




# CLOUD-NATIVE MERCHANT SERVICES PLATFORM

## Building the Foundation for Secure Payment Processing & Settlement

FIFO Engineering led an R&D initiative to build a cloud-native merchant services platform from scratch. The platform enabled secure transaction authorization, merchant account management, and scalable settlement orchestration with full visibility into data and routing control.

**AT A GLANCE**

-  **TEAM SIZE**  
2 Engineers
-  **DURATION**  
2018 - 2020
-  **TYPE**  
Greenfield R&D / Proof of Concept
-  **FOCUS**  
Cloud-Native Payment Processing & Settlement Architecture
-  **OUTCOME**  
Validated a scalable, secure platform for merchant workloads on AWS

## PROJECT OVERVIEW



### Greenfield Platform

Built from the ground up with no legacy cloud baseline.



### Secure by Design

Encryption, access control, and auditability built into every layer.



### Distributed Architecture

Microservices, event-driven workflows, and asynchronous processing.



### Business Value

Designed to reduce risk, improve efficiency, and lower operational cost.

## TECHNOLOGY STACK



**PYTHON**  
Primary Language



**AIOHTTP**  
Async API Framework



**AWS**  
Cloud Infrastructure



**DOCKER**  
Container Platform



**AURORA POSTGRESQL**  
Primary Database



**AWS KMS**  
Encryption & Key Management



**DYNAMODB**  
Transaction Logging



**ENCRYPTED DATA**

Sensitive payment data encrypted immediately at the gateway layer using AWS KMS-backed encryption services.

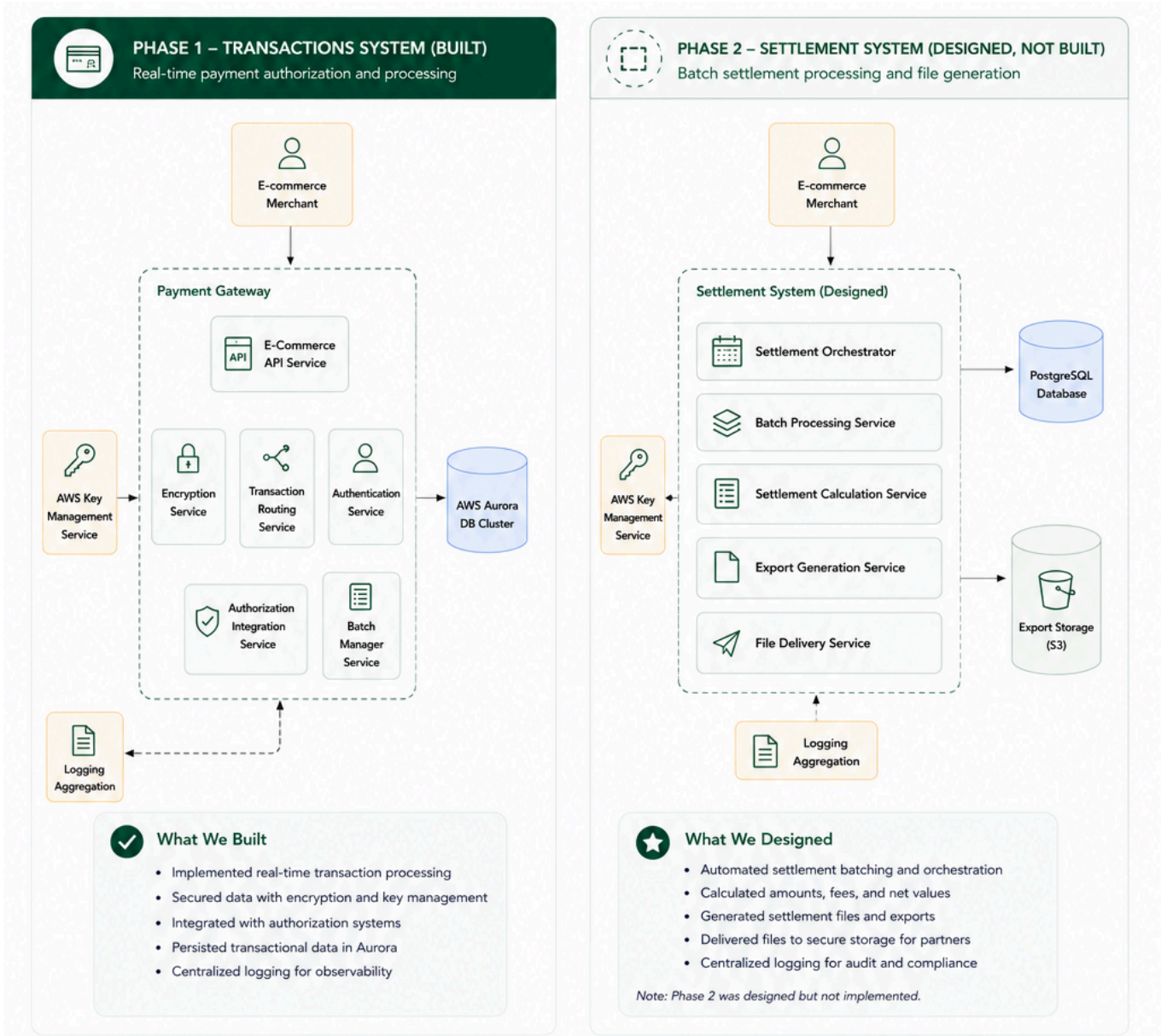
## OUR ROLE

FIFO Engineering collaborated with the CTO on requirements and end-to-end system design, technical research, database design, use cases, AWS DevOps setup, documentation, monthly deliverables and demos to the VCs.

# ARCHITECTURE OVERVIEW

## From a Vision to an MVP

We delivered a working Transaction System (Phase 1) and designed the Settlement System (Phase 2) which included nightly batch settlements with large amounts of data.



### TECHNICAL FOUNDATION



**Backend & Services**  
Python, FastAPI



**Data & Storage**  
Aurora  
PostgreSQL, S3 (Designed)



**Security**  
AWS KMS, IAM



**Infrastructure**  
AWS Services



**DevOps**  
CI/CD

