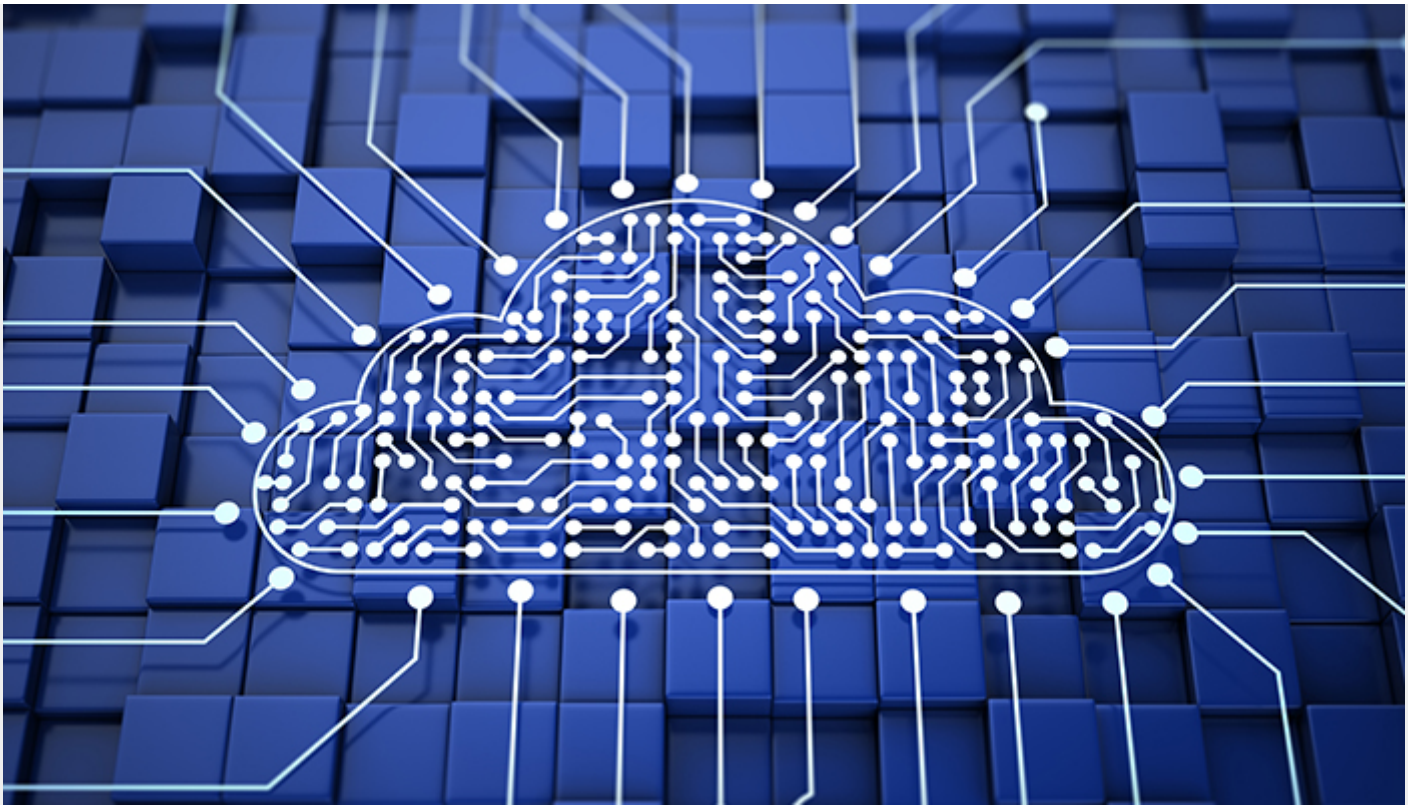
AWS VS AZURE VS GCP: COMPARING THE BIG 3 CLOUD PLATFORMS



The big three of cloud computing platforms

Cloud computing has revolutionized the way organizations handle digital operations. Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP) are the three cloud service providers dominating the cloud market worldwide.

