

Popular Microsoft Azure Service for Web & API Development Simplified

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The document talks about frequently used Azure Services for API and Web Development. Also contains AWS and GCP alternatives. The target audience are developers, engineering managers, architects

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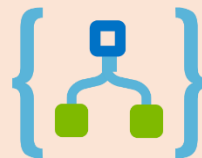
Azure App Service



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Azure DevOps

What it does?

Azure DevOps provides developer services for supporting teams to plan work, collaborate on code development, and build and deploy applications.

It's a one stop solution for entire Application Lifecycle management. With help of Azure Boards, Repos, Test Plans, Pipelines, you can manage everything under single umbrella.

Use Cases

- Source code management with Git repositories.
- Continuous Integration and Continuous Deployment (CI/CD) pipelines.
- Agile project management with Azure Boards.
- Test management with Azure Test Plans

Is Free Tier available?

Yes

Popular Alternatives

AWS Code pipeline, GCP Cloud Build

Official Documentation

<https://azure.microsoft.com/en-us/solutions/devops/tutorial/>

Azure Repos

What it does?

Repos Provides Git repositories or Team Foundation Version Control (TFVC) for source control of your code. You can maintain a clean and organized repository without fear of losing anything from your local system. Repos support both, distributed (DVCS) and centralized system (CVCS).

Use Cases

- Version control for source code.
- Collaboration through pull requests
- Code Reviews
- Branching and Merging

Is Free Tier available?

Yes, free for personal use with unlimited repos.

Popular Alternatives

AWS CodeCommit, Google Cloud Source Repositories

Official Documentation

<https://learn.microsoft.com/en-us/azure/devops/repos/get-started/?view=azure-devops>

Azure Key Vault

What it does?

Azure Key Vault is a cloud service for securely storing and accessing secrets. A secret is anything that you want to tightly control access to, such as API keys, passwords, certificates, or cryptographic keys. Your apps can securely access these secrets from Key Vault.

Use Cases

- Storing API keys and connection strings.
- Managing TLS/SSL certificates.
- Securing sensitive configuration data.
- Storing cryptographic keys.

Is Free Tier available?

Yes, with restrictions.

Popular Alternatives

AWS Secret Manager, Google Cloud Secret Manager

Official Documentation

<https://learn.microsoft.com/en-us/azure/key-vault/general/basic-concepts>

Azure App Service

What it does?

Azure App Service is an HTTP-based service for hosting web applications, REST APIs, and mobile back ends. You can develop in your favorite language, be it .NET, .NET Core, Java, Node.js, PHP, or Python. Applications run and scale with ease on both Windows and Linux-based environments.

Use Cases

- Hosting Web Applications (Static / DB)
- Automatic scaling and load balancing.
- Continuous deployment from GitHub, Azure DevOps, or any Git repo.

Is Free Tier available?

Yes, with restrictions. Host a personal website for free

Popular Alternatives

AWS Elastic Beanstalk, Google App Engine

Official Documentation

<https://learn.microsoft.com/en-us/azure/app-service/overview>

Azure Functions

What it does?

Azure Functions is a serverless solution that allows you to write less code, maintain less infrastructure, and save on costs. You can write the functions in different languages like C#, Python, Java, JavaScript, PHP, Node.js, etc .

Use Cases

- Running background tasks and scheduled jobs such as email sending, catalog update.
- Reminder & Notifications.
- Processing HTTP requests and API integrations.
- Handling event-driven workflows (e.g., database changes, file uploads).
- Process Message Queues

Is Free Tier available?

Yes, with restrictions

Popular Alternatives

AWS Lambda, Google Cloud Functions

Official Documentation

<https://learn.microsoft.com/en-us/azure/azure-functions/>

Azure API Management & Gateway

What it does?

Azure API Management and API Gateway are two solutions that help manage and secure APIs. While they share some similarities, they serve different purposes. Azure API Management is a comprehensive solution that provides end-to-end API lifecycle management, including design, implementation, and consumption. Azure API Gateway is a service that provides a single, unified entry point for handling incoming HTTP requests. It's designed to be a lightweight, scalable, and highly available solution for routing traffic to back-end services.

Use Cases

- Publishing and managing APIs.
- Monitoring and Analysis
- Authentication and Authorization

Is Free Tier available?

No, Subscription required

Popular Alternatives

AWS API gateway, Google Cloud Endpoints

Official Documentation

<https://azure.microsoft.com/en-in/products/api-management/>

Azure Container Instance

Not to confuse with Azure Container Apps

What it does?

ACI is a lightweight, managed service that allows you to run containers without worrying about the underlying infrastructure.

Use Cases

- Ideal for stateless applications.
- Running microservices in containers.
- Scaling out batch jobs.
- Deploying isolated and secure applications
- Event driven workloads
- Use for Dev & Testing Environments

Is Free Tier available?

No, Subscription required

Popular Alternatives

AWS Fargate, Google Cloud Run

Official Documentation

<https://learn.microsoft.com/en-us/azure/container-instances/>

Azure Kubernetes Services

What it does?

