

March 6, 2018

Strategies for Decentralized Data Management in Microservices Architectures

O'Reilly Software Architecture Conference

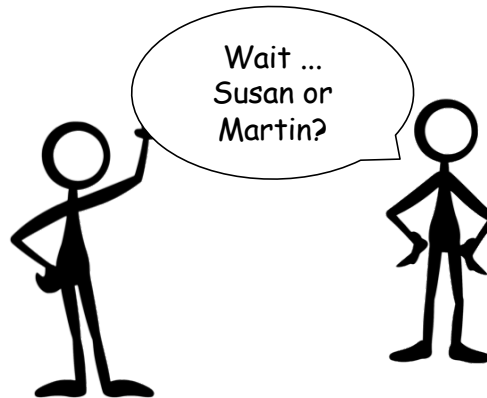
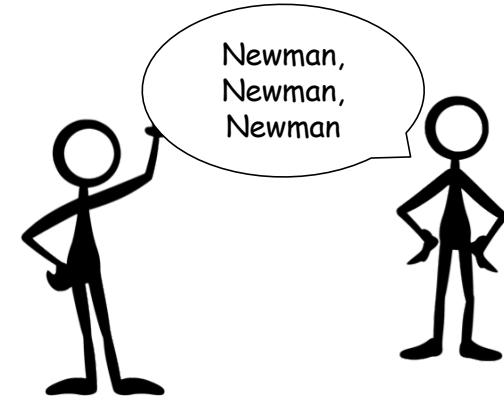
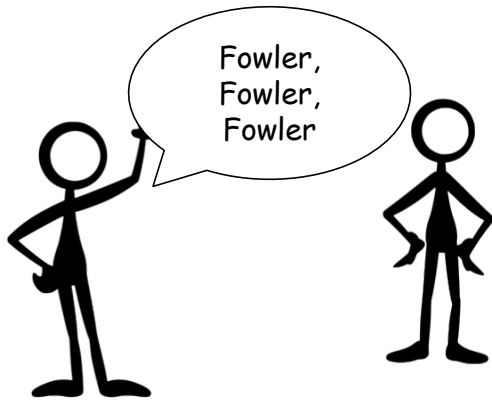
2/27/2018

@jpmorgenthal

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▼ Microservices is the new <put popular silver bullet solution here>





What I Like About Microservices

- Ease of scaling in and out
- Low likelihood of introducing entanglements as a technical debt
- Separation of concerns
- Isolation of change
- Simplified Testing