Most enterprises have moved computing from on-site servers into the cloud and even multi-cloud environments, so that they can benefit from features such as:

- Decreased CapEx
- Reduced infrastructure maintenance
- Increased availability and reliability
- Scalability of an on-demand resource
- Lower operational costs
- Remote access and facilitated collaboration
- Support for multiple devices
- Optimized infrastructure for speed and performance
- Enhanced security
- Access to the most up-to-date technology

The big three cloud computing providers all bring experience and expertise to their reliable and feature-rich platforms. Which is better? AWS vs Microsoft Azure vs Google Cloud?

Here are details of each one, along with an Azure, AWS, and GCP comparison that will help you do your due diligence before making a choice for your company.

Amazon Web Services (AWS)

The current market leader is Amazon Web Services, a subsidiary of Amazon.com, Inc. It is the most mature cloud platform and offers a wide range of services to individual developers, small and large enterprises, and governments.

AWS started its life as an internal cloud platform. It evolved into a publicly available, on-demand internet computing resource in 2006, offering services like Amazon S3 cloud storage and elastic compute cloud (EC2). AWS now offers more than 200 fully featured services to millions of users. It rakes in one of every three dollars spent on cloud services, with an annual growth rate of 37%, according to figures published in *The Register*. It delivered 54% of Amazon's total operating income in 2023.

Prominent AWS customers include:

- Expedia
- Netflix
- Coinbase
- Formula 1
- Coca Cola
- Intuit
- Airbnb
- Lyft

- Coursera
- Food and Drug Administration (FDA)

(Explore our AWS Guide, a series of articles & tutorials.)

Microsoft Azure

Microsoft Azure is the second-largest cloud platform, but is growing faster than AWS with an annual growth rate of 46%, again as measured in *The Register*. Microsoft has reported cloud revenue growth of 30% for the quarter ending December 31, 2023. Azure has expanded since its 2010 launch to offer over 200 products and services.

Azure, an offering of Microsoft, is particularly tailored to support Microsoft-centric enterprises. Moving to the cloud or a hybrid-cloud environment is easier for these organizations. More than 95% of Fortune 500 companies use Microsoft Azure today.

Azure is not limited to Windows-based services. It also supports open-source languages, technologies, and platforms, giving anyone the freedom to build and support any application.

Well known Azure customers include:

- DAIMLER AG
- McKesson Group
- Asos
- Center of Disease Control (CDC) – US
- National Health Service (NHS) – UK
- HSBC
- Starbucks
- Walgreens
- 3M
- HP
- Mitsubishi Electric
- Renault

(Explore popular Azure certifications.)

Google Cloud Platform (GCP)

Compared to AWS vs Azure, GCP is the smallest of the big three cloud providers.

That said, it is the fastest growing, with a 54% market share growth rate, *The Register* reports. The company expects the business to grow 20% in 2024.

The GCP currently offers over 200 services spanning computing, networking, big data, and more. Today, GCP consists of services including Google Workspace, enterprise Android, and Chrome OS.

Notable GCP customers include:

- Toyota
- Unilever
- Nintendo
- Spotify

- The Home Depot
- Target
- Twitter
- Paypal
- UPS

How to choose between AWS, Microsoft Azure, and Google Cloud

When choosing between AWS vs. Microsoft Azure vs. Google Cloud, the first thing to consider is the availability of services in the regions where you operate. Regional availability has a direct impact on performance, like network latency and speed in transmitting data. Compliance issues also vary by region, particularly related to cybersecurity.

As of July 25, 2024, here's where the big three stand:

Comparing AWS, GCP, and Azure regions and availability

When choosing a cloud provider, the first thing to consider is its supported regions and availability. These directly impact the performance of your cloud, due to factors like latency and compliance requirements, especially when dealing with data.

As of September 2021, here's where the Big 3 stand:

- **AWS** has 33 geographic regions with105 availability zones. They plan to add seven more regions and 21 more availability zones in the immediate future. They serve 600+ edge locations and 12 regional edge caches.
- **Microsoft Azure** runs 64 regions with 15 under construction. They maintain 126 availability zones with 37 more being built. Microsoft maintains 192 edge locations in global cities with four edge locations in the US government cloud.
- **GCP** has 40 cloud regions with eight new ones coming soon. They've built 121 zones and 187 edge locations.

