Hina Arora

Microservices

Design Patterns

for

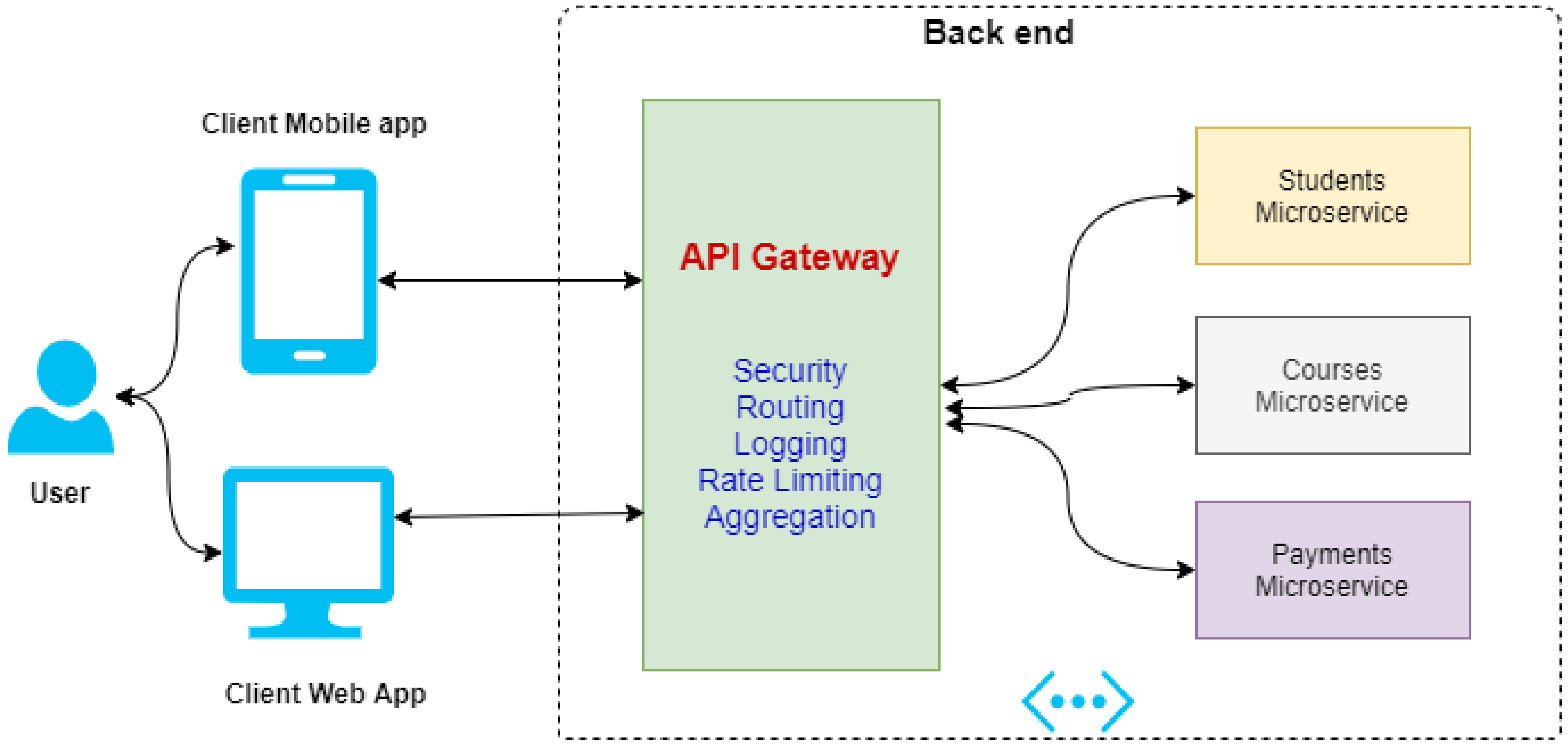
Designing and Implementing

Microservices

in Hina Arora

Microservices

GATEWAY PATTERN



Use an API Gateway to handle client requests and route them to the appropriate microservices. This centralized authentication, load balancing, and routing logic.