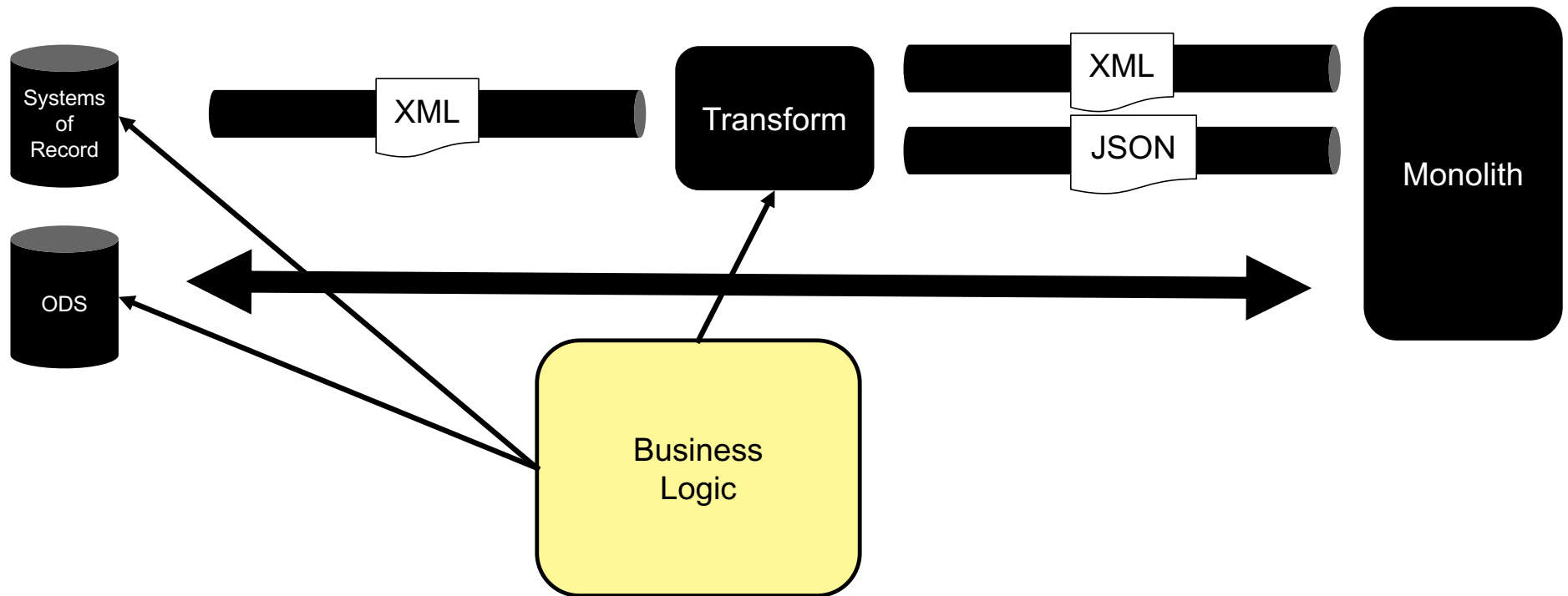
What is the goal?



