

AWS to Azure services comparison

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This article helps you understand how Microsoft Azure services compare to Amazon Web Services (AWS). Whether you are planning a multicloud solution with Azure and AWS, or migrating to Azure, you can compare the IT capabilities of Azure and AWS services in all categories.

This article compares services that are roughly comparable. Not every AWS service or Azure service is listed, and not every matched service has exact feature-for-feature parity.

Azure and AWS for multicloud solutions

As the leading public cloud platforms, Azure and AWS each offer a broad and deep set of capabilities with global coverage. Yet many organizations choose to use both platforms together for greater choice and flexibility, as well as to spread their risk and dependencies with a multicloud approach. Consulting companies and software vendors might also build on and use both Azure and AWS, as these platforms represent most of the cloud market demand.

For an overview of Azure for AWS users, see [Introduction to Azure for AWS professionals](#).

Marketplace

AWS service	Azure service	Description
AWS Marketplace	Azure Marketplace	Easy-to-deploy and automatically configured third-party applications, including single virtual machine or multiple virtual machine solutions.

AI and machine learning

AWS service	Azure service	Description
SageMaker	Azure Machine Learning Service	A cloud service to train, deploy, automate, and manage machine learning models.
SageMaker	Azure Machine Learning Studio	A collaborative, drag-and-drop tool to build, test, and deploy predictive analytics solutions on your data.
Alexa Skills Kit	Microsoft Bot Framework	Build and connect intelligent bots that interact with your users using text/SMS, Skype, Teams, Slack, Office 365 mail, Twitter, and other popular services.
Amazon Lex	Speech Services	API capable of converting speech to text, understanding intent, and converting text back to speech for natural responsiveness.
Amazon Lex	Language Understanding (LUIS)	Allows your applications to understand user commands contextually.
Amazon Polly, Amazon Transcribe	Speech Services	Enables both Speech to Text, and Text into Speech capabilities.
Amazon Rekognition	Cognitive Services	<p>Computer Vision: Extract information from images to categorize and process visual data.</p> <p>Face: Detect, identity, and analyze faces in photos.</p> <p>Emotions: Recognize emotions in images.</p>
Alexa Skill Set	Azure Virtual Assistant	The Virtual Assistant Template brings together a number of best practices we've identified through the building of conversational experiences and automates integration of components that we've found to be highly beneficial to Bot Framework developers.

Big data and analytics

Data warehouse

AWS service	Azure service	Description
Redshift	SQL Data Warehouse	Cloud-based Enterprise Data Warehouse (EDW) that leverages Massively Parallel Processing (MPP) to quickly run complex queries across petabytes of data.

Big data processing

AWS service	Azure service	Description
EMR	Azure Databricks	Apache Spark-based analytics platform.
EMR	HDInsight	Managed Hadoop service. Deploy and manage Hadoop clusters in Azure.

Data orchestration / ETL

AWS service	Azure service	Description
Data Pipeline, AWS Glue	Data Factory	Processes and moves data between different compute and storage services, as well as on-premises data sources at specified intervals. Create, schedule, orchestrate, and manage data pipelines.
AWS Glue	Data Catalog	A fully managed service that serves as a system of registration and system of discovery for enterprise data sources

Analytics and visualization

AWS service	Azure service	Description
Kinesis Analytics	Stream Analytics Data Lake Analytics Data Lake Store	Storage and analysis platforms that create insights from large quantities of data, or data that originates from many sources.
QuickSight	Power BI	Business intelligence tools that build visualizations, perform ad hoc analysis, and develop business insights from data.
CloudSearch	Azure Search	Delivers full-text search and related search analytics and capabilities.
Amazon Athena	Azure Data Lake Analytics	Provides a serverless interactive query service that uses standard SQL for analyzing databases.

Compute

Virtual servers

AWS service	Azure service	Description
Elastic Compute Cloud (EC2) Instances	Azure Virtual Machines	Virtual servers allow users to deploy, manage, and maintain OS and server software. Instance types provide combinations of CPU/RAM. Users pay for what they use with the flexibility to change sizes.
AWS Batch	Azure Batch	Run large-scale parallel and high-performance computing applications efficiently in the cloud.
AWS Auto Scaling	Virtual Machine Scale Sets	Lets you automatically change the number of VM instances. You set defined metric and thresholds that determine if the platform adds or removes instances.
VMWare Cloud on AWS	Azure VMWare by CloudSimple	Redeploy and extend your VMWare-based enterprise workloads to Azure with Azure VMWare Solution by CloudSimple. Keep using the VMWare tools you already know to manage workloads on Azure without disrupting network, security, or data protection policies.