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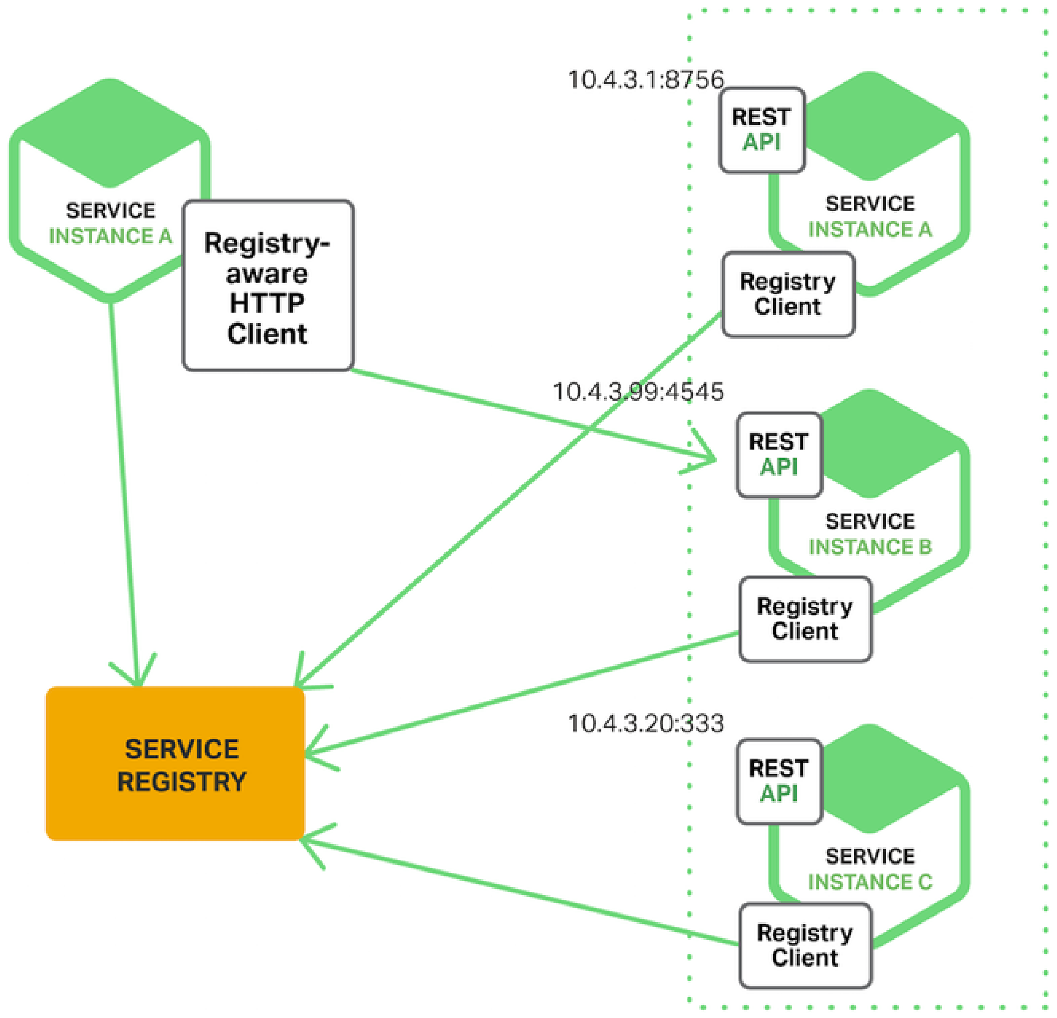
SERVICE REGISTRY PATTERN



Implement a service registry to automatically locate and register microservices. This helps in dynamic discovery and communication between services.

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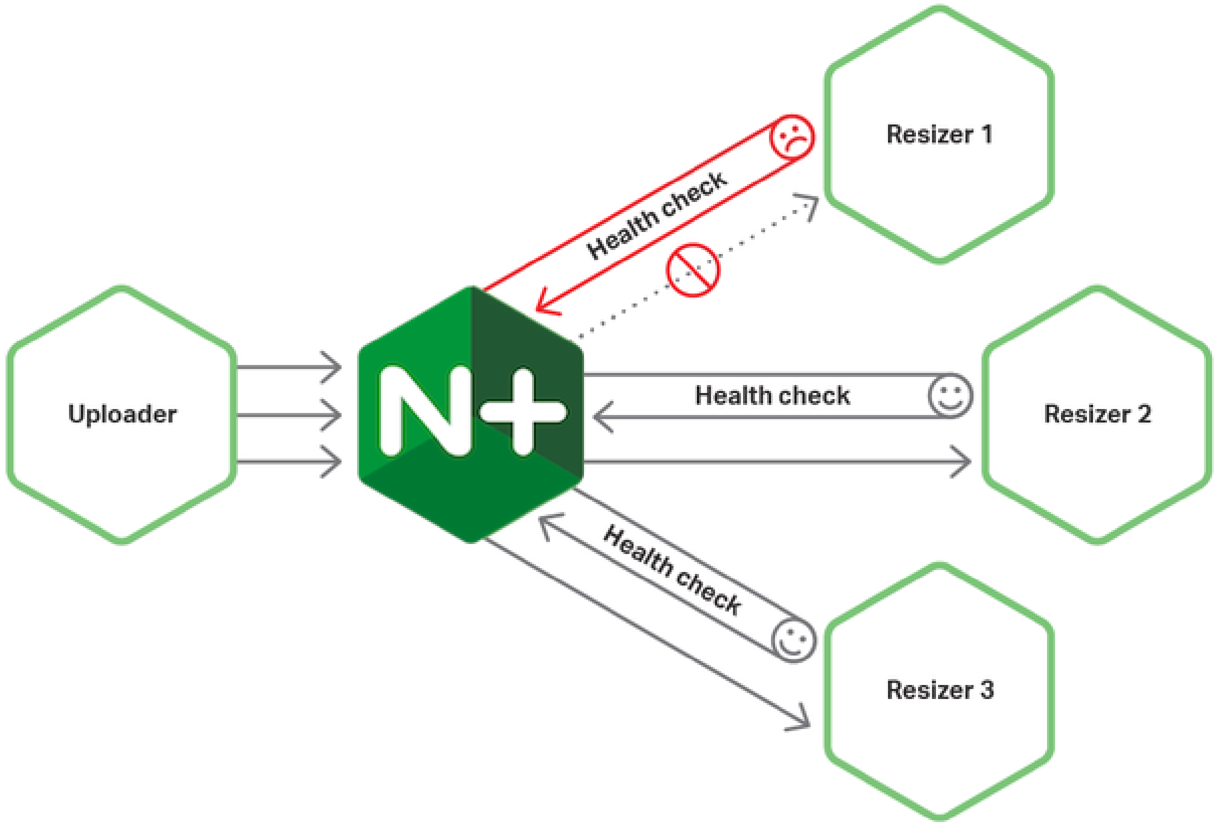
CIRCUIT BREAKER PATTERN



Prevent cascading failures by using a circuit breaker that can temporarily stop requests to a failing service and provide fallback mechanisms.

