



# MICROSOFT AZURE: AN INSIDER'S GUIDE

By James Sanders

# INTRODUCTION

The rise of cloud computing enables businesses to quickly provision computing resources without the costly and laborious task of building data centers, and without the costs of running servers with unutilized capacity due to variable workloads.

[Azure](#), Microsoft's cloud computing platform, launched in February 2010. In addition to traditional cloud offerings such as virtual machines, object storage, and content delivery networks (CDNs), Azure offers services that leverage proprietary Microsoft technologies. For example, [RemoteApp](#) allows for the deployment of Windows programs using a virtual machine, with clients on Windows, Mac OS, Android, or iOS using the program through a remote desktop connection. Azure also offers cloud-hosted versions of common enterprise Microsoft solutions, such as [Active Directory](#) and [SQL Server](#).

This introduction to Microsoft's cloud platform will help IT leaders stay on top of new Azure services and ways in which they can be leveraged.

## EXECUTIVE SUMMARY

- **What is Microsoft Azure?** Microsoft Azure is a collection of various cloud computing services, including remotely hosted and managed versions of proprietary Microsoft technologies, and open technologies, such as various Linux distributions deployable inside a virtual machine.
- **Why does Microsoft Azure matter?** Azure lacks upfront costs or an appreciable time delay in resource provisioning—capacity is available on demand. With a usage-based billing formula, Azure is a compelling option for enterprises transitioning from on-premises Windows servers to the cloud.
- **Who does Microsoft Azure affect?** Azure can be used at any scale, from a garage startup to a Fortune 500 company. Because of the ease of transition, organizations with an existing Windows Server deployment may find Azure to be best suited to their needs.
- **When was Microsoft Azure released?** Azure reached general availability in February 2010, with additional services and regional data centers being added continually since launch.
- **How do I get Microsoft Azure?** New users receive a \$200 service credit good for 30 days when signing up for Microsoft Azure. The credit can be applied toward any Microsoft-provided service. Additional discounts and credits are available for startups, nonprofits, and universities.

