Building reliable systems on Azure is a shared responsibility. Microsoft is responsible for the reliability of the cloud platform, including our global network and datacenters. Our customers and partners are responsible for the reliability of their cloud applications, using architectural best practices based on the requirements of each workload.

No matter what your service-level objectives are, Azure can help you achieve your organization’s reliability goals. Design and operate mission-critical systems with confidence by taking advantage of built-in features for high availability, disaster recovery, and backup.

Reliability with Microsoft Azure

**High availability**
- Maintain acceptable continuous performance despite temporary failure in services, hardware, or datacenters—as well as fluctuation in load—using Azure Availability Zones and availability sets.

**Disaster recovery**
- Protect against the loss of an entire region through asynchronous replication for failover of virtual machines and data using services like geo-redundant storage and Azure Site Recovery.

**Backup and restore**
- Replicate virtual machines and data to one or more regions using Azure Backup, and conduct self-service recoveries of Azure VMs or disks from a secondary region during an outage.

**Single VM**
- Improve the availability of single-instance VMs by using premium/ultra disks to qualify for an availability SLA.
- **99.9% SLA (3 9s)**
  - VM availability (monthly)
- **Single VM** with premium/ultra disks

**Local redundancies**
- Protect against failures with redundancy within a single datacenter in the event of hardware malfunctions or software update cycles.
- **99.95% SLA (3½ 9s)**
  - VM availability (monthly)
- **Availability Zones (2 + VMs)** within a datacenter
- **Managed Disk in Availability Set**

**Zonal redundancies**
- Protect against datacenter failures through redundancy within a single region in the event of power, cooling, or networking issues.
- **99.9999999999% (12 9s)**
  - Storage durability (annually)
- **Zone-Redundant Storage (ZRS)**

**Regional redundancies**
- Protect against entire-region failures with redundancy beyond a single region in the event of a tornado, earthquake, or other large-scale disaster.
- **99.99999999999999% (16 9s)**
  - Storage durability (annually)
- **Geo-Redundant Storage (GRS)**

**Azure Well-Architected Framework**
- Build a resilient system in the cloud with apps architected for a healthy state—resulting in no significant downtime and rapid recovery from failures. Using the Azure Well-Architected Framework, you can design highly reliable and resilient application architecture with the help of industry-tested and proven guidance.

- **Learn more** about the Azure Well-Architected Framework.
- **Assess your workloads** through the lens of reliability with the Azure Well-Architected Review.
- **Review the resilience checklist** for reliability considerations related to individual Azure services.