

SERVICE COMPARISON GUIDE 2020



AWS VS **AZURE**

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INTRODUCTION

Cloud computing has come a long way, which is now considered one of the convenient solutions to store, compute data or scale databases. It is growing more and more popular due to the fact that organizations can focus more on the product they are developing and less on the infrastructure issues.

Instead of building their own infrastructures to support internal systems and applications, businesses, individuals now use cloud services and share one common infrastructure.

As a matter of fact, large companies have already taken advantage of cloud platforms and startups have started preferring their infrastructure being managed on cloud. This is primarily to get rid of extra work and spend time more on business strategies.

The reason why Jeff Bezos and Bill Gates are among the richest men on earth is because their companies provide exceptional cloud services and these companies surely are racking up money for such best-in-class solutions.

There is no doubt that AWS and Azure both provide demanding cloud computing services. There are certain factors at which both Cloud Providers go head to head while there are few on which both stands out each other. The best part is; due to the competition at this scale, the end beneficiaries i.e. customers are happy yet somewhat confused.

Happy, because they have a much-needed pool of services offered by both the cloud providers. Confused, because they don't know which services to leverage based on their needs.

We are here with the ultimate comparison sheet between AWS and Azure as of 2019. The comparison guide starts from the basic statistics and escalates to every comparable service offered by each cloud provider.

Disclaimer: To compare AWS and Azure, we have not included every service offered by each cloud provider. Also, note that all the services mentioned in this guide do not have feature-to-feature parity. Source for data are provided as hyperlink with respective data sets as of April 2019.

Comparison by Stats

S. No.	Category	AWS	Azure
1	Market Share	47%	22%
2	Total Services Offered	100+	100+
3	Total Availability Zones	66	140
4	Total profit (Q1 2019)	\$7.6 billion	\$3.4 billion

The leadership battle for cloud comes down to two competitors. Both have made massive investments and the following points tells that the battle is far from over.

AWS vs Azure Pricing

Amazon Web Service (AWS)	Microsoft Azure
<p>AWS' pricing is difficult to comprehend. Well it does offer a cost calculator but there are many variables involved which makes it difficult to get accurate cost estimations. As per Gartner, "AWS' granular pricing structure is complex; use of third-party cost management tools is highly recommended."</p>	<p>Azure doesn't make things any simpler. The complicated software licensing options and use of situation-based accounts makes the pricing structure difficult to understand without some kind of external help or an automated self-service platform.</p>

Discount Offered

S. No.	Discount Types	AWS	Azure
1	Commitment Length	Reserved Instance for 1 or 3 years	Reserved VM Instance for 1 or 3 years
2	Discount Cancellations	Available to sell on Amazon Marketplace	Yes (But 12% fee on remaining value of Reserved VM Instance)

3	Flexibility	Convertible: Replace Reserved Instances with equal or greater value	Can exchange for other Reserved VM instances
4	Payment Option: All Upfront	Yes	Yes
5	Payment Option: Partial Upfront	Yes	No
6	Payment Option: No Upfront	Yes	No

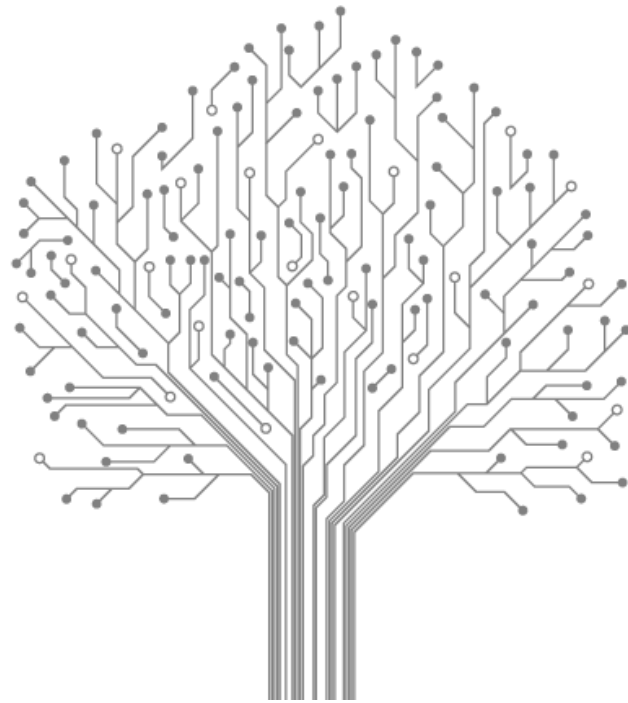
Key Tip!

