



# Micro-services with Event(Domain Data) Driven Architecture



## Presentation goal

...to share the significance of visualising domain data and key implementation patterns towards adoption of micro service architecture inside legacy estate.

A professional portrait of Raghvendra S Rathore, a man with dark hair and a mustache, wearing a light blue shirt and a dark blue plaid sweater. He is looking slightly to his left with a neutral expression. The background is a blurred indoor office environment.

## Raghvendra S Rathore

Lead Solution Architect @ IG

- Enterprise Data & Integration Architectures
- Lean Development
- Trading Systems

*..spent most of my career working with Investment banks and fund houses solving those complex orchestrations and business event choreographies...*

# Agenda

Story of growing challenges with architecture evolution

Balancing quantum entanglement with domain aggregates

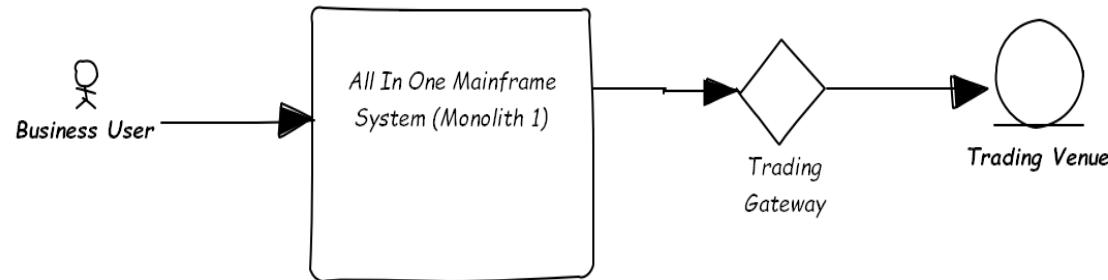
Solving cross domain & more complex concerns with architecture patterns

Success so far.. Value Unlocked.

Insights..



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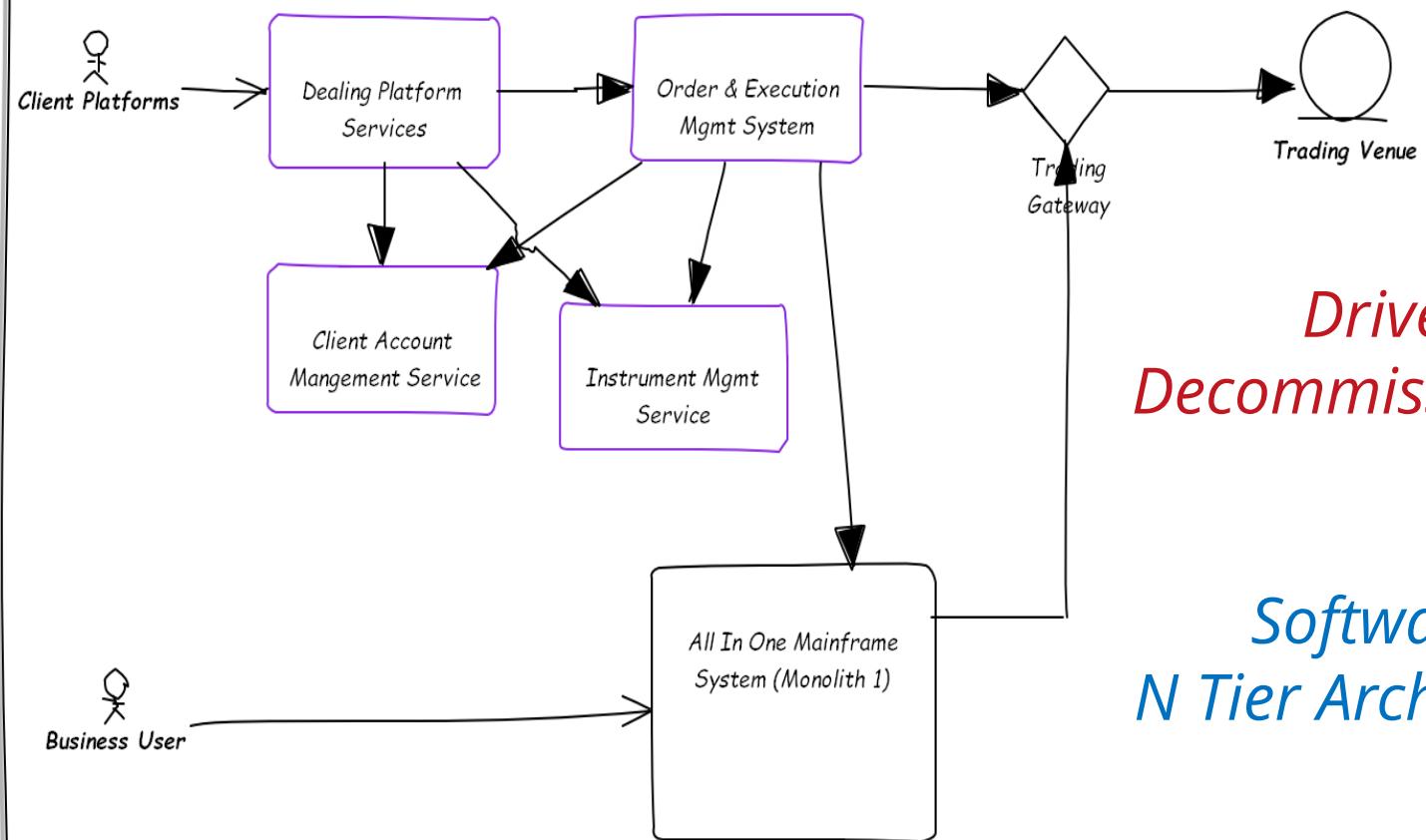


Generation 1

*Driver for Change:  
Web/Mobile platforms offering*

*Software Architecture: 3 Tier  
Architecture, App container,  
Stateful & Stateless beans*

