# Cloud-Native Reliability Strategies

o   Learn how leading companies design for high-availability
o   Explore real-world strategies for cloud-native resilience
o   Discover how AI and automation prevent downtime

Why Reliability Matters

o Downtime directly affects revenue, trust, and productivity
o Cloud-native systems require constant availability
o Reliability must be built into architecture from the start

Impact of Downtime
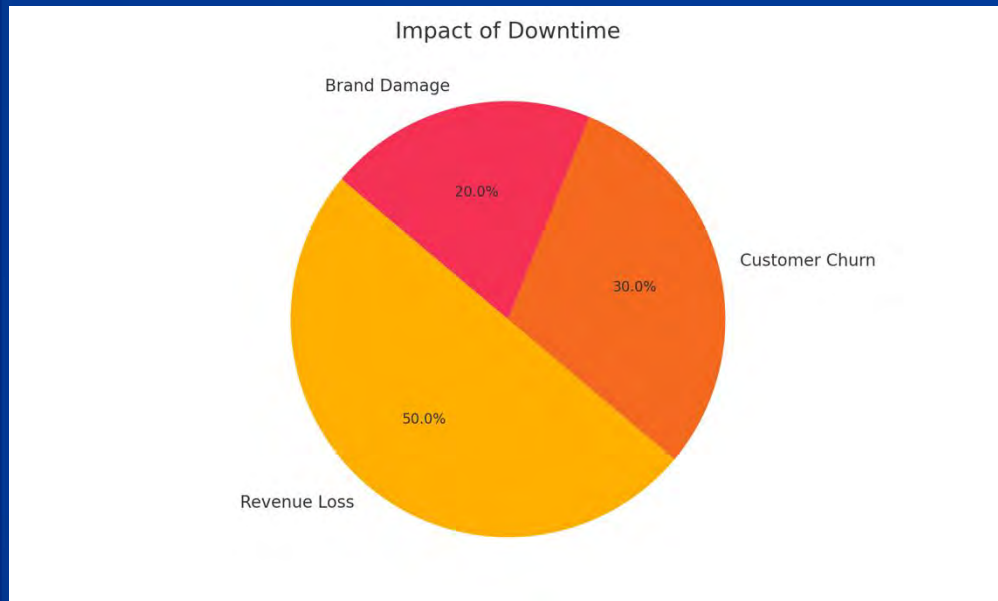
Key Cloud Reliability Challenges

o Latency spikes from unpredictable workloads
o Cascading failures across microservices
o Alert fatigue and blind spots in observability


Top Reliability Challenges
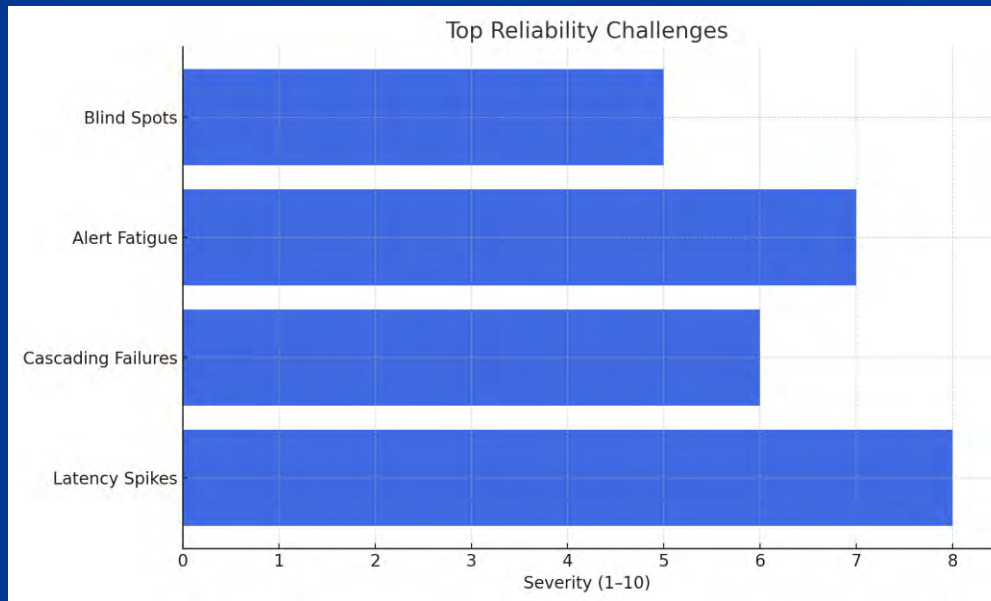
Multi-Region Failover

