List of Azure services

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Azure Services

This reading includes details of the most commonly used categories of Azure Services:

- Compute
- Web
- Internet of Things (IoT)
- Big data
- AI
- DevOps
- Networking
- Storage
- Mobile
- Databases

Compute

Compute services are often one of the primary reasons why companies move to the Azure platform. Azure provides a range of options for hosting applications and services. Here are some examples of compute services in Azure.

Service name	Service function
Azure Virtual Machines	Windows or Linux virtual machines (VMs) hosted in Azure
Azure Virtual Machine Scale Sets	Scaling for Windows or Linux VMs hosted in Azure
Azure Kubernetes Service	Cluster management for VMs that run containerized services
Azure Service Fabric	Distributed systems platform that runs in Azure or on-premises

Service name	Service function
Azure Batch	Managed service for parallel and high-performance computing applications
Azure Container Instances	Containerized apps run on Azure without provisioning servers or VMs
Azure Functions	An event-driven, serverless compute service

Networking

Linking compute resources and providing access to applications is the key function of Azure networking. Networking functionality in Azure includes a range of options to connect the outside world to services and features in the global Azure datacenters.

Here are some examples of networking services in Azure.

Service name	Service function
Azure Virtual Network	Connects VMs to incoming virtual private network (VPN) connections
Azure Load Balancer	Balances inbound and outbound connections to applications or service endpoints
Azure Application Gateway	Optimizes app server farm delivery while increasing application security
Azure VPN Gateway	Accesses Azure Virtual Networks through high-performance VPN gateways
Azure DNS	Provides ultra-fast DNS responses and ultra-high domain availability
Azure Content Delivery Network	Delivers high-bandwidth content to customers globally
Azure DDoS Protection	Protects Azure-hosted applications from distributed denial of service (DDOS) attacks
Azure Traffic Manager	Distributes network traffic across Azure regions worldwide

Service name	Service function
Azure ExpressRoute	Connects to Azure over high-bandwidth dedicated secure connections
Azure Network Watcher	Monitors and diagnoses network issues by using scenario-based analysis
Azure Firewall	Implements high-security, high-availability firewall with unlimited scalability
Azure Virtual WAN	Creates a unified wide area network (WAN) that connects local and remote sites

Storage

Azure provides four main types of storage services.

Service name	Service function
Azure Blob storage	Storage service for very large objects, such as video files or bitmaps
Azure File storage	File shares that can be accessed and managed like a file server
Azure Queue storage	A data store for queuing and reliably delivering messages between applications
Azure Table storage	A NoSQL store that hosts unstructured data independent of any schema

These services all share several common characteristics:

- **Durable** and highly available with redundancy and replication.
- **Secure** through automatic encryption and role-based access control.
- **Scalable** with virtually unlimited storage.
- **Managed**, handling maintenance and any critical problems for you.
- **Accessible** from anywhere in the world over HTTP or HTTPS.

Mobile

With Azure, developers can create mobile back-end services for iOS, Android, and Windows apps quickly and easily. Features that used to take time and increase project risks, such as adding corporate sign-in and then connecting to on-premises resources such as SAP, Oracle, SQL Server, and SharePoint, are now simple to include.

Other features of this service include:

- Offline data synchronization.
- Connectivity to on-premises data.
- Broadcasting push notifications.
- Autoscaling to match business needs.

Databases

Azure provides multiple database services to store a wide variety of data types and volumes. And with global connectivity, this data is available to users instantly.

Service name	Service function
Azure Cosmos DB	Globally distributed database that supports NoSQL options
Azure SQL Database	Fully managed relational database with auto-scale, integral intelligence, and robust security
Azure Database for MySQL	Fully managed and scalable MySQL relational database with high availability and security
Azure Database for PostgreSQL	Fully managed and scalable PostgreSQL relational database with high availability and security
SQL Server on Azure Virtual Machines	Service that hosts enterprise SQL Server apps in the cloud
Azure Synapse Analytics	Fully managed data warehouse with integral security at every level of scale at no extra cost
Azure Database Migration Service	Service that migrates databases to the cloud with no application code changes

Service name	Service function
Azure Cache for Redis	Fully managed service caches frequently used and static data to reduce data and application latency
Azure Database for MariaDB	Fully managed and scalable MariaDB relational database with high availability and security

Web

Having a great web experience is critical in today's business world. Azure includes first-class support to build and host web apps and HTTP-based web services. The following Azure services are focused on web hosting.