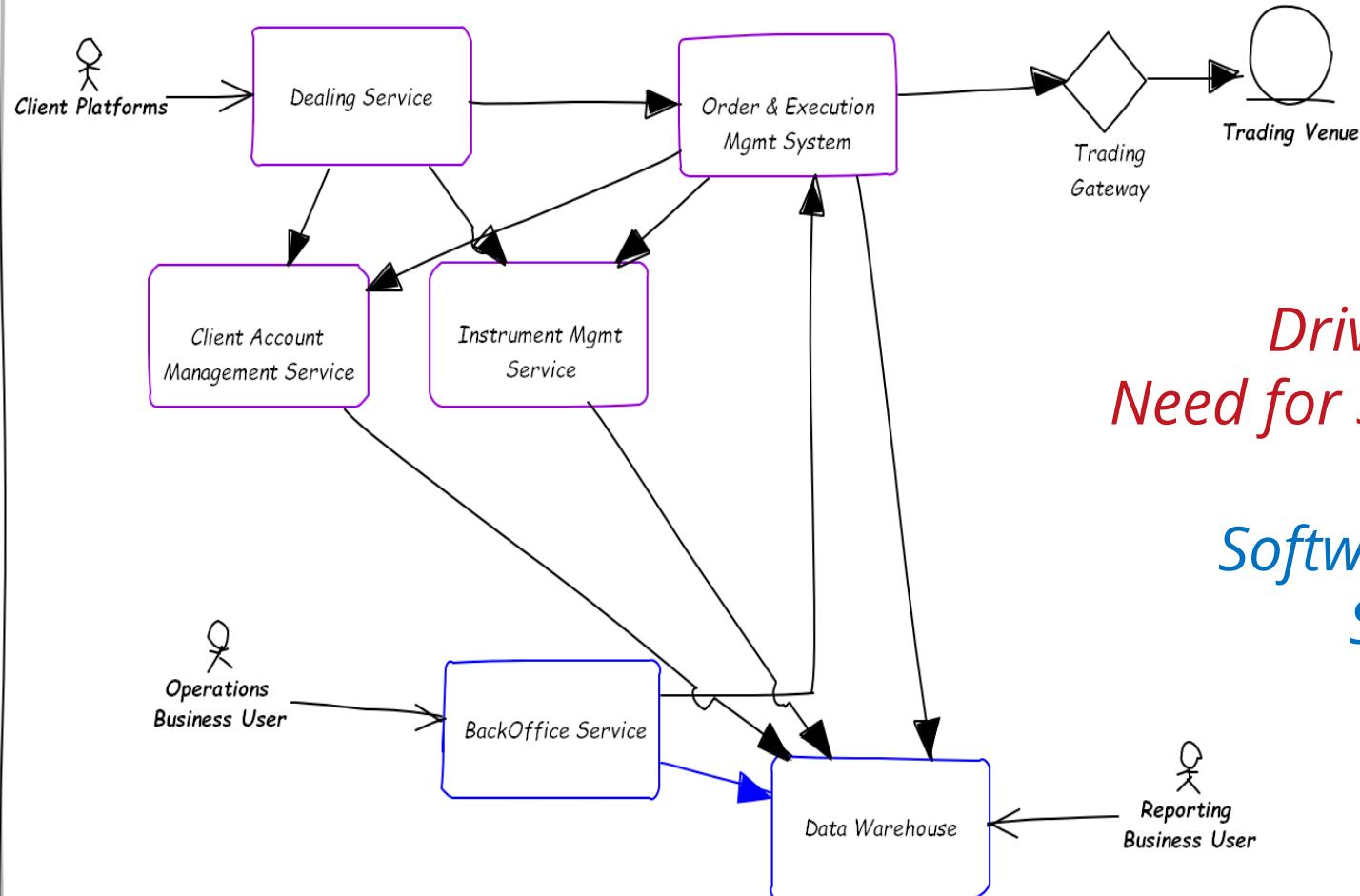
Driver for change:  
Need for Web/Mobile  
Platforms



*Driver for Change:  
Decommission Old Mainframe  
Tech*

*Software Architecture:  
N Tier Architecture, JPA, Spring*

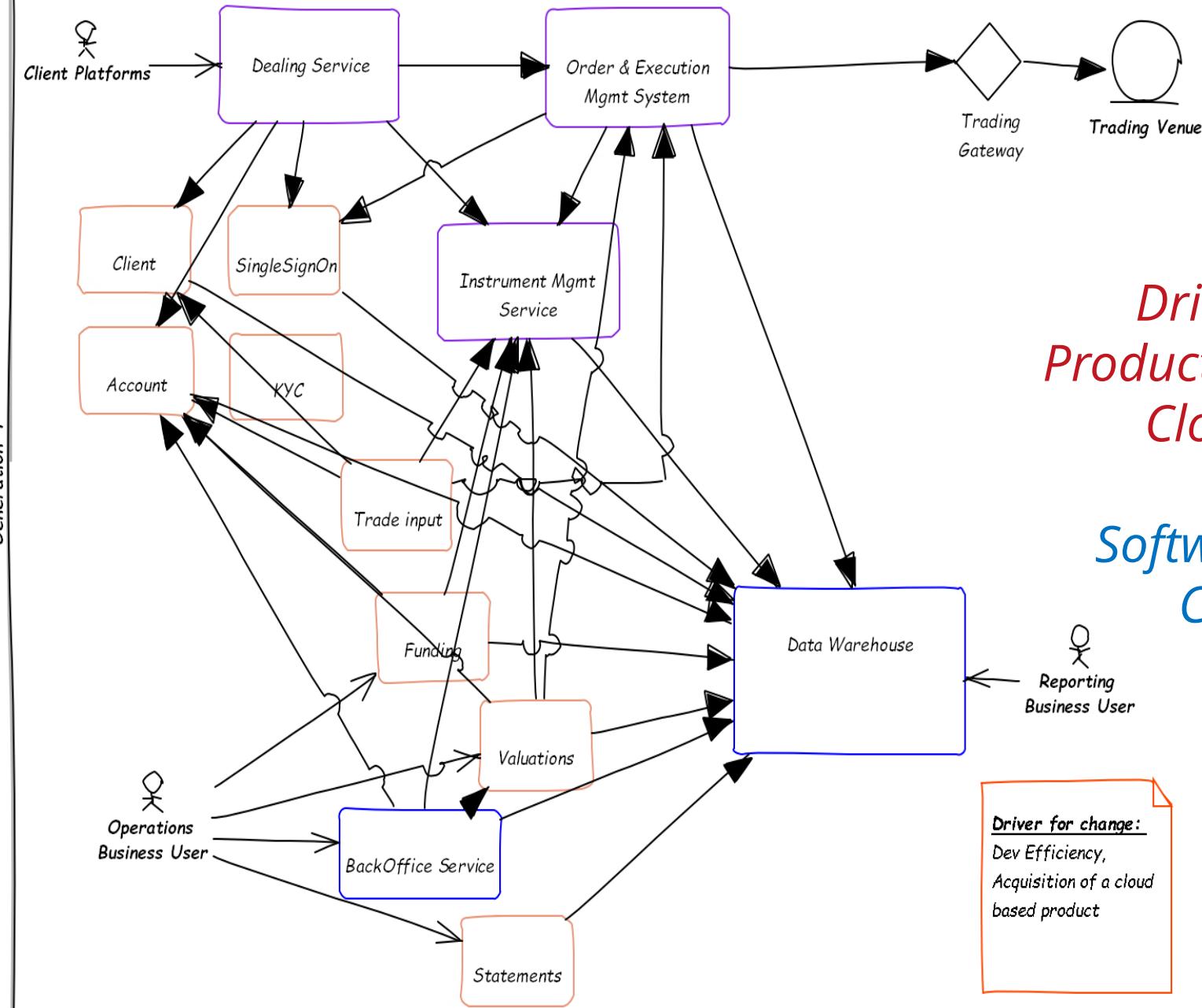
Driver for change:  
Decommission  
Mainframe Tech