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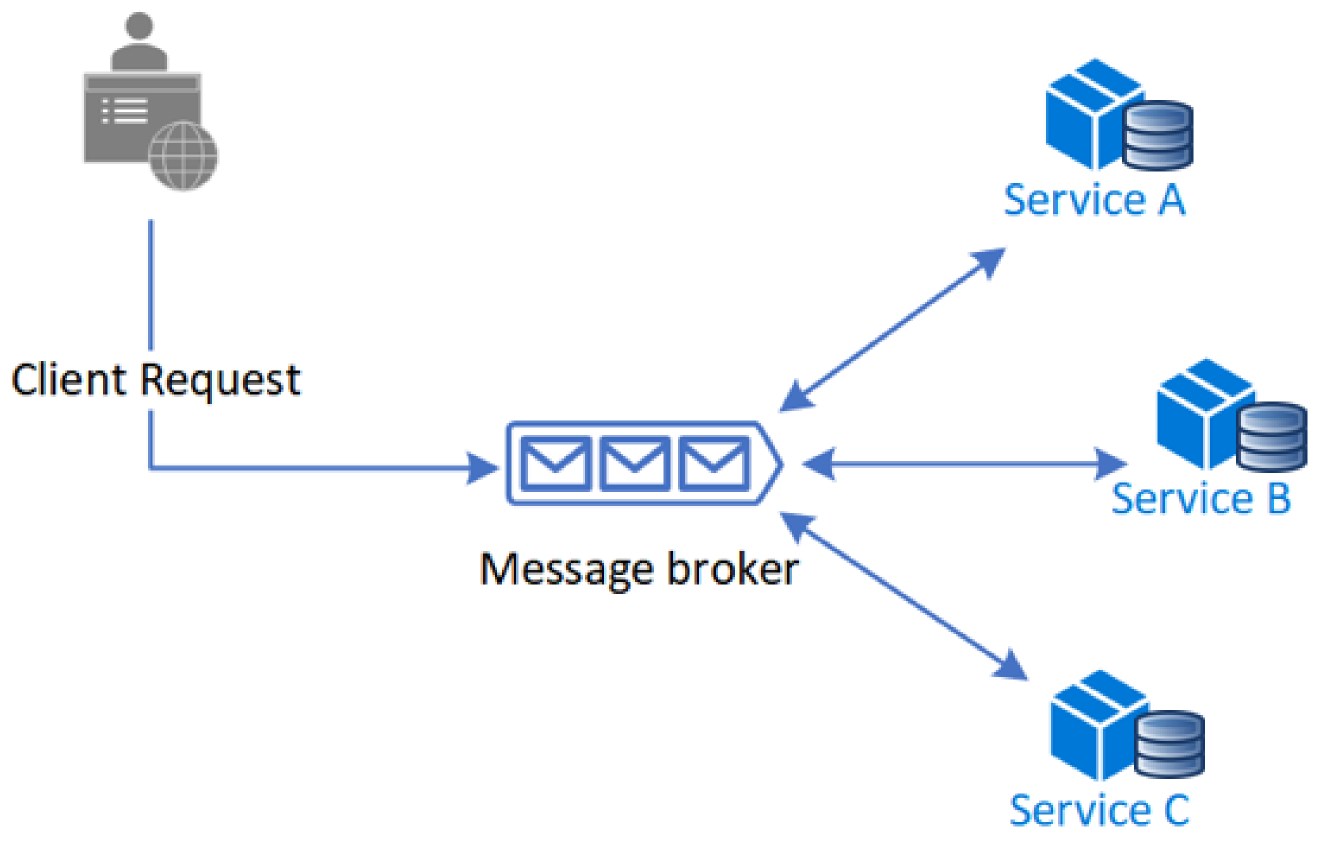
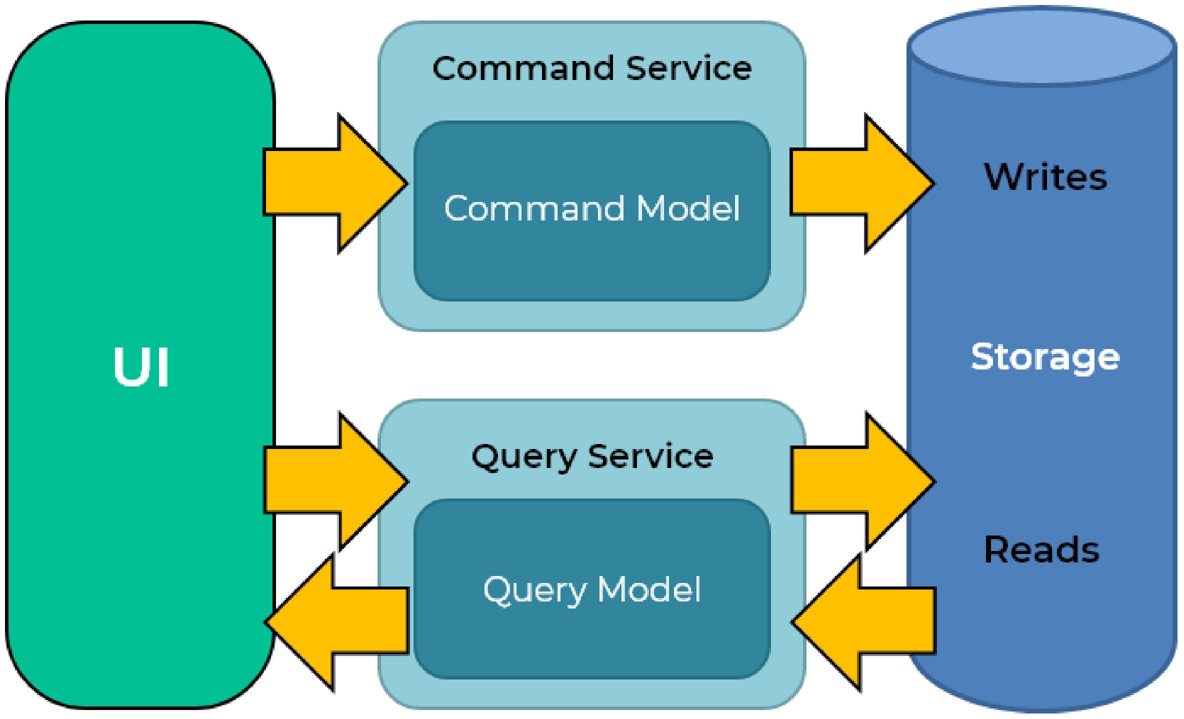
SAGA PATTERN



Manage long-lived transactions across multiple microservices by breaking them down into a sequence of smaller, local transactions.