Containers and container orchestrators

AWS service	Azure service	Description
EC2 Container Service (ECS) Fargate	Azure Container Instances	Azure Container Instances is the fastest and simplest way to run a container in Azure, without having to provision any virtual machines or adopt a higher-level orchestration service.
EC2 Container Registry	Azure Container Registry	Allows customers to store Docker formatted images. Used to create all types of container deployments on Azure.
Elastic Container Service for Kubernetes (EKS)	Azure Kubernetes Service (AKS)	Deploy orchestrated containerized applications with Kubernetes. Simplify monitoring and cluster management through auto upgrades and a built-in operations console.
App Mesh	Service Fabric Mesh	Fully managed service that enables developers to deploy microservices applications without managing virtual machines, storage, or networking.

Serverless

AWS service	Azure service	Description
Lambda	Azure Functions	Integrate systems and run backend processes in response to events or schedules without provisioning or managing servers.

Database

Type	AWS Service	Azure Service	Description
Relational database	RDS	SQL Database Azure Database for MySQL Azure Database for PostgreSQL	Relational database-as-a-service (DBaaS) where the database resilience, scale, and maintenance are primarily handled by the platform.
NoSQL / Document	DynamoDB and SimpleDB	Azure Cosmos DB	A globally distributed, multi-model database that natively supports multiple data models: key-value, documents, graphs, and columnar.
Caching	ElastiCache	Azure Redis Cache	An in-memory-based, distributed caching service that provides a high-performance store typically used to offload nontransactional work from a database.
Database migration	AWS Database Migration Service	Azure Database Migration Service	Migration of database schema and data from one database format to a specific database technology in the cloud.

DevOps and application monitoring

AWS service	Azure service	Description
CloudWatch, AWS X-Ray	Azure Monitor	Comprehensive solution for collecting, analyzing, and acting on telemetry from your cloud and on-premises environments.
CodeDeploy	Azure DevOps	A cloud service for collaborating on code development.
CodeCommit		
CodePipeline		
AWS Developer Tools	Azure Developer Tools	Collection of tools for building, debugging, deploying, diagnosing, and managing multiplatform scalable apps and services.
AWS CodeBuild	Azure DevOps	Fully managed build service that supports continuous integration and deployment.
Command Line Interface	Azure Command Line Interface (CLI) Azure PowerShell	Built on top of the native REST API across all cloud services, various programming language-specific wrappers provide easier ways to create solutions.
OpsWorks (Chef-based)	Azure Automation	Configures and operates applications of all shapes and sizes, and provides templates to create and manage a collection of resources.
CloudFormation	Azure Resource Manager VM extensions Azure Automation	Provides a way for users to automate the manual, long-running, error-prone, and frequently repeated IT tasks.

Internet of things (IoT)

AWS service	Azure service	Description
AWS IoT	Azure IoT Hub	A cloud gateway for managing bidirectional communication with billions of IoT devices, securely and at scale.
AWS Greengrass	Azure IoT Edge	Deploy cloud intelligence directly on IoT devices to run in on-premises scenarios.
Kinesis Firehose, Kinesis Streams	Event Hubs	Services that allow the mass ingestion of small data inputs, typically from devices and sensors, to process and route the data.
AWS IoT Things Graph	Azure Digital Twins	Azure Digital Twins is an IoT service that helps you create comprehensive models of physical environments. Create spatial intelligence graphs to model the relationships and interactions between people, places, and devices. Query data from a physical space rather than disparate sensors.

Management

AWS service	Azure service	Description
Trusted Advisor	Azure Advisor	Provides analysis of cloud resource configuration and security so subscribers can ensure they're making use of best practices and optimum configurations.
AWS Usage and Billing Report	Azure Billing API	Services to help generate, monitor, forecast, and share billing data for resource usage by time, organization, or product resources.
AWS Management Console	Azure portal	A unified management console that simplifies building, deploying, and operating your cloud resources.
AWS Application Discovery Service	Azure Migrate	Assesses on-premises workloads for migration to Azure, performs performance-based sizing, and provides cost estimations.
Amazon EC2 Systems Manager	Azure Monitor	Comprehensive solution for collecting, analyzing, and acting on telemetry from your cloud and on-premises environments.
AWS Personal Health Dashboard	Azure Resource Health	Provides detailed information about the health of resources as well as recommended actions for maintaining resource health.