“Organizations that are considering pricing as a prominent factor for selecting a cloud provider will need to analyze all the cloud operations on a case-by-case basis to get the best deal. Also, the vendors drop their charges regularly according to market needs and to ensure the competitive prices. Hence, you need to revisit those calculations frequently.”



Compute Service

Calculate, process, and compute — a computer’s fundamental role. In addition, the right cloud provider with the right service can scale to thousands of processing nodes for you in just a few minutes. Amazon Web Services (AWS) and Microsoft Azure both offer a broad and profound set of services with global outreach.



Let’s explore the services offered by each cloud provider with different compute use cases and applications:

S. No.	Use Cases/Applications	AWS	Azure
1	Shared Web Hosting	-	Azure Shared App Services
2	Virtual Server	Amazon EC2	Azure Virtual Machine
3	Bare Metal Server	Amazon EC2 Bare Metal Instance	Azure Bare Metal Servers

4	Virtual Dedicated Host	Amazon EC2 Dedicated Host	-
5	Container Registration Service	Amazon EC2 Container Registry	Azure Container Registry
6	Container Management Service	Amazon EC2 Container Service Amazon Elastic Container Service for Kubernetes (EKS)	Azure Kubernetes Service (AKS) Azure Container Instances
7	Micro Services App Development Platform	AWS Lambda	Azure Service Fabric Azure Functions Azure Event Grid
8	Virtual Private Servers	Amazon Lightsail	Azure App Service Environment
9	Auto Scaling	Auto Scaling	Azure Autoscale Virtual Machine Scale Sets
10	Batch Jobs	AWS Batch	Azure Batch
11	App Development/Deployment (Java/.Net/PHP/Python)	AWS Elastic Beanstalk	Azure Web Apps Azure Cloud Services
12	Event Driven Computing	AWS Lambda	Azure Functions Azure Event Grid

Storage

Storage is one of the key pillars of cloud computing model. Cloud Service Providers (CSPs) manages and operates data storage as a service. It is delivered on demand with just-in time capacity and costs, thereby eliminating the fuss of buying and managing your own data storage infrastructure. This gives you agility, scalability and durability with the ability to access data anytime, anywhere.



Data is stored differently based on type, use cases and requirements. A viral video, your photos and confidential documents, all have different security and access requirements.

Object storage is suitable for large unstructured data whereas block storage is preferred for structured data. Let's see what each CSP has to offer in different storage use cases:

S. No.	Use Cases	AWS	Azure
1	Object Storage	Amazon Simple Storage Service (S3)	Azure Blob Storage
2	Virtual Machine Disk Storage	Amazon Elastic Block Storage	Azure Page Blobs/Premium Storage Managed Disks
3	File Storage (SMB Compatible)	Amazon Elastic File System	Azure File Storage
4	Long Term Cold Storage	Amazon Glacier	Azure Archive Storage Azure Cool Storage
5	Hybrid Storage/ Storage Gateway	AWS Storage Gateway	Azure StorSimple

Databases

Database services refers to options for storing data, whether it's a managed relational SQL database that's globally distributed, or a multi-model NoSQL database designed for any scale. DBs are at the heart of critical applications and both the cloud service providers handles all tedious tasks for your database with following pool of services:

S. No.	Use Cases	AWS	Azure
1	Relational Database Management Service	Amazon Aurora Amazon RDS for PostgreSQL	Azure SQL Database SQL Server Stretch Database Azure Database for MySQL Azure Database for PostgreSQL
2	Non-relational Database Management Service	Amazon DynamoDB Amazon DynamoDB Accelerator (DAX) Amazon Neptune	Azure Cosmos DB Table Storage Azure Time Series Insights

3	Timeseries Database	Amazon DynamoDB	Azure Time Series Insights
4	In-Memory Data Store	Amazon ElastiCache	Azure Cache for Redis
5	Data Warehousing	Amazon Redshift	Azure SQL Data Warehouse

Migration Services

S. No.	Use Cases	AWS	Azure
1	Database Migration Services	AWS Database Migration Service	Azure Database Migration Service
2	Server Migration Services	AWS Server Migration Service	Site Recovery Azure Websites Migration Assistant
3	Small Scale Data Transfer Services	AWS Import/Export	Azure Import/Export
4	Large Scale Data Transfer Solution (Petabyte Scale)	AWS Snowball	-
5	Large Scale Data Transfer Solution (Terabyte Scale)	AWS Snowball Edge	Azure Data Box
6	Large Scale Data Transfer Solution (Exabyte Scale)	AWS Snowmobile	-