*Driver for Change:  
Need for scale, more products*

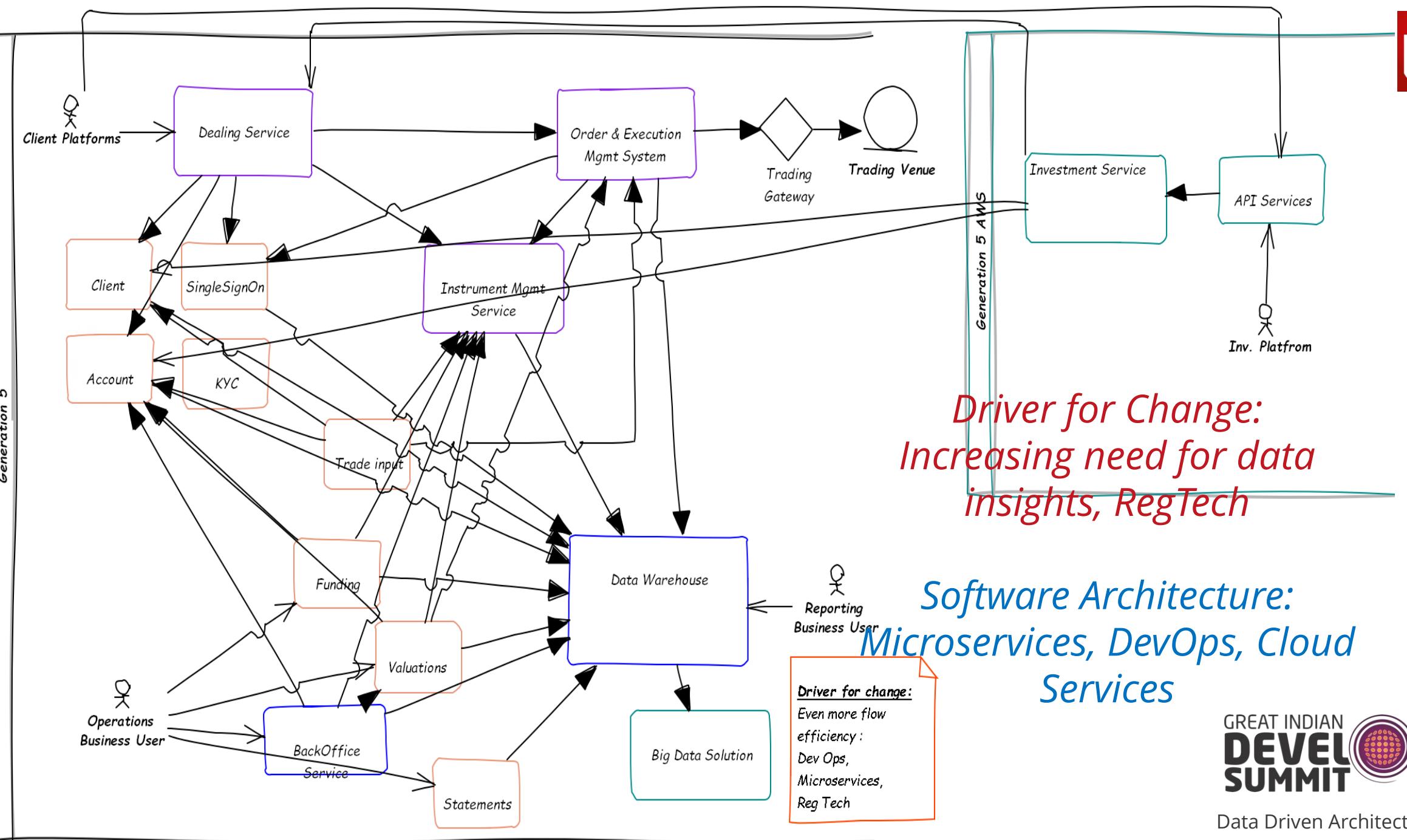
*Software Architecture:  
SOA, EDA, CI*

**Driver for change:  
Need for scale**

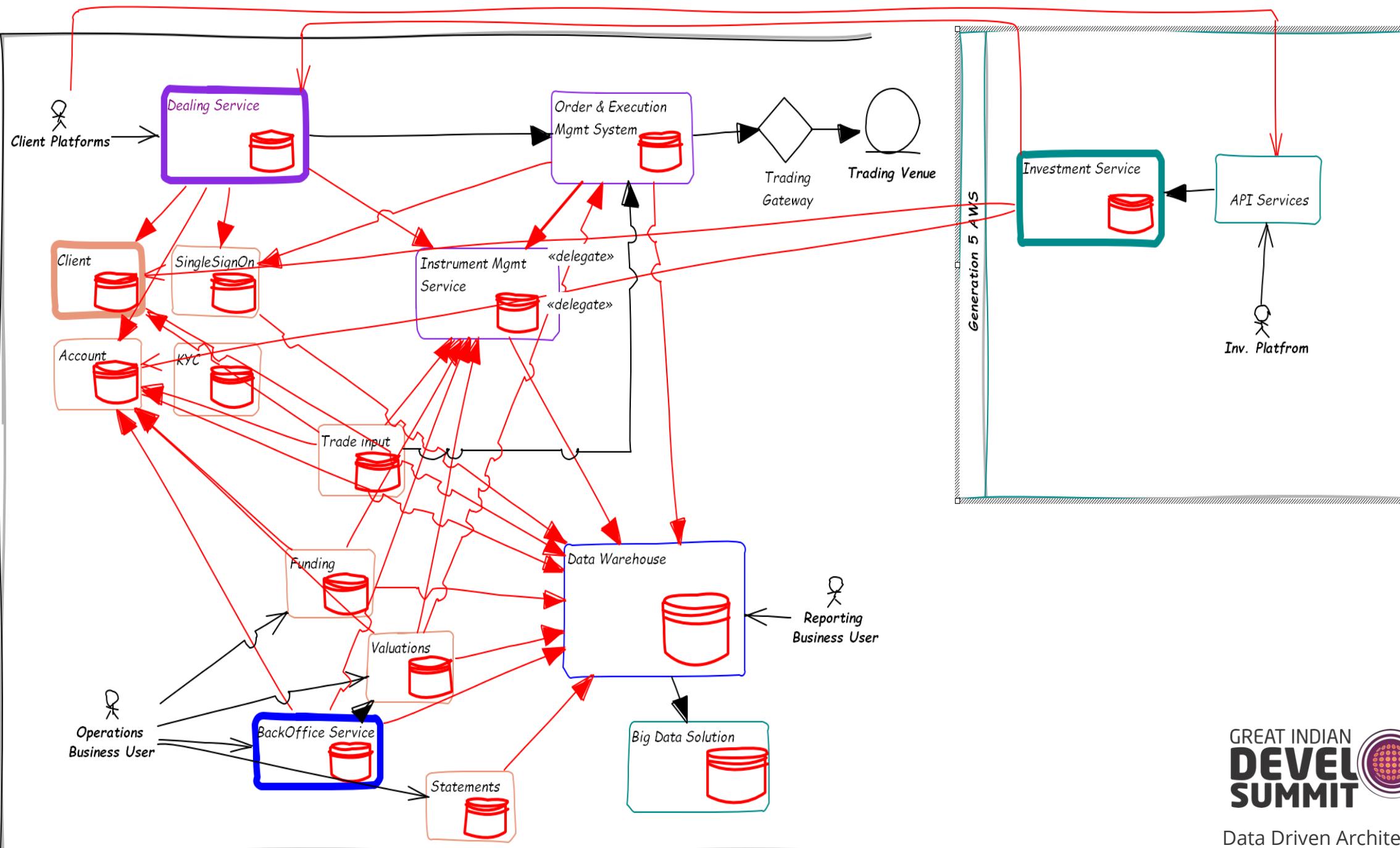


*Driver for Change:  
