

AGENDA - Day 5 - 6

Event Driven Architecture (top level architecture)

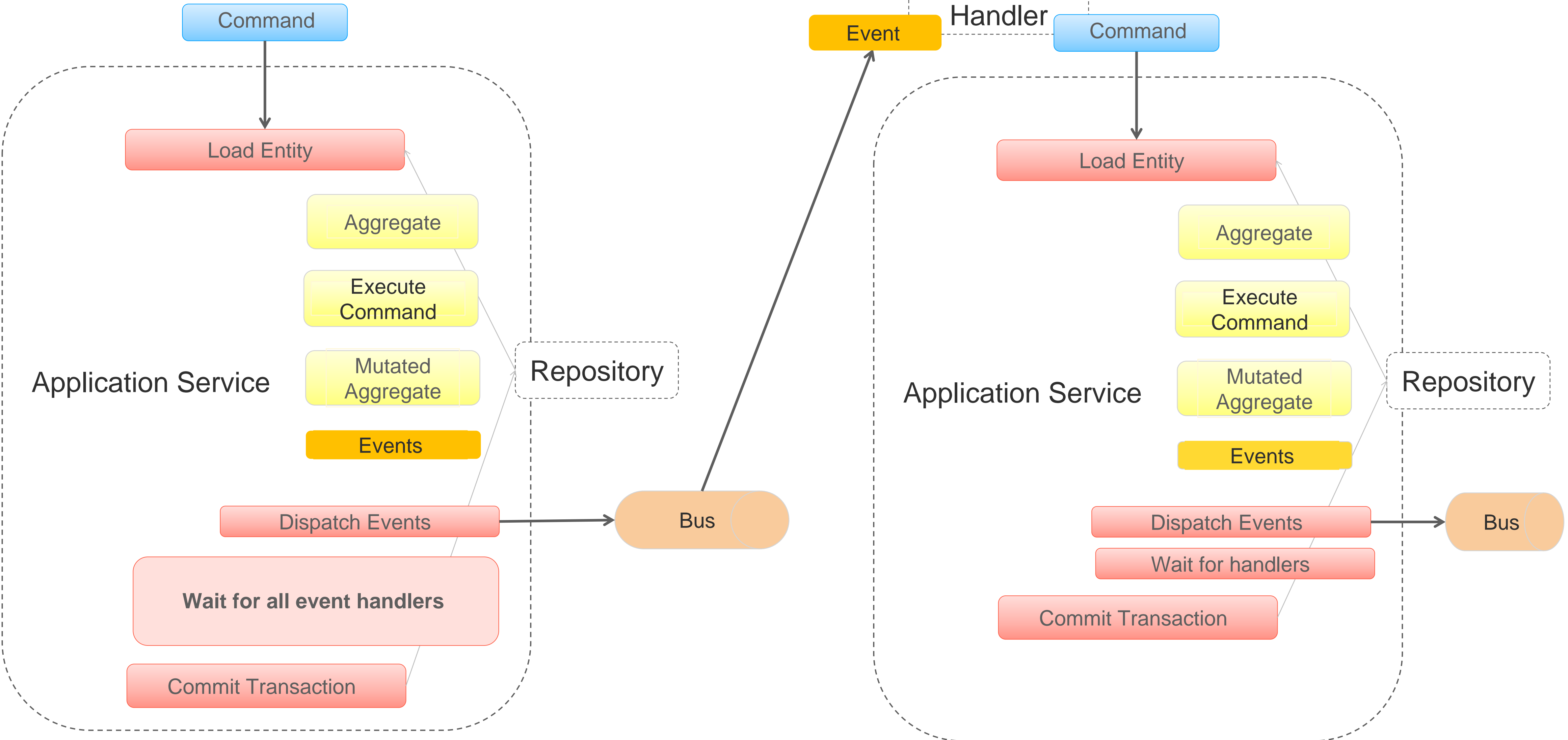
- Domain events produced in the Aggregate
- Domain events dispatcher
- Outbox solution
- Change data capture or change stream feeds solution
- Integration events (notification style or fat style)

Process Managers

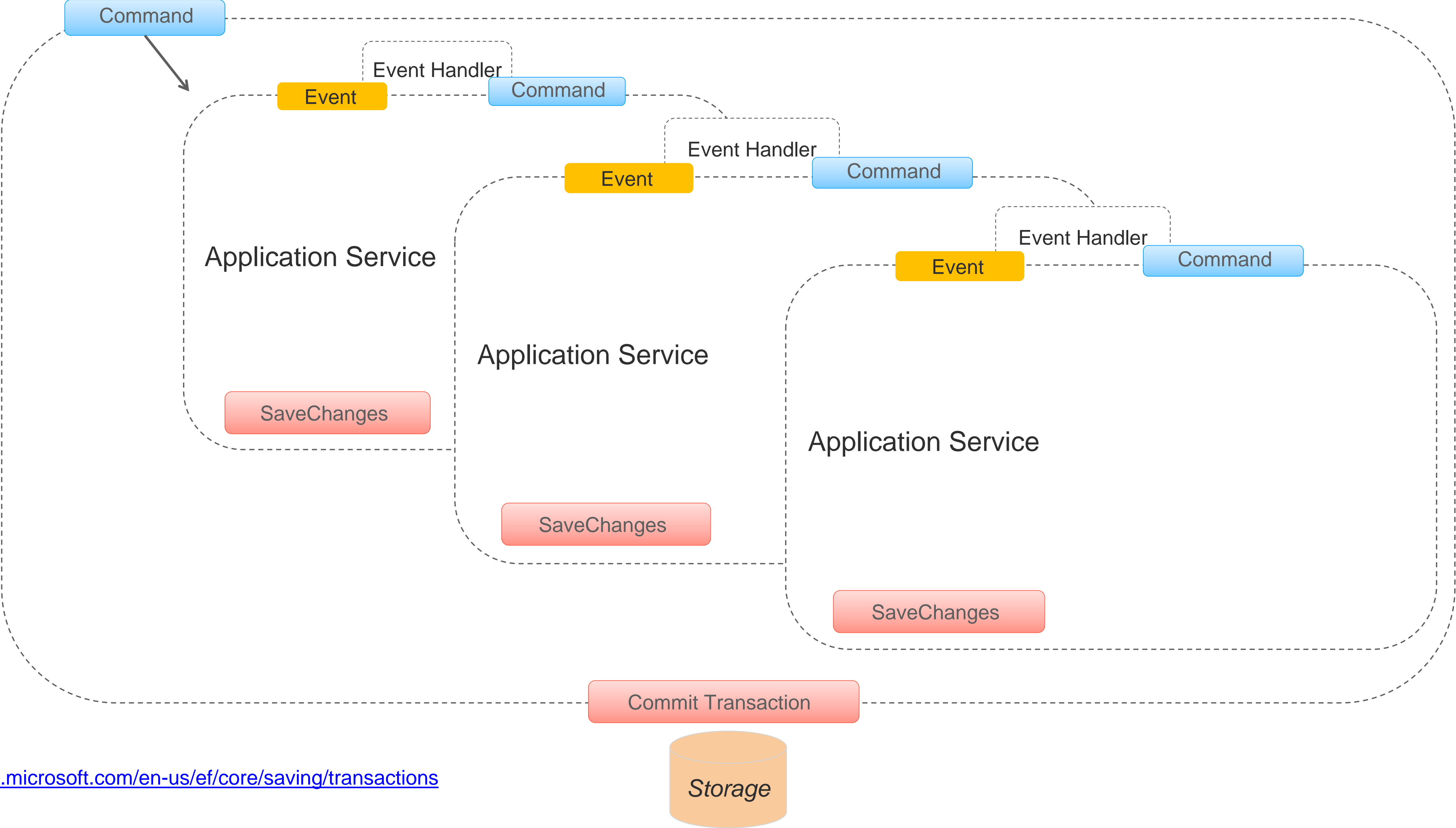
Queries with Microservices

Event Sourcing

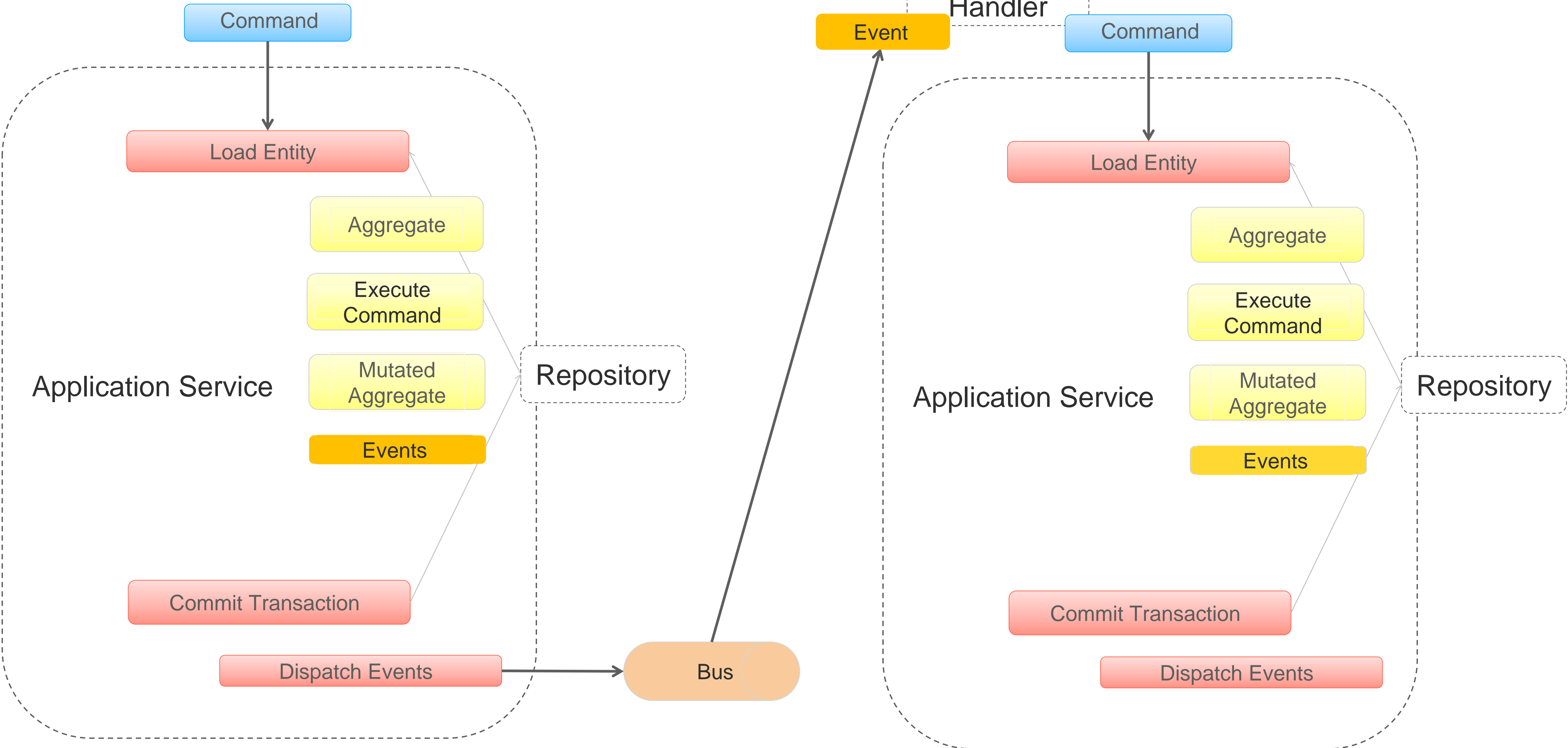
Dispatching Domain Events Before Transaction



