

## TECHNICAL REPORT

# System Architecture Analysis: Cloud-Native Platform

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**Classification:** Internal  
**Project Code:** CN-2025-Q4

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# Chapter 1

## Executive Summary

This technical report describes the architecture and implementation of our cloud-native platform.

**Key Findings:**

- Achieved 99.9% uptime across all services
- Reduced latency by 45% through optimization
- Successfully scaled to handle 10M requests/day

## Chapter 2

# Introduction

### 2.1 Background

Our organization needed a scalable, reliable platform to support growing user demand.

### 2.2 Objectives

The primary objectives are:

1. Design highly available microservices architecture
2. Implement automated deployment pipeline
3. Ensure security and compliance standards

## Chapter 3

# System Architecture

### 3.1 Overview

The system consists of multiple microservices deployed on Kubernetes, with Redis caching and PostgreSQL databases.

## Chapter 4

# Implementation

### 4.1 Technology Stack

- Backend: Node.js, Python
- Frontend: React, Next.js
- Infrastructure: AWS, Kubernetes
- Monitoring: Prometheus, Grafana

# Chapter 5

## Results

### 5.1 Performance Metrics

Table 5.1: System Performance

Metric	Target	Actual
Uptime	99.9%	99.95%
Latency	≤100ms	65ms
Throughput	10M/day	12M/day

## Chapter 6

# Conclusion

### 6.1 Summary

This report presented our cloud-native architecture which successfully met all performance and reliability targets.



# Bibliography

- [1] Kubernetes Documentation. (2025). *kubernetes.io*