of [] virtual machines, and monitor [] monthly costs.”); Ex. 71, *Manage Azure Resources by Using the Azure Portal*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/manage-resources-portal> (last updated Sept. 26, 2024) (“[U]se Azure Portal with Azure Resource Manager to manage [] Azure resources.”).



See Ex. 72, *Microsoft Azure Portal*, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/get-started/azure-portal> (last visited Aug. 5, 2025) (“View and manage all of your applications in one unified hub—including web apps, databases, virtual machines, virtual networks, storage, and Visual Studio team projects.”);



Ex. 39, *What is the Azure Portal?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-portal/azure-portal-overview> (last updated Sept. 19, 2024);



Ex. 73, *Azure Virtual Machines Baseline Architecture*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/architecture/virtual-machines/baseline> (last visited Aug. 5, 2025).

Windows Admin Center

79. Windows Admin Center, like Azure Portal, allows customers to manage Hyper-V virtual machines, hosts, and clusters across Azure and on-premises environments through a browser-based interface on a separate computer system. Customers perform tasks, such as provisioning, monitoring, live migration, and configuring high availability, from a centralized

dashboard. *See* Ex. 40, *Windows Admin Center Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/overview> (last updated Aug. 27, 2024). For example, the Virtual Machines tool in Windows Admin Center can “manage Hyper-V hosts running Windows Server, either installed with Desktop Experience or installed as Server Core.” Ex. 74, *Manage Virtual Machines by Using Windows Admin Center*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/use/manage-virtual-machines> (last updated Feb. 10, 2025).

80. Using Windows Admin Center with Azure Portal allows users to manage the Windows Server operating system of users’ Arc-enabled servers, known as hybrid machines. *See* Ex. 75, *Manage Azure Arc-enabled Servers using Windows Admin Center in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/azure/manage-arc-hybrid-machines?culture=en-us&country=us> (last updated Nov. 6, 2024).

With Windows Admin Center extension in Azure, [clients] get the management, configuration, troubleshooting, and maintenance functionality for managing [clients’] Arc-enabled servers in the Azure Portal. Windows Server infrastructure and workload management no longer requires [clients] to establish line-of-sight or Remote Desktop Protocol (RDP)—it can all be done natively from the Azure Portal. Windows Admin Center provides tools that [clients would] normally find in Server Manager, Device Manager, Task Manager, Hyper-V Manager, and most other Microsoft Management Console (MMC) tools.

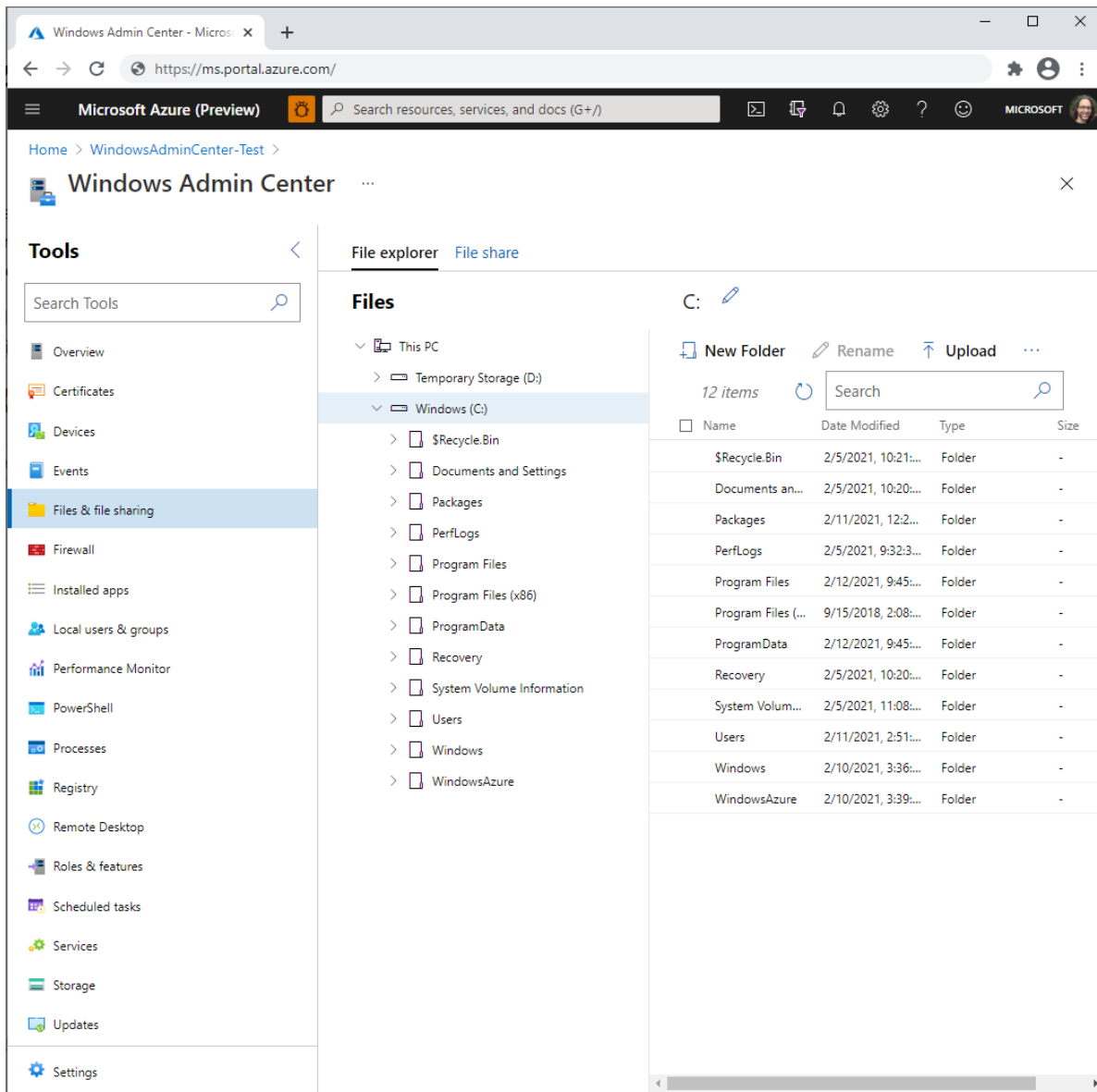
Id. When paired with Azure Arc, the platform extends management and policy enforcement to non-Azure infrastructure by projecting servers and virtual machines into the Azure environment. *See* Ex. 41, *What is Azure Arc?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/overview> (last updated July 24, 2025); Ex.

42, *Azure Arc Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/overview> (last updated Aug. 26, 2025) (“Azure Arc simplifies governance and management by delivering a consistent multicloud and on-premises management platform.”).

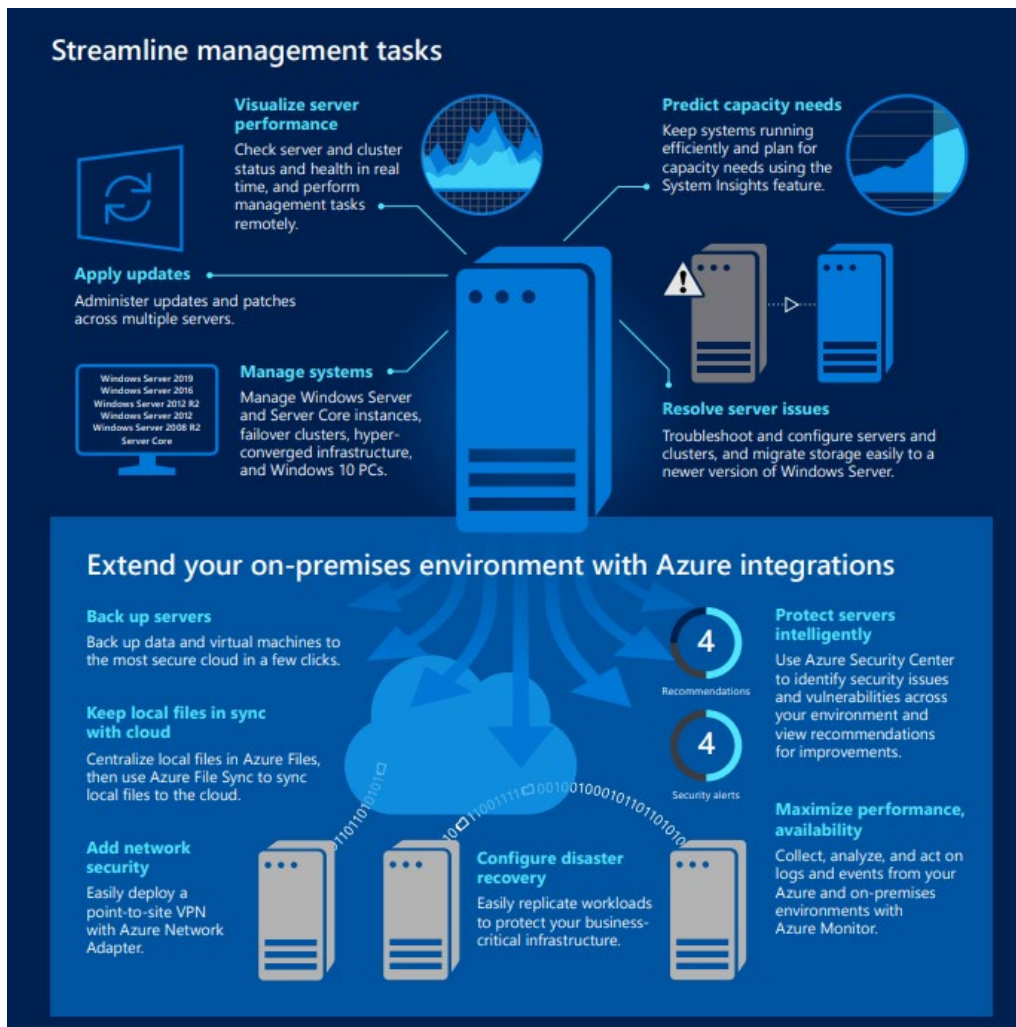
81. Users can configure the Windows Admin Center such that users can:

[g]ain greater oversight of your Windows Servers for seamless and granular virtual machine management with Windows Admin Center in the Azure Portal[, p]erform maintenance tasks with ease using the familiar Windows Admin Center UI[, m]anage all your server environments with familiar yet modernized tools, such as the reimagined Server Manager and streamlined Microsoft Management Console tools, from a single, browser-based, graphical user interface.

Ex. 76, *Windows Admin Center*, MICROSOFT, <https://www.microsoft.com/en-us/windows-server/windows-admin-center> (last visited Aug. 25, 2025);



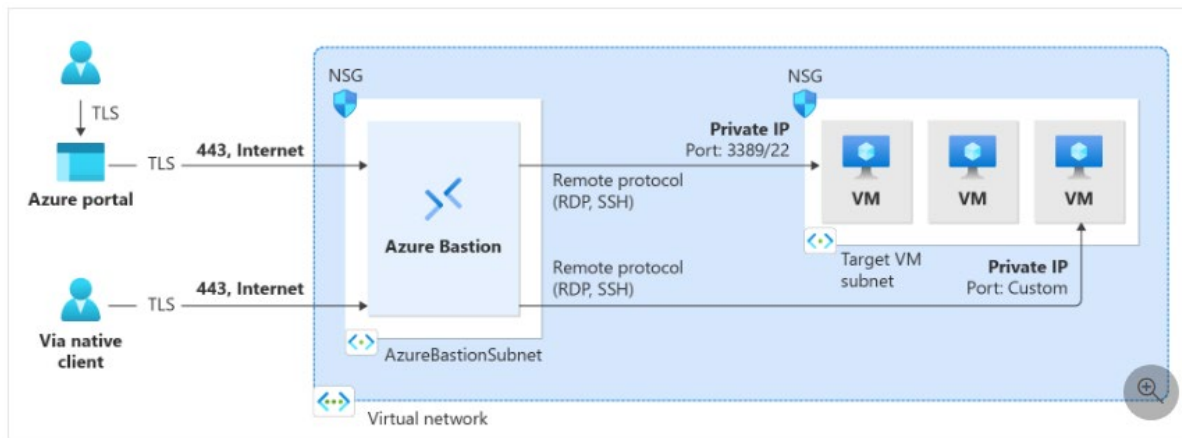
see Ex. 77, *Manage a Windows VM using Windows Admin Center in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/azure/manage-vm> (last updated June 18, 2025) (“You can now use Windows Admin Center in the Azure Portal to manage the Windows operating system inside an Azure [Virtual Machine]. Manage operating system functions from the Azure Portal and work with files in the [Virtual Machine] without using Remote Desktop or PowerShell.”);



Ex. 78, *Reimagine server management with Windows Admin Center*, <https://cdn-dynmedia-1.microsoft.com/is/content/microsoftcorp/microsoft/final/en-us/microsoft-brand/documents/wac-infographic-190816-02.pdf?culture=en-us&country=us> (last visited Aug. 25, 2025) (“Choose from a curated list of Azure services and simplified configuration to easily integrate your on-premises server with Azure Once connected, use smart hyperlinks to view your server’s connected Azure resources in the Azure Portal Unlock additional third-party capabilities from partners for hardware, application management, and monitoring.”).

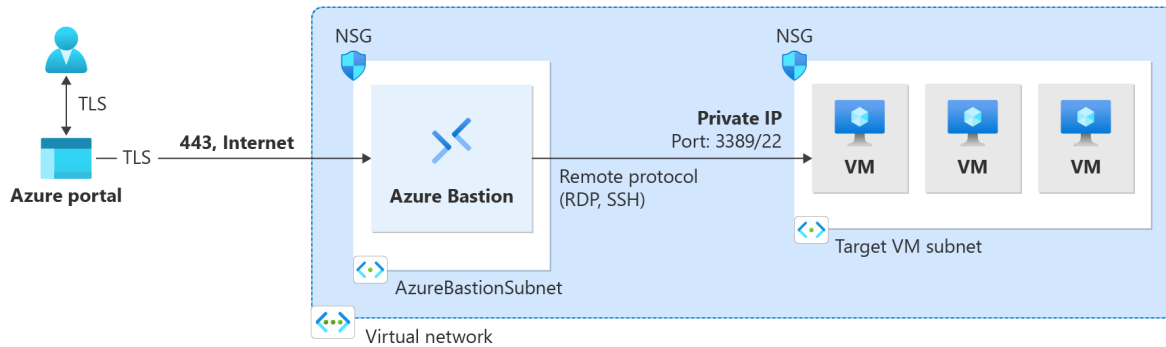
Azure Bastion

82. Azure Bastion is a fully managed Platform-as-a-Service (PaaS) solution that provides secure connection to Azure Virtual Machines through Azure Portal, without exposing public IP addresses, agents, or special client software. Azure Bastion offers multiple deployment architectures and features, depending on the SKU and option configurations the user selects. See Ex. 56, *What is Azure Bastion?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/bastion/bastion-overview> (last updated Mar. 14, 2025).



Id. (Azure Bastion is “a fully managed PaaS service that [users] provision to securely connect to virtual machines via private IP address.”).

83. An Azure Resource Manager template (“ARM Template”) is “a JavaScript Object Notation (JSON) file that defines the infrastructure and configuration for your project.” Ex. 79, *Quickstart: Deploy Azure Bastion to a virtual network by using an ARM template*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/bastion/quickstart-host-arm-template> (last updated Mar. 31, 2025). The ARM Template “creates a Bastion deployment with a resource group, a virtual network, network security group (NSG) settings, an AzureBastionSubnet subnet, a bastion host, and a public IP address resource that’s used for the bastion host.” *Id.*;



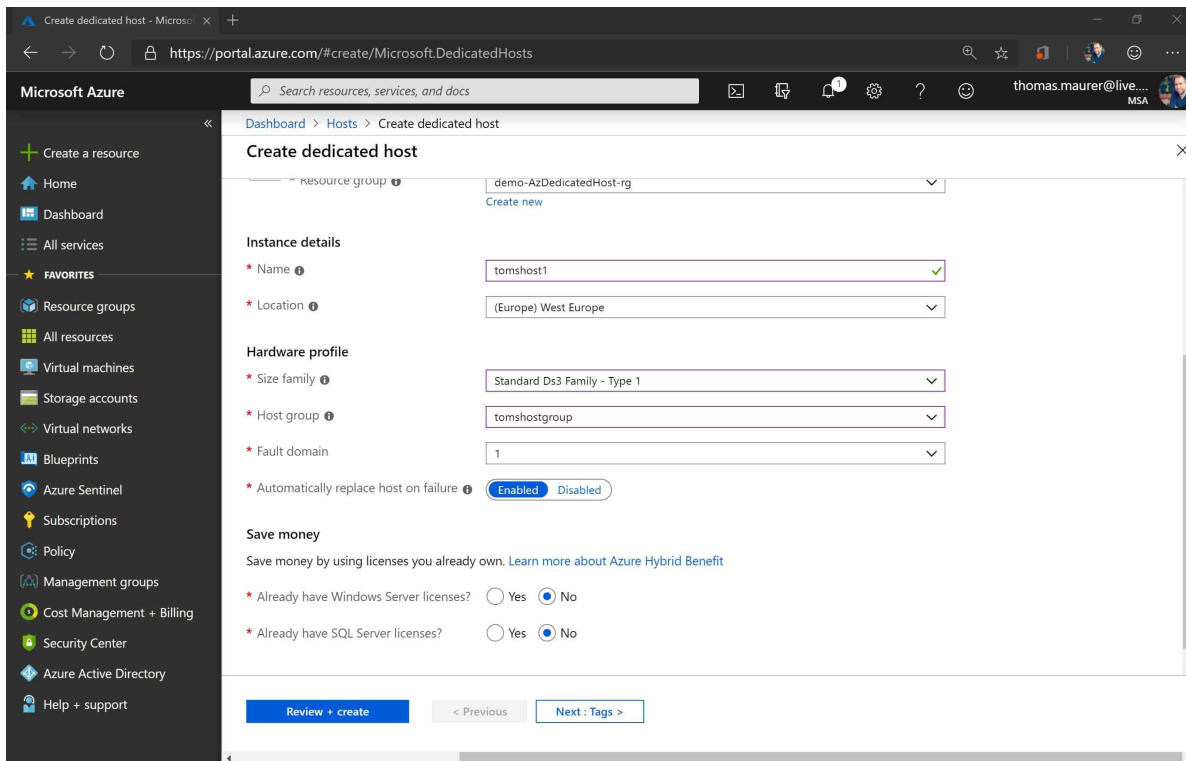
id. (last updated Mar. 31, 2025) (An ARM Template uses declarative syntax, in which “you describe your intended deployment without writing the sequence of programming commands to create the deployment[.]” and “[b]y default, this template creates a Bastion deployment[.]”); *see also* Ex. 80, *Quickstart: Create and deploy ARM templates by using the Azure Portal*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/templates/quickstart-create-templates-use-the-portal> (last updated July 24, 2025).

Azure Kubernetes Service

84. Azure Kubernetes Service (AKS) is a managed Kubernetes platform that simplifies containerized application management by automating tasks like provisioning, upgrading, and scaling clusters. *See* Ex. 61, *What is Azure Kubernetes Service (AKS)?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/aks/what-is-aks> (last updated June 9, 2025). AKS gets rid of the need for manual integration of applications required when installing such applications (*i.e.*, getting the right certificates, node provisioning, scheduling) by providing a single platform for applications, enabling requests to the AKS cluster from inside and outside of the cluster. *See id.* AKS has nodes that “are the underlying virtual machines (VMs) that run [the] applications.” Ex. 81, *Core Concepts for Azure Kubernetes Service (AKS)*, <https://learn.microsoft.com/en-us/azure/aks/core-aks-concepts> (last updated June 4, 2025).

Azure Dedicated Host

85. Azure Dedicated Host provides dedicated servers within Azure data centers that host one or more virtual machines exclusively for Azure clients. See Ex. 45, *Azure Dedicated Host*, MICROSOFT, <https://azure.microsoft.com/en-us/products/virtual-machines/dedicated-host> (last visited Aug. 26, 2025). Azure Dedicated Host offers improved compliance, isolation, performance control, and predictable maintenance by giving customers visibility into and control over the underlying hardware and maintenance schedules. See Ex. 46, *Azure Dedicated Hosts*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/virtual-machines/dedicated-hosts> (last updated Aug. 22, 2024) (Azure Dedicated Hosts “are the same physical servers used in our data centers, provided instead as a directly accessible hardware resource.”). Azure Dedicated Host is “a new Azure service which enables customers to run Windows and Linux virtual machines on single dedicated physical servers.” Ex. 82, Thomas Maurer, *Azure Dedicated Host for your Azure VMs*, THOMAS MAURER (Aug. 6, 2019), <https://www.thomasmaurer.ch/2019/08/azure-dedicated-host-for-your-azure-vm/>;



Id.

86. “Usually, the Azure host is used by multiple tenants, and the virtual machines are isolated using a multi-tenant hypervisor;” however with Azure Dedicated Host, “the physical server only runs workloads from one tenant/customer” which “gives customers the visibility and control on what physical hardware their virtual machines are running, and it allows to address corporate compliance and regulatory requirements.” *Id.* Users can provision Azure Dedicated Hosts “within a region, availability zone, and fault domain” and then place virtual machines directly into the provisioned hosts “in whatever configuration” that best meets users’ needs. Ex. 46, *Azure Dedicated Hosts*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/virtual-machines/dedicated-hosts> (last updated Aug. 22, 2024).

87. Azure Dedicated Hosts are still regular virtual machines that can be deployed using ARM Templates. See Ex. 83, Zachary Cavanell, *Set up and Manage Azure Dedicated*

Host, MICROSOFT MECHANICS BLOG (Dec. 12, 2022),

<https://techcommunity.microsoft.com/blog/microsoftmechanicsblog/set-up-and-manage-azure-dedicated-host/3694757> (“Users can check the health of the hosts using Azure Monitor to set up alerts on the host to get timely notifications either from the Azure Portal or by using an ARM Template as part of automated provisioning.”).

Azure Monitor

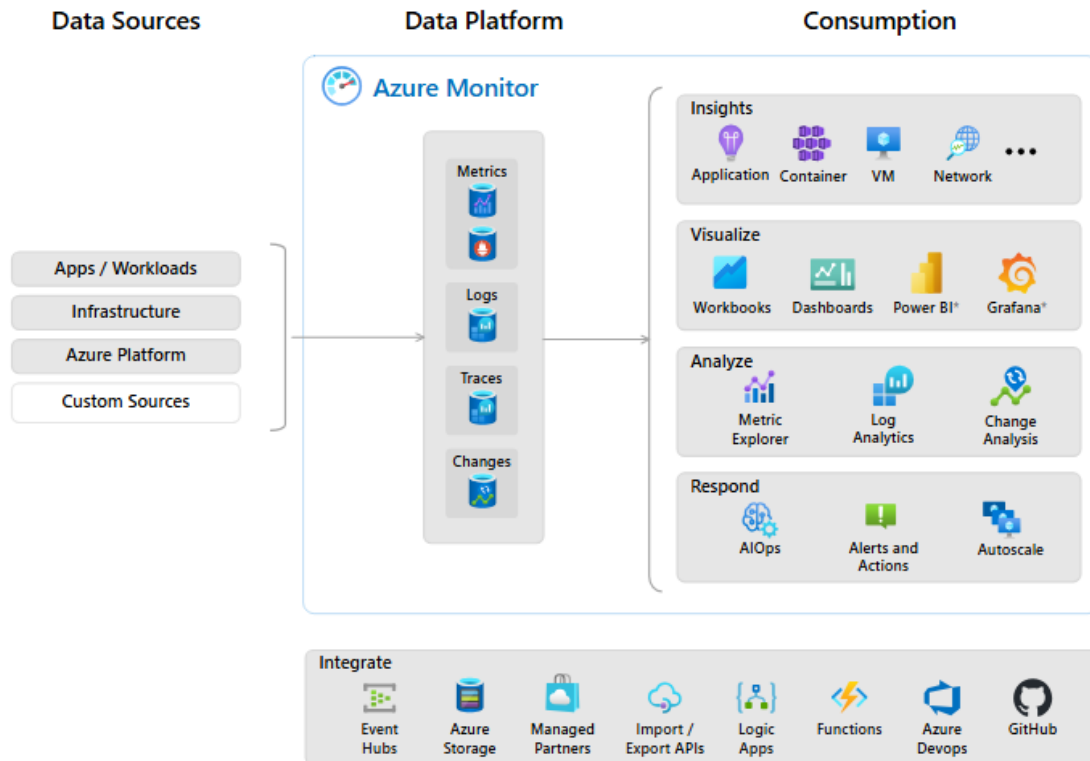
88. Azure Monitor is a comprehensive monitoring solution for collecting, analyzing, and responding to monitoring data from the cloud and on-premises environments.

Azure Monitor provides a single unified hub for all monitoring and diagnostics data in Azure. You can use it to get visibility across your resources. With Azure Monitor, you can find and fix problems, optimize performance, and understand customer behavior.

- **Data collection:** Azure Monitor collects data from [various data sources](#), including: Application, Container, Guest operating system, Azure resource, Azure subscription, Azure tenant, and Azure resource changes. Additionally, Azure Monitor can collect log data from any REST client using the [Data Collector API](#).
- **Insights:** Availability, performance, usage, and health of your web applications are monitored using [Application Insights](#). Further, you can use the insights features of Azure Monitor to monitor your:
 - [Applications](#)
 - [Containers](#)
 - [Virtual machines](#)
 - [Networks](#)
- **Visualization:** Visualizing your monitoring data will greatly help you get an overview of the current posture of your cloud real estate. Make use of visualizations with built-in or custom charts and tables, workbooks, dashboards, or Power BI.
 - Read more about [best practices for analyzing and visualizing data](#).
- **Response:** An effective monitoring strategy often requires an actionable response to critical events in the collected data. You can automate actions by using the built-in [Alerts](#) or [Autoscale](#) capabilities.

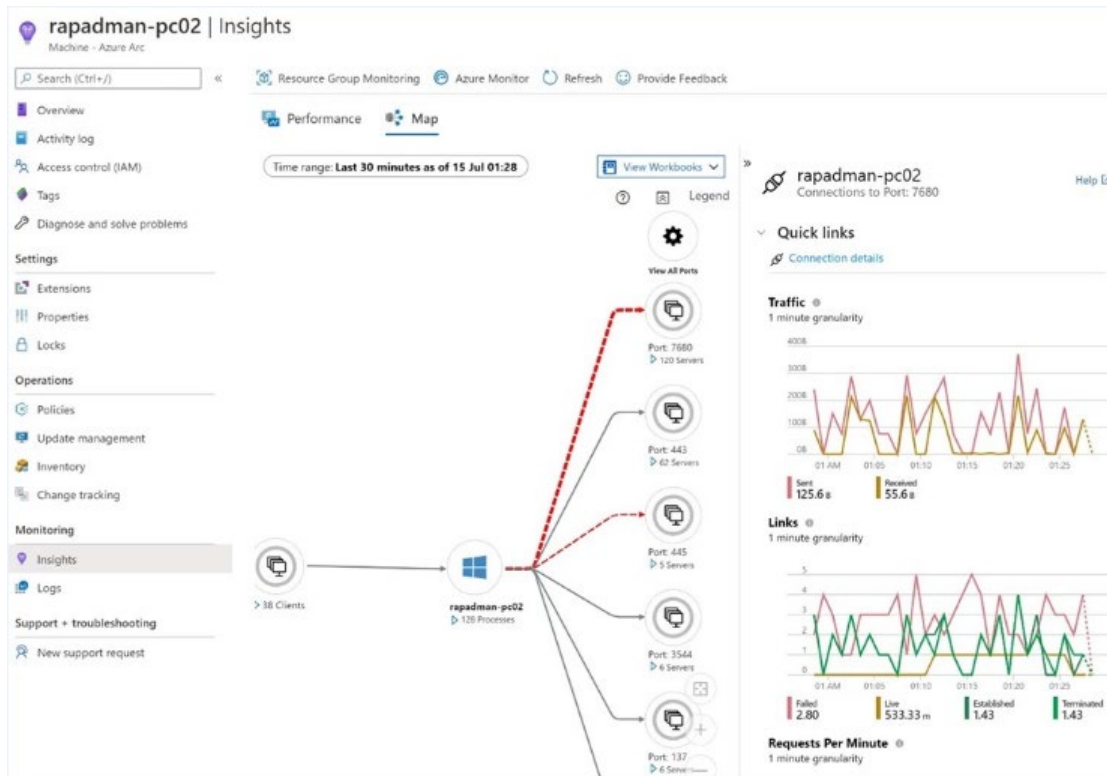
See Ex. 84, Monitoring and Reporting in Azure, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/cloud-adoption-framework/ready/azure-setup-guide/monitoring-reporting?tabs=AzureMonitor> (last updated Mar. 20, 2023). Below is a high-level architecture view of Azure Monitor:



See Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/overview> (last updated Aug. 26, 2025).

89. Azure Monitor also includes Azure Arc-enabled servers that function in heterogeneous environments for management and automation.

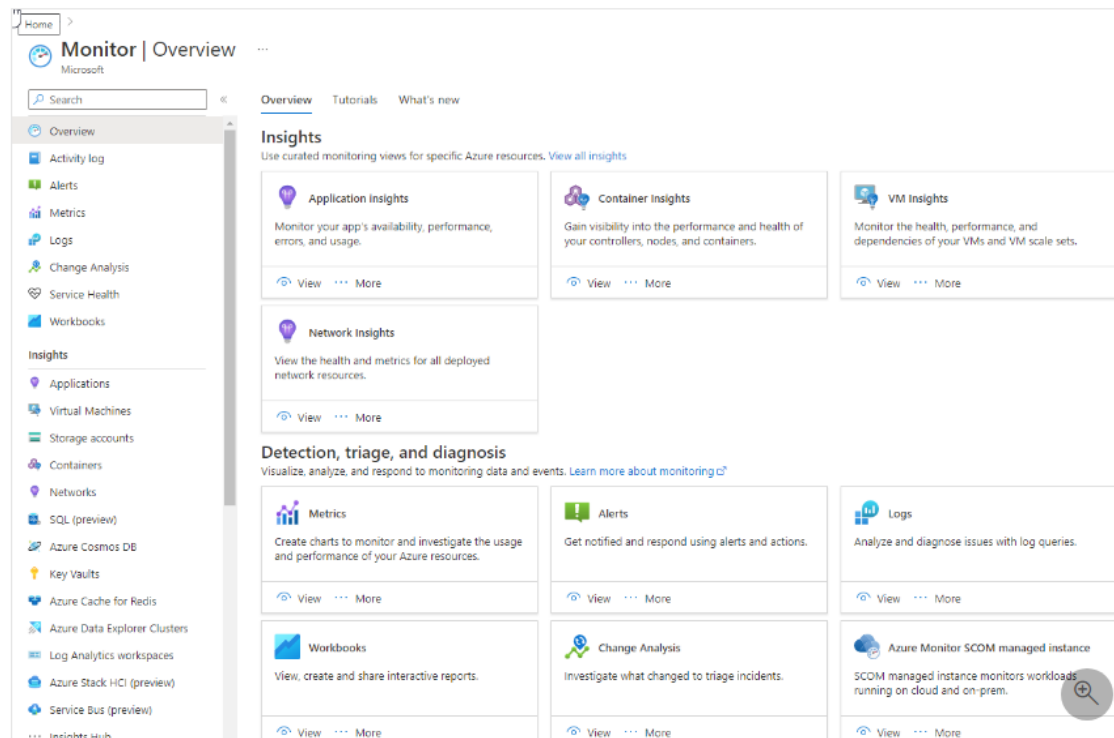


See Ex. 85, Austin Li, *Monitoring Azure Arc Enabled Kubernetes and Servers*, MICROSOFT BLOG (July 28, 2020), <https://azure.microsoft.com/en-us/blog/monitoring-azure-arc-enabled-kubernetes-and-servers/>; see also Ex. 86, *What are Azure Arc-Enabled Data Services?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/data/overview> (last updated July 24, 2025); Ex. 87, *What is Azure Arc-Enabled Kubernetes?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/kubernetes/overview> (last updated June 19, 2025).

90. Azure Monitor, via Azure Resource Manager and Azure Portal, executes inventory metric features, and collects, stores, and visualizes performance data from compute workloads and displays real-time and historical metrics for CPU, memory, and storage usage through Azure Monitor Metrics Explorer dashboards.

The Azure portal

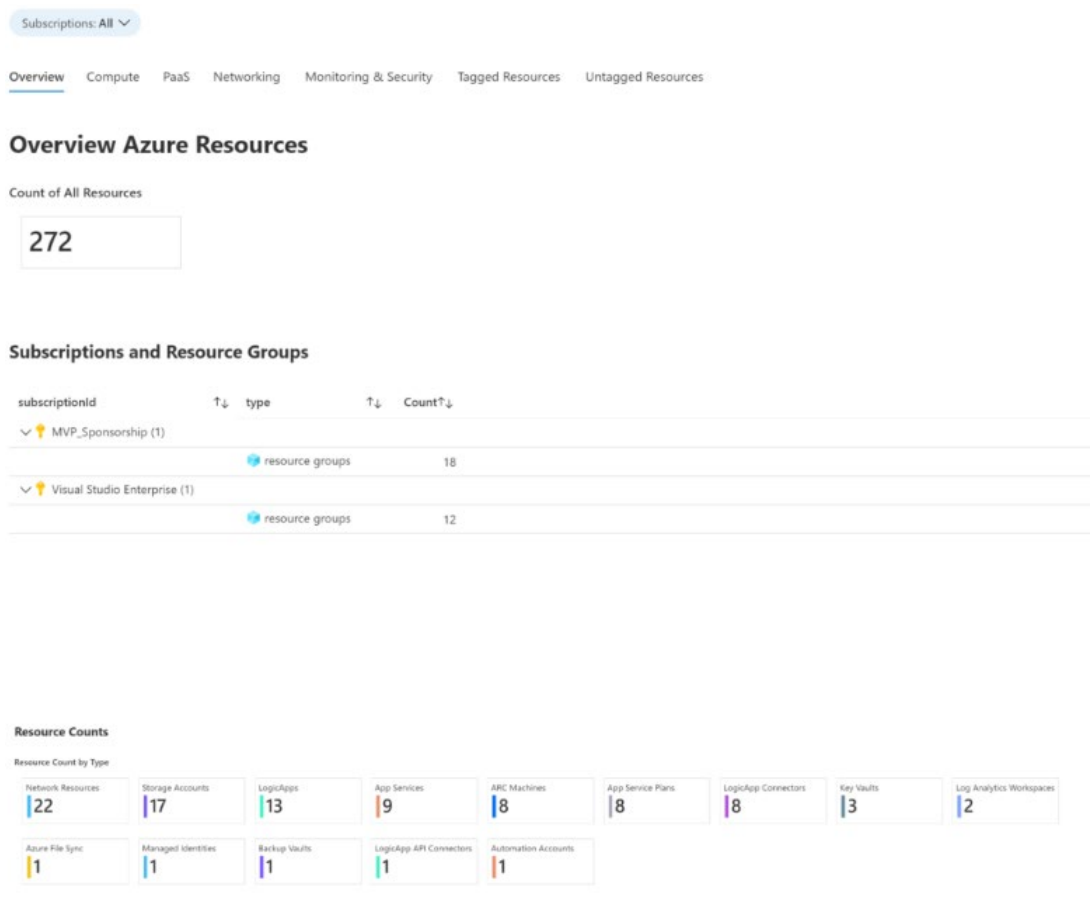
The Azure portal is a web-based, unified console that provides an alternative to command-line tools. With the Azure portal, you can manage your Azure subscription using a graphical user interface. You can build, manage, and monitor everything from simple web apps to complex cloud deployments in the portal. The *Monitor* section of the Azure portal provides a visual interface that gives you access to the data collected for Azure resources and an easy way to access the tools, insights, and visualizations in Azure Monitor.



See Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/overview> (last updated Aug. 26, 2025).

91. Azure Monitor can provide “complete monitoring for your resources and applications running in other clouds including Amazon Web Services (AWS) and Google Cloud Platform (GCP).” Ex. 97, *Multicloud Monitoring with Azure Monitoring*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/best-practices-multicloud> (last updated May 21, 2025). Enabling the Inventory solution “allows you to query for all your cloud resources through Azure Resource Graph, such as querying to find all Azure and AWS resources with a specific tag.” Ex. 105, *View Multicloud Inventory with the Multicloud Connector Enabled by Azure Arc*, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/azure-arc/multicloud-connector/view-multicloud-inventory> (last updated Nov. 19, 2024). “The Inventory solution of the multicloud connector shows an up-to-date view of your resources from other public clouds in Azure, providing you with a single place to see all your cloud resources.” *Id.*;



Ex. 106, Billy York, *The Ultimate Azure Inventory Dashboard*, CLOUD, SYSTEMS MANAGEMENT, AUTOMATION (Oct. 27, 2020), <https://www.cloudsma.com/2020/10/ultimate-azure-inventory-dashboard/>;

Azure facilitation

Gathering capacity data and forecasting demand: [Azure Monitor](#) enables you to collect and analyze telemetry data from your applications and infrastructure. It supports the monitoring of various Azure resources, including virtual machines, containers, and storage accounts. Key tools include [Application Insights](#) and [Log Analytics](#). By configuring data collection and defining metrics and logs that you want to monitor, you can gather valuable workload data for analysis. For [network monitoring](#), combine Azure Monitor with Azure Network Watcher, Azure Monitor network insights, and Azure ExpressRoute monitoring.

Azure Monitor allows you to analyze historical data and apply forecasting techniques to predict future workload trends and capacity requirements. You can generate forecasts that can help you with capacity planning. These forecasts help estimate server capacity, network bandwidth, storage capacity, and other resource needs by using predicted demand patterns.

Determining resource requirements: Because they provide a wide range of configurations, Azure tools and services can help you define technical requirements. You can align your workload requirements with available Azure resources, ensuring that you select the appropriate components and settings to meet your functional needs.

Understanding resource limitations: Azure provides documentation and resources to help you understand the performance limitations of various [Azure services and SKUs](#). Taking into consideration these limitations can help you make informed design decisions and optimize your workload architecture for performance and cost-effectiveness.

Azure provides scalability options like autoscaling, which can automatically adjust resources based on workload demand. You can scale vertically by increasing the capacity of a resource by using a larger virtual machine size, or you can scale horizontally by adding new instances of a resource. Azure services that have autoscaling capabilities can automatically scale out to ensure capacity during workload peaks and return to normal when the load decreases. There are scaling limits within your configuration and services that you should be aware of. You can read the documentation or run tests. Azure provides tools like [Azure Load Testing](#), which can simulate load and different usage patterns to help you gather relevant data about your workload.

Understand an existing workload

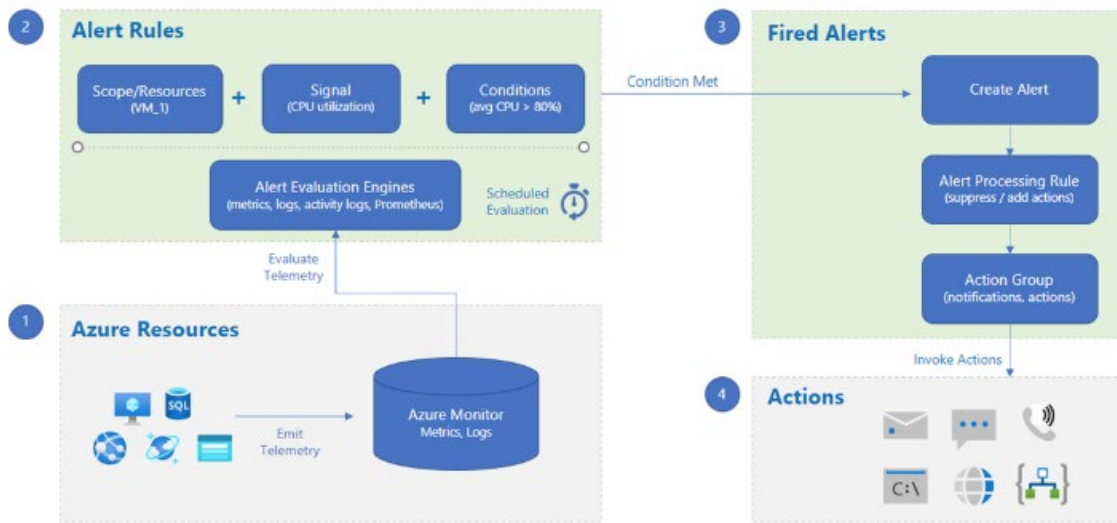
Understanding an existing workload for capacity planning involves analyzing historical data related to how the workload utilizes resources. It encompasses metrics like resource utilization, performance data, and workload patterns. This understanding ensures efficient resource allocation, translates business goals into technical requirements, and helps identify potential bottlenecks.

- *Understand the data:* Review the available historical data and understand its structure, format, and relevance to capacity planning. The review might include resource utilization metrics, workload patterns, performance metrics, and other relevant data points. Understand the business processes and the criticality of the applications. Identify the peak usage times, user load, transaction rates, and other relevant metrics.
- *Clean and preprocess the data:* Prepare the data for analysis by removing any inconsistencies, errors, or outliers. Preparing the data might involve data cleaning techniques like data imputation, the handling of missing values, or normalization.
- *Identify key metrics:* Identify the metrics that are relevant for capacity planning. Metrics can include CPU utilization, memory usage, network throughput, and response times.
- *Identify bottlenecks:* Measure throughput and response times to identify the specific components of your system that might become bottlenecks as the workload grows. Requests per second and database CPU usage can be good indicators of capacity.
- *Visualize the data:* Create visualizations, like charts or plots, to gain better insights into historical data. Visualizations can help you identify patterns, trends, and anomalies in data to give you a clearer understanding of workload behavior.

See Ex. 108, *Recommendations for Capacity Planning*, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/well-architected/performance-efficiency/capacity-planning> (last updated Nov. 15, 2025).

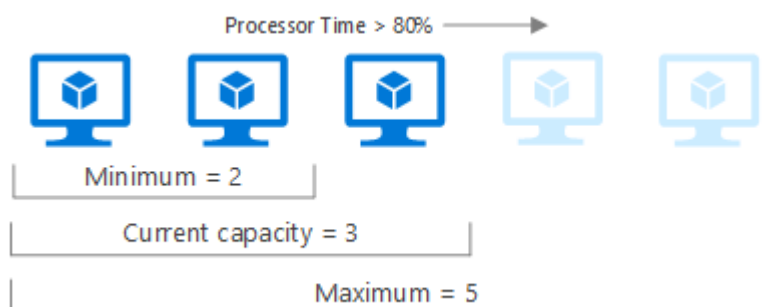
93. Additionally, Azure Monitor alerts helps to “detect and address issues . . . by proactively notifying you when Azure Monitor data indicates there might be a problem with your infrastructure or application.” Ex. 109, *What are Azure Monitor Alerts?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/alerts/alerts-overview> (last updated May 19, 2025);



Id.; see also Ex. 110, *Monitor API Management*, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/api-management/monitor-api-management> (last updated July 11, 2025) (Azure Monitor “collects and aggregates metrics and logs from your system to monitor availability, performance, and resilience, and notify you of issues affecting your system.”)

94. Azure Monitor’s Autoscale, which enables automatic scaling of virtual and network resources based on demand, can also be accessed through Azure Portal. See Ex. 111, *Get Started with Autoscale in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-get-started> (last updated Nov. 1, 2024).



See Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/overview> (last updated Aug. 26, 2025). Autoscale is a service that can “automatically add and remove resources according to the load on [the] application.” Ex. 91, *Overview of Autoscale in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-overview> (last updated Nov. 1, 2024).

95. For example, Autoscale’s provisioning feature creates rules that use the inventory metric features. See Ex. 92, *Understand Autoscale Settings*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-understanding-settings> (last updated Feb. 13, 2025); Ex. 93, Mbong Ekwoe, *Enforcing Speed and Control with Resource Graph and Azure Monitor*, INE (July 31, 2019), <https://ine.com/blog/enforcing-speed-and-control-with-resource-graph-and-azure-monitor>;

Autoscale concepts

- A resource can have only *one* autoscale setting.
- An autoscale setting can have one or more profiles, and each profile can have one or more autoscale rules.
- An autoscale setting scales instances horizontally, which is *out* by increasing the instances and *in* by decreasing the number of instances.
- An autoscale setting has a maximum, minimum, and default value of instances.
- An autoscale job always reads the associated metric to scale by, checking if it has crossed the configured threshold for scale-out or scale-in. You can view a list of metrics that autoscale can scale by at [Azure Monitor autoscaling common metrics](#).
- All thresholds are calculated at an instance level. An example is "scale out by one instance when average CPU > 80% when instance count is 2." It means scale-out when the average CPU across all instances is greater than 80%.
- All autoscale failures are logged to the activity log. You can then configure an [activity log alert](#) so that you can be notified via email, SMS, or webhooks whenever there's an autoscale failure.
- Similarly, all successful scale actions are posted to the activity log. You can then configure an activity log alert so that you can be notified via email, SMS, or webhooks whenever there's a successful autoscale action. You can also configure email or webhook notifications to get notified for successful scale actions via the notifications tab on the autoscale setting.

Ex. 94, *Best Practices for Autoscale*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-best-practices> (last updated Nov. 7, 2024).