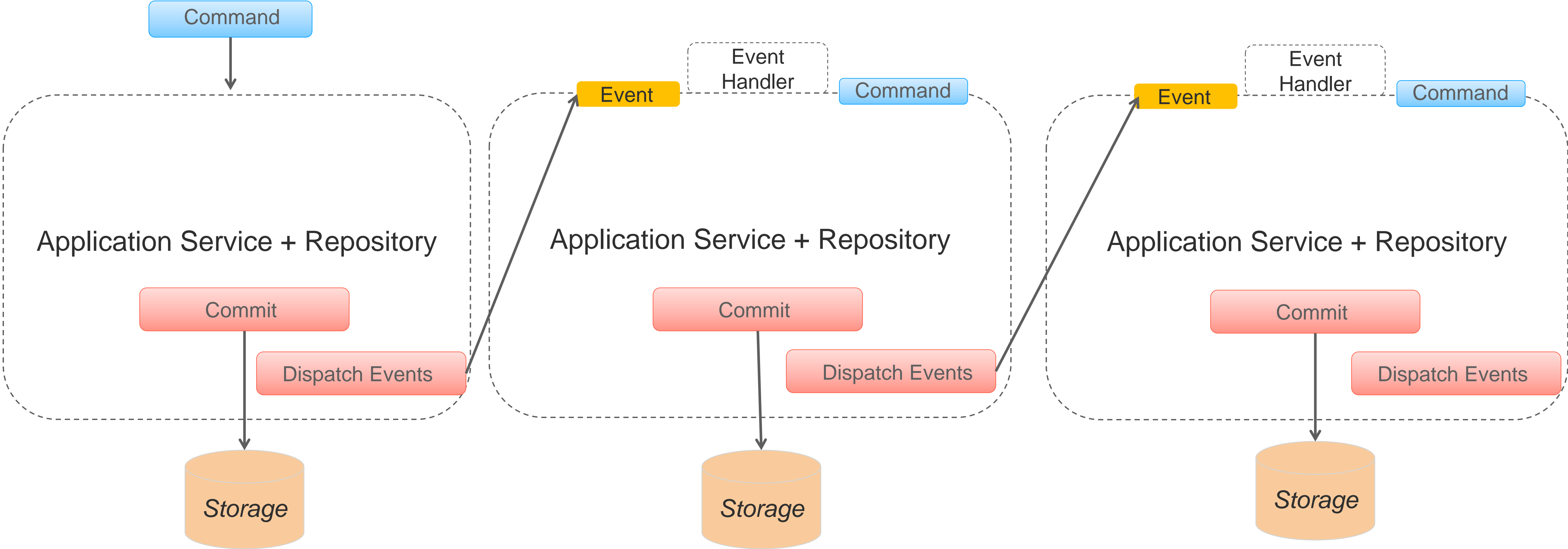
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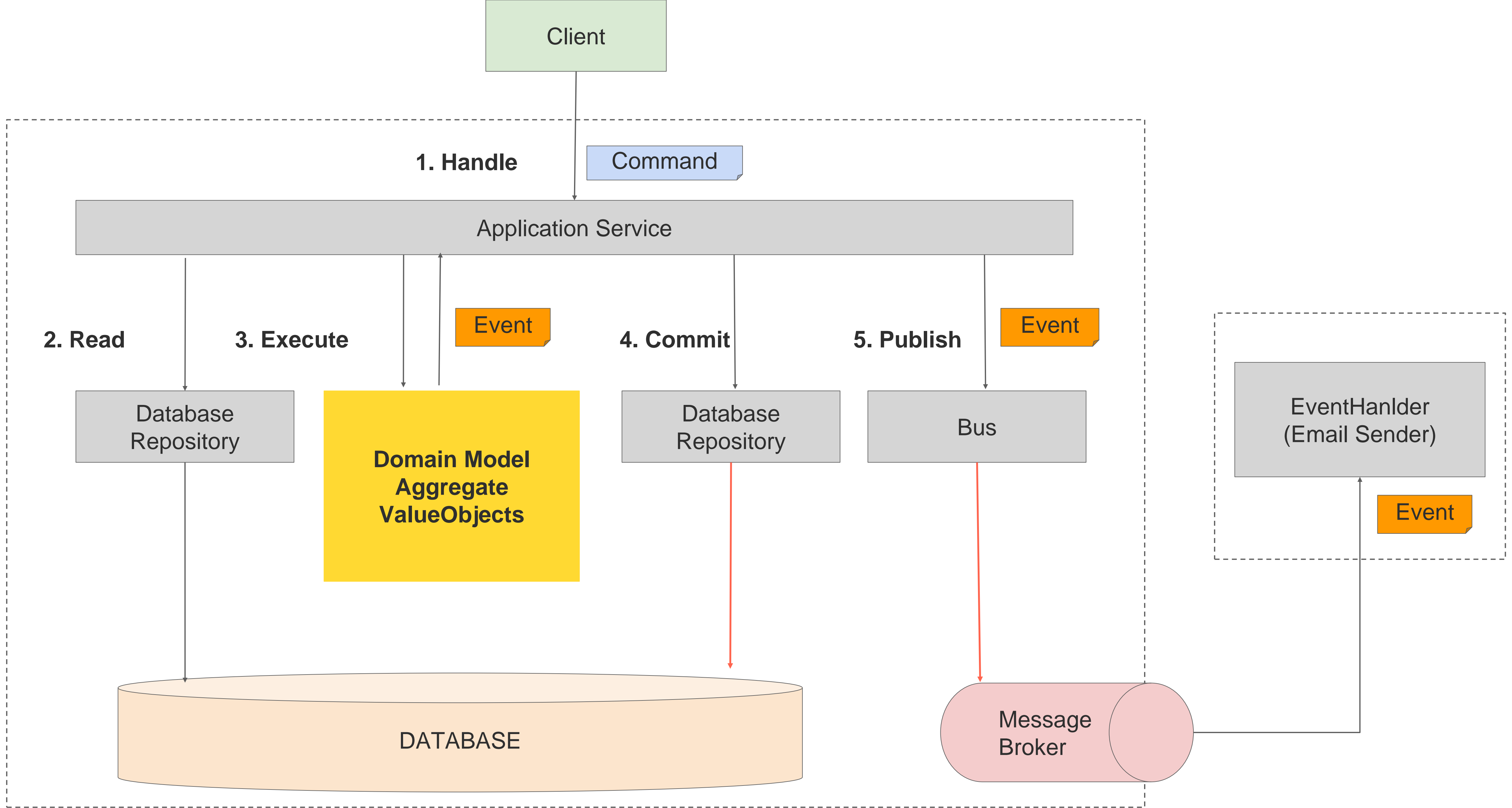
Dispatching Domain Events After Transaction



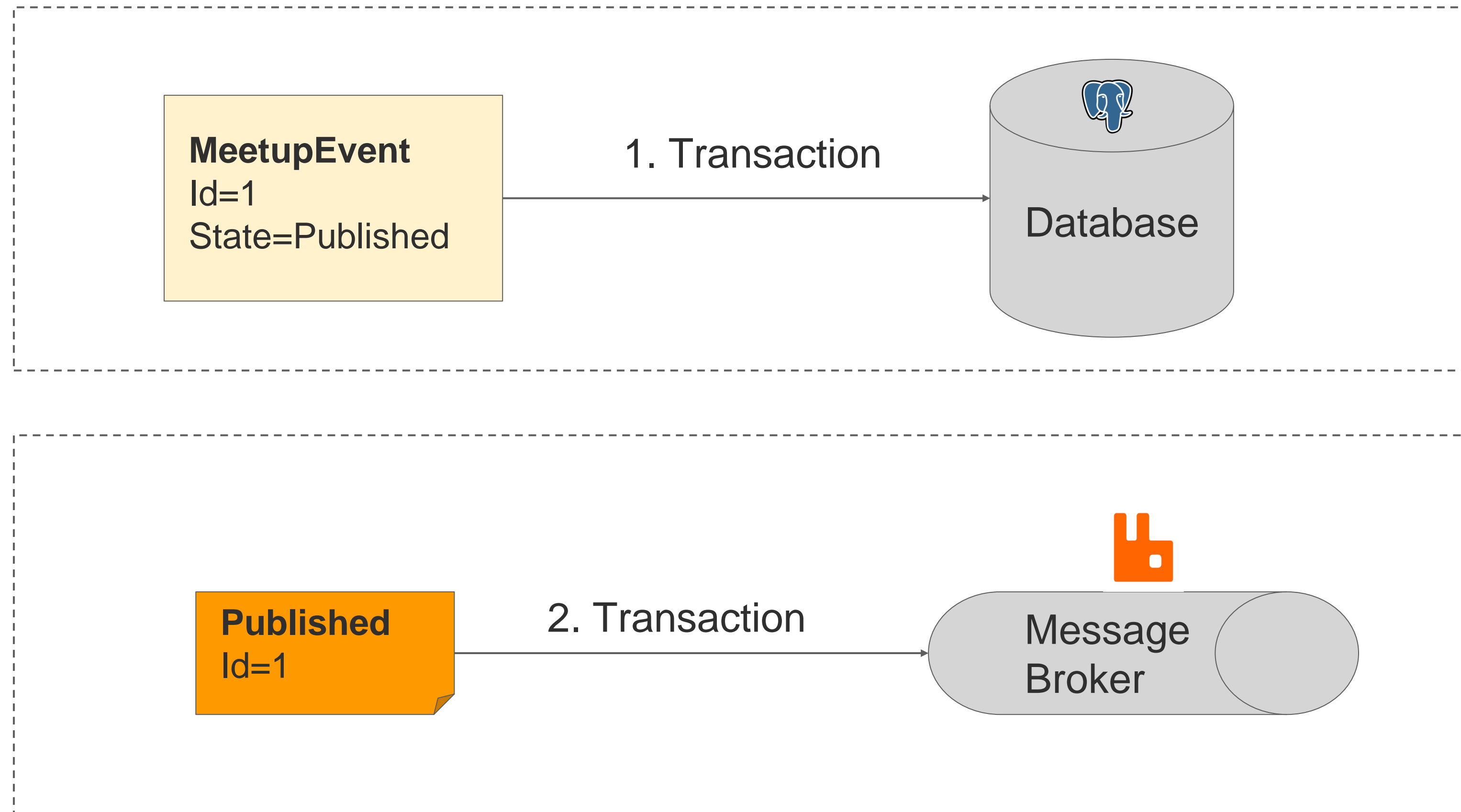
Dispatching Domain Events After Transaction