Goals of Decentralized Data Management (DDM) in μ Services Architectures

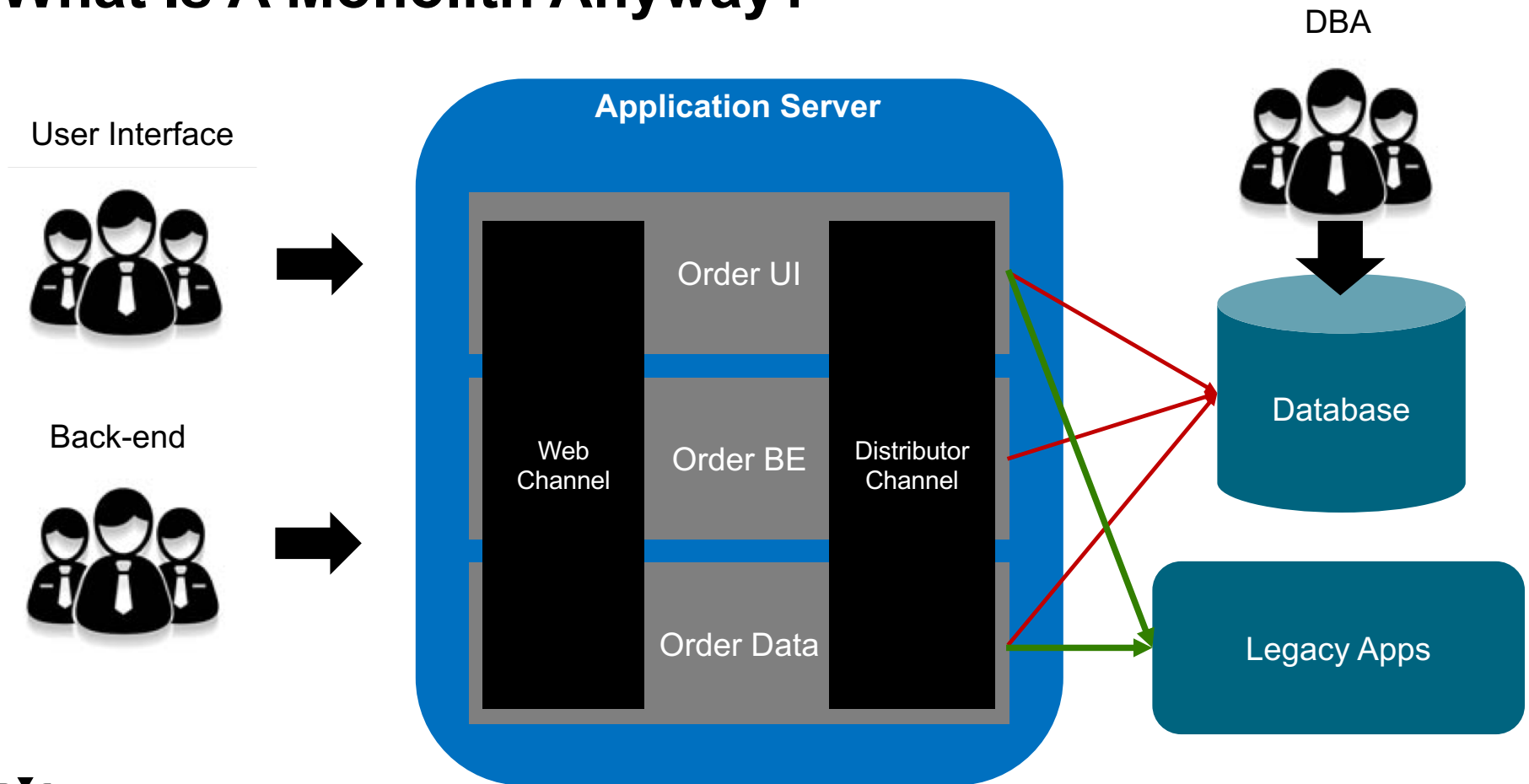
- Remove scaling limits due to data access**
- Isolation of change**
 - Shifting to microservices facilitates the possibility of staging data before commit
- Reduced fragility**
 - Data model changes have less potential for application-wide impact
- Easier introduction for emerging data management technologies**
- Easier modeling of multi-pathing for performance**
- Simplified detection and correction of exceptions in production**
- Removal of assumptions that lead to increased technical debt**

DDM Addresses Both Messaging and Persistence



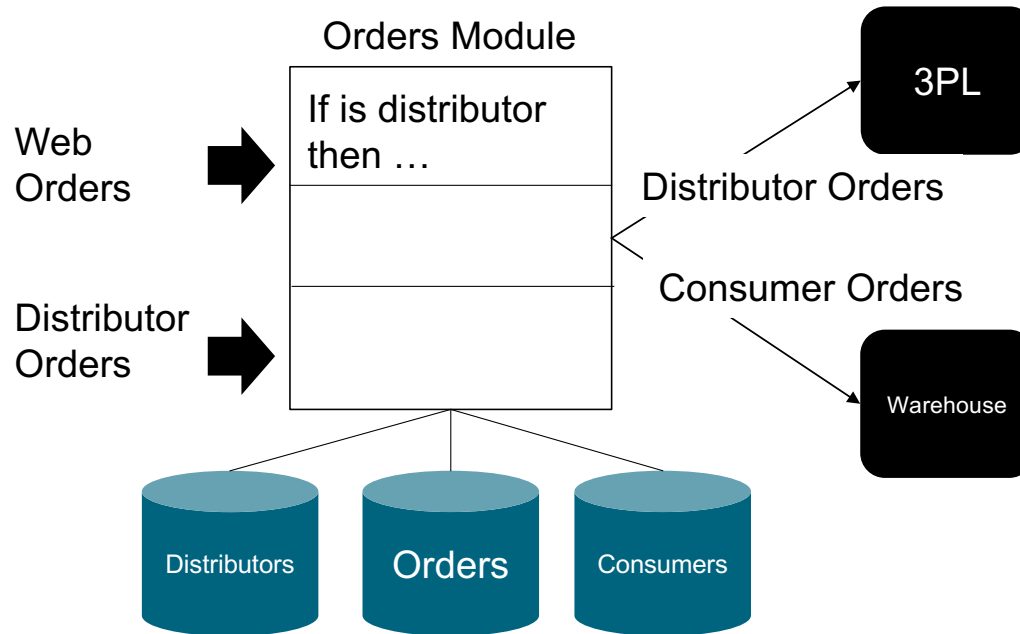


What Is A Monolith Anyway?