Resources generate metrics that are used in Autoscale rules to trigger scale events. See Ex. 91,

Overview of Autoscale In Azure, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-overview> (last updated Nov. 1, 2024). (“Virtual machine scale sets use telemetry data from Azure diagnostics agents to generate metrics.”). A server’s processor then receives an Autoscale provisioning request through Azure Monitor, which continuously collects metrics from the server and triggers scaling actions based on the pre-defined rules like CPU usage, memory utilization, or custom metrics; when the metrics meet certain thresholds the provisioning request causes the server to automatically scale up or scale down to accommodate the workload. *Id.*

Azure Metrics Explorer

96. Azure Monitor Metrics Explorer is a component of Azure Portal that investigates the health and utilization of resources by plotting charts, visually correlates trends, and investigates spikes and dips in metrics values. *See Ex. 63, Analyze Metrics With Azure Monitor Metrics Explorer*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/metrics/analyze-metrics> (last updated Apr. 17, 2025).

Azure Resource Logs

97. Azure Resource Logs “provide insight into operations that are performed in an Azure resource” and “can include information about the operations performed on the resource, the status of those operations, and other details that help [users] understand the health and performance of the resource.” *Ex. 95, Resource Logs in Azure Monitor*, <https://learn.microsoft.com/en-us/azure/azure-monitor/platform/resource-logs?tabs=log-analytics> (last updated July 18, 2025). “Azure resources generate resource logs automatically” and can be accessed, via Azure Monitor, to “provide insight into the detailed operation of an Azure resource” and to monitor the health and availability of an Azure resource. *Ex. 96,*

Collect and Analyze Resource Logs from an Azure Resource in Azure Monitor, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/platform/tutorial-resource-logs> (last updated July 18, 2025).

Azure Monitor Activity Logs and Azure Lighthouse

98. Azure Monitor Activity Log and Azure Lighthouse record user activity and support auditing and delegated access. These services target organizations that operate cloud or hybrid compute environments and provide centralized management within the Azure infrastructure ecosystem. *See* Ex. 65, *Activity Log in Azure Monitor*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/platform/activity-log?tabs=log-analytics> (last updated July 18, 2025) (Azure Monitor Activity Log “is a platform log for control plane events from Azure resources[]” and “includes information like when a resource is modified or when a deployment error occurs.”); Ex. 66, *What is Azure Lighthouse?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/lighthouse/overview> (last updated Jan. 17, 2025) (Azure Lighthouse “enables multitenant management with scalability, higher automation, and enhanced governance across resources[]” and “helps service providers efficiently build and deliver managed services.”).

Azure Advisor

99. Azure Advisor, accessible via Azure Portal, “is a digital cloud assistant” that generates forecasts based on usage trends and identifies capacity limits by analyzing resource configuration and usage telemetry. *See* Ex. 64, *Introduction to Azure Advisor*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/advisor/advisor-overview> (last updated Jan. 13, 2025). Azure Advisor then issues optimization recommendations that identify size of workloads and improve resource allocation including “the cost effectiveness, performance,

reliability, and security of [] Azure resources.” *Id.* These features support operational monitoring and long-term infrastructure planning. *See* Ex. 64, *Introduction to Azure Advisor*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/advisor/advisor-overview> (last updated Jan. 13, 2025).

Azure Automation

100. Azure Automation is a cloud-based service that streamlines management across Azure and hybrid environments with process automation, configuration management, and reusable runbooks.

- **Schedule tasks** - stop VMs or services at night and turn on during the day, weekly or monthly recurring maintenance workflows.
- **Build and deploy resources** - Deploy virtual machines across a hybrid environment using runbooks and Azure Resource Manager templates. Integrate into development tools, such as Jenkins and Azure DevOps.
- **Periodic maintenance** - to execute tasks that need to be performed at set timed intervals like purging stale or old data, or reindexing a SQL database.
- **Respond to alerts** - Orchestrate a response when cost-based, system-based, service-based, and/or resource utilization alerts are generated.
- **Hybrid automation** - Manage or automate on-premises servers and services like SQL Server, Active Directory, SharePoint Server, etc.
- **Azure resource lifecycle management** - for IaaS and PaaS services.
 - Resource provisioning and deprovisioning.
 - Add correct tags, locks, NSGs, UDRs per business rules.
 - Resource group creation, deletion & update.
 - Start container group.
 - Register DNS record.
 - Encrypt Virtual machines.
 - Configure disk (disk snapshot, delete old snapshots).
 - Subscription management.
 - Start-stop resources to save cost.
- **Monitoring & integrate** with 1st party (through Azure Monitor) or 3rd party external systems.
 - Ensure resource creation\deletion operations are captured to SQL.
 - Send resource usage data to web API.
 - Send monitoring data to ServiceNow, Event Hubs, New Relic and so on.
 - Collect and store information about Azure resources.
 - Perform SQL monitoring checks & reporting.
 - Check website availability.
- **Dev/test automation scenarios** - Stop and start resources, scale resources, etc.
- **Governance related automation** - Automatically apply or update tags, locks, etc.
- **Azure Site Recovery** - orchestrate pre/post scripts defined in a Site Recovery DR workflow.
- **Azure Virtual Desktop** - orchestrate scaling of VMs or start/stop VMs based on utilization.
- **Configure VMs** - Assess and configure Windows and Linux machines with configurations for the infrastructure and application.
- **Retrieve inventory** - Get a complete inventory of deployed resources for targeting, reporting, and compliance.
- **Find changes** - Identify and isolate machine changes that can cause misconfiguration and improve operational compliance. Remediate or escalate them to management systems.

See Ex. 47, *What is Azure Automation?*, MICROSOFT LEARN, [https://learn.microsoft.com/en-](https://learn.microsoft.com/en-us/azure/automation/automation-intro)

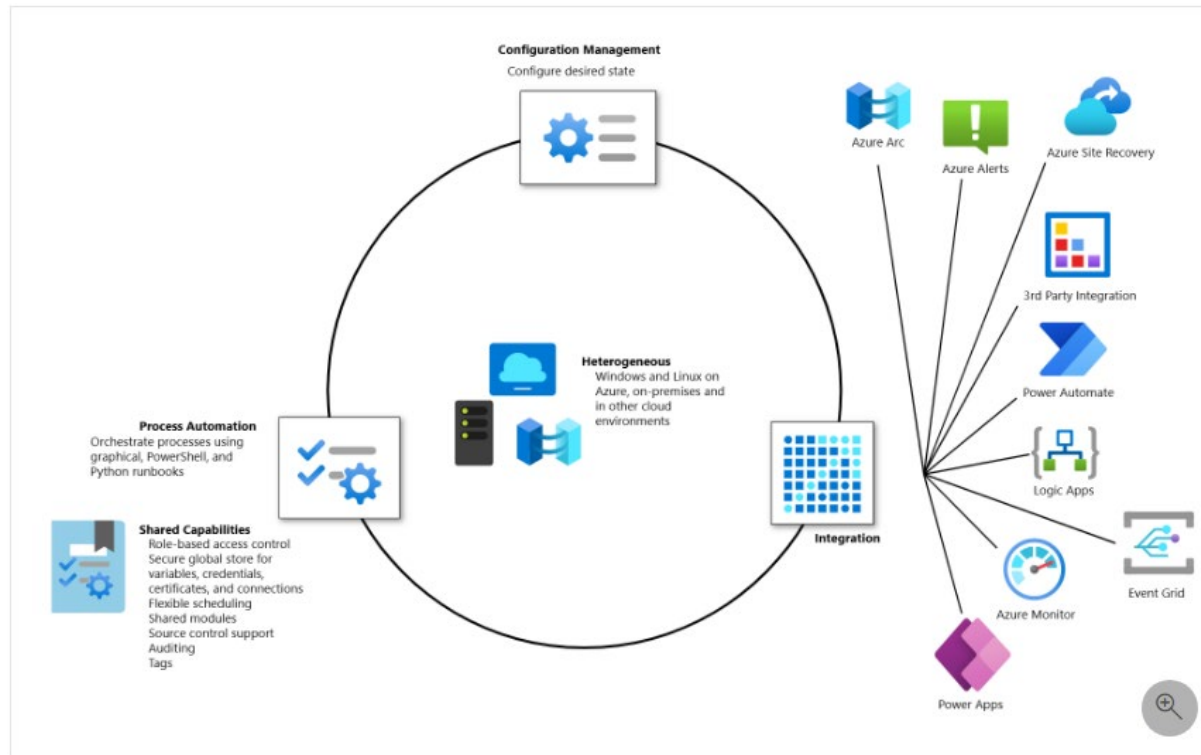
[us/azure/automation/automation-intro](https://learn.microsoft.com/en-us/azure/automation/automation-intro) (last updated April. 24, 2025). Azure Automation, via

Azure Resource Manager and Azure Portal, “delivers a cloud-based automation service that

supports consistent management across your Azure and non-Azure environments” and includes

“process automation, configuration management, shared capabilities, and heterogeneous

features.” Ex. 97, *Multicloud Monitoring With Azure Monitor*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/best-practices-multicloud> (last updated May 21, 2025).



See Ex. 47, *What is Azure Automation?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/overview> (last updated Apr. 24, 2025) (“Through Arc-enabled servers, [Azure Automation] provides a consistent deployment and management experience for your non-Azure machines.”). Azure Policy enforces compliance configurations, and Azure Role-Based Access Control (“RBAC”) manages user permissions. See, e.g., Ex. 69, *Azure Guidance for Secure Isolation*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/government/azure-secure-isolation-guidance> (last updated July 14, 2023). Customers define runbooks, apply policies across environments, and assign scoped access roles. See Ex. 48, *What is Azure Policy?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/governance/policy/overview> (last updated Mar. 4, 2025); see also Ex. 49, *What is*

Azure role-based access control (Azure RBAC)?, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/role-based-access-control/overview> (last updated Mar. 12, 2025).

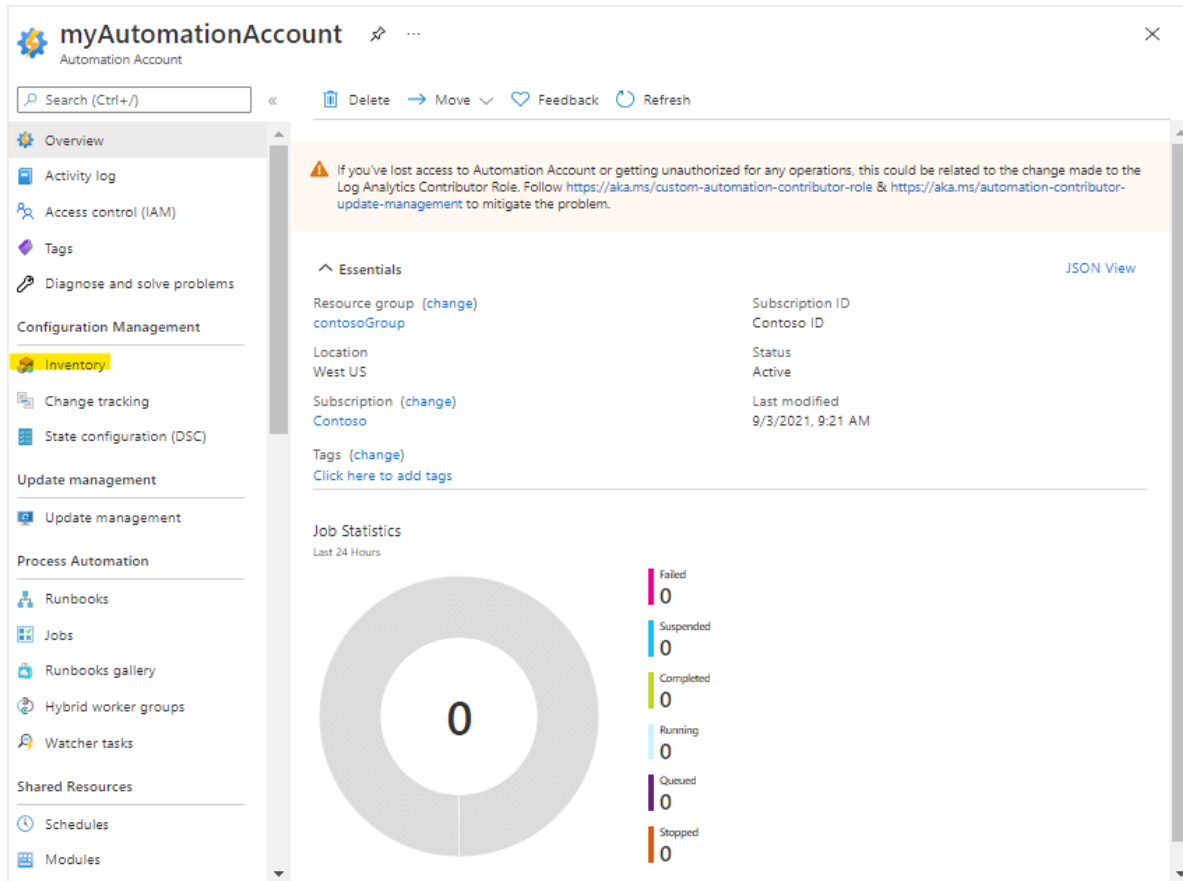
101. Azure Automation executes the process automation feature that runs runbooks (provisioning requests) that communicate with the “Change Tracking and Inventory” feature. See Ex. 98, *Overview of Change Tracking and Inventory Using Azure Monitoring Agent*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/change-tracking/overview-monitoring-agent?tabs=win-az-vm> (last updated Mar. 13, 2025) (“Azure Change Tracking & Inventory service enhances the auditing and governance for in-guest operations by monitoring changes and providing detailed inventory logs for servers across Azure, on-premises, and other cloud environments.”).

Categories in Automation operations

Automation is required in three broad categories of operations:

- **Deployment and management of resources:** Create and configure programmatically using automation or infrastructure as code tooling to deliver repeatable and consistent deployment and management of cloud resources. For example, an Azure Network Security Group can be deployed, and security group rules are created using an Azure Resource Manager template or an automation script.
- **Response to external events:** Based on a critical external event, such as responding to database changes, acting as per the inputs given to a web page, and so on, you can diagnose and resolve issues.
- **Complex Orchestration:** By integrating with first- or third-party products, you can define end-to-end automation workflows.

See Ex. 99, *Choose the Automation Services in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/automation-services> (last updated Aug. 12, 2024);



Ex. 100, *Create a Standalone Azure Automation Account*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/automation-create-standalone-account?tabs=azureportal> (last updated Aug. 20, 2024); see also Ex. 101, *Create an Azure Automation account using a Resource Manager template?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/quickstart-create-automation-account-template> (last updated Sept. 15, 2024).

Azure Automanage

102. Azure Automanage is a unified solution that automates the management of virtual machines, regardless of whether the virtual environment is in Azure or is an independent environment accessed via Azure Arc. Specifically, Azure Automanage automatically monitors, onboards, configures, and remediates other Azure services and

applications onto the user's virtual machines to ensure operational consistency, security, and compliance throughout the virtual machines' lifecycles. *See* Ex. 50, *Azure Automanage Machine Best Practices*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automanage/overview-about> (last updated Feb. 11, 2025) (Azure Automanage can automatically monitor virtual machines or Arc-enabled servers "to ensure that it continues to comply with its configuration profile across its entire lifecycle.").

Azure Storage

103. Azure Storage is a cloud storage platform offering highly available, massively scalable, durable, and secure storage for diverse data objects. This platform is accessible globally and offers client libraries for developers building applications or services with various coding languages. *See* Ex. 51, *Introduction to Azure Storage*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/storage/common/storage-introduction> (last updated Mar. 27, 2025). Azure Storage provides various data storage services based on the type of data, volume of data, or both.

The Azure Storage platform includes the following data services:

- **Azure Blobs:** A massively scalable object store for text and binary data. Also includes support for big data analytics through Data Lake Storage.
- **Azure Files:** Managed file shares for cloud or on-premises deployments.
- **Azure Elastic SAN:** A fully integrated solution that simplifies deploying, scaling, managing, and configuring a SAN in Azure.
- **Azure Queues:** A messaging store for reliable messaging between application components.
- **Azure Tables:** A NoSQL store for schemaless storage of structured data.
- **Azure managed Disks:** Block-level storage volumes for Azure VMs.
- **Azure Container Storage:** A volume management, deployment, and orchestration service built natively for containers.

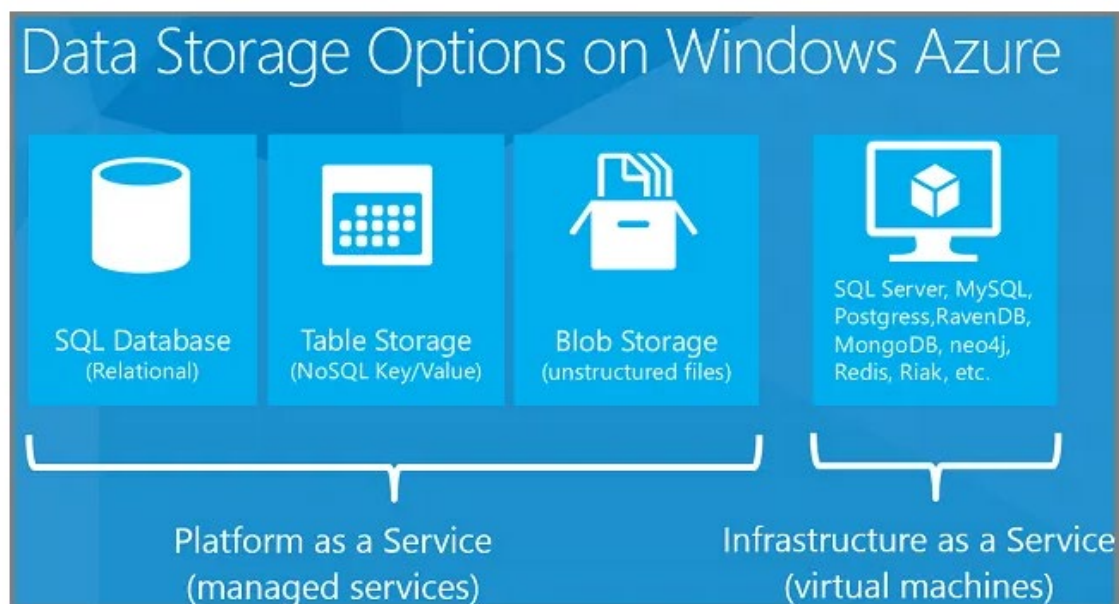
Each service is accessed through a storage account with a unique address. To get started, see [Create a storage account](#).

Additionally, Azure provides the following specialized storage:

- **Azure NetApp Files:** Enterprise files storage, powered by NetApp: makes it easy for enterprise line-of-business (LOB) and storage professionals to migrate and run complex, file-based applications with no code change. Azure NetApp Files is managed via NetApp accounts and can be accessed via NFS, SMB and dual-protocol volumes. To get started, see [Create a NetApp account](#).
- **Azure Managed Lustre:** A high-performance distributed parallel file system solution, ideal for HPC workloads that require high throughput and low latency.

See Ex. 51, *Introduction to Azure Storage*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/storage/common/storage-introduction> (last updated Mar. 27, 2025);

Azure Storage Services



Ex. 102, Suji Guna, *Deploy our Angular Application on Blob Storage*, MEDIUM (Aug. 14, 2020), <https://sujiguna1696.medium.com/deploy-our-angular-application-in-blob-storage-310bf2954add>.

Azure Blob Storage

104. Azure Blob Storage is an object storage service optimized for massive amounts of unstructured data—ideal for hosting images, streaming media, logs, backups, and analytics. See Ex. 52, *Introduction to Azure Blob Storage*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/storage/blobs/storage-blobs-introduction> (last updated Oct. 10, 2023) (“Azure Blob Storage is Microsoft’s object storage solution for the cloud” and is “optimized for storing massive amounts of unstructured data.”).

Azure Storage Explorer

105. Azure Storage Explorer is a cross-platform application that allows users to easily access, manage, and organize Azure Storage resources such as blobs, files, and queues. See Ex. 53, *Get started with Storage Explorer*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/storage/storage-explorer/vs-azure-tools-storage-manage-with-storage-explorer?tabs=windows> (last updated Apr. 14, 2025). The “Azure Portal and Azure Storage Explorer provide user-interface tools for interacting with Azure Storage.” Ex. 51, *Introduction to Azure Storage*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/storage/common/storage-introduction> (last updated Mar. 27, 2025);

Benefits of Azure Storage

Azure Storage services offer the following benefits for application developers and IT professionals:

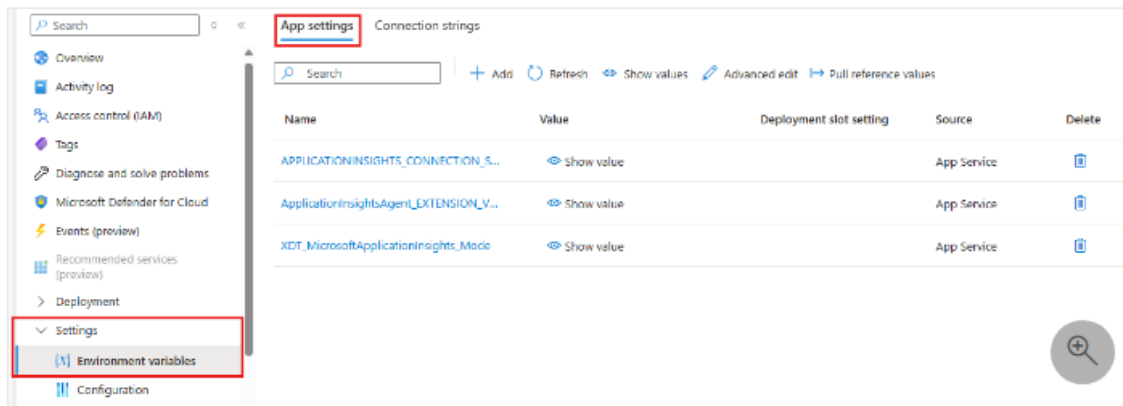
- **Durable and highly available.** Redundancy ensures that your data is safe in the event of transient hardware failures. You can also opt to replicate data across data centers or geographical regions for additional protection from local catastrophe or natural disaster. Data replicated in this way remains highly available in the event of an unexpected outage.
- **Secure.** All data written to an Azure storage account is encrypted by the service. Azure Storage provides you with fine-grained control over who has access to your data.
- **Scalable.** Azure Storage is designed to be massively scalable to meet the data storage and performance needs of today's applications.
- **Managed.** Azure handles hardware maintenance, updates, and critical issues for you.
- **Accessible.** Data in Azure Storage is accessible from anywhere in the world over HTTP or HTTPS. Microsoft provides client libraries for Azure Storage in a variety of languages, including .NET, Java, Node.js, Python, Go, and others, as well as a mature REST API. Azure Storage supports scripting in Azure PowerShell or Azure CLI. And the Azure portal and Azure Storage Explorer offer easy visual solutions for working with your data.

See id. (“Azure Storage data objects are accessible from anywhere in the world over HTTP or HTTPS via a REST API.”). Additionally, “an Azure storage account contains all of your Azure Storage data objects: blobs, files, queues, and tables” and “[d]ata in your storage account is durable and highly available, secure, and massively scalable.” Ex. 112, *Storage Account Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/storage/common/storage-account-overview> (last updated Mar. 4, 2025).

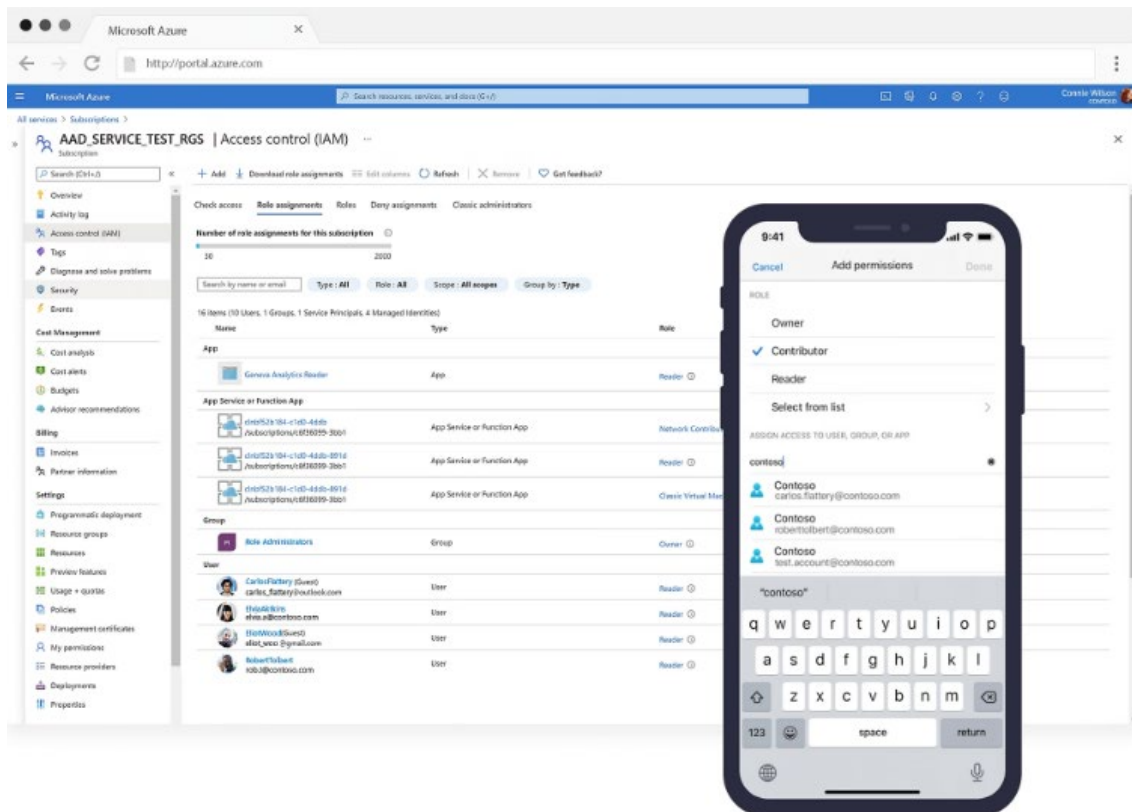
Azure App Service

106. Azure App Service is a fully managed PaaS solution that enables building, deploying, and scaling web apps, mobile back ends, and Application Programming Interfaces (API) without managing underlying infrastructure. *See* Ex. 54, *App Service overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/app-service/overview> (last updated Apr. 24, 2025). For example, users can deploy web applications in the virtualization environment via Azure App Service. *See* Ex. 113, *Azure App Service*, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/products/app-service> (last visited Aug. 12, 2025);

1. In the [Azure portal](#), search for and select **App Services**, and then select your app.
2. On the app's left menu, select **Settings** > **Environment variables**. Then select **App settings**.



Ex. 114, *Configure an App Service App*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/app-service/configure-common?tabs=portal> (last updated Mar. 27, 2025). Upon deployment, users can access the web application via Azure Portal.



See Ex. 72, *Microsoft Azure Portal*, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/get-started/azure-portal> (last visited Aug. 12, 2025).

Azure Cloud Services

107. Azure Cloud Services is similarly a PaaS solution for deploying and scaling cloud applications with features like autoscaling, load balancing, and health monitoring. See Ex. 55, *About Azure Cloud Services (extended support)*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/cloud-services-extended-support/overview> (last updated July 24, 2024).

Azure Virtual Desktop

108. Azure Virtual Desktop is a desktop and application virtualization service that securely delivers multi-session Windows desktops and applications remotely, and is integrated with Defendant's other products. See Ex. 58, *What is Azure Virtual Desktop?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/virtual-desktop/overview> (last updated June 19, 2024) (Azure Virtual Desktop delivers "a full Windows experience with Windows 11, Windows 10, or Windows Server.").

Azure Virtual Machines

109. Azure Virtual Machines provide on-demand, scalable Windows or Linux virtual machines that give users control over operating systems, storage, and networking while eliminating the need for physical hardware. See Ex. 57, *Virtual machines in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/virtual-machines/overview> (last updated Mar. 27, 2025).

Azure Virtual Machine Scale Sets

110. Azure Virtual Machine Scale Sets enable deployment and management of groups of identical virtual machines that can automatically scale to meet demand, supporting high availability and centralization configurations. *See* Ex. 59, *What are Virtual Machine Scale Sets?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/virtual-machine-scale-sets/overview> (last updated Mar. 21, 2025) (Azure Virtual Machine Scale Sets allows users to “create and manage a group of load balanced virtual machines (VM) instances” by automatically increasing or decreasing the number of VM instances “in response to demand or a defined schedule.”).

Azure Spot Virtual Machines

111. Azure Spot Virtual Machines let users run interruptible workloads on unused Azure capacity, with the tradeoff that such Spot Virtual Machines may be evicted based on user policies and when capacity is needed again. *See* Ex. 60, *Use Azure Spot Virtual Machines*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/virtual-machines/spot-vms> (last updated Aug. 22, 2024) (Azure Spot Virtual Machines “are great for workloads that can handle interruptions like batch processing jobs, dev/test environments, large compute workloads, and more.”).

Azure Functions

112. Azure Functions is a serverless, event-drive compute service that lets users run code in response to triggers, such as HTTP requests, database changes, or scheduled timers. It does so without needing to provision or manage resources or infrastructure. *See* Ex. 103, *What is Azure Functions?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-functions/functions-overview> (last updated Mar. 25, 2025) (Azure Functions allows users “to

build robust apps while using less code, and with less infrastructure and lower costs[]” by using “the cloud infrastructure to provide all the up-to-date resources needed to keep your applications running” instead of “worrying about deploying and maintaining servers.”).

Azure Service Fabric

113. Azure Service Fabric is a distributed systems platform designed to simplify packaging, deployment, and management of scalable and reliable microservices and applications across a cluster of machines. It offers comprehensive lifecycle management, orchestration, health monitoring, and support for both stateless and stateful microservices across environments, including Azure, local environments, or other clouds. *See* Ex. 104, *Overview of Azure Service Fabric*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/service-fabric/service-fabric-overview> (last updated Aug. 22, 2025) (Azure Service Fabric “addresses the significant challenges in developing and managing cloud native applications” by making “it easy to package, deploy, and manage scalable and reliable microservices and containers.”).

DEFENDANT’S INFRINGEMENT OF THE ASSERTED PATENTS

114. Defendant has infringed and continues to infringe one or more claims of the Asserted Patents by making, using, selling, offering for sale, and/or importing into the United States and this District products and services that infringe the Asserted Patents.

115. Defendant makes, uses, sells, offers for sale, and/or imports certain technologies that are, have, use, or require virtual instances and services managers (“Accused Instrumentalities”) that fall under the umbrella of Defendant’s cloud computing platform, Microsoft Azure. The Accused Instrumentalities include at least the following:

- Azure Resource Manager

- Azure Portal
- Windows Admin Center
- Azure Arc
- Azure Bastion
- Azure Kubernetes Service (AKS)
- Azure Dedicated Host
- Azure Monitor
- Azure Metrics Explorer
- Azure Resource Logs
- Azure Activity Logs
- Azure Lighthouse
- Azure Advisor
- Azure Automation
- Azure Automanage
- Azure Storage
- Azure Blob Storage
- Azure Storage Explorer
- Azure App Service
- Azure Cloud Services
- Azure Virtual Desktop
- Azure Virtual Machines
- Azure Virtual Machine Scale Sets
- Azure Spot Virtual Machines

- Azure Functions
- Azure Service Fabric

116. The Accused Instrumentalities may include, without limitation, technologies that make use of Microsoft Azure. *See* Ex. 38, Gregg Keizer and Matthew Finnegan, *Windows 365—Microsoft’s Cloud-Based OS Explained*, COMPUTERWORLD (Aug. 13, 2024), <https://www.computerworld.com/article/1614540/what-is-windows-365-microsoft-s-cloud-based-os-explained.html> (“Microsoft’s own cloud computing platform, Azure” powers Windows 365, which “is essentially an automated Azure Virtual Desktop.”).

117. Azure is used to build, deploy, and manage applications across a global network of data centers. Azure supports infrastructure-based virtual machines, managed application hosting, and software solutions delivered over the cloud. Azure includes computing services that provide on-demand resources for running workloads and can be used to deploy applications. An additional orchestration service supports automated scaling of these machines, enabling systems to grow or shrink based on usage patterns and demands.

118. Defendant sells Azure to customers as a set of services to run virtualized operating systems in the cloud configurable to different workloads to optimize for compute performance, memory, storage throughput, and/or graphics processing.

119. Azure includes a compute scheduling service designed for high-performance and parallel workloads. This service allows users to define large-scale batch jobs and run them across dynamically allocated virtual resources. For advanced service architecture needs, a distributed systems framework supports the deployment of both stateless and stateful microservices.

120. Defendant sells Azure to customers as software to operate on the customers' own servers, sells combinations of Azure software and servers to run the software, and sells Azure as a "service" where Defendant configures and operates Azure for Defendant's customers.

COUNT I
(Direct Infringement of the '431 Patent)

121. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

122. In violation of 35 U.S.C. § 271(a), Defendant directly infringed and continues to infringe (either literally and/or under the doctrine of equivalents) one or more claims of the '431 Patent, including, for example, Claim 20 (as detailed below) by making, using, selling, offering for sale, and/or importing into the United States infringing products, including, but not limited to, Azure.

123. Defendant also infringes the claims of the '431 Patent jointly with its clients to the extent that specific components are provided by those clients. Defendant directs and controls the system and methods in the claims and obtains and confers benefits to its customers from the control of the system as a whole. In particular, Defendant puts the systems and methods into service to benefit its ability to provide management of virtual assets running on a virtualization platform.

124. By way of example of Defendant's infringement of the '431 Patent, Azure meets all of the limitations of at least Claim 20 of the '431 Patent, which recites:

A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least

one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network;

performing one or more functions by the controller that communicates with the virtualization layer from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) receiving a Knowledge Block that specifies parameters that send an alert message to an administrator of the network in response to an alert condition and determines one or more reallocation parameters to be considered with a performance measurement in producing the deployment of the assets and wherein the Knowledge Block specifies parameters that detect operational degradation of a member of the virtualization environment which is halted and removed,

(4) automatic dynamic deployment of virtual assets across the computer network based on the reallocation parameters,

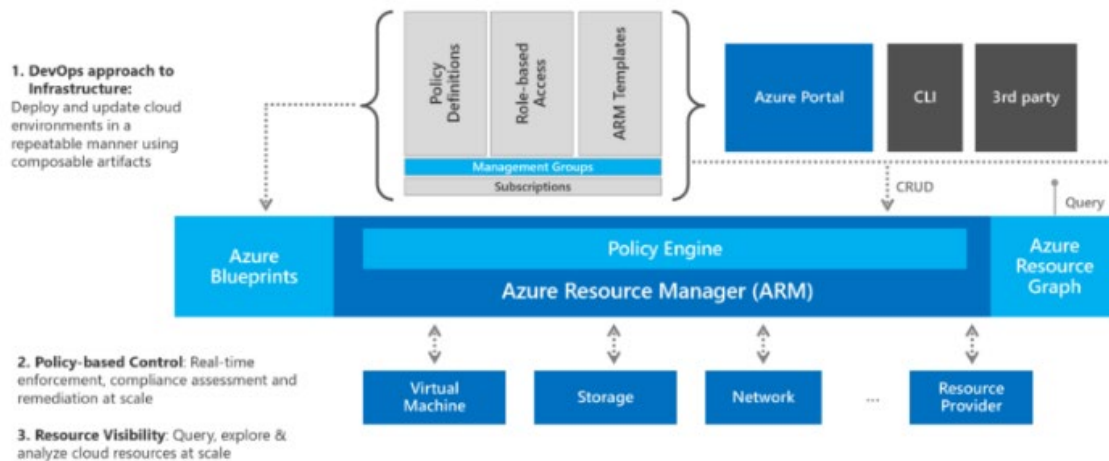
(5) performance measurement and reporting of resources and virtual assets, and

(6) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

125. Azure embodies the claimed invention and infringes the '431 Patent because, as described below, it practices each limitation of exemplary Claim 20 of the '431 Patent. For example, Azure performs a method for automatic management of a virtualization environment in a computer cloud network.

Azure Governance Architecture



1. Azure Management Groups: Management Groups provide a hierarchical structure for organizing and managing subscriptions. They allow centralized policy assignment and access control across multiple subscriptions.

2. Azure Subscriptions: Subscriptions are containers for Azure resources and services. They serve as the unit of ownership and billing in Azure. Each subscription can have its own policies, access controls, and resource limits.

3. Azure Policy: Azure Policy helps enforce compliance by defining and applying rules and guidelines for resource configurations. It ensures that resources deployed within Azure adhere to specific standards, regulatory requirements, or organizational policies.

4. Azure Blueprints: Azure Blueprints enable the rapid deployment of cloud environments based on predefined templates. Blueprints include a set of artifacts, such as resource groups, policies, and role assignments, that can be easily deployed and managed.

5. Azure Resource Manager: Azure Resource Manager (ARM) is the management layer that handles the creation, update, and deletion of Azure resources. It provides a unified API and control plane for managing resources across subscriptions.

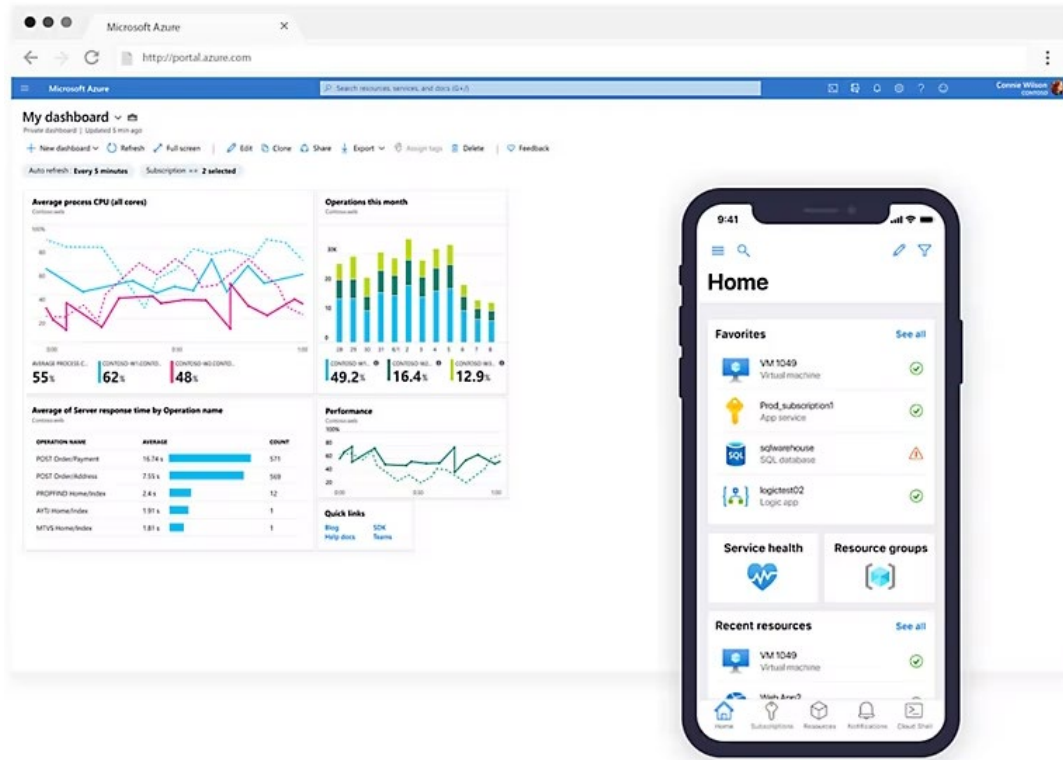
6. Azure Role-Based Access Control (RBAC): RBAC allows fine-grained access control by assigning roles to users, groups, or applications. It ensures that only authorized individuals can perform specific actions on Azure resources.

7. Azure Cost Management + Billing: This service provides cost transparency and optimization capabilities. It helps track resource usage, monitor spending, and implement cost control measures to optimize cloud costs.

8. Azure Monitor: Azure Monitor provides comprehensive monitoring and insights into the performance and health of Azure resources. It enables organizations to track metrics, set alerts, and gain visibility into the operational state of their Azure environment.

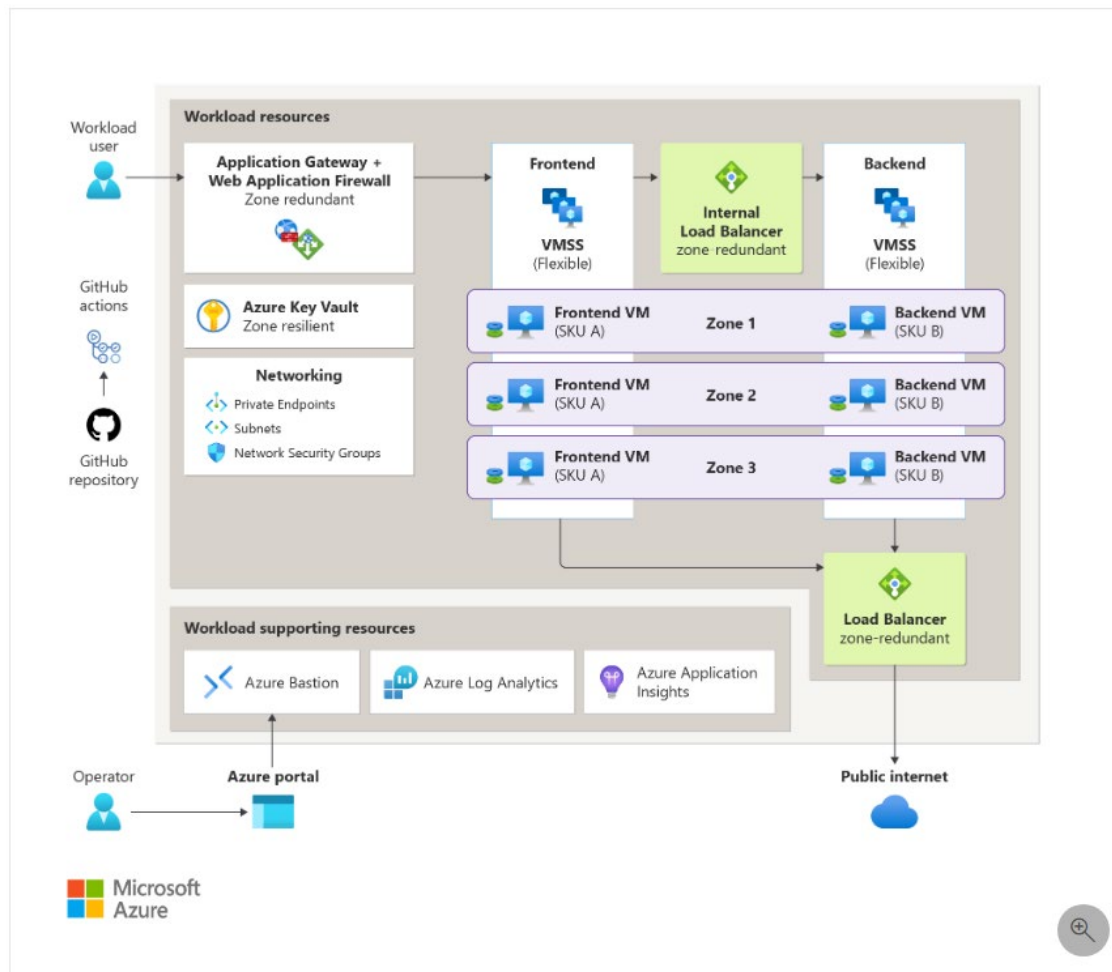
9. Azure Security Center: Azure Security Center offers unified security management and threat protection across Azure resources. It provides security recommendations, threat detection, and advanced analytics to help organizations protect their cloud infrastructure.

See, e.g., Ex. 68, *The Architecture of Azure Governance*, IZMIR SADIGOV (July 1, 2023), <https://www.izmirsadigov.com/2023/07/01/the-architecture-of-azure-governance/>;

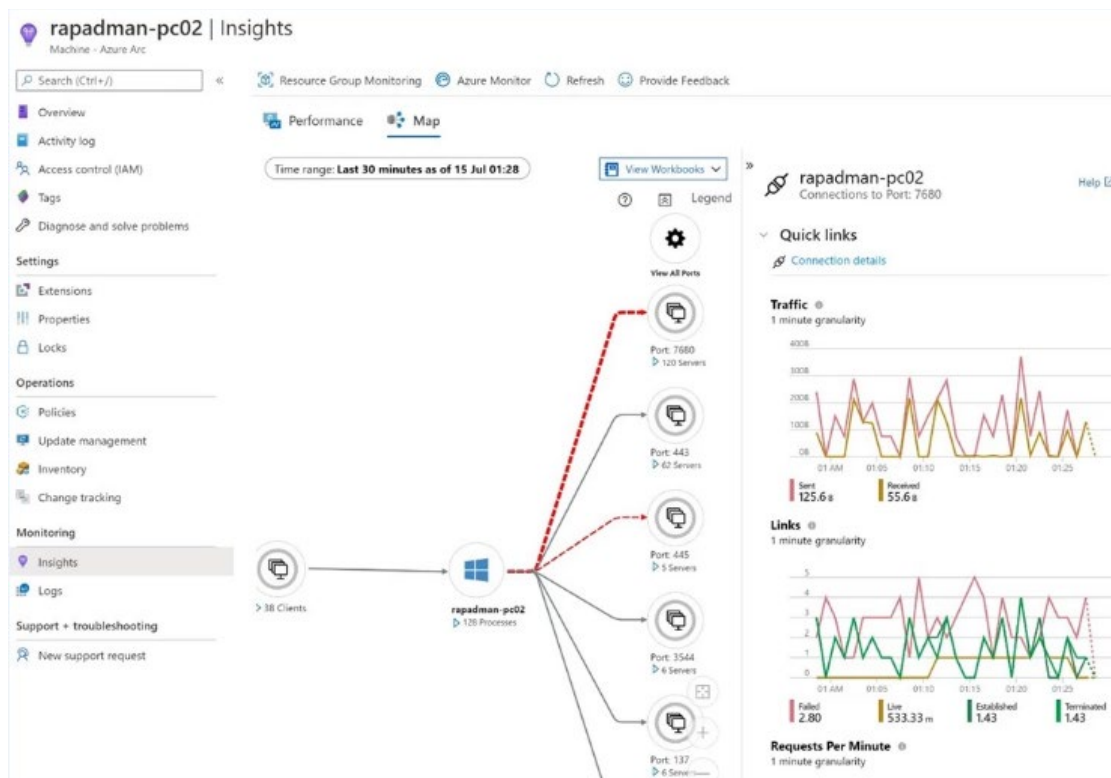


Ex. 72, *Microsoft Azure Portal*, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/get-started/azure-portal> (last visited Aug. 5, 2025).