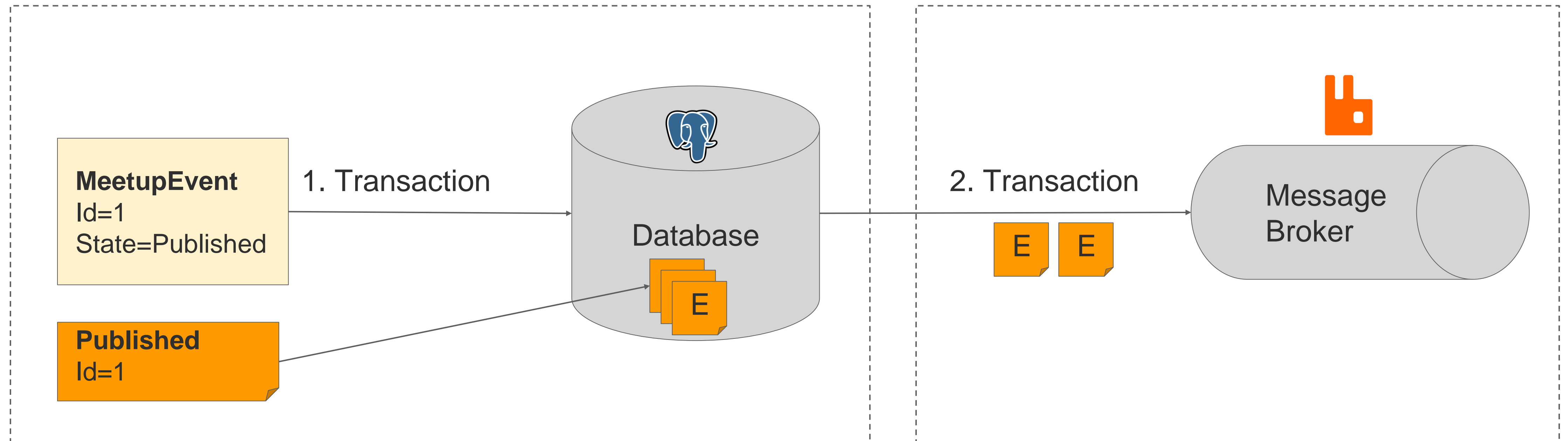
Dispatching events: Distributed Transactions Problem



Dispatching events: Distributed Transactions Problem



Dispatching events: outbox pattern solution



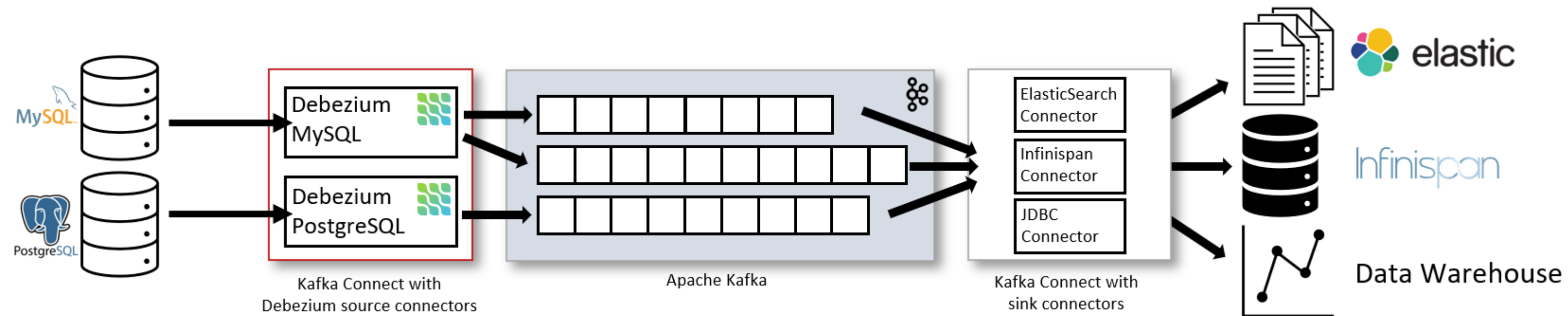
<https://exactly-once.github.io/posts/improving-outbox/>

<https://docs.particular.net/nservicebus/outbox/>

<https://microservices.io/patterns/data/transactional-outbox.html>

<https://github.com/Particular/NServiceBus/blob/1c5f8faa7d679720dde7cc90310181aefdb7604f/src/NServiceBus.Core/Pipeline/Incoming/TransportReceiveToPhysicalMessageConnector.cs#L30>

Change Data Capture Systems



<https://debezium.io/documentation/reference/1.4/architecture.html>

Built-in change data capture systems

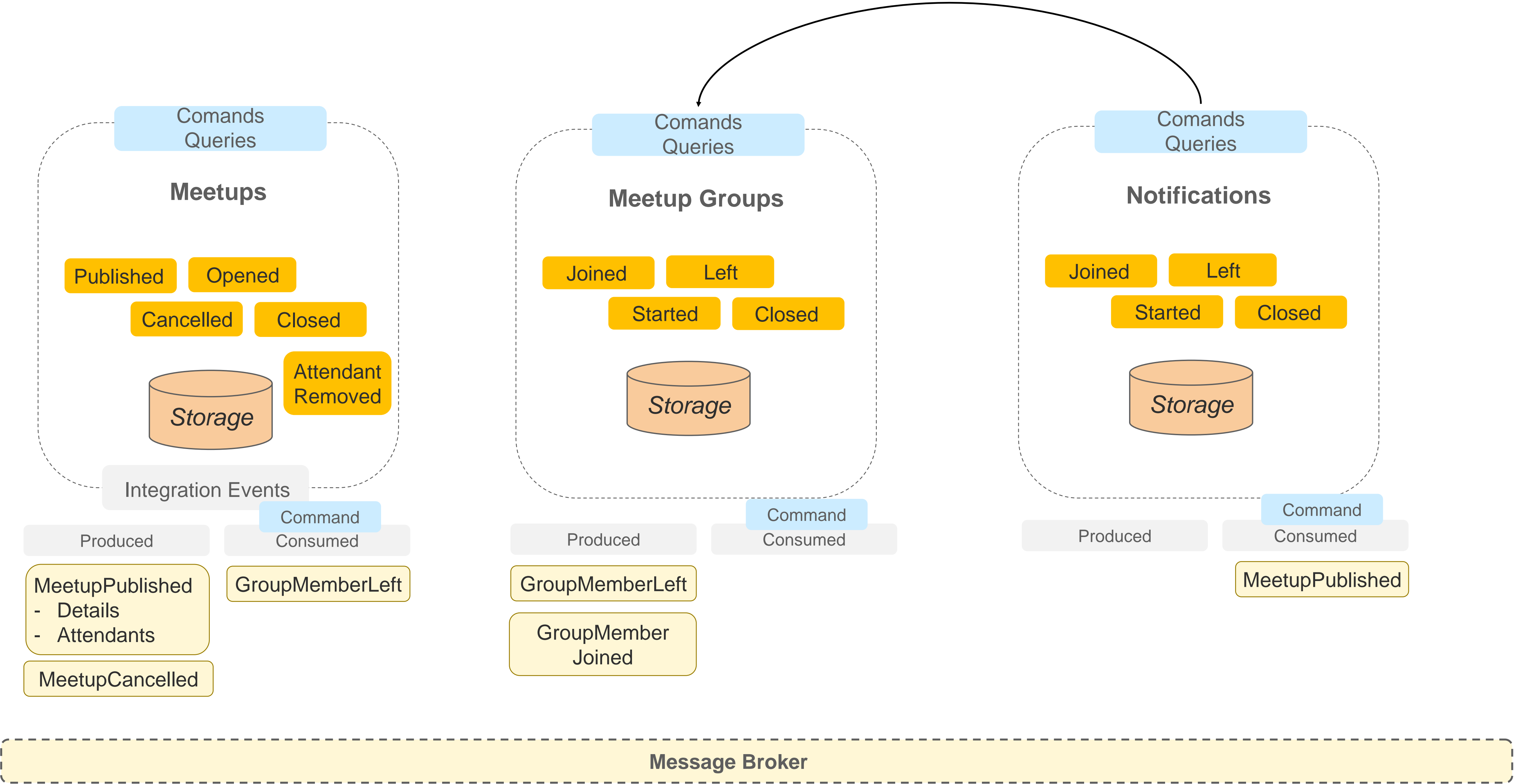
EventStoreDB (Subscriptions)

MongoDB (Change Stream)

CosmosDB (Change Feed)