o Deploy services across multiple regions
o Use active-active or active-passive failover models
o Validate setups with regular chaos testing


Multi-Region Redundancy
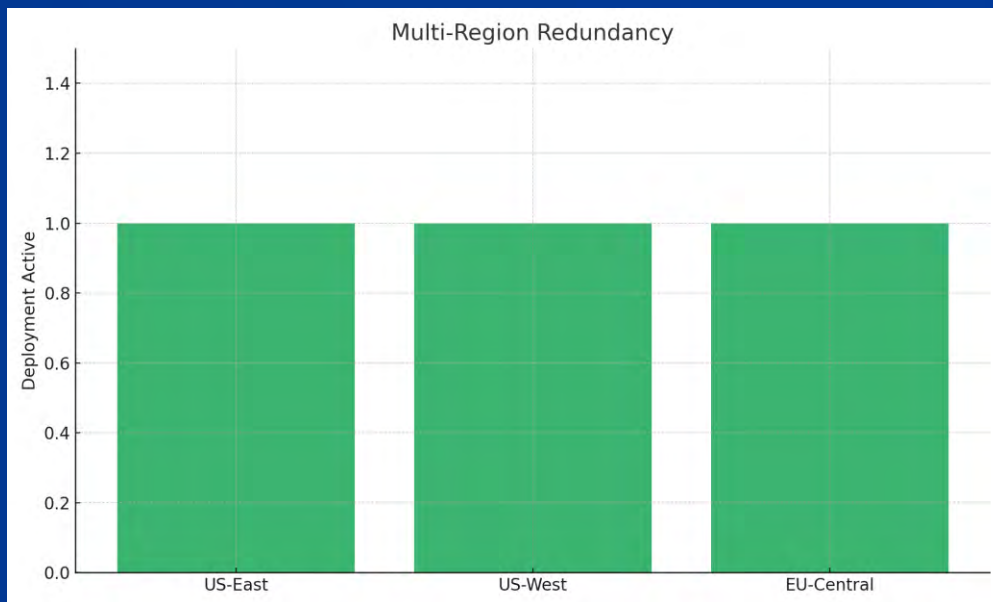
Self-Healing Automation

o Monitor, detect, remediate, and recover automatically
o Use tools like Kubernetes, Terraform, Ansible
o Minimize mean-time-to-recovery (MTTR)

Self-Healing Automation Flow
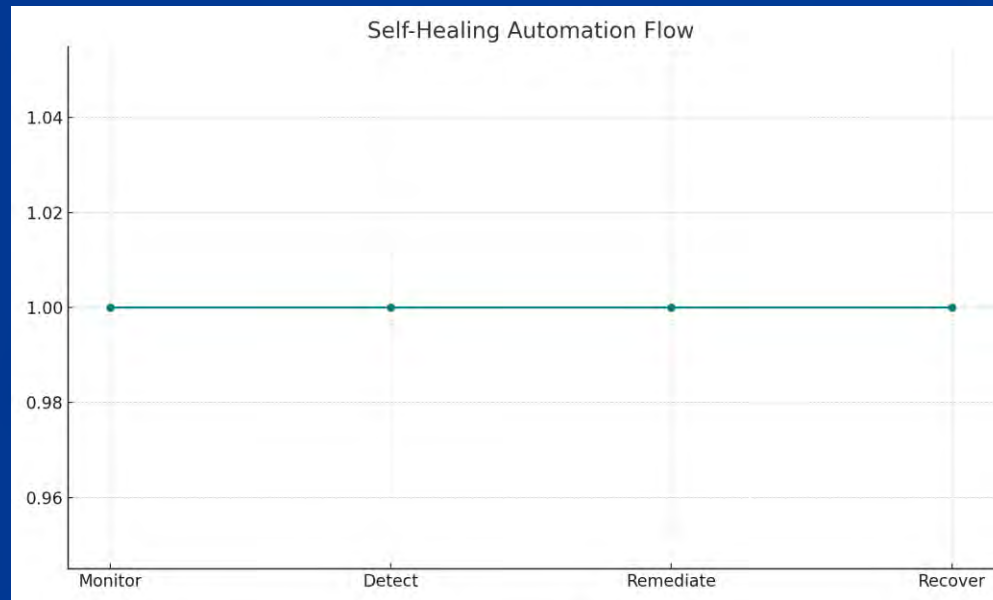
AI-Driven Reliability

