

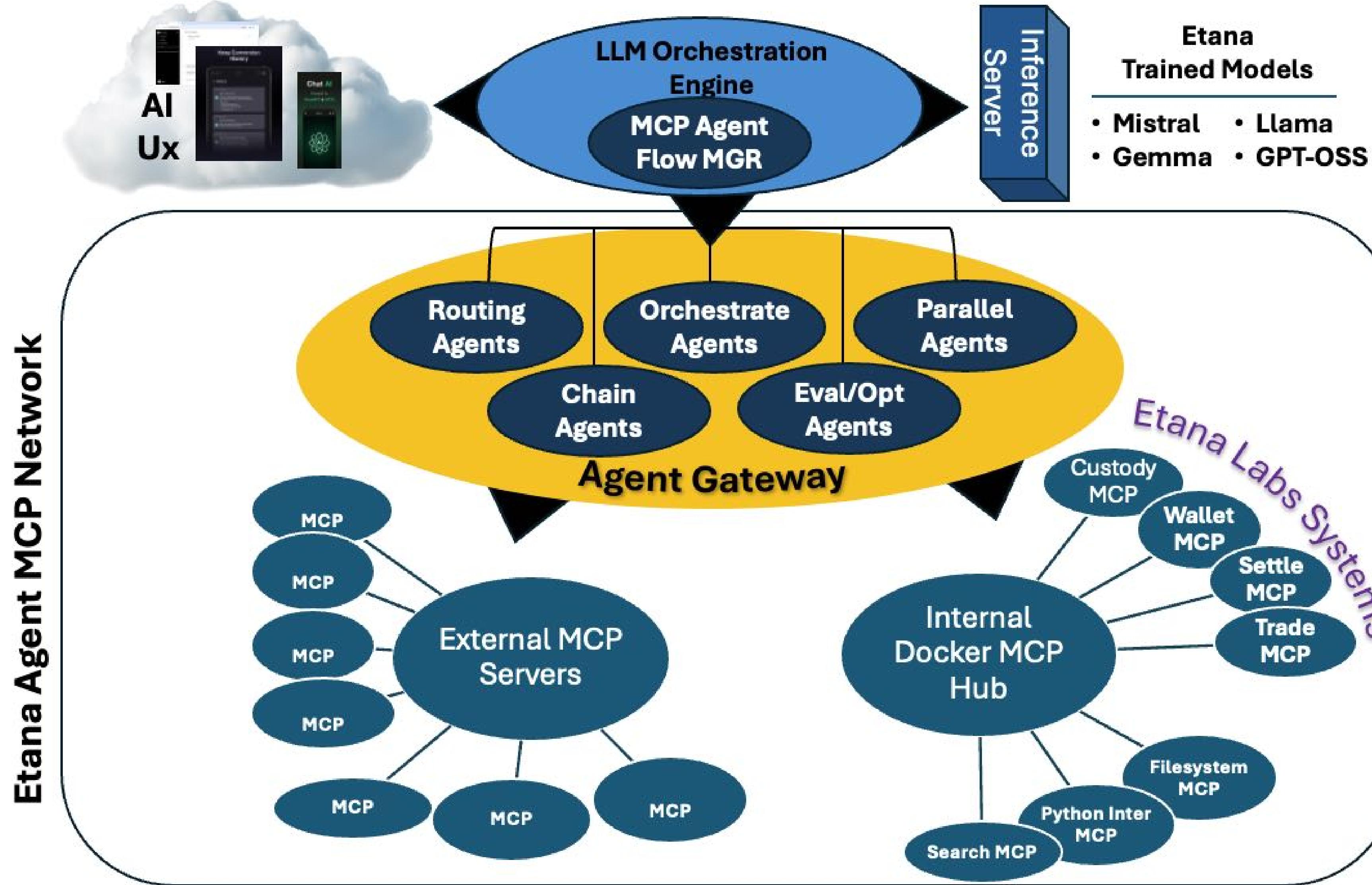
Application, Infrastructure, and Database Architecture Through the Years

Author

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2025

GENAI/Agent Architecture PAAS



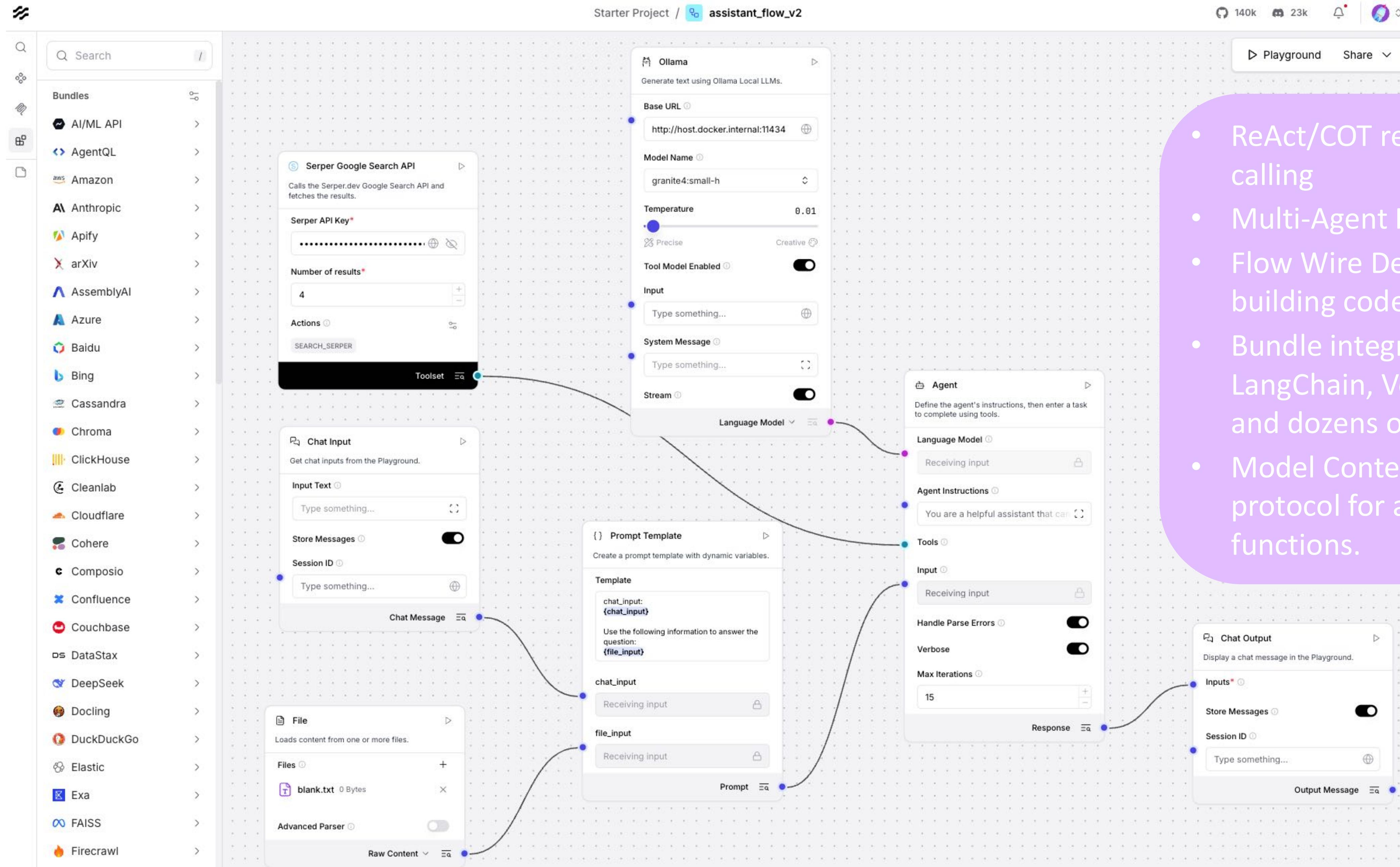
AI Purpose built in our AWS Infrastructure

- No dependence on commercial models
- Data stays with us
- Applications integrated into clients and internal departments conversations
- Agents crafted to automate operations, compliance, support, and user tasks
- The new UI for apps, **"Look no web dashboard needed!"** Just talk to your systems!
- Docker driven and Kubernetes

Etana Labs White Label Solution

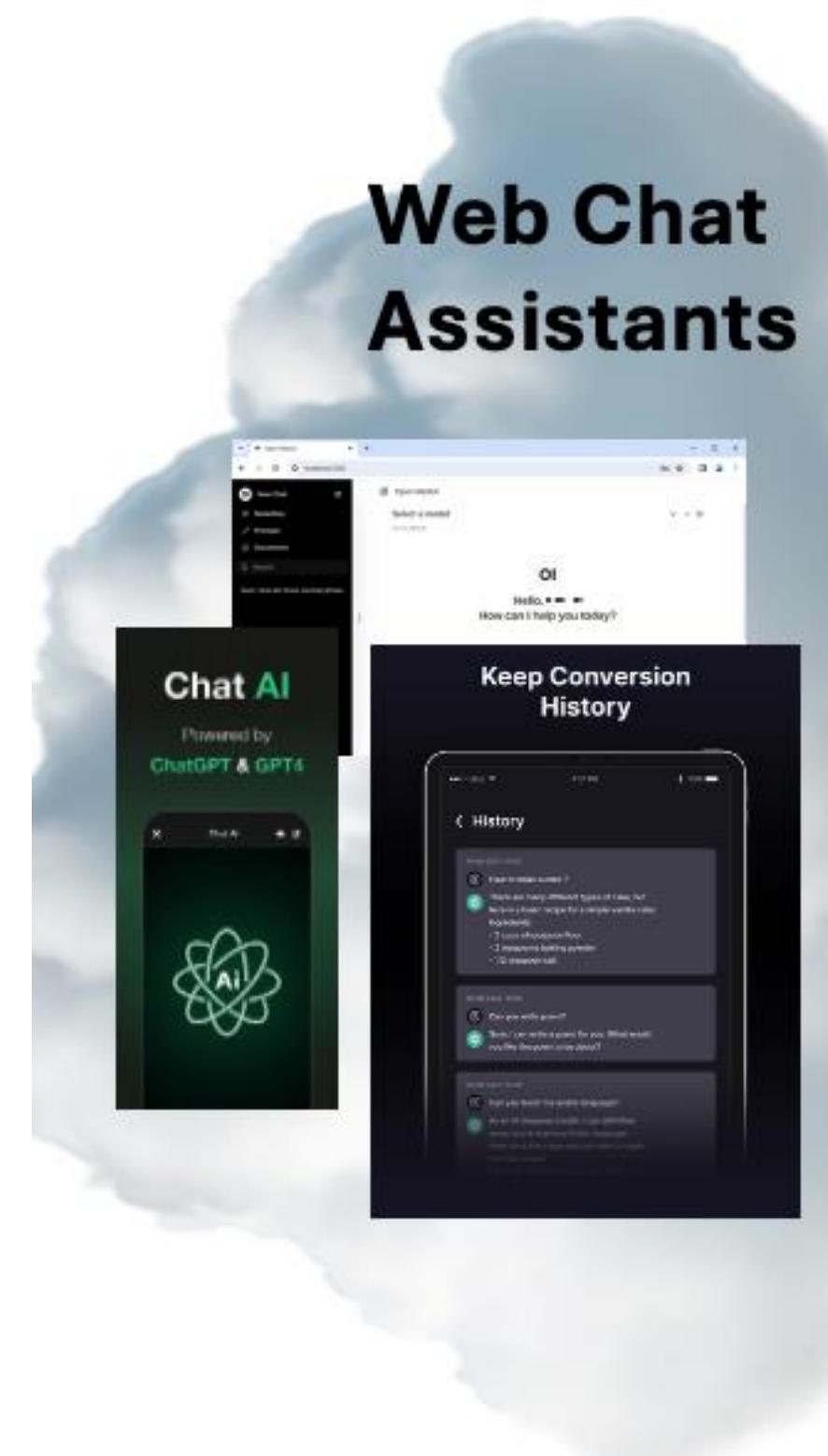
- We build for any Financial services company
- Your own MCP servers wired to your application APIs
- Custom Agents, Systems Prompts, and workflow
- We host in your own Kubernetes cluster.
- It's your own dedicated, secure, AI platform as a service

GENAI/Agent LangFlow Orchestration

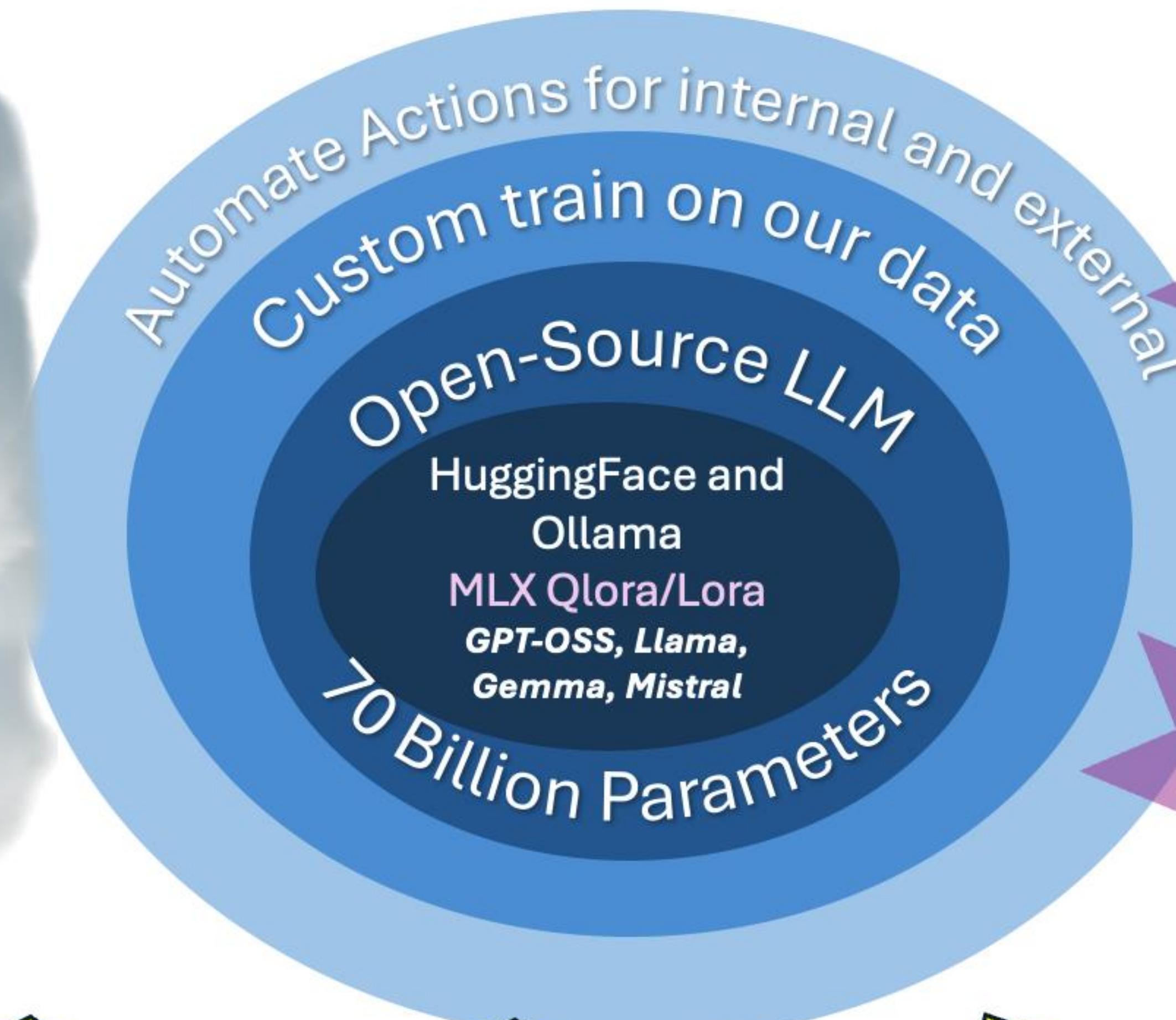


- ReAct/COT reasoning for Tool calling
- Multi-Agent Flow management
- Flow Wire Designer for building code documentation
- Bundle integrations into LangChain, Vector stores, DBs, and dozens of AI frameworks
- Model Content/Agent 2 Agent protocol for action server functions.

