

System Architecture Specification - Cloud Infrastructure

Overview

This document defines the technical architecture for migrating legacy applications to cloud infrastructure. The architecture includes microservices design patterns, containerization strategies, and scalability considerations for handling enterprise-level workloads.

Infrastructure Requirements

The cloud infrastructure must support auto-scaling capabilities, load balancing, disaster recovery, and multi-region deployment. Container orchestration will be implemented using Kubernetes with service mesh architecture for inter-service communication.

Security Architecture

Security implementation includes identity and access management, network segmentation, encryption at rest and in transit, vulnerability scanning, and compliance monitoring. All components must adhere to zero-trust security principles.

Monitoring and Logging

Comprehensive monitoring solution with centralized logging, application performance monitoring, infrastructure metrics collection, and alerting mechanisms. Integration with DevOps tools for continuous integration and deployment.

Data Management

Database architecture includes primary-replica configurations, backup and recovery procedures, data encryption, and compliance with data protection regulations. Integration with data analytics platforms for business intelligence.

Performance Optimization

Performance requirements include response time targets, throughput specifications, resource utilization thresholds, and capacity planning guidelines. Regular performance testing and optimization procedures.