CQRS PATTERN



Separate the read and write responsibilities of a system, allowing for optimized performance and scalability.

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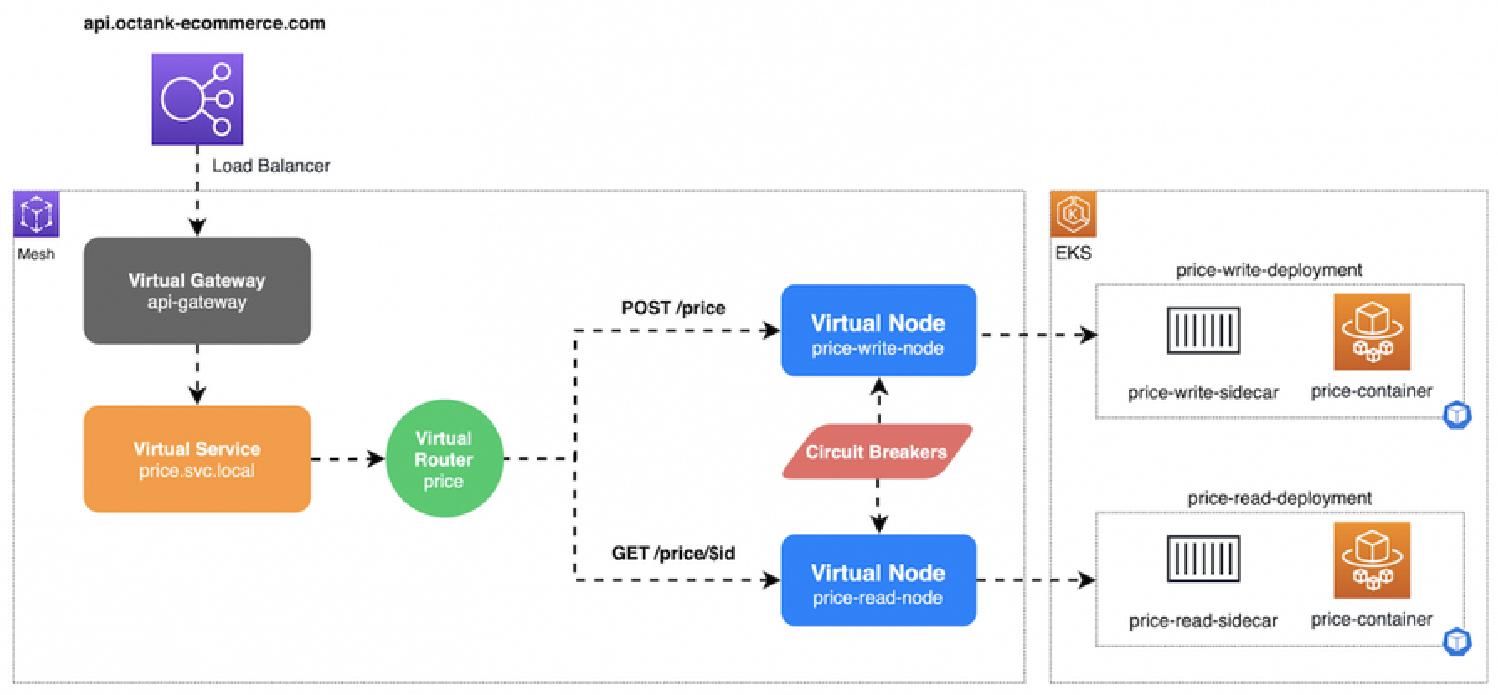
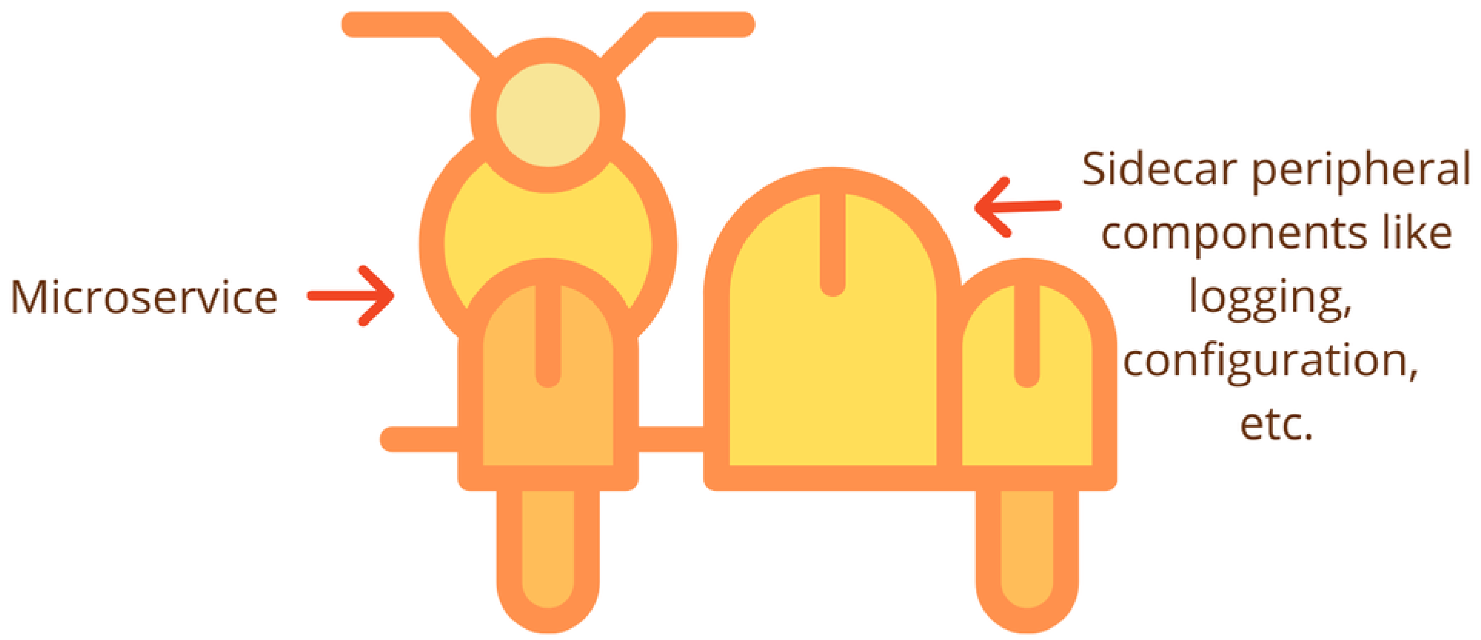
BULKHEAD PATTERN