GENAI LLM Model Training on Company Datasets



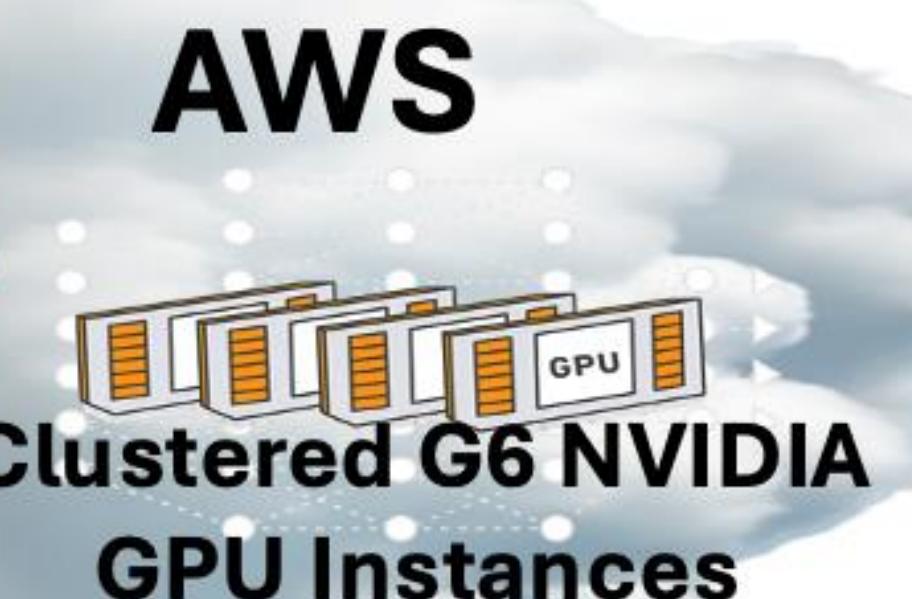
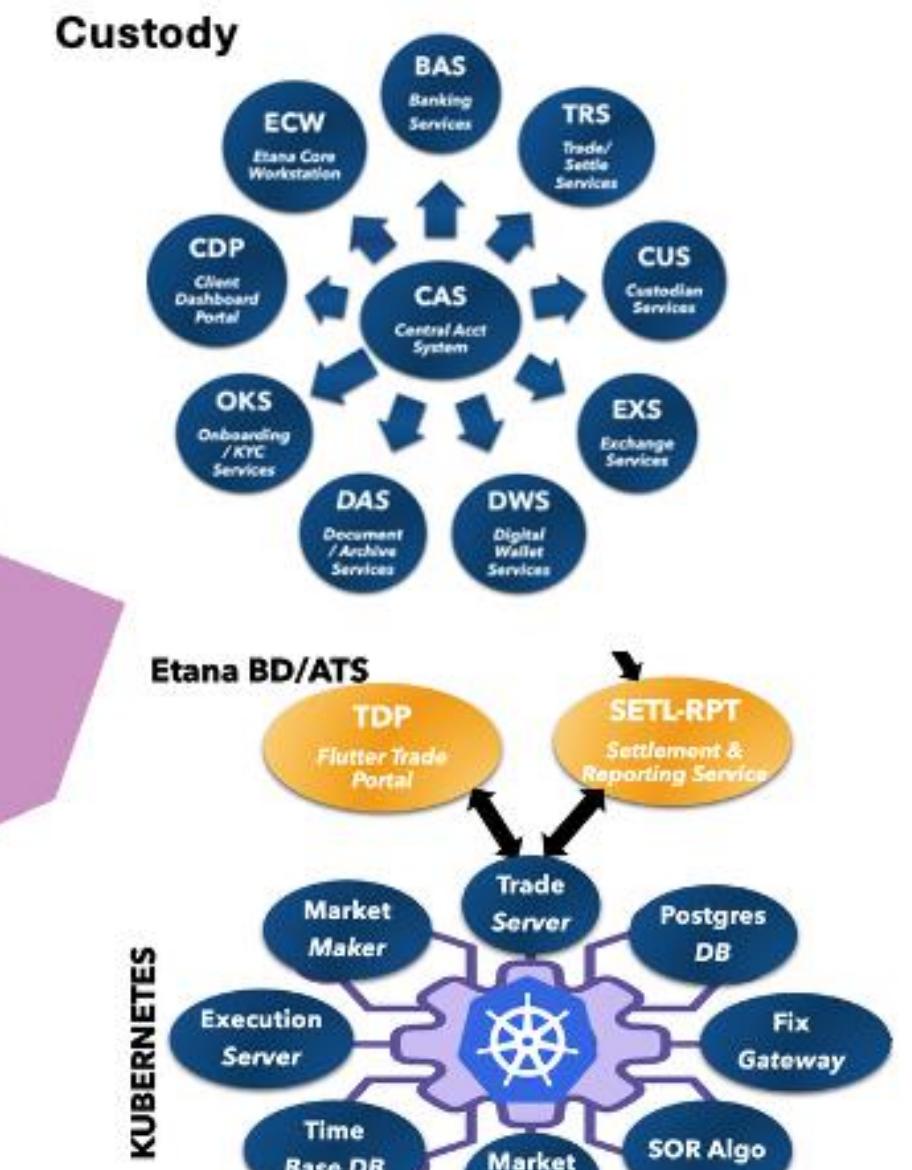
Web Chat Assistants



No Token cost for module usage

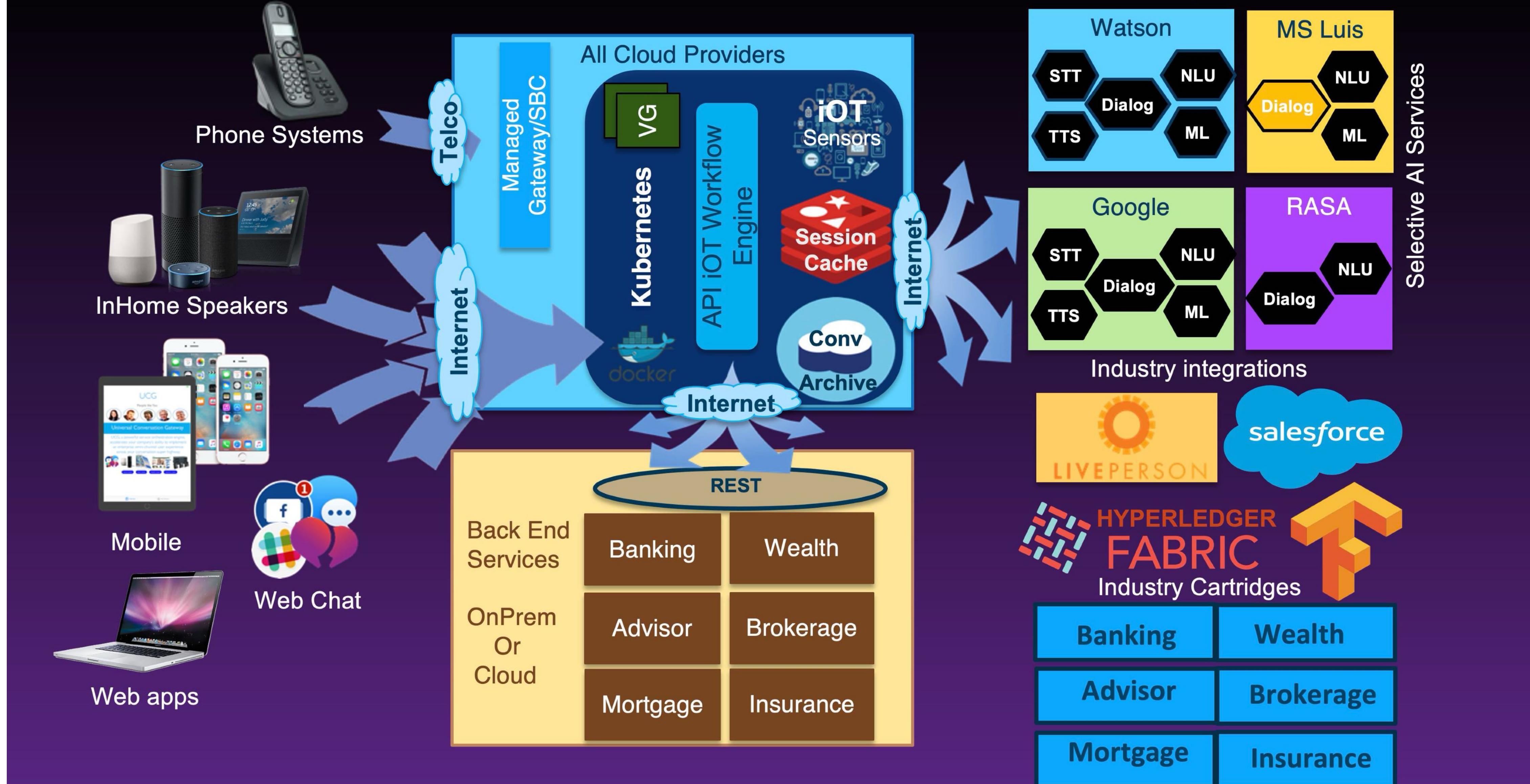
Model Data inside Company infrastructure

Customizable for our use on top of base 70B model



AI/ML Architecture Designed for IBM

Omnichannel Conversation AI Gateway



Just finished V2 - code name: "Valari" - <http://notovision.com>

AI Voice Gateways Designed for IBM

IBM Voice/SMS Gateway Integration

Phone Systems

(SIP enabled)



