DIFFERENT STORAGES IN AZURE

1. Azure Blob Storage

Blob storage is designed for unstructured data (data without a fixed schema). It's the backbone of many cloud applications.

Features:

- Stores text, binary, media, backups, and large datasets.
- Highly scalable with petabyte-level capacity.
- Supports Hot, Cool, and Archive access tiers for cost optimization.
- Integrated with Azure CDN for fast global content delivery.

Blob Types:

- Block Blob → Optimized for sequential uploads, e.g., media files.
- Append Blob → Optimized for logs (new data always appended).
- Page Blob → Used for random read/write (e.g., Azure VM disks).

Use Cases:

- Hosting static websites.
- Storing media files for streaming services.
- Backup and disaster recovery storage.

2. Azure File Storage

Azure Files provides cloud-based shared file systems that multiple users or apps can access.

Features:

- Fully managed file shares using SMB (Server Message Block) and NFS protocols.
- Can be mounted from on-premises or cloud-based VMs.
- Integrates with Azure Backup and Azure File Sync.

Use Cases:

- Replacing or extending on-premises file servers.
- Sharing configuration files across multiple VMs.
- Hosting user profile data in enterprise environments.
- Development teams storing shared resources like code or media.

3. Azure Queue Storage

Queue storage enables asynchronous communication between different components of a distributed application.

Features:

Stores millions of messages (up to 64 KB each).

Messages can be retrieved and processed later.

Ensures decoupling between producers (apps) and consumers (services).

Works well with Azure Functions or background services.

Use Cases:

Order processing system where orders are queued and processed one by one.

Background job scheduling (e.g., sending notifications).

IoT devices sending data to a central processing system.

Handling sudden traffic spikes without overwhelming the backend.

4. Azure Table Storage

Table storage is a NoSQL key-value store used for structured but flexible datasets.

Features:

Schema-less design, so each row (entity) can have different properties.

Very fast query performance.

Can store terabytes of data with high availability.

Now also available as Azure Cosmos DB Table API for global distribution.

Use Cases:

Storing IoT sensor data with varying attributes.

User profile data where different users may have different properties.

Logging events from applications.

Product catalogs for e-commerce platforms.

5. Azure Disk Storage

Disk storage provides persistent block-level storage attached to virtual machines.

Types:

Premium SSDs → High performance, low latency (databases, SAP, etc.).

Standard SSDs → Balanced performance and cost.

Standard HDDs → Low-cost storage for less demanding workloads.

Ultra Disks → Extremely high throughput for intensive workloads.

Features:

Managed disks (Azure handles storage accounts, replication, scaling).

Snapshots and backups supported.

Encryption at rest enabled by default.

Use Cases:

Running databases (SQL Server, Oracle, MySQL).

Hosting enterprise applications with high IOPS demand.

Providing system and data disks for VMs.

Storing critical workloads with redundancy (ZRS, LRS options).

6. Azure Archive Storage

Archive storage is built for cold data that you rarely need but must retain.

Features:

Lowest storage cost among Azure tiers.

Data retrieval can take hours (not instant).

Data is encrypted and replicated for durability.

Lifecycle policies can move data automatically from Hot → Cool → Archive.

Use Cases:

Compliance and legal document storage.

Medical records and X-rays stored for years.

Old backup files for disaster recovery.

Financial records that must be kept for auditing.