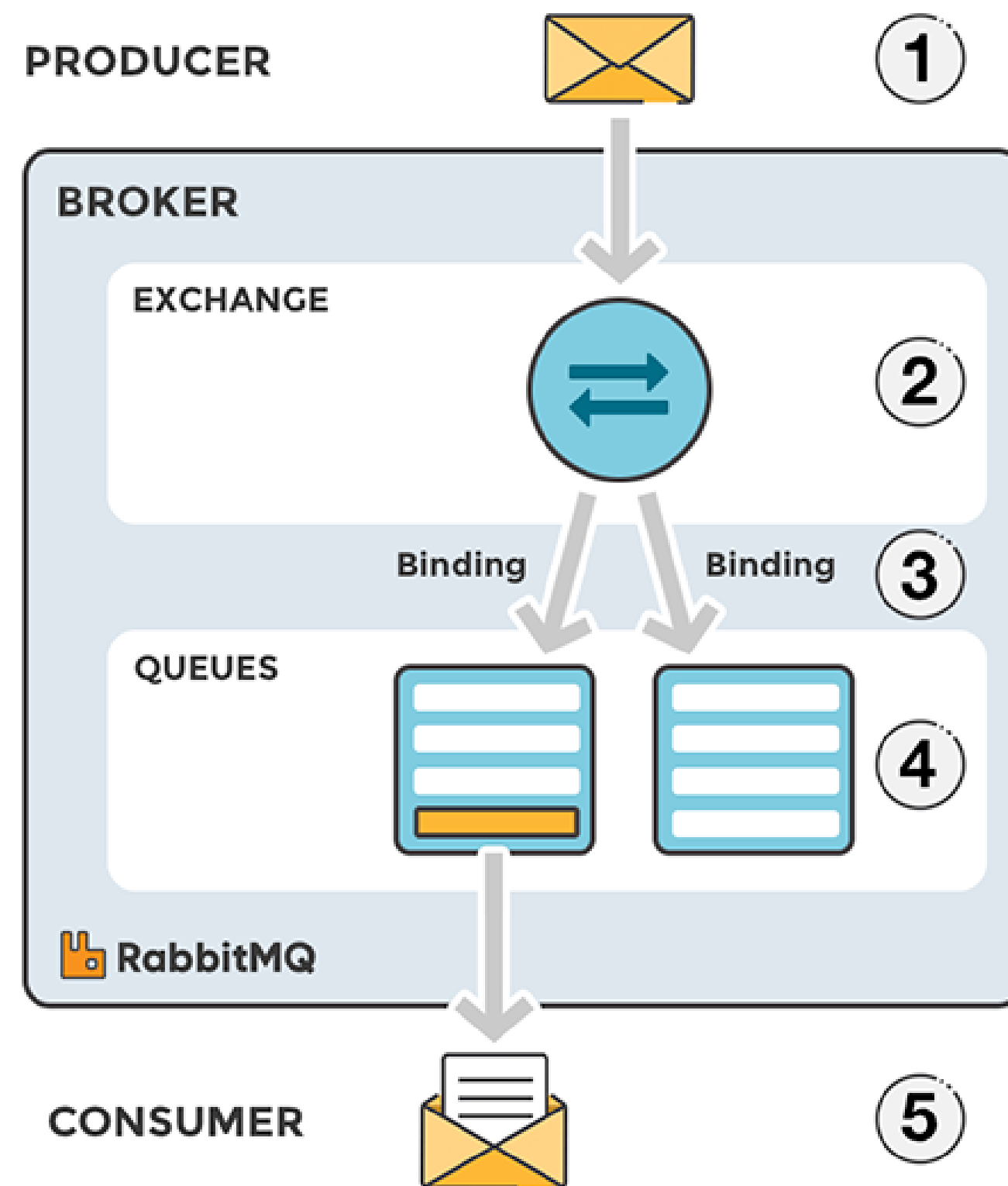
Kafka (Consumer Groups)

Integration Events: Data Inside vs Data Outside



Message Brokers: RabbitMQ

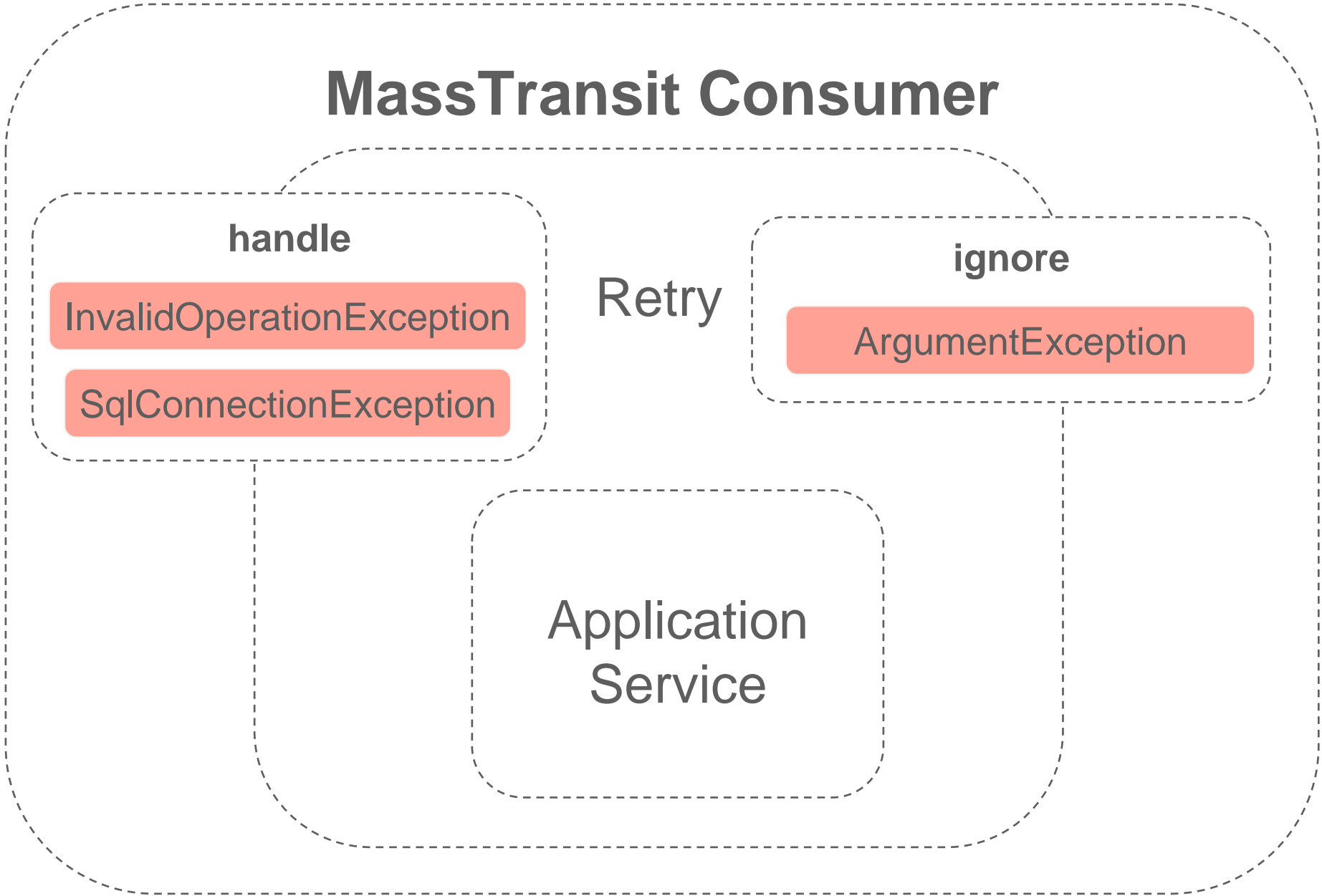
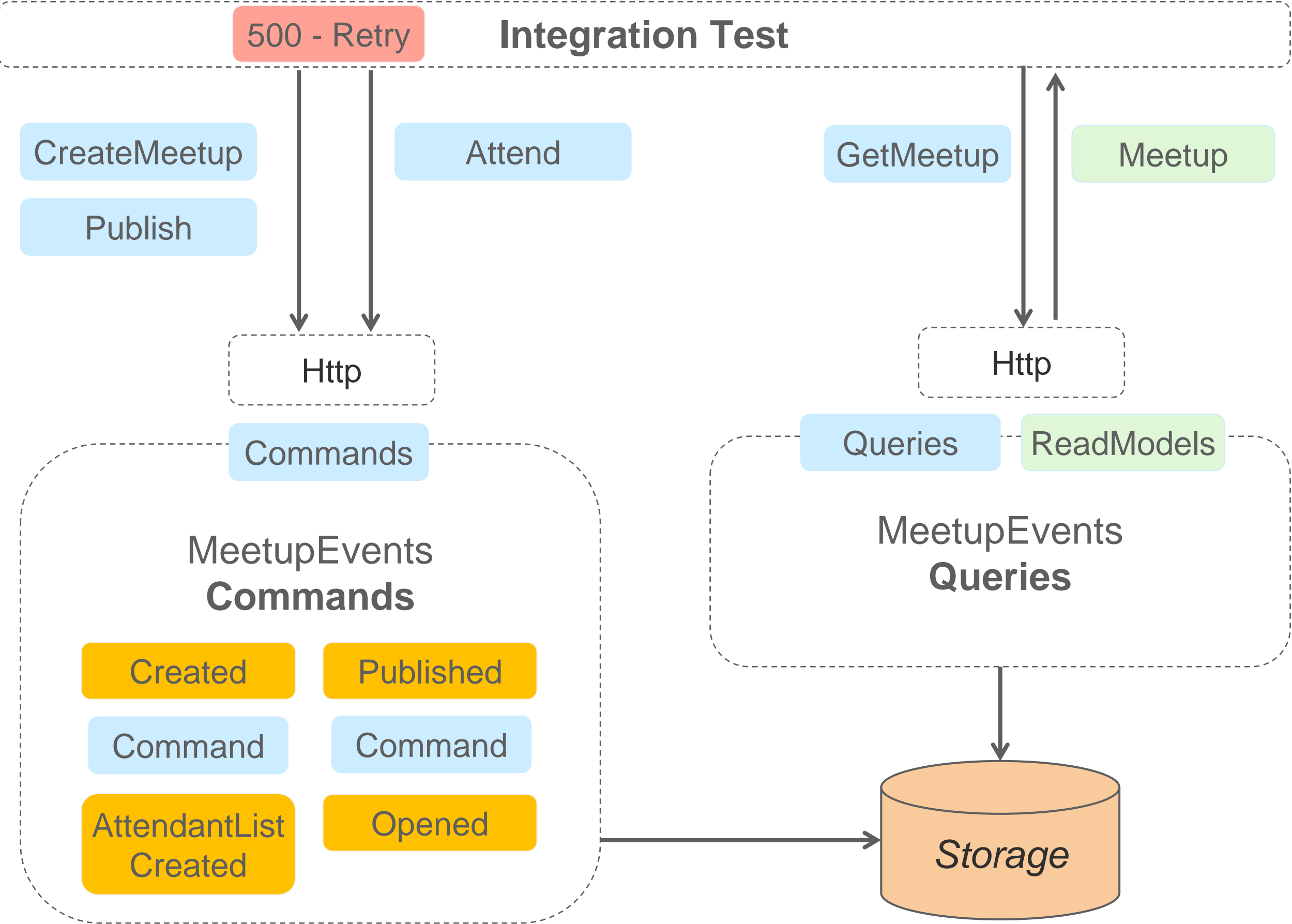
<https://www.cloudamqp.com/blog/2015-05-18-part1-rabbitmq-for-beginners-what-is-rabbitmq.html>