126. Azure provides a virtualization environment that has a virtualization layer (for example, hypervisors), network resources (for example, servers) and virtual assets (for example, virtual machines) which are software instantiations of equipment objects in the virtualization environment and managed by the virtualization layer.



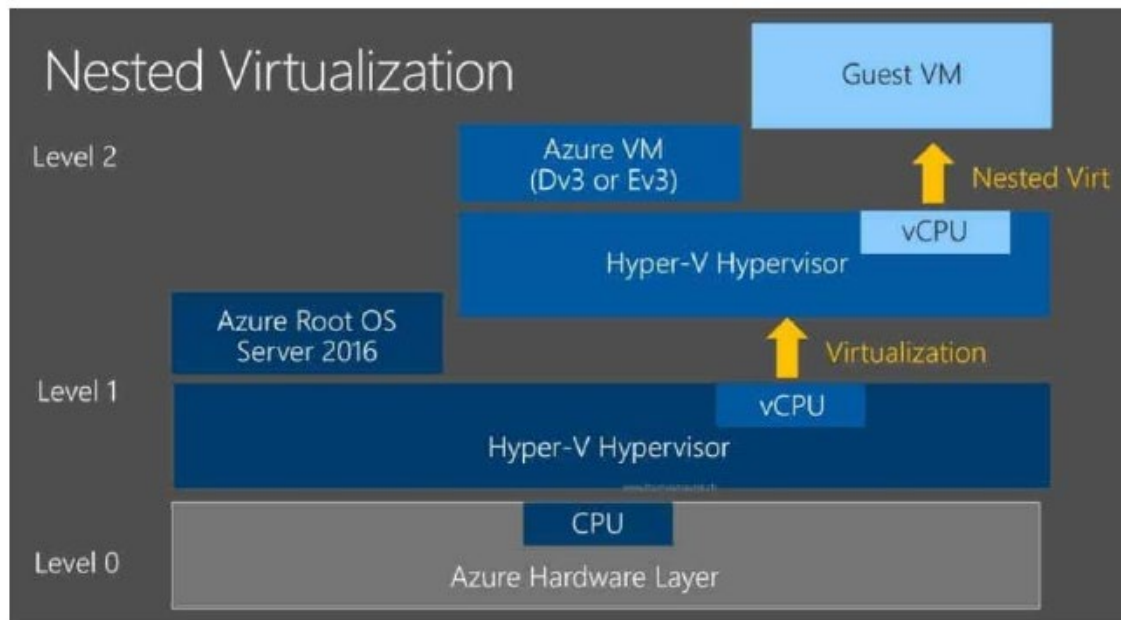
See, e.g., Ex. 73, *Azure Virtual Machines Baseline Architecture*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/architecture/virtual-machines/baseline> (last visited Aug. 5, 2025). Azure also includes servers (e.g., Azure Arc-enabled servers) that function in heterogeneous environments for management and automation.



See, e.g., Ex. 85, Austin Li, *Monitoring Azure Arc Enabled Kubernetes and Servers*, MICROSOFT BLOG (July 28, 2020), <https://azure.microsoft.com/en-us/blog/monitoring-azure-arc-enabled-kubernetes-and-servers/>; see also Ex. 86, *What are Azure Arc-Enabled Data Services?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/data/overview> (last updated July 24, 2025); Ex. 87, *What is Azure Arc-Enabled Kubernetes?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/kubernetes/overview> (last updated June 19, 2025).

127. For example, in the virtualization environment, Defendant's hypervisors, Hyper-Vs (for example, a virtualization layer), each run on a specific server executing the Hyper-V, such as x64 versions of Windows Servers. See Ex. 88, *Hyper-V Virtualization in Windows Server and Windows*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows->

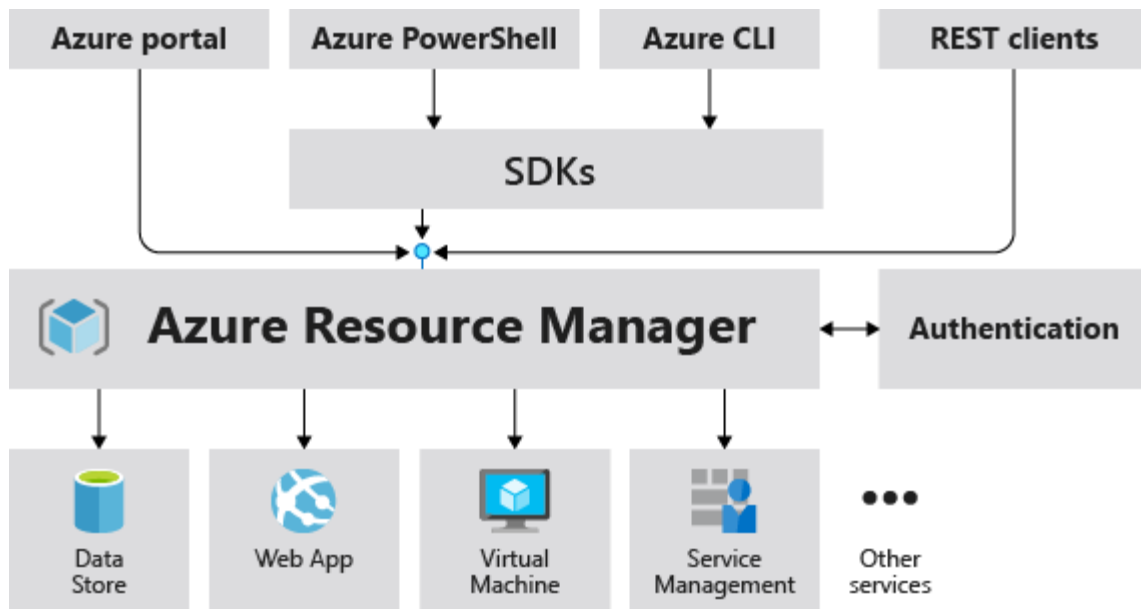
[server/virtualization/hyper-v/overview](https://docs.microsoft.com/en-us/azure/virtualization/hyper-v/overview) (last updated Aug. 5, 2025). The virtual assets (for example, virtual machines) are managed by a Hyper-V that operates on a specific server.



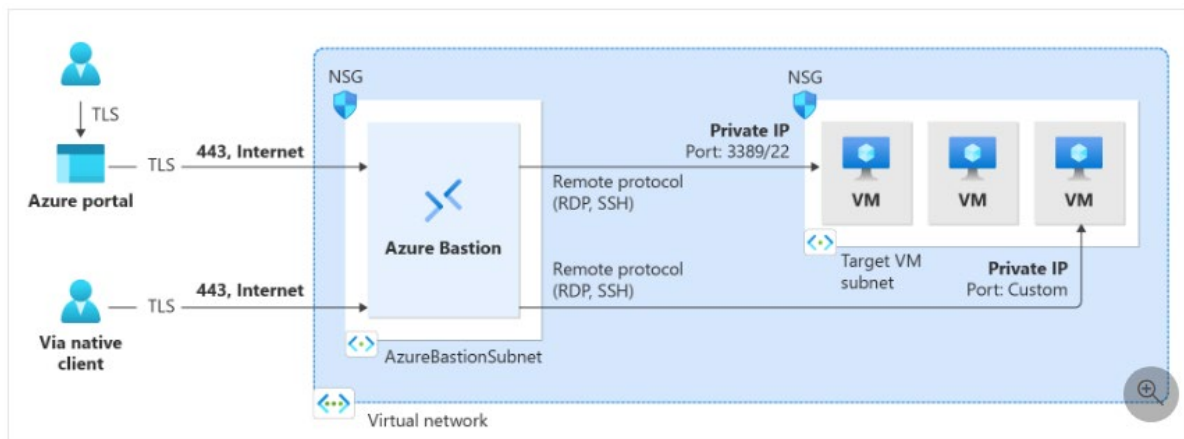
See, e.g., Ex. 89, Thomas Maurer, *Hyper-V Container and Nested Virtualization in Microsoft Azure Virtual Machines*, THOMAS MAURER (May 15, 2017, 5:31 PM),

<https://www.thomasmaurer.ch/2017/05/hyper-v-container-and-nested-virtualization-in-microsoft-azure-virtual-machines/>; Ex. 90, *How to Replicate, Restore, and Fail over Using Hyper-V Nested Virtualization on Azure*, MEDIUM (Mar. 24, 2020), <https://nakivo.medium.com/how-to-replicate-restore-and-fail-over-using-hyper-v-nested-virtualization-on-azure-1399e2f8b103>.

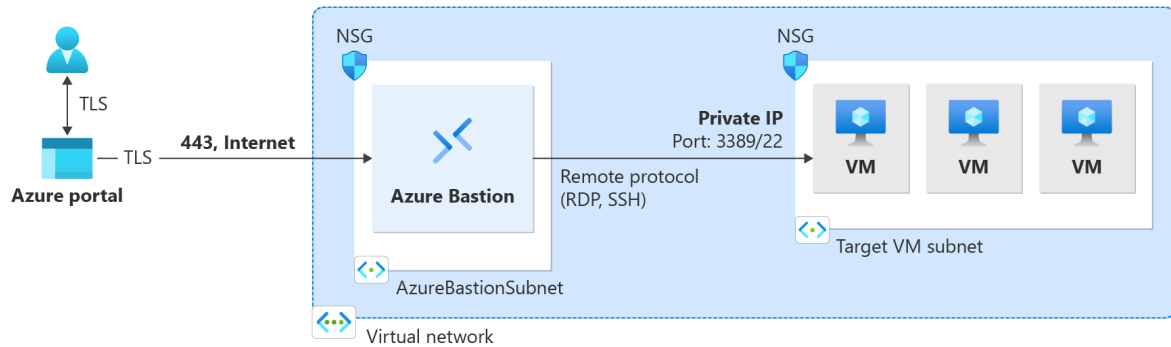
128. Azure provides a controller (e.g., Azure Resource Manager, Azure Portal, Windows Admin Center) that is coupled to the virtualization environment over a cloud network and connects to virtual assets (for example, virtual machines) using network resources (e.g., Azure Bastion) over the cloud network.



See, e.g., Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025);



Ex. 56, *What is Azure Bastion?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/bastion/bastion-overview> (last updated Mar. 14, 2025);

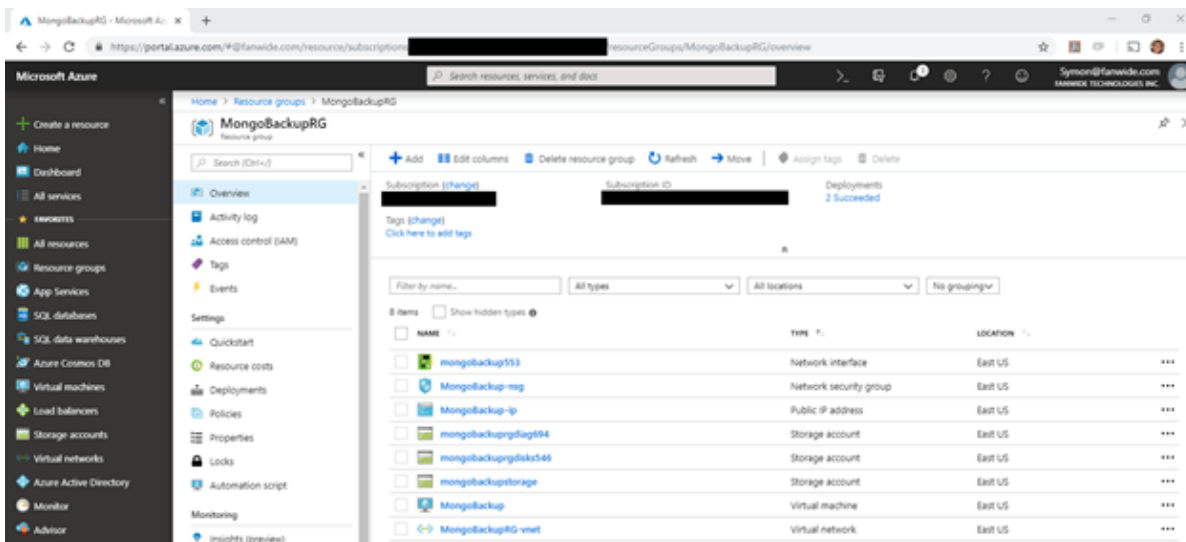


Ex. 79, *Quickstart: Deploy Azure Bastion to a virtual network by using an ARM template*,
 MICROSOFT LEARN, [https://learn.microsoft.com/en-us/azure/bastion/quickstart-host-arm-](https://learn.microsoft.com/en-us/azure/bastion/quickstart-host-arm-template)
[template](https://learn.microsoft.com/en-us/azure/bastion/quickstart-host-arm-template) (last updated Mar. 31, 2025);

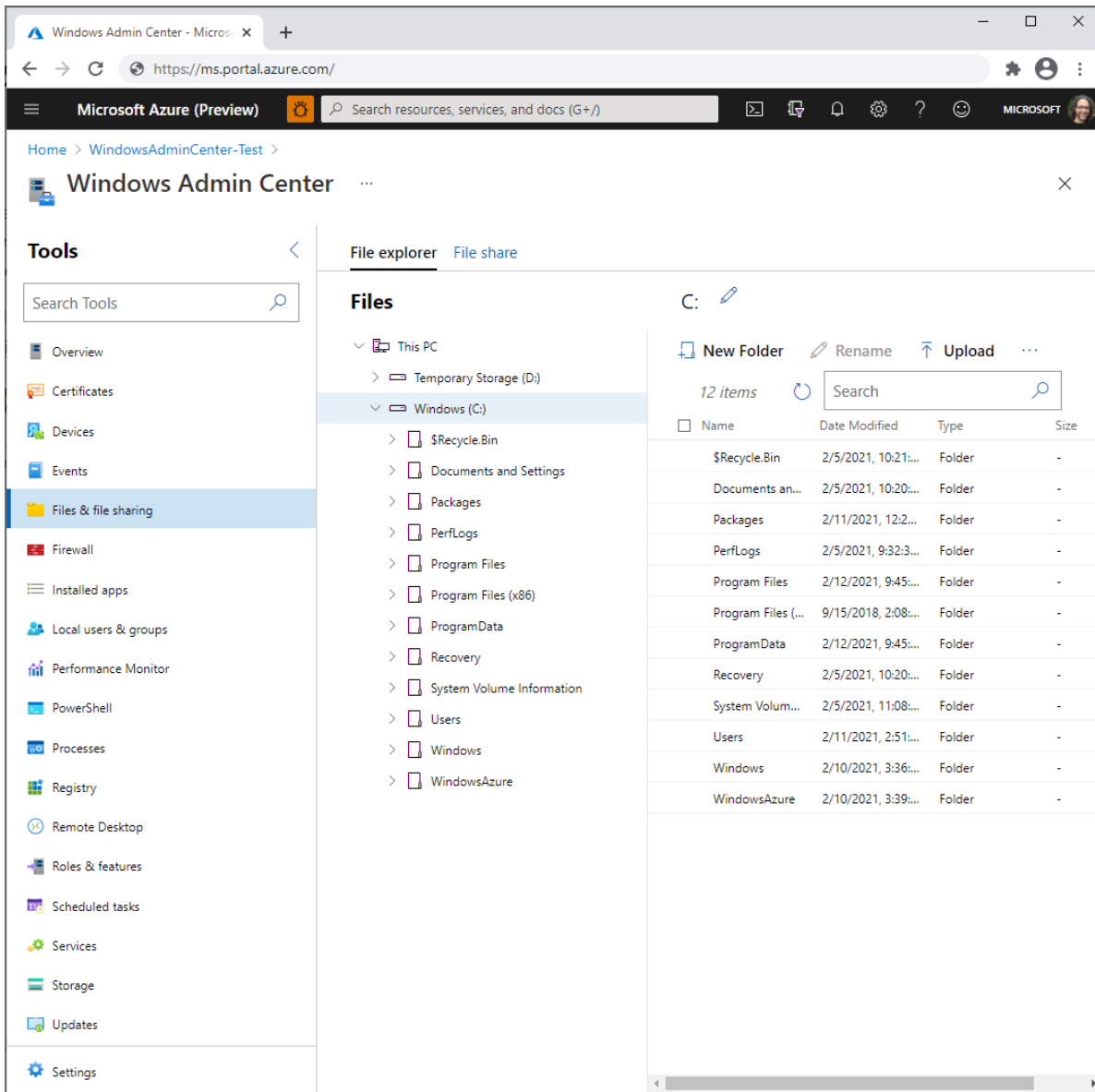


Ex. 78, *Reimagine server management with Windows Admin Center*, <https://cdn-dynmedia-1.microsoft.com/is/content/microsoftcorp/microsoft/final/en-us/microsoft-brand/documents/wac-infographic-190816-02.pdf?culture=en-us&country=us> (last visited Aug. 25, 2025).

129. Azure provides a controller (e.g., Azure Resource Manager, Azure Portal, Windows Admin Center) that communicates with the virtualization layer (for example, Hyper-Vs) to perform, through APIs, one or more functions from a group of functions (for example, management functions and automation) in Azure and non-Azure platforms.



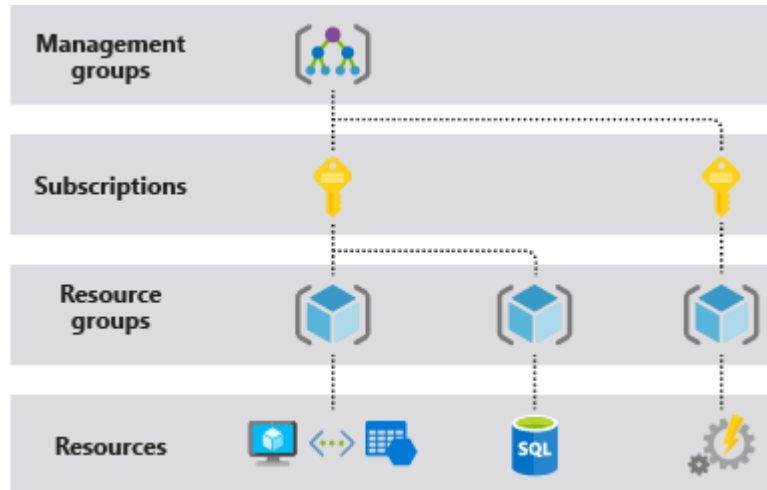
See, e.g., Ex. 70, Symon Perriman, *Introduction to Microsoft Azure Resource Manager (ARM)*, VIRTUALIZATION DOJO, https://virtualizationdojo.com/hyper-v/azure-resource-manager/#Centralized_Management_with_Azure_Resource_Manager_ARM (last updated Feb. 15, 2019) (Azure “lets you see and manage everything for this workload’s life cycle in a single operation, including deployment, updating and deleting.”);



Ex. 77, *Manage a Windows VM using Windows Admin Center in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/azure/manage-vm> (last updated June 18, 2025) (describing management of Windows operating system using Azure); Ex. 74, *Manage Virtual Machines by Using Windows Admin Center*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/use/manage-virtual-machines> (last updated Feb. 10, 2025) (The Virtual Machines tool in Windows Admin Center can “manage Hyper-V hosts

running Windows Server, either installed with Desktop Experience or installed as Server Core.”).

130. Azure provides a web-based, unified console that identifies, manages and monitors network resources and virtual assets (for example, virtual machines, applications) from simple web apps to complex cloud deployments.



See, e.g., Ex. 39, *What is the Azure Portal?*, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/azure-portal/azure-portal-overview> (last updated Sept.

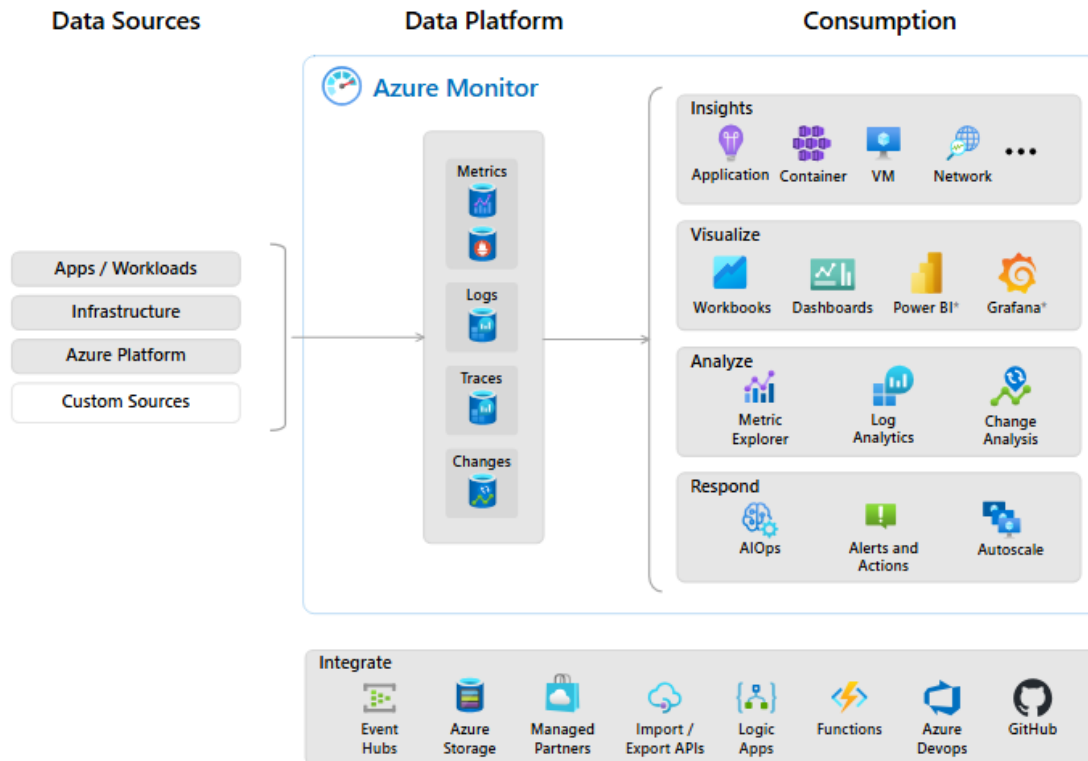
19, 2024); Ex. 71, *Manage Azure Resources by Using the Azure Portal*, MICROSOFT LEARN,

[https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/manage-](https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/manage-resources-portal)

[resources-portal](https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/manage-resources-portal) (last updated Sept. 26, 2024). Azure provides a comprehensive monitoring

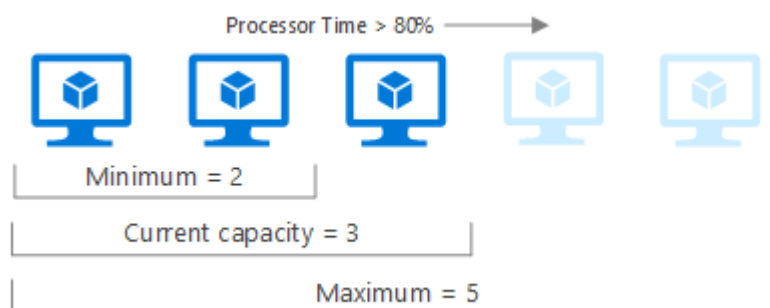
solution for collecting, analyzing, and responding to monitoring data from the cloud and on-

premises environments.



See, e.g., Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/overview> (last updated Aug. 26, 2025).

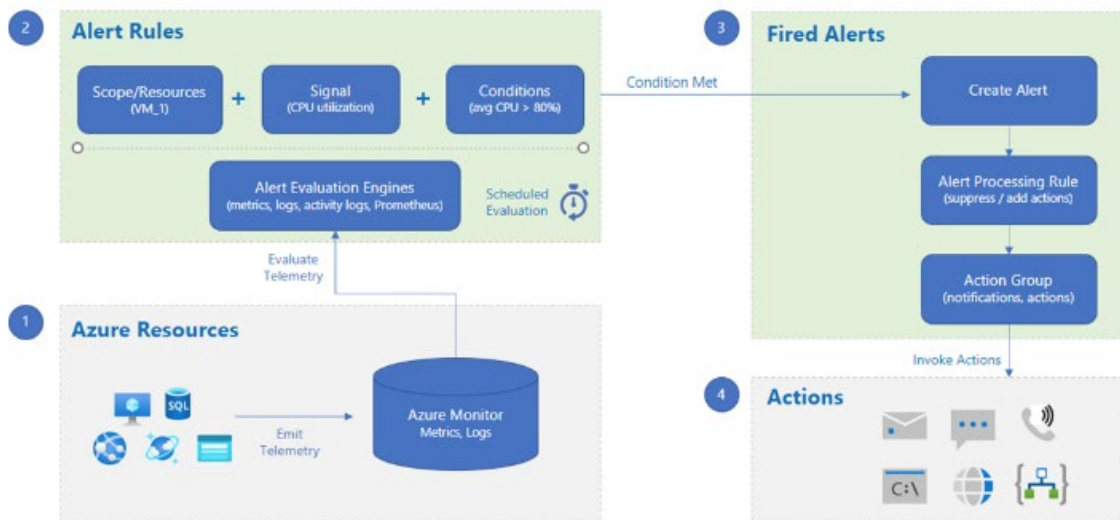
131. Azure provisions virtual assets in response to network workflow demands. For example, Azure’s Autoscale functionality enables automatic scaling of virtual and network resources based on demand and can be accessed through Azure.



See, e.g., Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/overview> (last updated Aug. 26, 2025); Ex. 91, *Overview*

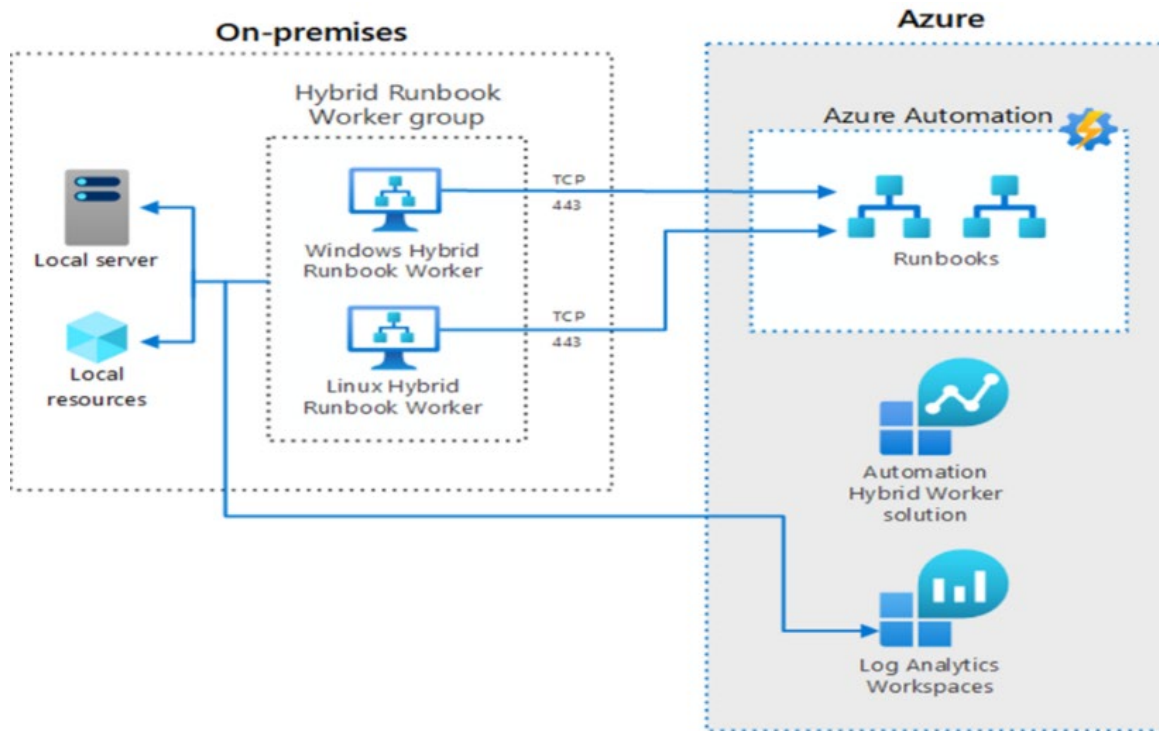
of Autoscale in Azure, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-overview> (last updated Nov. 1, 2024).

132. Azure may be configured by users, such that Azure alerts users when it detects issues with the virtualization environment and provides solutions in response to such issues.

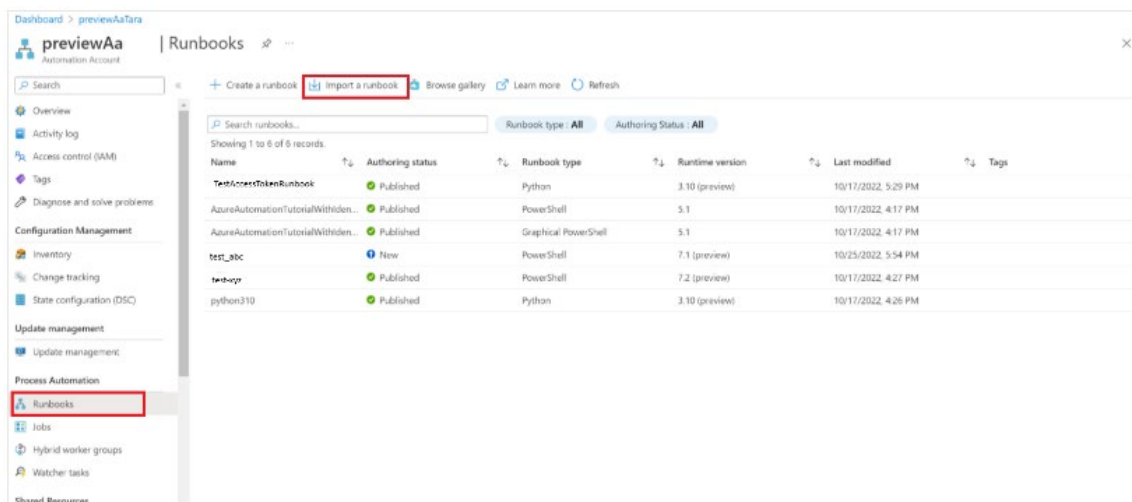


See, e.g., Ex. 109, *What are Azure Monitor Alerts?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/alerts/alerts-overview> (last updated May 19, 2025); Ex. 101, *Create an Azure Automation account using a Resource Manager template?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/quickstart-create-automation-account-template> (last updated Sept. 15, 2024).

133. Azure provides automatic dynamic deployment of virtual assets across the computer network based on the reallocation parameters. For example, virtual machines (for example, virtual assets) run on Hyper-Vs (for example, virtualization layer) that operate on a server (e.g., Windows Servers) within Defendant's datacenters or on-premise local servers. Virtual machines then receive and automate the runbook provisioning request on the server, with the request being accessible via Azure.

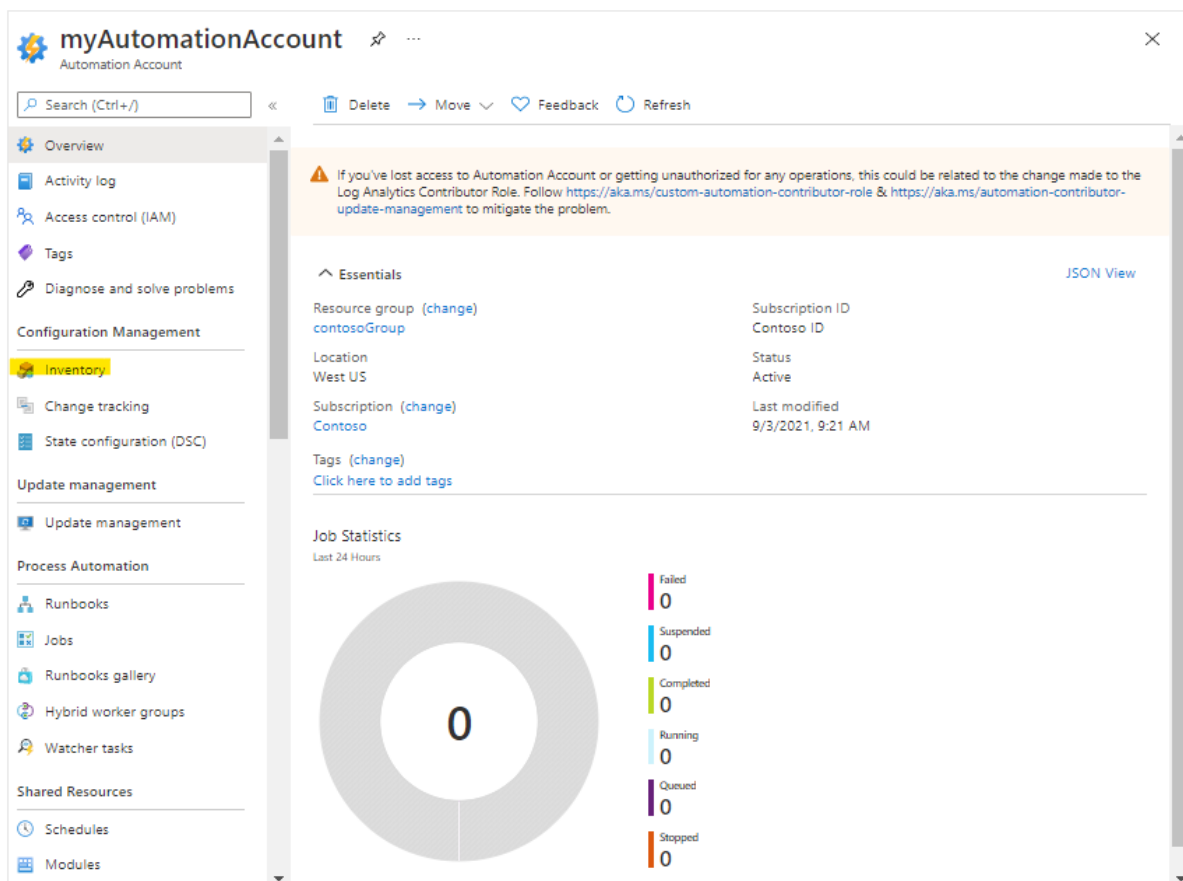


See, e.g., Ex. 115, Deepak Rai, *SCCM Automation using Azure Runbook Hybrid Worker*, HOW TO MANAGE DEVICES, <https://www.anoopenair.com/sccm-automation-using-azure-runbook-hybrid-worker/> (last updated July 22, 2022);



Ex. 116, *Use Existing Runbooks and Modules*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/automation-runbook-gallery> (last updated Sept. 9, 2024).

134. For example, runbooks (for example, provisioning requests) can be created in Azure and deploy web apps and other virtual services by using the “Inventory” feature to identify necessary actions like creating or updating web apps based on detected changes in the inventory data. Azure executes the process automation feature that runs runbooks (for example, provisioning requests), which communicate with the “Change Tracking and Inventory” feature. *See, e.g., Ex. 98, Overview of Change Tracking and Inventory Using Azure Monitoring Agent*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/change-tracking/overview-monitoring-agent?tabs=win-az-vm> (last updated Mar. 13, 2025);



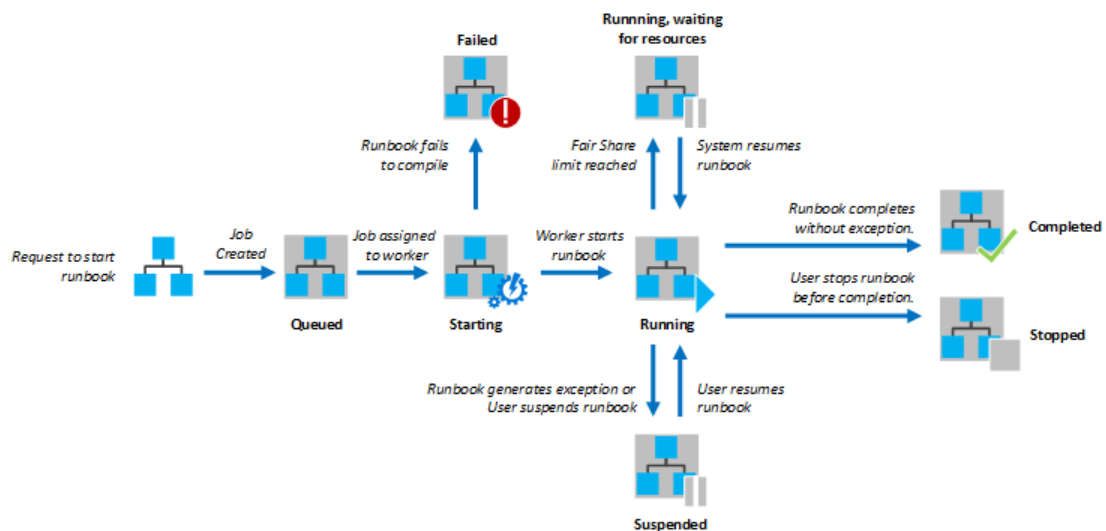
Ex. 100, *Create a Standalone Azure Automation Account*, MICROSOFT LEARN,
<https://learn.microsoft.com/en-us/azure/automation/automation-create-standalone-account?tabs=azureportal> (last updated Aug. 20, 2024);

Categories in Automation operations

Automation is required in three broad categories of operations:

- **Deployment and management of resources:** Create and configure programmatically using automation or infrastructure as code tooling to deliver repeatable and consistent deployment and management of cloud resources. For example, an Azure Network Security Group can be deployed, and security group rules are created using an Azure Resource Manager template or an automation script.
- **Response to external events:** Based on a critical external event, such as responding to database changes, acting as per the inputs given to a web page, and so on, you can diagnose and resolve issues.
- **Complex Orchestration:** By integrating with first- or third-party products, you can define end-to-end automation workflows.

Ex. 99, *Choose the Automation Services in Azure*, MICROSOFT LEARN,
<https://learn.microsoft.com/en-us/azure/automation/automation-services> (last updated Aug. 12, 2024). The figure below shows a diagram of a runbook request process:



See, e.g., Ex. 117, *Runbook Execution in Azure Automation*, MICROSOFT LEARN,
<https://learn.microsoft.com/en-us/azure/automation/automation-runbook-execution> (last updated June 11, 2025).

135. Azure provides performance measurement and reporting of resources and virtual assets. For example, Azure executes inventory metric features, which collect metrics and display the collected data on dashboards. *See, e.g., Ex. 97, Multicloud Monitoring with Azure Monitoring*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/best-practices-multicloud> (last updated May 21, 2025). Azure generates resource logs which provide insight into the detailed operation of resources and helps monitor their health and availability. *See, e.g., Ex. 96, Collect and Analyze Resource Logs from an Azure Resource in Azure Monitor*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/platform/tutorial-resource-logs> (last updated July 18, 2025).

136. Azure enables predictive forecast planning based on metric data.

Azure facilitation

Gathering capacity data and forecasting demand: **Azure Monitor** enables you to collect and analyze telemetry data from your applications and infrastructure. It supports the monitoring of various Azure resources, including virtual machines, containers, and storage accounts. Key tools include **Application Insights** and **Log Analytics**. By configuring data collection and defining metrics and logs that you want to monitor, you can gather valuable workload data for analysis. For **network monitoring**, combine Azure Monitor with Azure Network Watcher, Azure Monitor network insights, and Azure ExpressRoute monitoring.

Azure Monitor allows you to analyze historical data and apply forecasting techniques to predict future workload trends and capacity requirements. You can generate forecasts that can help you with capacity planning. These forecasts help estimate server capacity, network bandwidth, storage capacity, and other resource needs by using predicted demand patterns.

Determining resource requirements: Because they provide a wide range of configurations, Azure tools and services can help you define technical requirements. You can align your workload requirements with available Azure resources, ensuring that you select the appropriate components and settings to meet your functional needs.

Understanding resource limitations: Azure provides documentation and resources to help you understand the performance limitations of various **Azure services and SKUs**. Taking into consideration these limitations can help you make informed design decisions and optimize your workload architecture for performance and cost-effectiveness.

Azure provides scalability options like autoscaling, which can automatically adjust resources based on workload demand. You can scale vertically by increasing the capacity of a resource by using a larger virtual machine size, or you can scale horizontally by adding new instances of a resource. Azure services that have autoscaling capabilities can automatically scale out to ensure capacity during workload peaks and return to normal when the load decreases. There are scaling limits within your configuration and services that you should be aware of. You can read the documentation or run tests. Azure provides tools like **Azure Load Testing**, which can simulate load and different usage patterns to help you gather relevant data about your workload.

Understand an existing workload

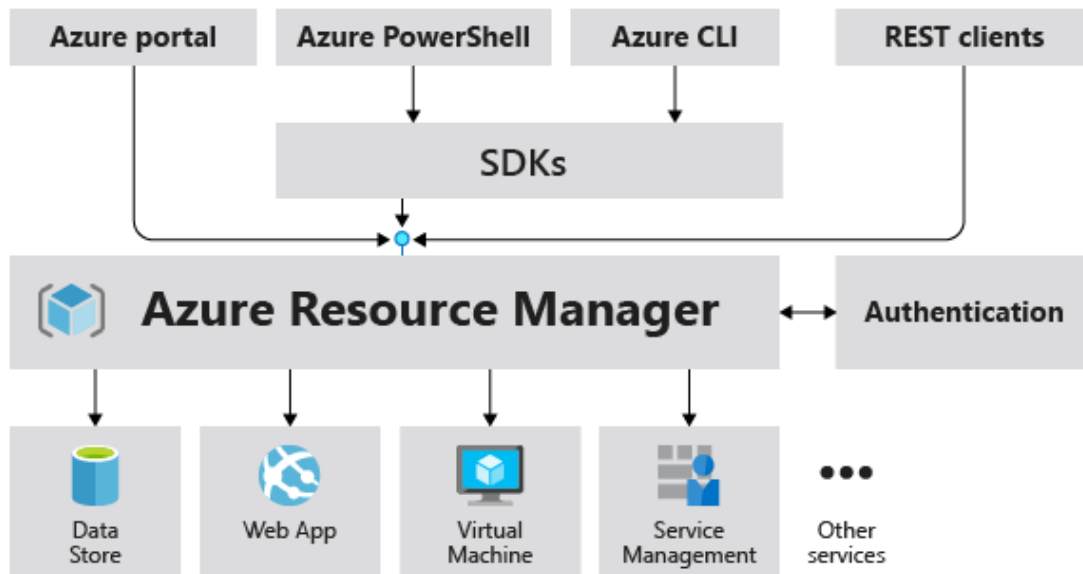
Understanding an existing workload for capacity planning involves analyzing historical data related to how the workload utilizes resources. It encompasses metrics like resource utilization, performance data, and workload patterns. This understanding ensures efficient resource allocation, translates business goals into technical requirements, and helps identify potential bottlenecks.

- *Understand the data:* Review the available historical data and understand its structure, format, and relevance to capacity planning. The review might include resource utilization metrics, workload patterns, performance metrics, and other relevant data points. Understand the business processes and the criticality of the applications. Identify the peak usage times, user load, transaction rates, and other relevant metrics.
- *Clean and preprocess the data:* Prepare the data for analysis by removing any inconsistencies, errors, or outliers. Preparing the data might involve data cleaning techniques like data imputation, the handling of missing values, or normalization.
- *Identify key metrics:* Identify the metrics that are relevant for capacity planning. Metrics can include CPU utilization, memory usage, network throughput, and response times.
- *Identify bottlenecks:* Measure throughput and response times to identify the specific components of your system that might become bottlenecks as the workload grows. Requests per second and database CPU usage can be good indicators of capacity.
- *Visualize the data:* Create visualizations, like charts or plots, to gain better insights into historical data. Visualizations can help you identify patterns, trends, and anomalies in data to give you a clearer understanding of workload behavior.