Product Acquisition, Public  
Cloud Integration*

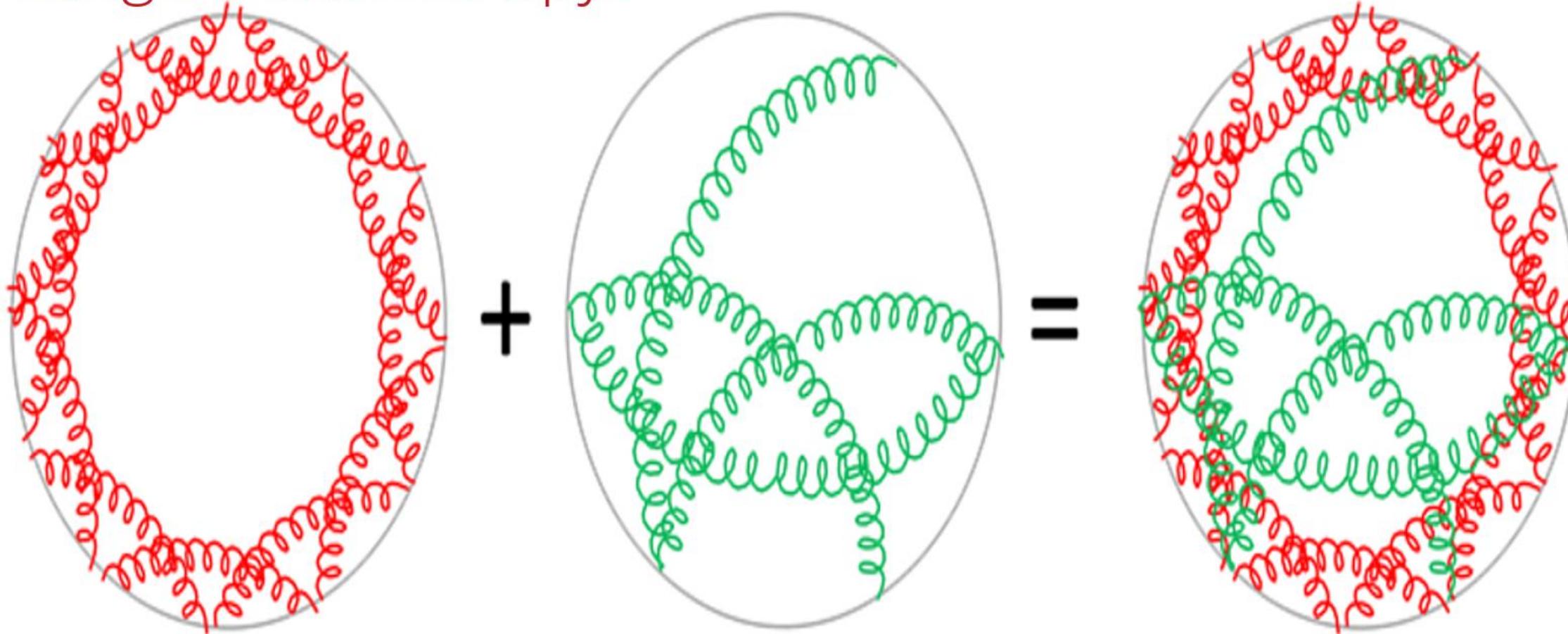
*Software Architecture:  
Cloud Services*



Generation 5



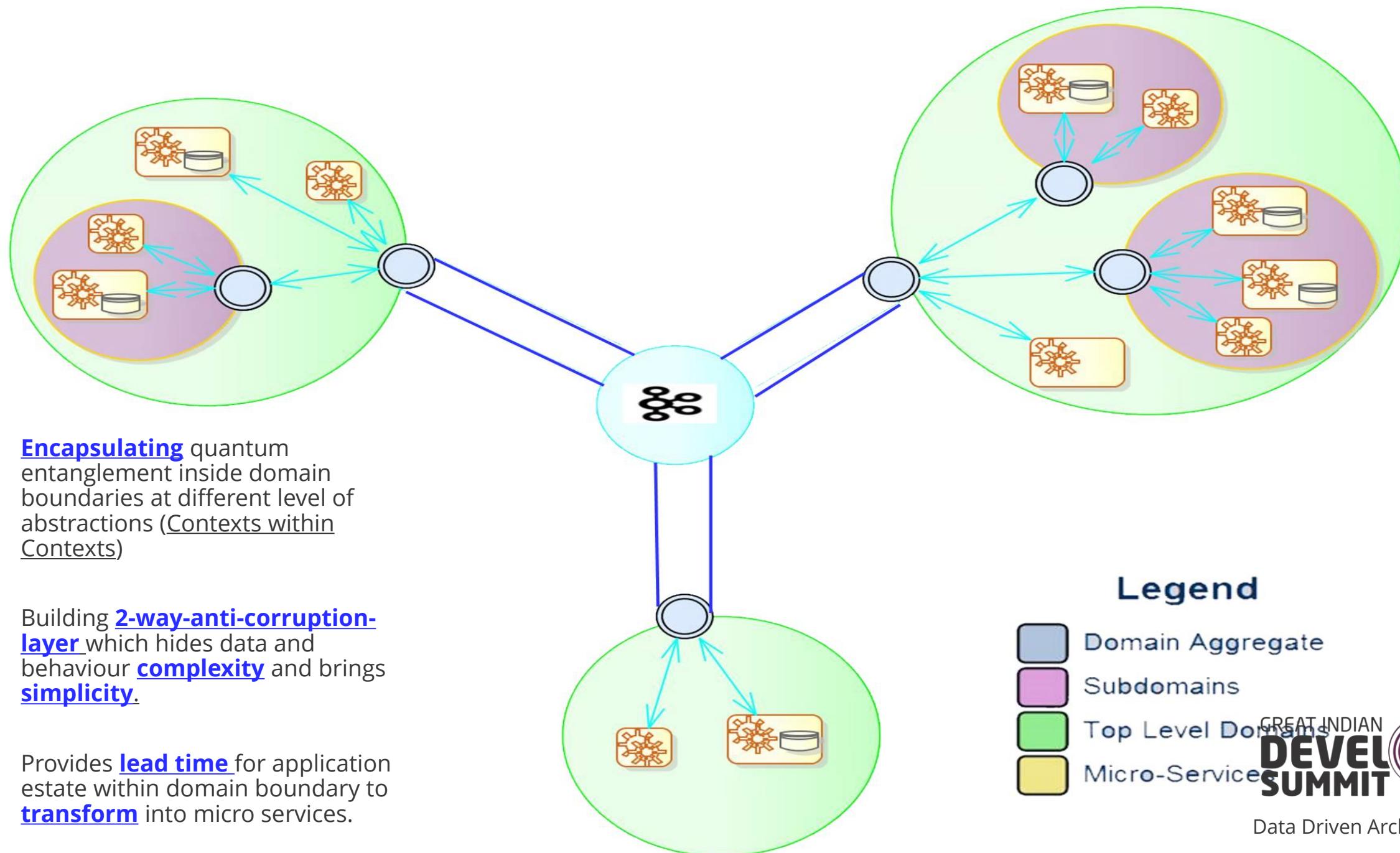
# Entanglement entropy..