Networking and Content Delivery



S. No.	Use Cases	AWS	Azure
1	Virtual Networking	Amazon VPC	Azure VNet
2	Network Gateway	Amazon VPN	Azure VPN Gateway
3	Content Delivery Network	Amazon CloudFront	Azure CDN
4	Networking & Content Delivery	Amazon Route 53	Azure DNS
5	Global Traffic Management	Amazon Route 53 Traffic Flow	Azure Traffic Manager
6	Private Connectivity	AWS Direct Connect AWS Private Link	Azure Express Route
7	Load Balancers	Elastic Load Balancing	Azure Load Balancer

Developers Tools

S. No.	Services	AWS	Azure
1	Cloud Software Development Kit	AWS Cloud9 AWS Code Star AWS CodeCommit AWS CodeBuild AWS CodeDeploy AWS CodePipeline AWS X-Ray	Azure Boards Azure Pipelines Azure Repos Azure Test Plans Azure Artifacts
2	Cloud Software Development Kit	AWS SDK	Azure SDK Visual Studio

Disaster Recovery Services

S. No.	Services	AWS	Azure
1	Automated Disaster Recovery Services	AWS Disaster Recovery	Azure Site Recovery Azure Backup

Management Tools

S. No.	Services	AWS	Azure
1	Server Management Services	Amazon EC2 Systems Manager	Azure Operational Insights
2	Cloud Deployment Templates/ Infra as Code	AWS CloudFormation	Azure Resource Manager Azure Building Blocks
3	Logging & Monitoring	Amazon CloudWatch AWS CloudTrail	Log Analytics Azure Portal Application Insights

4	Resource / Configuration Inventory	AWS Config	Azure Portal (audit logs)
5	Server Automation	AWS OpsWorks AWS Service Catalogue	Resource Manager Azure Automation VM Extensions
6	Cloud Cost / Performance / Security Advisor	AWS Trusted Advisor	Azure Advisor Azure Cost Management
7	Alerts and Remediation Guidance Service	AWS Personal Health Dashboard	Azure Monitor Azure Operations Management Suite (OMS)
8	Cloud Management Tools	AWS Command Line Interface AWS Management Console	Azure Command Line Interface Azure PowerShell Azure Portal Azure Cloud Shell
9	Automated Infra Management Services	AWS Managed Services	-

Security & Identity, Compliance

Security in cloud is of paramount importance. It refers to a range of capabilities to protect your services and data in the cloud. Cloud computing is a sophisticated technology, but both the cloud service providers offers services that govern undesirable access and hence preventing breach in your cloud infrastructure. Let's see what security services they offer against each application:

S. No.	Services	AWS	Azure
1	Identity & Access Management	AWS Identity and Access Management (IAM)	Azure Active Directory
2	Cloud Security Assessment Service	Amazon Inspector Amazon Guard Duty	Azure Security Center
3	Secured Socket Layer (SSL) Certificates	AWS Certificate Manager	App Service Certificate
4	Hardware Based Security Module	AWS CloudHSM AWS Secrets Manager	Azure Key Vault
5	Directory Services	AWS Directory Service	Azure Active Directory Azure Active Directory B2C Azure Active Directory Domain Services

			Azure Active Directory Multi Factor Authentication
6	Key Management Services	AWS Key Management Service	Azure Key Vault
7	Consolidated Management of Multiple Cloud Accounts	AWS Organizations	Azure Management Groups
8	DDos Protection Service	AWS Shield	Azure DDoS Protection
9	Web Application Firewall	AWS WAF	Azure WAF
10	Security & Compliance Service	AWS Artifact	Azure Security Center

Big Data & Advanced Analytics

S. No.	Services	AWS	Azure
1	Big Data Query as a Service	Amazon Athena	Azure Data Lake Analytics
2	Big Data Managed Cluster as a Service	Amazon EMR	Azure HDInsight
3	Cloud Search	Amazon CloudSearch	