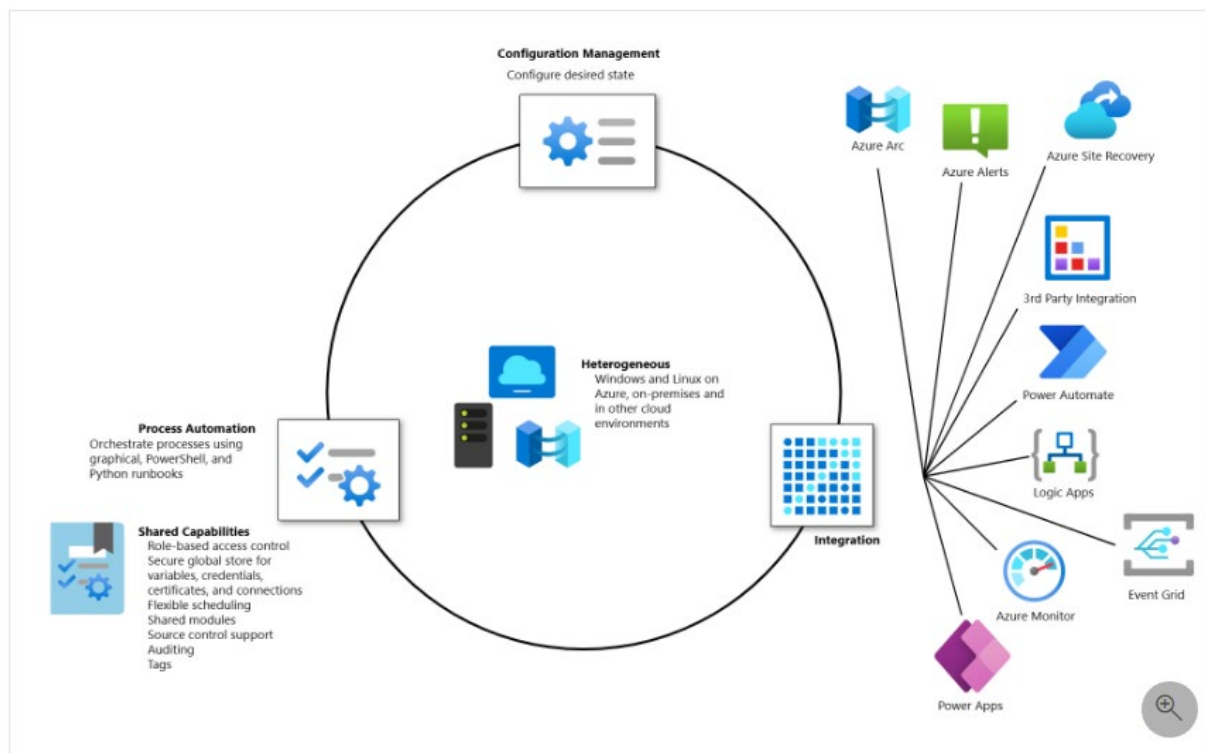
See, e.g., Ex. 108, *Recommendations for Capacity Planning*, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/well-architected/performance-efficiency/capacity-planning> (last updated Nov. 15, 2025).

137. Azure allows for automation of virtual applications across various cloud environments. Additionally, Azure can provide complete monitoring of resources and applications running in other clouds, such as Amazon Web Services (AWS) and Google Cloud Platform (GCP). See, e.g., Ex. 97, *Multicloud Monitoring With Azure Monitor*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/best-practices-multicloud> (last updated May 21, 2025);



Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025);



Ex. 47, *What is Azure Automation?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/overview> (last updated Apr. 24, 2025) (showing cloud-based automation

service that supports consistent deployment and management experience across Azure and non-Azure environments).

138. Thus, Azure satisfies all elements of exemplary Claim 20 of the '431 Patent.

139. Defendant's direct infringement of the '431 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

140. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

141. ToutVirtual is entitled to injunctive relief, damages, and any other relief in accordance with 35 U.S.C. §§ 283 and 285 for Defendant's direct infringement of the '431 Patent.

COUNT II
(Indirect Infringement of the '431 Patent)

142. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

143. As set forth above, Defendant has had knowledge of ToutVirtual's patents since at least as early as 2007 and has had specific knowledge of its infringement of the '431 Patent since at least the date of the Notice Letter, if not earlier.

144. As set forth above, Azure directly infringes the '431 Patent. Additionally, Defendant has and continues to indirectly infringe the '431 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Azure and/or by instructing customers how to make, install, and use Azure in a way that directly infringes at least Claim 20 of the '431 Patent.

145. For example, Defendant's customers and end-users directly infringe (either literally and/or under the doctrine of equivalents) through their use of the claimed invention of the '431 Patent. Defendant induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available Azure, and providing instructions, documentation, and other information to customers and end-users on how to use and suggesting that they use Azure in an infringing manner, including service agreements, terms of use, technical support, marketing, product manuals, advertisements, and online documentation. *See, e.g.*, Ex. 118, *Microsoft Azure Legal Information*, MICROSOFT, <https://azure.microsoft.com/en-us/support/legal/> (last updated Apr. 2023); *see also* Ex. 119, *Microsoft – Terms of Use*, MICROSOFT, <https://www.microsoft.com/en-us/legal/terms-of-use> (last updated Feb. 7, 2022); *see also, generally, supra*, exhibits cited in ¶¶ 121-141. To the extent that Defendant's customers and end-users direct and control the systems and performance of methods in the claims, Defendant obtains benefits from the control of the system and methods as a whole. Defendant and its customers and/or end-users put the systems and methods described in the claims into service to the benefit of Defendant's ability to provide automatic virtual system management over a computer network.

146. Because of Defendant's inducement, Defendant's customers and end-users use Azure in a way Defendant intends to, and does, directly infringe the '431 Patent. Defendant performs these affirmative acts with knowledge of the '431 Patent and with the intent, or willful blindness, that the induced acts directly infringe the '431 Patent.

147. Defendant has had knowledge of the '431 Patent and of its infringement of the '431 Patent at least by the time of service of this Complaint. As discussed above, Defendant has also known of ToutVirtual and its technology as early as 2007. On information and belief,

Defendant knew of ToutVirtual's patent portfolio. Additionally, Defendant has received notice of the Asserted Patents and the accused infringing technology in the Notice Letter.

Accordingly, Defendant has known, or has been willfully blind, of the '431 Patent.

148. Defendant's infringement of the '431 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

149. Defendant's infringement of the '431 Patent has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of ToutVirtual's rights under the '431 Patent.

150. Defendant's indirect infringement of the '431 Patent has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

151. ToutVirtual is entitled to injunctive relief, an award of treble damages, reasonable attorney fees, costs in bringing this action, and any other relief in accordance with 35 U.S.C. §§ 283, 284 and 285.

COUNT III
(Direct Infringement of the '762 Patent)

152. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

153. In violation of 35 U.S.C. § 271(a), Defendant directly infringed and continues to infringe (either literally and/or under the doctrine of equivalents) method claims 1-21 of the '762 Patent, including, for example, Claim 20 (as detailed below) by using in the United States the infringing products, including, but not limited to, Azure.

154. Defendant also infringes the method claims of the '762 Patent jointly with its customers to the extent that specific steps of the method are performed by those customers. Defendant directs and controls the customers' performance of the methods in the claims and conditions benefits to the customers performing the steps of the methods, particularly the ability to manage virtual assets running on a virtualization platform. Defendant conditions participation of the steps of the methods and/or receipt of a benefit from the customers' performance of those steps. Defendant also establishes the manner and timing of the customers' performance of those steps. In addition, the customers are contractually obligated to perform those steps pursuant to Defendant's Terms of Use. *See* Ex. 119, *Microsoft – Terms of Use*, MICROSOFT, <https://www.microsoft.com/en-us/legal/terms-of-use> (last updated Feb. 7, 2022). In particular, the customers obtain the benefits of managing virtual assets on a virtualization platform as described in the method claims when they practice such claims under Defendant's direction and control.

155. By way of example of Defendant's infringement of the '762 Patent, Azure meets all of the limitations of at least Claim 20 of the '762 Patent, which recites:

A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has physical resources, virtual assets and a virtualization layer running on a specific physical resource that manages the virtual assets, each virtual asset being a software instantiation of a computer system and one or more virtual assets managed by the virtualization layer running on the specific physical resource;

providing a physical controller coupled to the virtualization environment over a network;

performing one or more functions by the controller that communicates with the virtualization layer from the group of functions consisting of

identification and management of network resources and virtual assets,

provisioning of virtual assets using Knowledge Block parameters in response to network workflow demands,

automatic dynamic deployment of virtual assets across the computer network,

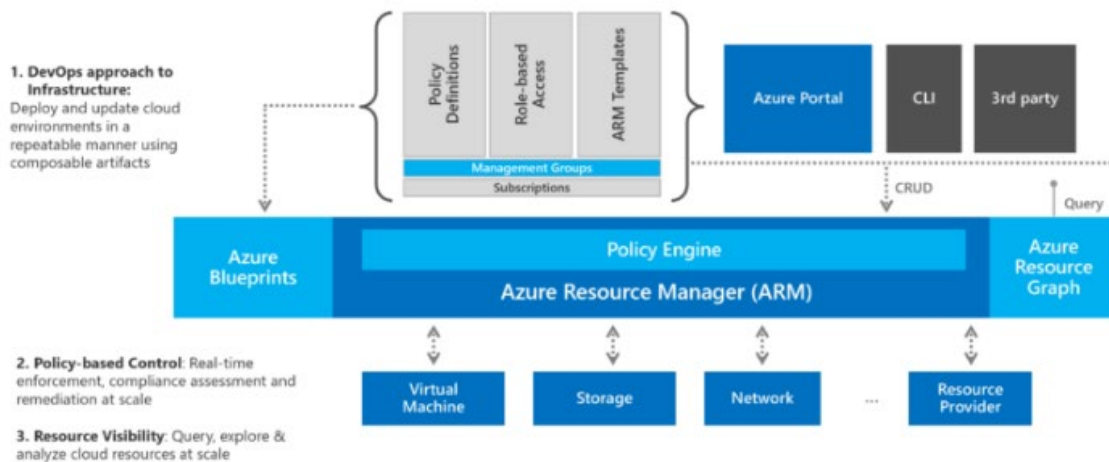
performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

156. Azure embodies the claimed invention and infringes the '762 Patent because, as described above, it practices each limitation of exemplary Claim 20 of the '762 Patent. For example, Azure performs a method for automatic management of a virtualization environment in a computer cloud network.

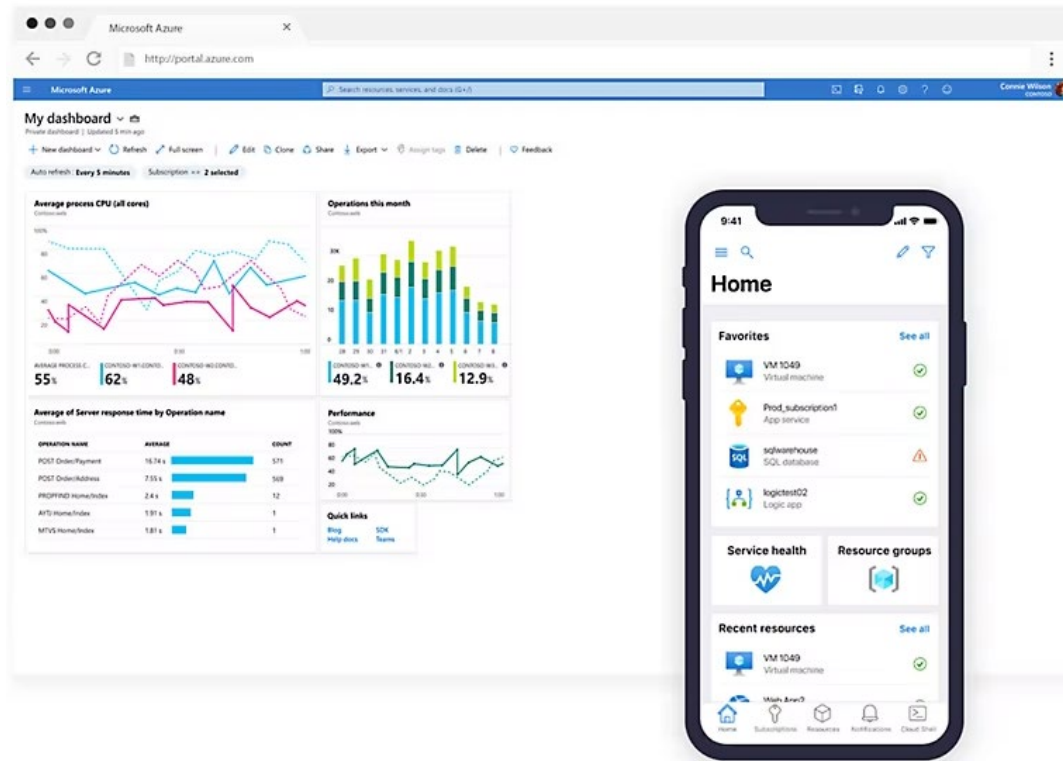
Azure Governance Architecture



1. Azure Management Groups: Management Groups provide a hierarchical structure for organizing and managing subscriptions. They allow centralized policy assignment and access control across multiple subscriptions.
2. Azure Subscriptions: Subscriptions are containers for Azure resources and services. They serve as the unit of ownership and billing in Azure. Each subscription can have its own policies, access controls, and resource limits.
3. Azure Policy: Azure Policy helps enforce compliance by defining and applying rules and guidelines for resource configurations. It ensures that resources deployed within Azure adhere to specific standards, regulatory requirements, or organizational policies.
4. Azure Blueprints: Azure Blueprints enable the rapid deployment of cloud environments based on predefined templates. Blueprints include a set of artifacts, such as resource groups, policies, and role assignments, that can be easily deployed and managed.
5. Azure Resource Manager: Azure Resource Manager (ARM) is the management layer that handles the creation, update, and deletion of Azure resources. It provides a unified API and control plane for managing resources across subscriptions.
6. Azure Role-Based Access Control (RBAC): RBAC allows fine-grained access control by assigning roles to users, groups, or applications. It ensures that only authorized individuals can perform specific actions on Azure resources.
7. Azure Cost Management + Billing: This service provides cost transparency and optimization capabilities. It helps track resource usage, monitor spending, and implement cost control measures to optimize cloud costs.
8. Azure Monitor: Azure Monitor provides comprehensive monitoring and insights into the performance and health of Azure resources. It enables organizations to track metrics, set alerts, and gain visibility into the operational state of their Azure environment.
9. Azure Security Center: Azure Security Center offers unified security management and threat protection across Azure resources. It provides security recommendations, threat detection, and advanced analytics to help organizations protect their cloud infrastructure.

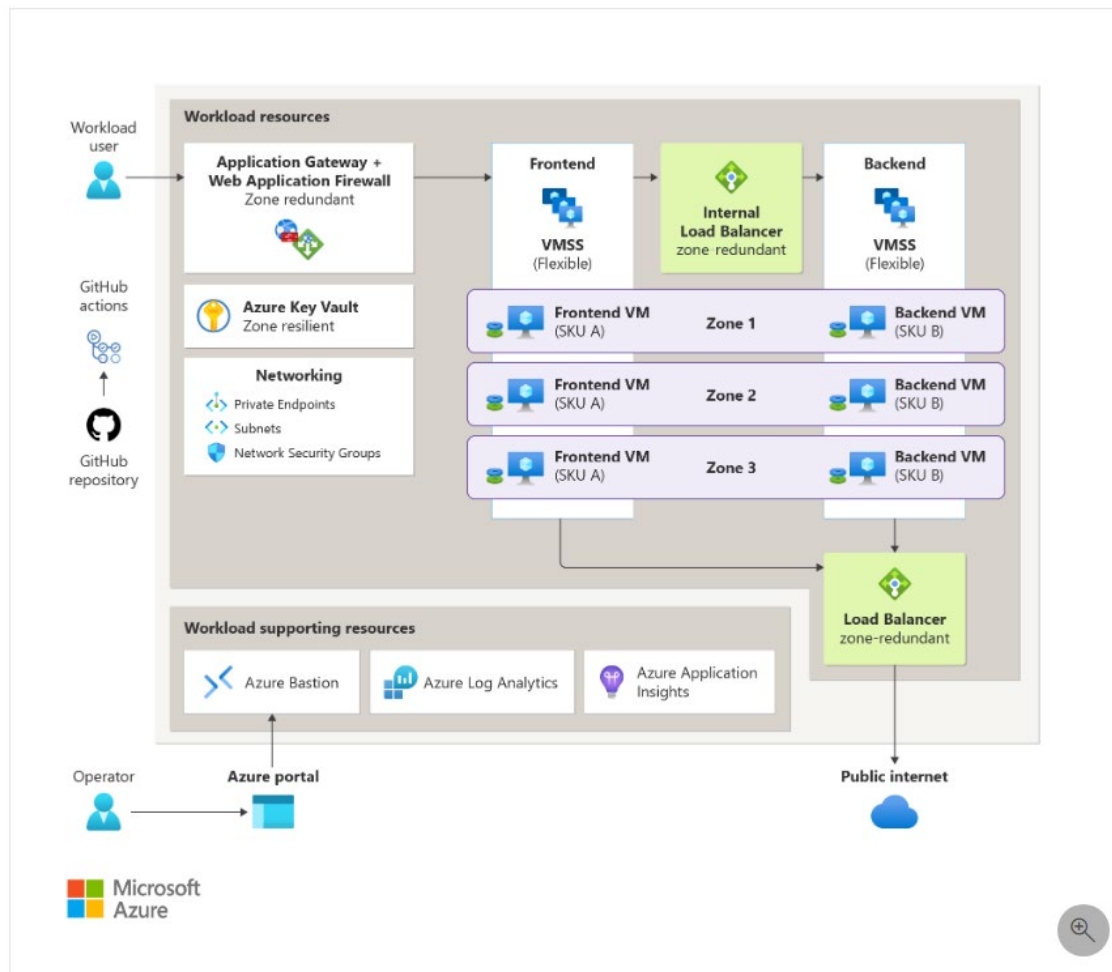
See, e.g., Ex. 68, The Architecture of Azure Governance, IZMIR SADIGOV (July 1, 2023),

<https://www.izmirsadigov.com/2023/07/01/the-architecture-of-azure-governance/>;

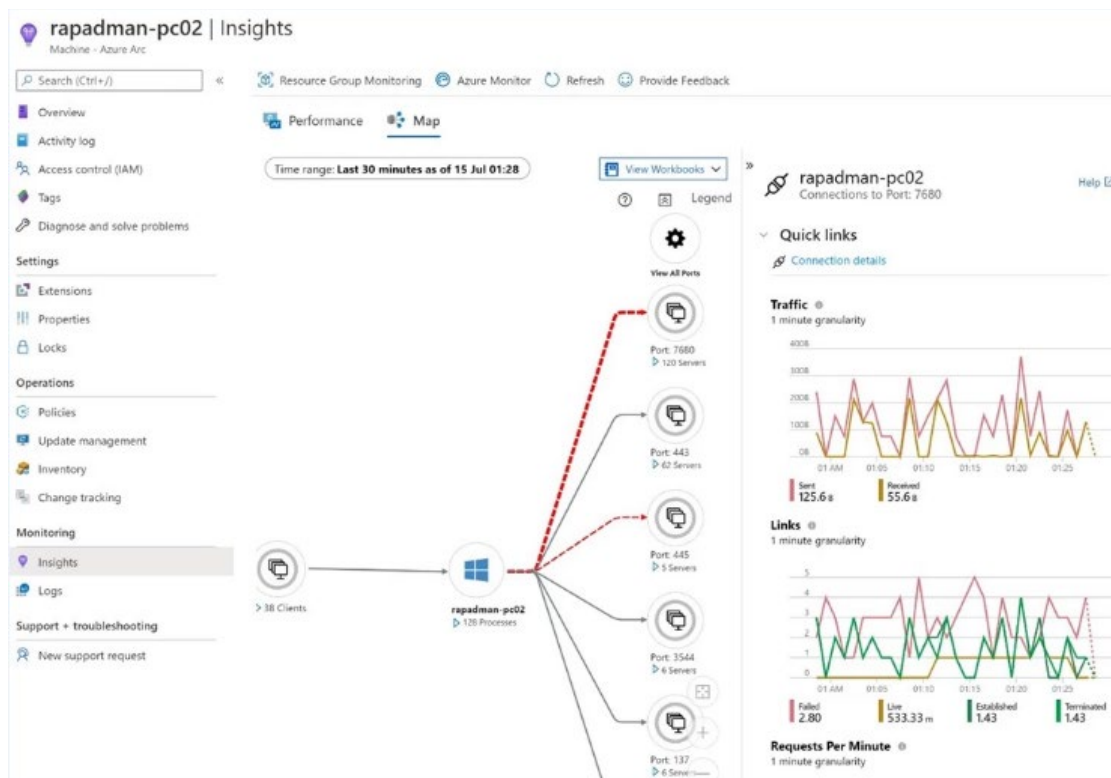


Ex. 72, *Microsoft Azure Portal*, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/get-started/azure-portal> (last visited Aug. 5, 2025).

157. Azure provides a virtualization environment that has physical resources (for example, servers), virtual assets which are software instantiation of a computer system (for example, virtual machines) and a virtualization layer (for example, hypervisors) that runs on a specific physical resource (for example, a server) that manages one or more virtual assets (for example, virtual machines).



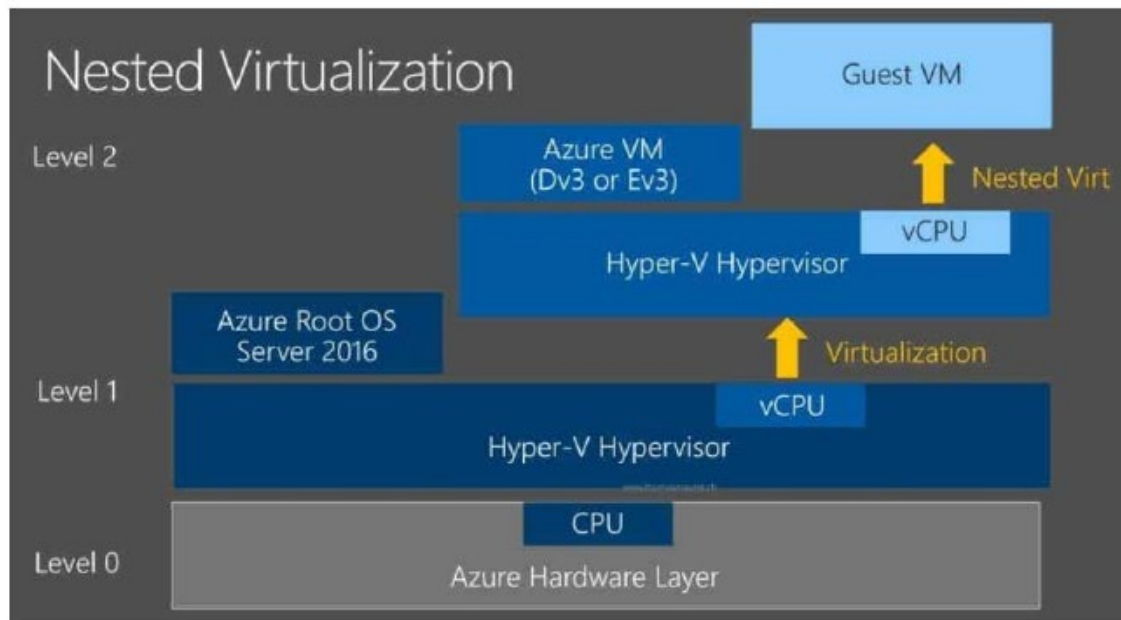
See, e.g., Ex. 73, *Azure Virtual Machines Baseline Architecture*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/architecture/virtual-machines/baseline> (last visited Aug. 5, 2025). Azure also includes servers (e.g., Azure Arc-enabled servers) that function in heterogeneous environments for management and automation.



See, e.g., Ex. 85, Austin Li, *Monitoring Azure Arc Enabled Kubernetes and Servers*, MICROSOFT BLOG (July 28, 2020), <https://azure.microsoft.com/en-us/blog/monitoring-azure-arc-enabled-kubernetes-and-servers/>; see also Ex. 86, *What are Azure Arc-Enabled Data Services?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/data/overview> (last updated July 24, 2025); Ex. 87, *What is Azure Arc-Enabled Kubernetes?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/kubernetes/overview> (last updated June 19, 2025).

158. For example, in the virtualization environment, Defendant's hypervisors, Hyper-Vs (for example, a virtualization layer) each run on a specific server executing the Hyper-V, such as x64 versions of Windows Servers. See Ex. 88, *Hyper-V Virtualization in Windows Server and Windows*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/virtualization/hyper-v/overview> (last updated Aug. 5, 2025). The virtual assets (for

example, virtual machines) are managed by a Hyper-V that operates on a specific server (for example, a hardware layer with a processor and memory).



See, e.g., Ex. 89, Thomas Maurer, *Hyper-V Container and Nested Virtualization in Microsoft Azure Virtual Machines*, THOMAS MAURER (May 15, 2017, 5:31 PM),

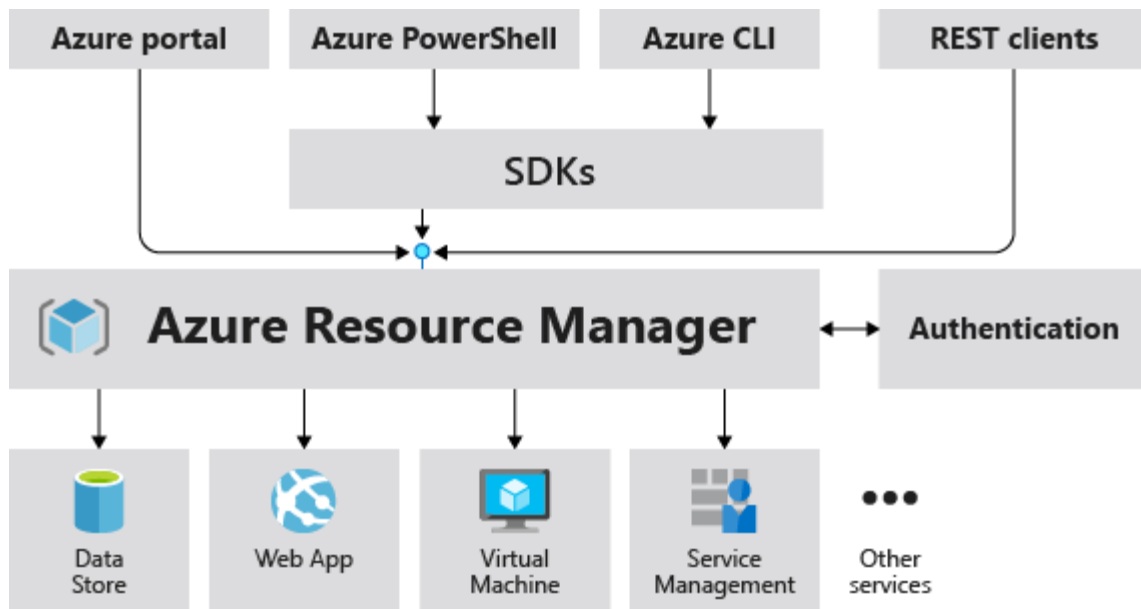
[https://www.thomasmaurer.ch/2017/05/hyper-v-container-and-nested-virtualization-in-](https://www.thomasmaurer.ch/2017/05/hyper-v-container-and-nested-virtualization-in-microsoft-azure-virtual-machines/)

[microsoft-azure-virtual-machines/](https://www.thomasmaurer.ch/2017/05/hyper-v-container-and-nested-virtualization-in-microsoft-azure-virtual-machines/); Ex. 90, *How to Replicate, Restore, and Fail over Using*

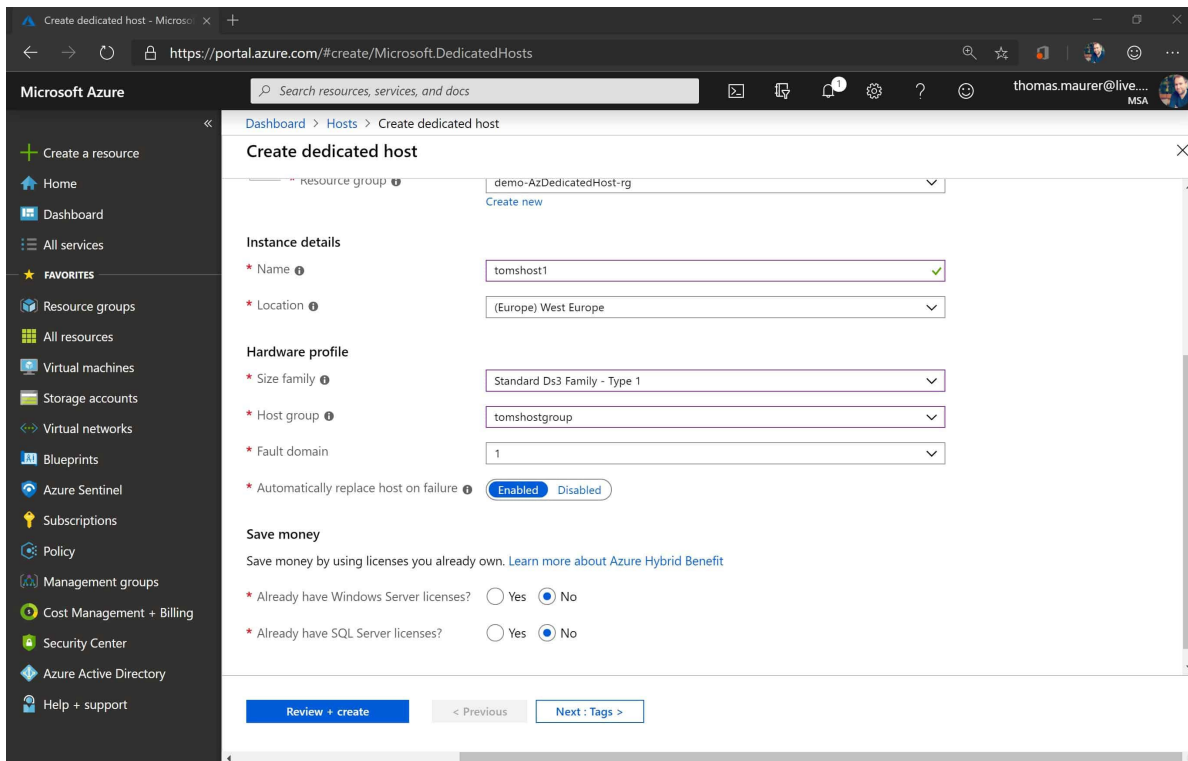
Hyper-V Nested Virtualization on Azure, MEDIUM (Mar. 24, 2020),

<https://nakivo.medium.com/how-to-replicate-restore-and-fail-over-using-hyper-v-nested-virtualization-on-azure-1399e2f8b103>.

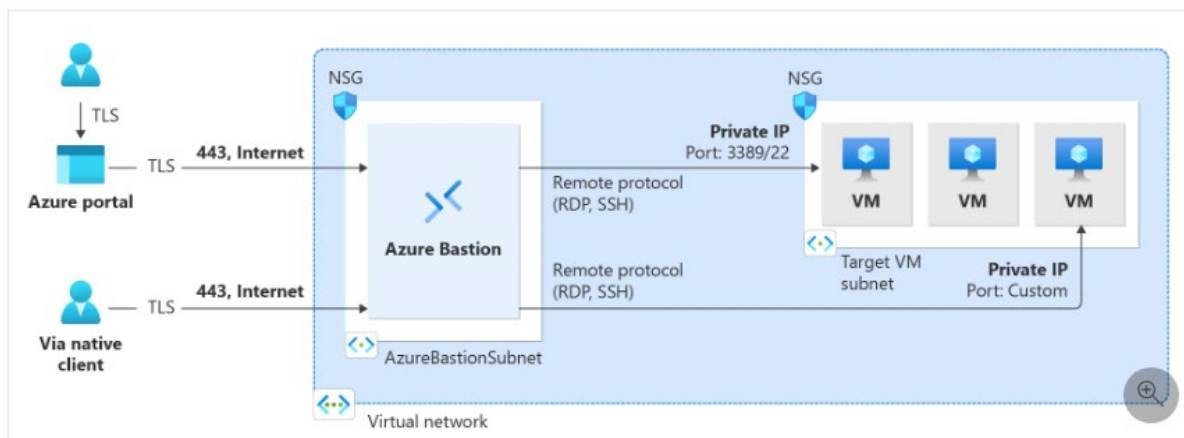
159. Azure provides a controller (e.g., Azure Resource Manager, Azure Portal, Windows Admin Center) executed on a physical control computer (e.g., Azure Dedicated Host) that is coupled to a virtualization environment over a cloud network and connects to virtual assets (for example, virtual machines) using network resources (e.g., Azure Bastion) over the cloud network.



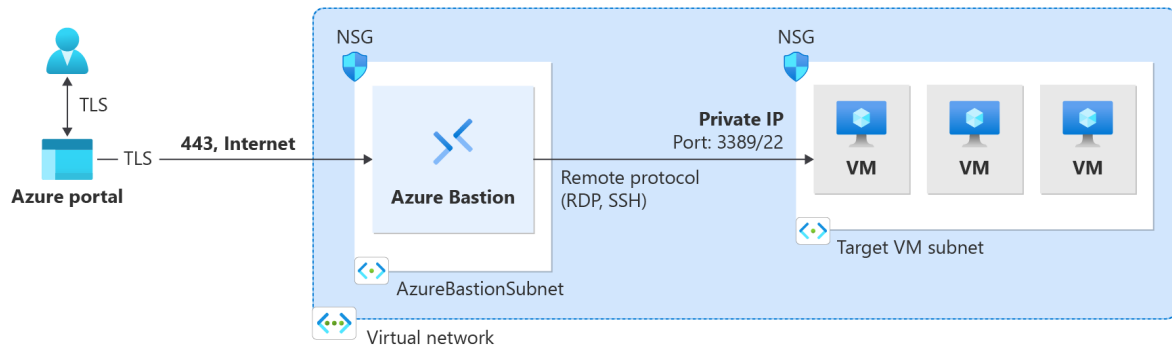
See, e.g., Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025); Ex. 46, *Azure Dedicated Hosts*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/virtual-machines/dedicated-hosts> (last updated Aug. 22, 2024) (describing how Azure provides physical servers as a directly accessible hardware resource);



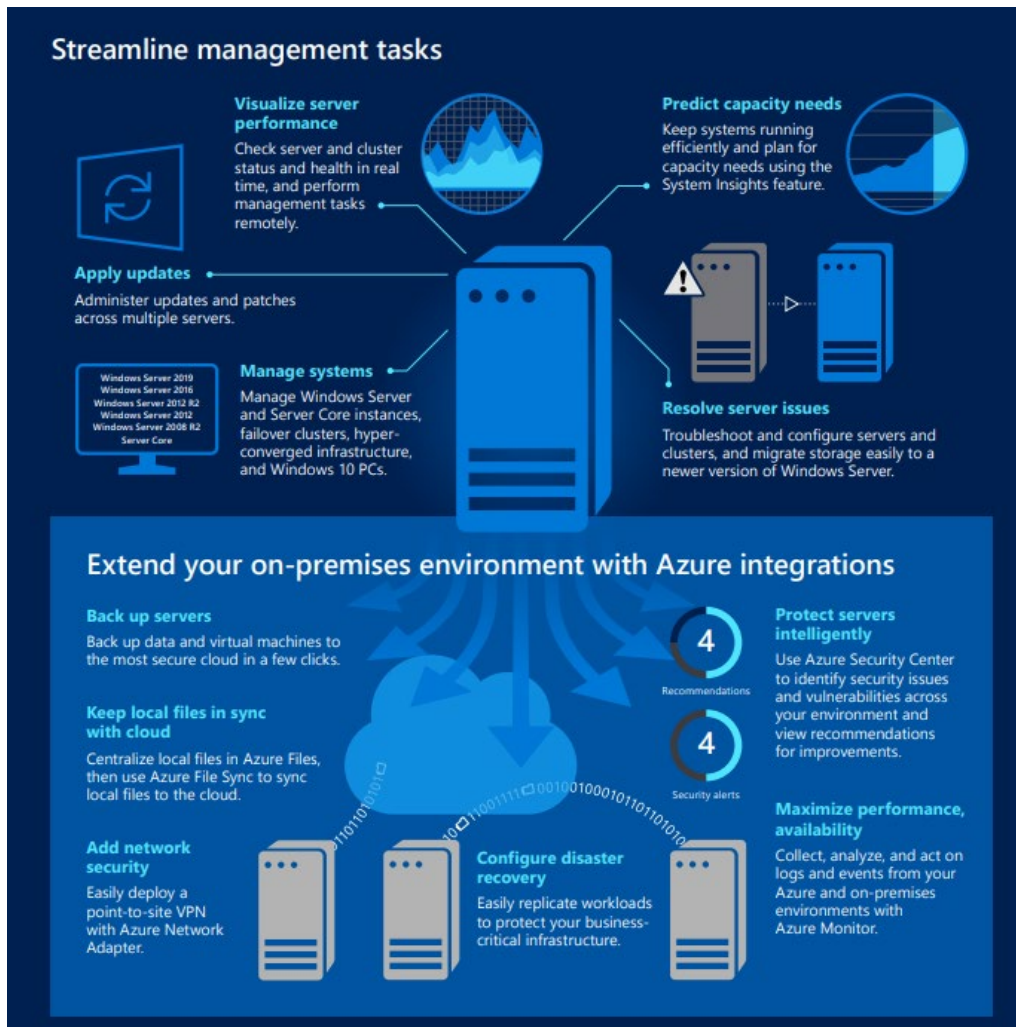
Ex. 82, Thomas Maurer, *Azure Dedicated Host for your Azure VMs*, THOMAS MAURER (Aug. 6, 2019), <https://www.thomasmaurer.ch/2019/08/azure-dedicated-host-for-your-azure-vm/> (Azure “enables customers to run Windows and Linux virtual machines on single dedicated physical servers” which gives visibility and control on what physical hardware the virtual machines are running on.);



Ex. 56, *What is Azure Bastion?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/bastion/bastion-overview> (last updated Mar. 14, 2025);

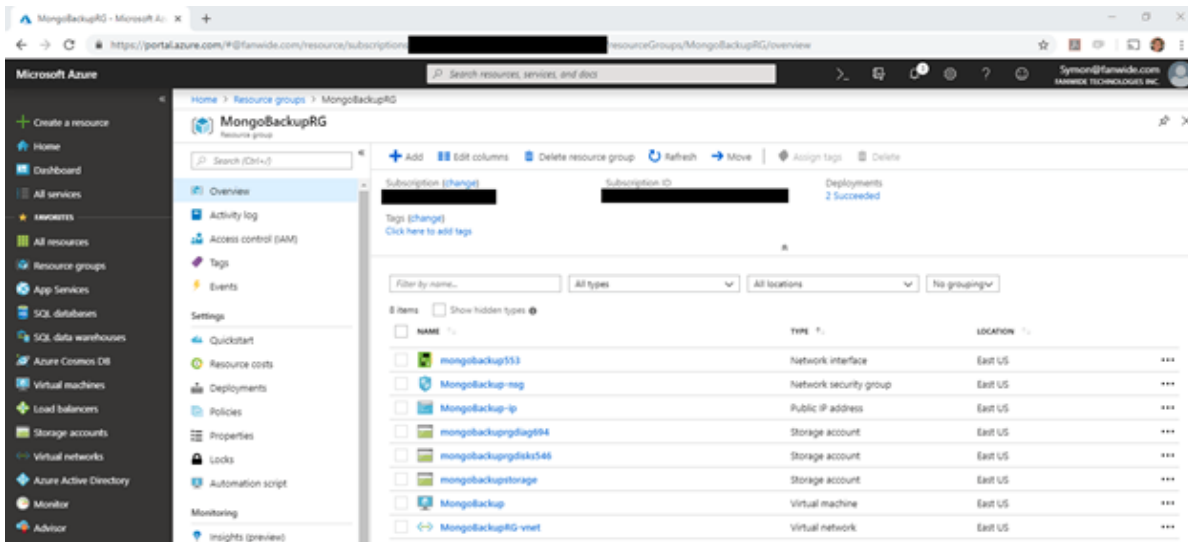


Ex. 79, *Quickstart: Deploy Azure Bastion to a virtual network by using an ARM template*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/bastion/quickstart-host-arm-template> (last updated Mar. 31, 2025);

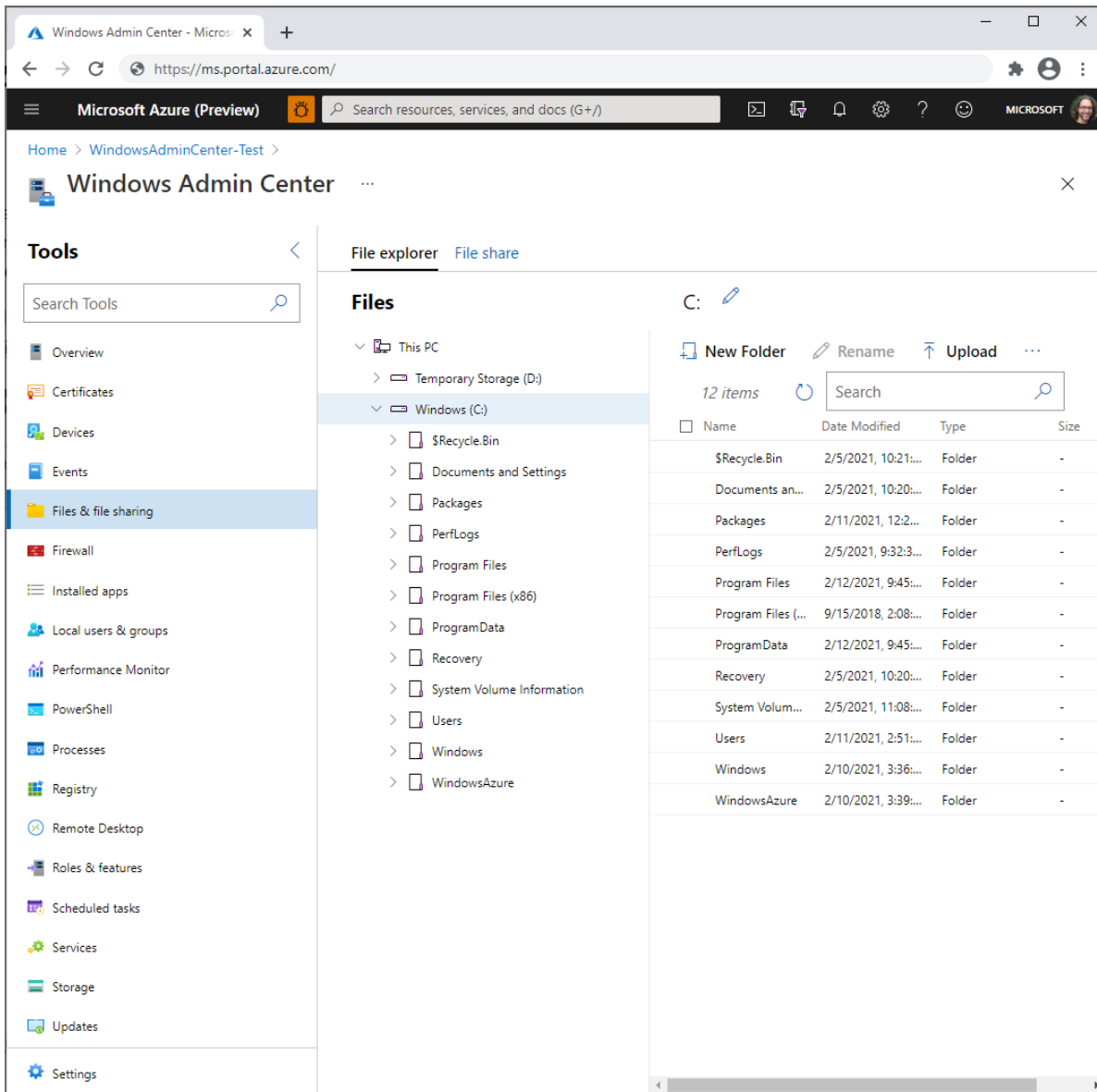


Ex. 78, *Reimagine server management with Windows Admin Center*, <https://cdn-dynmedia-1.microsoft.com/is/content/microsoftcorp/microsoft/final/en-us/microsoft-brand/documents/wac-infographic-190816-02.pdf?culture=en-us&country=us> (last visited Aug. 25, 2025).

160. Azure provides a controller (e.g., Azure Resource Manager, Azure Portal, Windows Admin Center) on a physical computer (e.g., Azure Dedicated Host) that communicates with the virtualization layer (for example, Hyper-Vs) to perform, through APIs, one or more functions from a group of functions (for example, management functions and automation) in Azure and non-Azure platforms.



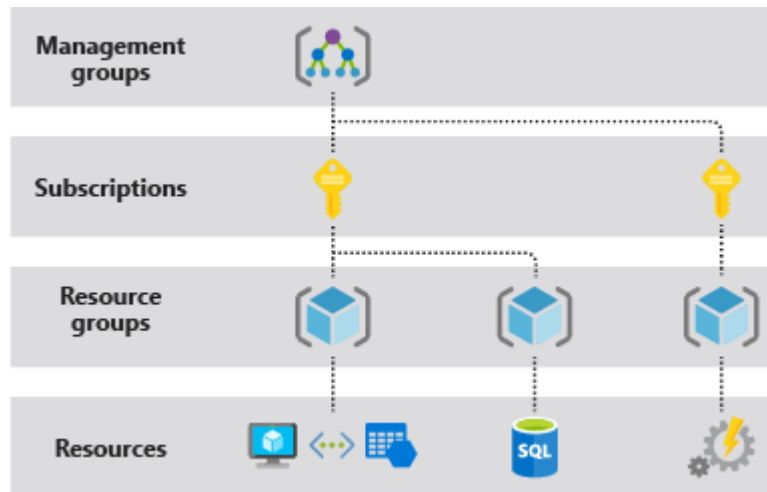
See, e.g., Ex. 70, Symon Perriman, *Introduction to Microsoft Azure Resource Manager (ARM)*, VIRTUALIZATION DOJO, https://virtualizationdojo.com/hyper-v/azure-resource-manager/#Centralized_Management_with_Azure_Resource_Manager_ARM (last updated Feb. 15, 2019) (Azure “lets you see and manage everything for this workload’s life cycle in a single operation, including deployment, updating and deleting.”);



See, e.g., Ex. 77, *Manage a Windows VM using Windows Admin Center in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/azure/manage-vm> (last updated June 18, 2025) (describing management of Windows operating system using Azure); Ex. 74, *Manage Virtual Machines by Using Windows Admin Center*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/use/manage-virtual-machines> (last updated Feb. 10, 2025) (The Virtual Machines tool in Windows Admin Center can “manage Hyper-V hosts

running Windows Server, either installed with Desktop Experience or installed as Server Core.”).

