# FinOne Orchestration Platform Architecture

Transforming ACME's Corporate Banking Experience While Preserving Legacy Intelligence

## 👥 Client Experience Layer    Unified ACME Interface

### ACME Corporate Dashboard

Single view of $150M relationship across all entities, real-time global position, consolidated reporting

### Multi-Channel Access

Portal, APIs, Host-to-Host, Mobile - unified authentication and consistent experience

### Relationship Intelligence

Cross-product analytics, predictive insights, proactive relationship management

## 🔗 API Gateway Layer Unified Interface Management

### Kong API Gateway

Handles 1M+ requests/sec, authentication, rate limiting, request routing to legacy systems

### Security & Compliance

OAuth 2.0, JWT tokens, audit logging, regulatory compliance for all API interactions

### Legacy System Wrapping

REST API wrappers around COBOL, .NET, Java systems - zero disruption to legacy operations

## ⚙️ Workflow Engine Layer          Process Coordination + Intelligent Business Logic

🎯 **Unified Intelligence:** Business Rules Engine integrated with AI Agents creates Intelligent Business Logic Engine - adaptive rules that learn and evolve with AI capabilities.

### Temporal Workflow Engine

Coordinates ACME processes with intelligent state management and adaptive workflow paths

### Intelligent Business Logic Engine

Unified AI Agents + Business Rules: ACME Relationship Agent, Credit Rules with ML, Payment Intelligence, Adaptive Compliance Logic

### Intelligent State Management

Workflow state persistence with integrated multi-tier caching (L1/L2/L3), context management, and performance optimization for ACME workflows

## 🔗 Data Federation Layer Cross-System Relationship Composition

🎯 **Federation Approach:** Composes NEW cross-system relationships (OBO, manages, controls) while preserving existing book-of-record systems. Federates Product Catalog and Client Relationships without data displacement.

### Federated Product Catalog

Composes products across Wealth/Commercial/Corporate with existing account/liquidity systems as book of record - no data displacement

### Cross-System Relationship Composer

Creates NEW relationship types (OBO, beneficial ownership, management relationships) that span multiple legacy systems

### Entity Graph Federation

ACME's complete entity structure federated from multiple sources - legal, beneficial, operational, management hierarchies

### Real-Time Federation Engine

GraphQL federation, real-time composition, intelligent caching, preserves system-of-record integrity

## 📊 Data Integration Layer

## Real-Time Data Synchronization

### Change Data Capture (CDC)

Real-time monitoring of all book-of-record systems, feeds Federation Layer for relationship composition

### Apache Kafka Streaming

Processes 10,000+ events/sec, enables real-time federation without moving data from source systems

### Data Virtualization

Federation queries span multiple book-of-record systems, <500ms response time, zero data duplication

## 🧠 Core Intelligence Layer

## Enterprise AI Foundation & Data Processing

🎯 **Foundation Layer Focus:** Provides core AI infrastructure, model training, and raw data processing. Business Intelligence layer above consumes these capabilities for business-context decision making.

### ML Model Training & Management

Develops and maintains AI models used by Business Intelligence agents - credit risk, fraud detection, pattern recognition

## Enterprise AI Platform (MLOps)

Model versioning, A/B testing, deployment pipeline, governance, regulatory compliance for banking AI

## Raw Data Processing Engine

Processes streams from all legacy systems, feature engineering, data quality, feeds intelligence to upper layers

## Pattern Discovery & Learning

Discovers insights from 25+ years of ACME data, continuous learning, knowledge graph construction

## 🏛 Legacy Systems Integration   Preserving 25+ Years of Business Intelligence

### Wealth Management Platform (1998)

COBOL/Mainframe • $2B AUM • Trust & Estate Logic • Zero Disruption via API Wrapper

### Commercial Banking System (2005)

.NET/SQL Server • Credit Underwriting • 15 Years ACME History • Enhanced via Orchestration

### Corporate Transaction Platform (2010)

Java/Oracle • Payment Processing • SWIFT/ACH/Wire • Real-time Coordination Added

**Compliance & Risk Systems**

Multiple Platforms • KYC/AML • Covenant Monitoring • Regulatory Reporting

ACME Request

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API Gateway

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Workflow Engine

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Legacy Systems

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AI Enhancement

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Unified Response
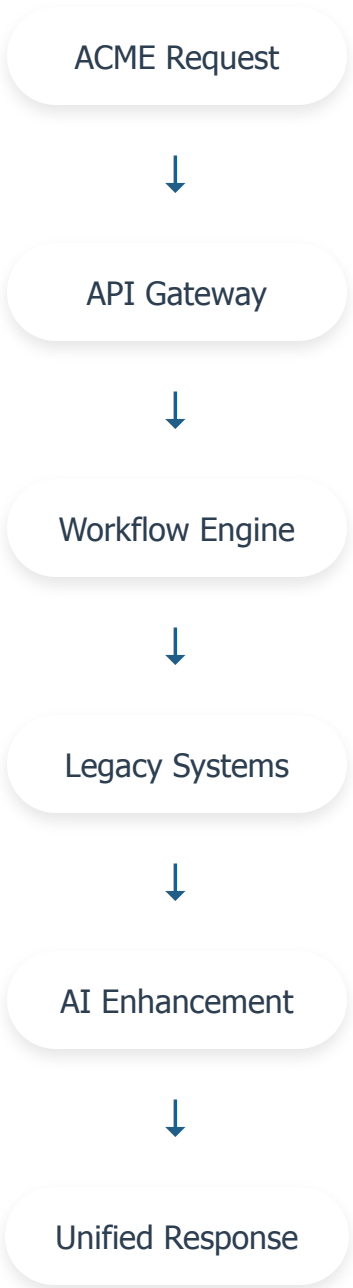
## Transformation Benefits: ACME & FinOne

**For ACME Inc.**

Onboarding: 65→12 days • Single
$150M relationship view • 25%

**For FinOne**

$5M+ additional revenue • 60%
operational efficiency • Market

cost reduction • Real-time global
treasury

leadership • Zero legacy
disruption

### Risk Mitigation

No "big bang" migration • Gradual
rollout • Proven technology •
Regulatory compliance maintained

### Future Ready

AI-enabled platform • Fintech
partnerships • Global scalability •
Continuous innovation