# Microsoft Azure

# Reliability with Microsoft Azure

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.
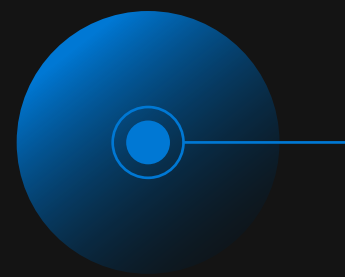
High availability

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.
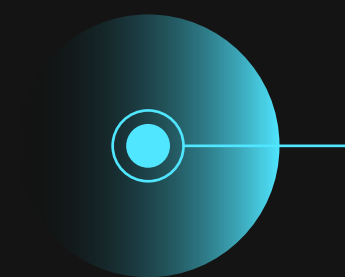
Disaster recovery

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.
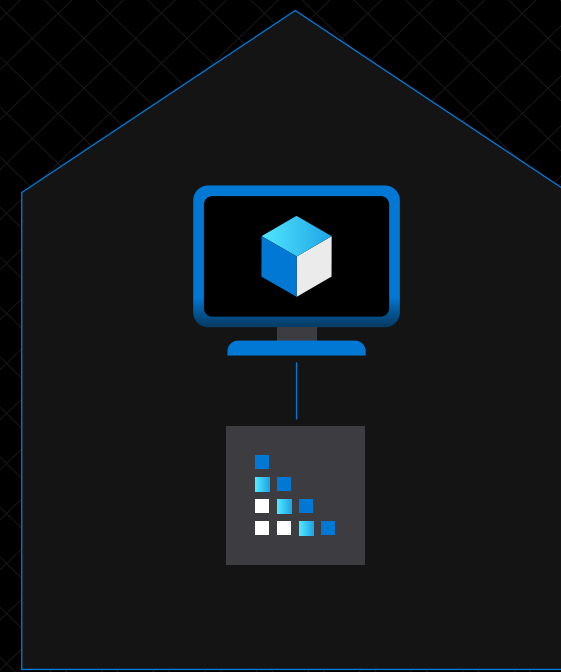
Single VM

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

99.999999999% (11 9s)
Storage durability (annually)

Locally Redundant Storage (LRS)* 🔗

🖥 Virtual machine | Compute options
🖿 Storage account | Storage options
* Optional: Azure Backup
🔗 Link

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 Set (2+ VMs) 🔗
within a datacenter

Managed Disk in Availability Set

99.999999999% (11 9s)
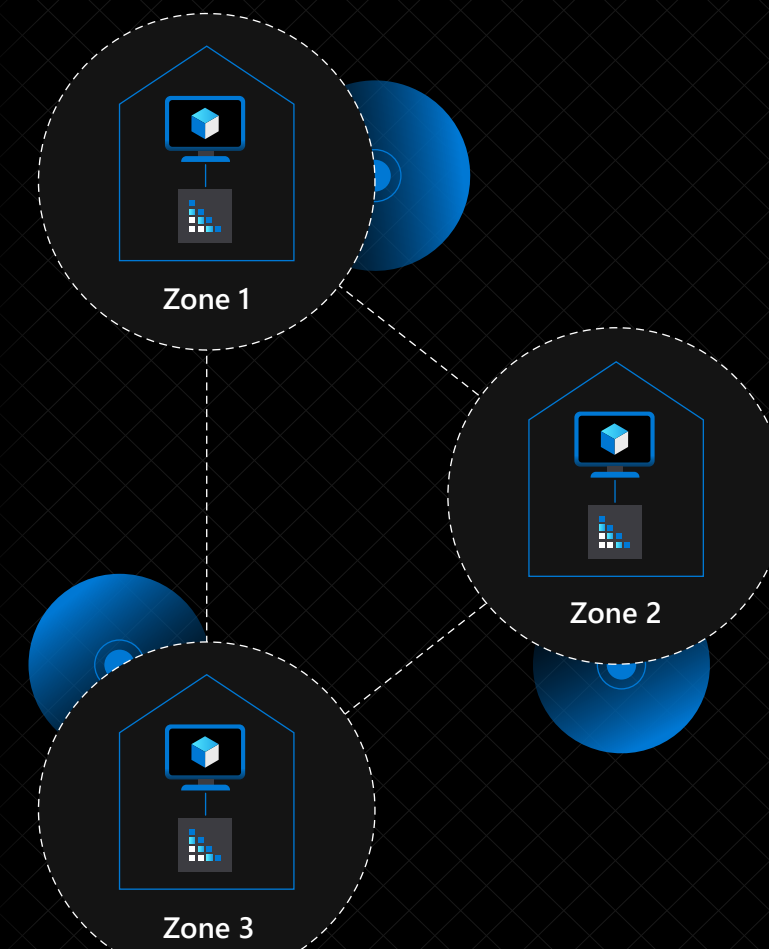Storage durability (annually)

Locally Redundant Storage (LRS) with Azure Managed Disks* 🔗

Zonal redundancies

Protect against datacenter failures through redundancy **within a single region** in the event of power, cooling, or networking issues.