Each of these platforms provide specialized cloud solutions for the government (government cloud). Both AWS and Azure offer specialized services that cater to the Chinese market as well, with data centers located in China.

In making an Azure, AWS, and GCP comparison, it's important to note that each covers most of the globe. All three are also continuing to expand their coverage by adding more regions and zones to meet the ever-increasing computing demand.

(Get an in-depth look at the Big 3 regions & availability.)

Common services of the big three cloud providers

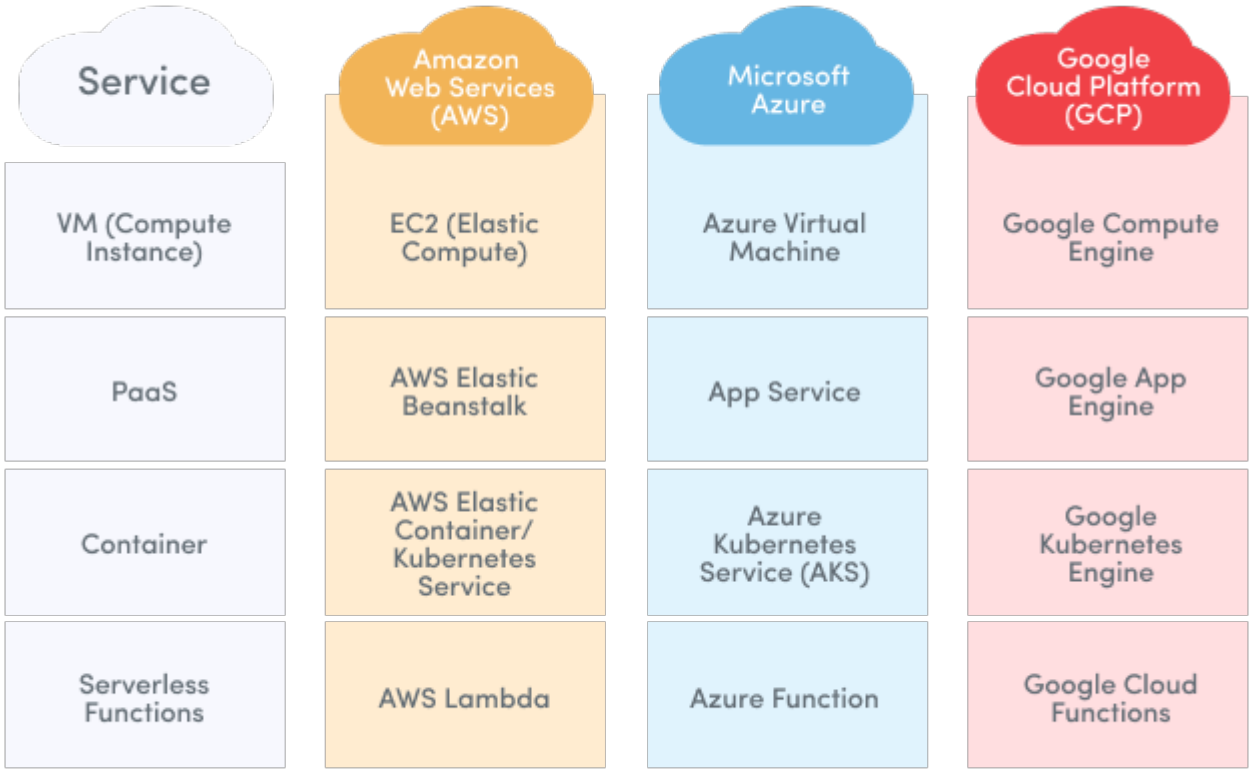
An AWS vs. Azure comparison shows that both have similarly large catalogs of more than 200 services each. GCP is quickly catching up to these leaders. A general breakdown of services is:

- AWS has the largest catalog of services, topping 250.
- Azure is a close second, with an impressive set of over 200 artificial intelligence (AI), machine learning (ML), and analytics services.
- GCP matches Azure in the number of services they offer.

Here are the common service offerings of each cloud platform.