Short-Range  
Bulk  
Entanglement Entropy

Long-Range  
Horizon  
Entanglement Entropy

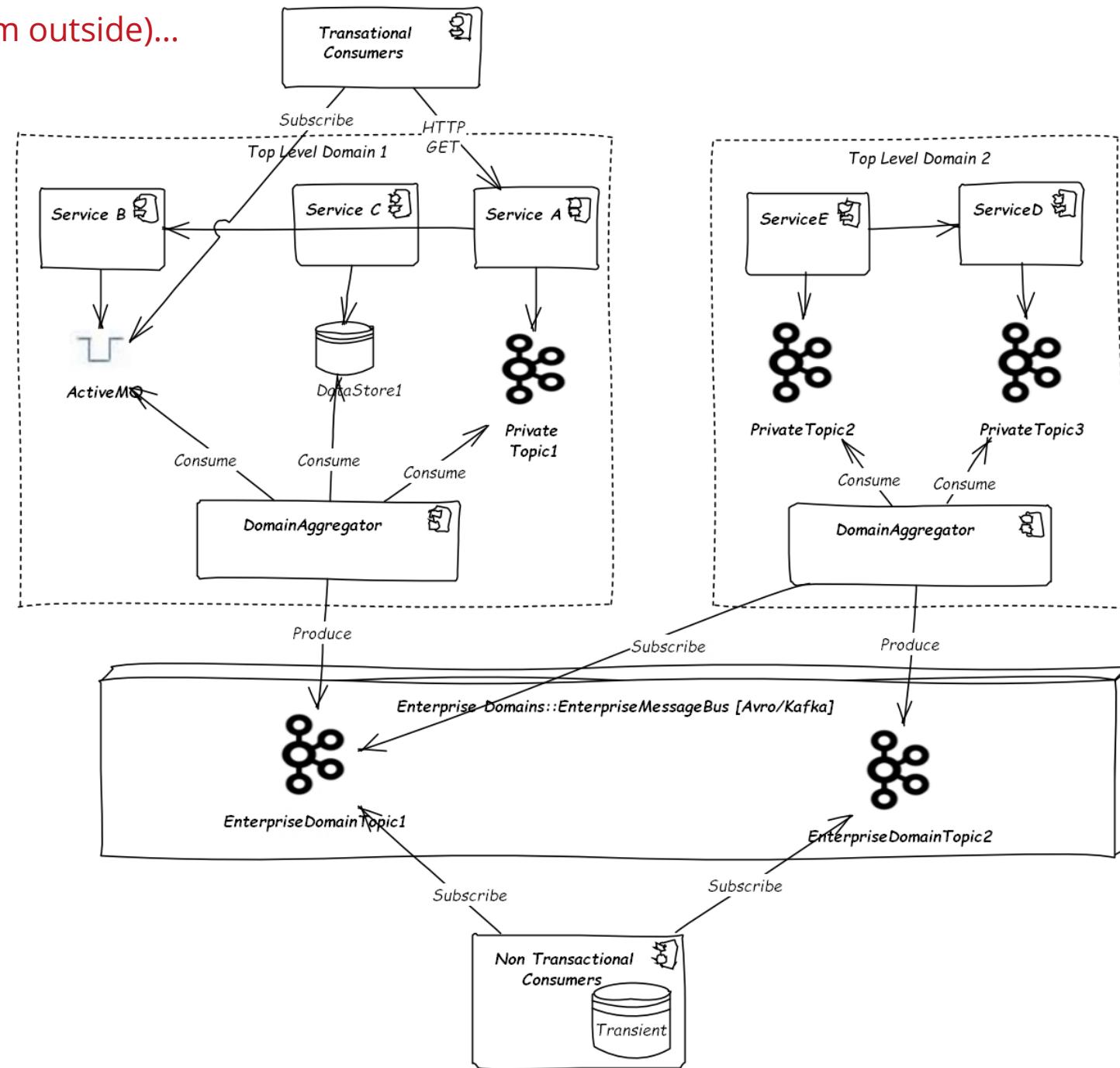
Short & Long-Range  
Small World Network  
Entanglement Entropy



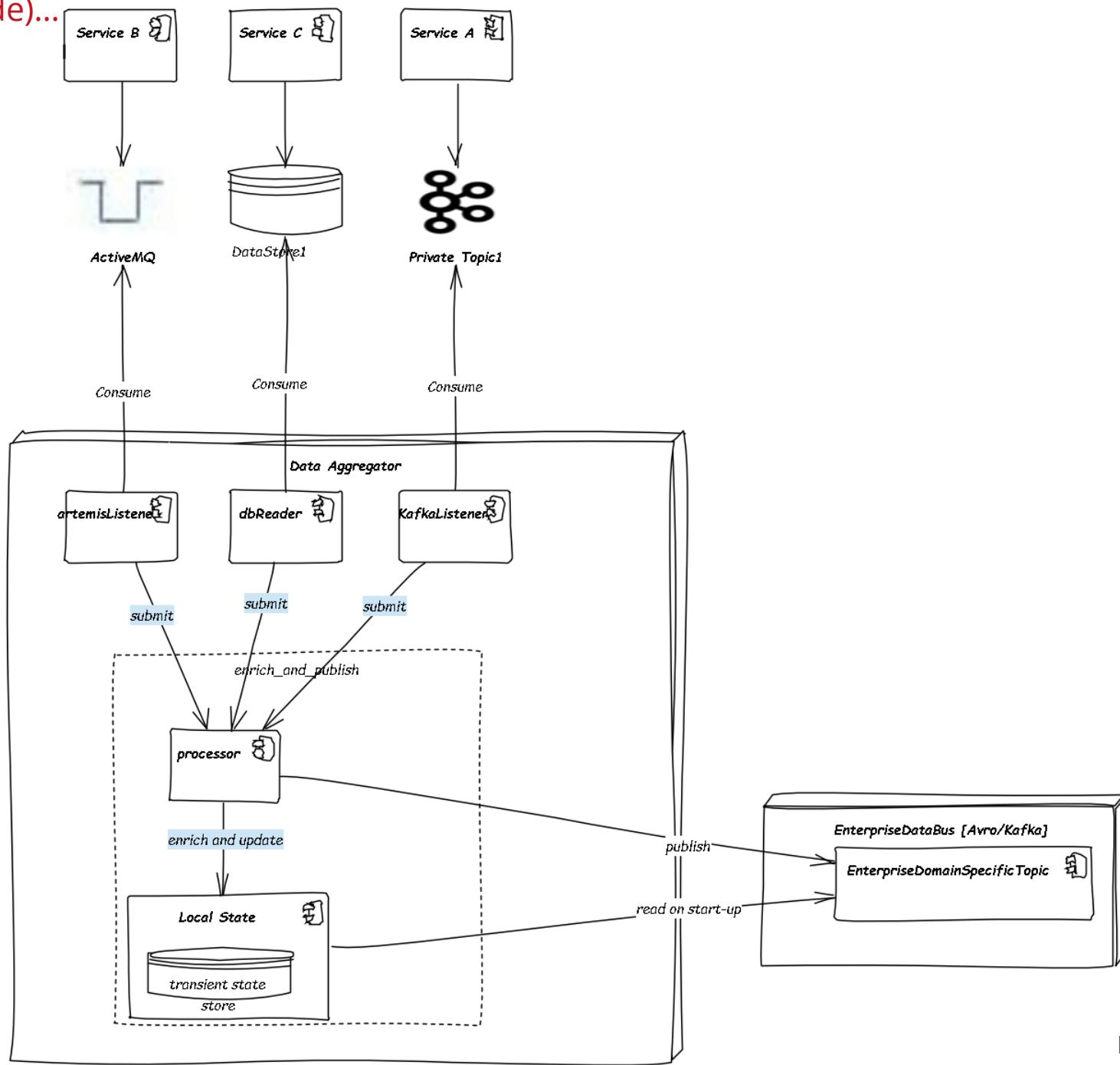
### Legend

<span style="background-color: #8090C0; border: 1px solid black; width: 15px; height: 15px;"></span>	Domain Aggregate
<span style="background-color: #C080C0; border: 1px solid black; width: 15px; height: 15px;"></span>	Subdomains
<span style="background-color: #80E0AA; border: 1px solid black; width: 15px; height: 15px;"></span>	Top Level Domains
<span style="background-color: #FFD966; border: 1px solid black; width: 15px; height: 15px;"></span>	Micro-Service