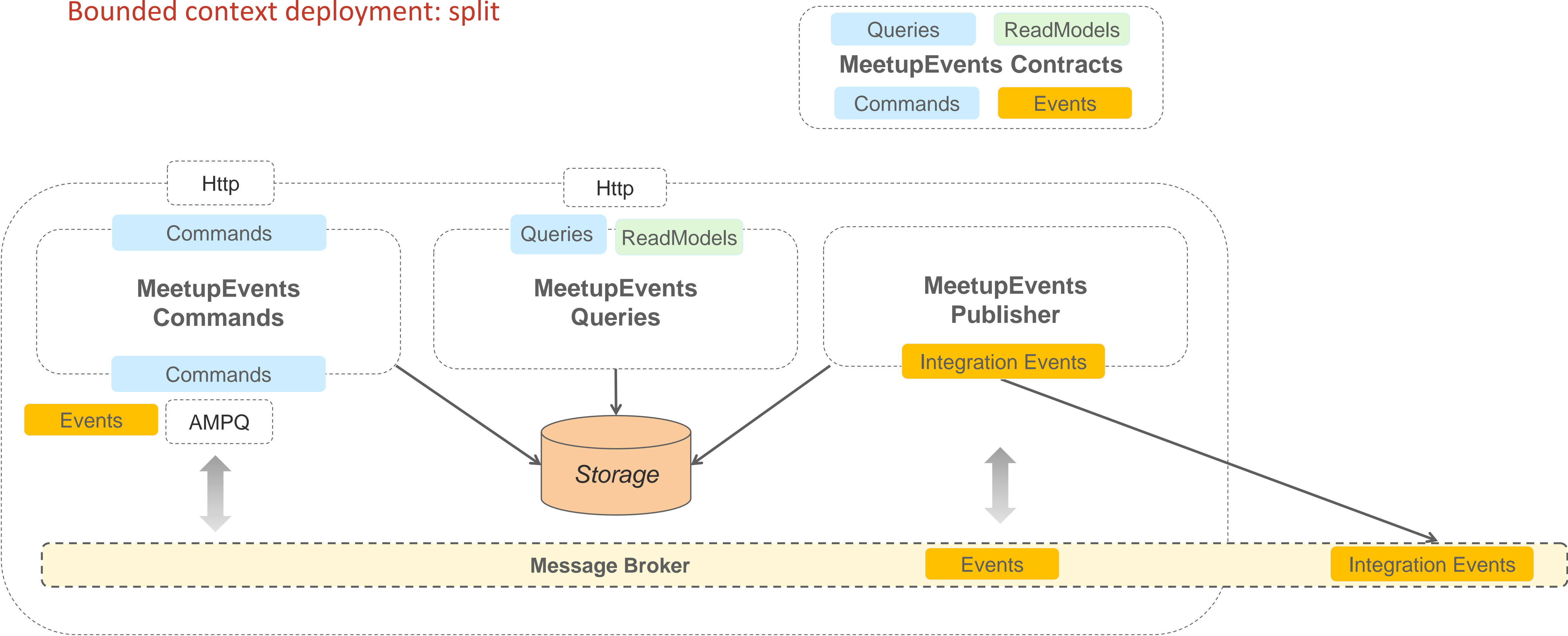
Message flow in RabbitMQ

1. The producer publishes a message to an exchange.
2. The exchange receives the message and is now responsible for routing the message.
3. Bindings must be created from the exchange to queues.
4. The messages stay in the queue until they are handled by a consumer.
5. The consumer handles the message.

Resilience: Ordering and Retries



Bounded context deployment: split



Domain Events Resources

<https://udidahan.com/2009/06/14/domain-events-salvation/>

<https://lostechies.com/jimmybogard/2014/05/13/a-better-domain-events-pattern/>

<https://docs.microsoft.com/en-us/dotnet/architecture/microservices/microservice-ddd-cqrs-patterns/domain-events-design-implementation>

<http://www.kamilgrzybek.com/design/how-to-publish-and-handle-domain-events/>

<http://www.kamilgrzybek.com/design/handling-domain-events-missing-part/>

<https://blog.jayway.com/2013/06/20/dont-publish-domain-events-return-them/>

<https://enterprisecraftsmanship.com/posts/domain-events-simple-reliable-solution/>

Observability: Logging, traces, metrics

Serilog, Seq, OpenTracing and OpenTelemetry, Jaeger, Zipkin, Prometheus/Grafana , .NET Diagnostics Source

<https://github.com/dotnet/runtime/tree/master/src/libraries/System.Diagnostics.DiagnosticSource/src>

<https://jimmybogard.com/building-end-to-end-diagnostics-activitysource-and-open/>

<https://devblogs.microsoft.com/aspnet/observability-asp-net-core-apps/>

<https://masstransit-project.com/advanced/monitoring/diagnostic-source.html>

<https://github.com/open-telemetry/opentelemetry-dotnet>

<https://github.com/open-telemetry/opentelemetry-dotnet-contrib>

<https://jimmybogard.com/diagnostics-and-instrumentation-packages-targeting-open-telemetry-beta-for-mongodb-and-nservicebus-published/>

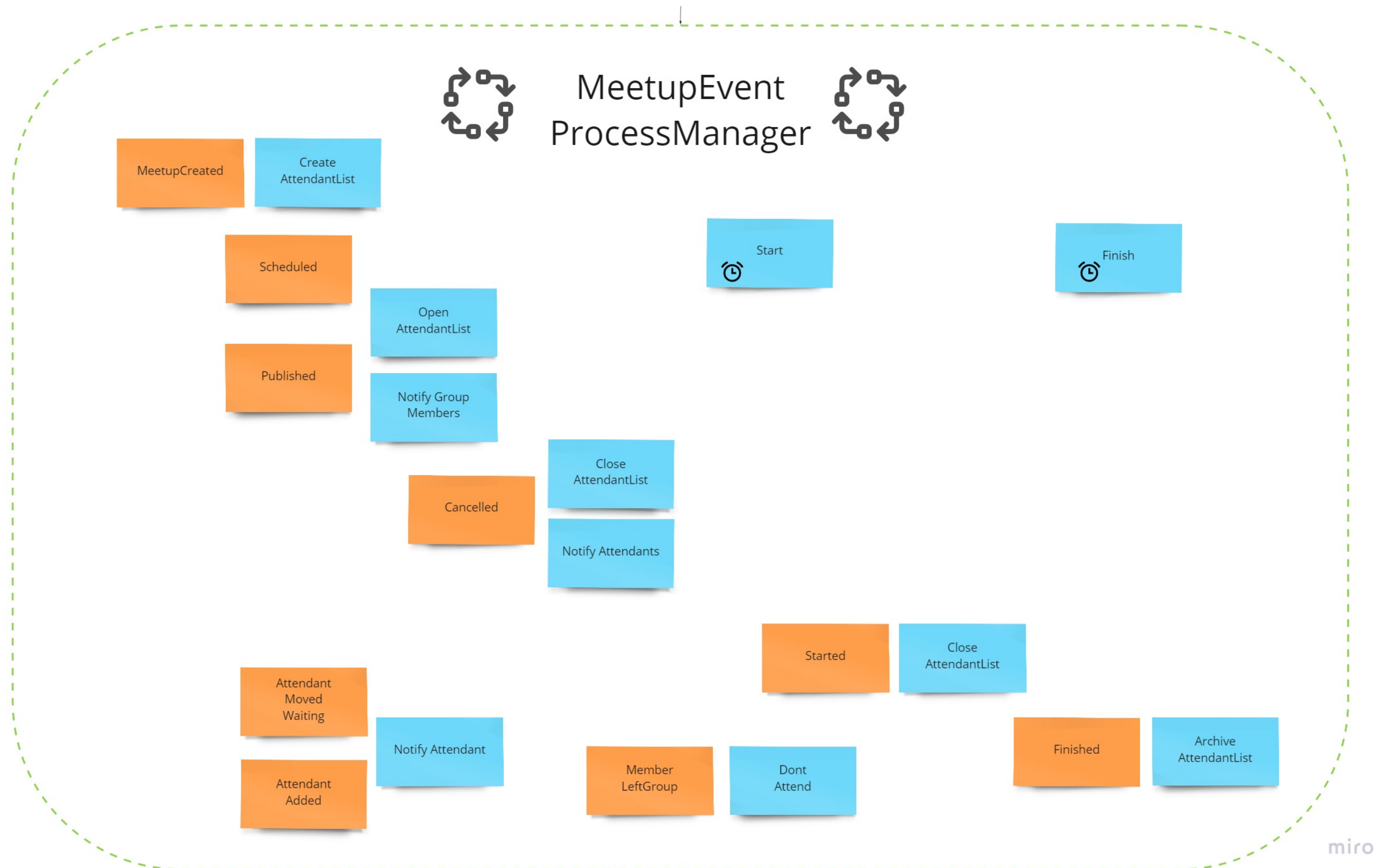
<https://github.com/jbogard/MongoDB.Driver.Core.Extensions.OpenTelemetry>

<https://github.com/prometheus-net/prometheus-net>

<https://github.com/AppMetrics/AppMetrics>

<https://dale-bingham-cingulara.medium.com/net-core-web-api-metrics-with-prometheus-and-grafana-fe84a52d9843>