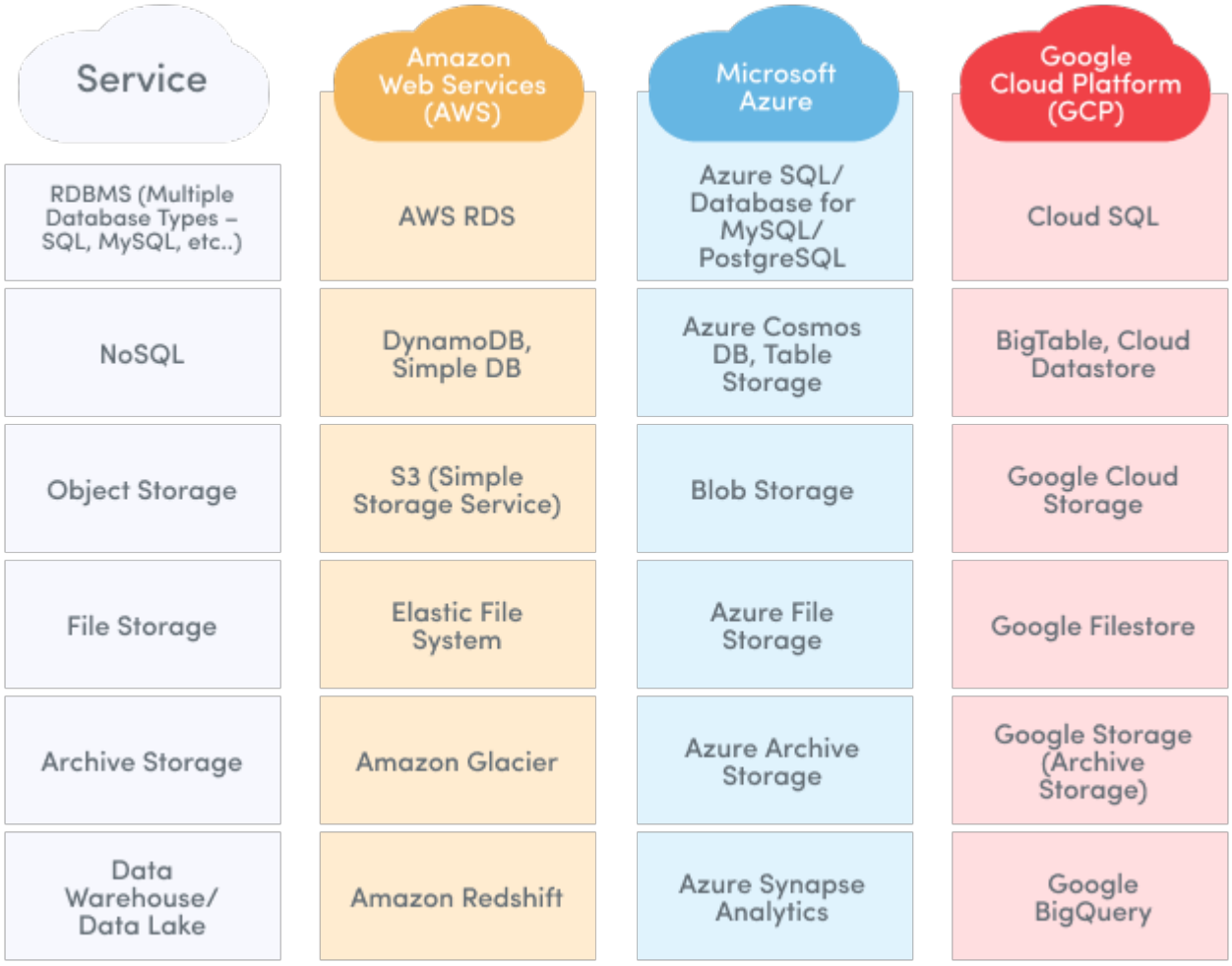
Comparing AWS, Azure, and GCP compute services

This Azure, AWS, GCP comparison of services chart shows how they compete with various technologies across key offerings.



