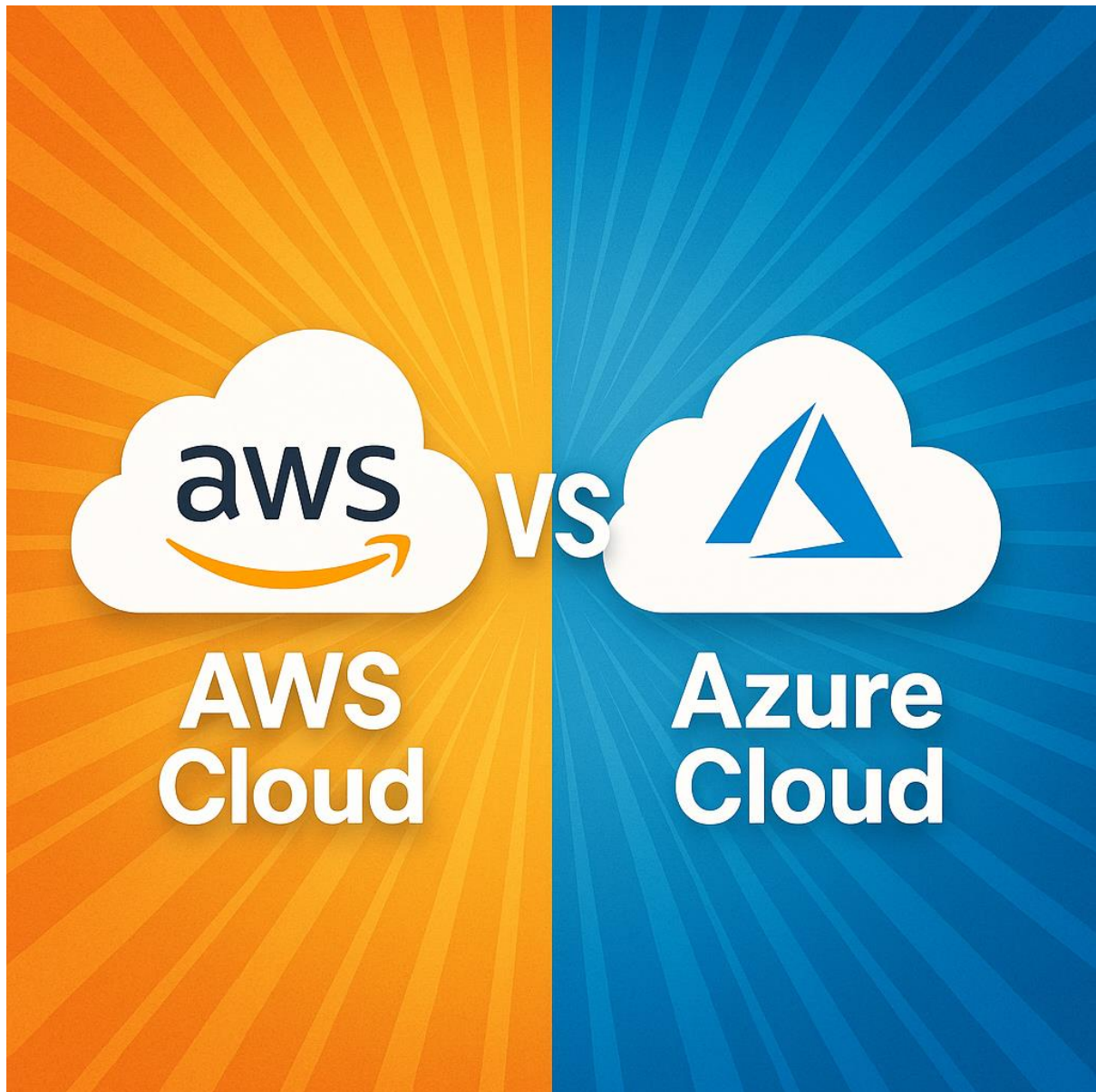# AWS vs Azure

An In-Depth Comparison of Cloud Services for Professionals and Multi-Cloud Practitioners

In today's cloud-native era, adopting a multi-cloud strategy has become increasingly essential for enterprises seeking resilience, flexibility, and cost optimization. AWS and Microsoft Azure, the two dominant cloud platforms, offer an extensive suite of services across compute, storage, networking, databases, AI/ML, DevOps, and more. This document provides an in-depth, professional-grade comparison of AWS and Azure services, categorized by core cloud engineering domains. It aims to serve as a reference for cloud professionals, DevOps engineers, solution architects, and interview aspirants.