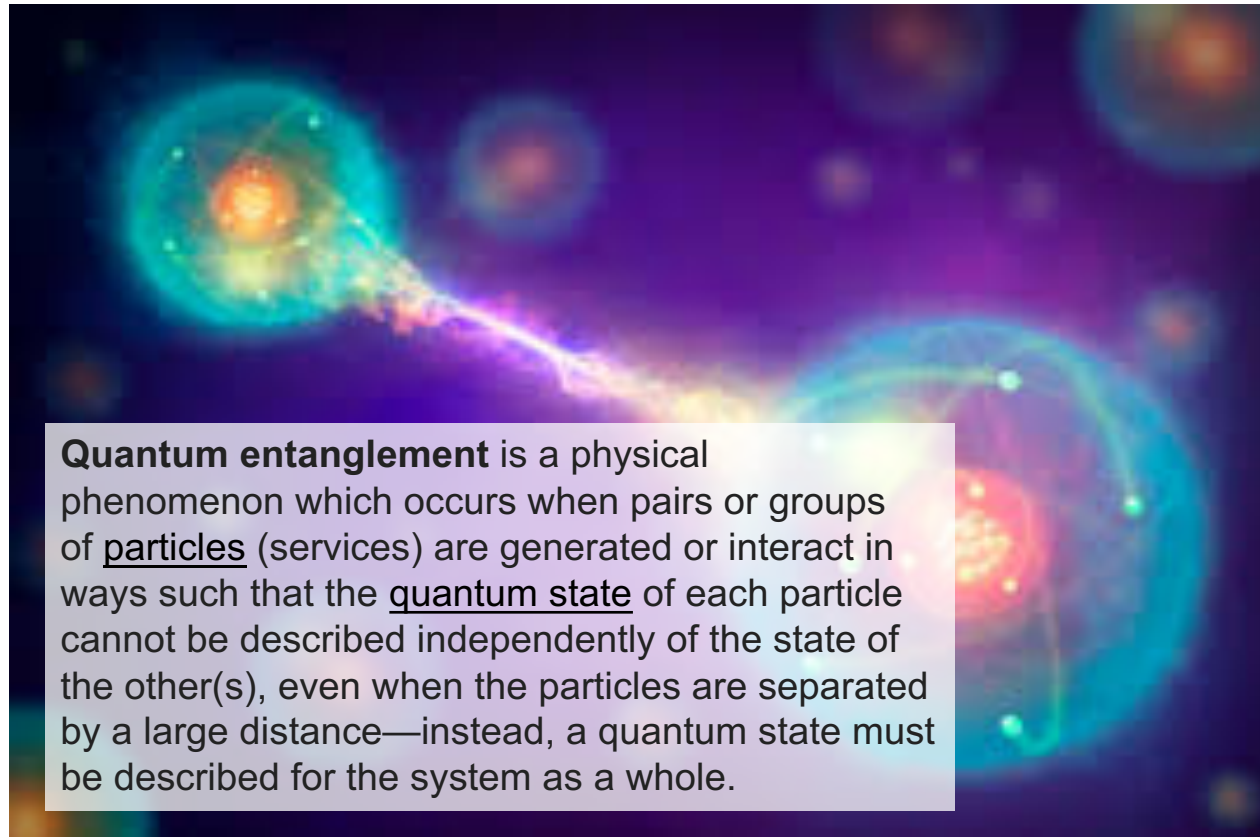


To create individual Web and Distributor μ Services we must deal with the entanglement of data and process