99.99% SLA (4 9s)
VM availability (monthly)

Availability Zones (2+ VMs) 🔗
within a region

Zone 1
Zone 2
Zone 3

99.9999999999% (12 9s)
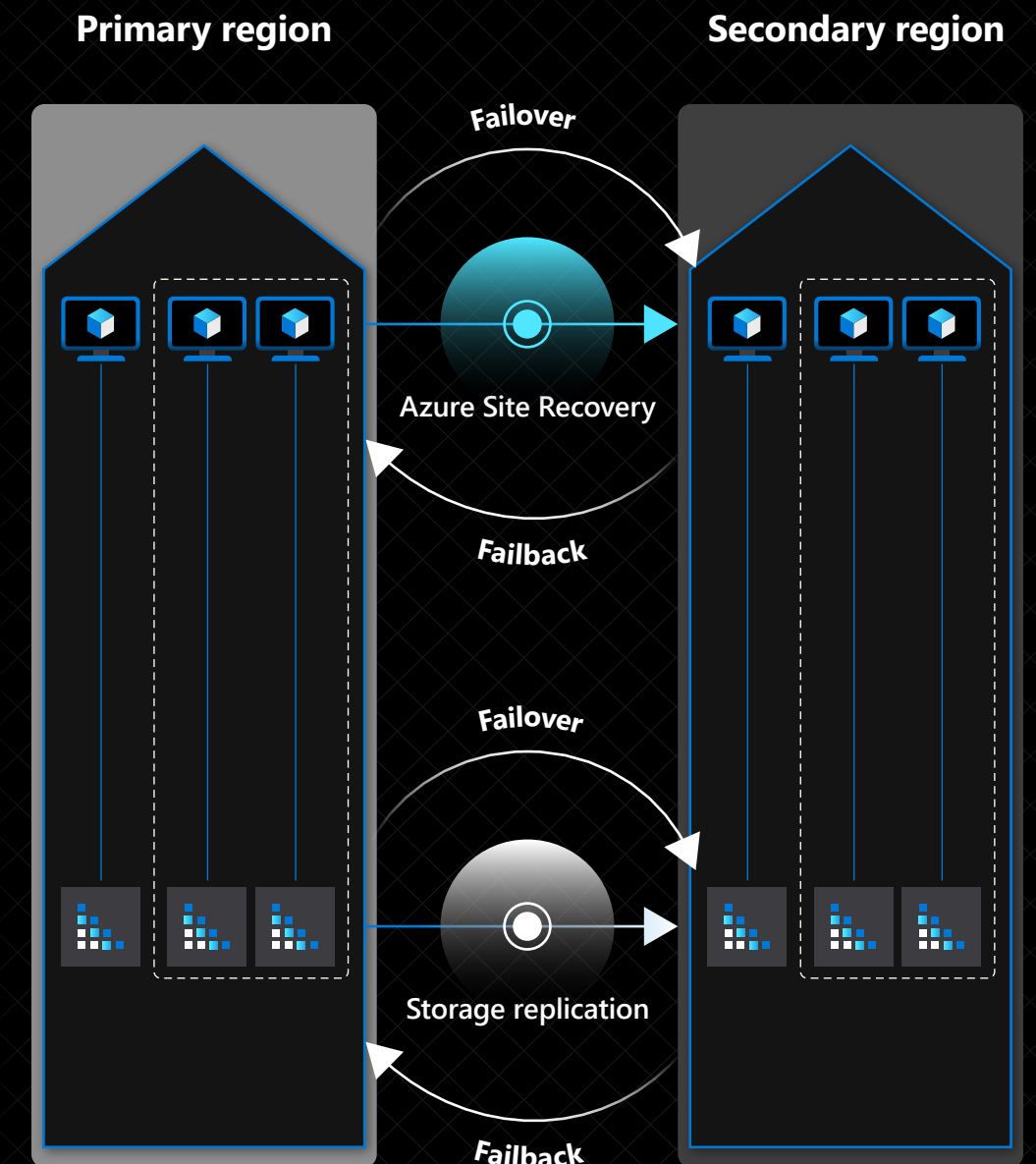Storage durability (annually)

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.

Industry-Leading
RPO and RTO

Azure Site Recovery 🔗

Primary region   Secondary region

Failover
Azure Site Recovery
Failback

Failover
Storage replication
Failback

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.