161. Azure provides a web-based, unified console that identifies, manages, and monitors network resources and virtual assets (for example, virtual machines, applications) from simple web apps to complex cloud deployments.



See, e.g., Ex. 39, *What is the Azure Portal?*, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/azure-portal/azure-portal-overview> (last updated Sept.

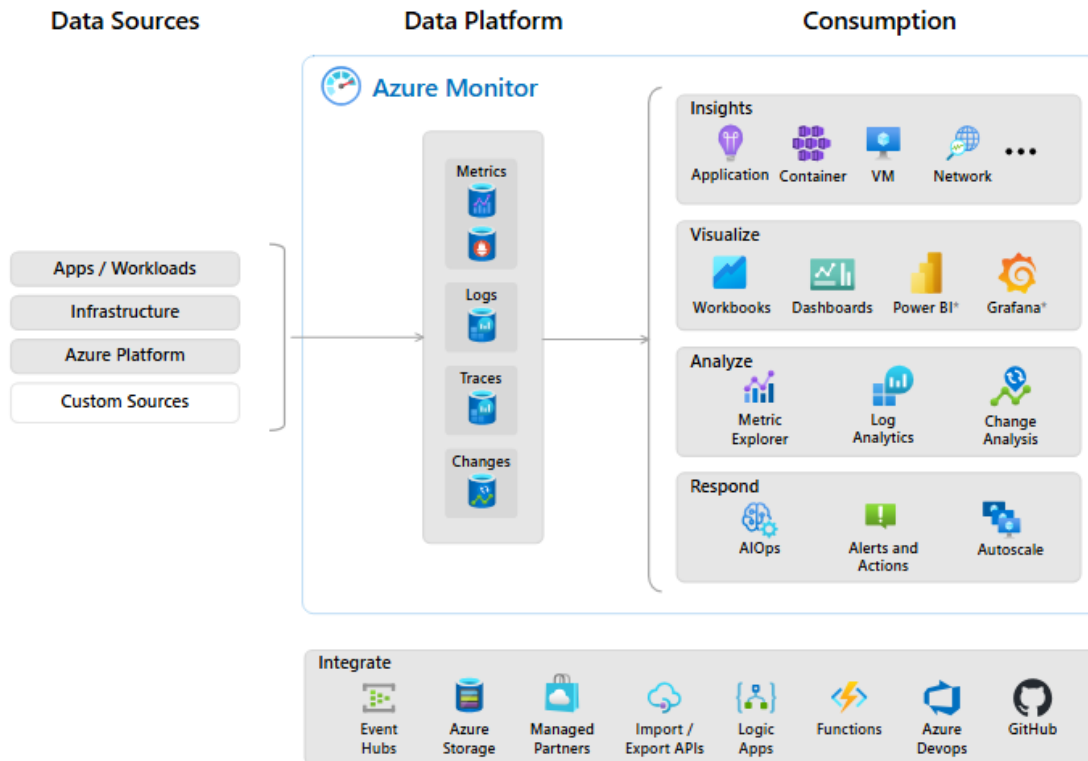
19, 2024); Ex. 71, *Manage Azure Resources by Using the Azure Portal*, MICROSOFT LEARN,

[https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/manage-](https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/manage-resources-portal)

[resources-portal](https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/manage-resources-portal) (last updated Sept. 26, 2024). Azure provides a comprehensive monitoring

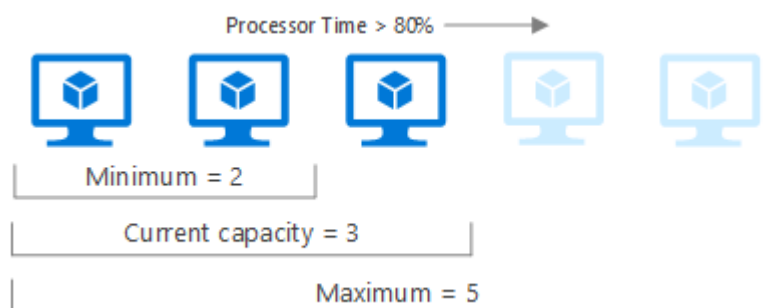
solution for collecting, analyzing, and responding to monitoring data from the cloud and on-

premises environments.



See, e.g., Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/overview> (last updated Aug. 26, 2025).

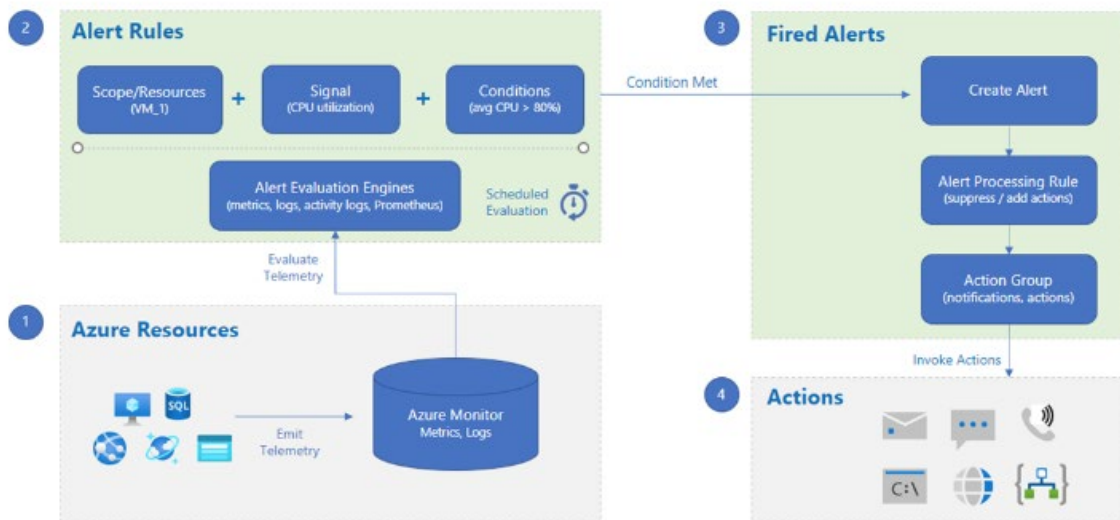
162. Azure provisions virtual assets in response to network workflow demands. For example, Azure's Autoscale functionality enables automatic scaling of virtual and network resources based on demand and can be accessed through Azure.



See, e.g., Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/overview> (last updated Aug. 26, 2025); Ex. 91, *Overview*

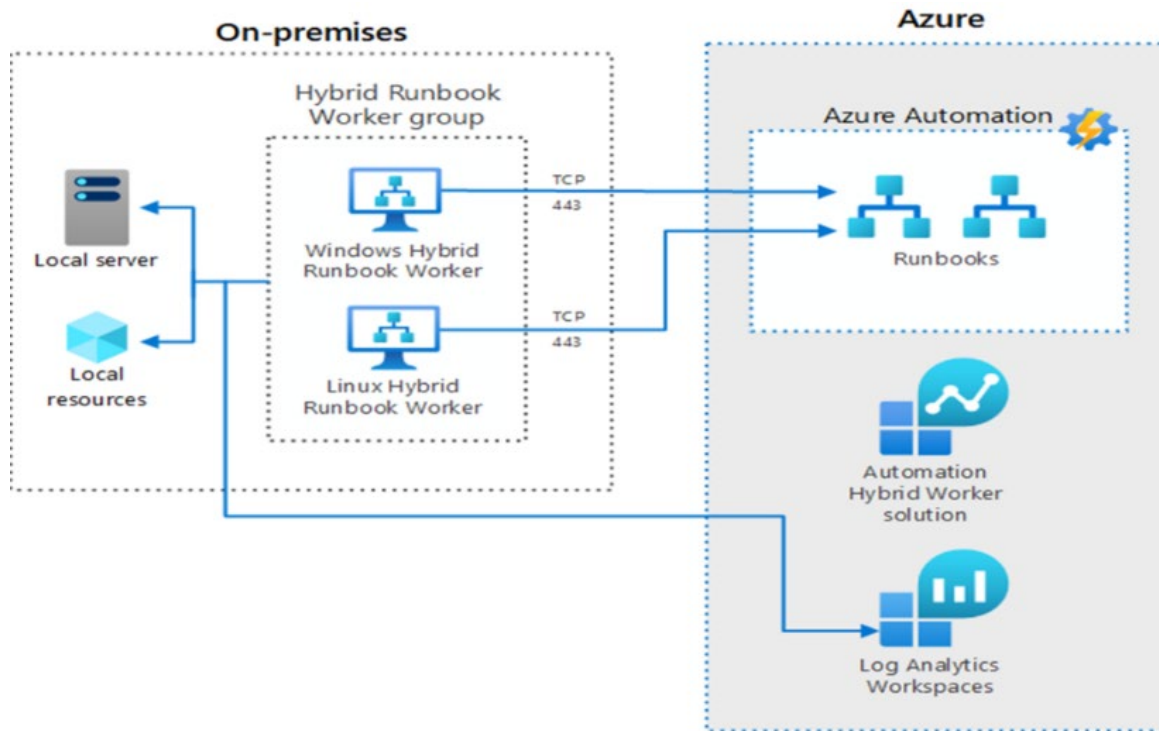
of Autoscale in Azure, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-overview> (last updated Nov. 1, 2024).

163. Azure may be configured by users, such that Azure alerts users when it detects issues with the virtualization environment and provides solutions in response to such issues.

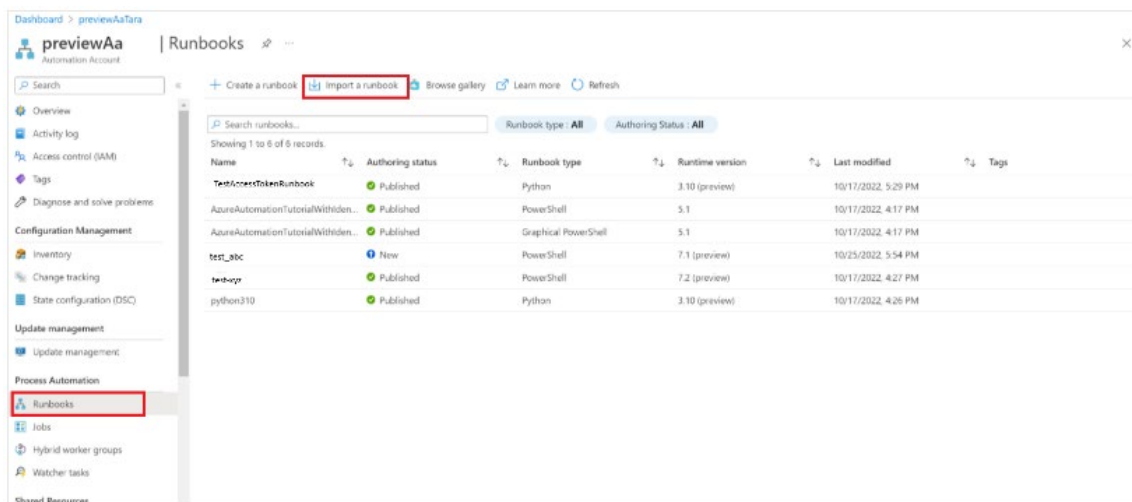


See, e.g., Ex. 109, *What are Azure Monitor Alerts?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/alerts/alerts-overview> (last updated May 19, 2025); Ex. 101, *Create an Azure Automation account using a Resource Manager template?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/quickstart-create-automation-account-template> (last updated Sept. 15, 2024).

164. Azure provides automatic dynamic deployment of virtual assets across the computer network based on the reallocation parameters. For example, virtual machines (for example, virtual assets) run on Hyper-Vs (for example, virtualization layer) that operate on a server (e.g., Windows Servers) within Defendant's datacenters or on-premise local servers. The virtual machines then receive and automate the runbook provisioning request on the server, with the request being accessible via Azure.

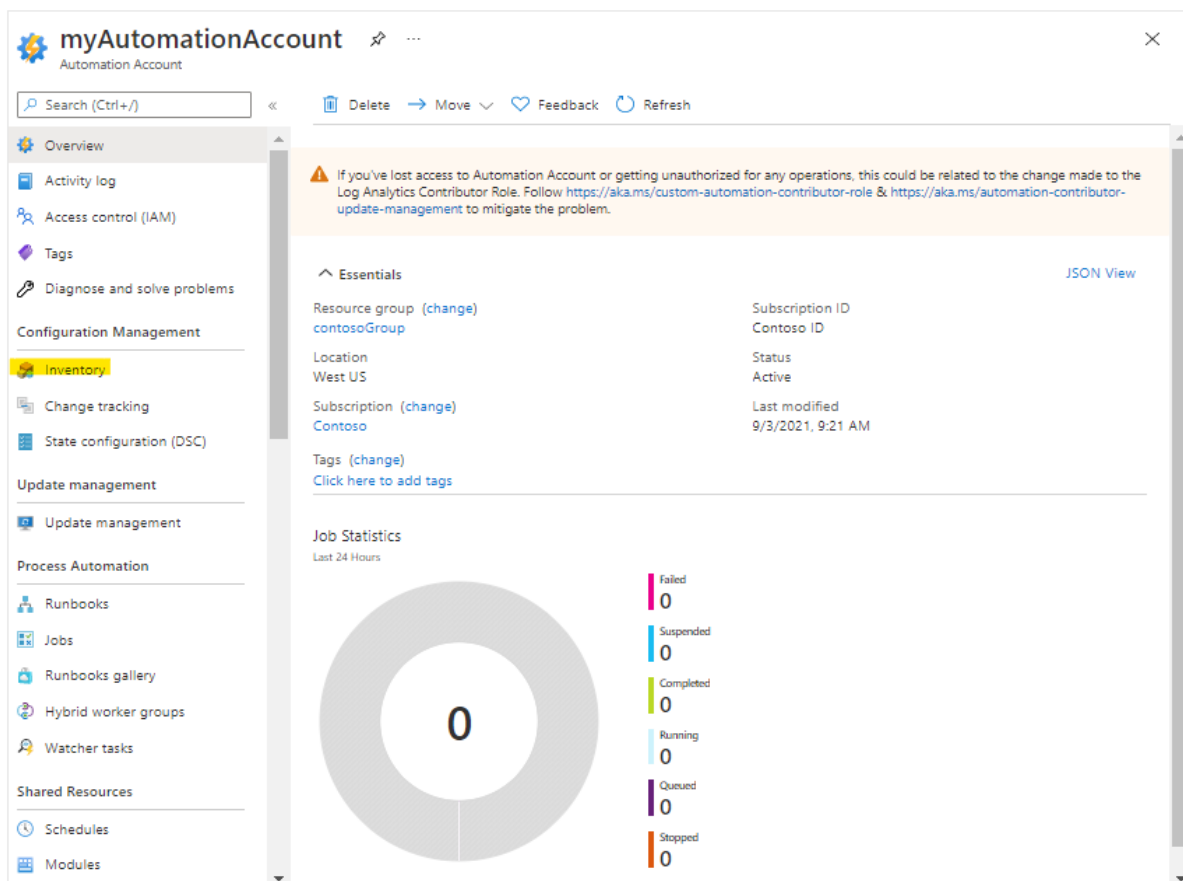


See, e.g., Ex. 115, Deepak Rai, *SCCM Automation using Azure Runbook Hybrid Worker*, HOW TO MANAGE DEVICES, <https://www.anoopenair.com/sccm-automation-using-azure-runbook-hybrid-worker/> (last updated July 22, 2022);



Ex. 116, *Use Existing Runbooks and Modules*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/automation-runbook-gallery> (last updated Sept. 9, 2024).

165. For example, runbooks (for example, provisioning requests) can be created in Azure and deploy web apps and other virtual services by using the “Inventory” feature to identify necessary actions like creating or updating web apps based on detected changes in the inventory data. Azure executes the process automation feature that runs runbooks (for example, provisioning requests), which communicate with the “Change Tracking and Inventory” feature. See, e.g., Ex. 98, *Overview of Change Tracking and Inventory Using Azure Monitoring Agent*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/change-tracking/overview-monitoring-agent?tabs=win-az-vm> (last updated Mar. 13, 2025);



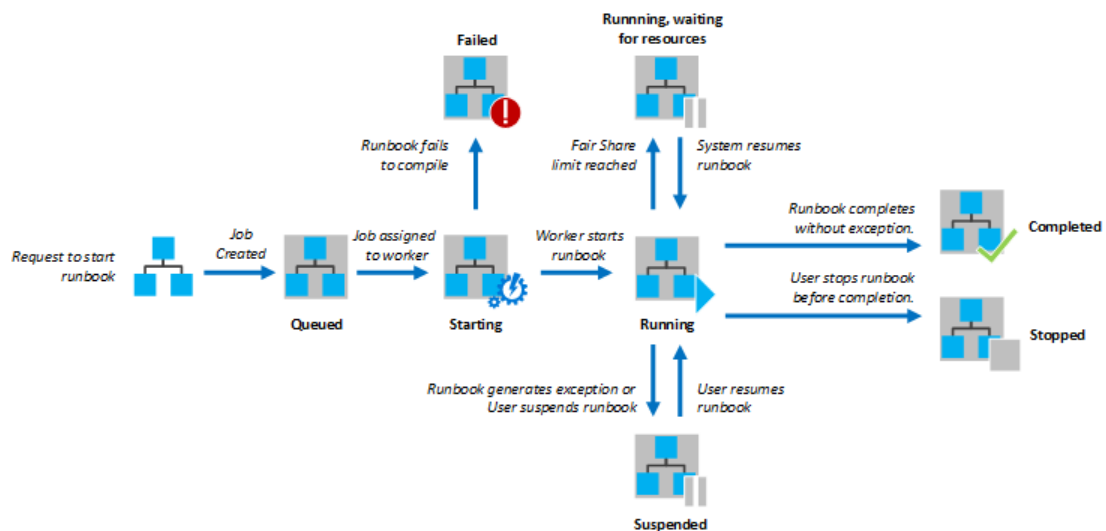
Ex. 100, *Create a Standalone Azure Automation Account*, MICROSOFT LEARN,
<https://learn.microsoft.com/en-us/azure/automation/automation-create-standalone-account?tabs=azureportal> (last updated Aug. 20, 2024);

Categories in Automation operations

Automation is required in three broad categories of operations:

- **Deployment and management of resources:** Create and configure programmatically using automation or infrastructure as code tooling to deliver repeatable and consistent deployment and management of cloud resources. For example, an Azure Network Security Group can be deployed, and security group rules are created using an Azure Resource Manager template or an automation script.
- **Response to external events:** Based on a critical external event, such as responding to database changes, acting as per the inputs given to a web page, and so on, you can diagnose and resolve issues.
- **Complex Orchestration:** By integrating with first- or third-party products, you can define end-to-end automation workflows.

Ex. 99, *Choose the Automation Services in Azure*, MICROSOFT LEARN,
<https://learn.microsoft.com/en-us/azure/automation/automation-services> (last updated Aug. 12, 2024). The figure below shows a diagram of a runbook request process:



See, e.g., Ex. 117, *Runbook Execution in Azure Automation*, MICROSOFT LEARN,
<https://learn.microsoft.com/en-us/azure/automation/automation-runbook-execution> (last updated June 11, 2025).

166. Azure provides performance measurement and reporting of resources and virtual assets. For example, Azure executes inventory metric features, which collect metrics and display the collected data on dashboards. *See, e.g., Ex. 97, Multicloud Monitoring with Azure Monitoring*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/best-practices-multicloud> (last updated May 21, 2025). Azure generates resource logs which provide insight into the detailed operation of resources and helps monitor their health and availability. *See, e.g., Ex. 96, Collect and Analyze Resource Logs from an Azure Resource in Azure Monitor*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/platform/tutorial-resource-logs> (last updated July 18, 2025).

167. Azure enables predictive forecast planning based on metric data.

Azure facilitation

Gathering capacity data and forecasting demand: **Azure Monitor** enables you to collect and analyze telemetry data from your applications and infrastructure. It supports the monitoring of various Azure resources, including virtual machines, containers, and storage accounts. Key tools include **Application Insights** and **Log Analytics**. By configuring data collection and defining metrics and logs that you want to monitor, you can gather valuable workload data for analysis. For **network monitoring**, combine Azure Monitor with Azure Network Watcher, Azure Monitor network insights, and Azure ExpressRoute monitoring.

Azure Monitor allows you to analyze historical data and apply forecasting techniques to predict future workload trends and capacity requirements. You can generate forecasts that can help you with capacity planning. These forecasts help estimate server capacity, network bandwidth, storage capacity, and other resource needs by using predicted demand patterns.

Determining resource requirements: Because they provide a wide range of configurations, Azure tools and services can help you define technical requirements. You can align your workload requirements with available Azure resources, ensuring that you select the appropriate components and settings to meet your functional needs.

Understanding resource limitations: Azure provides documentation and resources to help you understand the performance limitations of various **Azure services and SKUs**. Taking into consideration these limitations can help you make informed design decisions and optimize your workload architecture for performance and cost-effectiveness.

Azure provides scalability options like autoscaling, which can automatically adjust resources based on workload demand. You can scale vertically by increasing the capacity of a resource by using a larger virtual machine size, or you can scale horizontally by adding new instances of a resource. Azure services that have autoscaling capabilities can automatically scale out to ensure capacity during workload peaks and return to normal when the load decreases. There are scaling limits within your configuration and services that you should be aware of. You can read the documentation or run tests. Azure provides tools like **Azure Load Testing**, which can simulate load and different usage patterns to help you gather relevant data about your workload.

Understand an existing workload

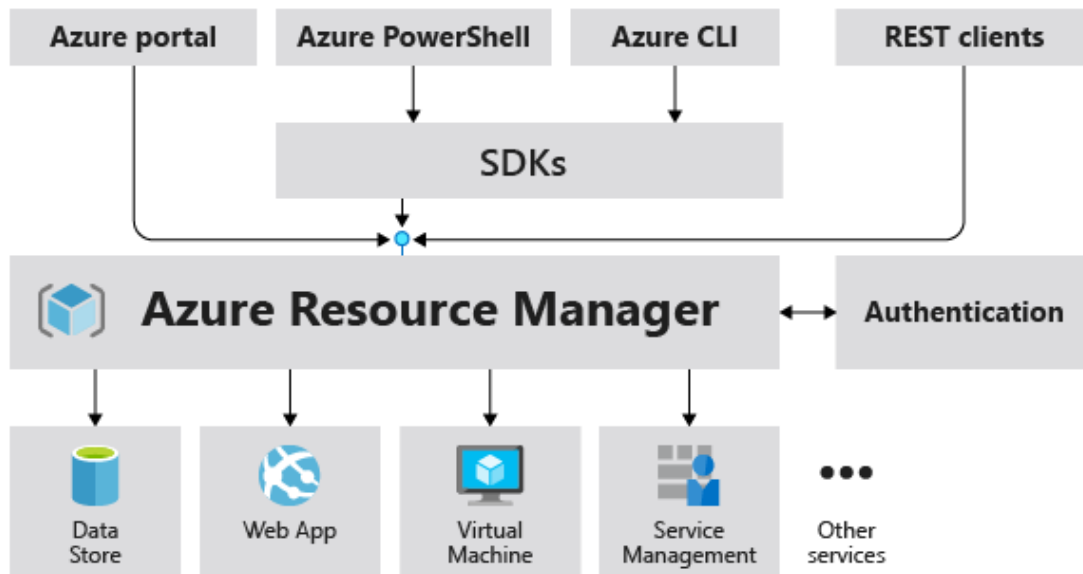
Understanding an existing workload for capacity planning involves analyzing historical data related to how the workload utilizes resources. It encompasses metrics like resource utilization, performance data, and workload patterns. This understanding ensures efficient resource allocation, translates business goals into technical requirements, and helps identify potential bottlenecks.

- *Understand the data:* Review the available historical data and understand its structure, format, and relevance to capacity planning. The review might include resource utilization metrics, workload patterns, performance metrics, and other relevant data points. Understand the business processes and the criticality of the applications. Identify the peak usage times, user load, transaction rates, and other relevant metrics.
- *Clean and preprocess the data:* Prepare the data for analysis by removing any inconsistencies, errors, or outliers. Preparing the data might involve data cleaning techniques like data imputation, the handling of missing values, or normalization.
- *Identify key metrics:* Identify the metrics that are relevant for capacity planning. Metrics can include CPU utilization, memory usage, network throughput, and response times.
- *Identify bottlenecks:* Measure throughput and response times to identify the specific components of your system that might become bottlenecks as the workload grows. Requests per second and database CPU usage can be good indicators of capacity.
- *Visualize the data:* Create visualizations, like charts or plots, to gain better insights into historical data. Visualizations can help you identify patterns, trends, and anomalies in data to give you a clearer understanding of workload behavior.

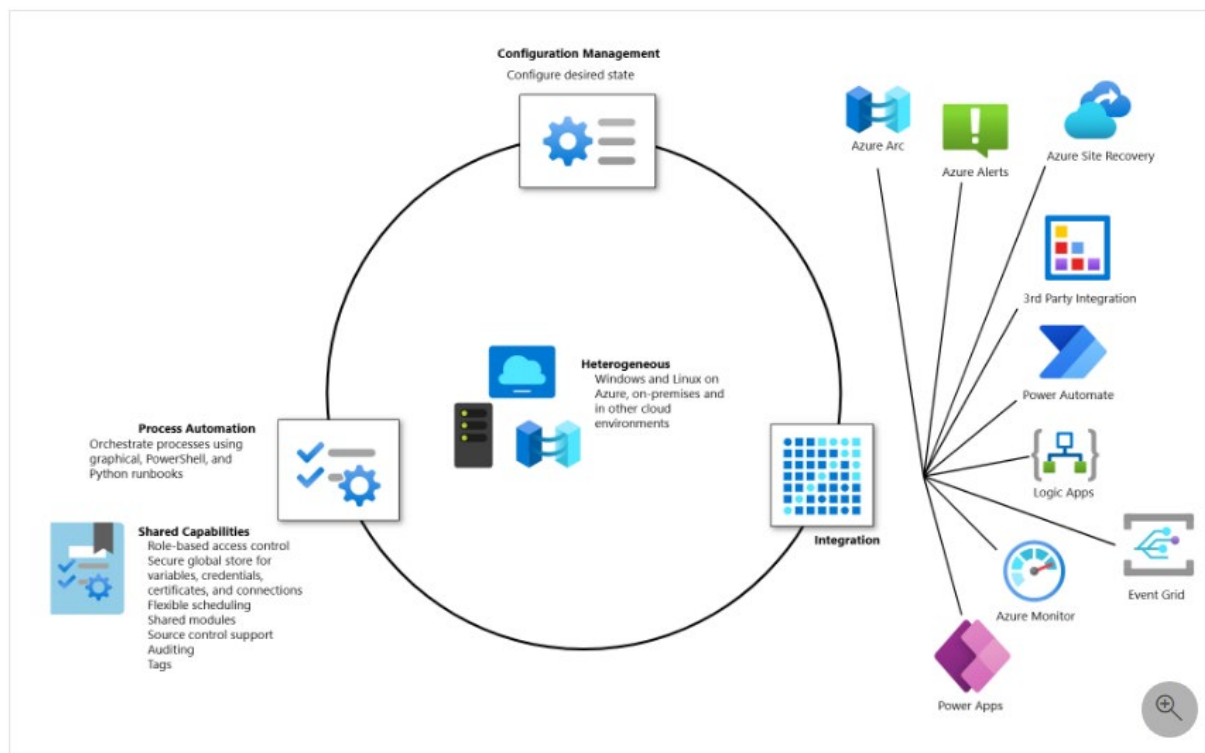
See, e.g., Ex. 108, *Recommendations for Capacity Planning*, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/well-architected/performance-efficiency/capacity-planning> (last updated Nov. 15, 2025).

168. Azure allows for automation of virtual applications across various cloud environments. Additionally, Azure can provide complete monitoring of resources and applications running in other clouds, such as Amazon Web Services (AWS) and Google Cloud Platform (GCP). See, e.g., Ex. 97, *Multicloud Monitoring With Azure Monitor*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/best-practices-multicloud> (last updated May 21, 2025);



Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025);



Ex. 47, *What is Azure Automation?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/overview> (last updated Apr. 24, 2025) (showing cloud-based automation

service that supports consistent deployment and management experience across Azure and non-Azure environments).

169. Thus, Azure satisfies all elements of exemplary Claim 20 of the '762 Patent.

170. Defendant's direct infringement of the '762 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

171. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

172. ToutVirtual is entitled to injunctive relief, damages, and any other relief in accordance with 35 U.S.C. §§ 283 and 285 for Defendant's direct infringement of the '762 Patent.

COUNT IV
(Indirect Infringement of the '762 Patent)

173. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

174. As set forth above, Defendant has had knowledge of ToutVirtual's patents since at least as early as 2007 and has had specific knowledge of its infringement of the '762 Patent since at least the date of the Notice Letter, if not earlier.

175. As set forth above, Azure directly infringes the '762 Patent. Additionally, Defendant has and continues to indirectly infringe the '762 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Azure and/or by instructing customers how to make, install, and use Azure in a way that directly infringes at least Claim 20 of the '762 Patent.

176. For example, Defendant's customers and end-users directly infringe (either literally and/or under the doctrine of equivalents) through their use of the claimed invention of the '762 Patent. Defendant induces its customers' and end-users' direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available Azure, and encouraging the infringement of its customers' and end-users' by providing instructions, documentation, and other information to customers and end-users on how to use and suggesting that they use Azure in an infringing manner, including service agreements, terms of use, technical support, marketing, product manuals, advertisements, and online documentation. *See, e.g.,* Ex. 118, *Microsoft Azure Legal Information*, MICROSOFT, <https://azure.microsoft.com/en-us/support/legal/> (last updated Apr. 2023); *see also* Ex. 119, *Microsoft – Terms of Use*, MICROSOFT, <https://www.microsoft.com/en-us/legal/terms-of-use> (last updated Feb. 7, 2022); *see also, generally, supra*, exhibits cited in ¶¶ 152-172.

177. Because of Defendant's inducement, Defendant's customers and end-users use Azure in a way Defendant intends and does directly infringe the '762 Patent. Defendant performs these affirmative acts with knowledge of the '762 Patent and with the intent, or willful blindness, that the induced acts directly infringe the '762 Patent.

178. Defendant has had knowledge of the '762 Patent and of its infringement of the '762 Patent at least by the time of service of this Complaint. As discussed above, Defendant has also known of ToutVirtual and its technology as early as 2007. On information and belief, Defendant knew of ToutVirtual's patent portfolio. Additionally, Defendant has received notice of the Asserted Patents and the accused infringing technology in the Notice Letter. Accordingly, Defendant has known, or has been willfully blind, of the '762 Patent.

179. Defendant's infringement of the '762 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

180. Defendant's infringement of the '762 Patent has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of ToutVirtual's rights under the '762 Patent.

181. Defendant's indirect infringement of the '762 Patent has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

182. ToutVirtual is entitled to injunctive relief, an award of treble damages, reasonable attorney fees, costs in bringing this action, and any other relief in accordance with 35 U.S.C. §§ 283, 284 and 285.

COUNT V
(Direct Infringement of the '050 Patent)

183. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

184. In violation of 35 U.S.C. § 271(a), Defendant directly infringed and continues to infringe (either literally and/or under the doctrine of equivalents) one or more claims of the '050 Patent, including, for example, Claim 9 (as detailed below) by making, using, selling, offering for sale, and/or importing into the United States infringing products, including, but not limited to, Azure.

185. Defendant also infringes the claims of the '050 Patent jointly with its clients to the extent that specific components are provided by those clients. Defendant directs and controls the system and methods in the claims and obtains and confers benefits to its customers

from the control of the system as a whole. In particular, Defendant puts the systems and methods into service to benefit its ability to provide management of virtual assets running on a virtualization platform.

186. By way of example of Defendant's infringement of the '050 Patent, Azure meets all of the limitations of at least Claim 9 of the '050 Patent, which recites:

An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

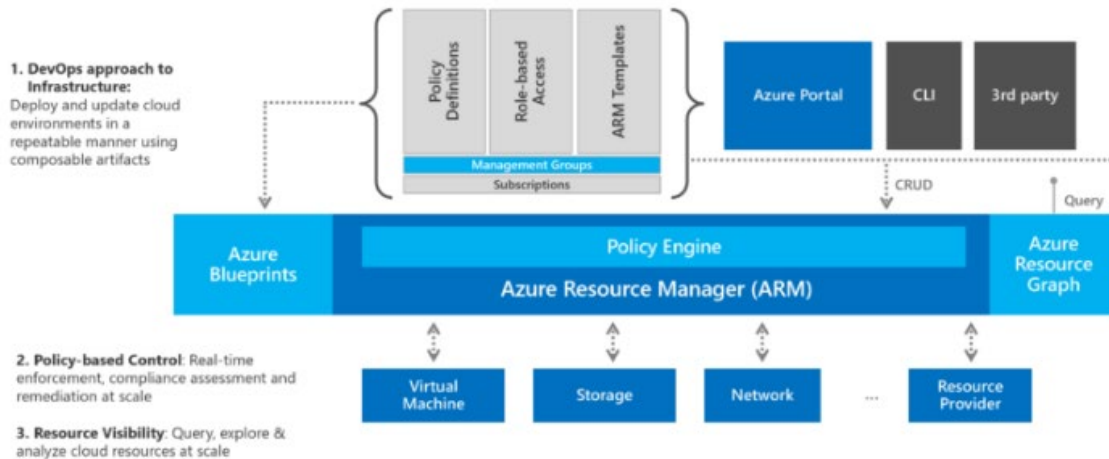
a virtualization environment having a computer device with a processor and memory and a control center computer coupled to the computer device, the virtualization environment having an inventory that includes network resources and virtual assets being software instantiations of computer systems hosted on the computer device and a virtualization layer executed by the computer device that manages the virtual assets;

the control center computer executing a virtual mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the virtual mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment; and

the control center computer executing a provisioning manager 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.

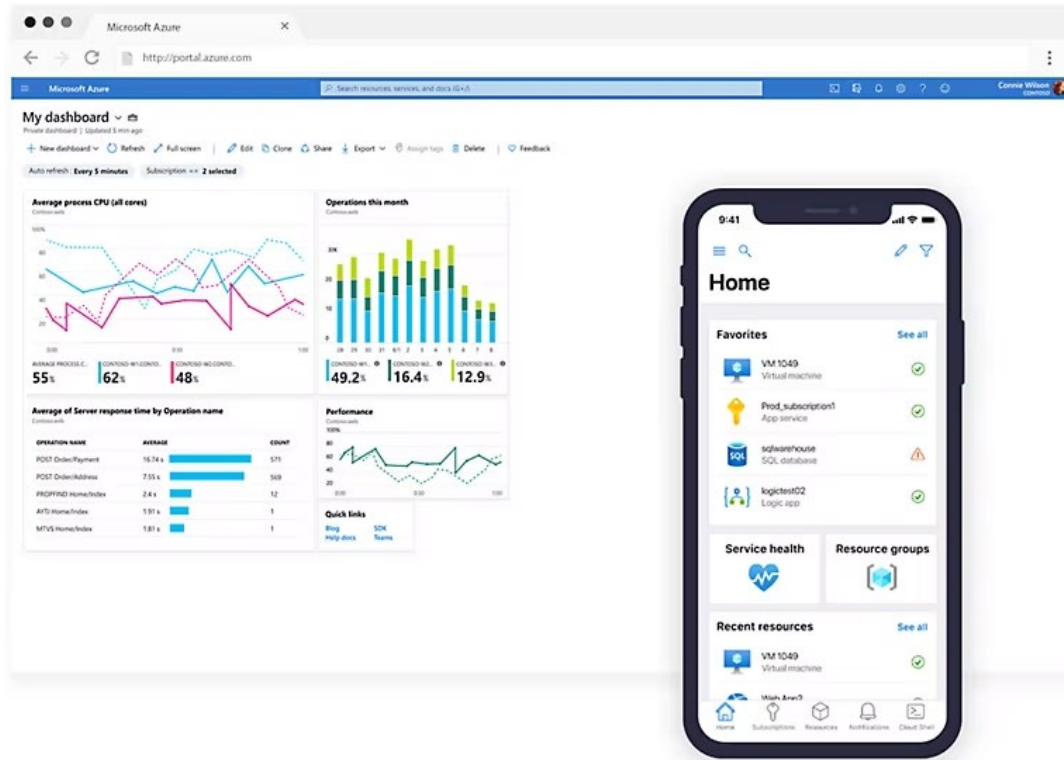
187. Azure embodies the claimed invention and infringes the '050 Patent because, as described above, it practices each limitation of exemplary Claim 9 of the '050 Patent. For example, Azure is an apparatus that performs automatic management of a virtualization environment in a computer cloud network.

Azure Governance Architecture

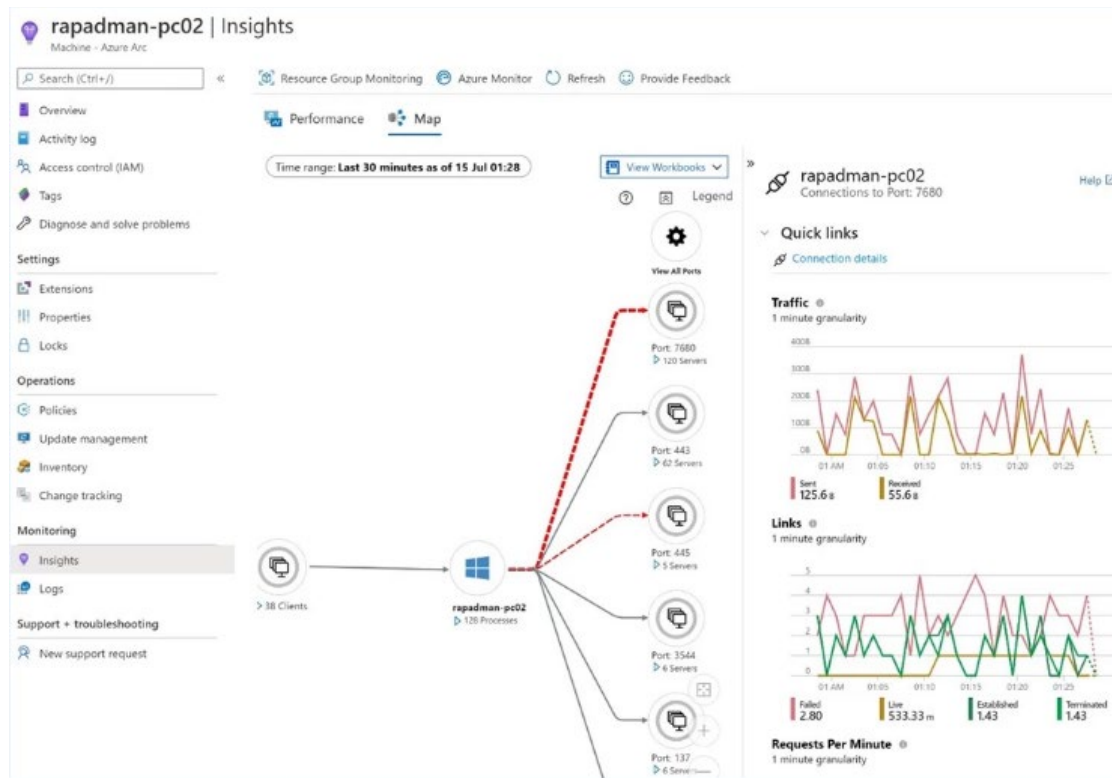


1. Azure Management Groups: Management Groups provide a hierarchical structure for organizing and managing subscriptions. They allow centralized policy assignment and access control across multiple subscriptions.
2. Azure Subscriptions: Subscriptions are containers for Azure resources and services. They serve as the unit of ownership and billing in Azure. Each subscription can have its own policies, access controls, and resource limits.
3. Azure Policy: Azure Policy helps enforce compliance by defining and applying rules and guidelines for resource configurations. It ensures that resources deployed within Azure adhere to specific standards, regulatory requirements, or organizational policies.
4. Azure Blueprints: Azure Blueprints enable the rapid deployment of cloud environments based on predefined templates. Blueprints include a set of artifacts, such as resource groups, policies, and role assignments, that can be easily deployed and managed.
5. Azure Resource Manager: Azure Resource Manager (ARM) is the management layer that handles the creation, update, and deletion of Azure resources. It provides a unified API and control plane for managing resources across subscriptions.
6. Azure Role-Based Access Control (RBAC): RBAC allows fine-grained access control by assigning roles to users, groups, or applications. It ensures that only authorized individuals can perform specific actions on Azure resources.
7. Azure Cost Management + Billing: This service provides cost transparency and optimization capabilities. It helps track resource usage, monitor spending, and implement cost control measures to optimize cloud costs.
8. Azure Monitor: Azure Monitor provides comprehensive monitoring and insights into the performance and health of Azure resources. It enables organizations to track metrics, set alerts, and gain visibility into the operational state of their Azure environment.
9. Azure Security Center: Azure Security Center offers unified security management and threat protection across Azure resources. It provides security recommendations, threat detection, and advanced analytics to help organizations protect their cloud infrastructure.

See, e.g., Ex. 68, *The Architecture of Azure Governance*, IZMIR SADIGOV (July 1, 2023), <https://www.izmirsadigov.com/2023/07/01/the-architecture-of-azure-governance/>;



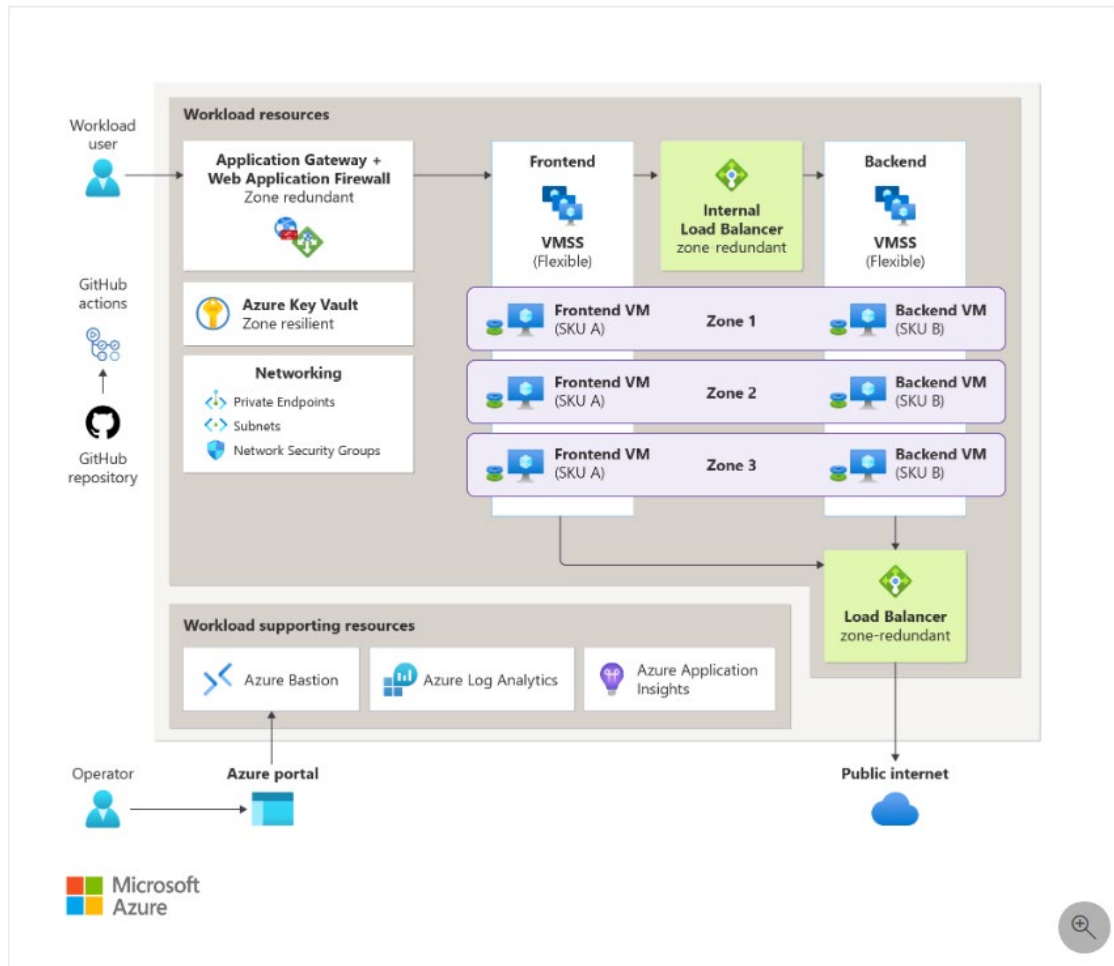
Ex. 72, *Microsoft Azure Portal*, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/get-started/azure-portal> (last visited Aug. 5, 2025). Azure also includes servers (e.g., Azure Arc-enabled servers) that function in heterogeneous environments for management and automation.