Comparing AWS, Azure, and GCP database and storage services

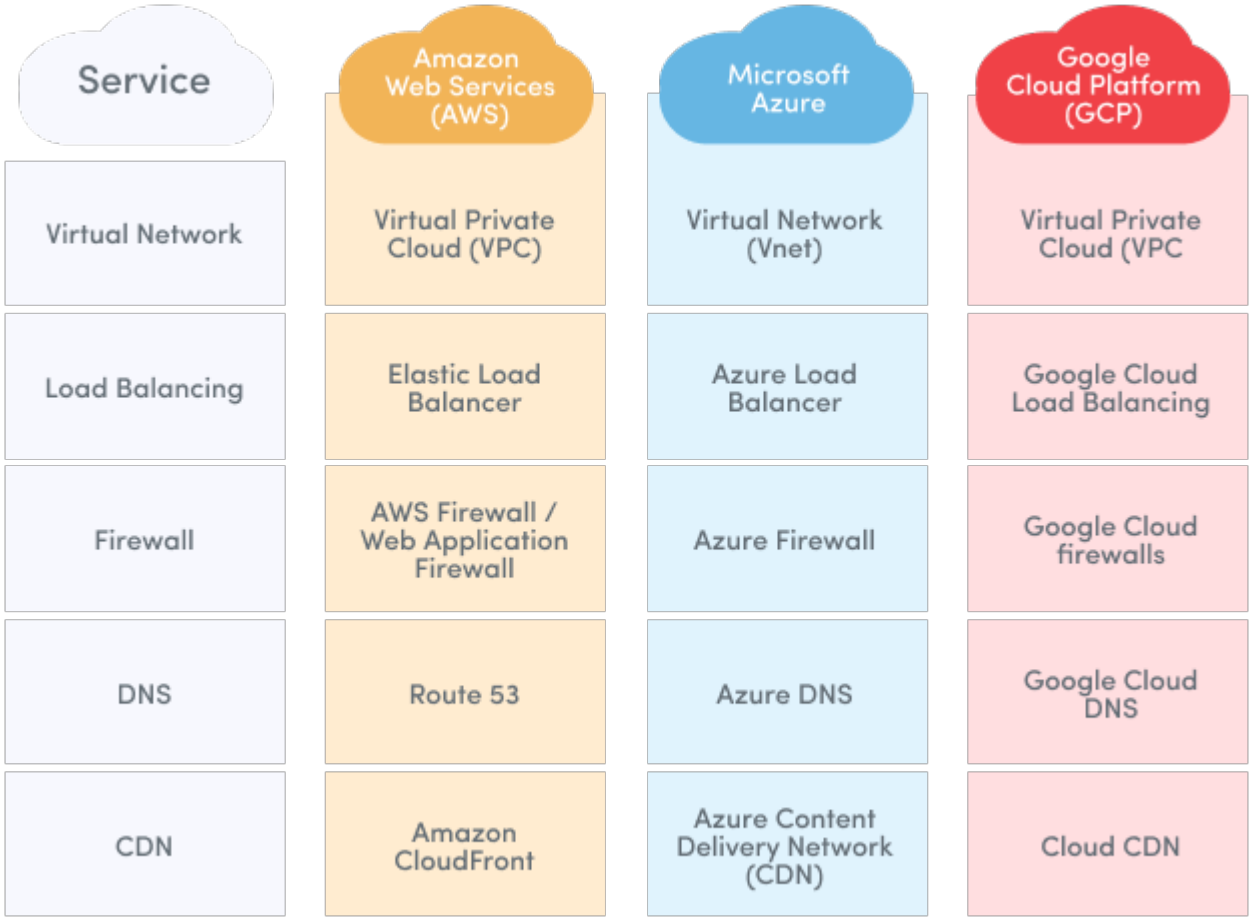
When it comes to storage services, AWS, Azure, and GCP also compete with different database technologies and branded storage solutions.



Service	Amazon Web Services (AWS)	Microsoft Azure	Google Cloud Platform (GCP)
RDBMS (Multiple Database Types – SQL, MySQL, etc..)	AWS RDS	Azure SQL/ Database for MySQL/ PostgreSQL	Cloud SQL
NoSQL	DynamoDB, Simple DB	Azure Cosmos DB, Table Storage	BigTable, Cloud Datastore
Object Storage	S3 (Simple Storage Service)	Blob Storage	Google Cloud Storage
File Storage	Elastic File System	Azure File Storage	Google Filestore
Archive Storage	Amazon Glacier	Azure Archive Storage	Google Storage (Archive Storage)
Data Warehouse/ Data Lake	Amazon Redshift	Azure Synapse Analytics	Google BigQuery

Comparing AWS, Azure, and GCP networking services

Comparing AWS, Azure, and GCP, each has their own way of handling various aspects of managing networking services.