o Leverage AI for anomaly detection and predictive insights
o Automate root cause analysis and smart alerting
o Use platforms like Dynatrace, Azure Monitor, New Relic AI

AI Use Cases in Reliability

Root Cause Insights

25.0%

Anomaly Detection

40.0%

35.0%

Smart Alerts
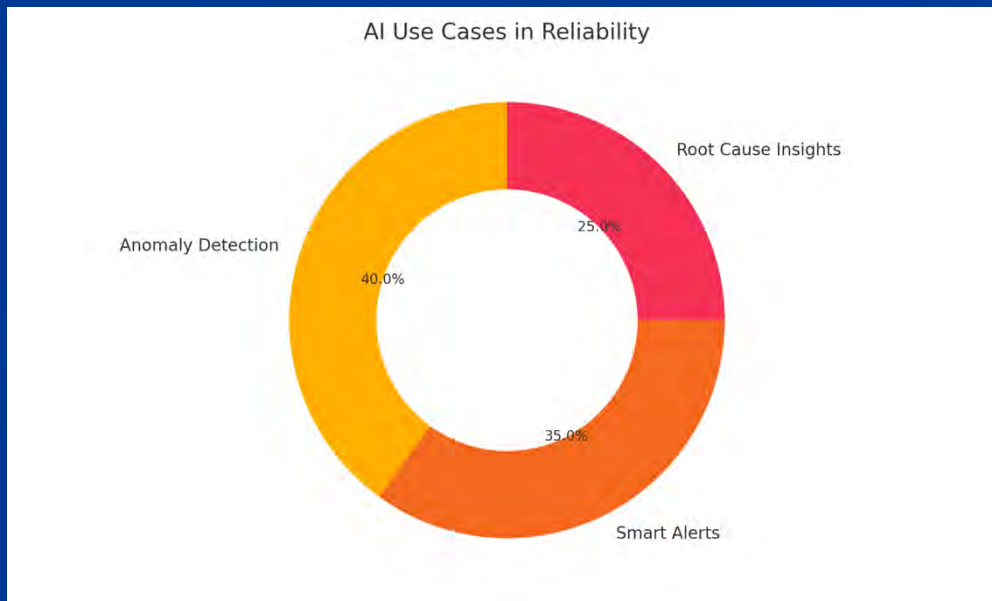
Best Practices Summary

o   Design for failure from day one

Implement chaos engineering for real-world failure simulation

o   Automate everything: deployment, monitoring, and recovery workflows

o   Build full-stack observability: logs, metrics, traces, RUM

o   Standardize SLOs, SLIs, and error budgets across teams

o   Adopt infrastructure-as-code (IaC) and GitOps for consistency

o   Encourage blameless postmortems and shared accountability

Final Takeaway

o   Reliability is a mindset, not a feature

Uptime affects business reputation and revenue

o   Architect systems that anticipate and gracefully recover from failure

o   Invest in people, processes, and platforms—not just tools

o   Make reliability measurable, trackable, and team-owned

o   Foster a culture where reliability is everyone's responsibility

Feedback – Q&A

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