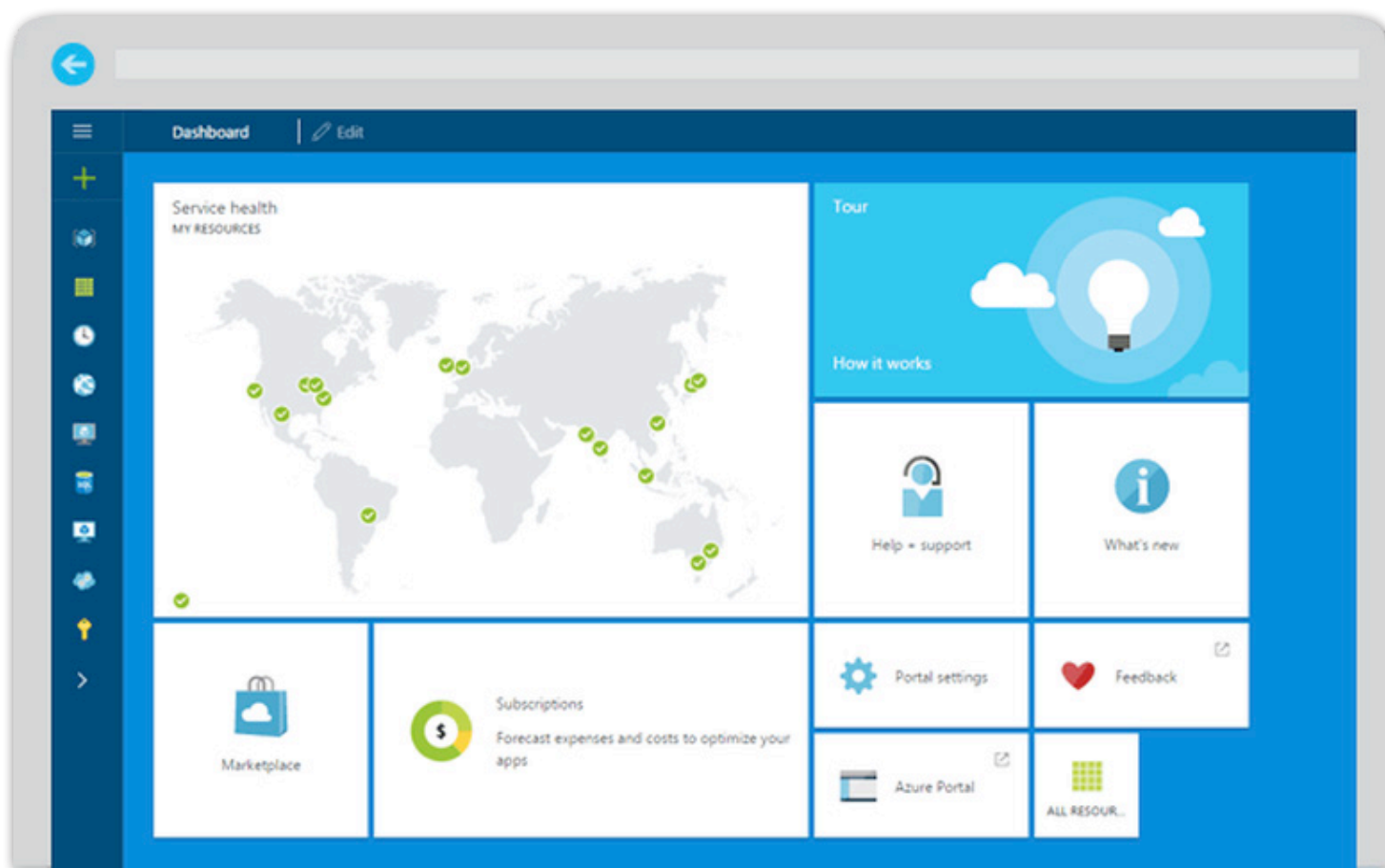


IMAGE: MICROSOFT

## WHAT IS MICROSOFT AZURE?

Microsoft Azure is a platform of interoperable cloud computing services, including open source, standards-based technologies and proprietary solutions from Microsoft and other companies. Instead of building an on-premises server installation, or leasing physical servers from traditional data centers, Azure's billing structure is based on resource consumption, not reserved capacity. Pricing varies between types of services, storage types, and the physical location from which your Azure instances are hosted.

For example, [storage pricing](#) varies based on redundancy and distribution options. In the Central US region, hot locally redundant block blob storage (LRS-HOT), with three copies in one data center, starts at \$0.0184 per GB. Geographically redundant storage (GRS-HOT), with three copies in one data center and three copies in a second geographically distant data center, starts at \$0.0368 per GB. Read-Access GRS (RAGRS-HOT), which allows for read access at the second data center, starts at \$0.046 per GB.

In addition to the aforementioned storage, virtual machine, CDN, and Windows-related services, Azure offers a variety of other services:

- [Azure IoT Suite](#) provides various options for connecting and monitoring devices, as well as telemetry and analytics services.
- [HDInsight](#) is a customized [Hadoop](#) deployment.
- [Azure Redis Cache](#) is a managed version of the popular open source [Redis](#) data structure server; [Azure Cosmos DB](#) is a hosted NoSQL database for specific use cases; and [Azure Search](#) is an [OData](#)-based managed search service.
- [Azure Media Services](#) offers cloud-based video playing, indexing, transcoding, and content protection services.

Microsoft, in coordination with hardware vendors such as Lenovo, Dell EMC, HP Enterprise, and Huawei, offers the [Azure Stack](#) appliance for use in [hybrid cloud](#) deployments. The Azure Stack certified hardware allows organizations to run Azure applications from the public Azure cloud while leveraging data hosted on-premises, as well as running the same services from the public Azure cloud on the Azure Stack platform.

## Additional resources

- [Microsoft Azure Cosmos DB: The smart person's guide](#) (TechRepublic)
- [Microsoft Azure Stack is ready to order from Dell EMC, HPE, and Lenovo](#) (ZDNet)
- [Want to run Windows 10 desktops virtually on Azure? Now you can](#) (ZDNet)
- [Microsoft's Azure IoT hub is now ready for business](#) (ZDNet)
- [Microsoft provides enterprise security progress report](#) (ZDNet)

## WHY DOES MICROSOFT AZURE MATTER?

Azure, like other cloud service providers, offers the ability to instantly provision computing resources on demand. Compared to the onerous task of planning and building an onsite data center, along with the requisite hardware upgrades, maintenance costs, server cooling requirements, electricity costs, and use of floor space—particularly for offices with associated real estate costs—the savings can add up quickly.

The benefits of Azure extend beyond cost control, however. The task of administering certain technologies, such as Windows Server, Active Directory, and SharePoint, can be greatly eased with the combination of Azure and [Office 365](#). This frees up IT staff to work on new projects, rather than spending time on general system upkeep.