Async Workflows: Process Managers



SAGA/Process Manager: Orchestration vs Choreography

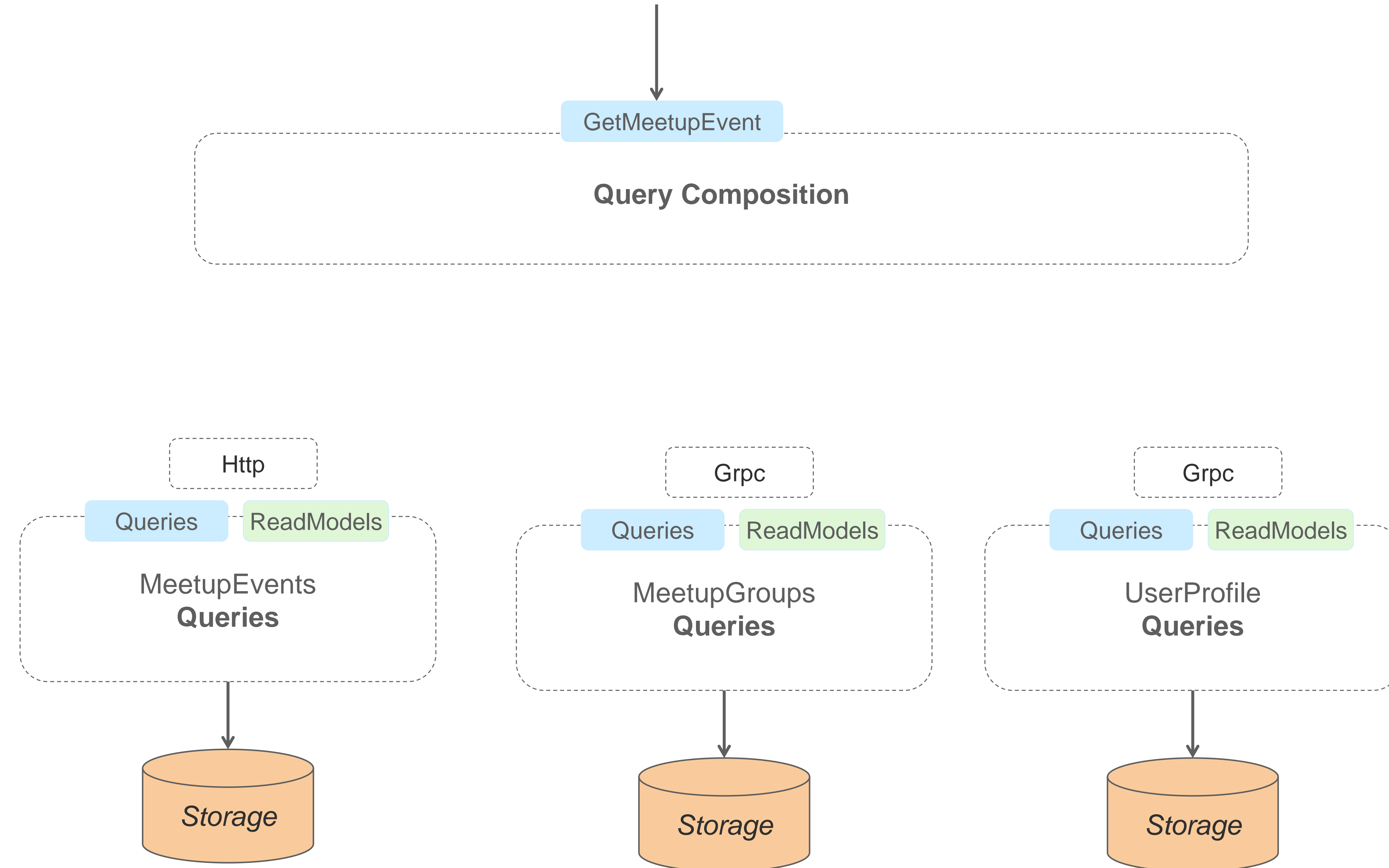
<https://medium.com/@drozzy/differences-between-projections-sagas-and-aggregates-in-times-of-failure-64b792b20b35>

<https://driggl.com/blog/a/process-manager-vs-saga-confusion>

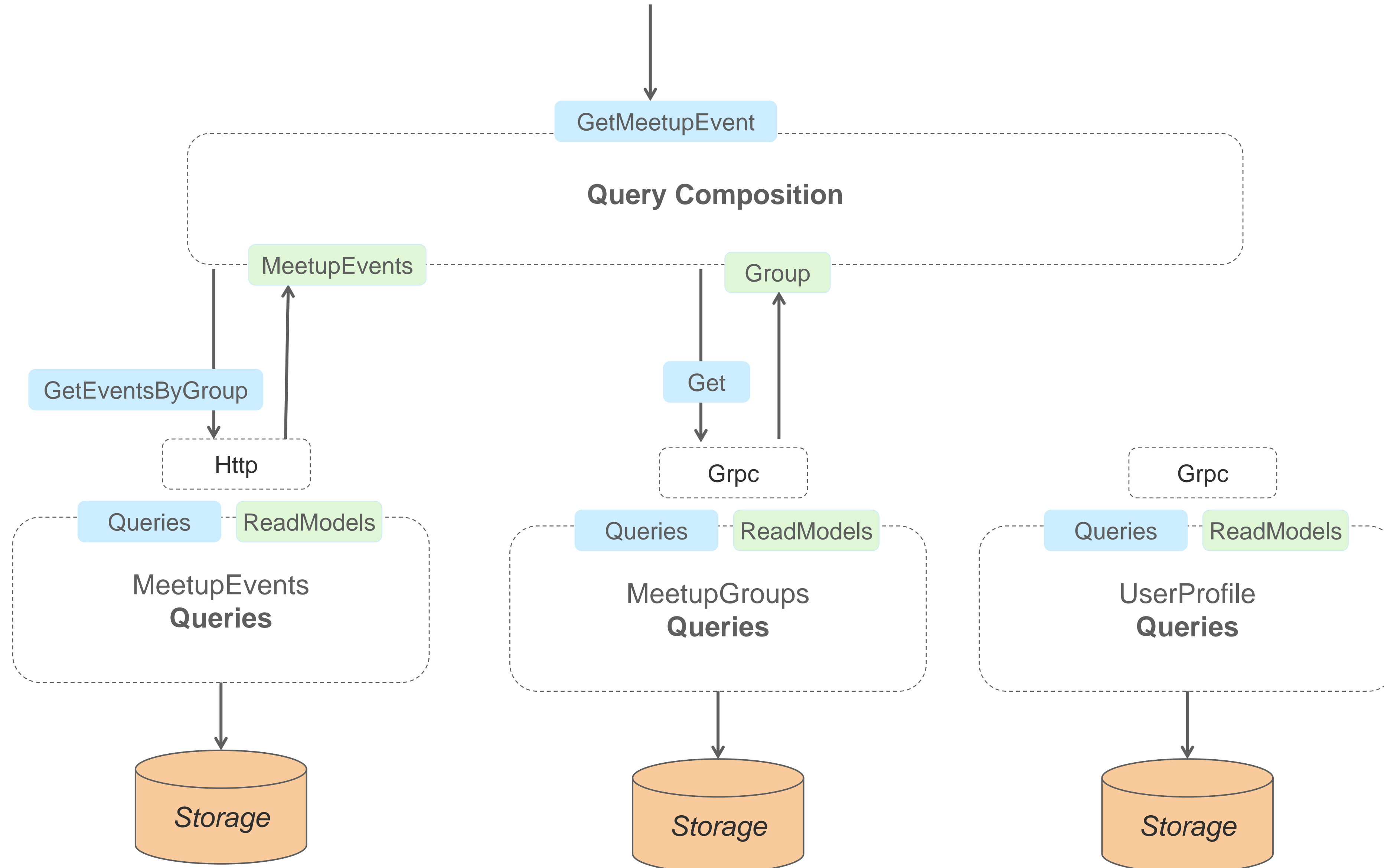
<https://docs.microsoft.com/en-us/previous-versions/msp-n-p/jj591569>

<https://particular.net/blog/you-dont-need-ordered-delivery>

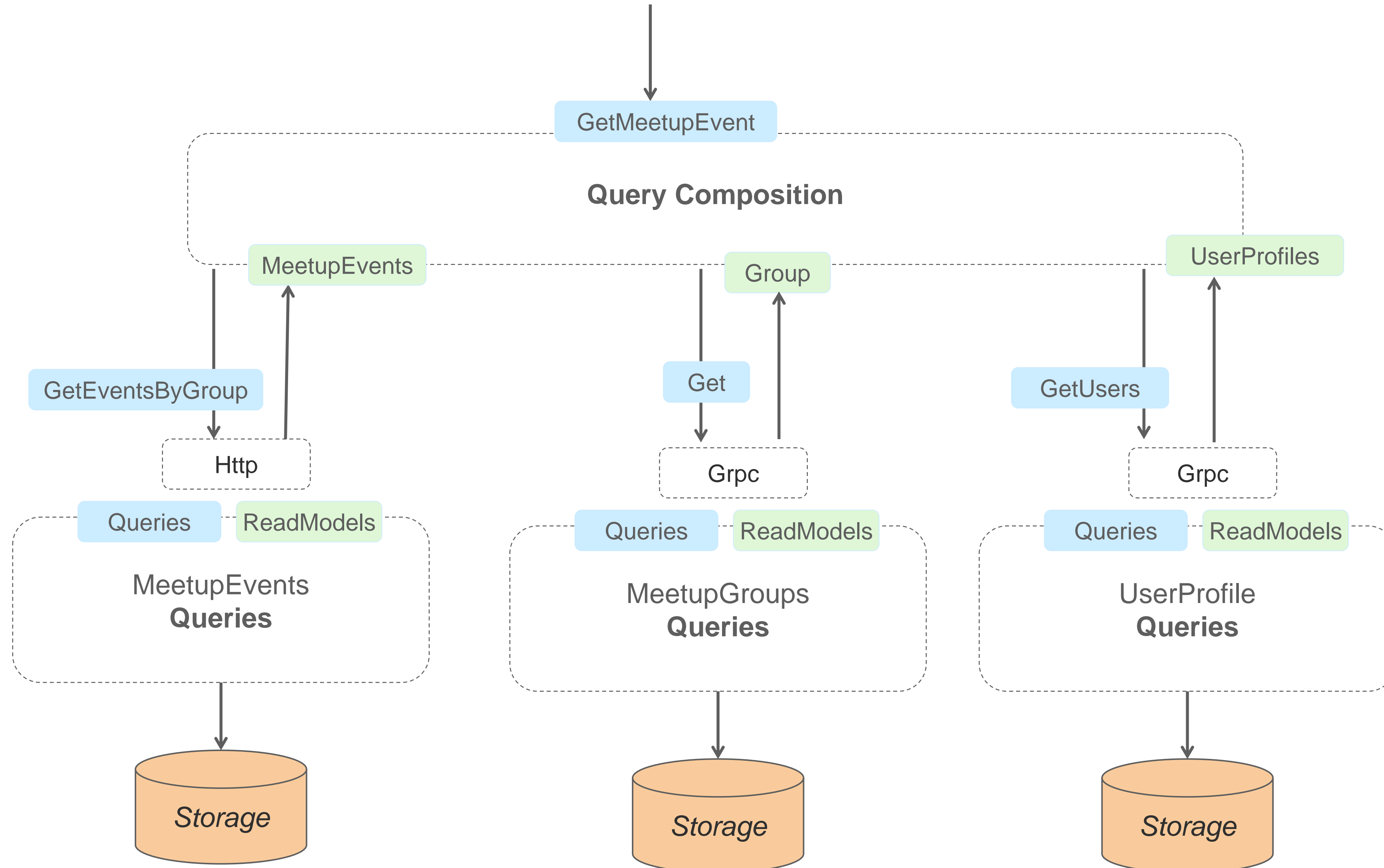
Queries patterns with microservices: GetMeetupEvent