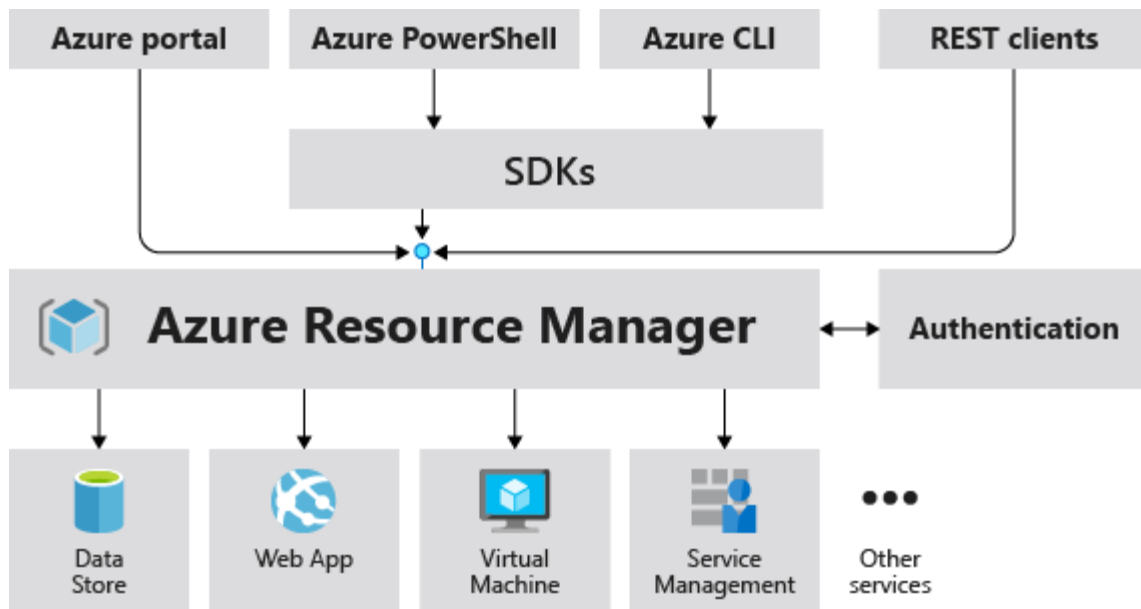
See, e.g., Ex. 85, Austin Li, *Monitoring Azure Arc Enabled Kubernetes and Servers*, MICROSOFT BLOG (July 28, 2020), <https://azure.microsoft.com/en-us/blog/monitoring-azure-arc-enabled-kubernetes-and-servers/>; see also Ex. 86, *What are Azure Arc-Enabled Data Services?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/data/overview> (last updated July 24, 2025); Ex. 87, *What is Azure Arc-Enabled Kubernetes?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/kubernetes/overview> (last updated June 19, 2025).

188. Azure provides a control center computer (e.g., Azure Portal, Windows Admin Center) that is coupled to computer devices with a processor and memory (for example, a server) (e.g., Azure Dedicated Host), a virtualization environment with inventory that includes network resources (e.g., Azure Bastion) and virtual assets (for example, virtual machines) which are software instantiations of computer systems hosted on the computer device, and a

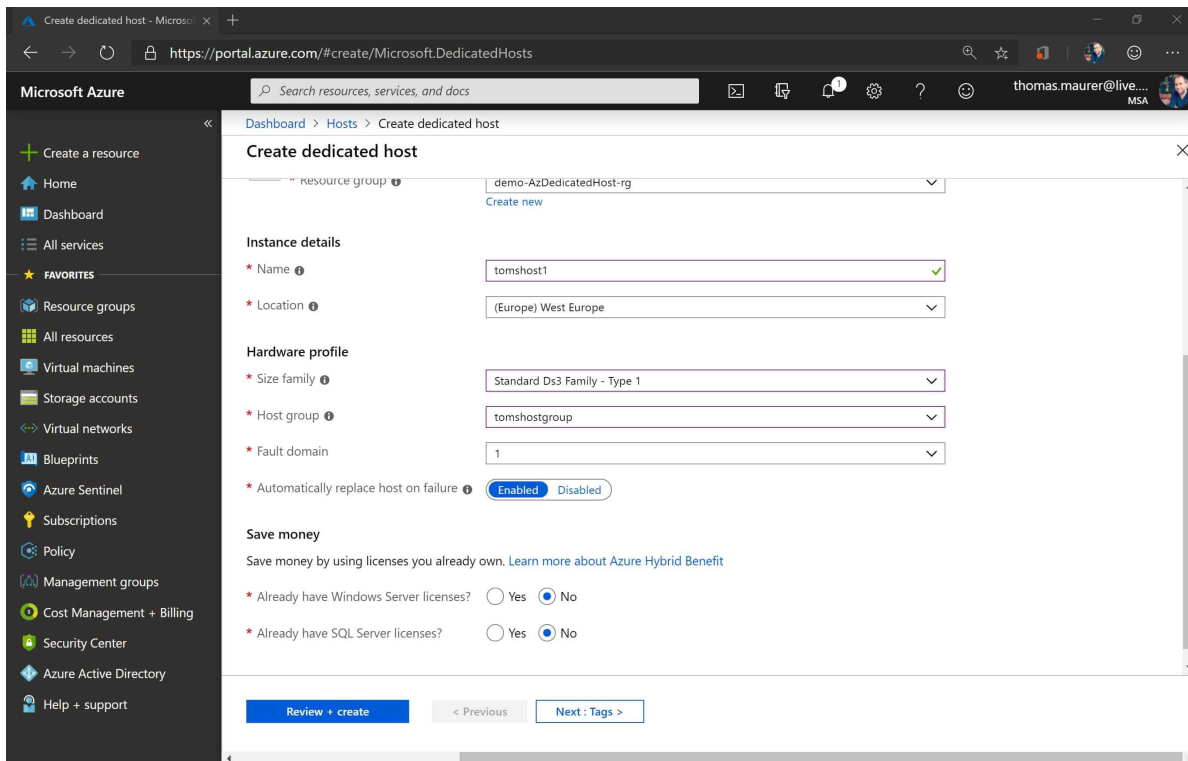
virtualization layer (for example, hypervisors) that manages virtual assets (for example, virtual machines).



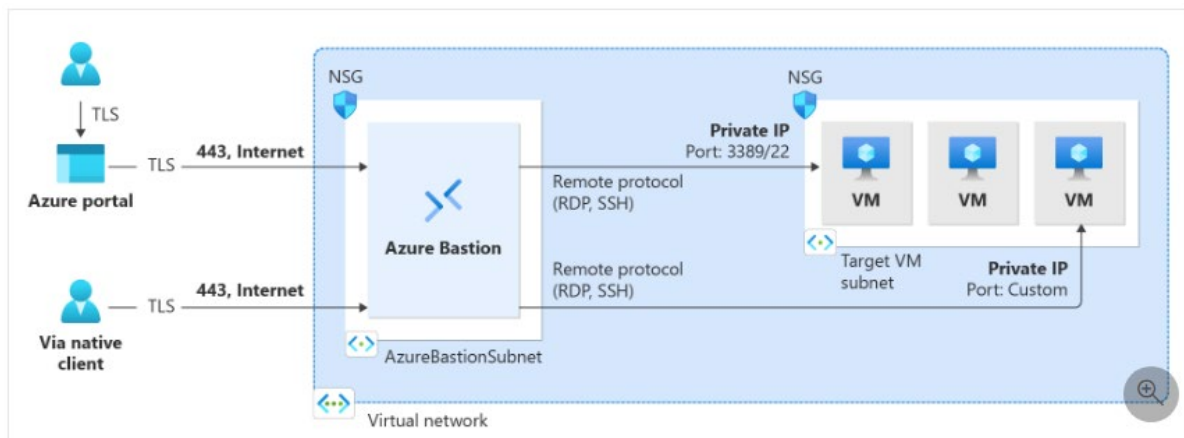
See, e.g., Ex. 73, *Azure Virtual Machines Baseline Architecture*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/architecture/virtual-machines/baseline> (last visited Aug. 5, 2025);



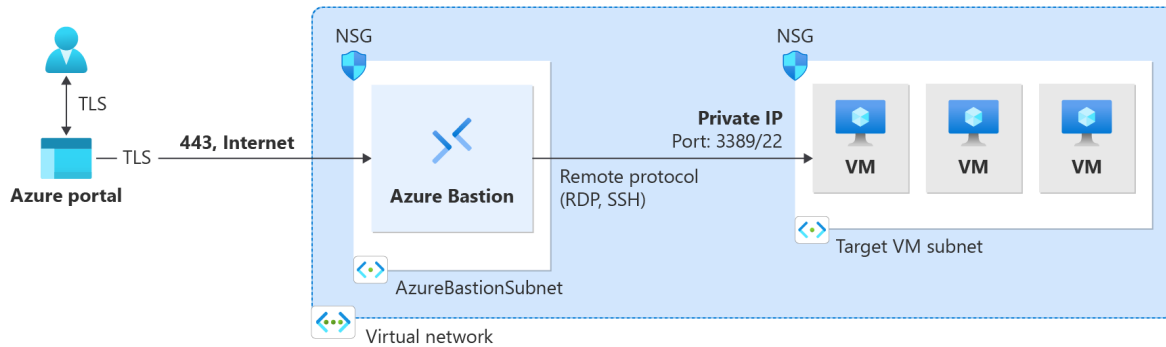
Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025); Ex. 46, *Azure Dedicated Hosts*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/virtual-machines/dedicated-hosts> (last updated Aug. 22, 2024);



Ex. 82, Thomas Maurer, *Azure Dedicated Host for your Azure VMs*, THOMAS MAURER (Aug. 6, 2019), <https://www.thomasmaurer.ch/2019/08/azure-dedicated-host-for-your-azure-vm/>;

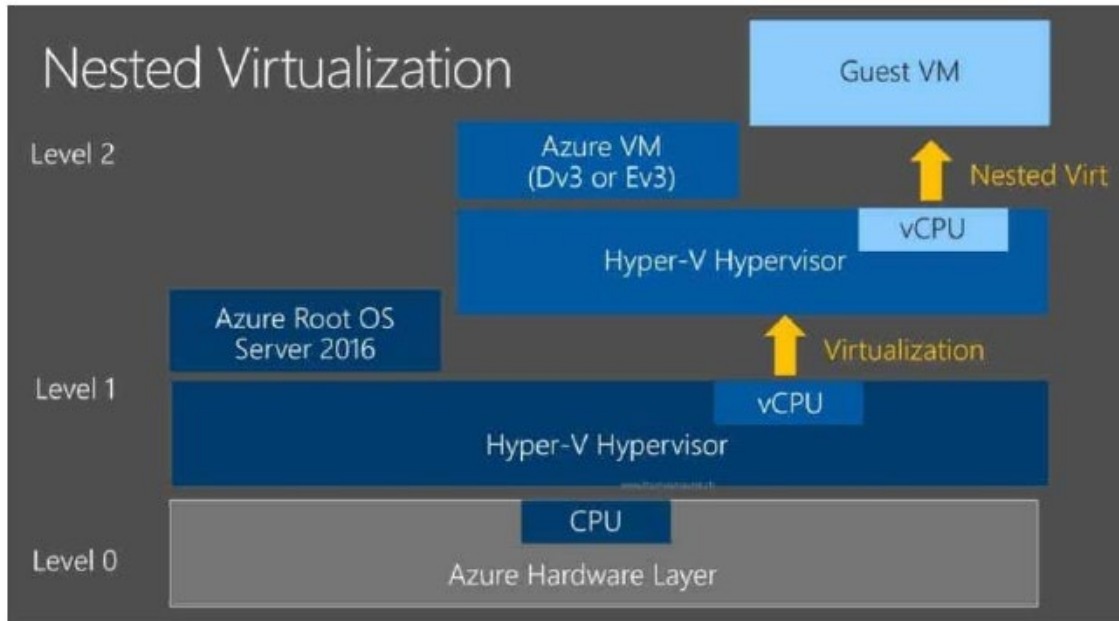


Ex. 56, *What is Azure Bastion?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/bastion/bastion-overview> (last updated Mar. 14, 2025);



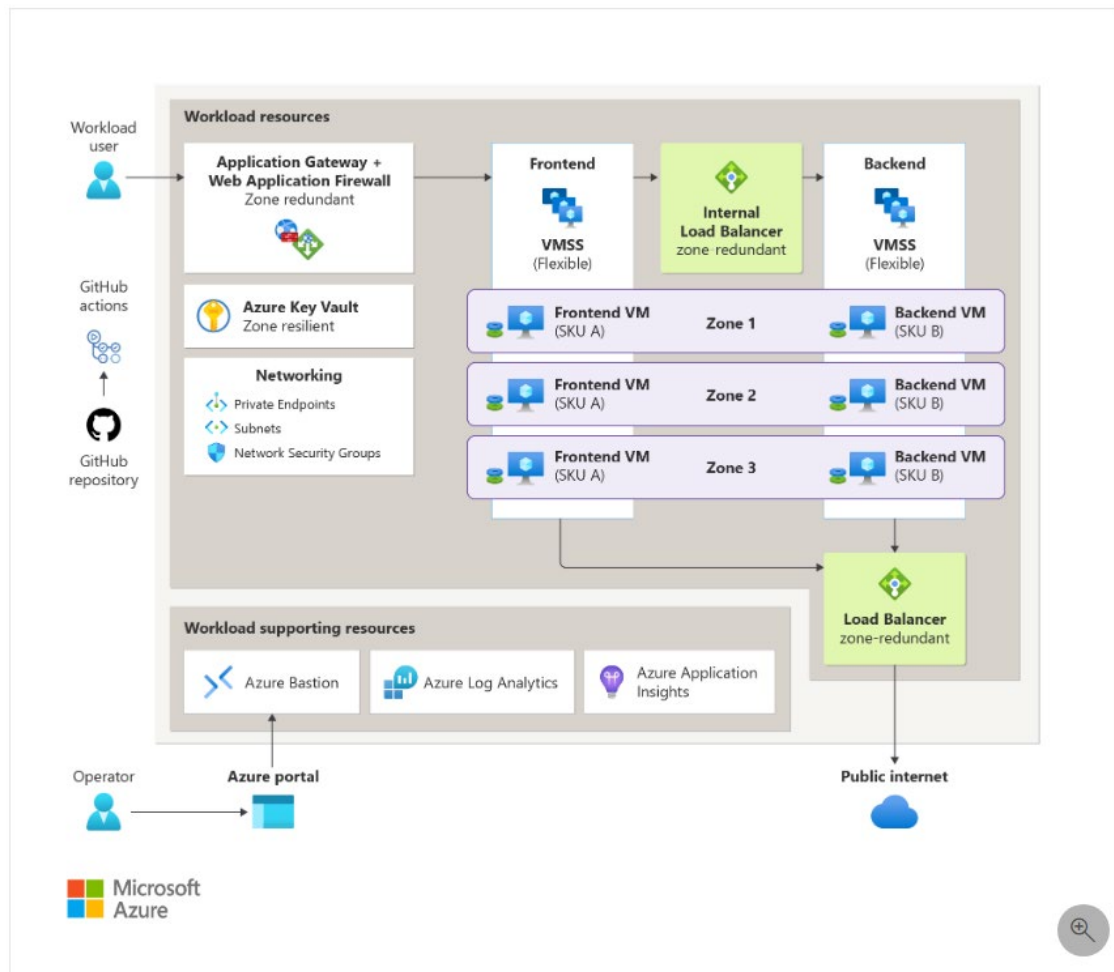
Ex. 79, *Quickstart: Deploy Azure Bastion to a virtual network by using an ARM template*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/bastion/quickstart-host-arm-template> (last updated Mar. 31, 2025).

189. For example, in the virtualization environment, Defendant's hypervisors, Hyper-Vs (for example, a virtualization layer) each run on a specific server executing the Hyper-V, such as x64 versions of Windows Servers. See Ex. 88, *Hyper-V Virtualization in Windows Server and Windows*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/virtualization/hyper-v/overview> (last updated Aug. 5, 2025). The virtual assets (for example, virtual machines) are managed by a Hyper-V that operates on a specific server (for example, a hardware layer with a processor and memory).



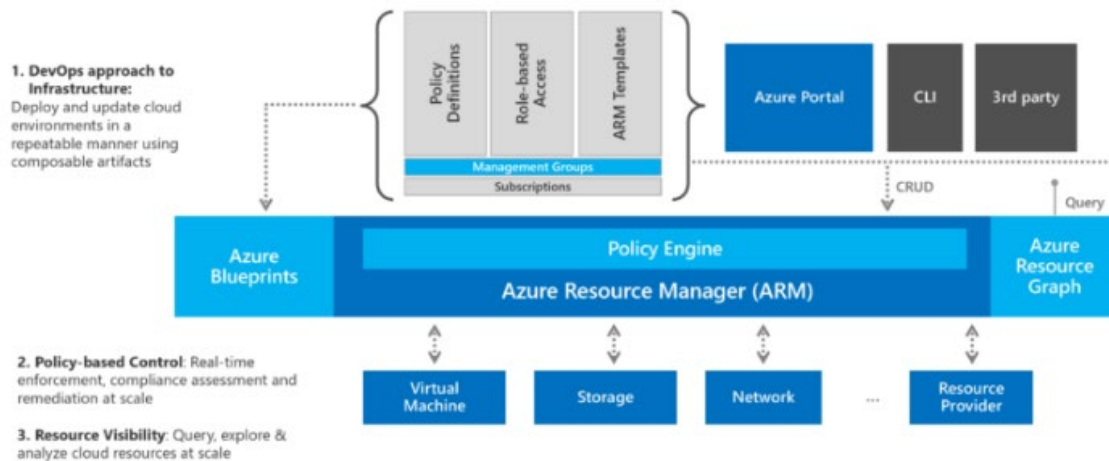
See, e.g., Ex. 89, Thomas Maurer, *Hyper-V Container and Nested Virtualization in Microsoft Azure Virtual Machines*, THOMAS MAURER (May 15, 2017, 5:31 PM), <https://www.thomasmaurer.ch/2017/05/hyper-v-container-and-nested-virtualization-in-microsoft-azure-virtual-machines/>; Ex. 90, *How to Replicate, Restore, and Fail over Using Hyper-V Nested Virtualization on Azure*, MEDIUM (Mar. 24, 2020), <https://nakivo.medium.com/how-to-replicate-restore-and-fail-over-using-hyper-v-nested-virtualization-on-azure-1399e2f8b103>.

190. Azure provides a control center computer (e.g., Azure Portal, Windows Admin Center) that executes a virtual mapping layer (e.g., Azure Resource Manager) with inventory metric features (e.g., “metrics” displayed in Azure) that determines an inventory of network resources and virtual assets available to the virtualization environment.



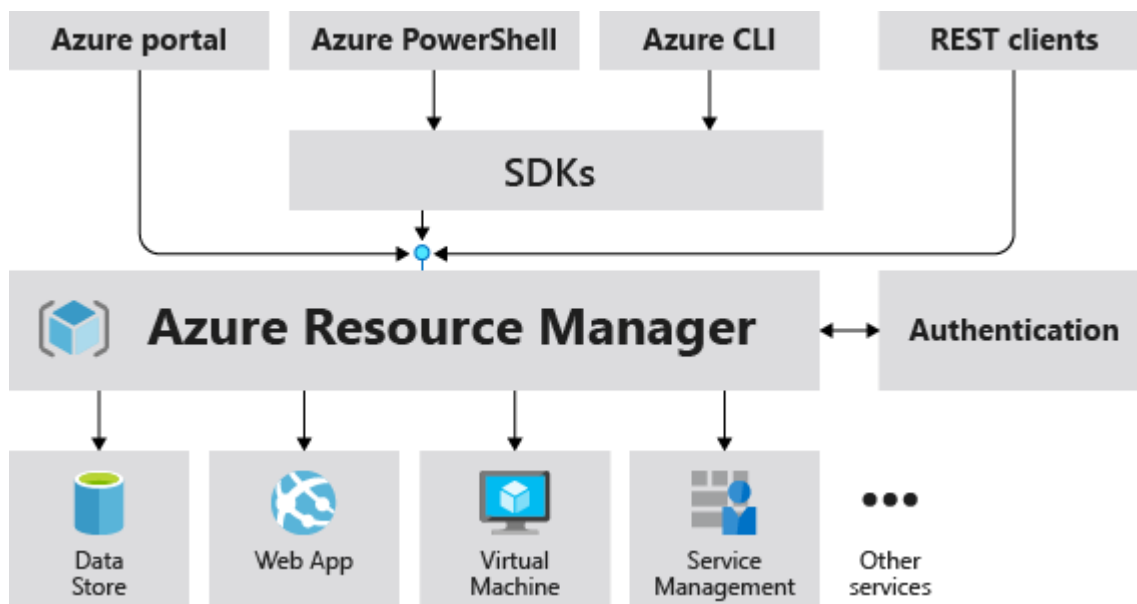
See, e.g., Ex. 73, *Azure Virtual Machines Baseline Architecture*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/architecture/virtual-machines/baseline> (last visited Aug. 5, 2025);

Azure Governance Architecture



Ex. 68, *The Architecture of Azure Governance*, IZMIR SADIGOV (July 1, 2023),

<https://www.izmirsadigov.com/2023/07/01/the-architecture-of-azure-governance/>;



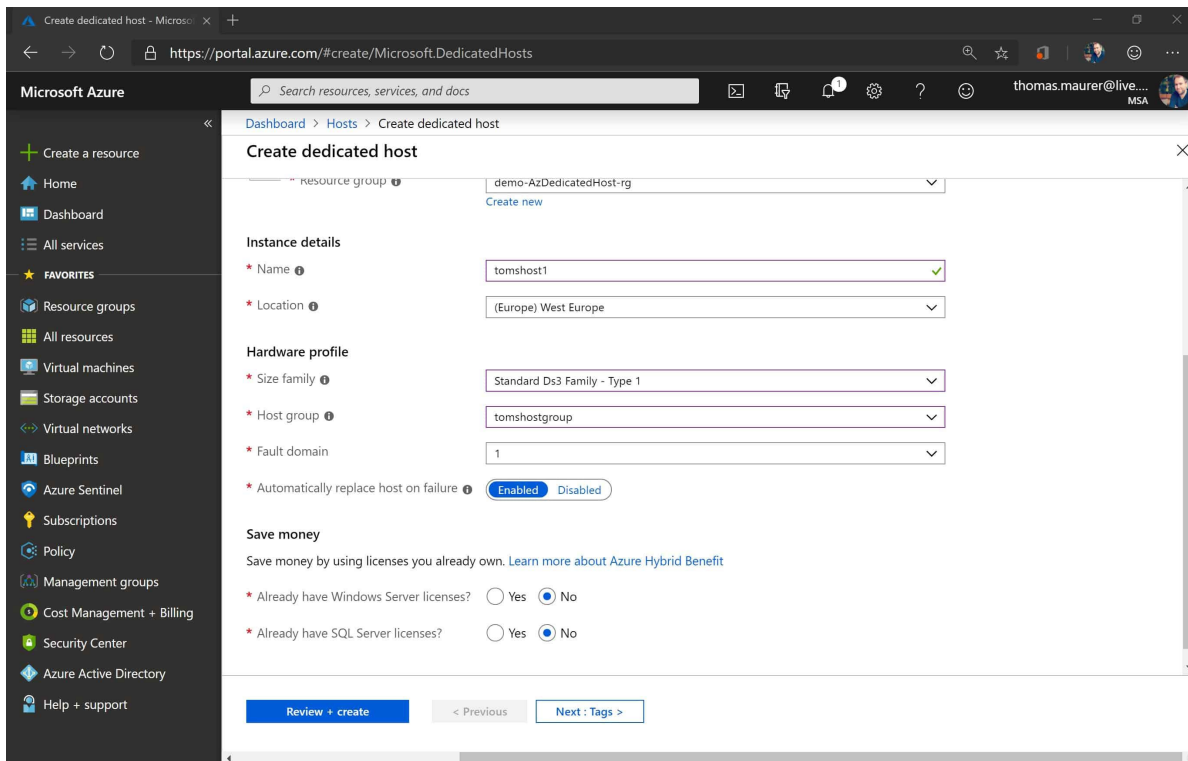
Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, [https://learn.microsoft.com/en-](https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview)

[us/azure/azure-resource-manager/management/overview](https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview) (last updated Mar. 31, 2025); Ex. 46,

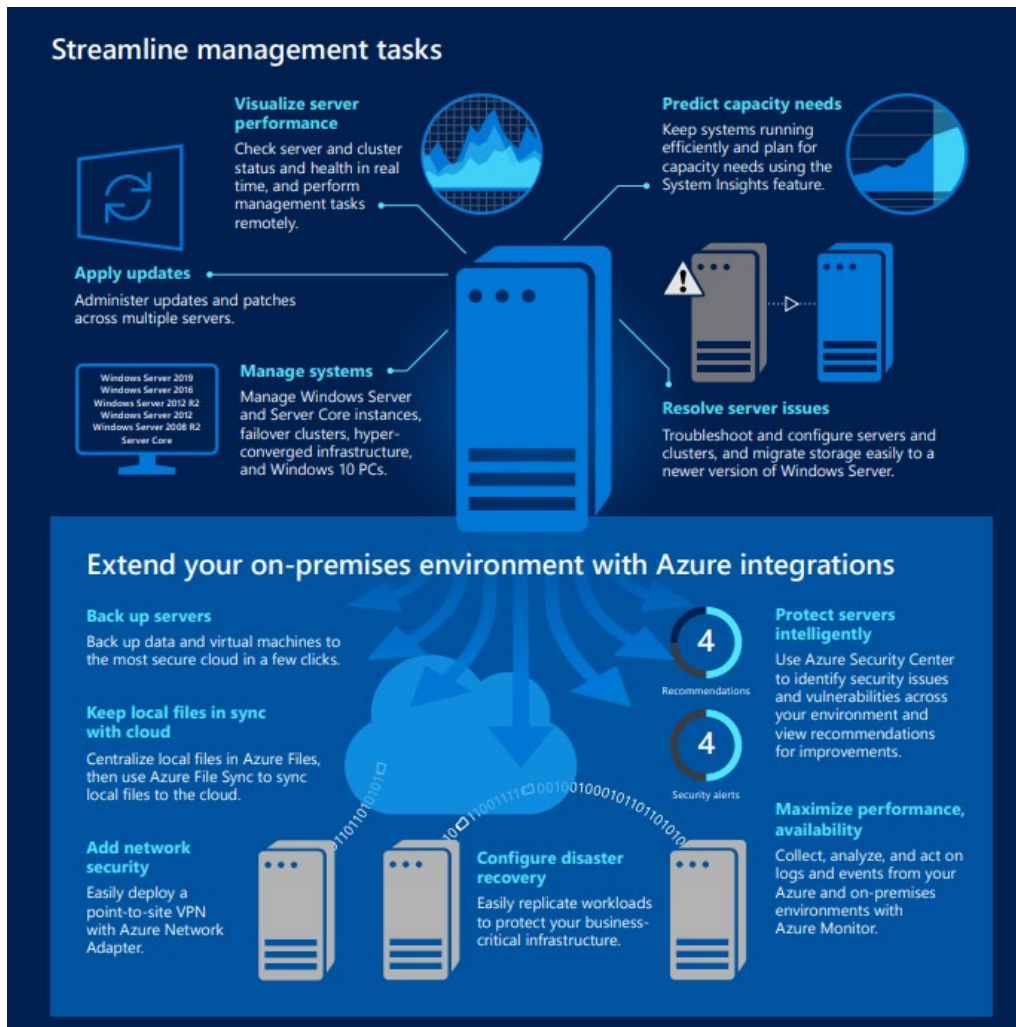
Azure Dedicated Hosts, MICROSOFT LEARN, [https://learn.microsoft.com/en-us/azure/virtual-](https://learn.microsoft.com/en-us/azure/virtual-machines/dedicated-hosts)

[machines/dedicated-hosts](https://learn.microsoft.com/en-us/azure/virtual-machines/dedicated-hosts) (last updated Aug. 22, 2024) (describing how Azure provides

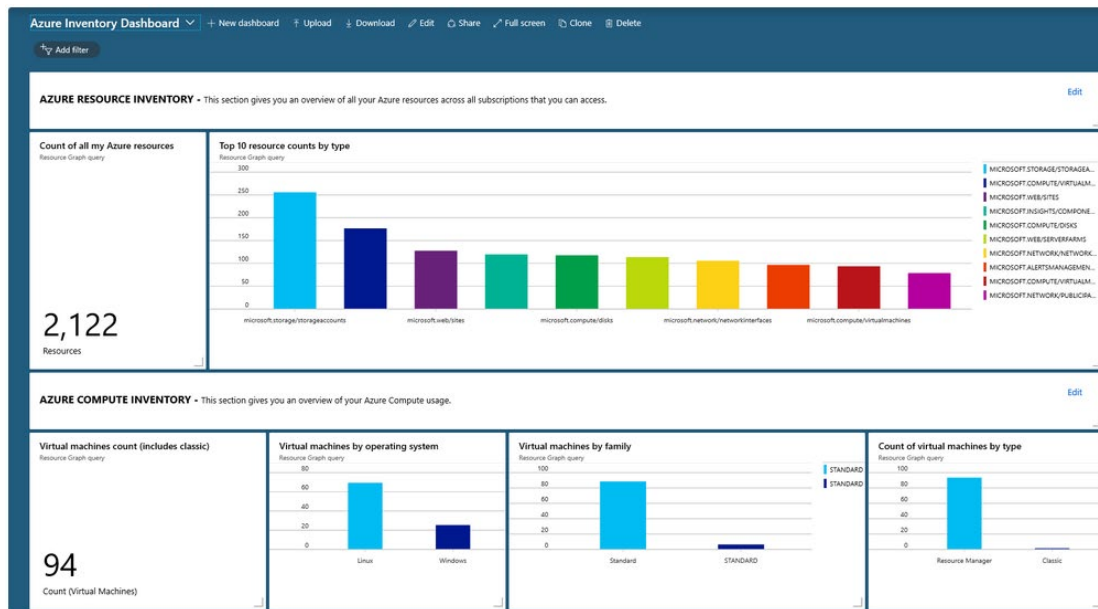
physical servers as a directly accessible hardware resource);



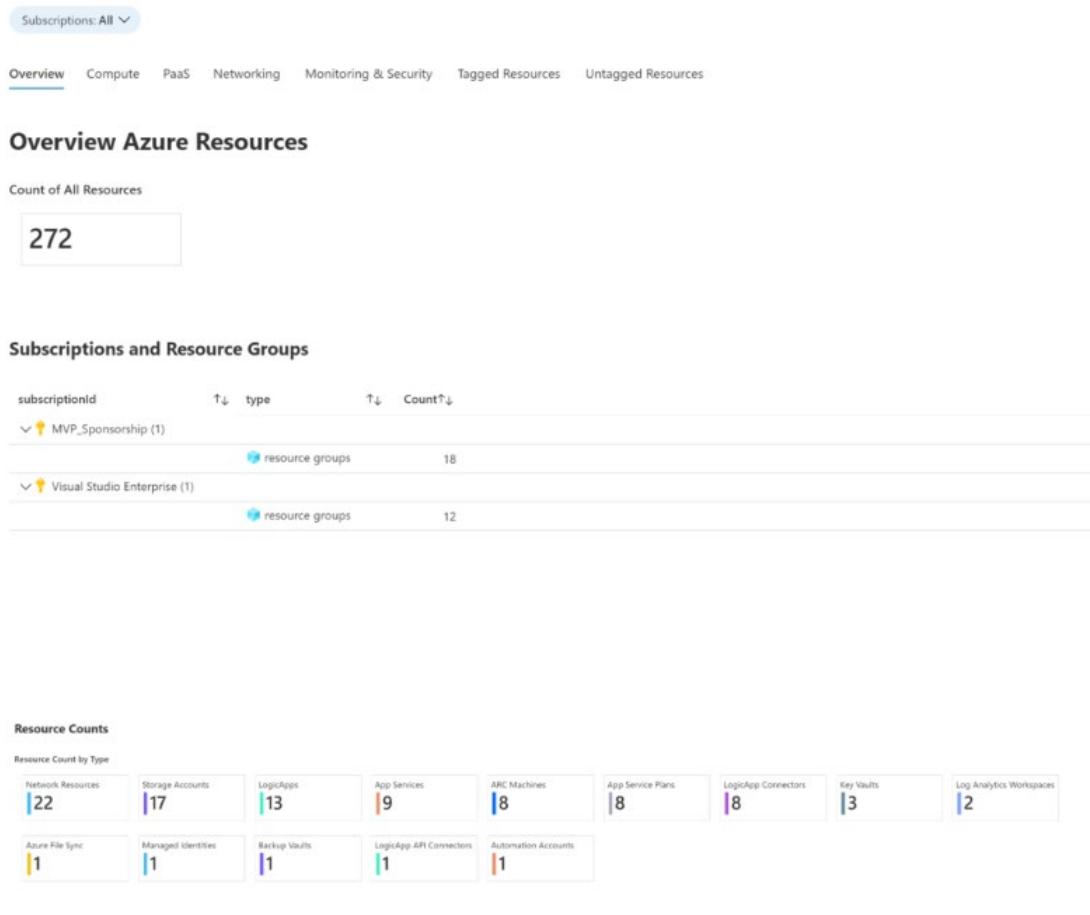
Ex. 82, Thomas Maurer, *Azure Dedicated Host for your Azure VMs*, THOMAS MAURER (Aug. 6, 2019), [https://www.thomasmaurer.ch/2019/08/azure-dedicated-host-for-your-azure-vm/](https://www.thomasmaurer.ch/2019/08/azure-dedicated-host-for-your-azure-vm/;);



Ex. 78, *Reimagine server management with Windows Admin Center*, <https://cdn-dynmedia-1.microsoft.com/is/content/microsoftcorp/microsoft/final/en-us/microsoft-brand/documents/wac-infographic-190816-02.pdf?culture=en-us&country=us> (last visited Aug. 25, 2025); Ex. 105, *View Multicloud Inventory with the Multicloud Connector Enabled by Azure Arc*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-arc/multicloud-connector/view-multicloud-inventory> (last updated Nov. 19, 2024) (describing Azure’s Inventory solution of the multicloud connector showing an up-to-date view of resources from other public clouds);

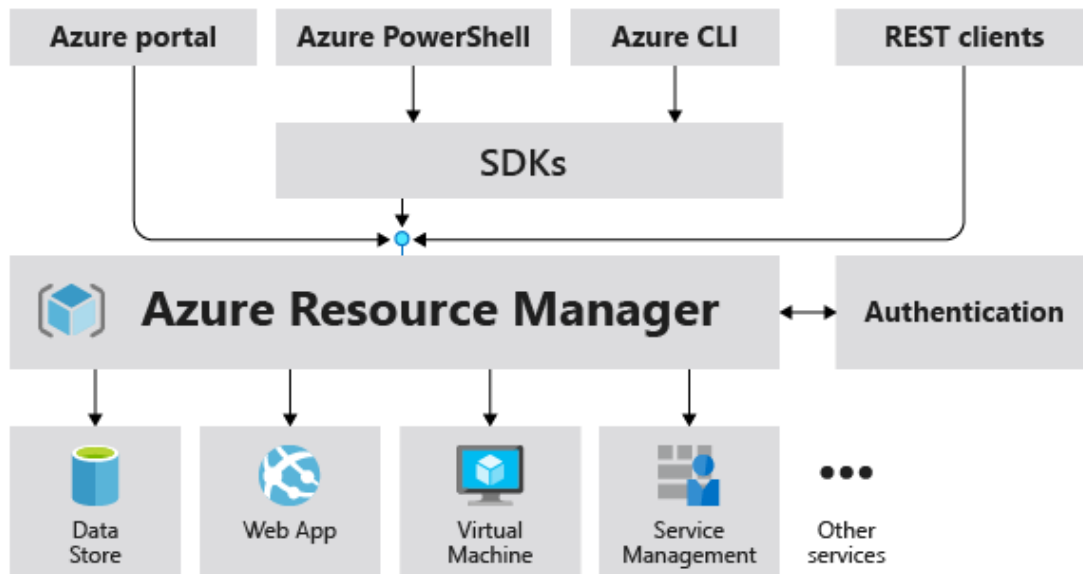


Ex. 107, Phoummala Schmitt, *Inventory Dashboards Using the Power of Azure Resource Graph*, MICROSOFT TECH COMMUNITY (Sept. 17, 2019), <https://techcommunity.microsoft.com/blog/itopstalkblog/inventory-dashboards-using-the-power-of-azure-resource-graph/858729>;

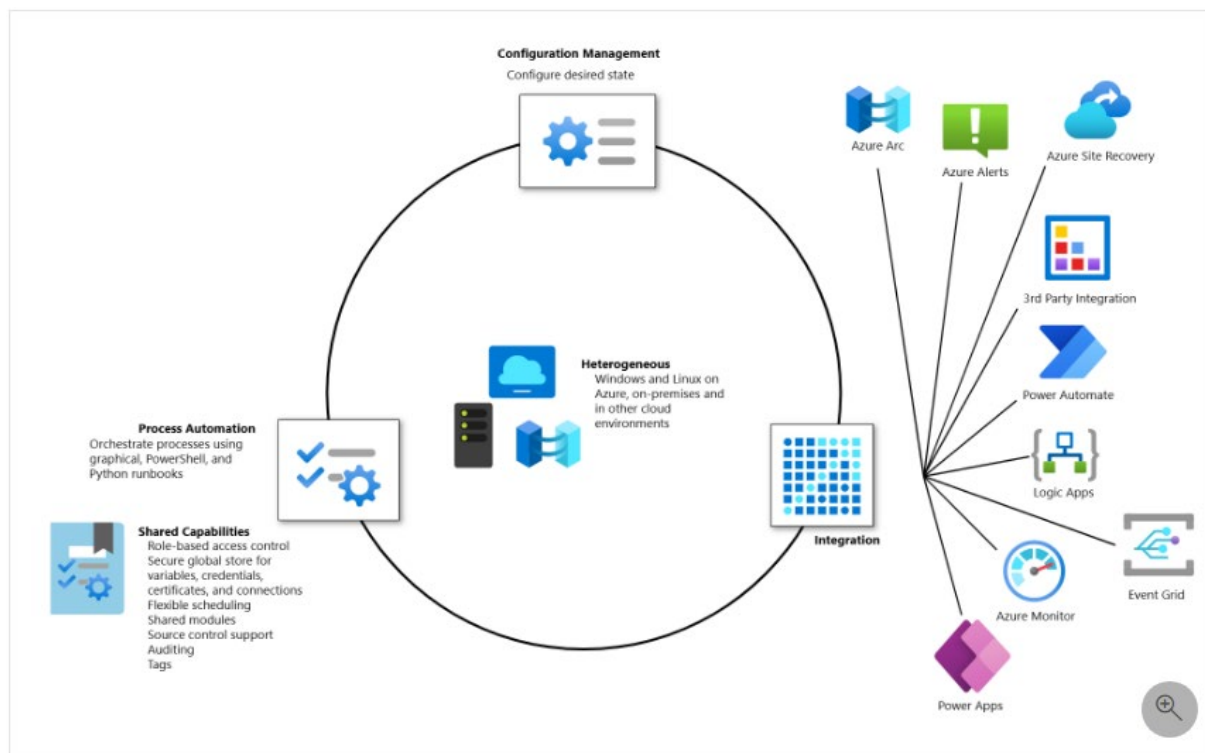


Ex. 106, Billy York, *The Ultimate Azure Inventory Dashboard*, CLOUD, SYSTEMS MANAGEMENT, AUTOMATION (Oct. 27, 2020), <https://www.cloudsma.com/2020/10/ultimate-azure-inventory-dashboard/>.

191. Azure allows for multi-cloud monitoring of resources running in Azure and non-Azure platforms. For example, Azure can provide complete monitoring of resources and applications running in other clouds such as Amazon Web Services (AWS) and Google Cloud Platform (GCP). See, e.g., Ex. 97, *Multicloud Monitoring With Azure Monitor*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/best-practices-multicloud> (last updated May 21, 2025);



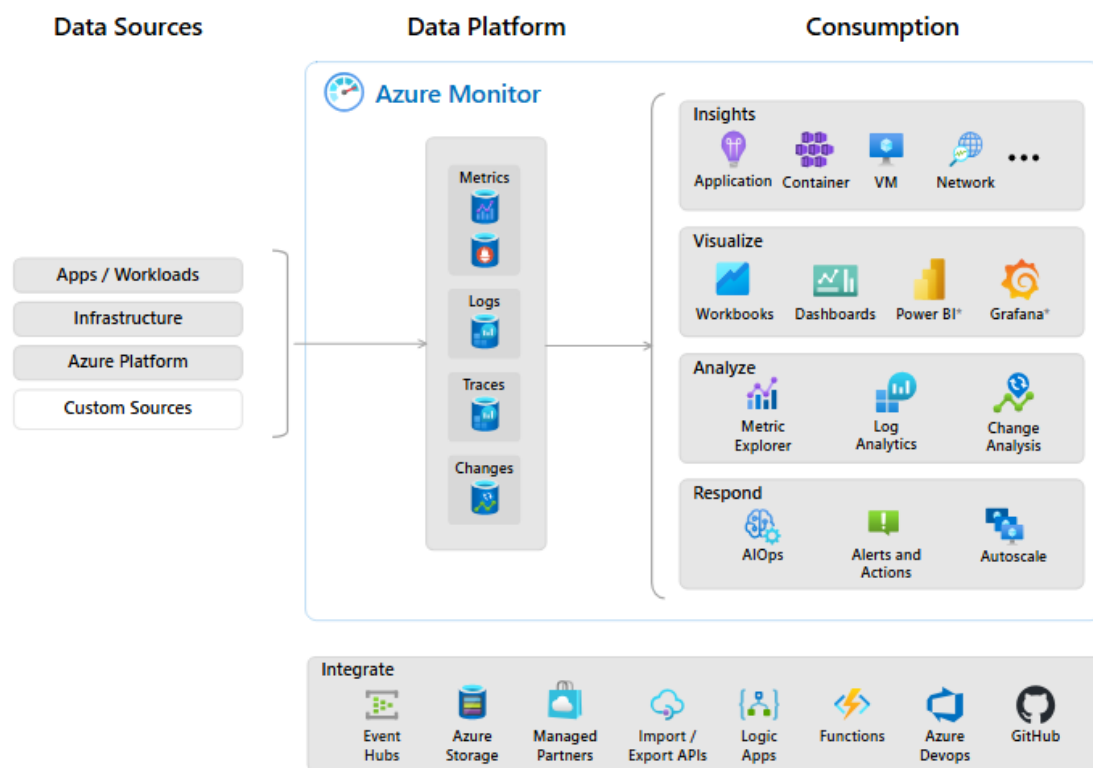
Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025);



Ex. 47, *What is Azure Automation?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/overview> (last updated Apr. 24, 2025) (showing cloud-based automation

service that supports consistent deployment and management experience across Azure and non-Azure environments).

192. Azure includes a control center computer (e.g., Azure Portal, Windows Admin Center) that executes a provisioning manager (e.g., Azure Monitor) that communicates with the virtual mapping layer (e.g., Azure Resource Manager), and provides automation provisioning that executes features (e.g., Autoscale) which automatically provisions virtual machines (for example, virtual assets) running on servers (for example, processors) based on demand and policies, and which queries the inventory metric features to retrieve relevant metric data. The Autoscale provisioning feature creates rules that use the inventory metric features.



See, e.g., Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/overview> (last updated Aug. 26, 2025);

Azure Monitor provides a single unified hub for all monitoring and diagnostics data in Azure. You can use it to get visibility across your resources. With Azure Monitor, you can find and fix problems, optimize performance, and understand customer behavior.

- **Data collection:** Azure Monitor collects data from [various data sources](#), including: Application, Container, Guest operating system, Azure resource, Azure subscription, Azure tenant, and Azure resource changes. Additionally, Azure Monitor can collect log data from any REST client using the [Data Collector API](#).
- **Insights:** Availability, performance, usage, and health of your web applications are monitored using [Application Insights](#). Further, you can use the insights features of Azure Monitor to monitor your:
 - [Applications](#)
 - [Containers](#)
 - [Virtual machines](#)
 - [Networks](#)
- **Visualization:** Visualizing your monitoring data will greatly help you get an overview of the current posture of your cloud real estate. Make use of visualizations with built-in or custom charts and tables, workbooks, dashboards, or Power BI.
 - Read more about [best practices for analyzing and visualizing data](#).
- **Response:** An effective monitoring strategy often requires an actionable response to critical events in the collected data. You can automate actions by using the built-in [Alerts](#) or [Autoscale](#) capabilities.

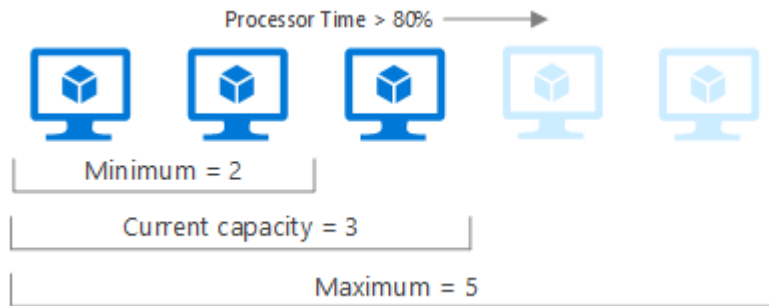
Ex. 84, *Monitoring and Reporting in Azure*, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/cloud-adoption-framework/ready/azure-setup-guide/monitoring-reporting?tabs=AzureMonitor> (last updated Mar. 20, 2023);

- **Schedule tasks** - stop VMs or services at night and turn on during the day, weekly or monthly recurring maintenance workflows.
- **Build and deploy resources** - Deploy virtual machines across a hybrid environment using runbooks and Azure Resource Manager templates. Integrate into development tools, such as Jenkins and Azure DevOps.
- **Periodic maintenance** - to execute tasks that need to be performed at set timed intervals like purging stale or old data, or reindexing a SQL database.
- **Respond to alerts** - Orchestrate a response when cost-based, system-based, service-based, and/or resource utilization alerts are generated.
- **Hybrid automation** - Manage or automate on-premises servers and services like SQL Server, Active Directory, SharePoint Server, etc.
- **Azure resource lifecycle management** - for IaaS and PaaS services.
 - Resource provisioning and deprovisioning.
 - Add correct tags, locks, NSGs, UDRs per business rules.
 - Resource group creation, deletion & update.
 - Start container group.
 - Register DNS record.
 - Encrypt Virtual machines.
 - Configure disk (disk snapshot, delete old snapshots).
 - Subscription management.
 - Start-stop resources to save cost.
- **Monitoring & integrate** with 1st party (through Azure Monitor) or 3rd party external systems.
 - Ensure resource creation\deletion operations are captured to SQL.
 - Send resource usage data to web API.
 - Send monitoring data to ServiceNow, Event Hubs, New Relic and so on.
 - Collect and store information about Azure resources.
 - Perform SQL monitoring checks & reporting.
 - Check website availability.
- **Dev/test automation scenarios** - Stop and start resources, scale resources, etc.
- **Governance related automation** - Automatically apply or update tags, locks, etc.
- **Azure Site Recovery** - orchestrate pre/post scripts defined in a Site Recovery DR workflow.
- **Azure Virtual Desktop** - orchestrate scaling of VMs or start/stop VMs based on utilization.
- **Configure VMs** - Assess and configure Windows and Linux machines with configurations for the infrastructure and application.
- **Retrieve inventory** - Get a complete inventory of deployed resources for targeting, reporting, and compliance.
- **Find changes** - Identify and isolate machine changes that can cause misconfiguration and improve operational compliance. Remediate or escalate them to management systems.