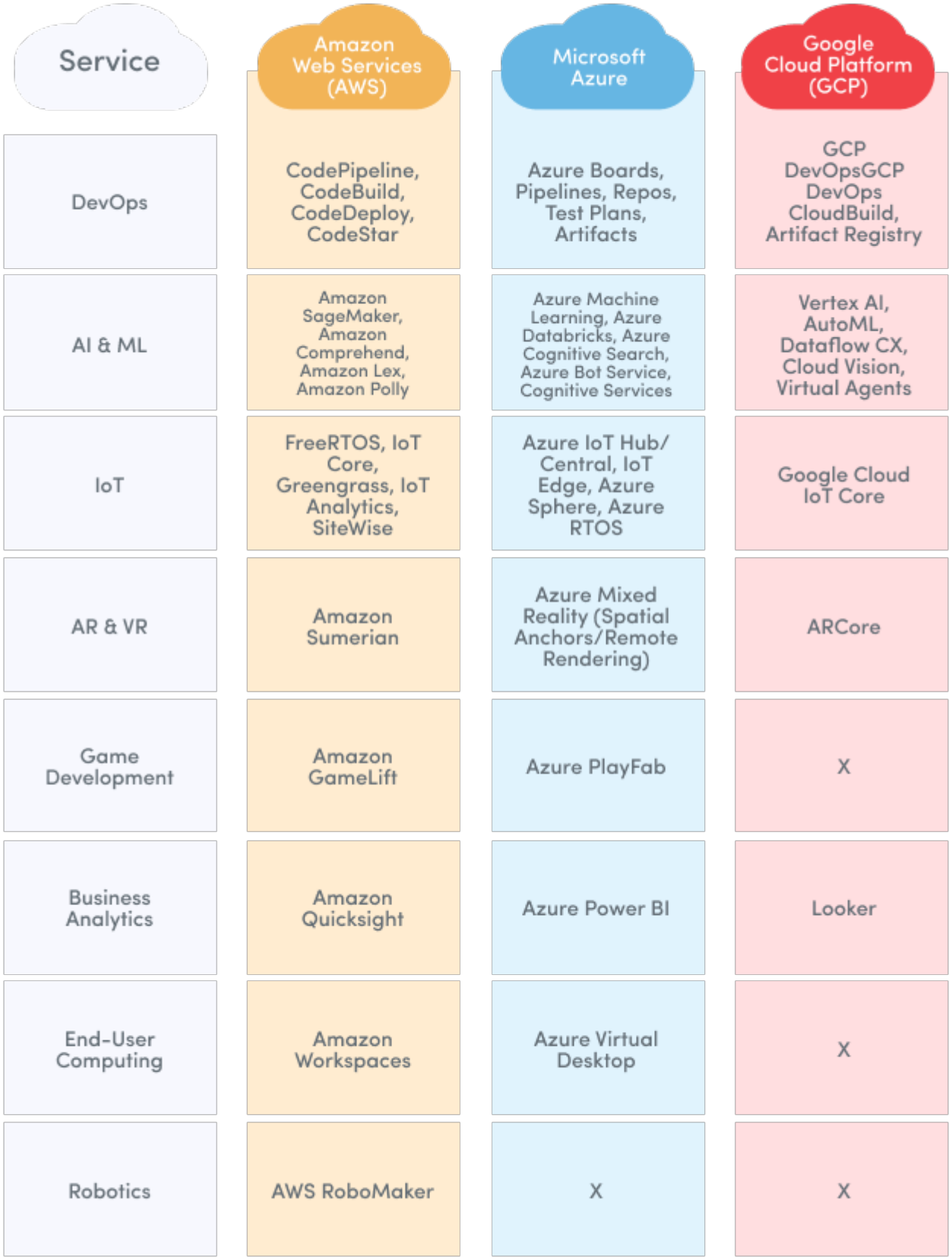


An Azure, AWS, and GCP comparison shows that they all cover common computing needs. Their differences fall into two categories:

- How each service is implemented in its cloud platform
- The individual features available for each service

Specialized services

An area of significant service differences between AWS, Microsoft Azure, and Google Cloud is in specialized services. AWS and Azure are comparable, with GCP rapidly catching up.