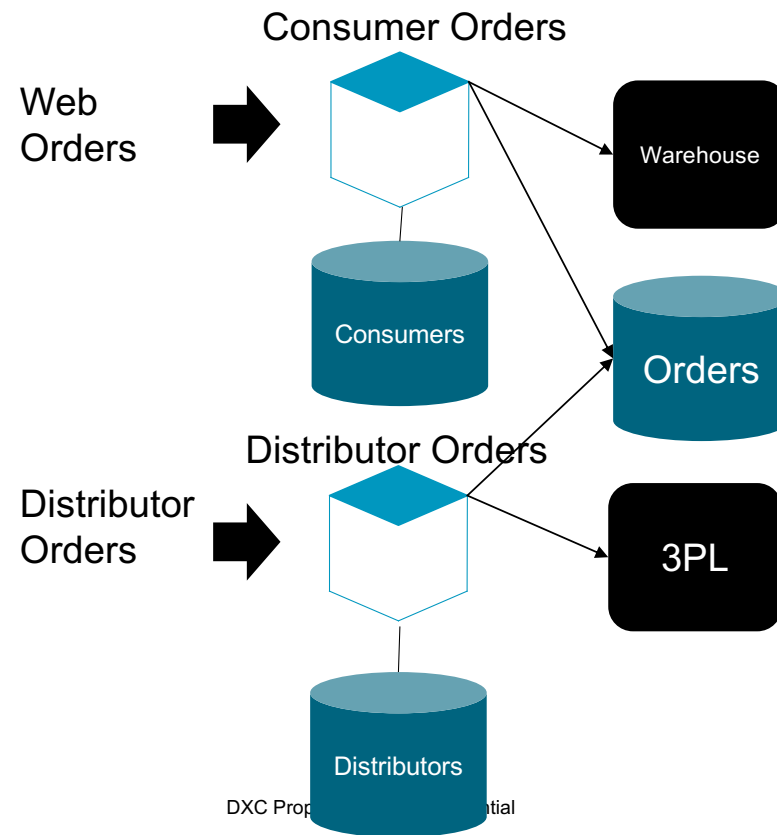


The Risk With μ Services Is Entanglement



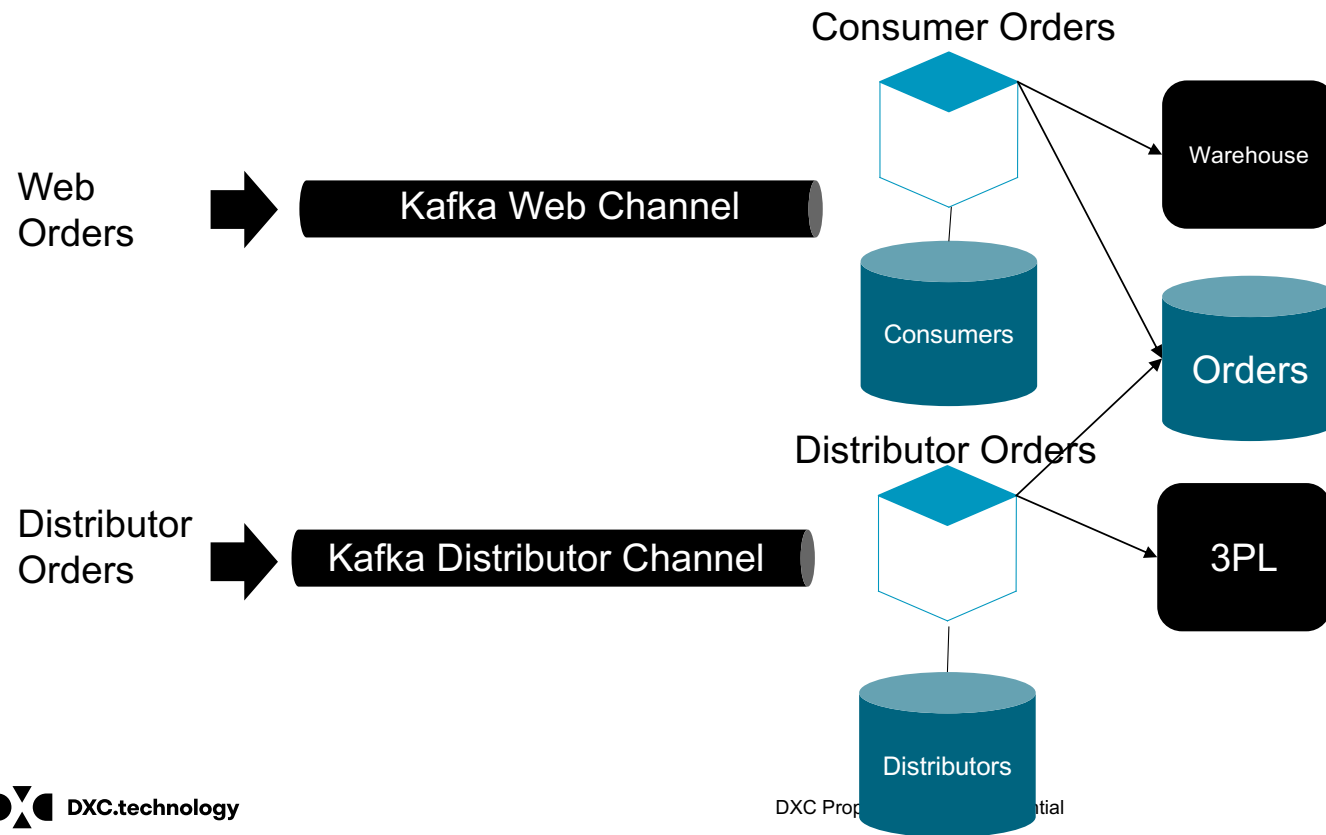


Phase 1 Decomposition





Phase 1 Decomposition



PROS:

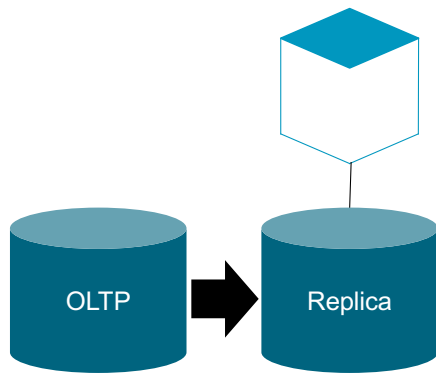
- Service failures don't lead to indeterminable state
- Simplifies troubleshooting in production
- Allows other services to subscribe to same content reducing need for dependencies
- Additional scaling options

CONS:

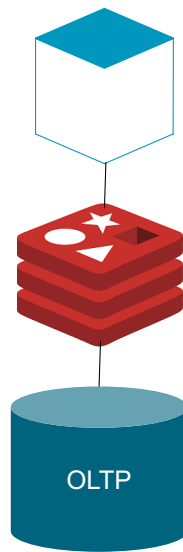
- Increased complexity of overall system
-