Avaya, Genesys,
CISCO

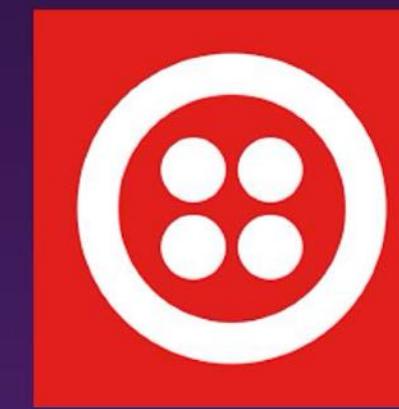
Voice Gateway



200 Channels

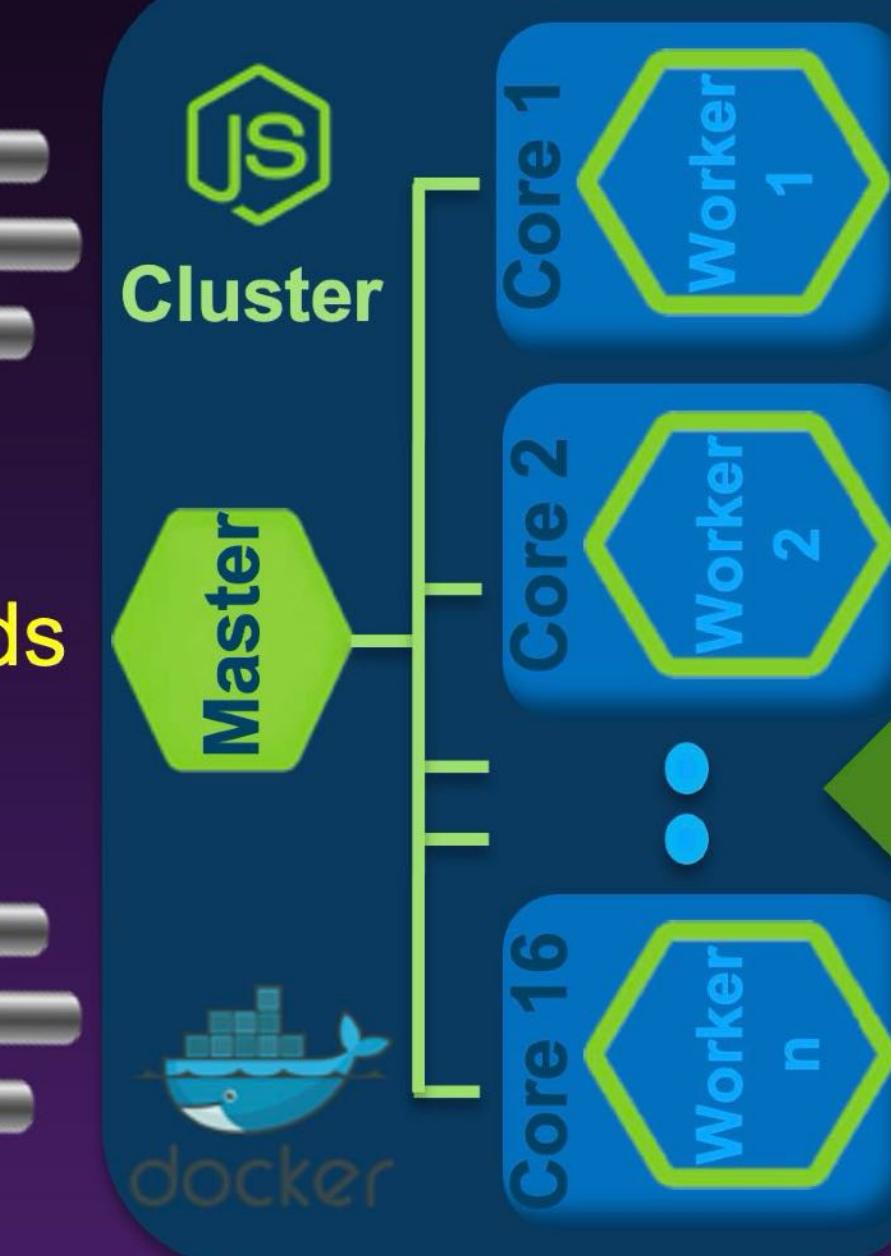
50 Threads

SMS Gateway



Twilio SMS

VMSOE



IBM BLUEMIX

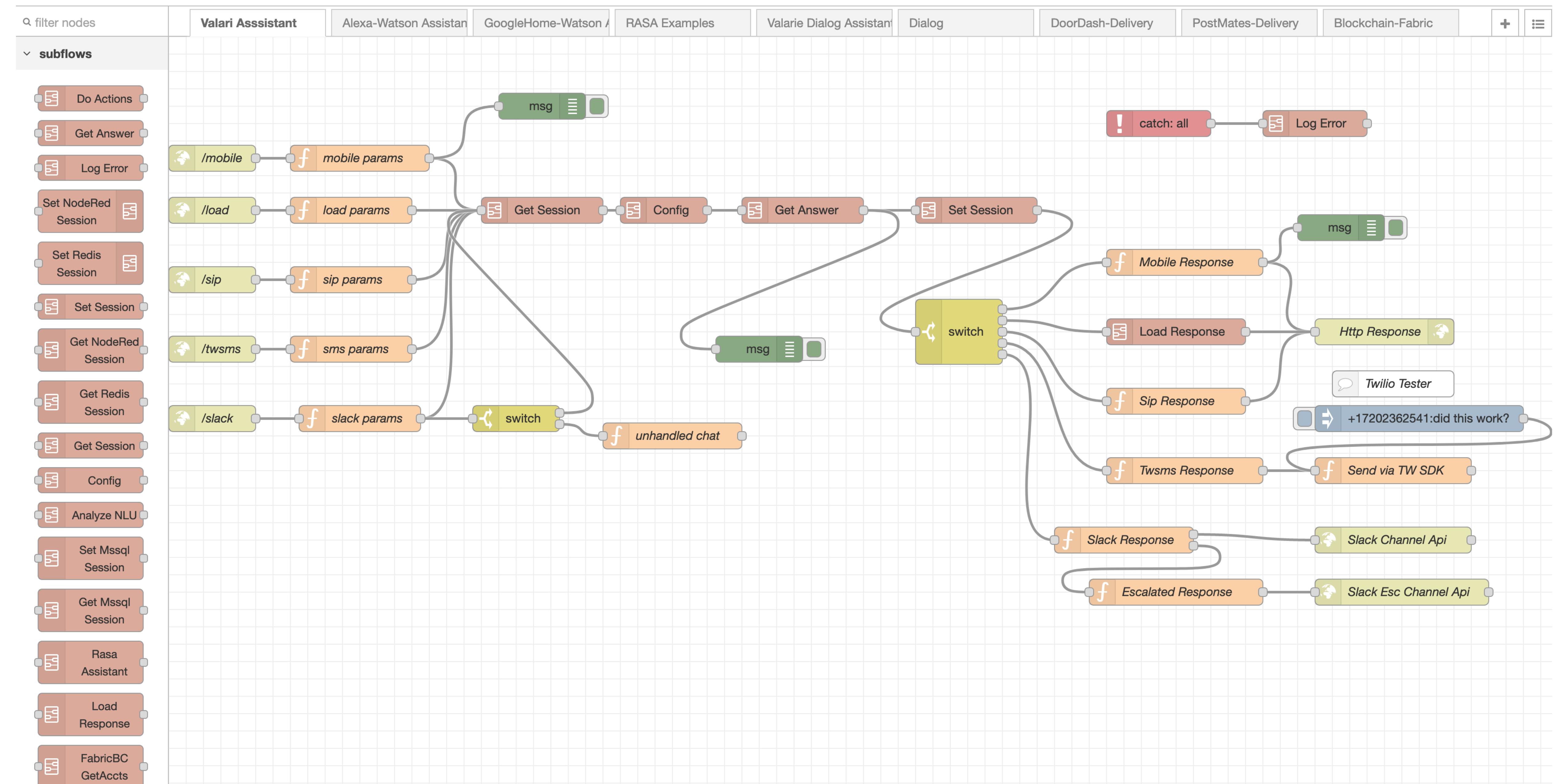
Watson Services



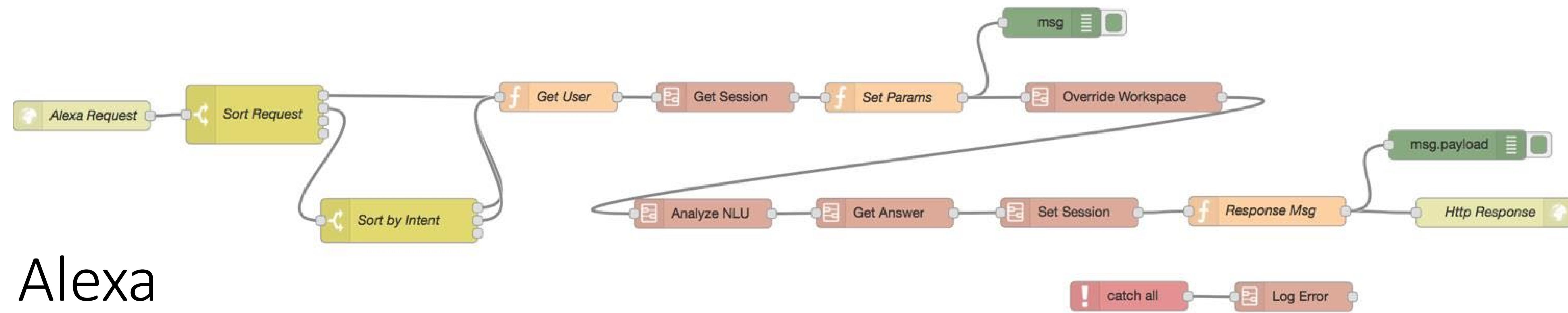
Only 1 Container pictured, scale by adding containers

Currently deployed at First Data, MetLife, Quicken Loans, Regions Bank

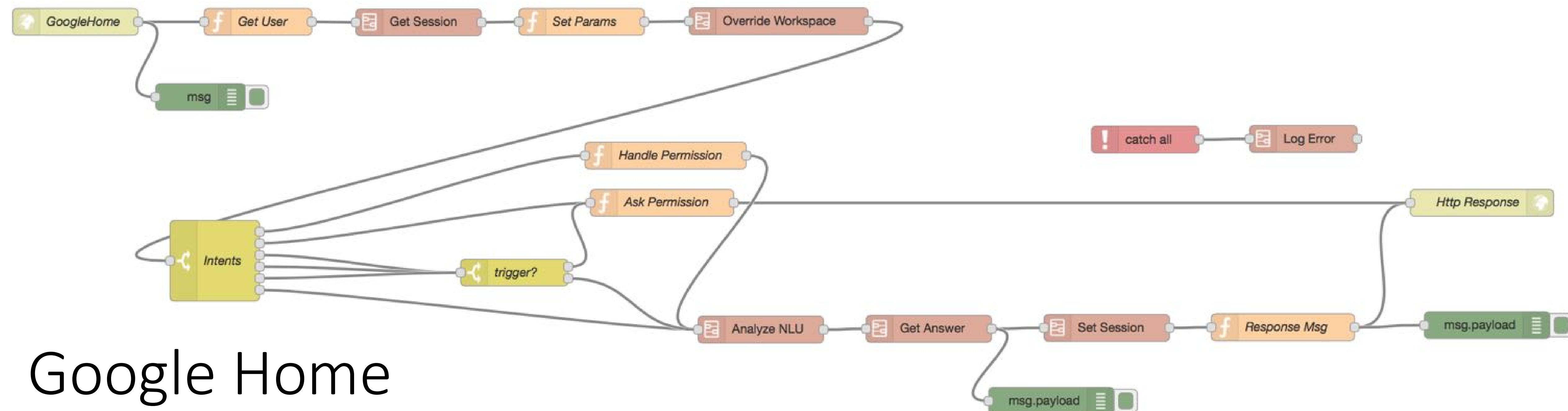
AI VA Rest API Flow Via NodeRed for WatsonAI



In-home Speaker WatsonAI Orchestration Flows



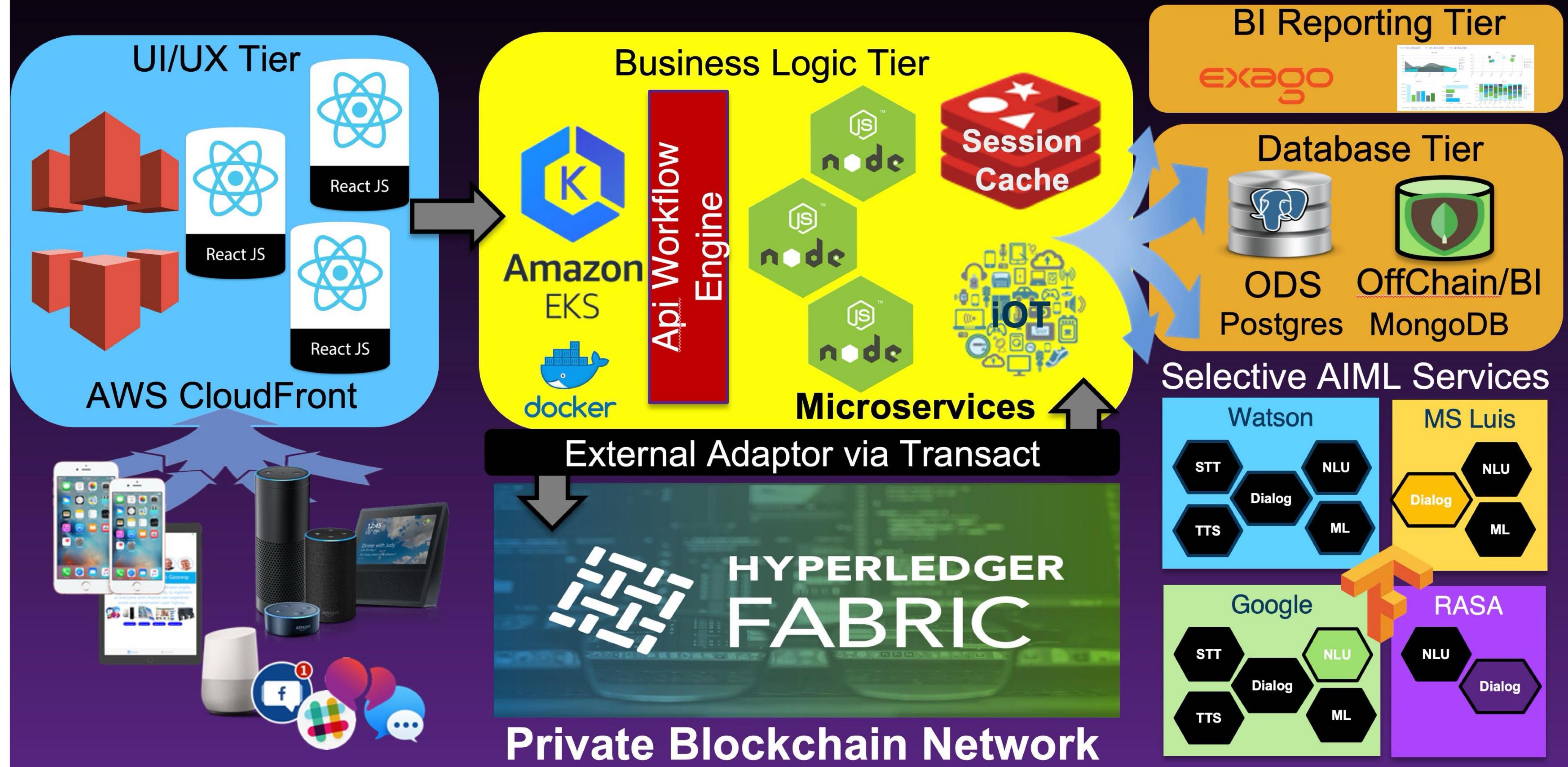
Alexa



Google Home

Blockchain Reference Architecture

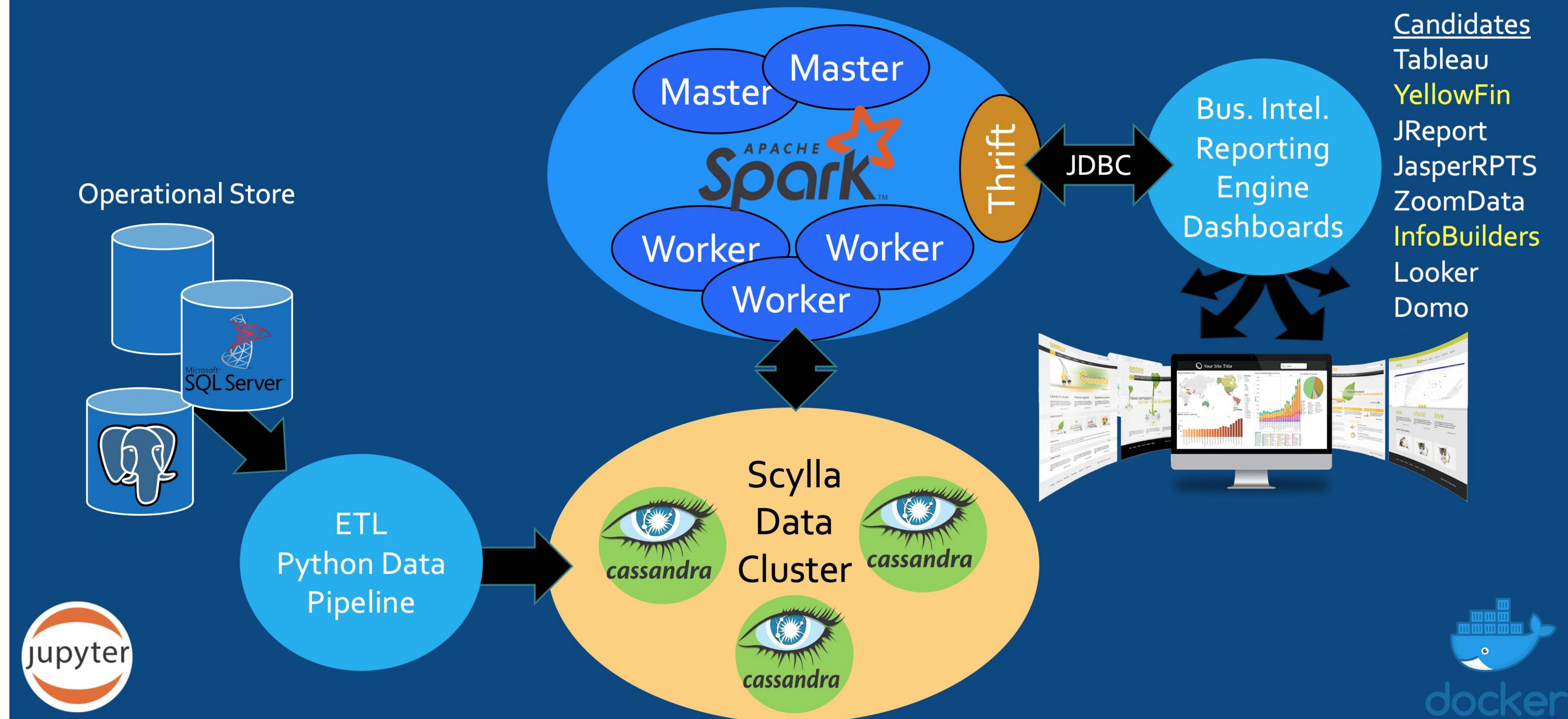
Blockchain Application Component Architecture