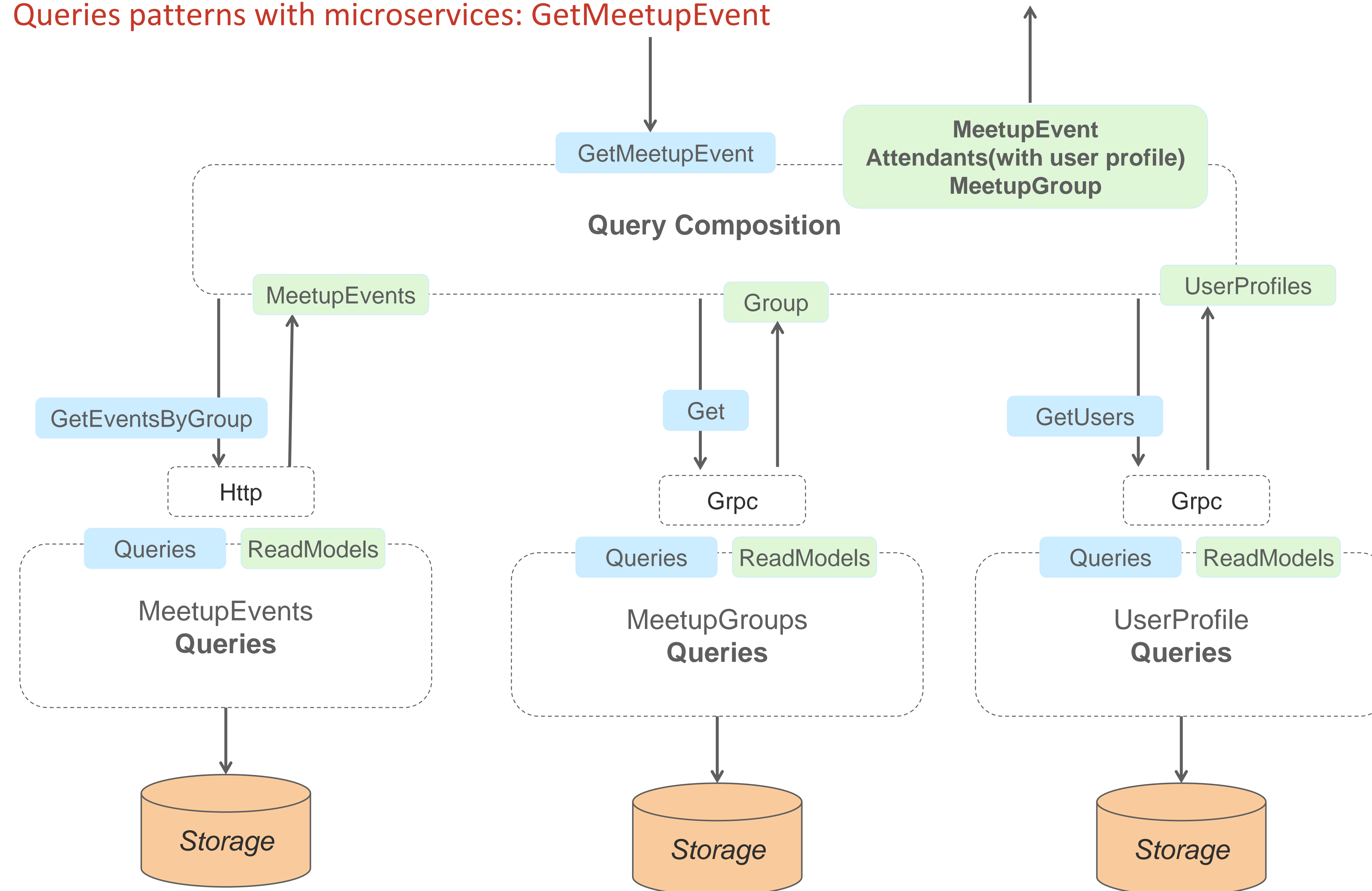
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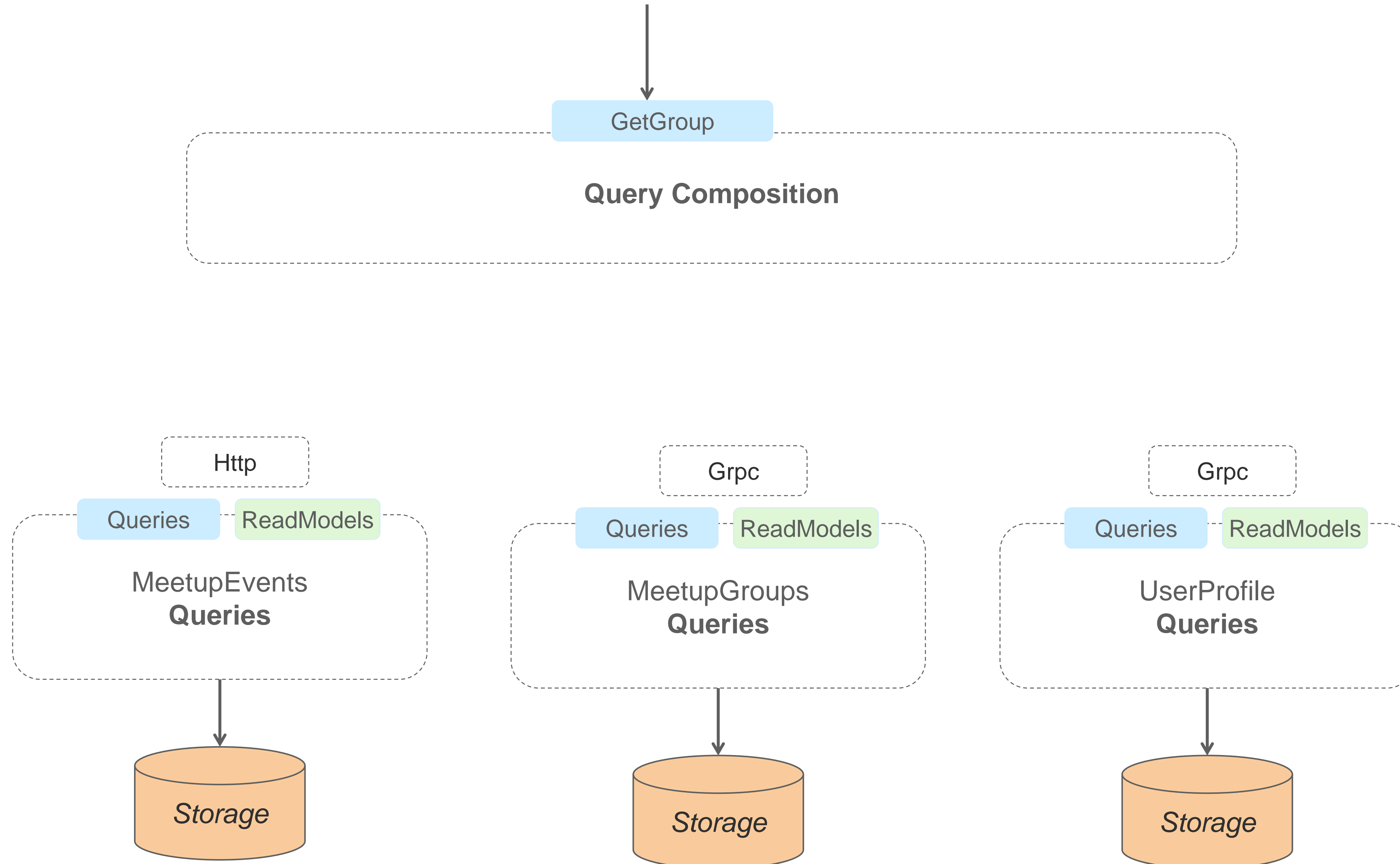
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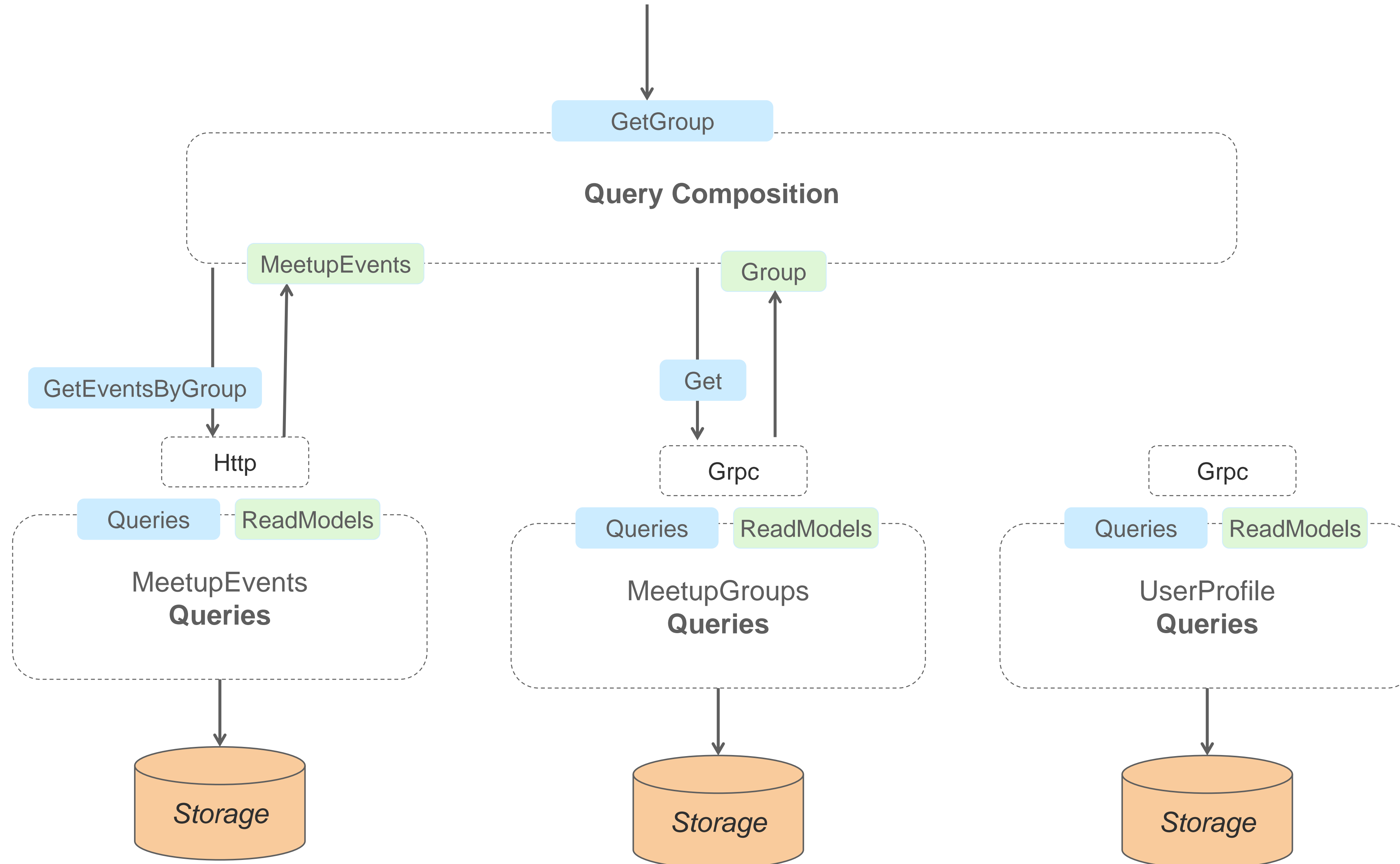
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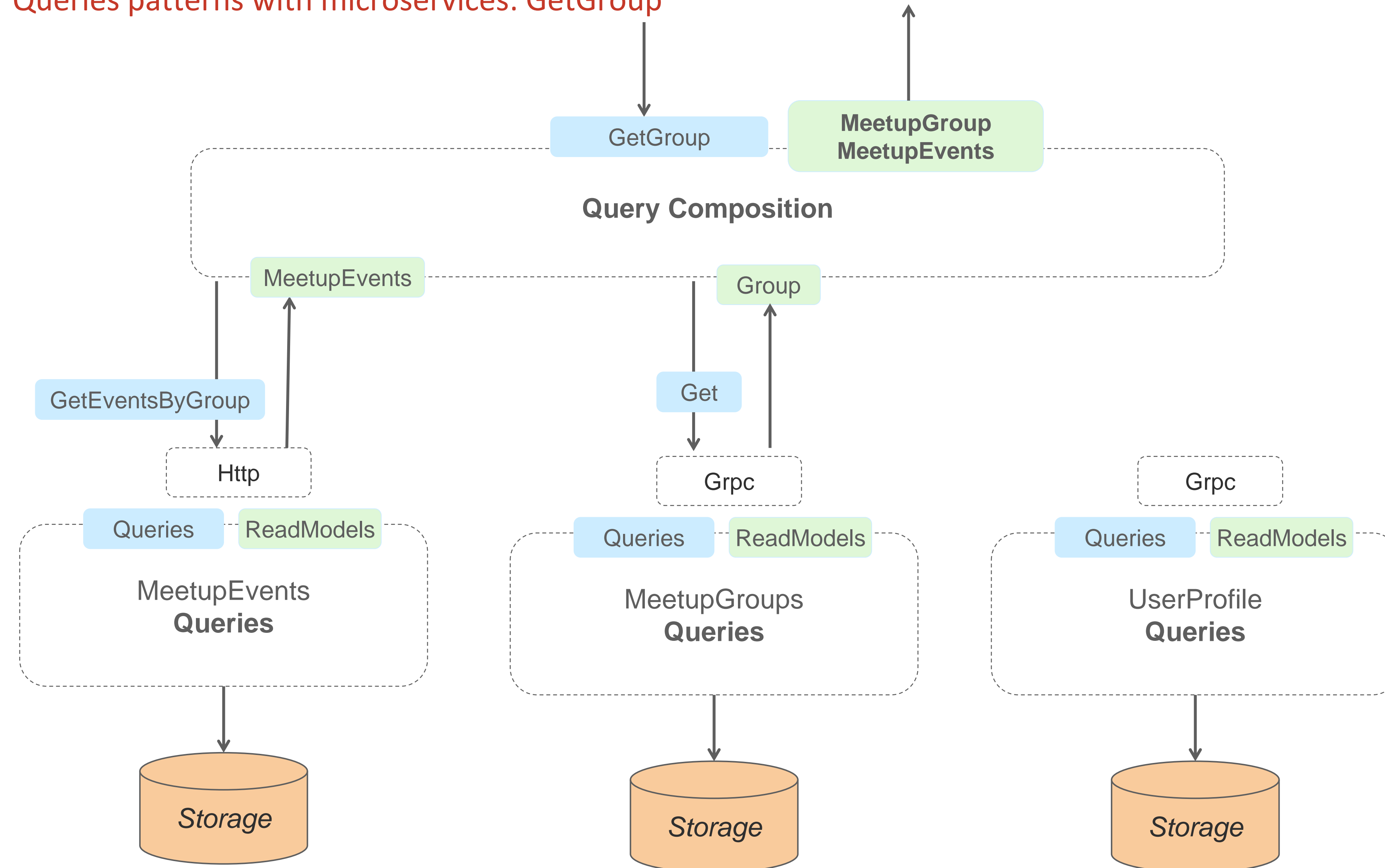
Queries patterns with microservices: GetGroup