By___KranthiPutti

1. Compute Services

Category	AWS Service	Azure Service	Key Use Cases
Virtual Machines	EC2	Azure Virtual Machines	Customizable compute capacity; Windows/Linux workloads
Auto Scaling	EC2 Auto Scaling	Virtual Machine Scale Sets	Horizontal scaling based on metrics or schedules
Containers	ECS / EKS / Fargate	AKS / Container Instances	Container orchestration and serverless containers
Serverless	AWS Lambda	Azure Functions	Event-driven compute, microservices
HPC	AWS ParallelCluster	Azure CycleCloud / Batch	Scientific computing, simulations
Bare Metal	EC2 Bare Metal Instances	Azure BareMetal Infrastructure	Direct access to hardware for legacy apps or hypervisors

2. Storage Services

Category	AWS Service	Azure Service	Key Use Cases
Object Storage	S3	Azure Blob Storage	Static assets, backup, big data lake
Block Storage	EBS	Azure Managed Disks	Persistent storage for VMs
File Storage	EFS	Azure Files	Shared file systems, NFS/SMB support
Archival Storage	Glacier	Azure Archive Storage	Long-term backups, compliance storage
Hybrid Storage	AWS Storage Gateway	Azure StorSimple / File Sync	On-prem to cloud data integration

3. Networking Services

Category	AWS Service	Azure Service	Key Use Cases
Virtual Networking	VPC	Azure Virtual Network (VNet)	Logical network isolation, IP addressing, routing
Load Balancing	ELB (ALB/NLB)	Azure Load Balancer / App Gateway	L4/L7 traffic routing

DNS & Domain Mgmt	Route 53	Azure DNS	Custom domain management, routing policies
VPN	AWS Site-to-Site VPN	Azure VPN Gateway	Hybrid connectivity
Direct Connect	AWS Direct Connect	Azure ExpressRoute	Private, high-bandwidth connections
CDN	CloudFront	Azure CDN	Content delivery, media streaming
Firewall & NAT	AWS Network Firewall / NAT GW	Azure Firewall / NAT Gateway	Network perimeter security

4. Security & Identity Services

Category	AWS Service	Azure Service	Key Use Cases
Identity Management	IAM	Azure Active Directory	User, group, and role-based access control
Secrets Management	AWS Secrets Manager / SSM PS	Azure Key Vault	Secure storage for credentials, tokens, keys
Encryption & KMS	AWS KMS	Azure Key Vault (with HSM)	Data encryption at rest/in transit
DDoS Protection	AWS Shield / WAF	Azure DDoS Protection / WAF	Protection from L3-L7 attacks
Compliance Tools	AWS Artifact / Macie / Audit	Azure Compliance Manager	Governance, audit trails, privacy monitoring

5. Monitoring & Observability

Category	AWS Service	Azure Service	Key Use Cases
Metrics & Logs	CloudWatch / Logs Insights	Azure Monitor / Log Analytics	Collect metrics, analyze logs, alerting
Tracing & APM	AWS X-Ray	Azure Application Insights	Distributed tracing, performance tuning
Auditing & Governance	AWS Config / CloudTrail	Azure Policy / Activity Log	Change tracking, compliance enforcement
Cost Management	AWS Cost Explorer / Budgets	Azure Cost Management	Forecasting, chargeback, budgeting

6. DevOps & CI/CD

Category	AWS Service	Azure Service	Key Use Cases
Source Control	AWS CodeCommit	Azure Repos	Git repository hosting
CI/CD Pipeline	AWS CodePipeline	Azure DevOps Pipelines	Continuous integration and deployment
Build & Test	AWS CodeBuild / CodeStar	Azure DevOps (Build)	Code compilation and automated testing
Deployment	AWS CodeDeploy	Azure DevOps (Release)	Blue-green, canary, in-place deployments
IaC	CloudFormation / CDK / Terraform	Azure ARM / Bicep / Terraform	Infrastructure as code for provisioning cloud resources

7. Database Services

Category	AWS Service	Azure Service	Key Use Cases
Relational DB	RDS (MySQL, PostgreSQL, SQL)	Azure SQL / PostgreSQL / MySQL	Managed databases with high availability
Proprietary DB	Aurora	Azure SQL Hyperscale	Scalable relational DB engine
NoSQL	DynamoDB	Cosmos DB	Document, key-value, column, and graph DB support
Caching	ElastiCache (Redis, Memcached)	Azure Cache for Redis	High-performance caching
Analytics	Redshift	Azure Synapse Analytics	Data warehousing, big data analytics

8. AI/ML & Data Services

Category	AWS Service	Azure Service	Key Use Cases
ML Platform	SageMaker	Azure Machine Learning	Model training, tuning, deployment

NLP	Comprehend	Text Analytics	Sentiment analysis, language detection
Vision	Rekognition	Azure Computer Vision	Facial recognition, object detection
Bots	Amazon Lex	Azure Bot Framework	Conversational AI
Forecasting	Amazon Forecast	Azure Time Series Insights	Predictive modeling
Data Lakes	AWS Lake Formation	Azure Data Lake	Big data lakes for analytics and ML
ETL	AWS Glue	Azure Data Factory	Serverless data transformation

9. Unique Capabilities / Differentiators

Feature or Tool	AWS Unique Capability	Azure Unique Capability
Global Reach	Most availability zones, global presence	Seamless hybrid integration with on-premise (Azure Arc, Stack)
Windows Support	Moderate Windows focus	Native Windows OS integration, AD, SQL licensing
Marketplace	AWS Marketplace for SaaS solutions	Azure Marketplace with GitHub integration
Developer Ecosystem	Tight integration with CDK, Terraform, GitHub Actions	Native integration with Visual Studio, GitHub
Hybrid & Edge	AWS Outposts, Snowball, Local Zones	Azure Arc, Azure Stack Hub, Azure Edge Zones

Join our amazing group for free learning resources on Cloud & DevOps and connect with

like-minded professionals: https://www.linkedin.com/groups/14483928/