## Domain Aggregate (from outside)...



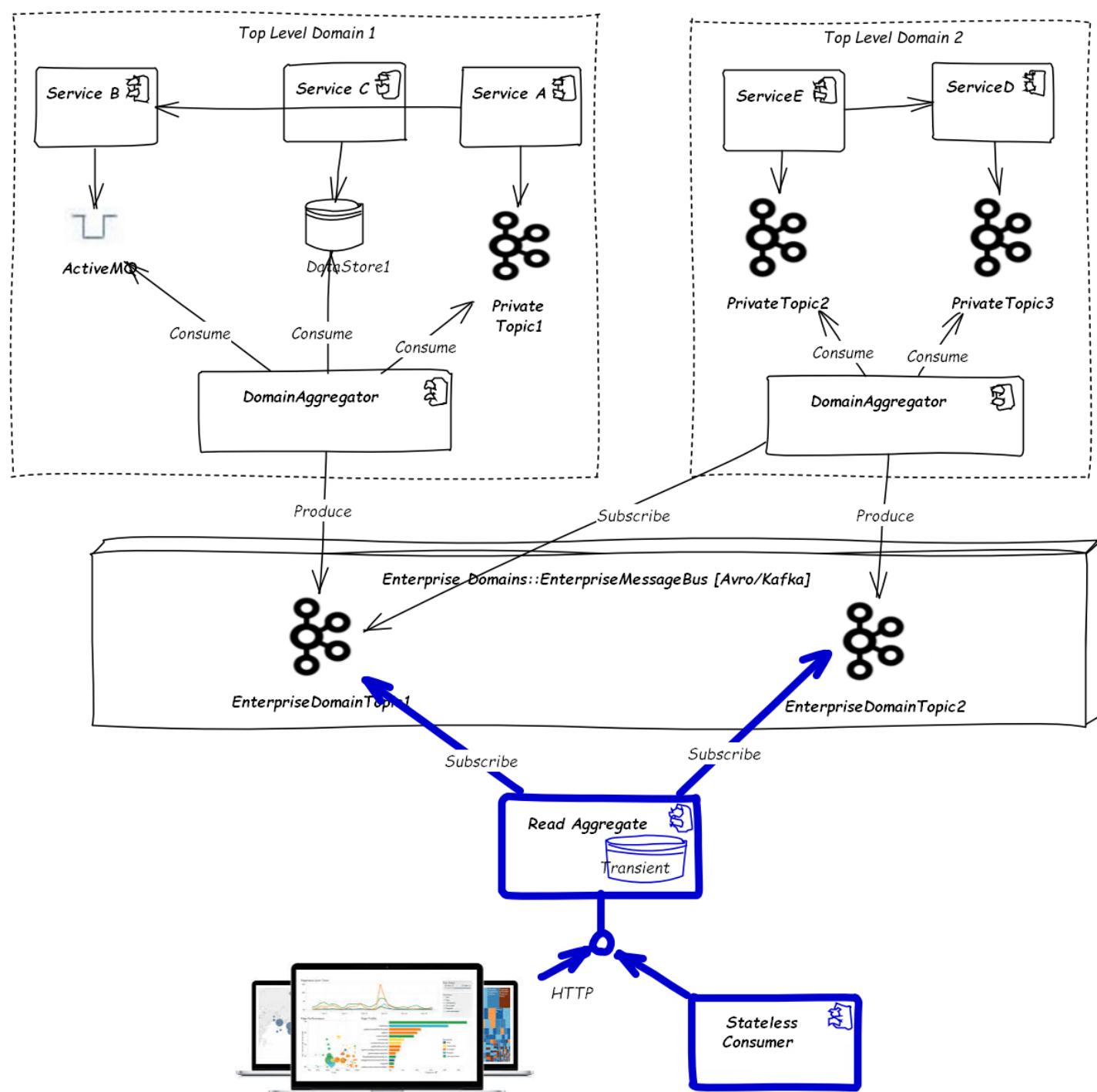
## Domain Aggregate (from inside)...