Startup Spark driven NoSQL BI Architecture

GetSwift

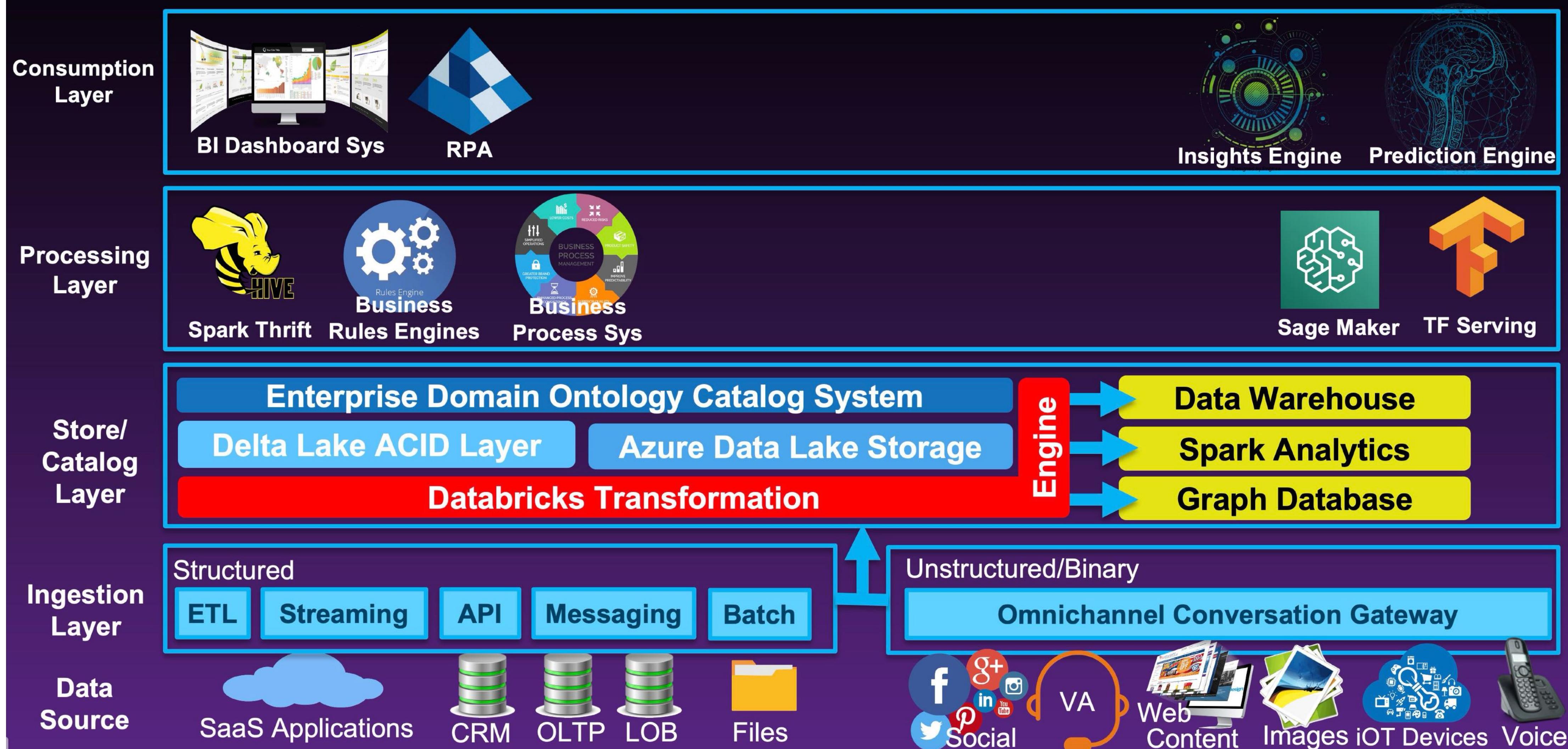
Analytics and Reporting



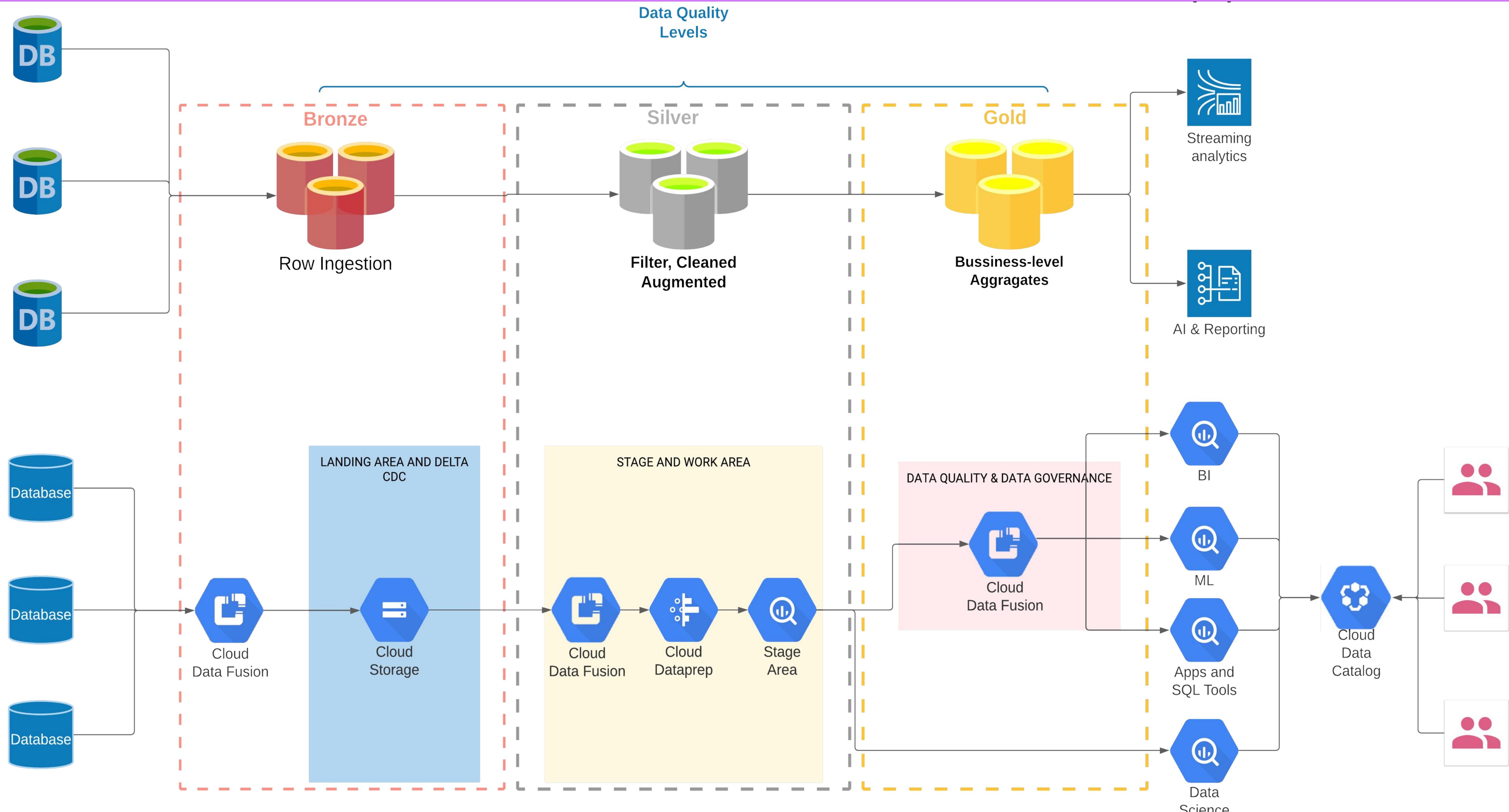
After completing POC work, DB group built first deploy in 6 months

All-inclusive Data Fabric Design

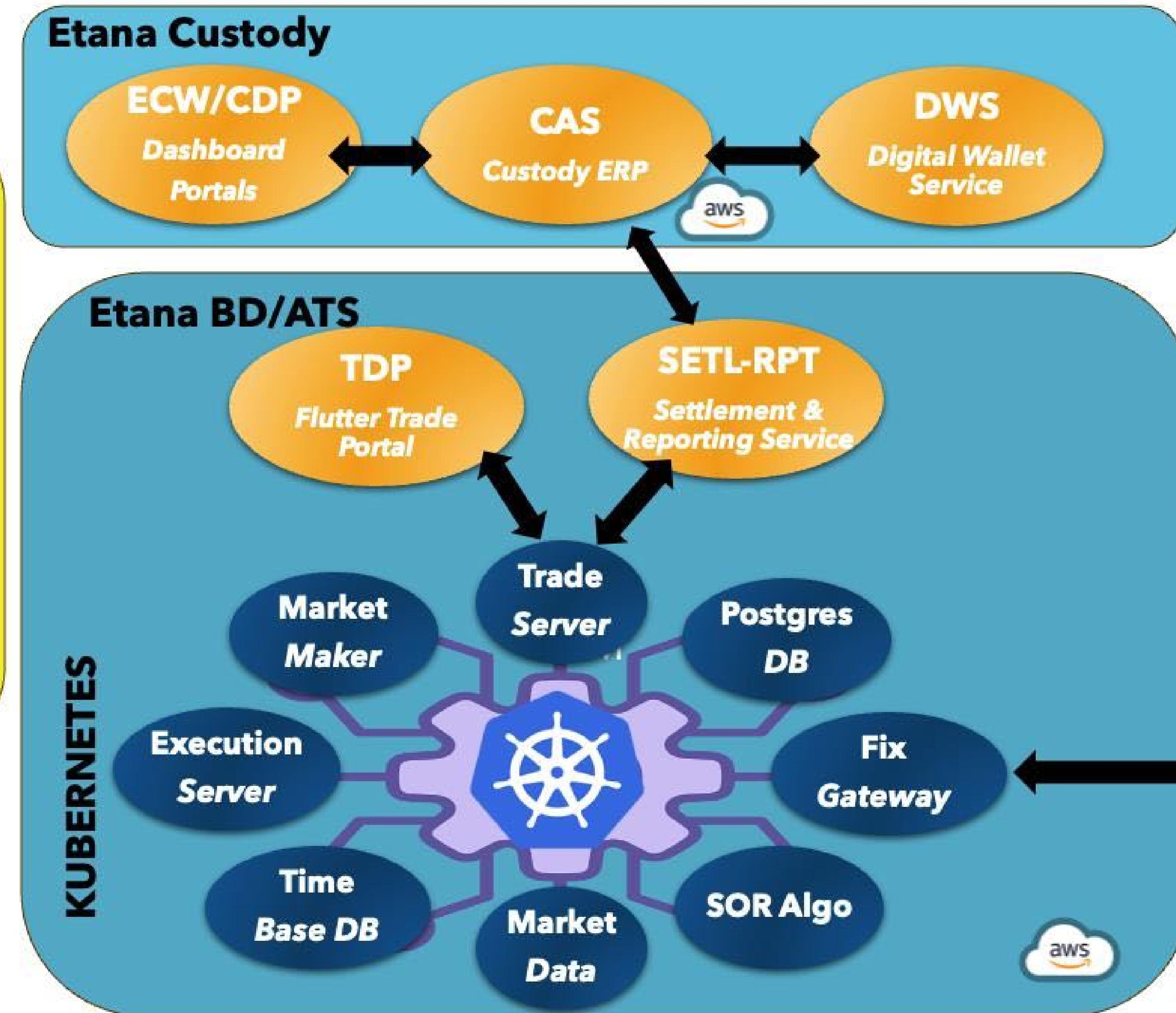
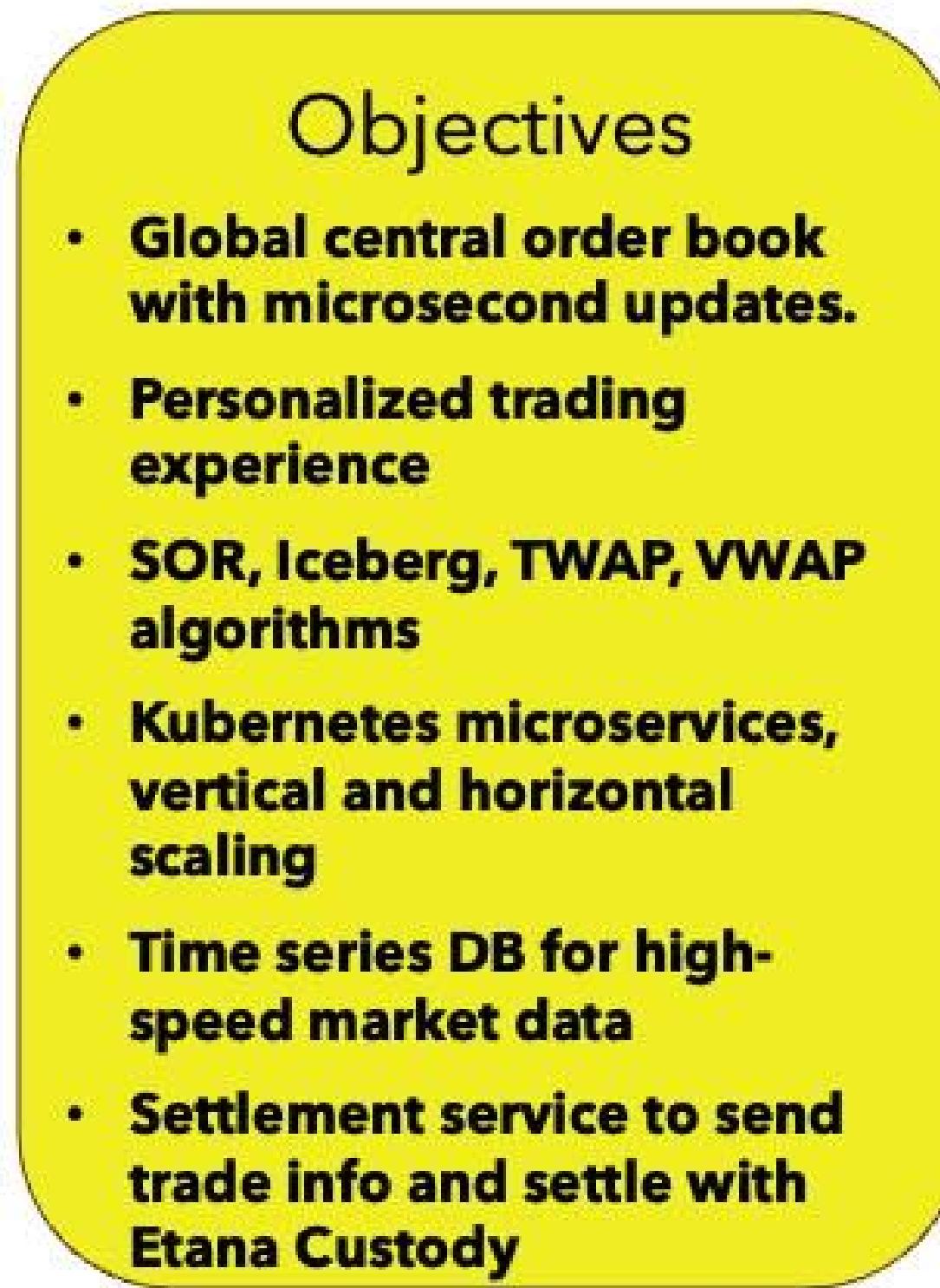
Data Fabric Network Reference Architecture



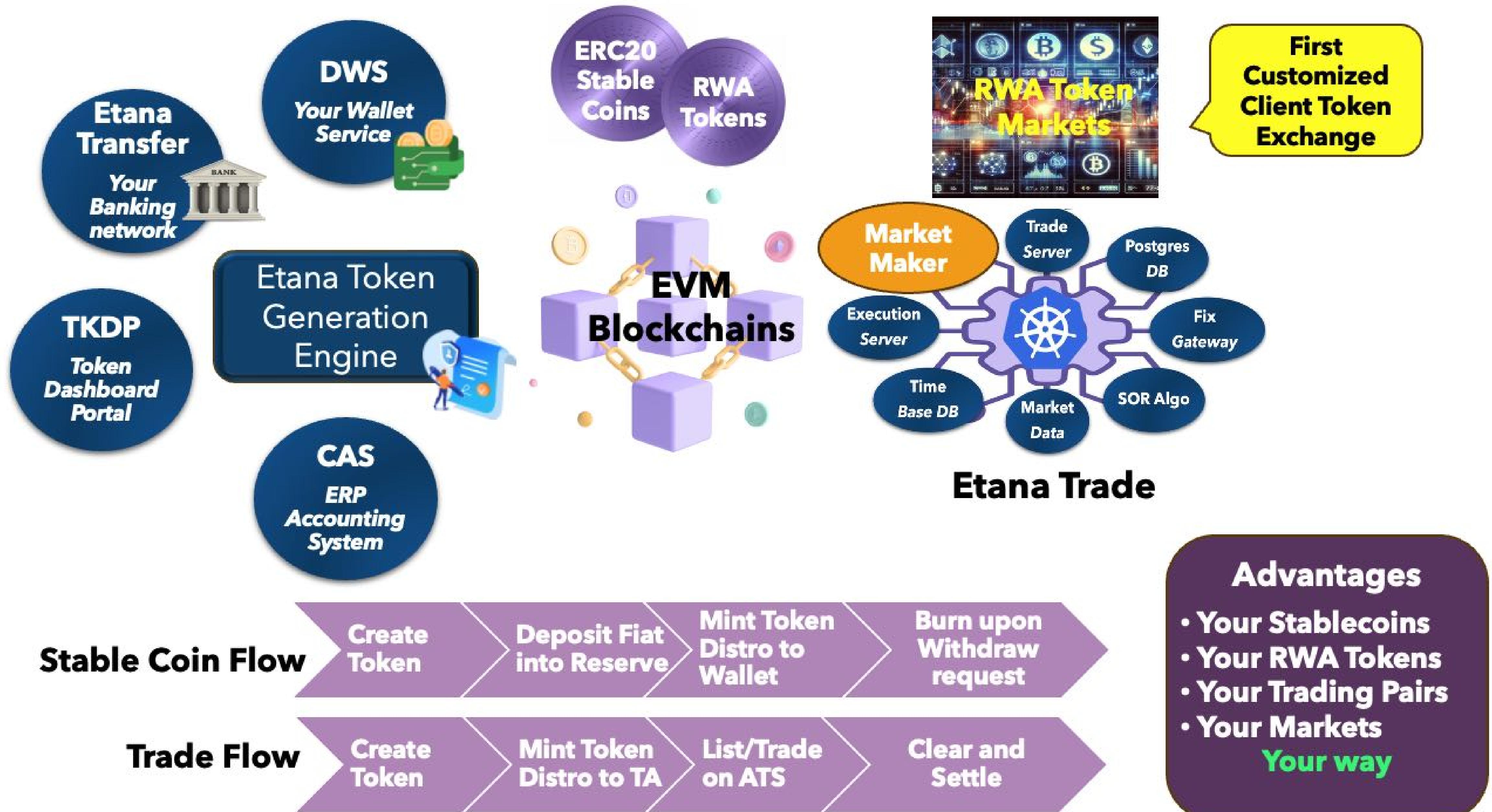
Delta Data Lake Architecture on GCP for Tupperware