Messaging and eventing

AWS service	Azure service	Description
Simple Queue Service (SQS)	Azure Queue Storage	Provides a managed message queueing service for communicating between decoupled application components.
Simple Queue Service (SQS)	Service Bus	Supports a set of cloud-based, message-oriented middleware technologies including reliable message queueing and durable publish/subscribe messaging.
Simple Notification Service	Event Grid	A fully-managed event routing service that allows for uniform event consumption using a publish/subscribe model.

Mobile services

AWS service	Azure service	Description
Mobile Hub	Mobile Apps Xamarin Apps	Provides backend mobile services for rapid development of mobile solutions, identity management, data synchronization, and storage and notifications across devices.
Mobile SDK	Mobile Apps	Provides the technology to rapidly build cross-platform and native apps for mobile devices.
Cognito	Mobile Apps	Provides authentication capabilities for mobile applications.
AWS Device Farm	Xamarin Test Cloud (front end)	Provides services to support testing mobile applications.

AWS service	Azure service	Description
Mobile Analytics	HockeyApp Application Insights	Supports monitoring, and feedback collection for the debugging and analysis of a mobile application service quality.

Networking

Area	AWS service	Azure service	Description
Cloud virtual networking	Virtual Private Cloud (VPC)	Virtual Network	Provides an isolated, private environment in the cloud. Users have control over their virtual networking environment, including selection of their own IP address range, creation of subnets, and configuration of route tables and network gateways.
Cross-premises connectivity	AWS VPN Gateway	Azure VPN Gateway	Connects Azure virtual networks to other Azure virtual networks, or customer on-premises networks (Site To Site). Allows end users to connect to Azure services through VPN tunneling (Point To Site).
DNS management	Route 53	Azure DNS	Manage your DNS records using the same credentials and billing and support contract as your other Azure services
	Route 53	Traffic Manager	A service that hosts domain names, plus routes users to Internet applications, connects user requests to datacenters, manages traffic to apps, and improves app availability with automatic failover.
Dedicated network	Direct Connect	ExpressRoute	Establishes a dedicated, private network connection from a location to the cloud provider (not over the Internet).
Load balancing	Network Load Balancer	Load Balancer	Azure Load Balancer load-balances traffic at layer 4 (TCP or UDP).
	Application Load Balancer	Application Gateway	Application Gateway is a layer 7 load balancer. It supports SSL termination, cookie-based session affinity, and round robin for load-balancing traffic.

Security, identity, and access

Authentication and authorization

AWS service	Azure service	Description
Identity and Access Management (IAM)	Azure Active Directory	Allows users to securely control access to services and resources while offering data security and protection. Create and manage users and groups, and use permissions to allow and deny access to resources.

AWS service	Azure service	Description
AWS Organizations	Azure Subscription and Service Management + Azure RBAC	Security policy and role management for working with multiple accounts.
Multi-Factor Authentication	Multi-Factor Authentication	Safeguard access to data and applications while meeting user demand for a simple sign-in process.
AWS Directory Service	Azure Active Directory Domain Services	Provides managed domain services such as domain join, group policy, LDAP, and Kerberos/NTLM authentication that are fully compatible with Windows Server Active Directory
Cognito	Azure Active Directory B2C	A highly available, global, identity management service for consumer-facing applications that scales to hundreds of millions of identities.
AWS Organizations	Azure Policy	Azure Policy is a service in Azure that you use to create, assign, and manage policies. These policies enforce different rules and effects over your resources, so those resources stay compliant with your corporate standards and service level agreements.
AWS Organizations	Management Groups	Azure management groups provide a level of scope above subscriptions. You organize subscriptions into containers called "management groups" and apply your governance conditions to the management groups. All subscriptions within a management group automatically inherit the conditions applied to the management group. Management groups give you enterprise-grade management at a large scale no matter what type of subscriptions you might have.

Encryption

AWS service	Azure service	Description
Server-side encryption with Amazon S3 Key Management Service	Azure Storage Service Encryption	Helps you protect and safeguard your data and meet your organizational security and compliance commitments.
Key Management Service, CloudHSM	Key Vault	Provides security solution and works with other services by providing a way to manage, create, and control encryption keys stored in hardware security modules (HSM).