AKS is a managed container orchestration service. It allows users to deploy, manage, and scale containerized applications in a cloud-native environment. With AKS, you can automate the deployment and scaling of containers, as well as monitor and manage resources across multiple nodes.

Use Cases

- Managing microservices architecture.
- Migrate existing applications to containers
- Scaling applications based on demand

Is Free Tier available?

No, Subscription required

Popular Alternatives

AWS EKS, Google Kubernetes Engine

Official Documentation

<https://learn.microsoft.com/en-us/azure/aks/what-is-aks>

Azure Service Bus

What it does?

Azure Service Bus is a cloud-based messaging service that enables communication between applications, services, and devices. It acts as a bridge, allowing applications to send and receive messages using various transport protocols, such as AMQP, HTTP, and WebSocket

Use Cases

- Communication between Microservices.
- Ideal for handling large volumes of events and messages in real-time, ensuring high throughput and low latency.
- It is very well suited for device telemetry streaming, Internet of Things (IoT), logging for high traffic applications such as social media and e-commerce

Is Free Tier available?

No, Subscription required

Popular Alternatives

AWS SQS, Google Cloud Pub/Sub

Official Documentation

<https://learn.microsoft.com/en-us/azure/service-bus-messaging/>

Azure Redis Cache

What it does?

ARC is a managed caching service that allows you to cache frequently accessed data in a scalable and highly available manner. It improves the performance and scalability of web applications, mobile apps, and microservices. You can store data in memory, reducing the load on your database and improving application responsiveness. It can be deployed along with other Azure database services, such as Azure SQL or Azure Cosmos DB.

Use Cases

- Content Caching to reduce latency.
- Session Storage for web apps.
- Job and Message Queueing
- Distributed Transactions

Is Free Tier available?

No, Subscription required

Popular Alternatives

AWS ElastiCache, Google Cloud MemoryStore

Official Documentation

<https://learn.microsoft.com/en-us/azure/azure-cache-for-redis/>

Azure Monitor

What it does?

Azure Monitor helps users to monitor the performance and availability of cloud-based apps and infrastructure. It provides real-time monitoring, alerting, and logging capabilities, as well as integration with other Azure services such as Azure Log Analytics and Azure Automation.

Use Cases

- Applications.
- VMs and Guest OSs.
- Containers
- Databases
- Networking events with Network watcher
- Security Events with Azure Sentinel

Is Free Tier available?

No, Subscription required

Popular Alternatives

AWS CloudWatch, Google Cloud Monitoring

Official Documentation

<https://learn.microsoft.com/en-us/azure/azure-monitor/>

Cognitive Services

What it does?

Azure Cognitive Services is a suite of artificial intelligence (AI) and machine learning (ML) services offered by Microsoft that can be used to build intelligent applications and services. It provides pre-trained algorithms, APIs, code samples to help developers integrate AI and ML capabilities.

Use Cases

- AI powered search in your apps.
- Speech recognition and synthesis.
- Analyze textual or visual data to generate information.
- Image recognition.
- Building TTS engines.
- Monitor usage and performance to control costs.
- Analyze data to determine peak season, customer footfall, top selling products, filtering user posts.

Is Free Tier available?

No, Subscription required

Popular Alternatives

AWS AI Services, Google Cloud AI

Official Documentation

<https://learn.microsoft.com/en-us/azure/ai-services/>

Azure Database Services

What it does?

Azure Database Services (ADB) is a set of cloud-based services offered by Microsoft Azure, allowing users to design, deploy, and manage relational databases, NoSQL databases, and data warehousing solutions. The services include Azure Database for MySQL, PostgreSQL, and SQL Server, as well as Azure Cosmos DB for NoSQL and Azure Synapse Analytics for big data analytics. There are few more like SQL Server on Azure Virtual machine or Apache Casandra but I am keeping them off list because this is about serverless database services.

Use Cases

Databases	What is it?	When to use it?	Real-time Application in E-commerce
Azure Database for MySQL	A fully managed MySQL database service in the cloud.	Ideal for applications requiring MySQL compatibility, flexibility, and scalability.	Managing product catalogs, user profiles, and transaction records.
Azure SQL Server	A fully managed SQL Server database service in the cloud.	Suitable for applications needing SQL Server features, high availability, and security.	Handling inventory management, order processing, and customer data analytics
Azure Database for PostgreSQL	A fully managed PostgreSQL database service in the cloud.	Best for applications requiring PostgreSQL features, flexibility, and open-source compatibility.	Supporting real time product recommendations, customer behavior analysis and order tracking.
Azure Cosmos DB	A globally distributed, multi model database service for modern app development.	Ideal for globally distributed applications needing low latency and high throughput.	Enabling real-time inventory updates, personalized shopping experiences, and global order processing.
Azure Synapse Analytics	A unified analytics service that brings together big data and data warehousing.	Suitable for large scale data analytics, reporting and machine learning.	Analyzing customer purchase patterns, sales trends, and market insights for strategic decision-making.

Is Free Tier available?

Yes, with limitations

Popular Alternatives

Available on AWS and GCP with respective names.

Official Documentation

<https://azure.microsoft.com/en-us/products/category/databases/>