BD/ATS Crypto/FX Trading System



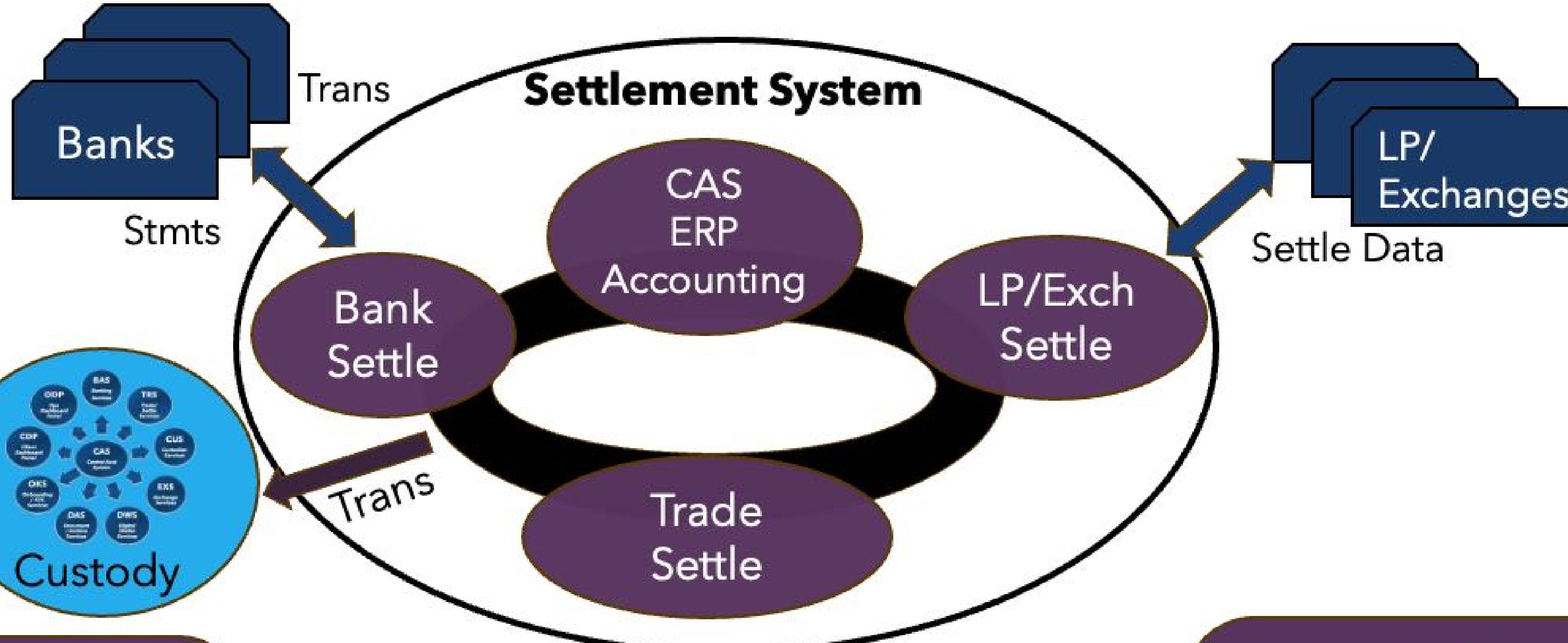
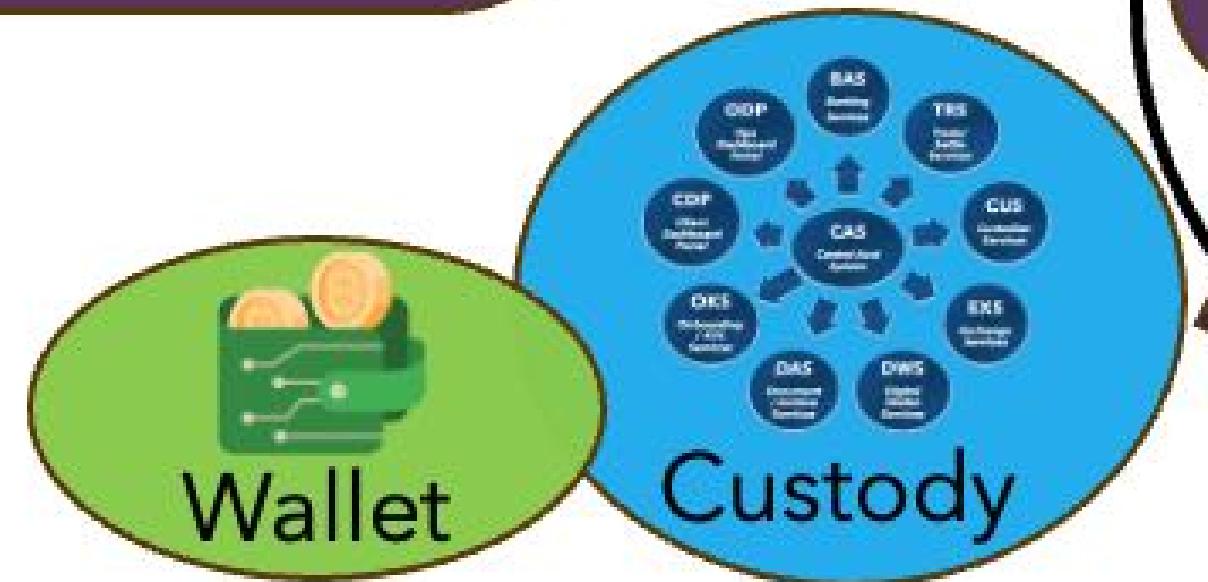
Token Engine Integrated with Custody and Banking Systems



Stand-alone Wallet and Settlement System

Offerings

- Etana Cloud - Multi-tenant Settlement Network
- Etana Private - your own settlement system!



Wallet Advantages

- MPC vaults forward with TSS(Threshold Signature Scheme)
- Biometric Face Liveliness Approvals
- Seamless integration into all systems
- Staking top currencies - produce Yield

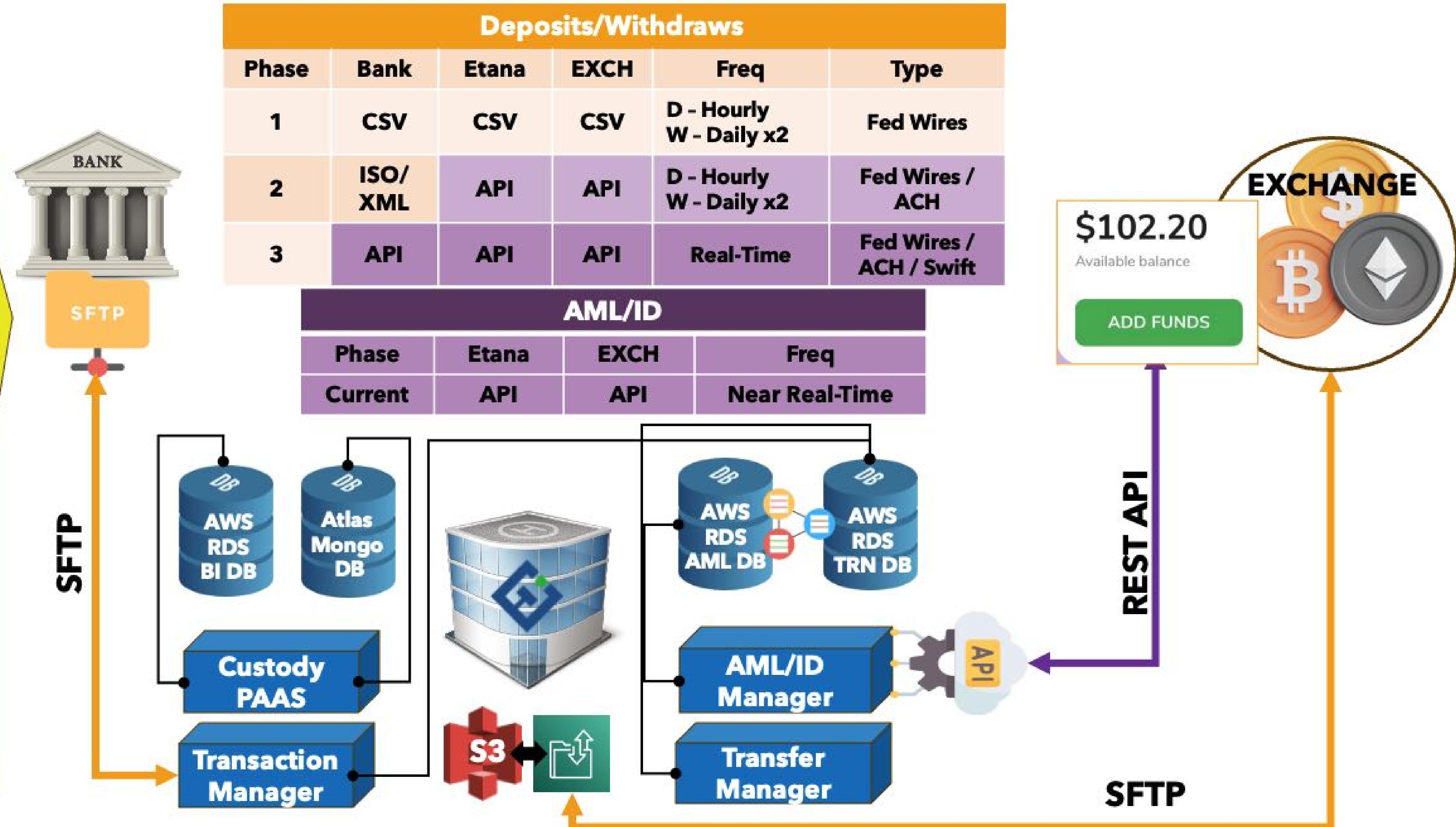


Settle Advantages

- Rocket towards Real Time Settlement with stablecoins
- Connect your systems to our settlement engine
- First double entry crypto accounting ERP system EVER!

Automated Banking Transfer System

- Embed white labeled API to capture customer info for near real time AML/ ID check.
- Multi-phase process to ramp up quickly with scale.
- Handle bank updates with AML/ID checking at point of execution.
- Continuous screening for next gen compliance
- Scalable infrastructure services to meet volume needs.



Flutter Apps for Web/Mobile/Tablet

(One code base for any device)

The screenshot displays the Etana CDP application interface, showing a dark-themed dashboard with three main sections: Account Allocation, Asset Allocation, and a detailed view of a transaction table.

Account Allocation: A donut chart showing the allocation of assets. The legend indicates two categories: Etana Custody (yellow) and 1Token - Middleware Bridge (green).

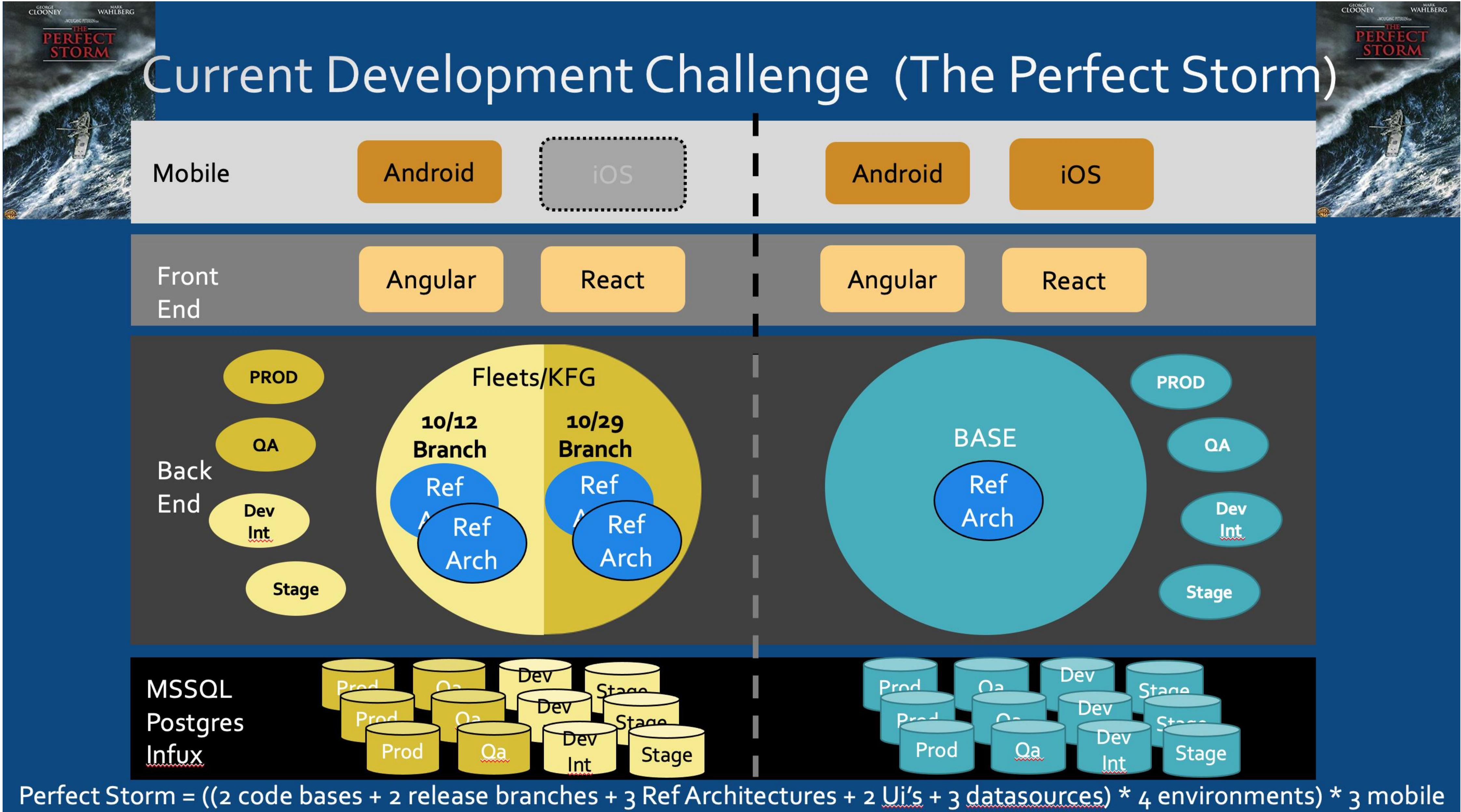
Asset Allocation: A sunburst chart showing the allocation of assets across different categories. The inner ring represents the primary allocation, and the outer ring represents a secondary level of detail. The legend includes T-BILL, ETH, USDT, EUR, BTC, and USD.