Ex. 47, *What is Azure Automation?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/overview> (last updated Apr. 24, 2025);

193. For example, Azure's Autoscale functionality enables automatic scaling of virtual and network resources based on demand and can be accessed through Azure.



See, e.g., Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/overview> (last updated Aug. 26, 2025);

Autoscale concepts

- A resource can have only *one* autoscale setting.
- An autoscale setting can have one or more profiles, and each profile can have one or more autoscale rules.
- An autoscale setting scales instances horizontally, which is *out* by increasing the instances and *in* by decreasing the number of instances.
- An autoscale setting has a maximum, minimum, and default value of instances.
- An autoscale job always reads the associated metric to scale by, checking if it has crossed the configured threshold for scale-out or scale-in. You can view a list of metrics that autoscale can scale by at [Azure Monitor autoscaling common metrics](#).
- All thresholds are calculated at an instance level. An example is "scale out by one instance when average CPU > 80% when instance count is 2." It means scale-out when the average CPU across all instances is greater than 80%.
- All autoscale failures are logged to the activity log. You can then configure an [activity log alert](#) so that you can be notified via email, SMS, or webhooks whenever there's an autoscale failure.
- Similarly, all successful scale actions are posted to the activity log. You can then configure an activity log alert so that you can be notified via email, SMS, or webhooks whenever there's a successful autoscale action. You can also configure email or webhook notifications to get notified for successful scale actions via the notifications tab on the autoscale setting.

Ex. 94, *Best Practices for Autoscale*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-best-practices> (last updated Nov. 7, 2024).

194. A server's processor then receives an Autoscale provisioning request through Azure Monitor, which continuously collects metrics from the server and triggers scaling actions based on the pre-defined rules like CPU usage, memory utilization, or custom metrics; when the metrics meet certain thresholds the provisioning request causes the server to automatically scale up or scale down to accommodate the workload. See, e.g., Ex. 91,

Overview of Autoscale In Azure, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-overview> (last updated Nov. 1, 2024). The figure below shows the steps for how to autoscale a web application based on a particular provisioning request by provisioning an Autoscale setting for the web app and setting up a scale rule that specifies the parameters:

1. Open the **Autoscale** pane in Azure Monitor and select a resource that you want to scale. The following steps use an App Service plan associated with a web app. You can [create your first ASP.NET web app in Azure in 5 minutes](#).
2. The current instance count is 1. Select **Custom autoscale**.
3. Enter a **Name** and **Resource group** or use the default.
4. Select **Scale based on a metric**.
5. Select **Add a rule**. to open a context pane on the right side.

6. The default rule scales your resource by one instance if the **Percentage CPU** metric is greater than 70 percent.
Keep the default values and select **Add**.
7. You've created your first scale-out rule. Best practice is to have at least one scale-in rule. To add another rule, select **Add a rule**.
8. Set **Operator** to *Less than*.
9. Set **Metric threshold** to **trigger scale action** to 20.

10. Set **Operation** to *Decrease count by*.

11. Select **Add**.

Scale rule

Metric source
Current resource (VMSS-001)

Resource type
Virtual machine scale sets

Resource
VMSS-001

☒ Criteria

Metric namespace *
Virtual Machine Host

Metric name
Percentage CPU

1 minute time grain

Dimension Name	Operator	Dimension Values	Add
VMName	=	All values	+

If you select multiple values for a dimension, autoscale will aggregate the metric across the selected values, not evaluate the metric for each values individually.

20%

15%

10%

5%

0%

12:05 PM

UTC+03:00

Percentage CPU (Average)
0.96 %

☐ Enable metric divide by instance count ⓘ

Operator *
Less than

Metric threshold to trigger scale action * ⓘ
20 %

Duration (minutes) * ⓘ
10

Time grain (minutes) ⓘ
1

Time grain statistic * ⓘ
Average

Time aggregation * ⓘ
Average

☒ Action

Operation *
Decrease count by

Cool down (minutes) * ⓘ
5

instance count *
1

Add

You have configured a scale setting that scales out and scales in based on CPU usage, but you're still limited to a maximum of one instance. Change the instance limits to allow for more instances.

12. Under **Instance limits** set **Maximum** to 3

13. Select **Save**.

The screenshot shows the 'Autoscale setting' page in the Microsoft Azure portal. At the top, there are buttons for 'Save', 'Discard', 'Refresh', 'Log', and 'Feedback'. The 'Save' button is highlighted with a red box. Below this, there's a section 'Choose how to scale your resource' with two options: 'Manual scale' and 'Custom autoscale'. 'Custom autoscale' is selected. Under 'Custom autoscale', there's a form with fields for 'Autoscale setting name' (VMSS-001-Autoscale-441), 'Resource group' (rg-001), and 'Predictive autoscale' (Mode: Disabled, Pre-launch setup of instances (minutes): 0). Below this, there's a section 'Default' with a warning message: 'The very last or default occurrence rule cannot be deleted. Instead, you can disable autoscale to turn off autoscale.' The 'Scale mode' is set to 'Scale based on a metric'. The 'Rules' section shows a single rule with 'Scale out' and 'Scale in' actions. The 'Instance limits' section shows 'Minimum' set to 1, 'Maximum' set to 3 (highlighted with a red box), and 'Default' set to 1. The 'Schedule' section is empty.

See, e.g., Ex. 111, *Get Started with Autoscale in Azure*, MICROSOFT LEARN,

<https://learn.microsoft.com/en-us/azure/azure-monitor/autoscale/autoscale-get-started> (last

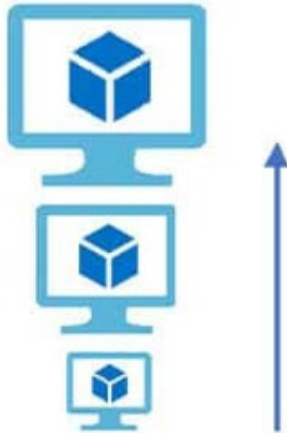
updated Nov. 1, 2024);

Here are the most popular ways of auto-scaling:

- **Horizontal Scaling**
- **Vertical Scaling**

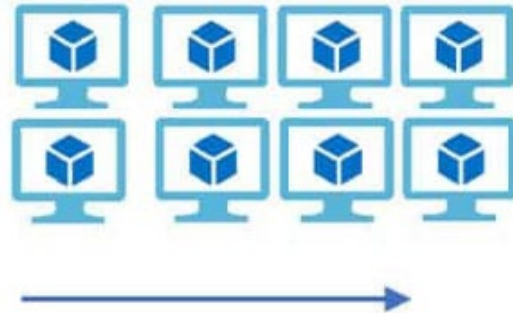
Vertical Scaling

(Increase size of instance (RAM , CPU etc.))



Horizontal Scaling

(Add more instances)



Vertical Scaling:

Vertical Scaling is an attempt to increase or decrease the capacity of a single machine, also called scaling up or down. In Virtual Machine Scale Set (VMSS) the resources such as processing power, storage, memory, and more are added to an existing work unit.

It is done to increase the capacity of existing hardware or software by adding resources. It can enhance your server without manipulating your code. But it is limited by the fact that you can only get as big as the size of the server.

- **Scale-up** refers to expanding the computational power or capacity of a single virtual machine (VM) instance within the VMSS. Scaling up often entails adding more resources to a single VM, such as increasing the number of CPU cores or RAM, in order to improve performance or accommodate rising workload needs.
This can be done manually or automatically depending on predefined rules and metrics.
- **Scale down** refers to reducing the resources (such as CPU, RAM, or storage) allocated to a single machine or instance. This is done to optimize performance and reduce costs when the demand decreases. It involves decreasing the capacity of the existing hardware without changing the underlying software.

Horizontal Scaling:

Horizontal Scaling is a must-use technology – whenever a high availability of (server) services is required, also called scaling out and in, means adding or removing instances of a resource. Scaling horizontally involves adding more processing units or physical machines to your server or database.

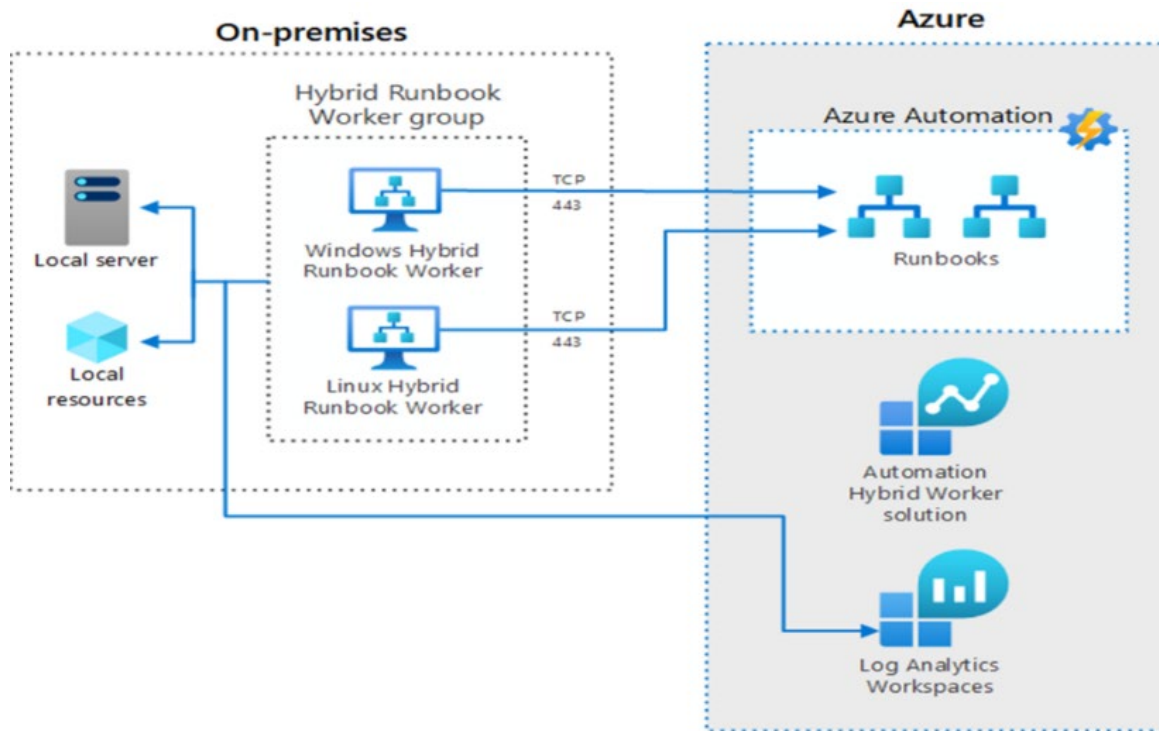
It involves growing the number of nodes in the cluster, the application continues running without interruption as new resources are provisioned.

If demand drops, the additional resources can be shut down cleanly and deallocated.

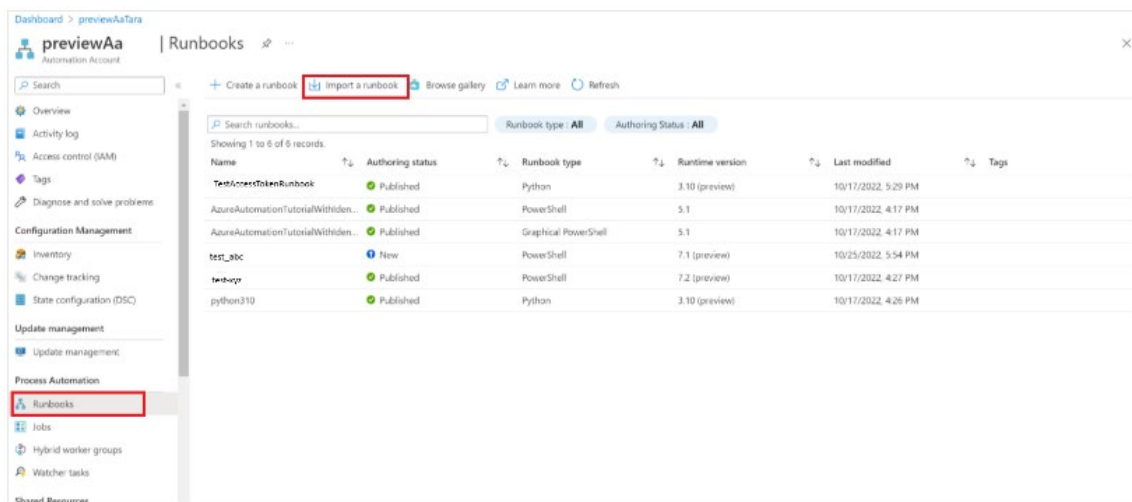
- **Scale-out** is the process of adding extra resources, such as virtual machines (VMs), to a Microsoft Azure Virtual Machine Scale Set (VMSS) to manage an increase in demand for your application.
Scaling out a VMSS increases the number of operating VM instances, letting your application to handle additional requests and workload. Scaling out in VMSS is accomplished by adding new instances of the same VM to the set. These instances are provisioned and configured in the same way as the current instances in the set, ensuring that they work seamlessly together.
- **Scale-in** refers to the process of reducing the number of virtual machines (VMs) in the scale set. When a scale-in event occurs, one or more VM instances are removed from the scale set, limiting the system's total capacity. Scale-in is often triggered when resource demand falls and the system no longer requires the same level of capacity.
Scaling-in helps to optimize resource utilization and decrease expenses by deleting superfluous VM instances, as the system only uses the resources needed to satisfy current demand.

Ex. 120, Aditya Satyam, *Virtual Machine Scale Set (VMSS) In Microsoft Azure*, K21 ACADEMY (June 11, 2025), <https://k21academy.com/microsoft-azure/admin/virtual-machine-scale-sets/>.

195. For example, virtual machines (for example, virtual assets) run on Hyper-Vs (for example, virtualization layer) that operate on a server (e.g., Windows Servers) within Defendant's datacenters or on-premise local servers. The virtual machines then receive and automate the runbook provisioning request on the server, with the request being accessible via Azure.

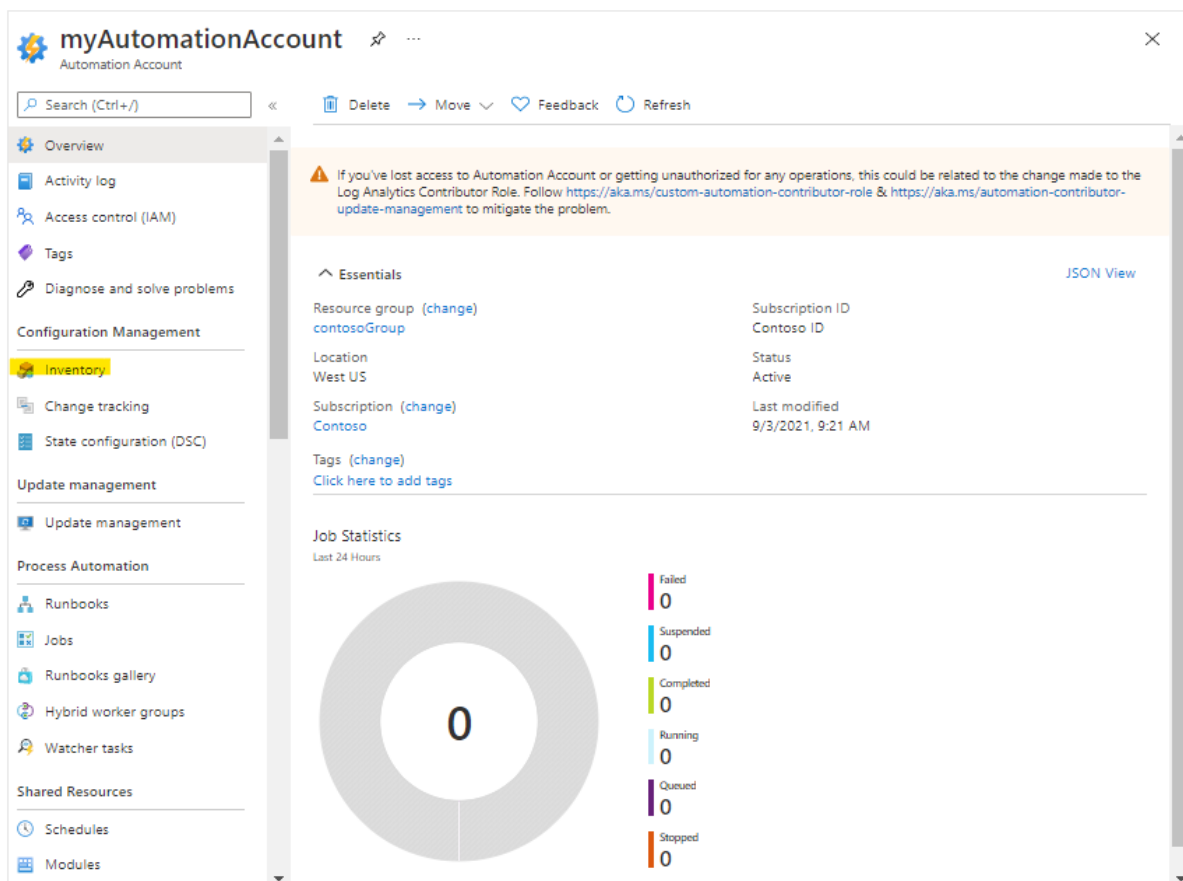


See, e.g., Ex. 115, Deepak Rai, *SCCM Automation using Azure Runbook Hybrid Worker*, HOW TO MANAGE DEVICES, <https://www.anoopenair.com/sccm-automation-using-azure-runbook-hybrid-worker/> (last updated July 22, 2022);



Ex. 116, *Use Existing Runbooks and Modules*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/automation-runbook-gallery> (last updated Sept. 9, 2024).

196. For example, runbooks (for example, provisioning requests) can be created in Azure and deploy web apps and other virtual services by using the “Inventory” feature to identify necessary actions like creating or updating web apps based on detected changes in the inventory data. Azure executes the process automation feature that runs runbooks (for example, provisioning requests), which communicate with the “Change Tracking and Inventory” feature. *See, e.g., Ex. 98, Overview of Change Tracking and Inventory Using Azure Monitoring Agent*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/automation/change-tracking/overview-monitoring-agent?tabs=win-az-vm> (last updated Mar. 13, 2025);



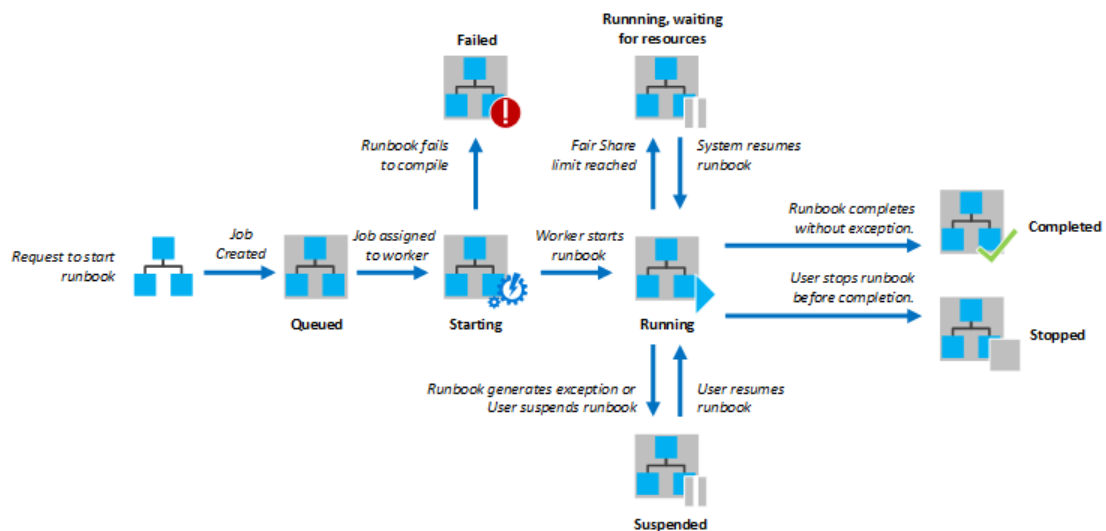
Ex. 100, *Create a Standalone Azure Automation Account*, MICROSOFT LEARN,
<https://learn.microsoft.com/en-us/azure/automation/automation-create-standalone-account?tabs=azureportal> (last updated Aug. 20, 2024);

Categories in Automation operations

Automation is required in three broad categories of operations:

- **Deployment and management of resources:** Create and configure programmatically using automation or infrastructure as code tooling to deliver repeatable and consistent deployment and management of cloud resources. For example, an Azure Network Security Group can be deployed, and security group rules are created using an Azure Resource Manager template or an automation script.
- **Response to external events:** Based on a critical external event, such as responding to database changes, acting as per the inputs given to a web page, and so on, you can diagnose and resolve issues.
- **Complex Orchestration:** By integrating with first- or third-party products, you can define end-to-end automation workflows.

Ex. 99, *Choose the Automation Services in Azure*, MICROSOFT LEARN,
<https://learn.microsoft.com/en-us/azure/automation/automation-services> (last updated Aug. 12, 2024). The figure below shows a diagram of a runbook request process:



See, e.g., Ex. 117, *Runbook Execution in Azure Automation*, MICROSOFT LEARN,
<https://learn.microsoft.com/en-us/azure/automation/automation-runbook-execution> (last updated June 11, 2025).

197. Thus, Azure satisfies all elements of exemplary Claim 9 of the '050 Patent.

198. Defendant's direct infringement of the '050 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

199. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

200. ToutVirtual is entitled to injunctive relief, damages, and any other relief in accordance with 35 U.S.C. §§ 283 and 285 for Defendant's direct infringement of the '050 Patent.

COUNT VI
(Indirect Infringement of the '050 Patent)

201. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

202. As set forth above, Defendant has had knowledge of ToutVirtual's patents since at least as early as 2007 and has had specific knowledge of its infringement of the '050 Patent since at least the date of the Notice Letter, if not earlier.

203. As set forth above, Azure directly infringes the '050 Patent. Additionally, Defendant has and continues to indirectly infringe the '050 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Azure and/or by instructing customers how to make, install, and use Azure in a way that directly infringes at least Claim 9 of the '050 Patent.

204. For example, Defendant's customers and end-users directly infringe (either literally and/or under the doctrine of equivalents) through their use of the claimed invention of the '050 Patent. Defendant induces this direct infringement through its affirmative acts of

manufacturing, selling, distributing, and/or otherwise making available Azure, and providing instructions, documentation, and other information to customers and end-users on how to use and suggesting that they use Azure in an infringing manner, including service agreements, terms of use, technical support, marketing, product manuals, advertisements, and online documentation. *See, e.g.*, Ex. 118, *Microsoft Azure Legal Information*, MICROSOFT, <https://azure.microsoft.com/en-us/support/legal/> (last updated Apr. 2023); *see also* Ex. 119, *Microsoft – Terms of Use*, MICROSOFT, <https://www.microsoft.com/en-us/legal/terms-of-use> (last updated Feb. 7, 2022); *see also, generally, supra*, exhibits cited in ¶¶ 183-200. To the extent that Defendant’s customers and end-users direct and control the systems and performance of methods in the claims, Defendant obtains benefits from the control of the system and methods as a whole. Defendant and its customers and/or end-users put the systems and methods described in the claims into service to the benefit of Defendant’s ability to provide automatic virtual system management over a computer network.

205. Because of Defendant’s inducement, Defendant’s customers and end-users use Azure in a way Defendant intends and does directly infringe the ’050 Patent. Defendant performs these affirmative acts with knowledge of the ’050 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’050 Patent.

206. Defendant has had knowledge of the ’050 Patent and of its infringement of the ’050 Patent at least by the time of service of this Complaint. As discussed above, Defendant has also known of ToutVirtual and its technology as early as 2007. On information and belief, Defendant knew of ToutVirtual’s patent portfolio. Additionally, Defendant has received notice of the Asserted Patents and the accused infringing technology in the Notice Letter. Accordingly, Defendant has known, or has been willfully blind, of the ’050 Patent.

207. Defendant's infringement of the '050 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

208. Defendant's infringement of the '050 Patent has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of ToutVirtual's rights under the '050 Patent.

209. Defendant's indirect infringement of the '050 Patent has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

210. ToutVirtual is entitled to injunctive relief, an award of treble damages, reasonable attorney fees, costs in bringing this action, and any other relief in accordance with 35 U.S.C. §§ 283, 284 and 285.

COUNT VII
(Direct Infringement of the '915 Patent)

211. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

212. In violation of 35 U.S.C. § 271(a), Defendant directly infringed and continues to infringe (either literally and/or under the doctrine of equivalents) one or more method claims of the '915 Patent, including, for example, Claim 1 (as detailed below) by using in the United States the infringing products, including, but not limited to, Azure.

213. Defendant also infringes the method claims of the '915 Patent jointly with its customers to the extent that specific steps of the method are performed by those customers. Defendant directs and controls the customers' performance of the methods in the claims and conditions benefits to the customers performing the steps of the methods, particularly the

ability to manage virtual assets running on a virtualization platform. Defendant conditions participation of the steps of the methods and/or receipt of a benefit from the customers' performance of those steps. Defendant also establishes the manner and timing of the customers' performance of those steps. In addition, the customers are contractually obligated to perform those steps pursuant to Defendant's Terms of Use. *See* Ex. 119, *Microsoft – Terms of Use*, MICROSOFT, <https://www.microsoft.com/en-us/legal/terms-of-use> (last updated Feb. 7, 2022). In particular, the customers obtain the benefits of managing virtual assets on a virtualization platform as described in the method claims when they practice such claims under Defendant's direction and control.

214. By way of example of Defendant's infringement of the '915 Patent, Azure meets all of the limitations of at least Claim 1 of the '915 Patent, which recites:

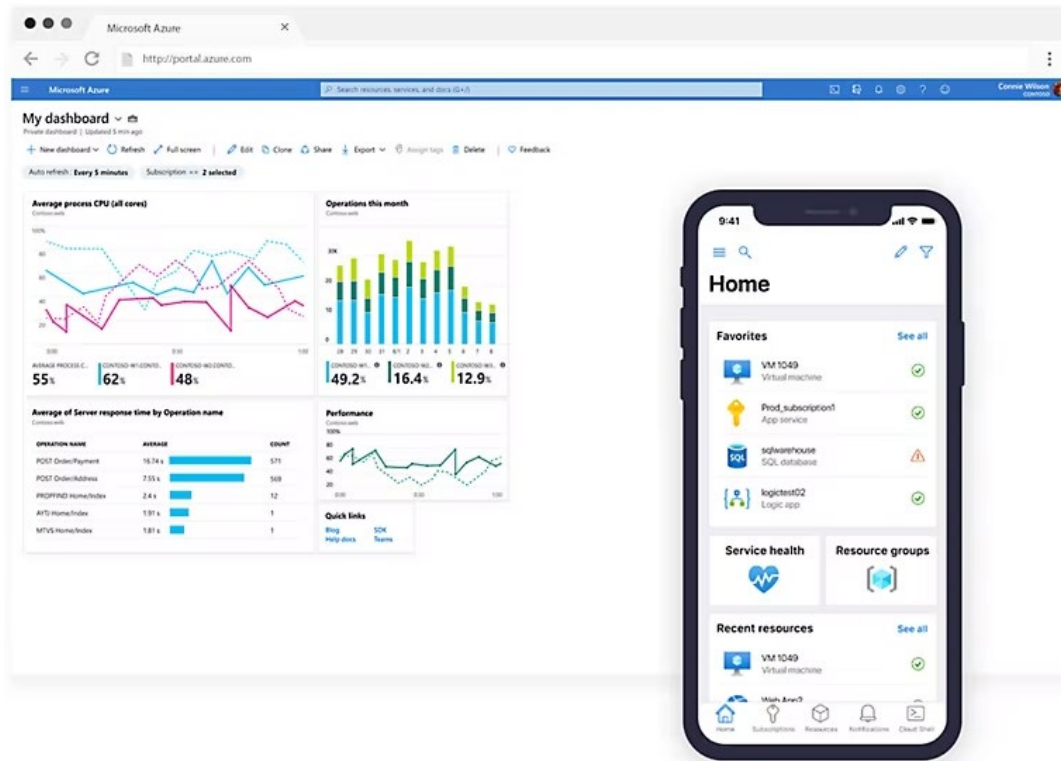
A method for access to one or more virtualization system resources over a network, the method comprising:

implementing a virtualization system that has a control computer and one or more physical resources and virtual assets connected to the control computer, wherein each of the one or more physical resources execute at least two virtual assets that each comprise software instantiations of computer systems, and the virtual assets are managed by virtualization layer instances running on each of the physical resources;

connecting an end user to the control computer; and

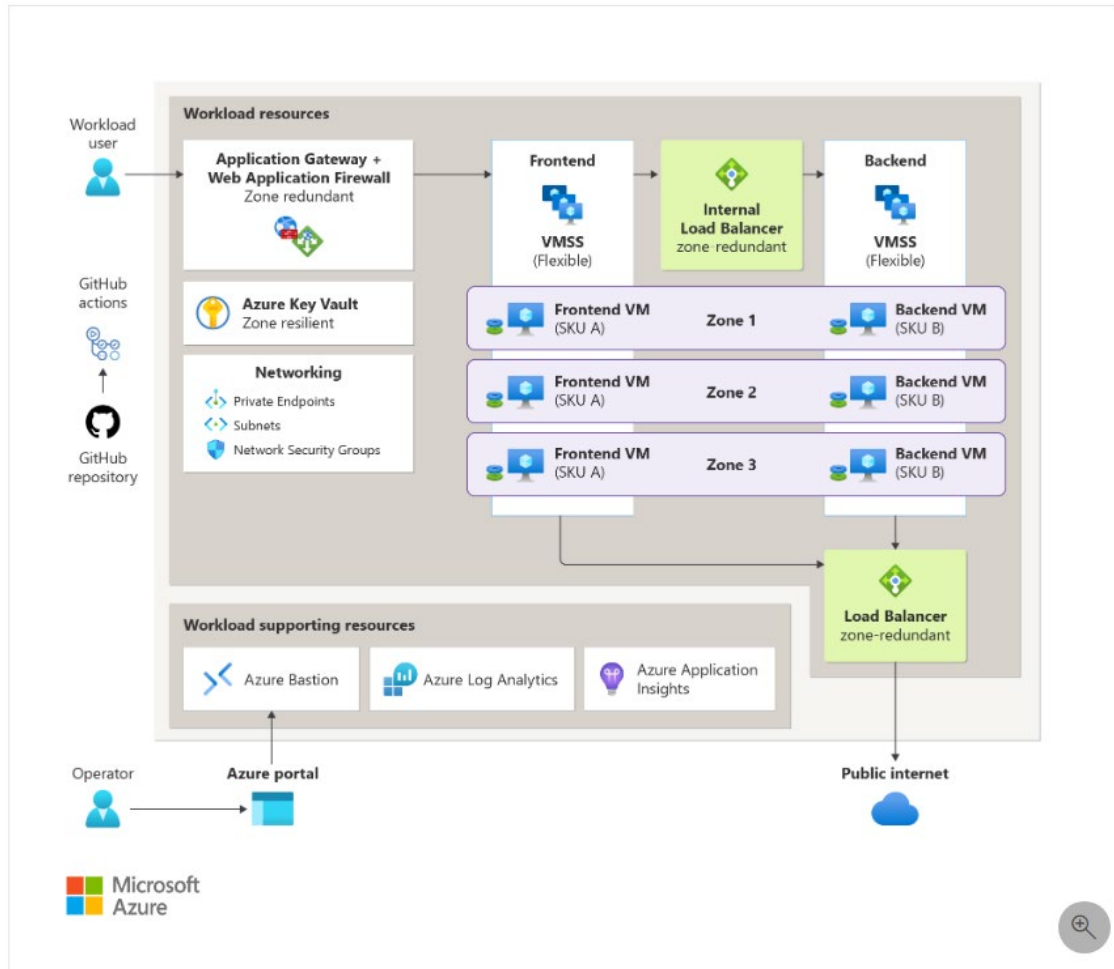
accessing, through the control computer connection, the virtual assets by the end user.

215. Azure embodies the claimed invention and infringes the '915 Patent because, as described below, it practices each limitation of exemplary Claim 1 of the '915 Patent. For example, Azure performs a method for access to one or more virtualization system resources over a cloud network.

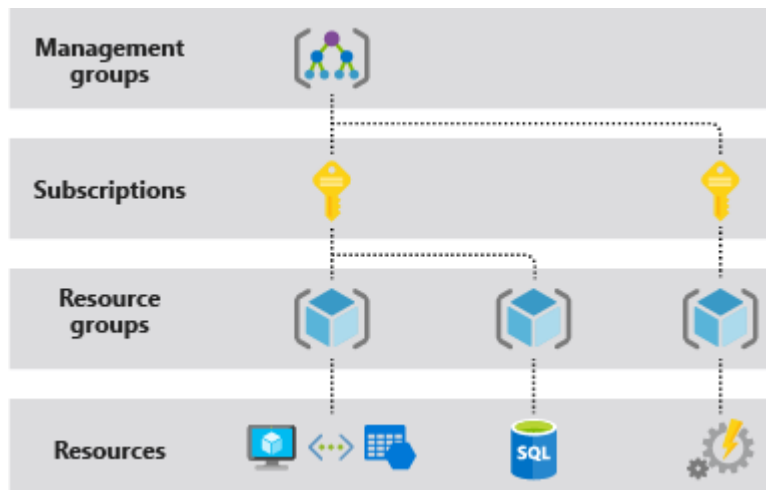


Ex. 72, *Microsoft Azure Portal*, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/get-started/azure-portal> (last visited Aug. 5, 2025).

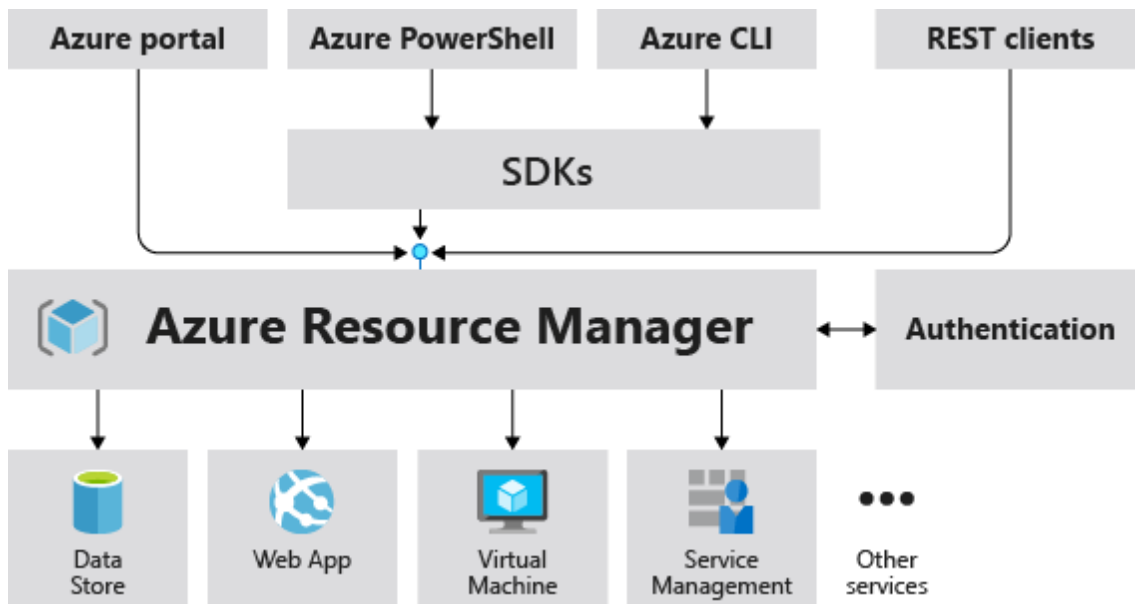
216. Azure provides a method for implementing a virtualization system that includes one or more physical resources (for example, servers) and virtual assets (for example, virtual machines) that is connected to a control computer (e.g., Azure Resource Manager, Azure Portal, Windows Admin Center); and the one or more physical resources execute at the virtual assets, each comprise software instantiations of computer systems, which are managed by the virtualization layer (for example, hypervisors) that runs on a specific physical resource.



See Ex. 73, *Azure Virtual Machines Baseline Architecture*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/architecture/virtual-machines/baseline> (last visited Aug. 5, 2025);

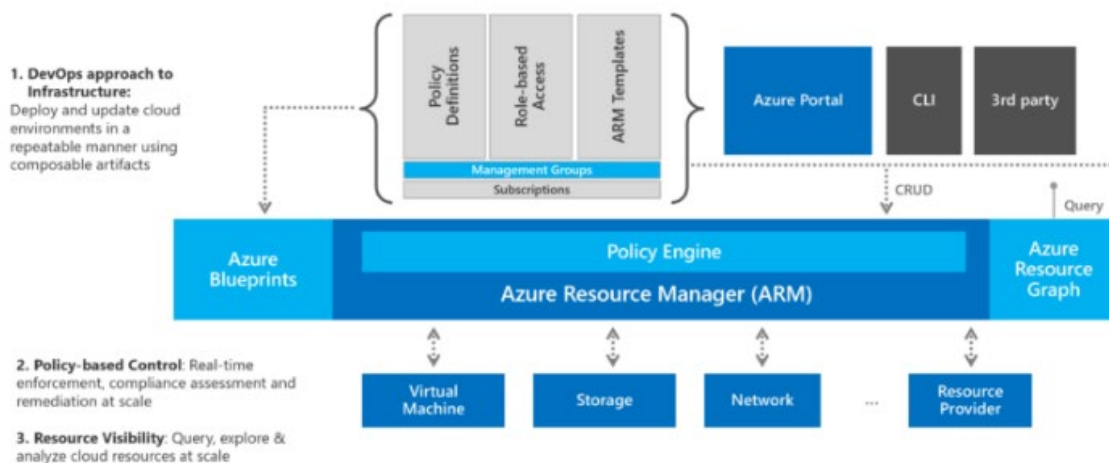


Ex. 39, *What is the Azure Portal?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-portal/azure-portal-overview> (last updated Sept. 19, 2024);



Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025);

Azure Governance Architecture

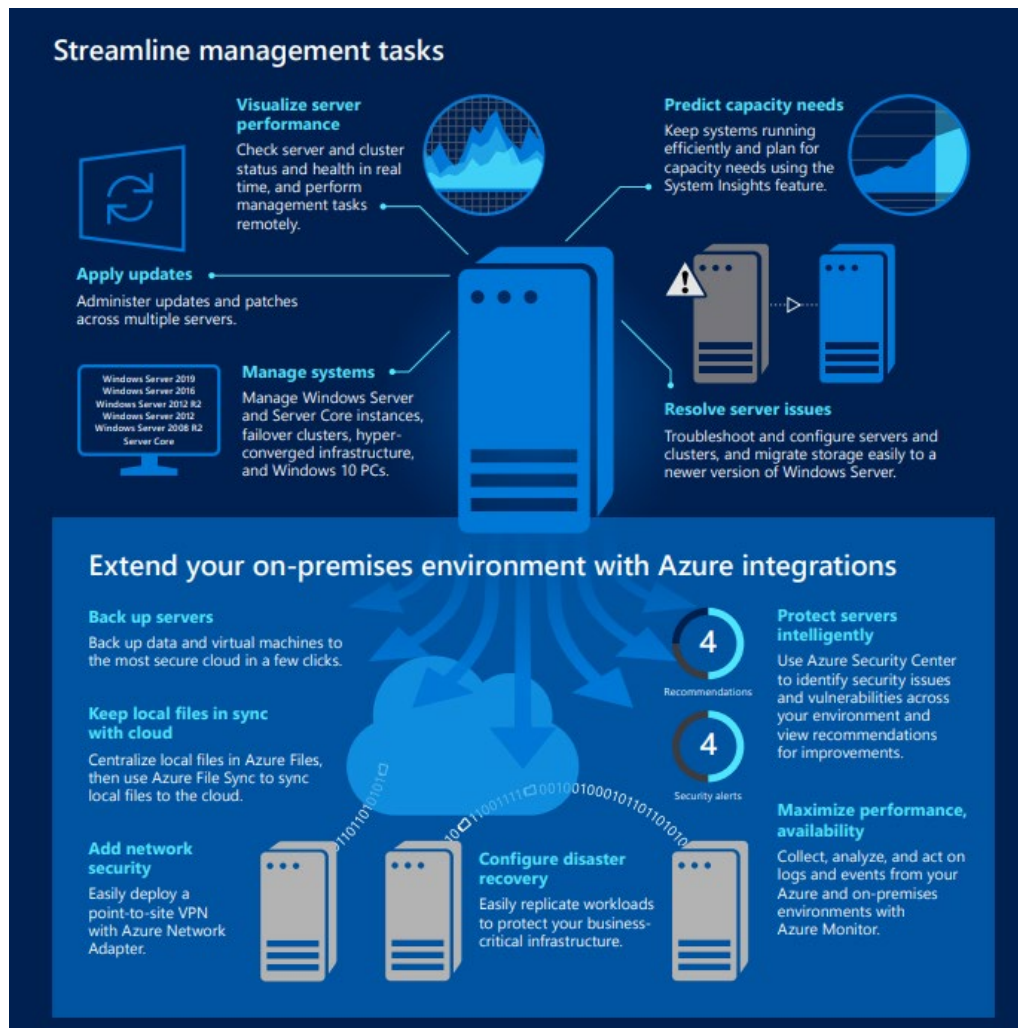


Ex. 68, *The Architecture of Azure Governance*, IZMIR SADIGOV (July 1, 2023),

<https://www.izmirsadigov.com/2023/07/01/the-architecture-of-azure-governance/>; Ex. 77,

Manage a Windows VM using Windows Admin Center in Azure, MICROSOFT LEARN,

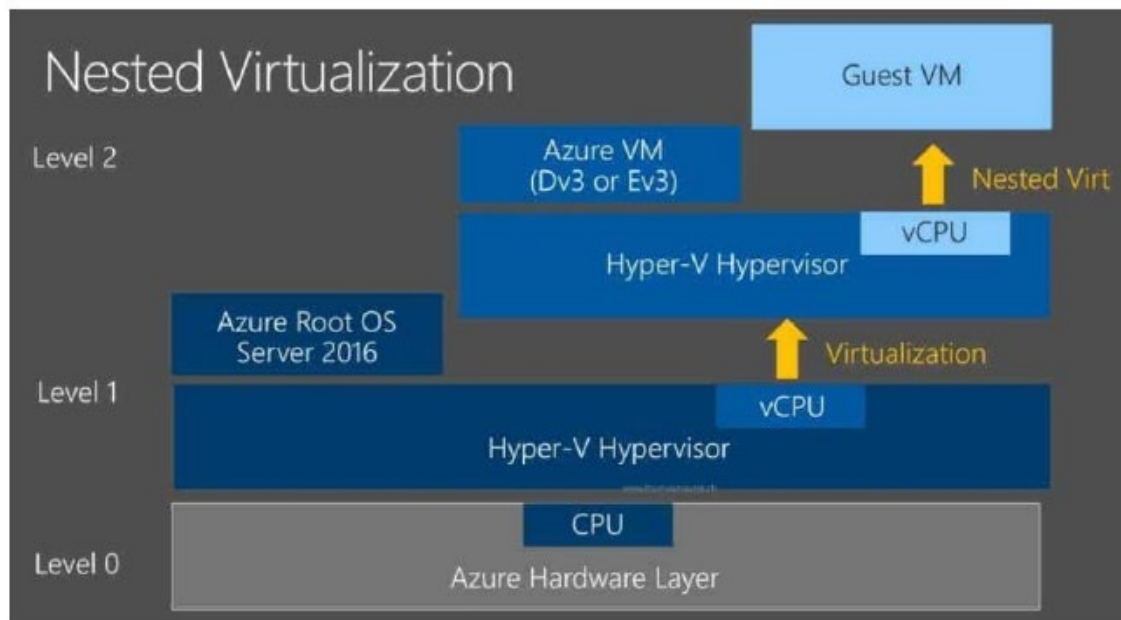
<https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/azure/manage-vm> (last updated June 18, 2025);



Ex. 78, *Reimagine server management with Windows Admin Center*, <https://cdn-dynmedia-1.microsoft.com/is/content/microsoftcorp/microsoft/final/en-us/microsoft-brand/documents/wac-infographic-190816-02.pdf?culture=en-us&country=us> (last visited Aug. 25, 2025).