Service name	Description
Azure App Service	Quickly create powerful cloud web-based apps.
Azure Notification Hubs	Send push notifications to any platform from any back end.
Azure API Management	Publish APIs to developers, partners, and employees securely and at scale.
Azure Cognitive Search	Deploy this fully managed search as a service.
Web Apps feature of Azure App Service	Create and deploy mission-critical web apps at scale.
Azure SignalR Service	Add real-time web functionalities easily.

IoT

People are able to access more information than ever before. Personal digital assistants led to smartphones, and now there are smart watches, smart thermostats, and even smart refrigerators. Personal computers used to be the norm. Now the internet allows any item that's online-capable to access valuable information. This ability for devices to garner and then relay information for data analysis is referred to as IoT.

Many services can assist and drive end-to-end solutions for IoT on Azure.

Service name	Description
IoT Central	Fully managed global IoT software as a service (SaaS) solution that makes it easy to connect, monitor, and manage IoT assets at scale
Azure IoT Hub	Messaging hub that provides secure communications between and monitoring of millions of IoT devices
IoT Edge	Fully managed service that allows data analysis models to be pushed directly onto IoT devices, which allows them to react quickly to state changes without needing to consult cloud-based AI models

Big data

Data comes in all formats and sizes. When we talk about big data, we're referring to *large* volumes of data. Data from weather systems, communications systems, genomic research, imaging platforms, and many other scenarios generate hundreds of gigabytes of data. This amount of data makes it hard to analyze and make decisions. It's often so large that traditional forms of processing and analysis are no longer appropriate.

Open-source cluster technologies have been developed to deal with these large data sets. Azure supports a broad range of technologies and services to provide big data and analytic solutions.

Service name	Description
Azure Synapse Analytics	Run analytics at a massive scale by using a cloud-based enterprise data warehouse that takes advantage of massively parallel processing to run complex queries quickly across petabytes of data.
Azure HDInsight	Process massive amounts of data with managed clusters of Hadoop clusters in the cloud.
Azure Databricks	Integrate this collaborative Apache Spark-based analytics service with other big data services in Azure.

AI

AI, in the context of cloud computing, is based around a broad range of services, the core of which is machine learning. Machine learning is a data science technique that allows computers to use existing data to forecast future behaviors, outcomes, and trends. Using machine learning, computers learn without being explicitly programmed.

Forecasts or predictions from machine learning can make apps and devices smarter. For example, when you shop online, machine learning helps recommend other products you might like based on what you've purchased. Or when your credit card is swiped, machine learning compares the transaction to a database of transactions and helps detect fraud. And when your robot vacuum cleaner vacuums a room, machine learning helps it decide whether the job is done.

Here are some of the most common AI and machine learning service types in Azure.

Service name	Description
Azure Machine Learning Service	Cloud-based environment you can use to develop, train, test, deploy, manage, and track machine learning models. It can auto-generate a model and auto-tune it for you. It will let you start training on your local machine, and then scale out to the cloud.
Azure Machine Learning Studio	Collaborative visual workspace where you can build, test, and deploy machine learning solutions by using prebuilt machine learning algorithms and data-handling modules.

A closely related set of products are the *cognitive services*. You can use these prebuilt APIs in your applications to solve complex problems.

Service name	Description
Vision	Use image-processing algorithms to smartly identify, caption, index, and moderate your pictures and videos.
Speech	Convert spoken audio into text, use voice for verification, or add speaker recognition to your app.
Knowledge mapping	Map complex information and data to solve tasks such as intelligent recommendations and semantic search.
Bing Search	Add Bing Search APIs to your apps and harness the ability to comb billions of webpages, images, videos, and news with a single API call.
Natural Language processing	Allow your apps to process natural language with pre-built scripts, evaluate sentiment, and learn how to recognize what users want.

DevOps

DevOps brings together people, processes, and technology by automating software delivery to provide continuous value to your users. With Azure DevOps, you can create *build* and *release* pipelines that provide continuous integration, delivery, and deployment for your applications. You can integrate repositories and application tests, perform application monitoring, and work with build artifacts. You can also work with and backlog items for tracking, automate infrastructure deployment and integrate a range of third-party tools and services such as Jenkins and Chef. All of these functions and many more are closely integrated with Azure to allow for consistent, repeatable deployments for your applications to provide streamlined build and release processes.

Service name	Description
Azure DevOps	Use development collaboration tools such as high-performance pipelines, free private Git repositories, configurable Kanban boards, and extensive automated and cloud-based load testing. Formerly known as Visual Studio Team Services.
Azure DevTest Labs	Quickly create on-demand Windows and Linux environments to test or demo applications directly from deployment pipelines.

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