Recent Transactions: A table showing the most recent transactions. The table includes columns for Id, Timestamp, Asset, Amount, and Description.

Id	Timestamp	Asset	Amount	Description
254956	2024-08-01 07:38:40	USDT Tether USD	100,000.00	Deposit: 66aa6f3cb63ad89045d5d57a
254955	2024-08-01 07:37:56	BTC Bitcoin	10.00	Deposit: 66aa6f2fb63ad891aad5d579
254954	2024-08-01 07:37:04	EUR Euro	-200,000.00	Withdrawal: 66ab8e88b63ad8e0e3d5d581
254953	2024-08-01 07:36:53	ETH Ethereum	-12.00	Withdrawal: 66aa86f0b63ad8621fd5d57e

Startup Beginning Architecture upon Arrival

Current Development Challenge (The Perfect Storm)



Justification for Architecture Redesign

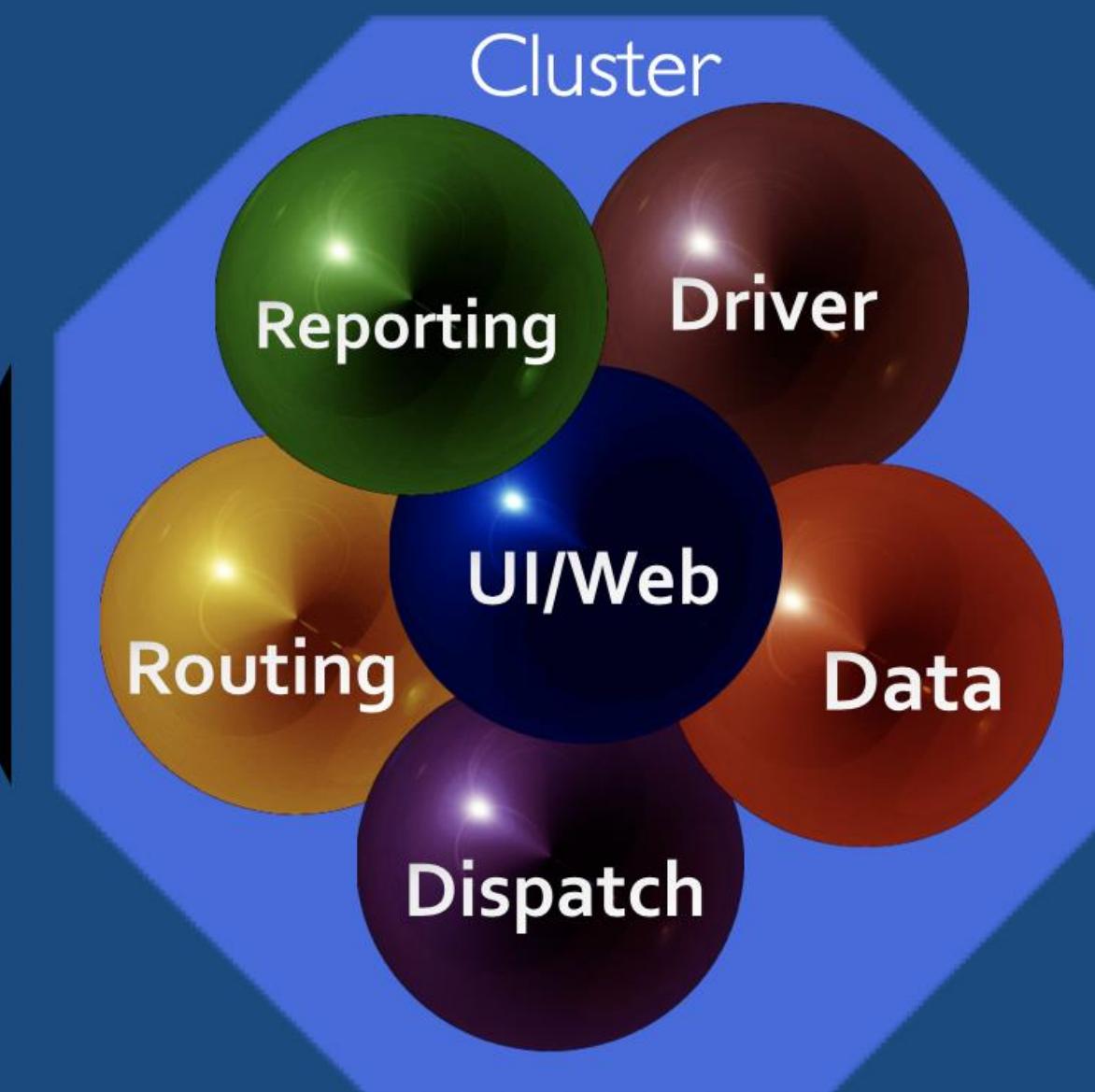
Enterprise Global Kubernetes Architecture Today