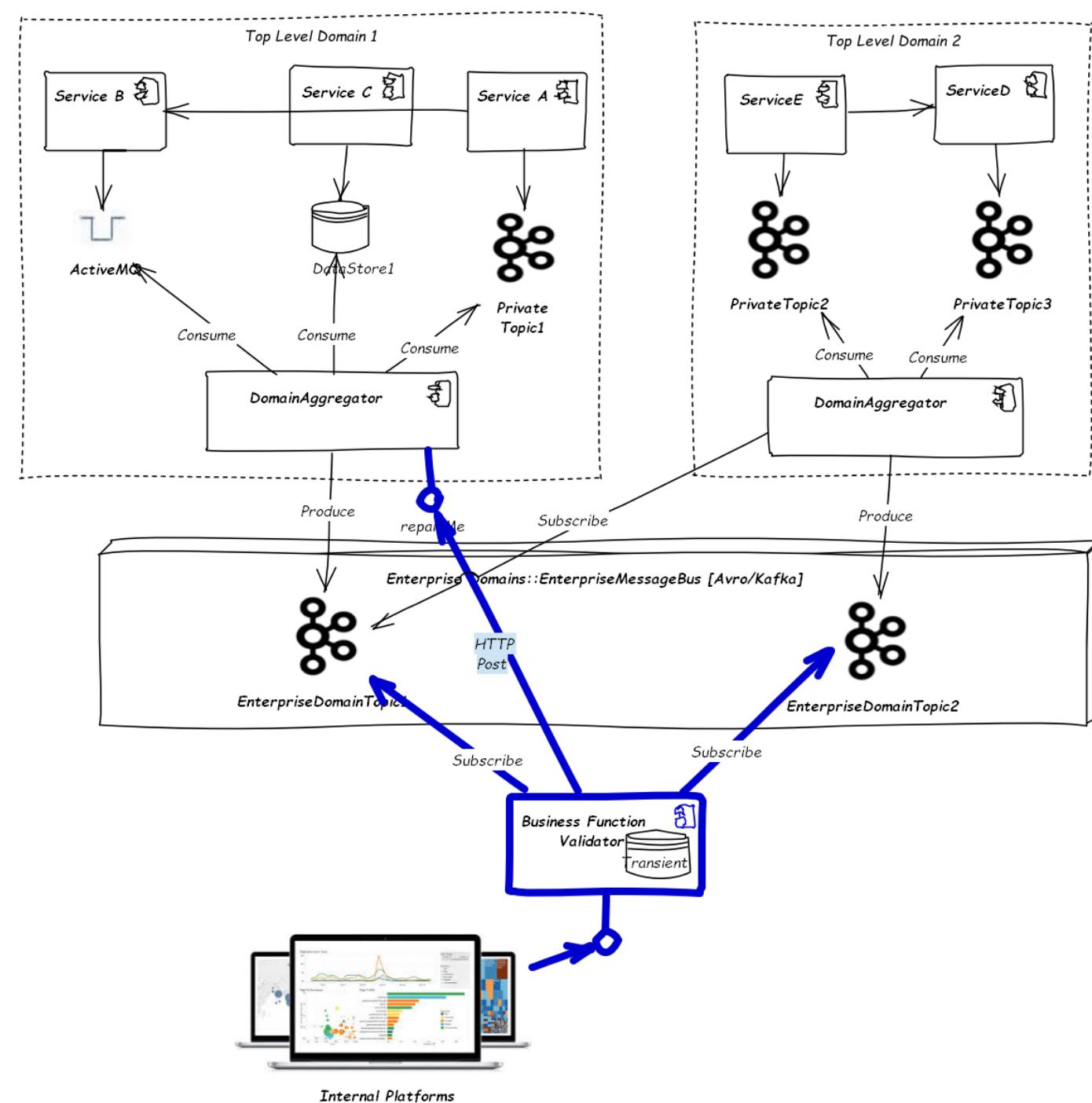


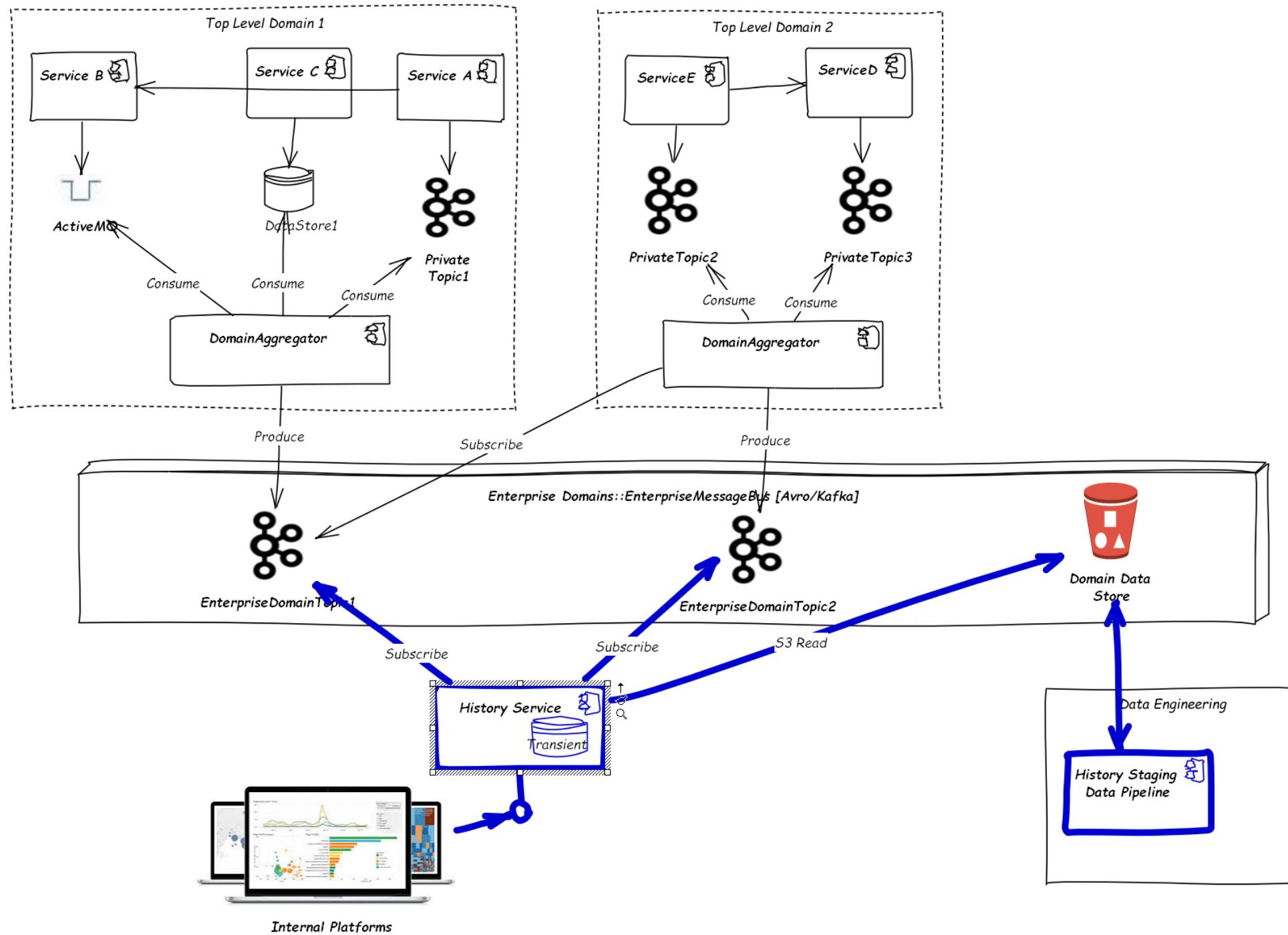
# Architecture Implementation Patterns

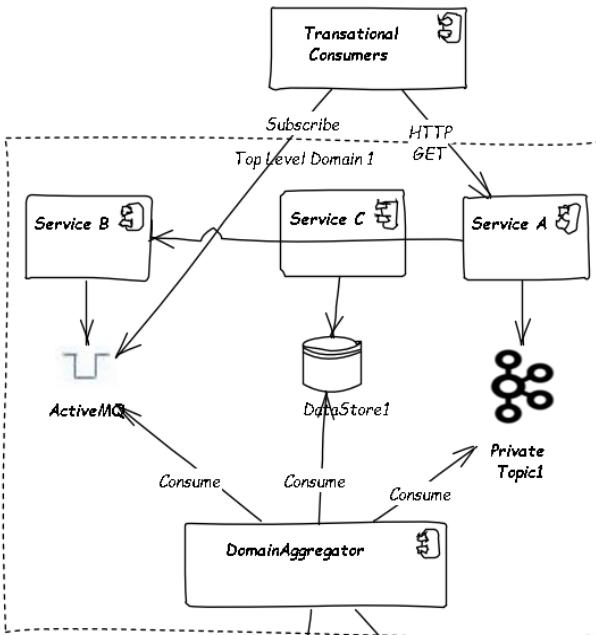


- Domain Aggregate
- Read Aggregate
- Business Function Validator
- History Services
- Cloud Extension