Microsoft is aggressively courting organizations to move AI compute operations into Azure. [Project Brainwave](#)—an FPGA-based deep learning system built for real-time AI—was released as a preview to Azure at [Microsoft's Build 2019 developer conference](#). Microsoft also added Cognitive Services algorithms to generate insights from structured or unstructured content, as well as adding features to Azure Machine Learning Service to help developers using “a no-code approach to model creation and deployment using a new visual machine-learning interface,” according to ZDNet.

Microsoft is bolstering previously announced efforts to bring [blockchain](#) offerings to Azure with blockchain-as-a-service feature Azure Blockchain Service, which allows developers to create, manage, and govern consortium blockchain networks. Azure Blockchain Service was released in a public preview at Build 2019.

## Additional resources

- [Cloud is cheaper than VMs and containers for most new applications](#) (TechRepublic)
- [Azure's new autoscale feature makes VM deploys much easier](#) (TechRepublic)
- [Microsoft Azure adds impressive security, container, IoT, and file-sharing features](#) (TechRepublic)
- [Red Hat Enterprise Linux images now in Microsoft Azure Marketplace](#) (ZDNet)
- [15 essential support sites for Windows admins](#) (Tech Pro Research)
- [Microsoft's Project Brainwave brings fast-chip smarts to AI at Build conference](#) (CNET)

## WHO DOES MICROSOFT AZURE AFFECT?

Organizations with an existing deployment of Microsoft technologies, particularly Windows Server and Active Directory, will find Azure to be a compelling upgrade. As Windows Server 2008 has reached the end of mainstream support, planning for a migration to cloud-hosted Azure services may be preferable to investments in new server hardware and Windows Server licenses.

As with any cloud service, the cost benefit is more real for cash-strapped startup organizations that lack the capital for provisioning hardware and associated costs of a traditional on-premises deployment or leasing dedicated servers in a traditional data center. Because the billing structure of Azure is based on resources used, turning to the cloud allows a company's IT backbone to scale with corporate growth.

Presently, 54 regions are available for use in Azure. Compared to AWS and Google Cloud Services, Azure has a wider reach in developing markets, with more regions across Asia Pacific, South Africa, and the United Arab Emirates. Of the currently deployed regions, 16 are located in the US (eight of which are government-use regions), two are in Canada, and one is in São Paulo, Brazil. In Europe, Germany has four, while the United

Kingdom, France, and Switzerland have two each. Ireland and The Netherlands each has one. For Asia Pacific, China and Australia have four each, while India has three, and Japan and Korea have two. Hong Kong and Singapore host one region apiece. For the Middle East and Africa, South Africa and the UAE host two regions apiece.

## Additional resources

- [Baidu will use Microsoft Azure services for self-driving cars](#) (ZDNet)
- [Azure IoT, Schneider Electric and WaterForce support sustainable farming](#) (ZDNet)
- [Microsoft Azure: Price cuts for virtual machines and storage services](#) (ZDNet)
- [Microsoft hones focus on enterprise mobility and security with Azure](#) (ZDNet)
- [Microsoft extends Azure Active Directory authentication with two new services](#) (ZDNet)

## WHEN WAS MICROSOFT AZURE RELEASED?

The Azure platform was announced in October 2008 and reached general commercial availability in February 2010. Originally called Windows Azure, it was renamed to Microsoft Azure in July 2014. Service regions have been added continuously since the service was announced.

[Azure Stack](#), the turnkey hybrid cloud solution offered by Microsoft and a number of hardware vendors, was first announced in May 2015. With the [first technical preview in January 2016](#), organizations could use their own hardware as part of an Azure Stack deployment. This plan was subsequently walked back, with Microsoft [requiring users to buy a prequalified Azure Stack system](#), under the belief that such offerings would perform better. Participating hardware vendors have continuously released new prequalified systems for use with Azure Stack.

Under Microsoft CEO Satya Nadella, Azure has expanded to include support for a variety of Linux distributions available in virtual machines on the Azure platform. Presently, CentOS, Clear Linux, CoreOS, Debian, Oracle Linux, Red Hat Enterprise Linux, SUSE Linux Enterprise, openSUSE, and Ubuntu are supported in the Azure platform, as well as FreeBSD. Additionally, [Azure supports Docker images](#).

Microsoft and SAP have collaborated to [make SAP's business software and services run on Azure](#). At the Sapphire Now conference in 2018, Microsoft announced general availability of SAP HANA, noting that Azure offers "26 distinct SAP HANA offerings from 192 GB to 24 TB." In 2019, [this was extended further](#), adding Amazon Web Services (AWS), Google Cloud, and global strategic service partners (GSSPs) for cloud-based delivery of S/4HANA.