GetSwift Target Architecture

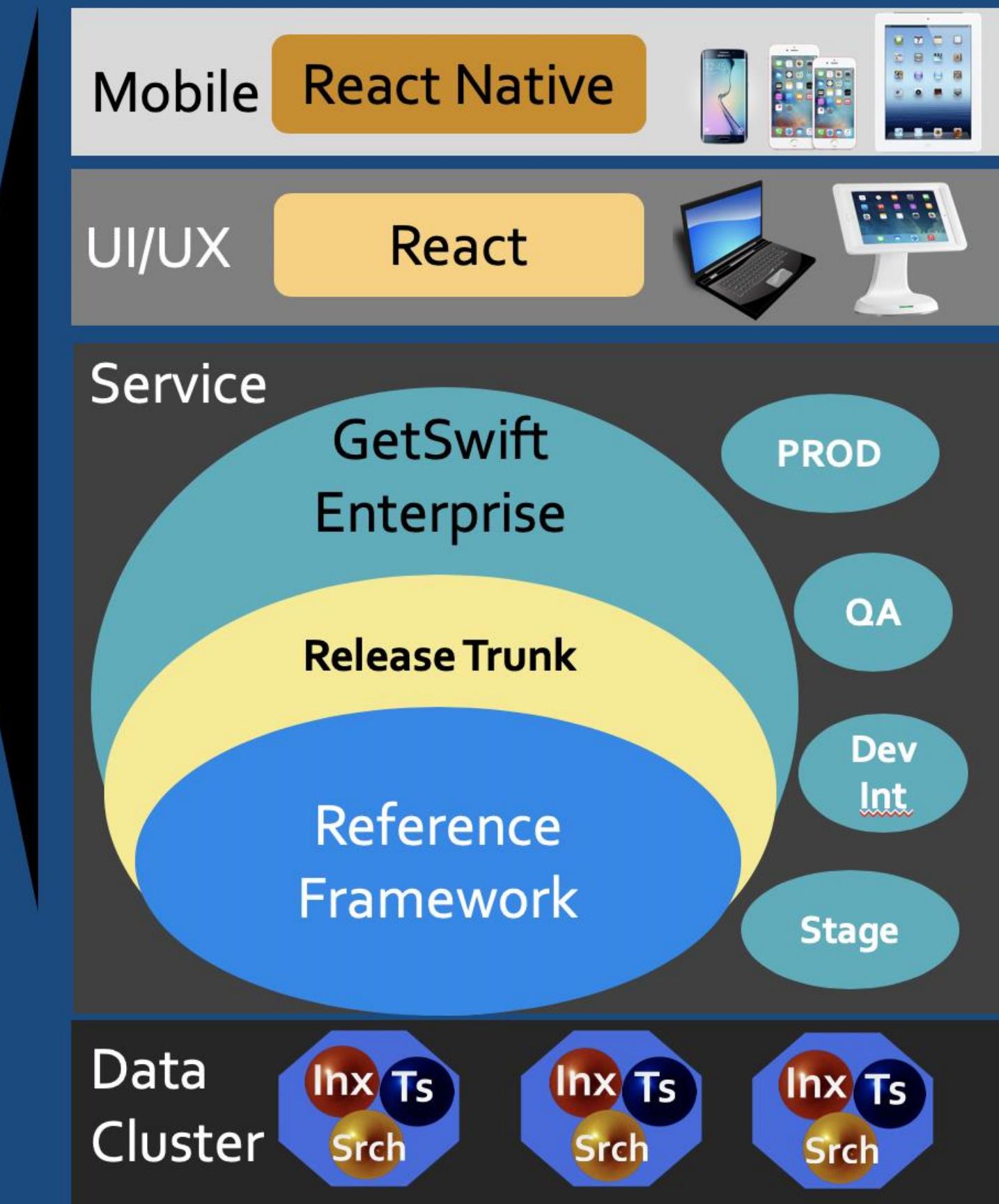
World Wide
Routable Clusters



Micro Services
Scalable/Self-Healing

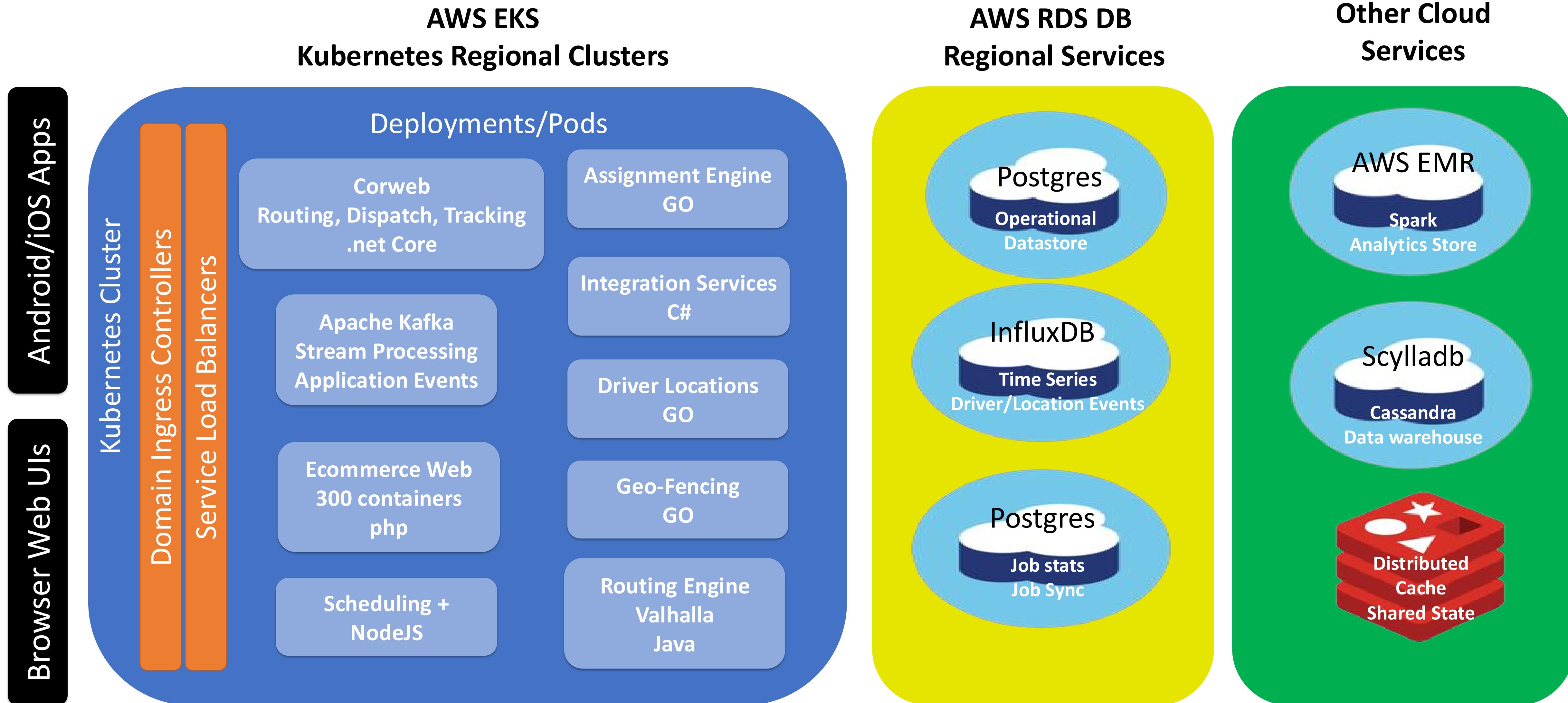


Enterprise Technology
Service Oriented Architecture



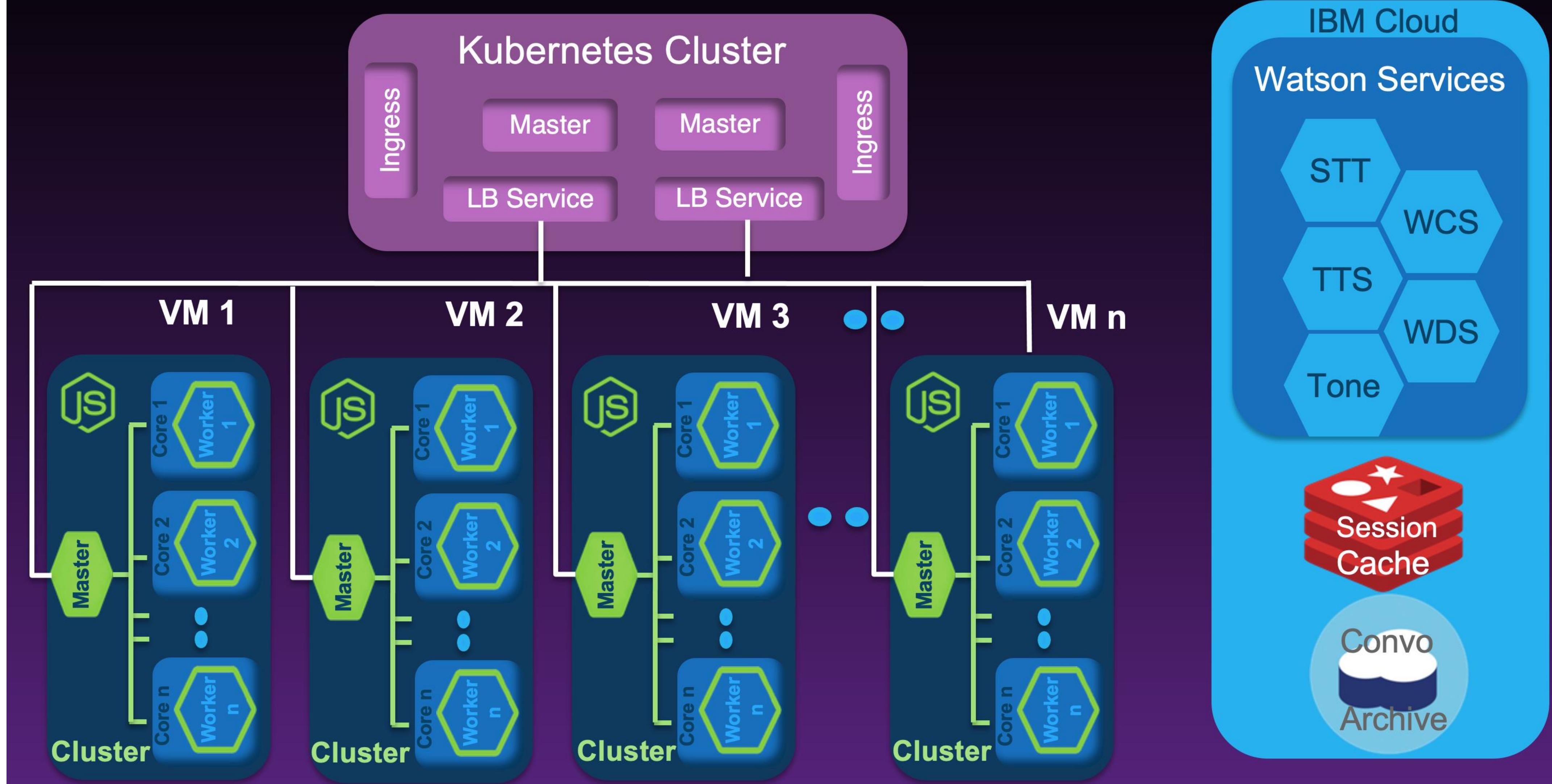
Completed in 1.5 years

Startup Infrastructure Overview

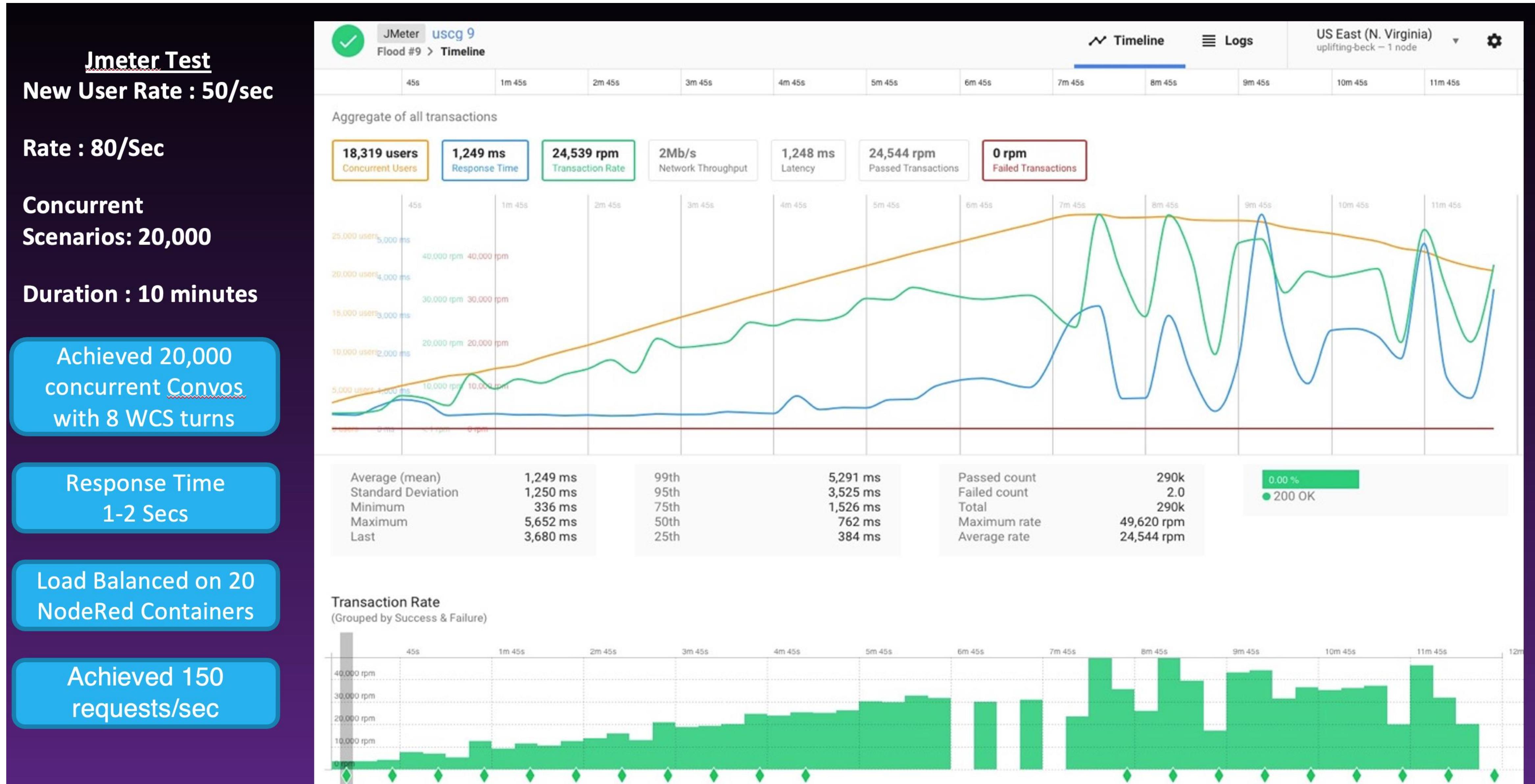


NodeRed API/iot Orchestration for IBM

Vertical and Horizontal Scaling

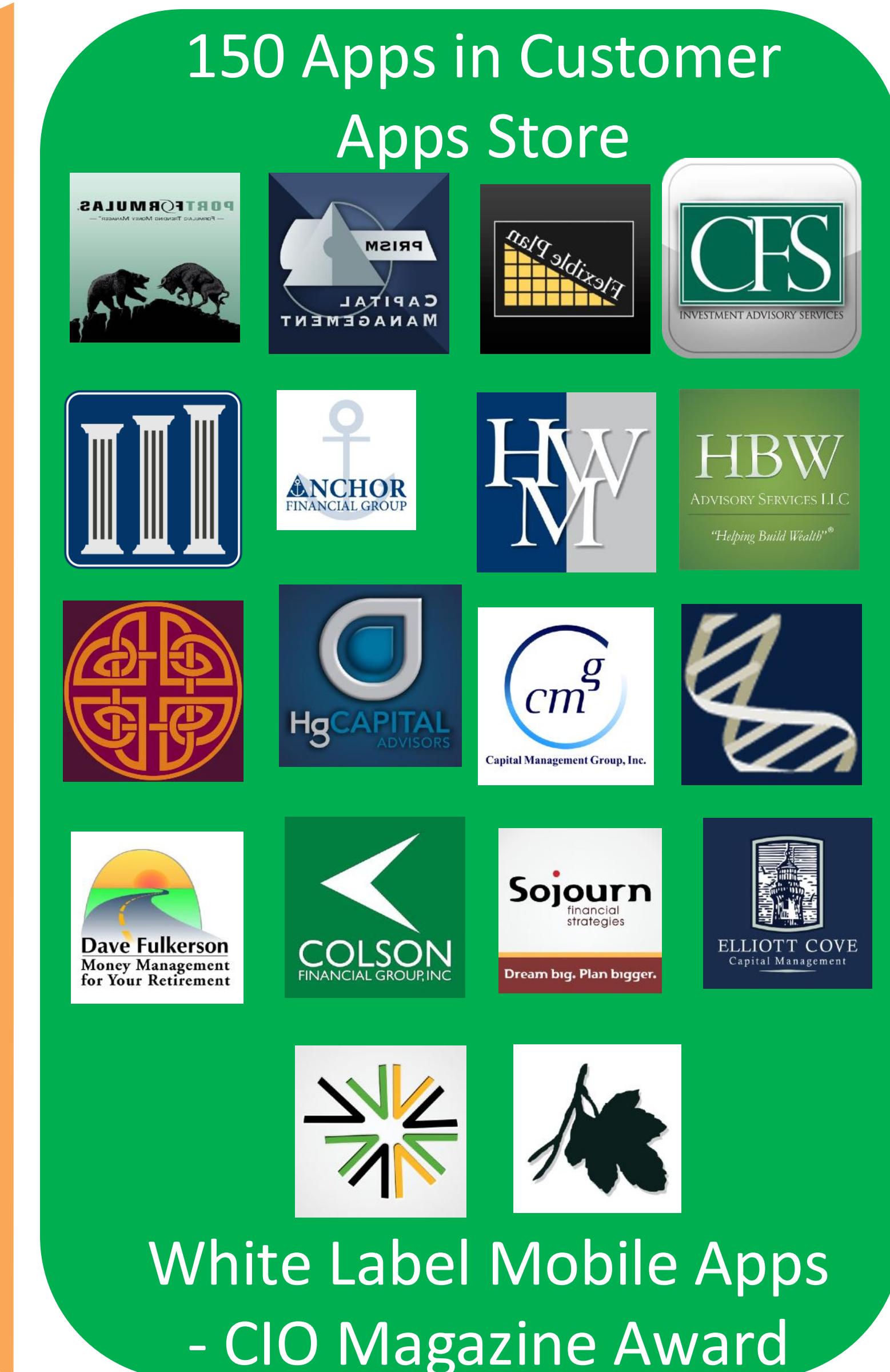
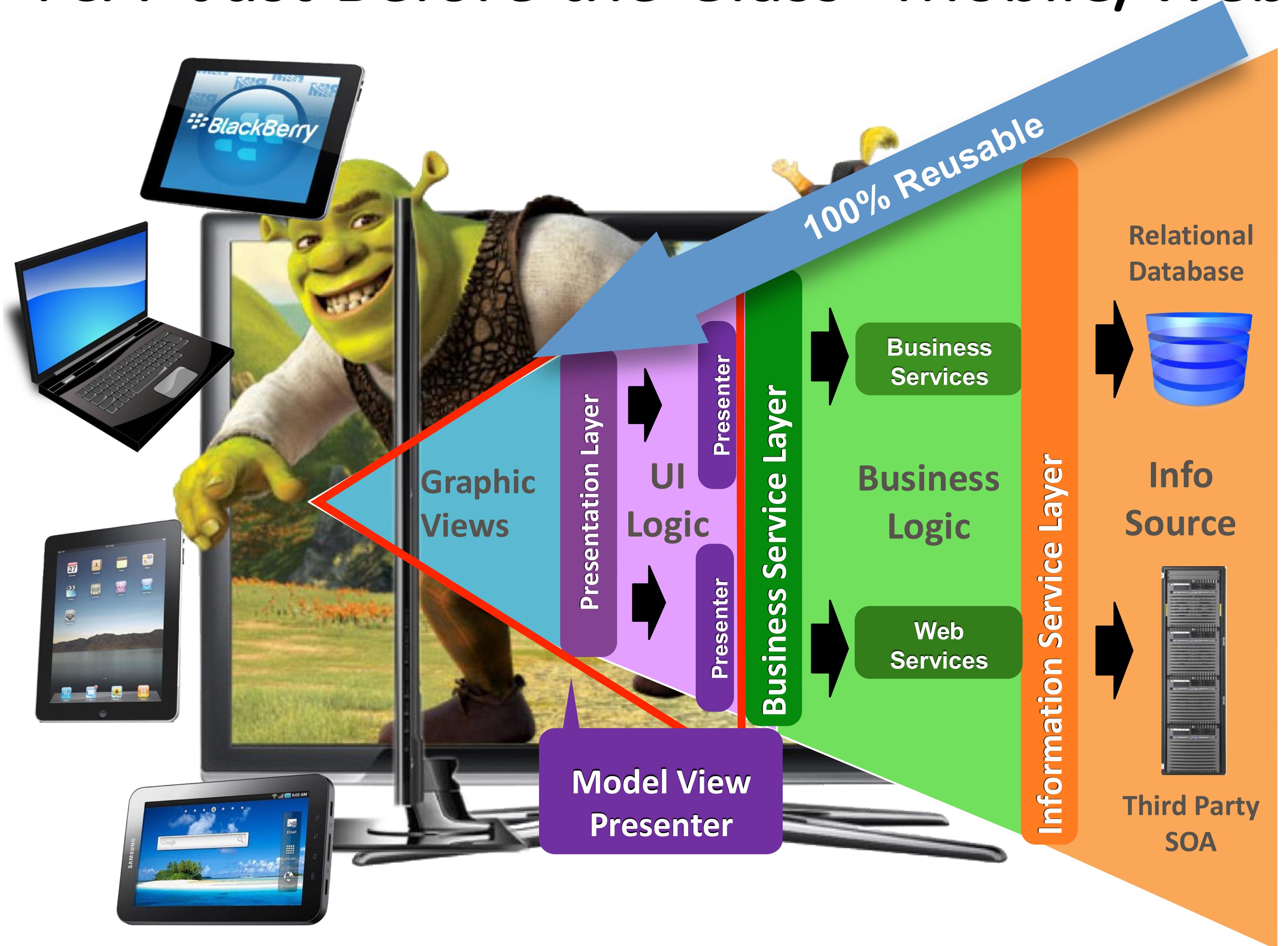


Jmeter Kubernetes Orchestration Load Test

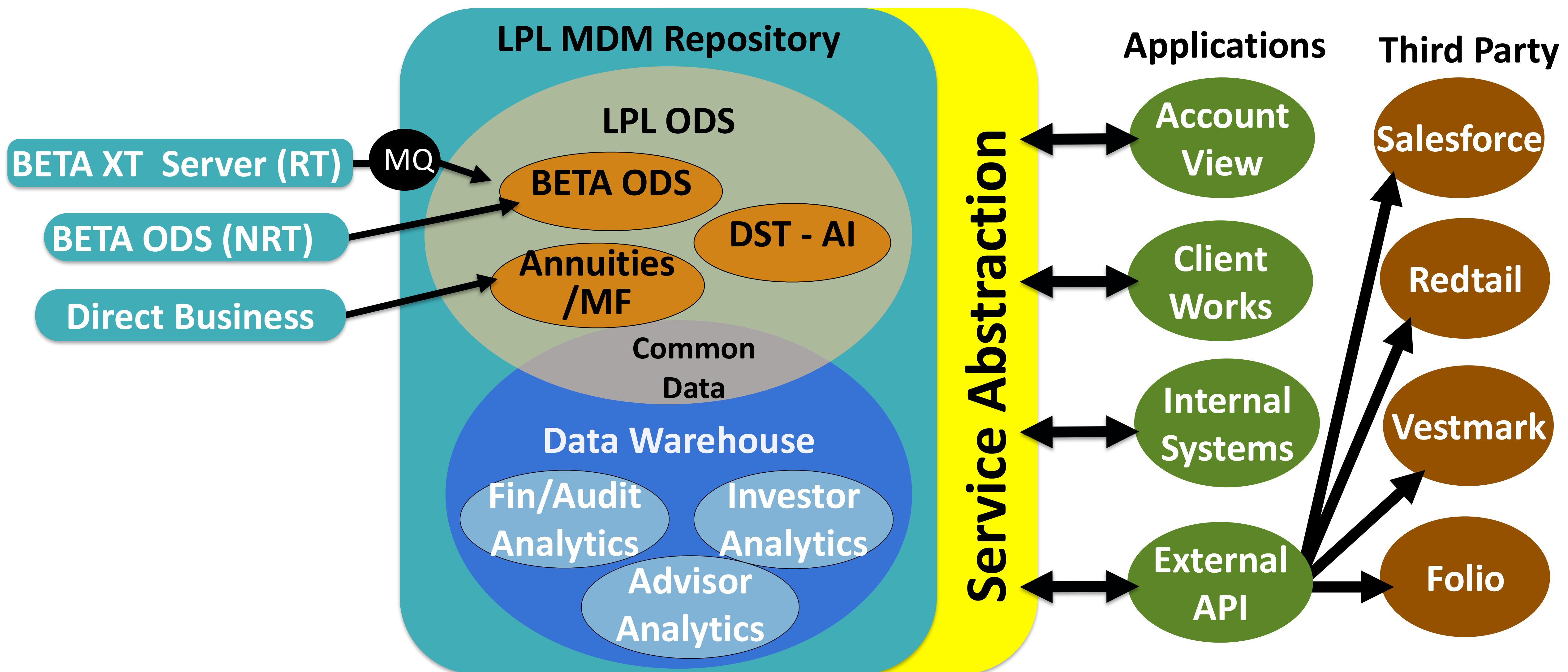


Blew up IBM Tone & NLU microservices – How demonstrated IBM Watson Scaling issues