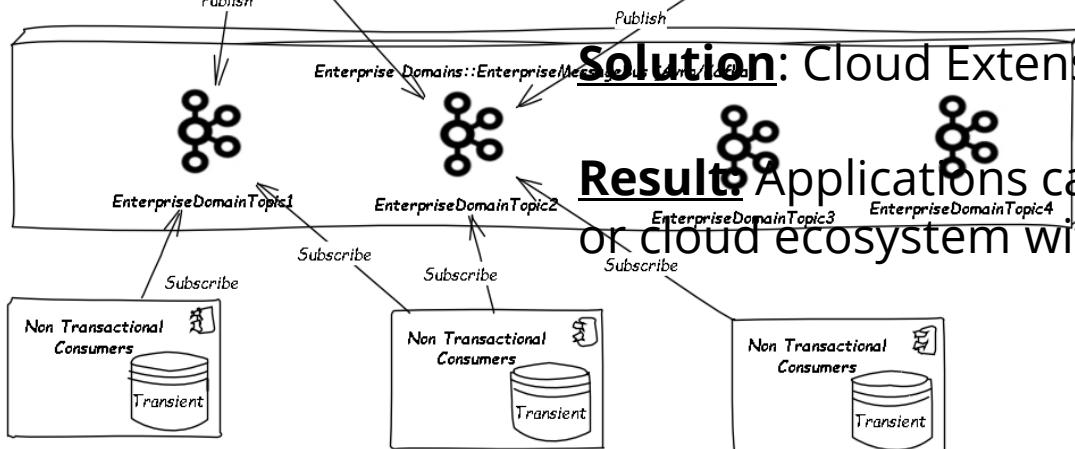




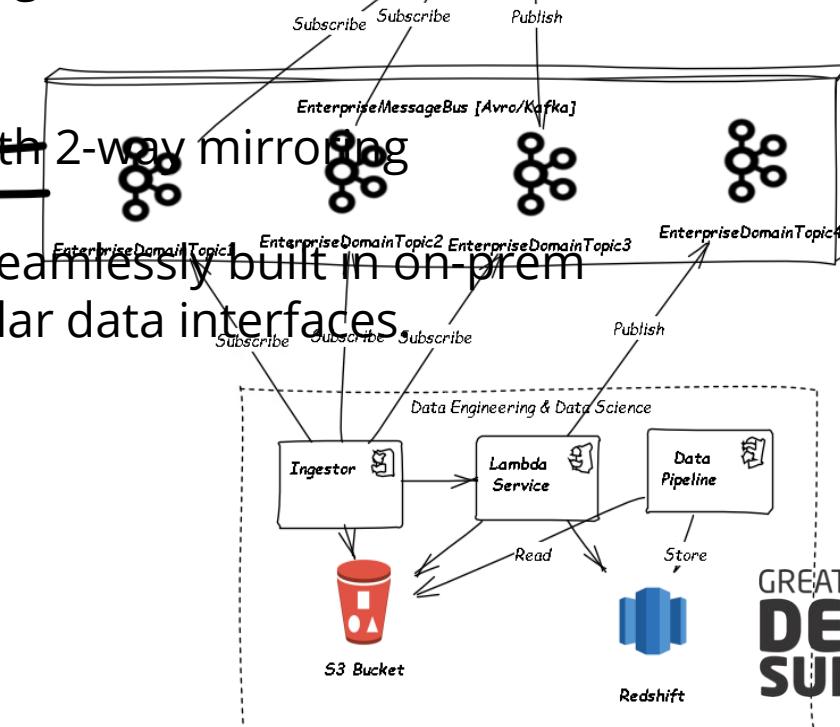
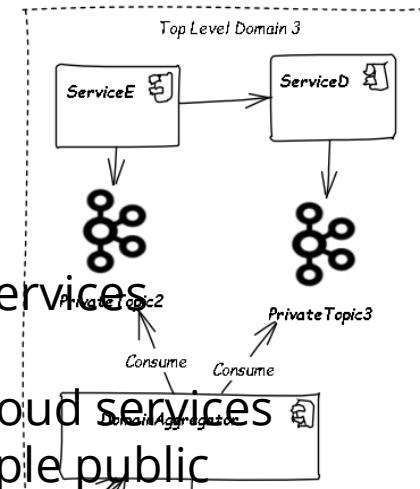


*On Prem***Cloud Extension Pattern.. adopting cloud services**

**Problem:** With a growing need to leverage cloud services how can enterprise integrate best with multiple public cloud ecosystem while keeping the architecture harmonized.

**Solution: Cloud Extension with 2-way mirroring**

**Result:** Applications can be seamlessly built in on-prem or cloud ecosystem with similar data interfaces.

*AWS*

# Value unlocked..

Lambda/Kappa architecture patterns.. for validations, surveillance near real time reporting and analysis (ongoing work..)

Hybrid cloud architecture patterns for dev-ops and truly lean delivery

App Elasticity .. Fault tolerant, highly scalable, elastic apps deployed cross data centres

Telemetry made easy with domain events

# Key things to watch for..

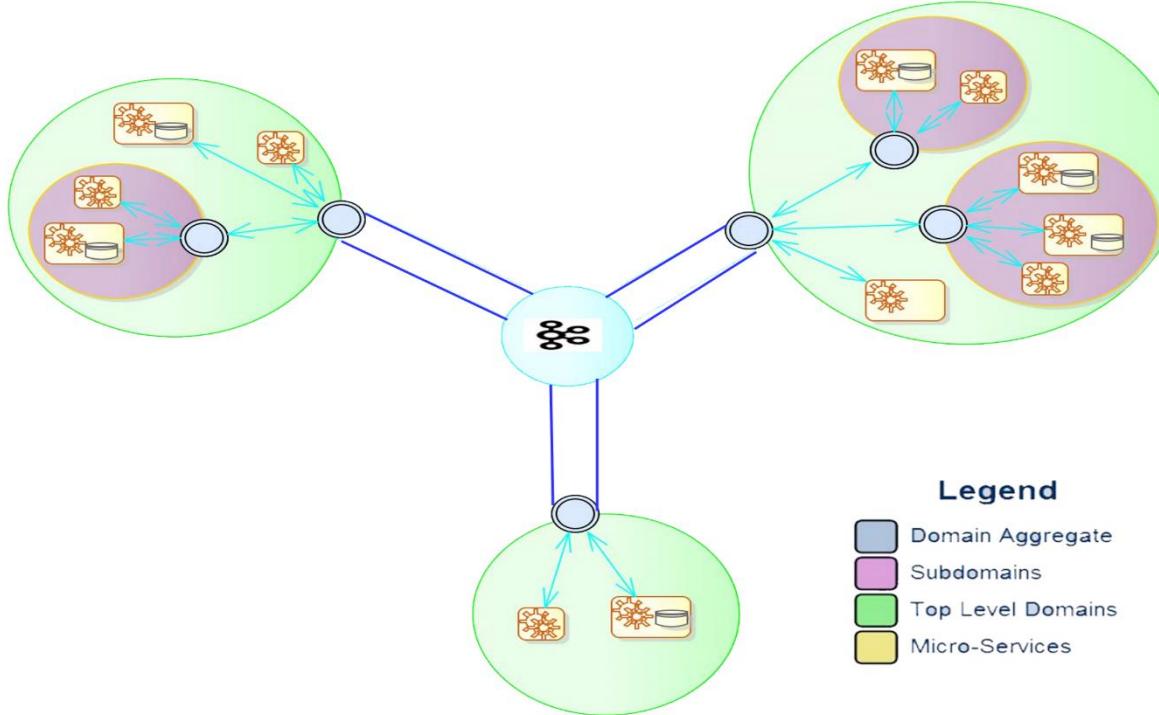
Schema evolution & breaking(non-backward compatible) changes need considering

Continuous need for automated-governance tools

Reactive Apps deal with complexity but consider behavior modelling

Nothing compensates for good monitoring and system telemetry

# Key Takeaways..



Identifying level of abstractions for enterprise communications is essential.

Domain aggregate pattern helps in starting transition from current state

Implementation patterns simplify transition.

# Thank you!



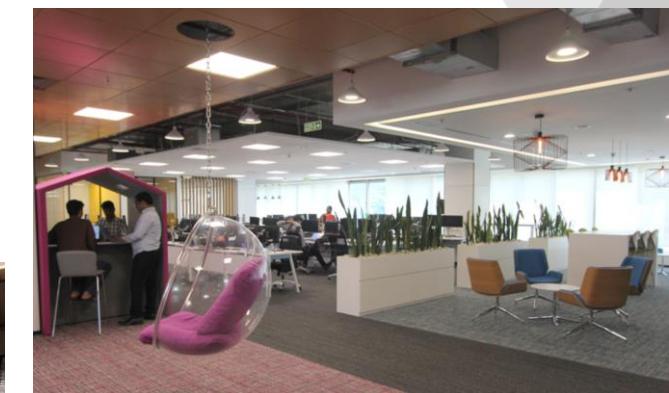
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