Isolate failures within separate sections to prevent them from affecting the entire system.

SIDECAR PATTERN


Microservice
Sidecar peripheral components like logging, configuration, etc.

Attach a separate microservice (sidecar) to handle specific tasks like monitoring, logging, or authentication.

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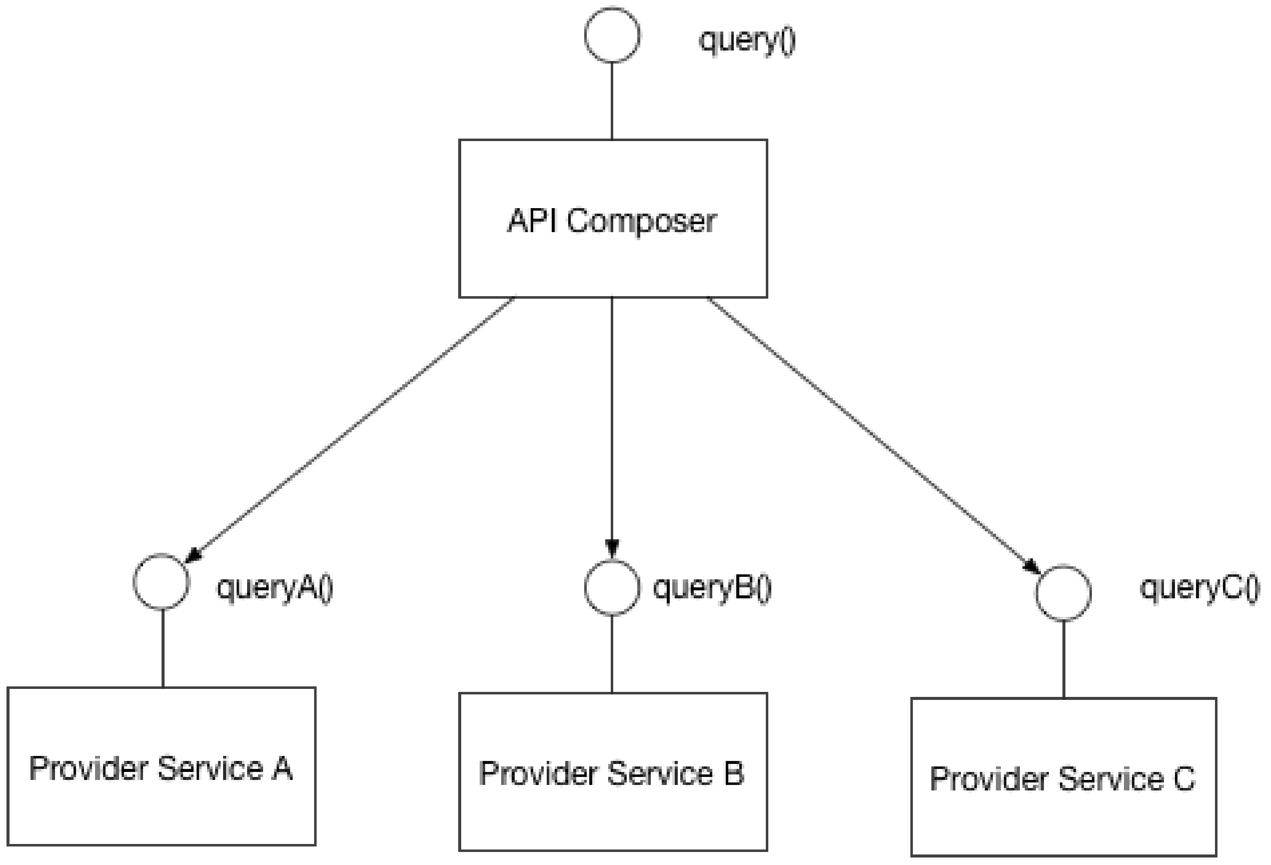
API COMPOSITION PATTERN



Combine multiple microservices to create a more complex and feature-rich API for clients.