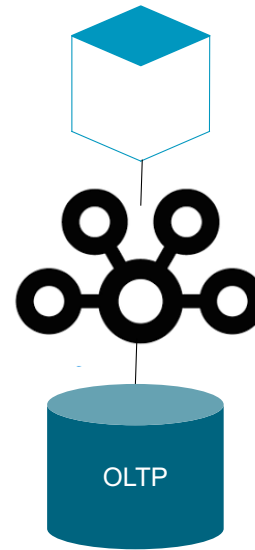
DDM Patterns



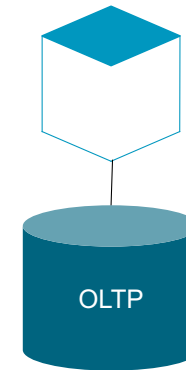
Read Only Replica



Write-Thru Cache



Streaming

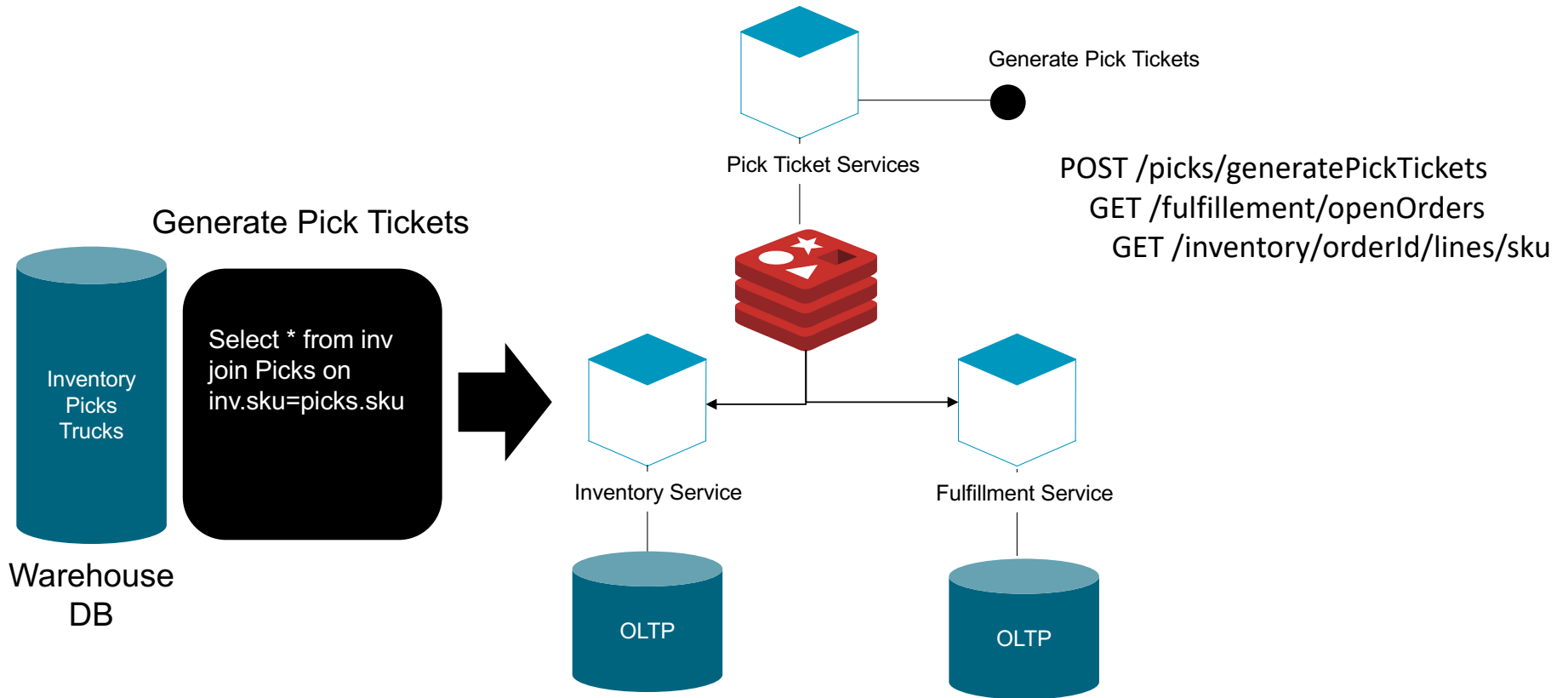


ACID



DDM Patterns

Join Pattern



Thank you.

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