		Amazon Elastic Search Service	
4	Streaming Service	Amazon Kinesis Amazon Kinesis Video Streams	Azure Stream Analytics Azure Event Hub
5	Data Warehouse	Amazon Redshift	Azure SQL Data Warehouse
6	Business Intelligence & Data Visualization	Amazon QuickSight	Power BI
7	Cloud ETL	AWS Data Pipeline AWS Glue Amazon Simple Workflow Service (SWF)	Azure Data Factory Azure Data Catalog Logic Apps Service

Artificial Intelligence

S. No.	Services	AWS	Azure
1	Language Processing AI	Amazon Lex Amazon Comprehend	LUIS (Language Understand Intelligent Service) Azure Bot Service Azure Speech Recognition API

2	Speech Recognition AI	Amazon Polly Amazon Transcribe Amazon Translate	Bing Speech API
3	Image Recognition AI	Amazon Rekognition	Emotion API Face API Computer Vision API
4	Machine Learning	Amazon Machine Learning Amazon SageMaker	Azure Machine Learning Azure Machine Learning Workbench Azure Machine Learning Model Management

Automated Cloud Management Service

S. No.	Services	AWS	Azure
1	Managed Cloud Services	AWS Managed Services	-

Mobile Service

S. No.	Services	AWS	Azure
1	Mobile App Development Services	AWS Mobile Hub	Azure Mobile Apps
2	Web API Management Service	Amazon API Gateway	Azure API Management
3	Web/Mobile Authentication Services	Amazon Cognito	Azure Mobile SDK (Offline/Sync)
4	Consolidated Management of Multiple Cloud Accounts	Amazon Pinpoint	Azure Mobile Engagement
5	Mobile App Testing Service	AWS Device Farm	Xamarin Test Cloud (Front End) Azure DevTest Labs (Back End)
6	Mobile App Software Development Toolkit	AWS Mobile SDK	Azure Mobile SDK
7	Application Services	AWS Step Functions	Microsoft Flow Logic Apps Azure Functions Azure Event Grid WebJobs in Azure App Service
8	Mobile App Analytics	Amazon Mobile Analytics	HockeyApp

Application Service

S. No.	Services	AWS	Azure
1	API Management Service	Amazon API Gateway	Azure API Management
2	Media Transcoders	Amazon Elastic Transcoder AWS Elemental MediaConvert AWS Elemental MediaLive AWS Elemental MediaPackage AWS Elemental MediaStore AWS Elemental MediaTailor Amazon Kinesis Video Streams	Azure Media Services Live and On-Demand Streaming Azure Media Player Content Protection Media Analytics
3	Queuing Services	Amazon SQS Amazon MQ	Azure Service Bus Queue Storage Service Bus Topics

			Azure Service Bus Relay
4	Mobile Analytics	Amazon Pinpoint	Mobile Engagement
5	Email Services	Amazon SES	
6	Notification Services	Amazon SNS	Azure Notification Services
7	Blockchain Services	Amazon Managed Blockchain	Blockchain Service Azure Blockchain Workbench
8	Chatbot	Amazon Lex	Azure Bot Service

Business Productivity

S. No.	Services	AWS	Azure
1	Office Document Solutions	Amazon WorkDocs Amazon WorkMail Amazon WorkSpaces	Microsoft Office 365
2	Desktop Application Streaming	Amazon AppStream 2.0	

Internet of Things (IoT)

S. No.	Services	AWS	Azure
1	IoT Platform	AWS IoT Platform	Azure IoT IoT Hub
2	IoT Development Solutions	AWS Greengrass	Azure IoT SDK Azure IoT Edge
3	IoT Hardware	AWS IoT Button	Azure Sphere

Software Marketplace

S. No.	Services	AWS	Azure
1	Cloud Marketplace	AWS Marketplace	Azure Marketplace

Game Development

S. No.	Services	AWS	Azure
1	Game Development	Amazon Lumberyard	Microsoft Visual Studio

Development & Test

S. No.	Services	AWS	Azure
1	Development & Testing	AWS Dev/Test	Azure DevTest Labs

The Verdict



The best public cloud provider for you is going to depend on your needs and your workloads. In fact, the best vendor for some of your operations might not be the best vendor for other operations. Many experts believe that the majority of enterprises will invest heavily in “multi-cloud”. Indeed, pursuing a multi-cloud strategy helps you prevent vendor lock-in or match workloads with the best available service.

You can't go wrong with AWS due to its rich collection of tools and services at massive scale.

However, a particular type of company will be more attracted to a certain cloud vendor. So, if your firm runs Windows and a lot of Microsoft software, you would probably want to try out Azure.