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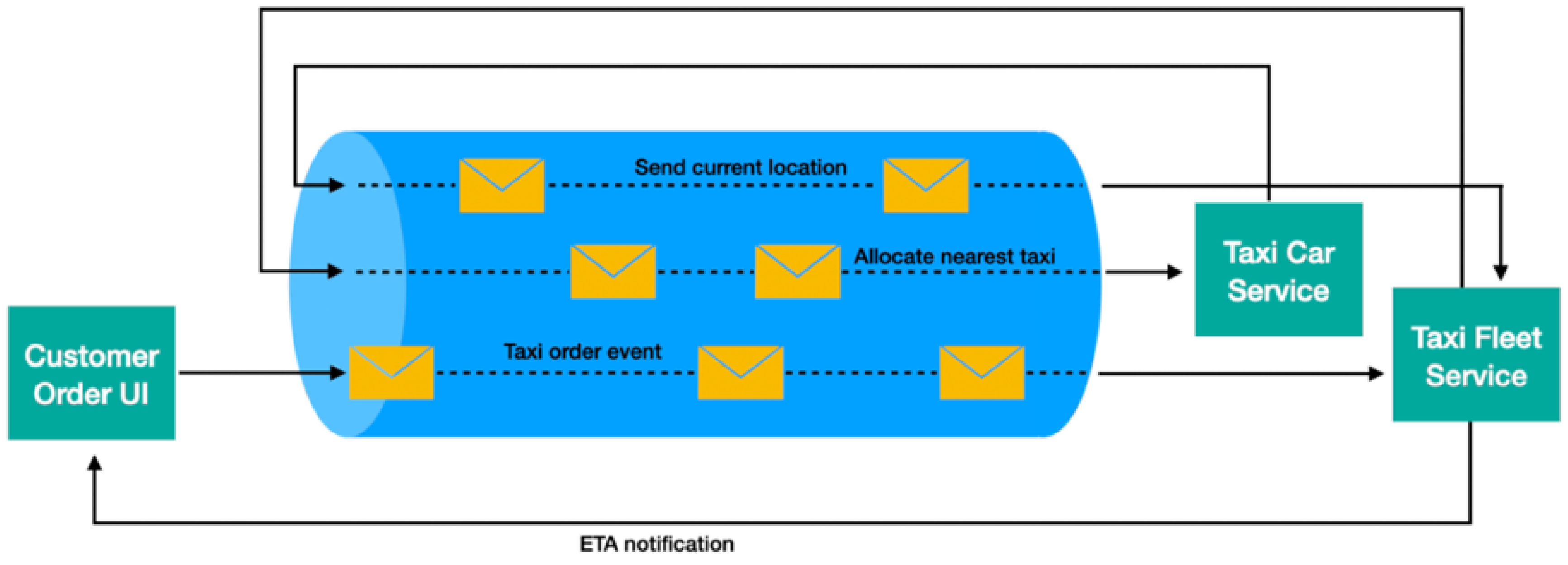
EVENT-DRIVEN ARCHITECTURE PATTERN



Communicate between microservices through events, enabling loose coupling and scalability.

