

Azure Services: A Tech Team Quick Reference Page

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A condensed, decision-focused guide to the major Azure service categories
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A condensed, decision-focused guide to the major Azure service categories. For each service: what it is, primary use cases, and a one-line “when to choose it” rule. Use this as a quick reference when designing or reviewing an Azure architecture.

Azure Reference Architecture — Layer Overview

Layer	Service(s)	Role
Edge / Ingress	Azure Front Door	Global HTTP load balancing, CDN, WAF & intelligent routing
Web / API Compute	App Service	Managed PaaS for web apps, REST APIs and mobile backends
Container Compute	AKS (Kubernetes)	Orchestrated containers, microservices, auto-scaling
Serverless Compute	Azure Functions	Event-driven, short-lived tasks triggered by HTTP/queue/blob
Relational Data	Azure SQL Database	Managed SQL Server — structured OLTP workloads

NoSQL / Global Data	Cosmos DB	Multi-model, globally distributed, <10 ms latency
Object Storage	Blob Storage	Unstructured data — media, backups, analytics staging
Caching	Azure Cache for Redis	Sub-millisecond in-memory caching & session state
Identity	Microsoft Entra ID	SSO, MFA, app registrations & managed identities
Secrets	Key Vault	Centralised store for secrets, keys & TLS certificates
Observability	Azure Monitor + App Insights	Full-stack metrics, logs, alerts & distributed tracing
Security Posture	Defender for Cloud	CSPM scoring, threat detection & compliance dashboards

1. Compute

Service	What it is & key use cases	When to choose it
Virtual Machines (VMs)	IaaS with full OS control. Lift-and-shift, legacy apps, custom OS, dev/test.	You need full OS control or have compliance/legacy needs that block PaaS.
App Service	Managed PaaS for web apps & REST APIs. ASP.NET/Node/Python/Java, auto-scale, CI/CD.	You want to focus on code, not infra, and don't need container orchestration.
Azure Kubernetes Service (AKS)	Managed Kubernetes for containers. Microservices, auto-scaling, self-healing.	You run multiple containers needing orchestration & service discovery.
Container Instances (ACI)	Serverless single containers. Batch jobs, CI tasks, quick tests.	Simple isolated container tasks; use AKS if you need orchestration.

Azure Functions	Event-driven serverless compute. HTTP APIs, timers, queue/blob events.	Short-lived, event-triggered work. Avoid for long-running (>10 min) jobs.
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2. Storage

Service	What it is & key use cases	When to choose it
Blob Storage	Object storage for unstructured data. Static sites, media, backups, analytics staging.	Any binary/unstructured data. Hot/Cool/Archive tiers by access frequency.
Azure Files	Managed SMB/NFS file shares. Replace on-prem file servers, shared config.	Apps that need a shared file system; use Blob for object storage.
Data Lake Storage Gen2	Blob + hierarchical namespace for big data. ML data, ETL, Synapse/Databricks.	Big-data workloads needing directory-level ACLs and hierarchy.

3. Networking

Service	What it is & key use cases	When to choose it
Virtual Network (VNet)	Isolated private network — foundation of secure deployments.	Always for production. Never expose resources without NSG rules.
Load Balancer	Layer 4 (TCP/UDP) balancing across VMs. HA, inbound NAT, internal LB.	Non-HTTP VM workloads needing HA; use App Gateway for HTTP.
Application Gateway	Layer 7 (HTTP/S) LB with WAF, SSL termination, URL routing.	HTTP/S apps needing WAF, SSL offload, or path-based routing (regional).
Front Door	Global HTTP LB with CDN, WAF, intelligent routing.	Global apps needing low latency worldwide + edge CDN/failover.

VPN Gateway	Site-to-site / point-to-site VPN to on-prem. Hybrid cloud, remote access.	Encrypted hybrid connectivity; use ExpressRoute for dedicated bandwidth.
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4. Databases

Service	What it is & key use cases	When to choose it
Azure SQL Database	Managed relational PaaS (SQL Server engine). Web/enterprise OLTP, migrations.	Structured relational data. Elastic Pool for many DBs, MI for full compat.
Cosmos DB	Globally distributed multi-model NoSQL. IoT, catalogs, gaming, multi-region writes.	You need <10ms global latency, flexible schema, or active-active replication.
Azure Cache for Redis	Managed in-memory cache. Session state, query caching, leaderboards, pub/sub.	App has repetitive expensive queries or needs sub-millisecond responses.
Synapse Analytics	Unified data warehouse + big data analytics. ETL/ELT, BI, Power BI/ML.	Large-scale analytical workloads; use Azure SQL for operational OLTP.