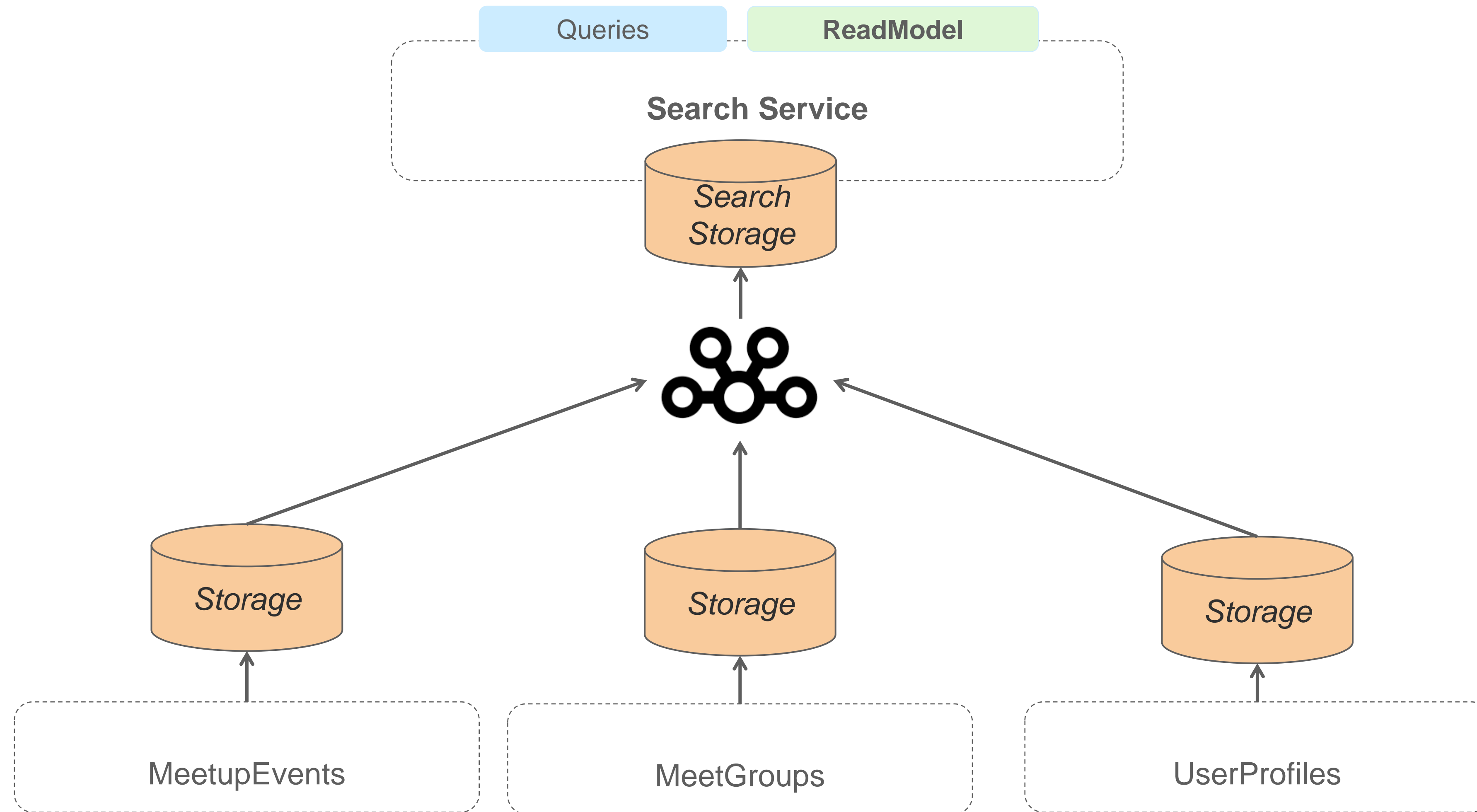
Queries patterns with microservices: GetGroup



Queries patterns with microservices: GetGroup



Queries patterns with microservices: Change Data Capture (top level CQRS)



MUST READ BOOKS