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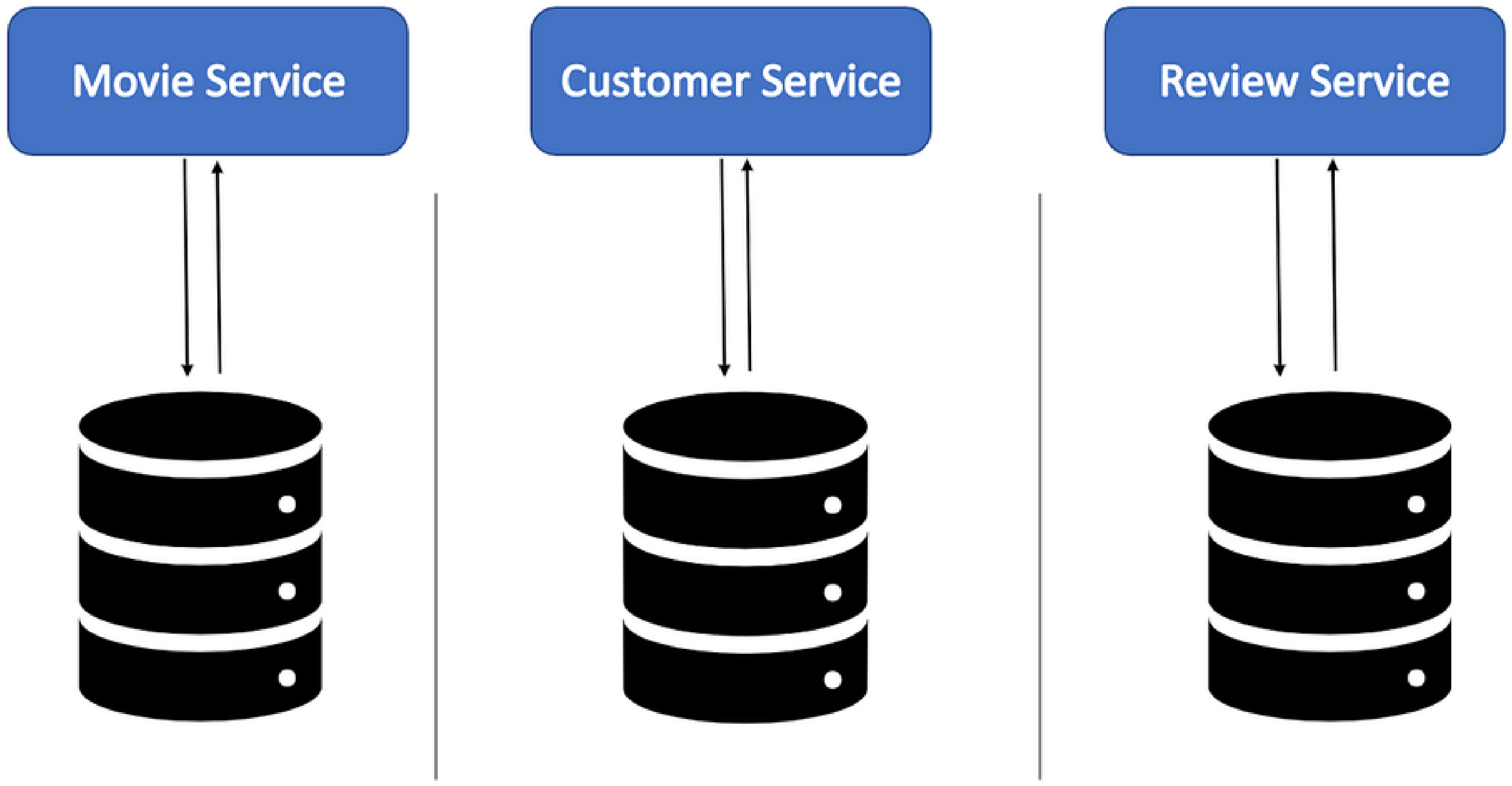
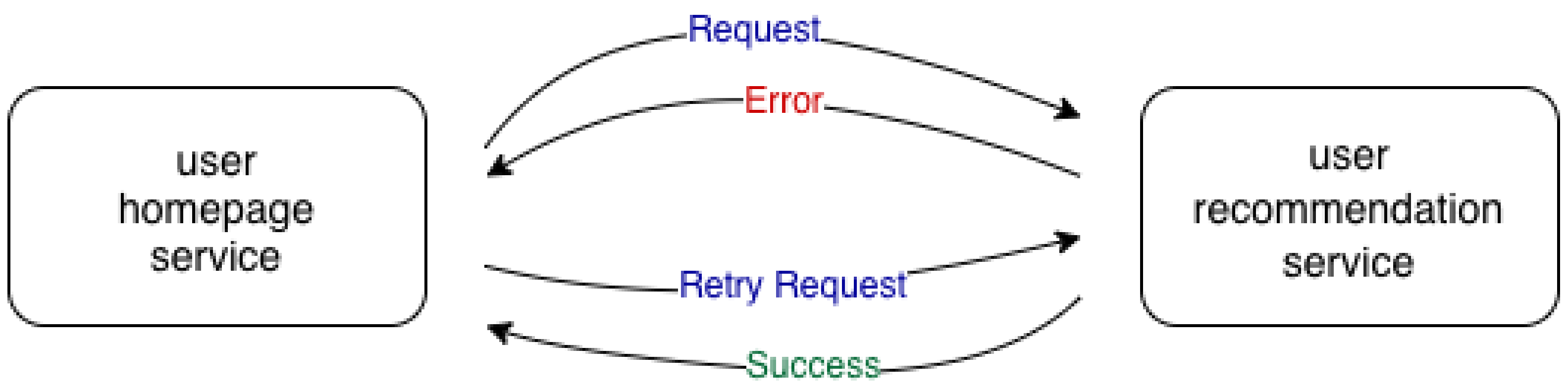
DATABASE PER SERVICE PATTERN



Each microservice has its own dedicated database to ensure loose coupling and autonomy.

RETRY PATTERN



Automatically retry failed operations to improve the chances of success.

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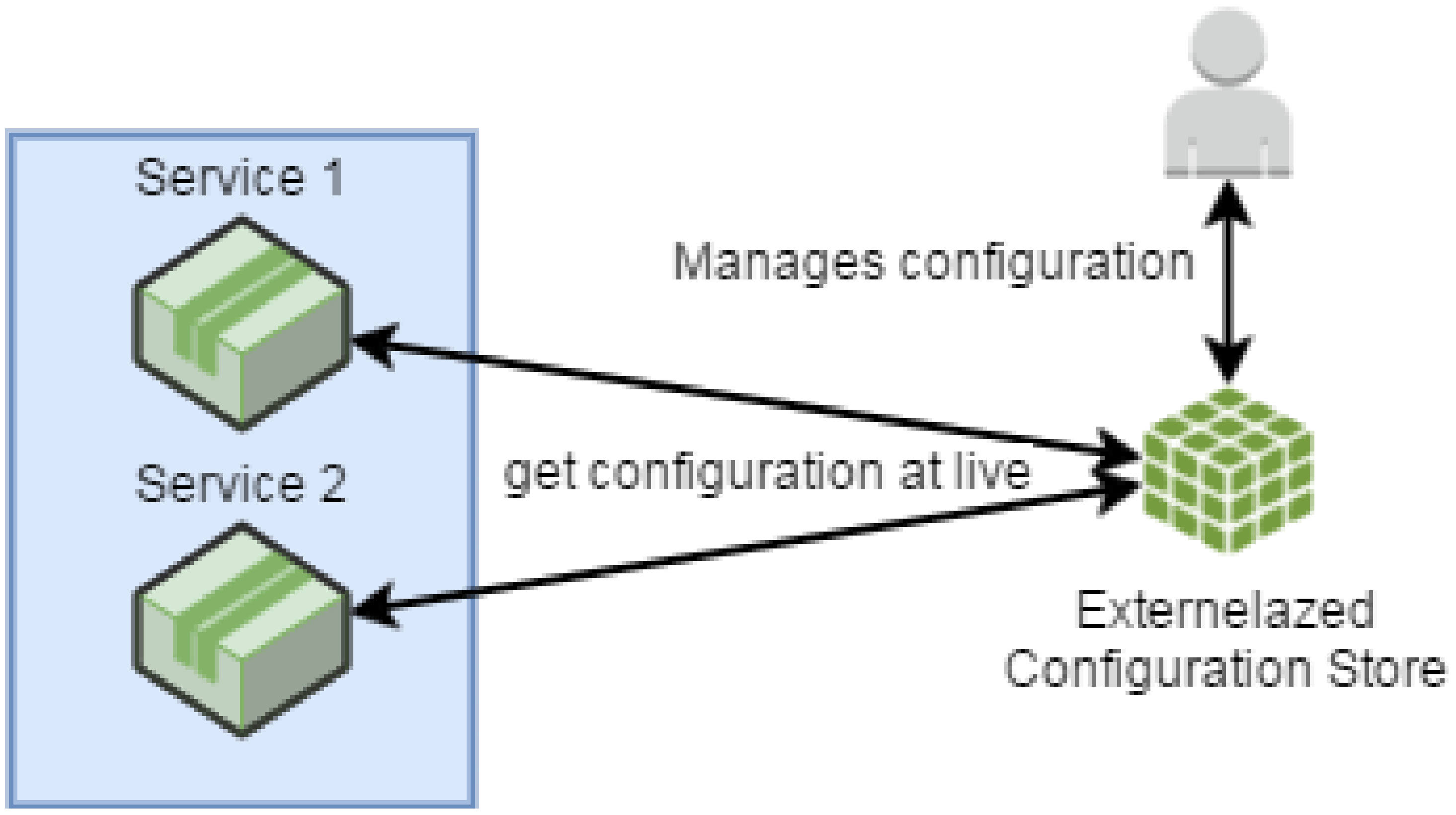
CONFIGURATION EXTERNALIZATION PATTERN