5. AI & Machine Learning

Service	What it is & key use cases	When to choose it
Azure Machine Learning	End-to-end ML platform. Custom models, AutoML, MLOps, monitoring/retraining.	Building custom models; use AI Services for pre-built capabilities.
Azure AI Services	Pre-built AI APIs — Vision, Speech, Language, Decision. OCR, sentiment, STT/TTS.	You need AI features fast via REST without training custom models.

Azure OpenAI Service	OpenAI models (GPT, DALL-E, Whisper, embeddings) in Azure. Chatbots, summarization, code, semantic search.	You need enterprise security, private networking, compliance & data residency.
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6. DevOps & Monitoring

Service	What it is & key use cases	When to choose it
Azure DevOps	Boards, Repos, Pipelines, Test Plans, Artifacts. CI/CD, agile, source control.	End-to-end DevOps lifecycle integrated with the Azure ecosystem.
Key Vault	Secure store for secrets, keys, certificates. Connection strings, TLS certs, CMK.	Always — never hardcode credentials. Access via managed identity.
Monitor & App Insights	Full-stack observability — metrics, logs, alerts, APM, distributed tracing.	Enable on every app/Function from day one; retro-fitting is harder.

7. Security & Identity

Service	What it is & key use cases	When to choose it
Microsoft Entra ID	Cloud identity & access (IAM). SSO, MFA, app registrations, managed identities.	Always for authentication; use managed identities for service-to-service auth.
Defender for Cloud	CSPM + workload protection. Posture scoring, threat detection, compliance.	Enable on all production subscriptions for a unified security view.
Microsoft Sentinel	Cloud-native SIEM + SOAR. Event aggregation, AI analytics, automated response.	Centralized security monitoring across Azure + on-prem + multi-cloud.

8. Integration & Messaging

Service	What it is & key use cases	When to choose it
Service Bus	Enterprise broker — queues & topics (pub/sub). Decoupling, dead-lettering, ordering.	Reliable, ordered, transactional messaging; use Event Hubs for streaming.
Event Hubs	Big-data event streaming (millions/sec). IoT telemetry, logs, click-streams.	High-volume event ingestion feeding analytics pipelines.
Logic Apps	Low-code workflow automation, 400+ connectors. B2B, approvals, SaaS integration.	Integration workflows across SaaS/enterprise; use Functions for custom code.
API Management (APIM)	Full-lifecycle API gateway. Publish, secure, throttle, version, dev portal.	Exposing APIs externally or across teams with governance & observability.

9. Analytics

Service	What it is & key use cases	When to choose it
Azure Databricks	Spark-based analytics platform. Large ETL, ML at scale, streaming, lakehouse.	Complex big-data processing with Spark; integrates with ADLS Gen2 & Synapse.
Data Factory (ADF)	Cloud-scale ETL/ELT integration. Pipeline orchestration, 90+ connectors.	The orchestration layer of your data platform; moving data on-prem ↔ cloud.

Service Selection Decision Tree

What kind of workload?

Run application code	Store / query data	Connect / process events
Event-driven → Functions	Relational / OLTP → Azure SQL	Reliable queue → Service Bus
Web app / API → App Service	Global NoSQL → Cosmos DB	High-volume stream → Event Hubs
Containers at scale → AKS	Files / blobs → Blob Storage	Low-code workflow → Logic Apps
Full OS control → VMs	Analytics / DW → Synapse	Publish APIs → API Management

Always add: Entra ID (identity) • Key Vault (secrets) • Monitor + App Insights (observability)

Figure 2 — Decision tree mapping a workload type to the recommended Azure service.

Service Selection Quick Reference

Need	Service
Host a web app	App Service
Run containers at scale	AKS
Simple container task	ACI
Serverless function	Azure Functions
Relational DB	Azure SQL Database
NoSQL / Global DB	Cosmos DB
Cache	Azure Cache for Redis
Data warehouse	Synapse Analytics
Big data processing	Databricks
ETL orchestration	Data Factory
Store files/blobs	Blob Storage
Shared file system	Azure Files
Pre-built AI APIs	Azure AI Services
Custom ML models	Azure ML
LLM / GPT	Azure OpenAI

Message queue	Service Bus
Event streaming	Event Hubs
API gateway	API Management
Secrets management	Key Vault
Identity / SSO	Microsoft Entra ID
Security posture	Defender for Cloud
SIEM	Microsoft Sentinel
Monitoring / APM	Azure Monitor + App Insights

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