Service	Amazon Web Services (AWS)	Microsoft Azure	Google Cloud Platform (GCP)
DevOps	CodePipeline, CodeBuild, CodeDeploy, CodeStar	Azure Boards, Pipelines, Repos, Test Plans, Artifacts	GCP DevOpsGCP DevOps CloudBuild, Artifact Registry
AI & ML	Amazon SageMaker, Amazon Comprehend, Amazon Lex, Amazon Polly	Azure Machine Learning, Azure Databricks, Azure Cognitive Search, Azure Bot Service, Cognitive Services	Vertex AI, AutoML, Dataflow CX, Cloud Vision, Virtual Agents
IoT	FreeRTOS, IoT Core, Greengrass, IoT Analytics, SiteWise	Azure IoT Hub/ Central, IoT Edge, Azure Sphere, Azure RTOS	Google Cloud IoT Core
AR & VR	Amazon Sumerian	Azure Mixed Reality (Spatial Anchors/Remote Rendering)	ARCore
Game Development	Amazon GameLift	Azure PlayFab	X
Business Analytics	Amazon Quicksight	Azure Power BI	Looker
End-User Computing	Amazon Workspaces	Azure Virtual Desktop	X
Robotics	AWS RoboMaker	X	X

Thes
e are only some of the specialized services available on these platforms. AWS customers can even dabble with quantum computing using Amazon Braket.

Understanding pricing differences between AWS, GCP, and Microsoft Azure

AWS vs Microsoft Azure vs Google Cloud compete on both price and value. Their pricing plans are based on these factors:

- Customer requirements
- Usage
- Services used

All three platforms offer competitive pricing plans with additional cost management options—reserved instances, budgets, and resource optimization—available to all users.

The consensus in the IT community is that Microsoft Azure currently has the lowest on-demand pricing, while Amazon tends to come in somewhere around the middle. Enterprise customers already using Microsoft services (Windows, active directory, MS SQL, etc.) have an advantage when they move to Azure, as it is significantly cheaper than other cloud providers.

Evaluating the big three

In evaluating AWS vs. Azure vs. GCP, you will find that each has pros and cons. We've simplified the comparison for you here:AWS: Pros and Cons

AWS: Pros and Cons

Pros	Cons
• Most services available, from networking to robotics	
• Most mature	• Dev/Enterprise support must be purchased
• Considered the gold standard in cloud reliability and security	• Can overwhelm newcomers with the sheer number of services and options
• More compute capacity vs Azure & GCP	• Comparatively limited options for hybrid cloud
• All major software vendors make their programs available on AWS	

MICROSOFT AZURE: Pros and Cons

Pros	Cons
• Easy integration and migrations for existing Microsoft services	
• Many services available, including best-in-class AI, ML, and analytics services	• Fewer service offerings vs AWS
• Relatively cheaper for most services vs AWS & GCP	• Particularly geared towards enterprise customers
• Great support for hybrid cloud strategies	

GCP: Pros and Cons

Pros	Cons
• Plays nicely with other Google service and products	
• Excellent support for containerized workloads	• Limited services vs AWS & Azure
• Global fiber network	• Limited support for enterprise use cases

Summing up the differences between AWS, Azure, and Google Cloud

Though AWS is the current market leader in terms of capacity and service, Microsoft and Google are growing quickly to challenge that dominance. To compete with AWS, they are building out facilities, innovating new services, and offering new options in their packages and pricing plans.

Microsoft is challenging AWS by going after the large enterprise market segment. Google is differentiating with multiple integrated open-source projects and third-party services.

Which is right for your company? In making an Azure, AWS, GCP comparison, the right answer depends on your specific use case. In a rapidly evolving cloud technology environment, more customers are implementing multi-cloud strategies to make the best use of each provider's strengths, without locking themselves to a single one.