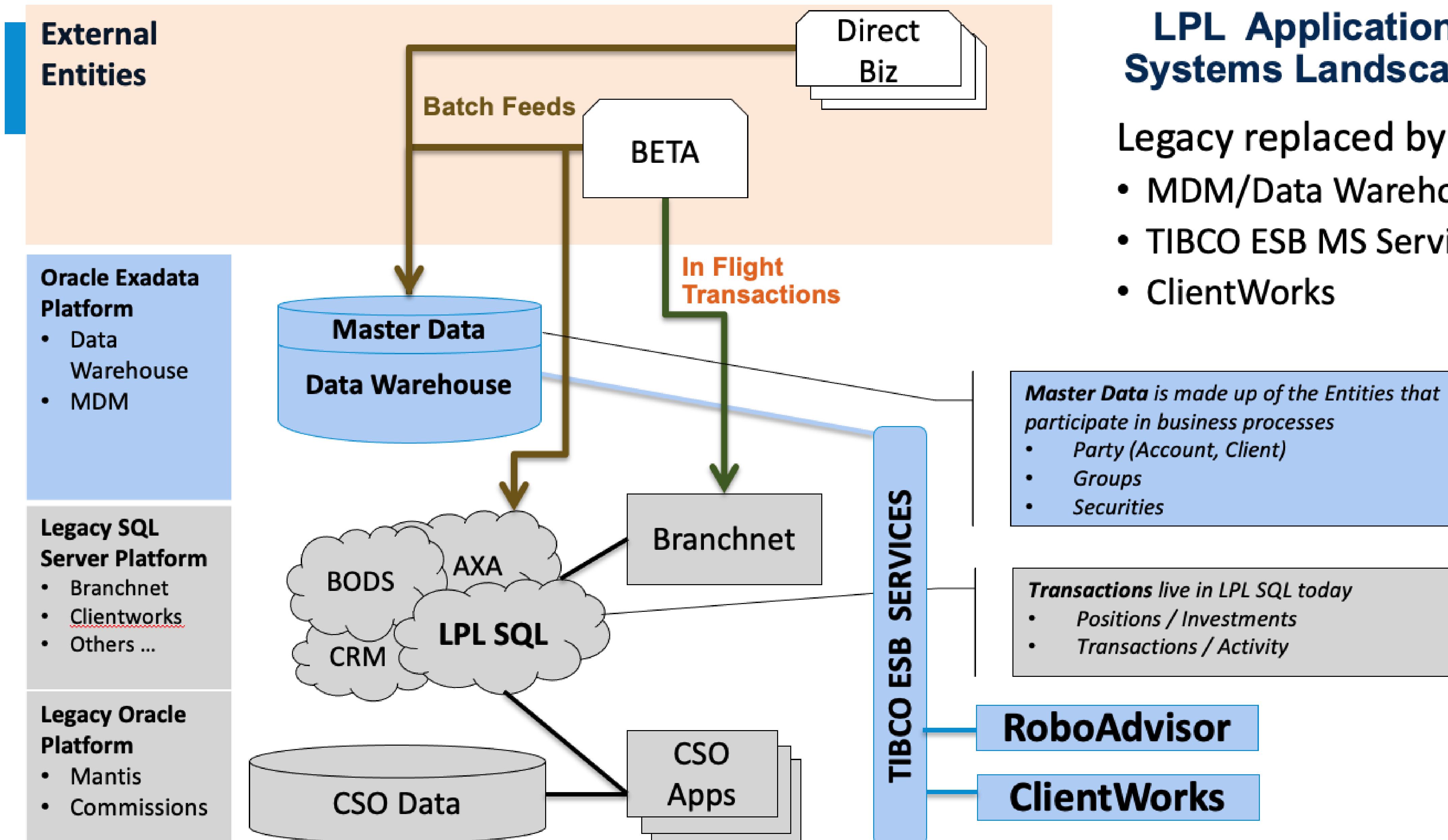
TCA “Just Before the Glass” Mobile/Web UI Architecture



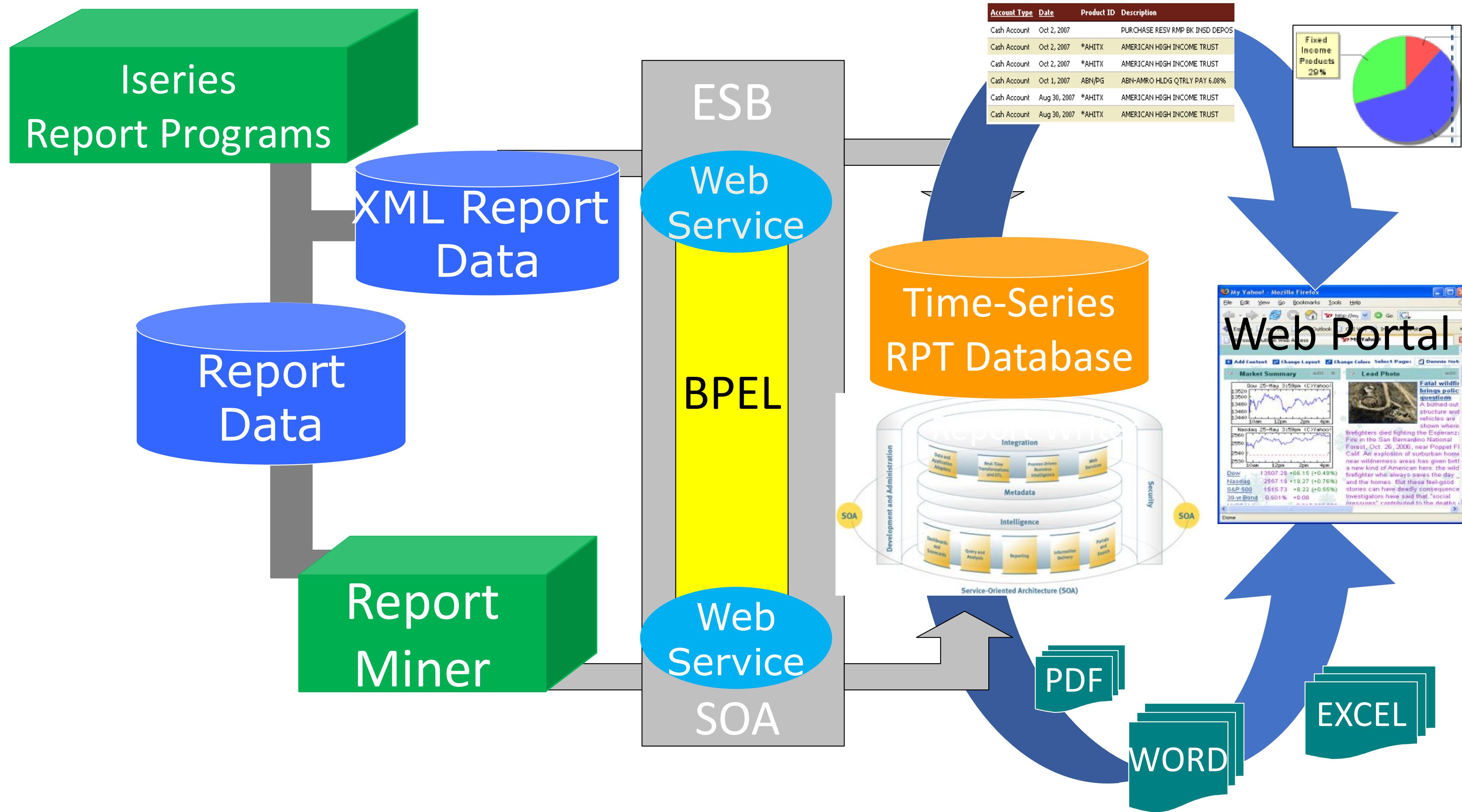
LPL Data Model Conceptional Overview



LPL ESB Microservice Redesign



Scottrade XML Report System Reference Architecture



Scottrade Re-Architecture IO Switch and SOA microservices

Isolation Modernization Layers

Three core areas to isolate code.

Cuts down business logic complexity and fosters re-use.

Leveraged PAAS/SAAS computing.

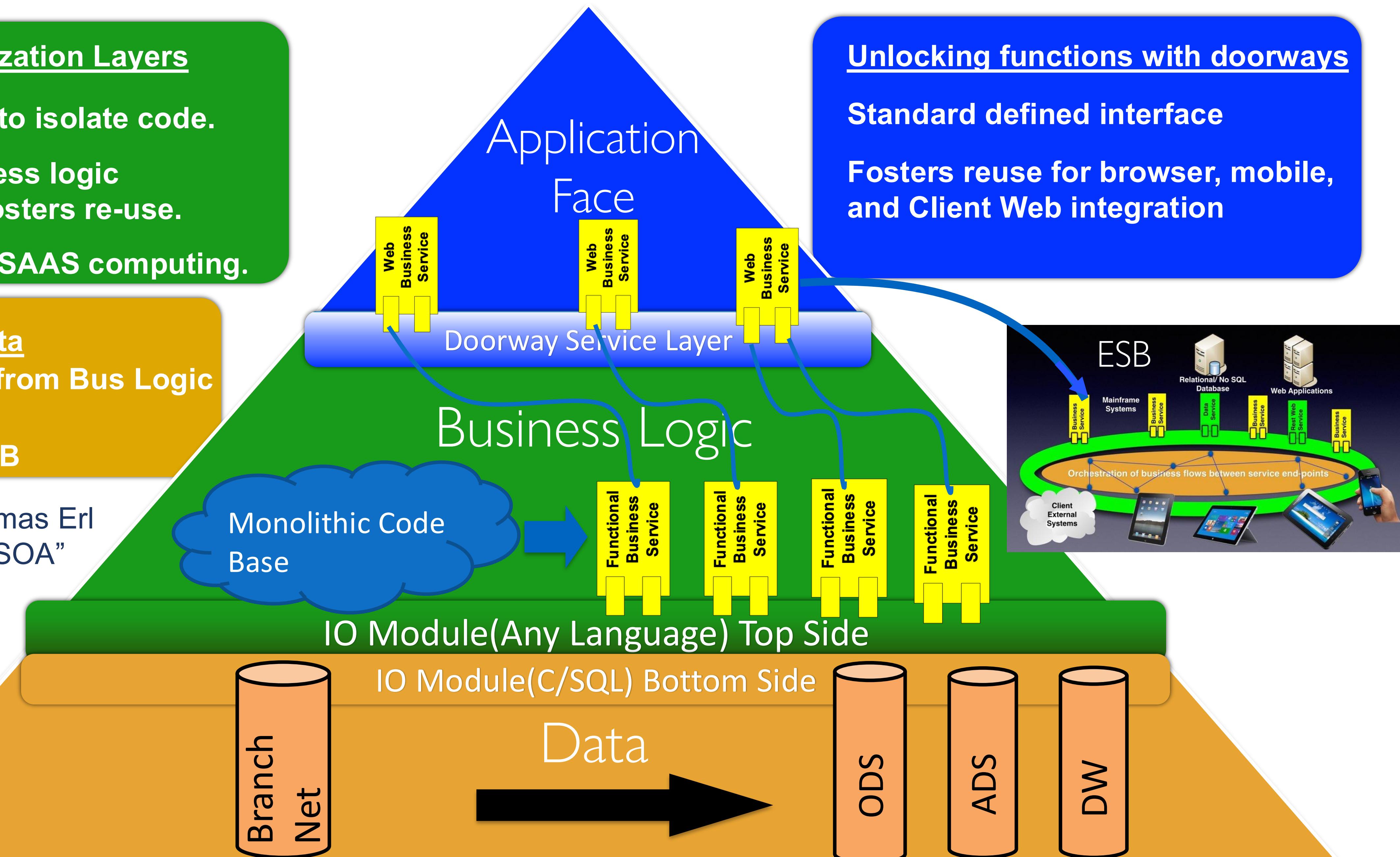
Re-engineered Data

Break data away from Bus Logic

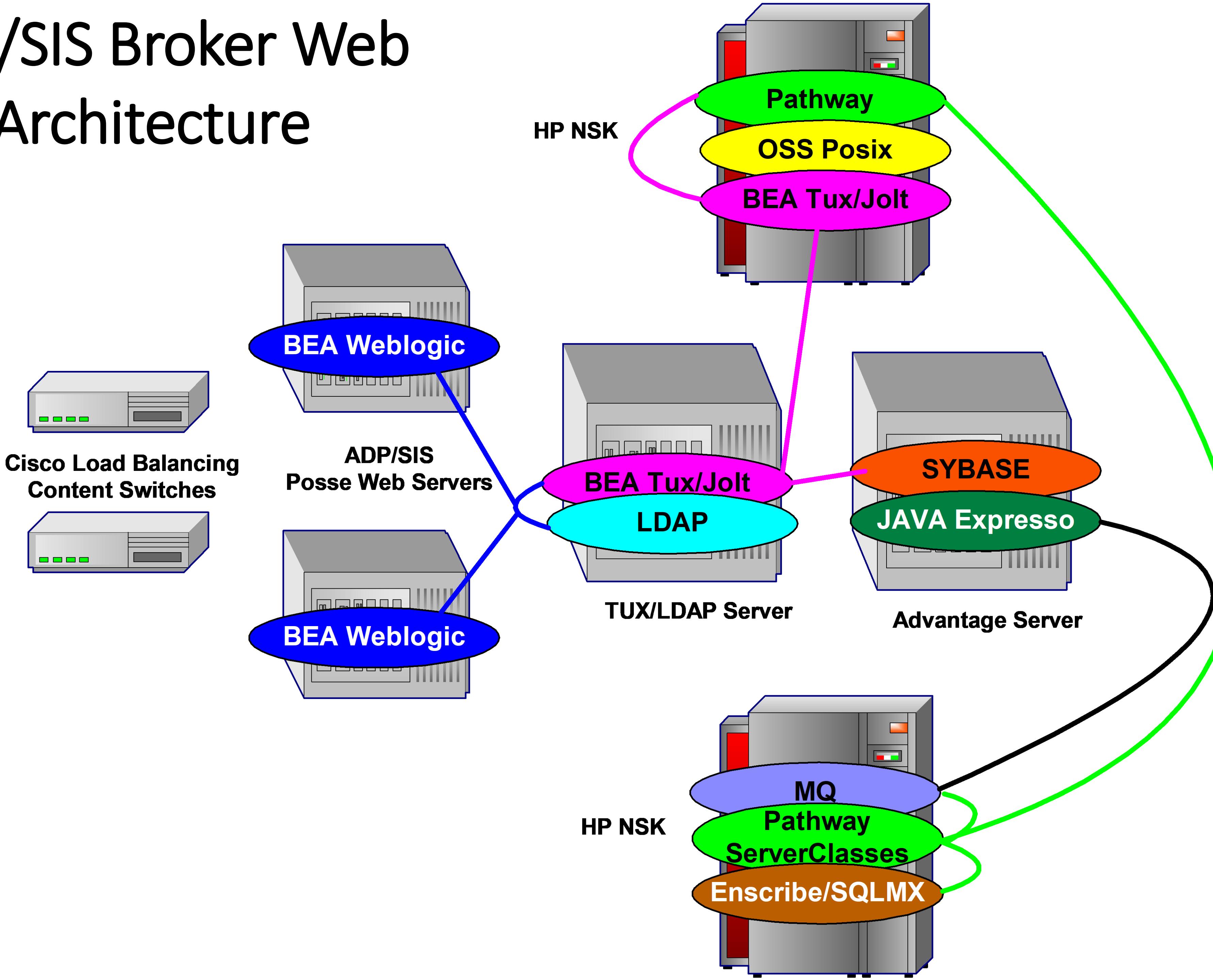
Go Schema-less

Open up to any DB

Worked with Thomas Erl
“Godfather of SOA”



ADP/SIS Broker Web Architecture



ADP ADVANTAGE Data Service Architecture