## Additional resources

- [Cray supercomputing comes to Microsoft Azure to boost AI workloads in the cloud](#) (TechRepublic)
- [Linux on Azure: What are your choices?](#) (ZDNet)
- [Microsoft's next step for Blockchain as a Service: Making it more usable by businesses](#) (ZDNet)
- [Cisco launches IoT platform, partners with Microsoft Azure](#) (ZDNet)
- [Microsoft releases preview of its Azure cloud bot-as-a-service](#) (ZDNet)
- [Microsoft Azure doubles its lead over Oracle, IBM](#) (TechRepublic)
- [Microsoft launches technical preview of Azure Stack as a hybrid cloud play](#) (TechRepublic)
- [Microsoft updates Azure Stack preview with promised services](#) (ZDNet)
- [Research: Cloud vs. data center adoption rates, usage, and migration plans](#) (Tech Pro Research)

## WHAT SERVICES COMPETE WITH MICROSOFT AZURE?

One of the core strengths of Microsoft Azure is the ease of transition for organizations looking to migrate from other Microsoft products, such as SharePoint, or integrate tightly with an existing Windows deployment. For those organizations, Azure is likely the most compelling option for a seamless transition to the cloud. Microsoft also [heavily touts compliance certifications for government users](#), noting that Azure was the first public cloud platform with a [FedRAMP P-ATO](#).

In terms of scale, Google, Amazon, and IBM are certainly capable of handling any amount of data or compute tasks you can generate. [Amazon Web Services](#), much like Amazon itself, aims to be everything to everyone; as such, AWS has the most extensive portfolio of cloud services of any public cloud provider. [Google Cloud Platform](#)'s core strengths are in machine learning, big data tools, and extensive container support. For IoT, the cloud provider market is still wide open, with tailored solutions available from [GE Predix](#), Samsung's [ARTIK Cloud](#), and [ThingWorx](#).

## Additional resources

- [Microsoft Azure is becoming a bigger cloud threat to Amazon, here's why](#) (TechRepublic)
- [Google vs Amazon: Who will win the cloud pricing war?](#) (TechRepublic)
- [Massive Amazon S3 leaks highlight user blind spots in enterprise race to the cloud](#) (TechRepublic)
- [Multicloud: A cheat sheet](#) (TechRepublic)
- [How IBM plans to be the "undisputed leader" of the next cloud phase](#) (ZDNet)

- [IBM signs 10-year cloud services agreement with Lloyd's Banking Group](#) (ZDNet)
- [Microsoft realigns its cloud, AI, data organizations](#) (ZDNet)
- [Best cloud services for small businesses](#) (CNET)
- [Microsoft Office vs Google Docs Suite vs LibreOffice](#) (Download.com)

## HOW DO I GET MICROSOFT AZURE?

The [Microsoft for Startups](#) program offers \$10,000 per month of Azure service credits for one year for a total of \$120,000. Eligibility is dependent on collaboration with a [startup accelerator](#), with Microsoft partnering with more than 200 startup accelerators in 47 countries.

Microsoft's [Azure for Students](#) program grants a credit of \$100 to be used within 12 months, as well as access to more than 25 free products, including Virtual Machines, File Storage, and SQL Databases for the first 12 months, while other products are always free. This offer is available to students and faculty 18 or older at a STEM-related field in a four-year educational institution.

In 2016, Microsoft pledged to [donate \\$1 billion in cloud services](#) to universities and nonprofit organizations over the next three years. Eligible organizations can register for free access at [Microsoft Nonprofits](#).

For individual developers, new registrants receive a \$200 platform credit applicable toward any Azure service, excluding third-party offerings in the Azure Marketplace. [New users can register here](#).

### Additional resources

- [Cloud providers 2019: A buyer's guide \(free PDF\)](#) (TechRepublic)
- [Use the free Azure price calculator to determine what services will cost before you sign up](#) (TechRepublic)
- [Azure HDInsight click-by-click guide: Get cloud-based Hadoop up and running today](#) (ZDNet)
- [Microsoft targets startups with \\$500 million in Azure-related resources](#) (ZDNet)
- [Microsoft targets university students with new Azure for Students plan](#) (ZDNet)
- [Compliance could kill your cloud deployment: Here's how to handle it](#) (TechRepublic)
- [Gallery: 10 books on cloud computing that all IT leaders should read](#) (TechRepublic)
- [Top 5: Things to know about cloud security](#) (TechRepublic)
- [Video: The most common mistakes companies make with their cloud strategy](#) (TechRepublic)
- [Video: Mistakes to avoid in a cloud migration](#) (TechRepublic)



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