217. For example, in the virtualization environment, Microsoft’s hypervisors, Hyper-Vs (for example, a virtualization layer), each run on a specific server executing the Hyper-V, such as x64 versions of Windows Servers. See Ex. 88, *Hyper-V Virtualization in Windows*

Server and Windows, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/virtualization/hyper-v/overview> (last updated Aug. 5, 2025). The virtual assets (for example, virtual machines) are managed by a Hyper-V that operates on a specific server (for example, a hardware layer with a processor and memory).



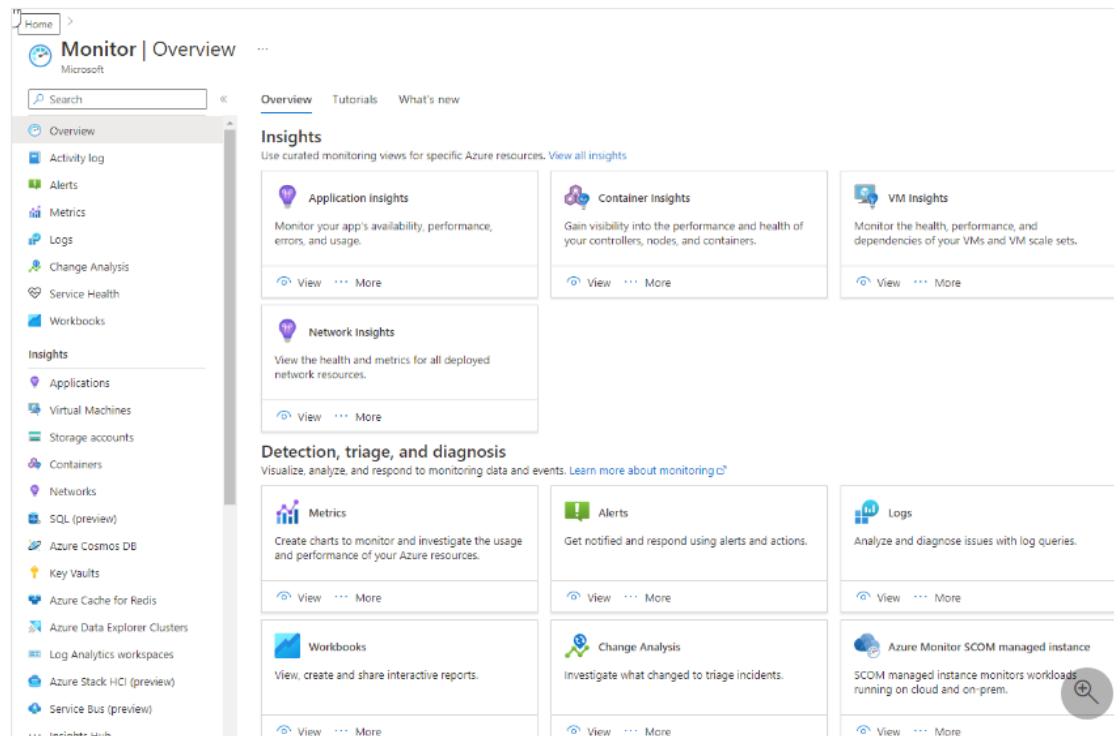
See, e.g., Ex. 89, Thomas Maurer, *Hyper-V Container and Nested Virtualization in Microsoft Azure Virtual Machines*, THOMAS MAURER (May 15, 2017, 5:31 PM), <https://www.thomasmaurer.ch/2017/05/hyper-v-container-and-nested-virtualization-in-microsoft-azure-virtual-machines/>; Ex. 90, *How to Replicate, Restore, and Fail over Using Hyper-V Nested Virtualization on Azure*, MEDIUM (Mar. 24, 2020), <https://nakivo.medium.com/how-to-replicate-restore-and-fail-over-using-hyper-v-nested-virtualization-on-azure-1399e2f8b103>.

218. Azure provides a method for connecting an end user to the control computer (e.g., Azure Resource Manager, Azure Portal, Windows Admin Center). See, e.g., Ex. 39,

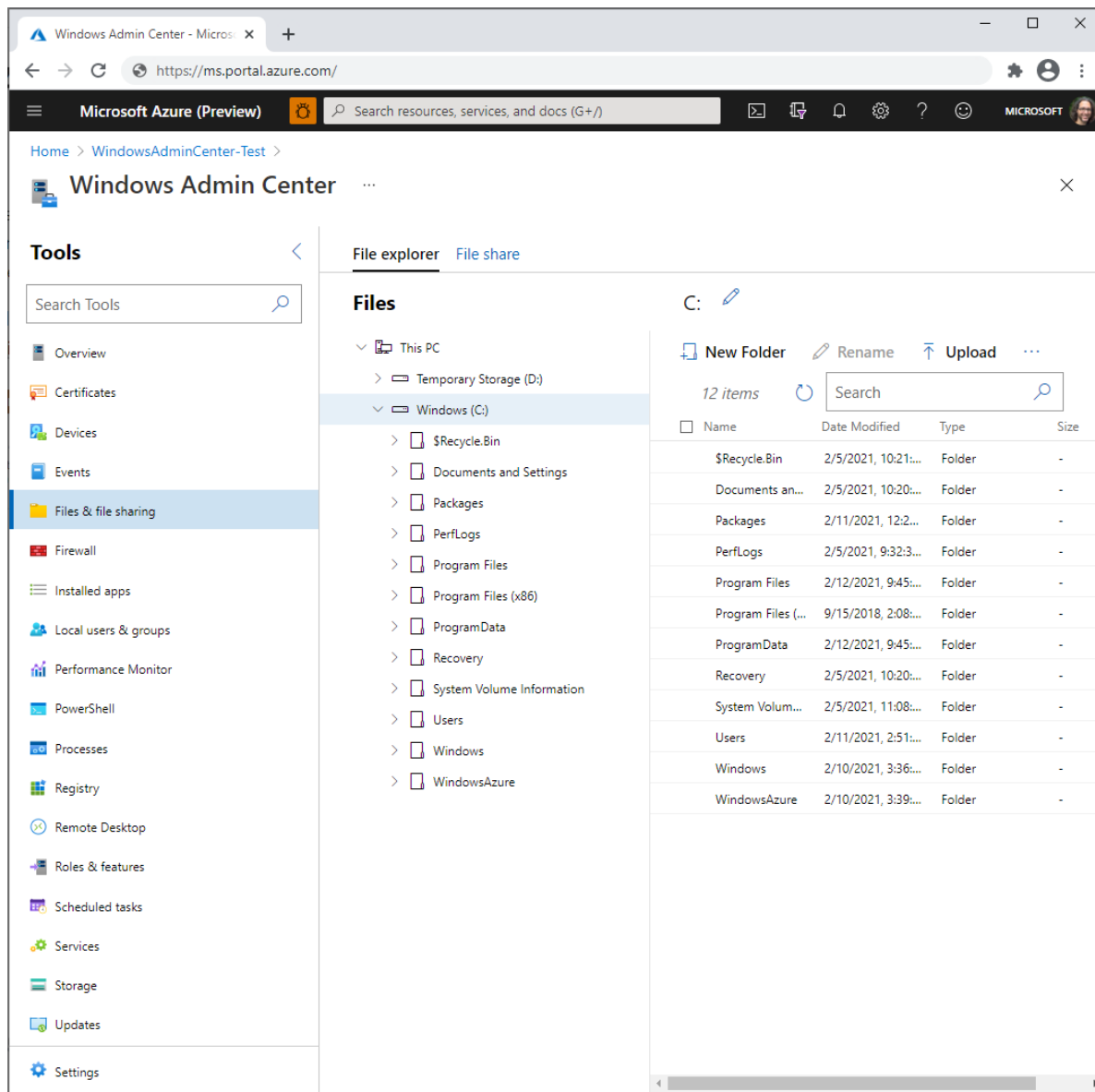
What is the Azure Portal?, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-portal/azure-portal-overview> (last updated Sept. 19, 2024);

The Azure portal

The Azure portal is a web-based, unified console that provides an alternative to command-line tools. With the Azure portal, you can manage your Azure subscription using a graphical user interface. You can build, manage, and monitor everything from simple web apps to complex cloud deployments in the portal. The *Monitor* section of the Azure portal provides a visual interface that gives you access to the data collected for Azure resources and an easy way to access the tools, insights, and visualizations in Azure Monitor.



Ex. 62, *Azure Monitor Overview*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-monitor/fundamentals/overview> (last updated Aug. 26, 2025); Ex. 75, *Manage Azure Arc-enabled Servers using Windows Admin Center in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/azure/manage-arc-hybrid-machines?culture=en-us&country=us> (last updated Nov. 6, 2024);

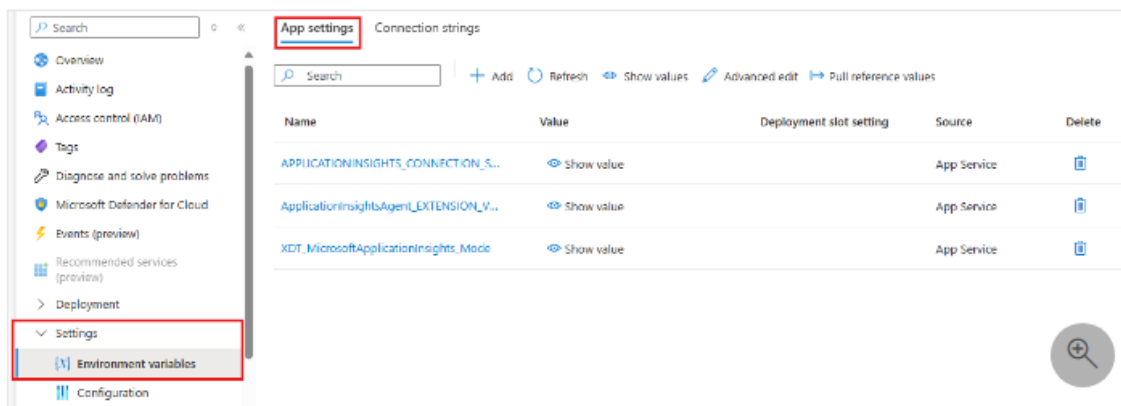


Ex. 77, *Manage a Windows VM using Windows Admin Center in Azure*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/azure/manage-vm> (last updated June 18, 2025).

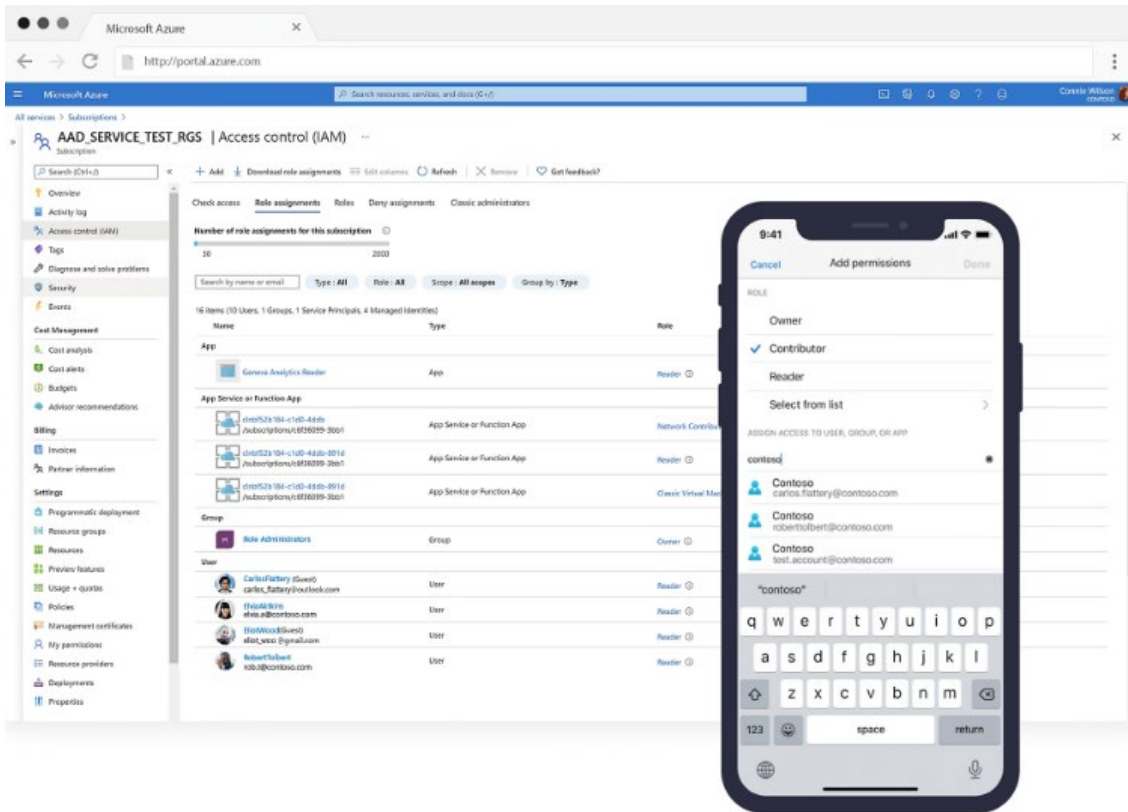
219. Azure provides a method for the end user to access the virtual assets through the control computer connection (e.g. Azure Resource Manager, Azure Portal, Windows Admin Center). See Ex. 39, *What is the Azure Portal?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-portal/azure-portal-overview> (last updated Sept.

19, 2024). For example, users can deploy web applications in the virtualization environment and then access the web application via the control computer (e.g. Azure Resource Manager, Azure Portal, Windows Admin Center). See Ex. 113, *Azure App Service*, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/products/app-service> (last visited Aug. 12, 2025);

1. In the [Azure portal](#), search for and select **App Services**, and then select your app.
2. On the app's left menu, select **Settings** > **Environment variables**. Then select **App settings**.



Ex. 114, *Configure an App Service App*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/app-service/configure-common?tabs=portal> (last updated Mar. 27, 2025);



Ex. 72, Microsoft Azure Portal, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/get-started/azure-portal> (last visited Aug. 12, 2025).

220. Thus, Azure satisfies all elements of exemplary Claim 1 of the '915 Patent.

221. Defendant's direct infringement of the '915 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

222. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

223. ToutVirtual is entitled to injunctive relief, damages, and any other relief in accordance with 35 U.S.C. §§ 283 and 285 for Defendant's direct infringement of the '915 Patent.

COUNT VIII
(Indirect Infringement of the '915 Patent)

224. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

225. As set forth above, Defendant has had knowledge of ToutVirtual's patents since at least as early as 2007 and has had specific knowledge of its infringement of the '915 Patent since at least the date of the Notice Letter, if not earlier.

226. As set forth above, Azure directly infringes the '915 Patent. Additionally, Defendant has and continues to indirectly infringe the '915 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Azure and/or by instructing customers how to make, install, and use Azure in a way that directly infringes at least Claim 1 of the '915 Patent.

227. For example, Defendant's customers and end-users directly infringe (either literally and/or under the doctrine of equivalents) through their use of the claimed invention of the '915 Patent. Defendant induces its customers' and end-users' direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available Azure, and encouraging its customers' and end-users' to infringe by providing instructions, documentation, and other information to customers and end-users on how to use and suggesting that they use Azure in an infringing manner, including service agreements, terms of use, technical support, marketing, product manuals, advertisements, and online documentation. *See, e.g.,* Ex. 118, *Microsoft Azure Legal Information*, MICROSOFT, <https://azure.microsoft.com/en-us/support/legal/> (last updated Apr. 2023); *see also* Ex. 119, *Microsoft – Terms of Use*, MICROSOFT, <https://www.microsoft.com/en-us/legal/terms-of-use> (last updated Feb. 7, 2022); *see also, generally, supra*, exhibits cited in ¶¶ 211-223.

228. Because of Defendant's inducement, Defendant's customers and end-users use Azure in a way Defendant intends and does directly infringe the '915 Patent. Defendant performs these affirmative acts with knowledge of the '915 Patent and with the intent, or willful blindness, that the induced acts directly infringe the '915 Patent.

229. Defendant has had knowledge of the '915 Patent and of its infringement of the '915 Patent at least by the time of service of this Complaint. As discussed above, Defendant has also known of ToutVirtual and its technology as early as 2007. On information and belief, Defendant knew of ToutVirtual's patent portfolio. Additionally, Defendant has received notice of the Asserted Patents and the accused infringing technology in the Notice Letter. Accordingly, Defendant has known, or has been willfully blind, of the '915 Patent.

230. Defendant's infringement of the '915 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

231. Defendant's infringement of the '915 Patent has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of ToutVirtual's rights under the '915 Patent.

232. Defendant's indirect infringement of the '915 Patent has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

233. ToutVirtual is entitled to injunctive relief, an award of treble damages, reasonable attorney fees, costs in bringing this action, and any other relief in accordance with 35 U.S.C. §§ 283, 284 and 285.

COUNT IX
(Direct Infringement of the '667 Patent)

234. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

235. In violation of 35 U.S.C. § 271(a), Defendant directly infringed and continues to infringe (either literally and/or under the doctrine of equivalents) one or more claims of the '667 Patent, including, for example, Claim 1 (as detailed below) by making, using, selling, offering for sale, and/or importing into the United States infringing products, including, but not limited to, Azure.

236. Defendant also infringes the claims of the '667 Patent jointly with its clients to the extent that specific components are provided by those clients. Defendant directs and controls the system and methods in the claims and obtains and confers benefits to its customers from the control of the system as a whole. In particular, Defendant puts the systems and methods into service to benefit its ability to provide management of virtual assets running on a virtualization platform.

237. By way of example of Defendant's infringement of the '667 Patent, Azure meets all of the limitations of at least Claim 1 of the '667 Patent, which recites:

A method for data storage across one or more virtualization system resources over a network, the method comprising:

implementing a virtualization system that includes a control center application, one or more physical resources, and one or more virtual assets on each of the physical resources, wherein the virtual assets are managed by virtualization layer instances running on each of the physical resources, and wherein at least two of the virtual assets on one or more of the physical resources include virtual storage assets;

obtaining a set of data to be stored the virtual storage assets on any of the physical resources;

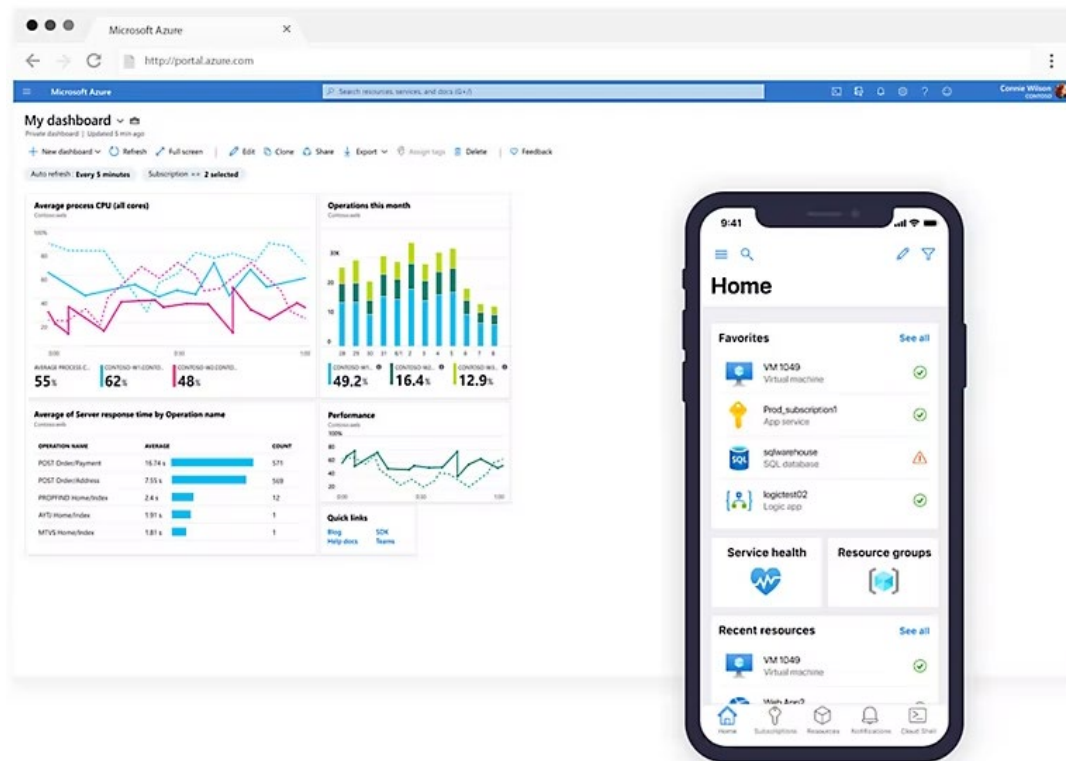
selecting one or more of the virtual assets for storage of the set of data

based on an allocation of data on the virtual storage assets; and

causing storage of the set of data at the selected virtual storage assets on any of the physical resources.

238. Azure embodies the claimed invention and infringes the '667 Patent because, as described below, it practices each limitation of exemplary Claim 1 of the '667 Patent. For example, Azure performs a method for data storage across one or more virtualization system resources over a cloud network.

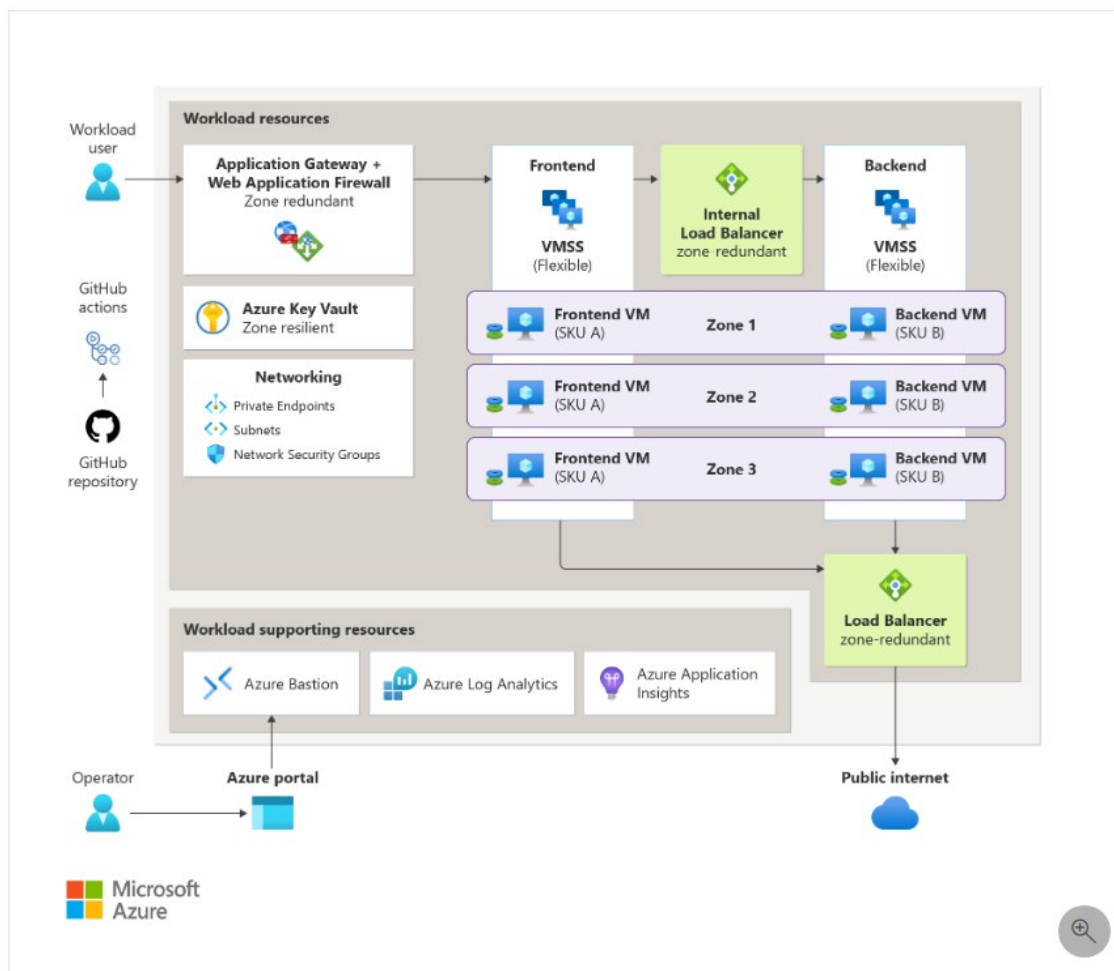
239. For example, Azure allows the configuration, deployment, and management of data storage.



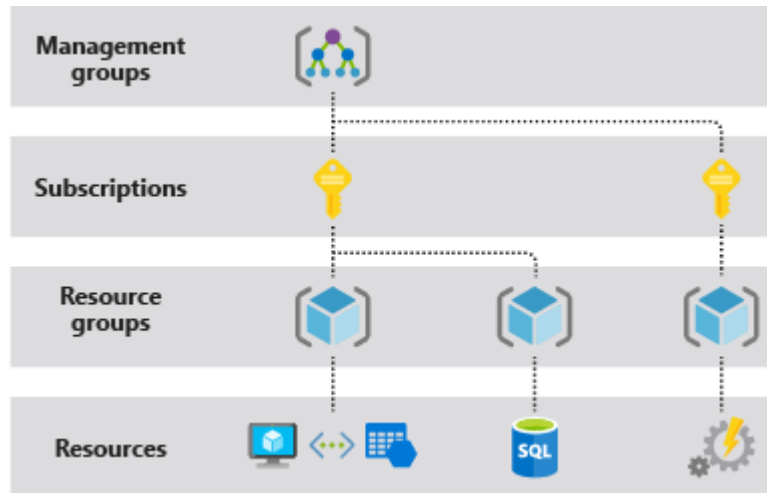
Ex. 72, *Microsoft Azure Portal*, MICROSOFT AZURE, <https://azure.microsoft.com/en-us/get-started/azure-portal> (last visited Aug. 5, 2025).

240. Azure provides a method for implementing a virtualization system that includes a control center application (e.g., Azure Resource Manager, Azure Portal, Windows Admin

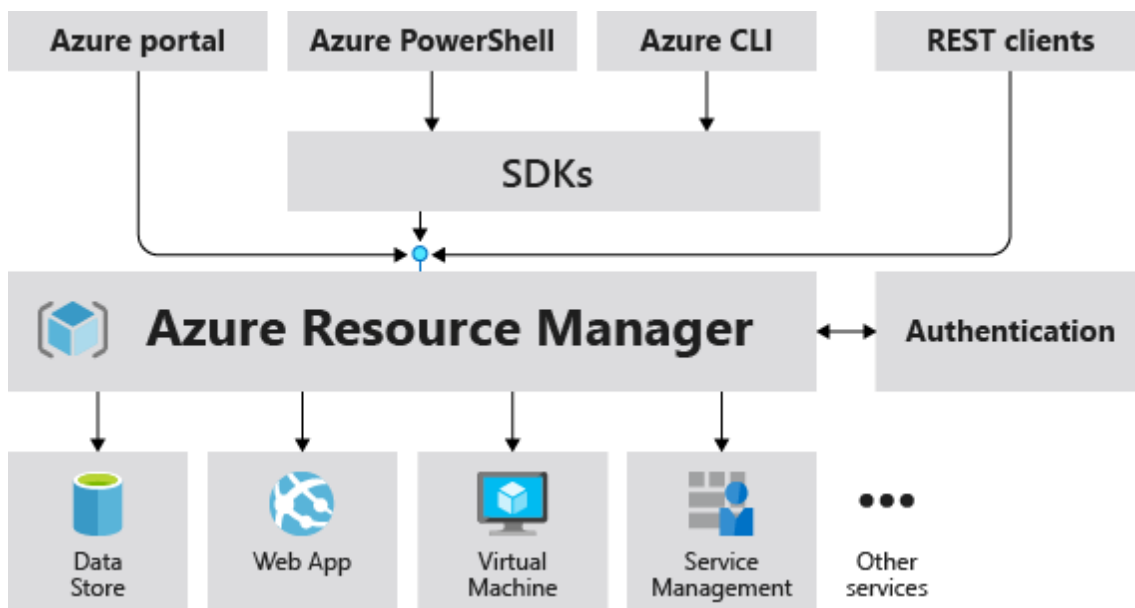
Center) which is connected to one or more virtual assets (for example, virtual machines, applications, networks, storage) that are managed by virtualization layer instances (for example, hypervisors) running on each of the one or more physical resources (for example, servers).



See, e.g., Ex. 73, *Azure Virtual Machines Baseline Architecture*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/architecture/virtual-machines/baseline> (last visited Aug. 5, 2025);

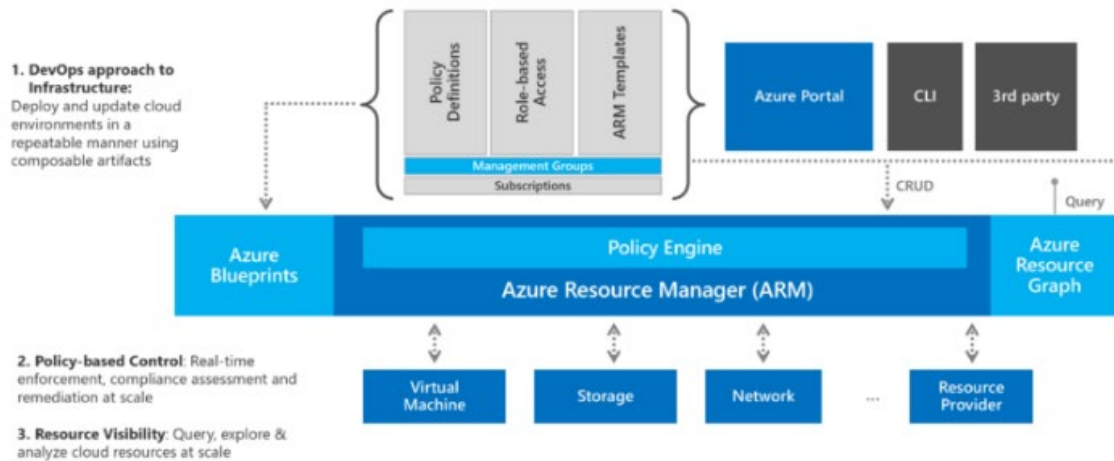


Ex. 39, *What is the Azure Portal?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-portal/azure-portal-overview> (last updated Sept. 19, 2024);



Ex. 43, *What is Azure Resource Manager?*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/overview> (last updated Mar. 31, 2025);

Azure Governance Architecture



Ex. 68, *The Architecture of Azure Governance*, IZMIR SADIGOV (July 1, 2023),

<https://www.izmirsadigov.com/2023/07/01/the-architecture-of-azure-governance/>; Ex. 77,

Manage a Windows VM using Windows Admin Center in Azure, MICROSOFT LEARN,

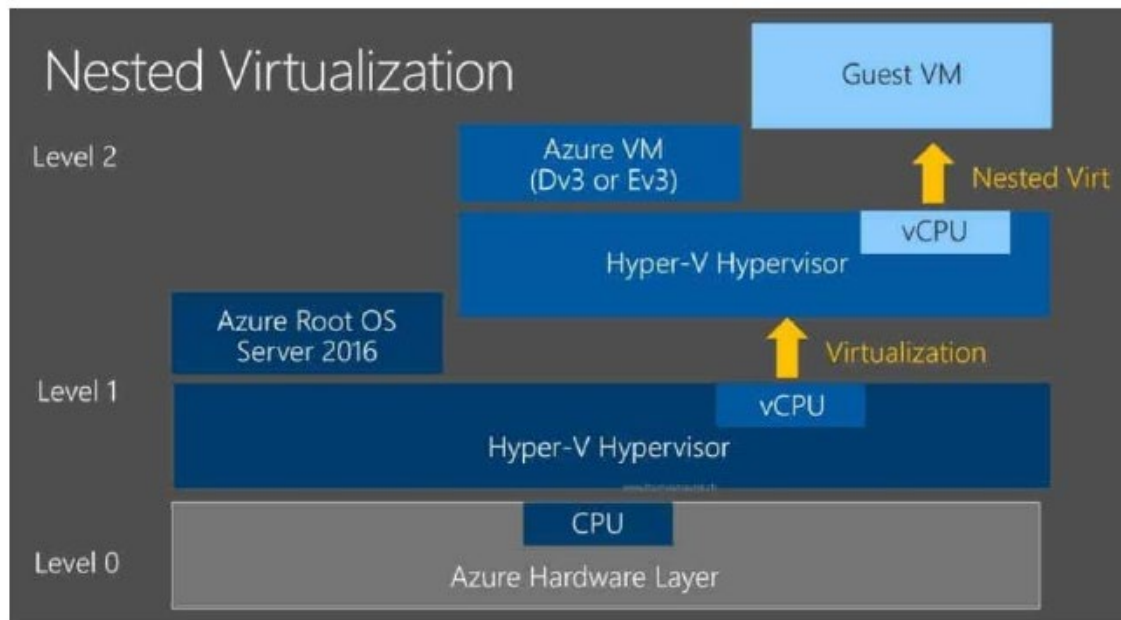
<https://learn.microsoft.com/en-us/windows-server/manage/windows-admin-center/azure/manage-vm> (last updated June 18, 2025);



Ex. 78, *Reimagine server management with Windows Admin Center*, <https://cdn-dynmedia-1.microsoft.com/is/content/microsoftcorp/microsoft/final/en-us/microsoft-brand/documents/wac-infographic-190816-02.pdf?culture=en-us&country=us> (last visited Aug. 25, 2025).

241. For example, in the virtualization environment, Defendant's hypervisors, Hyper-Vs (for example, a virtualization layer), each run on a specific server executing the Hyper-V, such as x64 versions of Windows Servers. See Ex. 88, *Hyper-V Virtualization in Windows Server and Windows*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/windows-server/virtualization/hyper-v/overview> (last updated Aug. 5, 2025). The virtual assets (for

example, virtual machines) are managed by a Hyper-V that operates on a specific server (for example, a hardware layer with a processor and memory).



See, e.g., Ex. 89, Thomas Maurer, *Hyper-V Container and Nested Virtualization in Microsoft Azure Virtual Machines*, THOMAS MAURER (May 15, 2017, 5:31 PM),

[https://www.thomasmaurer.ch/2017/05/hyper-v-container-and-nested-virtualization-in-](https://www.thomasmaurer.ch/2017/05/hyper-v-container-and-nested-virtualization-in-microsoft-azure-virtual-machines/)

[microsoft-azure-virtual-machines/](https://www.thomasmaurer.ch/2017/05/hyper-v-container-and-nested-virtualization-in-microsoft-azure-virtual-machines/); Ex. 90, *How to Replicate, Restore, and Fail over Using*

Hyper-V Nested Virtualization on Azure, MEDIUM (Mar. 24, 2020),

[https://nakivo.medium.com/how-to-replicate-restore-and-fail-over-using-hyper-v-nested-](https://nakivo.medium.com/how-to-replicate-restore-and-fail-over-using-hyper-v-nested-virtualization-on-azure-1399e2f8b103)

[virtualization-on-azure-1399e2f8b103](https://nakivo.medium.com/how-to-replicate-restore-and-fail-over-using-hyper-v-nested-virtualization-on-azure-1399e2f8b103).

242. Azure provides a method for obtaining virtual asset data to be stored on physical resources (for example, servers).

Benefits of Azure Storage

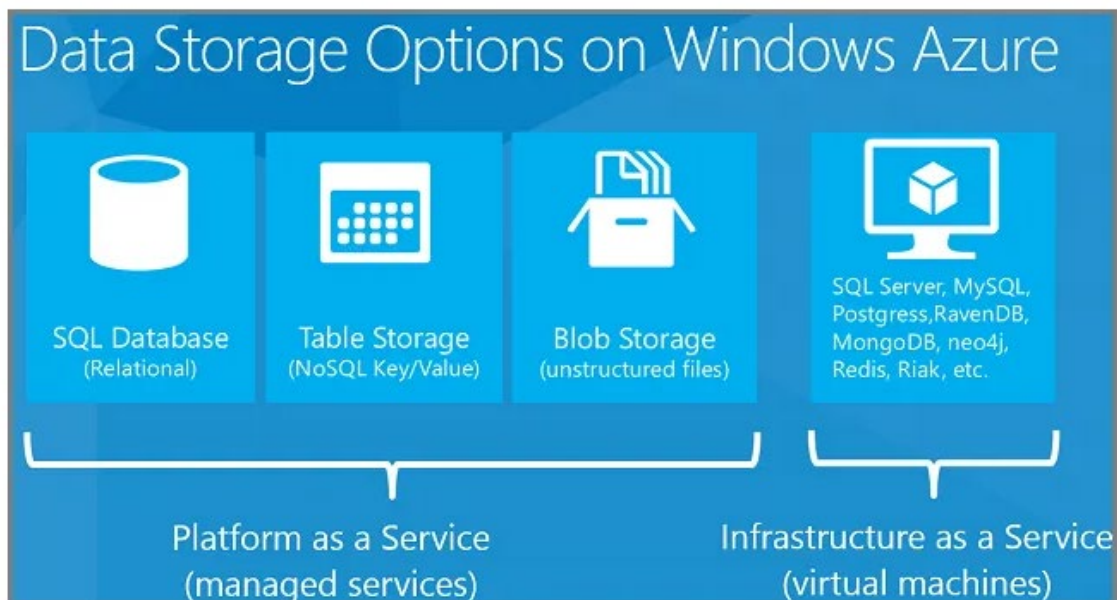
Azure Storage services offer the following benefits for application developers and IT professionals:

- **Durable and highly available.** Redundancy ensures that your data is safe in the event of transient hardware failures. You can also opt to replicate data across data centers or geographical regions for additional protection from local catastrophe or natural disaster. Data replicated in this way remains highly available in the event of an unexpected outage.
- **Secure.** All data written to an Azure storage account is encrypted by the service. Azure Storage provides you with fine-grained control over who has access to your data.
- **Scalable.** Azure Storage is designed to be massively scalable to meet the data storage and performance needs of today's applications.
- **Managed.** Azure handles hardware maintenance, updates, and critical issues for you.
- **Accessible.** Data in Azure Storage is accessible from anywhere in the world over HTTP or HTTPS. Microsoft provides client libraries for Azure Storage in a variety of languages, including .NET, Java, Node.js, Python, Go, and others, as well as a mature REST API. Azure Storage supports scripting in Azure PowerShell or Azure CLI. And the Azure portal and Azure Storage Explorer offer easy visual solutions for working with your data.

See Ex. 51, *Introduction to Azure Storage*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/storage/common/storage-introduction> (last updated Mar. 27, 2025).

243. Azure provides a method for selecting and allocating one or more virtual asset data to be stored based on the virtual storage assets (*e.g.*, Azure Blob Storage). For example, Azure provides various data storage services based on the type and/or volume of data.

Azure Storage Services



See Ex. 102, Suji Guna, *Deploy our Angular Application on Blob Storage*, MEDIUM (Aug. 14, 2020), <https://sujiguna1696.medium.com/deploy-our-angular-application-in-blob-storage-310bf2954add>.

244. Azure provides a method for causing storage of the set of data at the selected virtual storage assets on any of the physical resources (e.g., Azure Storage Explorer).

The Azure Storage platform includes the following data services:

- **Azure Blobs:** A massively scalable object store for text and binary data. Also includes support for big data analytics through Data Lake Storage.
- **Azure Files:** Managed file shares for cloud or on-premises deployments.
- **Azure Elastic SAN:** A fully integrated solution that simplifies deploying, scaling, managing, and configuring a SAN in Azure.
- **Azure Queues:** A messaging store for reliable messaging between application components.
- **Azure Tables:** A NoSQL store for schemaless storage of structured data.
- **Azure managed Disks:** Block-level storage volumes for Azure VMs.
- **Azure Container Storage:** A volume management, deployment, and orchestration service built natively for containers.

Each service is accessed through a storage account with a unique address. To get started, see [Create a storage account](#).

Additionally, Azure provides the following specialized storage:

- **Azure NetApp Files:** Enterprise files storage, powered by NetApp: makes it easy for enterprise line-of-business (LOB) and storage professionals to migrate and run complex, file-based applications with no code change. Azure NetApp Files is managed via NetApp accounts and can be accessed via NFS, SMB and dual-protocol volumes. To get started, see [Create a NetApp account](#).
- **Azure Managed Lustre:** A high-performance distributed parallel file system solution, ideal for HPC workloads that require high throughput and low latency.

See Ex. 51, *Introduction to Azure Storage*, MICROSOFT LEARN, <https://learn.microsoft.com/en-us/azure/storage/common/storage-introduction> (last updated Mar. 27, 2025).

245. Thus, Azure satisfies all elements of exemplary Claim 1 of the '667 Patent.

246. Defendant's direct infringement of the '667 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

247. Defendant's infringement has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

248. ToutVirtual is entitled to injunctive relief, damages, and any other relief in accordance with 35 U.S.C. §§ 283 and 285 for Defendant's direct infringement of the '667 Patent.

COUNT X
(Indirect Infringement of the '667 Patent)

249. ToutVirtual repeats, realleges, and incorporates by reference, as if fully set forth herein, the allegations of the preceding paragraphs.

250. As set forth above, Defendant has had knowledge of ToutVirtual's patents since at least as early as 2007 and has had specific knowledge of its infringement of the '667 Patent since at least the date of the Notice Letter, if not earlier.

251. As set forth above, Azure directly infringes the '667 Patent. Additionally, Defendant has and continues to indirectly infringe the '667 Patent in violation of 35 U.S.C. § 271(b) at least by inducing customers to purchase Azure and/or by instructing customers how to make, install, and use Azure in a way that directly infringes at least Claim 1 of the '667 Patent.

252. For example, Defendant's customers and end-users directly infringe (either literally and/or under the doctrine of equivalents) through their use of the claimed invention of the '667 Patent. Defendant induces this direct infringement through its affirmative acts of manufacturing, selling, distributing, and/or otherwise making available Azure, and providing instructions, documentation, and other information to customers and end-users on how to use and suggesting that they use Azure in an infringing manner, including service agreements, terms of use, technical support, marketing, product manuals, advertisements, and online documentation. *See, e.g.,* Ex. 118, *Microsoft Azure Legal Information*, MICROSOFT, <https://azure.microsoft.com/en-us/support/legal/> (last updated Apr. 2023); *see also* Ex. 119,

Microsoft – Terms of Use, MICROSOFT, <https://www.microsoft.com/en-us/legal/terms-of-use>

(last updated Feb. 7, 2022); *see also, generally, supra*, exhibits cited in ¶¶ 234-248. To the extent that Defendant’s customers and end-users direct and control the systems and performance of methods in the claims, Defendant obtains benefits from the control of the system and methods as a whole. Defendant and its customers and/or end-users put the systems and methods described in the claims into service to the benefit of Defendant’s ability to provide automatic virtual system management over a computer network.

253. Because of Defendant’s inducement, Defendant’s customers and end-users use Azure in a way Defendant intends and does directly infringe the ’667 Patent. Defendant performs these affirmative acts with knowledge of the ’667 Patent and with the intent, or willful blindness, that the induced acts directly infringe the ’667 Patent.

254. Defendant has had knowledge of the ’667 Patent and of its infringement of the ’667 Patent at least by the time of service of this Complaint. As discussed above, Defendant has also known of ToutVirtual and its technology as early as 2007. On information and belief, Defendant knew of ToutVirtual’s patent portfolio. Additionally, Defendant has received notice of the Asserted Patents and the accused infringing technology in the Notice Letter. Accordingly, Defendant has known, or has been willfully blind, of the ’667 Patent.

255. Defendant’s infringement of the ’667 Patent has injured and continues to injure ToutVirtual in an amount to be proven at trial, but not less than a reasonable royalty.

256. Defendant’s infringement of the ’667 Patent has been and continues to be willful, intentional, deliberate, and/or in conscious disregard of ToutVirtual’s rights under the ’667 Patent.

257. Defendant's indirect infringement of the '667 Patent has caused and is continuing to cause damage and irreparable injury to ToutVirtual, and ToutVirtual will continue to suffer damage and irreparable injury unless and until that infringement is enjoined by this Court.

258. ToutVirtual is entitled to injunctive relief, an award of treble damages, reasonable attorney fees, costs in bringing this action, and any other relief in accordance with 35 U.S.C. §§ 283, 284 and 285.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff prays for relief and judgment as follows:

A. an entry of judgment holding that Defendant has infringed and is infringing and is inducing infringement of each of the Asserted Patents;

B. a permanent injunction against Defendant and its officers, employees, agents, servants, attorneys, instrumentalities, and/or those in privity with them, from infringing and inducing infringement of the Asserted Patents and for all further and proper injunctive relief pursuant to 35 U.S.C. § 283;

C. an award to ToutVirtual of such damages as it shall prove at trial against Defendant that is adequate to fully compensate ToutVirtual for Defendant's infringement of the Asserted Patents that will account for infringement up to trial based on the relevant information and financial data produced, where said damages will be no less than a reasonable royalty;

D. a determination that Defendant's infringement has been willful, wanton, deliberate, and egregious;

E. a determination that the damages against Defendant be trebled or for any other basis within the Court's discretion pursuant to 35 U.S.C. § 284;

F. a finding that this case is "exceptional" and an award to ToutVirtual of its costs and reasonable attorneys' fees, as provided by 35 U.S.C. § 285;

G. an accounting of all infringing sales and revenues, together with post-judgment interest and pre-judgment interest from the first date of infringement of the Asserted Patents; and

H. such further and other relief as the Court may deem proper and just.

Respectfully submitted,

Dated: September 8, 2025

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