Firewall

AWS service	Azure service	Description
Web Application Firewall	Application Gateway - Web Application Firewall	A firewall that protects web applications from common web exploits.
Web Application Firewall	Azure Firewall	Provides inbound protection for non-HTTP/S protocols, outbound network-level protection for all ports and protocols, and application-level protection for outbound HTTP/S.

Security

AWS service	Azure service	Description
Inspector	Security Center	An automated security assessment service that improves the security and compliance of applications. Automatically assess applications for vulnerabilities or deviations from best practices.
Certificate Manager	App Service Certificates available on the Portal	Service that allows customers to create, manage, and consume certificates seamlessly in the cloud.
GuardDuty	Azure Advanced Threat Protection	Detect and investigate advanced attacks on-premises and in the cloud.
AWS Artifact	Service Trust Portal	Provides access to audit reports, compliance guides, and trust documents from across cloud services.
AWS Shield	Azure DDoS Protection Service	Provides cloud services with protection from distributed denial of services (DDoS) attacks.

Storage

Object storage

AWS service	Azure service	Description
Simple Storage Services (S3)	Azure Blob storage	Object storage service, for use cases including cloud applications, content distribution, backup, archiving, disaster recovery, and big data analytics.

Virtual server disks

AWS service	Azure service	Description
Elastic Block Store (EBS)	Azure managed disks	SSD storage optimized for I/O intensive read/write operations. For use as high-performance Azure virtual machine storage.

Shared files

AWS service	Azure service	Description
Elastic File System	Azure Files	Provides a simple interface to create and configure file systems quickly, and share common files. Can be used with traditional protocols that access files over a network.

Archiving and backup

AWS service	Azure service	Description
S3 Infrequent Access (IA)	Azure Storage cool tier	Cool storage is a lower-cost tier for storing data that is infrequently accessed and long-lived.
S3 Glacier	Azure Storage archive access tier	Archive storage has the lowest storage cost and higher data retrieval costs compared to hot and cool storage.
AWS Backup	Azure Backup	Back up and recover files and folders from the cloud, and provide offsite protection against data loss.

Hybrid storage

AWS service	Azure service	Description
Storage Gateway	StorSimple	Integrates on-premises IT environments with cloud storage. Automates data management and storage, plus supports disaster recovery.

Bulk data transfer

AWS service	Azure service	Description
AWS Import/Export Disk	Import/Export	A data transport solution that uses secure disks and appliances to transfer large amounts of data. Also offers data protection during transit.
AWS Import/Export Snowball, Snowball Edge, Snowmobile	Azure Data Box	Petabyte- to exabyte-scale data transport solution that uses secure data storage devices to transfer large amounts of data to and from Azure.

Web apps

AWS service	Azure service	Description
Elastic Beanstalk	App Service	Managed hosting platform providing easy to use services for deploying and scaling web applications and services.
API Gateway	API Management	A turnkey solution for publishing APIs to external and internal consumers.
CloudFront	Azure Content Delivery Network	A global content delivery network that delivers audio, video, applications, images, and other files.
Global Accelerator	Azure Front Door	Easily join your distributed microservice architectures into a single global application using HTTP load balancing and path-based routing rules. Automate turning up new regions and scale-out with API-driven global actions, and independent fault-tolerance to your back end microservices in Azure—or anywhere.

Miscellaneous

Area	AWS service	Azure service	Description
Backend process logic	AWS Step Functions	Logic Apps	Cloud technology to build distributed applications using out-of-the-box connectors to reduce integration challenges. Connect apps, data and devices on-premises or in the cloud.
Enterprise application services	Amazon WorkMail, Amazon WorkDocs	Office 365	Fully integrated Cloud service providing communications, email, document management in the cloud and available on a wide variety of devices.
Gaming	GameLift, GameSparks	PlayFab	Managed services for hosting dedicated game servers.
Media transcoding	Elastic Transcoder	Media Services	Services that offer broadcast-quality video streaming services, including various transcoding technologies.
Workflow	Simple Workflow Service (SWF)	Logic Apps	Serverless technology for connecting apps, data and devices anywhere, whether on-premises or in the cloud for large ecosystems of SaaS and cloud-based connectors.
Hybrid	Outposts	Azure Stack	Azure Stack is a hybrid cloud platform that lets you use Azure services from your company's or service provider's datacenter. As a developer, you can build apps on Azure Stack. You can then deploy them to Azure Stack, to Azure, or you can build truly hybrid apps that leverage the connectivity between an Azure Stack cloud and Azure.