

# CloudForge Platform Migration - Project Update

**Project:** CloudForge Infrastructure Modernization **Update #:** 8 **Date:** July 22, 2024 **Project Lead:** Jennifer Wu **Status:** On Track with Risks

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## Executive Summary

The CloudForge platform migration is progressing well. We've completed Phase 2 (core services migration) and are beginning Phase 3 (data layer modernization). One risk has emerged around database migration complexity that may impact the timeline.

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## Project Overview

### Objective

Modernize CloudForge infrastructure to improve: - Scalability (support 10x current load) - Reliability (99.99% uptime target) - Performance (50% latency reduction) - Cost efficiency (30% infrastructure cost reduction)

### Timeline

Phase	Description	Planned	Status
Phase 1	API Gateway & Auth	Apr 1 - May 15	Complete
Phase 2	Core Services	May 16 - Jul 15	Complete
Phase 3	Data Layer	Jul 16 - Sep 30	In Progress
Phase 4	Edge & CDN	Oct 1 - Nov 15	Planned
Phase 5	Cutover & Cleanup	Nov 16 - Dec 15	Planned

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## Phase 2 Completion Report

### Completed Work

**Services Migrated (12 of 12):** - Resource Manager - Provisioner - Cost Calculator - Policy Engine - Monitor Service - Notification Service -

Scheduler - Audit Logger - Webhook Handler - Integration Manager -  
Report Generator - Admin Service

**Infrastructure Changes:** - Migrated from EC2 to EKS - Implemented service mesh (Istio) - Deployed new observability stack - Established blue-green deployment

### Metrics Achieved

Metric	Before	After	Target
Deploy Time	45 min	8 min	<15 min
Rollback Time	30 min	2 min	<5 min
Service Latency (P99)	180ms	95ms	<100ms
Resource Utilization	35%	65%	>60%

### Issues Resolved

1. **Memory leak in Provisioner** - Fixed Go routine not releasing connections
  2. **Istio sidecar CPU overhead** - Tuned proxy resources
  3. **Kafka consumer lag** - Increased partition count
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## Phase 3 Progress

### Scope

**Primary Database Migration:** - PostgreSQL 11 → PostgreSQL 15 - Monolithic DB → Sharded architecture - Self-managed → RDS with Multi-AZ

**Cache Layer Upgrade:** - Redis 5 → Redis 7 - Single cluster → Regional clusters - Improved eviction policies

**Search Infrastructure:** - Elasticsearch 7 → OpenSearch 2 - New indexing pipeline - Improved query performance

### Week 1 Progress (Jul 16-22)

**Completed:** - [x] Database schema analysis - [x] Sharding strategy finalized - [x] Test environment provisioned - [x] Migration tooling selected (pgloader + custom)

**In Progress:** - [ ] Schema compatibility testing (60%) - [ ] Data migration scripts (40%) - [ ] Read replica setup (20%)

**Blocked:** - [ ] Legacy stored procedure migration (see Risks)

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## Risks and Issues

### **Risk: Database Migration Complexity**

**Description:** Legacy stored procedures in PostgreSQL 11 use deprecated features not compatible with PostgreSQL 15.

**Impact:** Potential 2-week delay to Phase 3 completion

**Mitigation:** 1. Rewrite 8 stored procedures in application code 2. Engage database consultant for complex migrations 3. Parallel track: test workarounds for remaining procedures

**Owner:** Raj Patel **Target Resolution:** August 5, 2024

### **Risk: Data Volume Growth**

**Description:** Data volume growing faster than projected (15% vs 8% monthly)

**Impact:** May need larger database instances, affecting cost projections

**Mitigation:** 1. Implement more aggressive data archival 2. Evaluate compression options 3. Revise capacity planning

**Owner:** SRE Team **Target Resolution:** August 15, 2024

### **Issue Resolved: Kafka Upgrade**

**Description:** Kafka 2.8 to 3.5 upgrade caused consumer compatibility issues

**Resolution:** Updated all consumers to use new protocol, deployed with feature flags

## Resource Status

### Team

Role	Allocated	Needed	Gap
Backend Engineers	6	6	-
SRE	2	3	-1
DBA	1	2	-1
QA	2	2	-

**Action:** Requesting additional DBA support from Platform team

### Budget

Category	Budgeted	Spent	Remaining
Infrastructure	\$150,000	\$98,000	\$52,000
Consulting	\$50,000	\$20,000	\$30,000
Tools	\$25,000	\$22,000	\$3,000
<b>Total</b>	<b>\$225,000</b>	<b>\$140,000</b>	<b>\$85,000</b>

## Dependencies

### External

Dependency	Owner	Status	Due Date
AWS RDS quota increase	AWS	Approved	Complete
SSL certificate renewal	Security	In Progress	Aug 1
Compliance review	Legal	Pending	Sep 15

### Internal

Dependency	Owner	Status	Due Date
Feature freeze (2 weeks)	Product	Confirmed	Aug 15-30
Customer communication	Marketing	Draft ready	Aug 10
Support training	Support	Scheduled	Sep 1

## Upcoming Milestones

### Next 2 Weeks

Milestone	Date	Owner
Schema migration complete	Jul 29	Raj
Read replica operational	Aug 2	SRE
Stored procedure rewrite	Aug 5	Backend
Initial data sync test	Aug 8	DBA

### Next Month

Milestone	Date	Owner
Feature freeze begins	Aug 15	All
Production data sync	Aug 20	DBA
Performance testing	Aug 25	QA
Phase 3 completion	Sep 30	Jennifer

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## Decisions Needed

### 1. Downtime Window Approval

**Decision:** Approve 4-hour maintenance window for final database cutover

**Options:** - A: Saturday 2am-6am PT (recommended) - B: Sunday 2am-6am PT - C: Rolling migration with dual-write (higher risk)

**Needed by:** August 15 **Approver:** VP Engineering

### 2. Data Archival Policy

**Decision:** Archive data older than 2 years vs. 3 years

**Impact:** - 2 years: 40% storage reduction, some customer data access impact  
- 3 years: 25% storage reduction, minimal impact

**Needed by:** August 1 **Approver:** Product + Legal

## Communication

### Stakeholder Updates

Audience	Frequency	Next Update
Executive Team	Bi-weekly	July 29
Engineering All-Hands	Monthly	August 5
Customer Advisory	As needed	TBD

### Escalation Path

1. Project Lead (Jennifer Wu)
  2. VP Engineering (David Park)
  3. CTO (Michael Torres)
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### Attachments

- [Architecture Diagram v3]
  - [Migration Runbook]
  - [Risk Register]
  - [Test Plan]
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*Next Update: August 5, 2024*