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Cloud Services Comparison: AWS Vs. Google Vs. Azure



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In a multi-cloud world, organizations may use different cloud providers for multiple capabilities concurrently. Most of the cloud service providers (CSP) out there offer high-quality services, with excellent availability, high security, good performance, and customer support. But the market is dominated by a top three—[Amazon Web Services](#), [Google Cloud](#), and [Microsoft Azure](#).

Each CSP provides an array of products covering all you can possibly need for your online operations. They differ not only in pricing but also in how each name and group their services. Below, we show the most common elements: infrastructure, auto-scaling, security, monitoring, and much more. Our aim is to help cross-identify comparative services from each CSP so that you can easily weigh your application or workload requirements to select the best fit for your business.

Cloud Services Comparison List:

- [Compute](#)
- [Storage](#)
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- [Management and Monitoring](#)
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Compute

Calculate, process, and compute—a computer's fundamental role. In addition, the right cloud provider can scale to thousands of processing nodes for you in just a few minutes.

Service	Amazon Web Services	Google Cloud Platform	Microsoft Azure
Deploy, manage, and maintain virtual servers	Elastic Compute Cloud (EC2)	Compute Engine	Virtual Machines Virtual Machine Scale Sets
Platform-as-a-Service	Elastic Beanstalk	App Engine Standard Environment App Engine Flexible Environment	Cloud Services
Virtual private servers made easy	Lightsail		Virtual Machine Images
Management support for Docker/Kubernetes containers	EC2 Container Service (ECS) Kubernetes (EKS)	Kubernetes Engine Container Engine	Container Service Container Service (AKS)
Docker container registry	EC2 Container Registry (ECR)	Container Registry	Container Registry
Orchestrate and manage microservice-based applications		App Engine	Service Fabric
Integrate systems and run backend logic processes	Lamda	Cloud Functions (Beta)	Functions Event Grid Web Jobs
Run large-scale parallel and high-performance batch computing	Batch		Batch
Automatically scale instances	Auto Scaling	Instance Groups	Virtual Machine Scale Sets App Service Scale Capability (PAAS) AutoScaling

Storage

A key function of cloud services is its storage capabilities. While AWS' storage services are the longest running, Google's and Microsoft Azure's are also very respectable and reliable options.

Object storage service for use cases	Simple Storage Services (S3)	Google Cloud Storage	Storage (Block Blob)
Virtual server disk infrastructure	Elastic Block Store (EBS)	Compute Engine Persistent Disks	Storage (Page Blobs)
Archive storage	S3 Infrequent Access (IA) Glacier Data Archive	Nearline Coldline	Storage (Cool) Storage (Archive)
Create and configure shared file systems	Elastic File System (EFS)	ZFS / Avere	Files
Hybrid storage	Storage Gateway	Egnyte Sync	StorSimple
Bulk data transfer solutions	Import/Export Disk Snowball Edge Snowmobile	Storage Transfer Service	Import/Export Azure Data Box
Backup	Object Storage Cold Archive Storage Storage Gateway		Backup
Automatic protection and disaster recovery	Disaster Recovery	Disaster Recovery Cookbook	Site Recovery

Networking and Content Delivery

Each provider offers different networks and partners which interconnect their data centers across the globe using a variety of different products to achieve this.

Service	Amazon Web Services	Google Cloud Platform	Microsoft Azure
Isolated, private cloud private networking	Virtual Private Cloud	Virtual Private Cloud	Virtual Network
Cross-premises connectivity	API Gateway	Cloud VPN	VPN Gateway
Manage DNS names and records	Route 53	Google Cloud DNS	Azure DNS Traffic Manager
Global content delivery networks	CloudFront	Cloud Interconnect Cloud CDN	Content Delivery Network
Dedicated, private network connection	Direct Connect	Cloud Interconnect	ExpressRoute
Load balancing configuration	Elastic Load Balancing	Cloud Load Balancing	Load Balancer



Database

All three providers allow you to implement both SQL and NoSQL solutions. Alternatively, if you don't need a database, go for their caching capabilities instead.

Service	Amazon Web Services	Google Cloud Platform	Microsoft Azure
Managed relational database-as-a-service	RDS	Cloud SQL Cloud Spanner	SQL Database Database for MySQL Database for PostgreSQL
NoSQL (Indexed)	DynamoDB	Cloud Datastore Cloud Bigtable	Cosmos DB
NoSQL (Key-value)	DynamoDB SimpleDB	Cloud Datastore	Table Storage
Application or Memory Caching	ElastiCache	Mem Cache	Redis Cache
Database migration	Database Migration Service		Database Migration Service
Managed data warehouse	Redshift	Big Query	SQL Data Warehouse

Management and Monitoring

Each of the top three offers a range of management and monitoring services which provide visibility into the health, performance, and utilization of applications, workloads, and infrastructure.

Service	Amazon Web Services	Google Cloud Platform	Microsoft Azure
Cloud advisor capabilities	Trusted Advisor	Cloud Platform Security	Advisor
DevOps deployment orchestration	OpsWorks (Chef-based) CloudFormation	Cloud Deployment Manager	Automation Resource Manager VM extensions
Cloud resources management & monitoring	CloudWatch X-Ray Management Console	Stackdriver Monitoring Cloud Shell	Portal Monitor Application Insights

		Debugger Trace Error Reporting	
Administration	Application Discovery Service Systems Manager Personal Health Dashboard	Cloud Console	Log Analytics Operations Management Suite Resource Health Storage Explorer
Billing	Billing API	Cloud Billing API	Billing API

Security

Here, we cover the range of capabilities provided to protect services and data.

Service	Amazon Web Services	Google Cloud Platform	Microsoft Azure
Authentication and authorization	Identity and Access Management (IAM) Organizations	Cloud IAM Cloud Identity-Aware Proxy	Active Directory Active Directory Premium
Information Protection			Information Protection
Protect and safeguard with data encryption	Key Management Service		Storage Service Encryption
Hardware-based security modules	CloudHSM	Cloud Key Management Service	Key Vault
Firewall	Web Application Firewall		Application Gateway
Cloud security assessment and certification services	Inspector Certificate Manager		Security Center App Service Certificates
Directory services	AWS Directory Service		Active Directory Domain Services
Identity management	Cognito		Active Directory B2C
Support cloud directories	Directory Service		Windows Server Active Directory
Compliance	Artifact		Service Trust Portal
Cloud services with protection	Shield		DDoS Protection Service

Developer Tools

And finally, the tools you need to build, deploy, diagnose, debug, and manage multiplatform, scalable applications and services.

Service	Amazon Web Services	Google Cloud Platform	Microsoft Azure
Media transcoding	Elastic Transcoder		Media Services
Improve and optimize workflow	Simple Workflow Service (SWF)		Logic Apps
API management	API Gateway	Cloud Endpoints	API Management
App testing	Device Farm	Cloud Test Lab	DevTest Labs (backend)
Git Repositories	AWS Source Repositories	Cloud Source Repositories	Azure Source Repositories
DevOps	CodeBuild		Visual Studio Team Services
Programmatic access	Command Line Interface	Cloud Tools for Powershell Cloud SDK	Command Line Interface (CLI) PowerShell
Predefined templates	Quick Start		Quickstart templates
Managed hosting platforms	Elastic Beanstalk	App Engine Standard Environment	Web Apps (App Service) Cloud Services API Apps (App Service)
Application deployment	CodeDeploy CodeCommit CodePipeline		Visual Studio Team Services
Developer Tools	Developer Tools		Developer Tools

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