Store configuration settings outside the codebase for easier management and updates.

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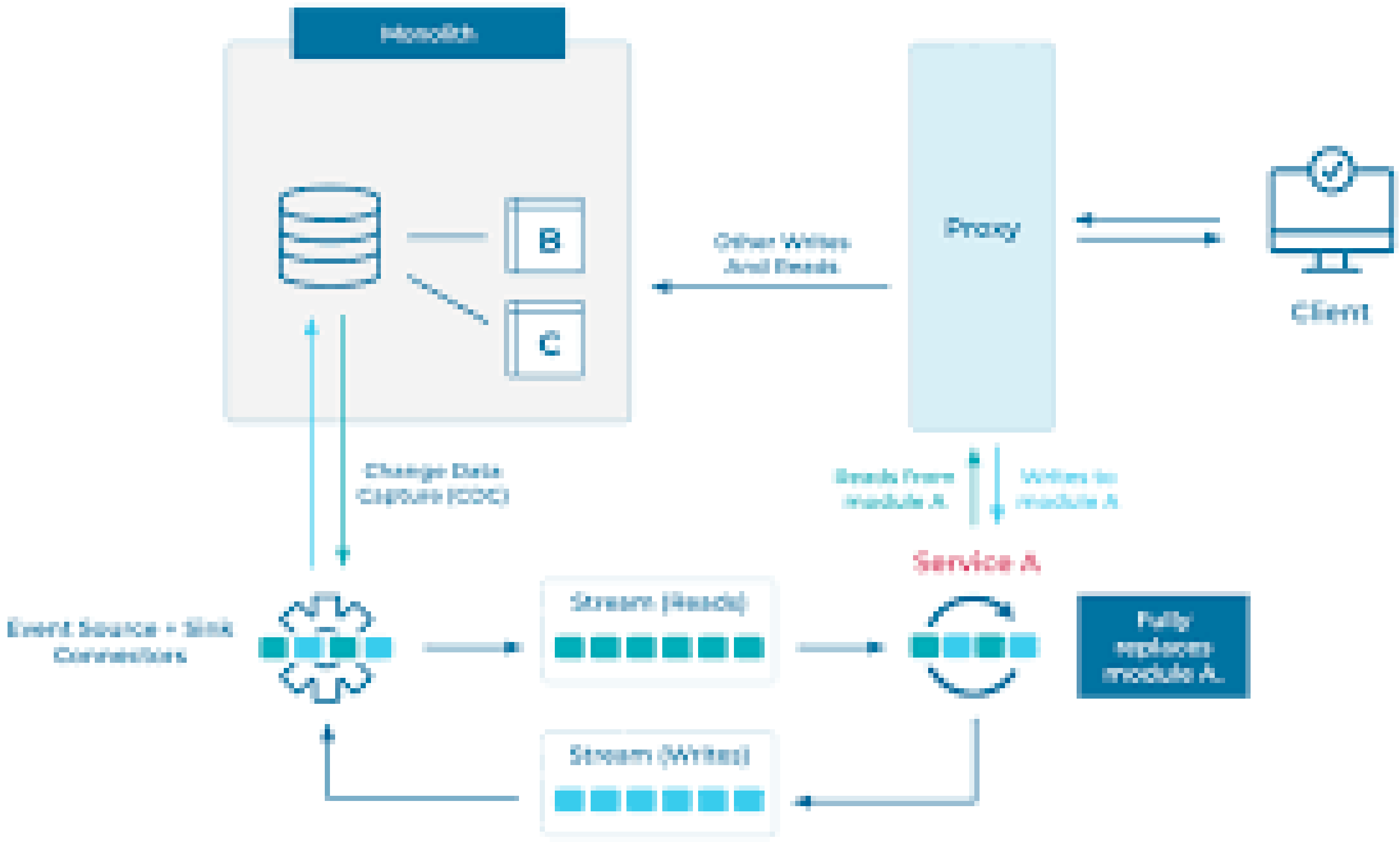
STRANGLER FIG PATTERN



Gradually replace components of a legacy system with new ones until the old system is "strangled" and replaced entirely.

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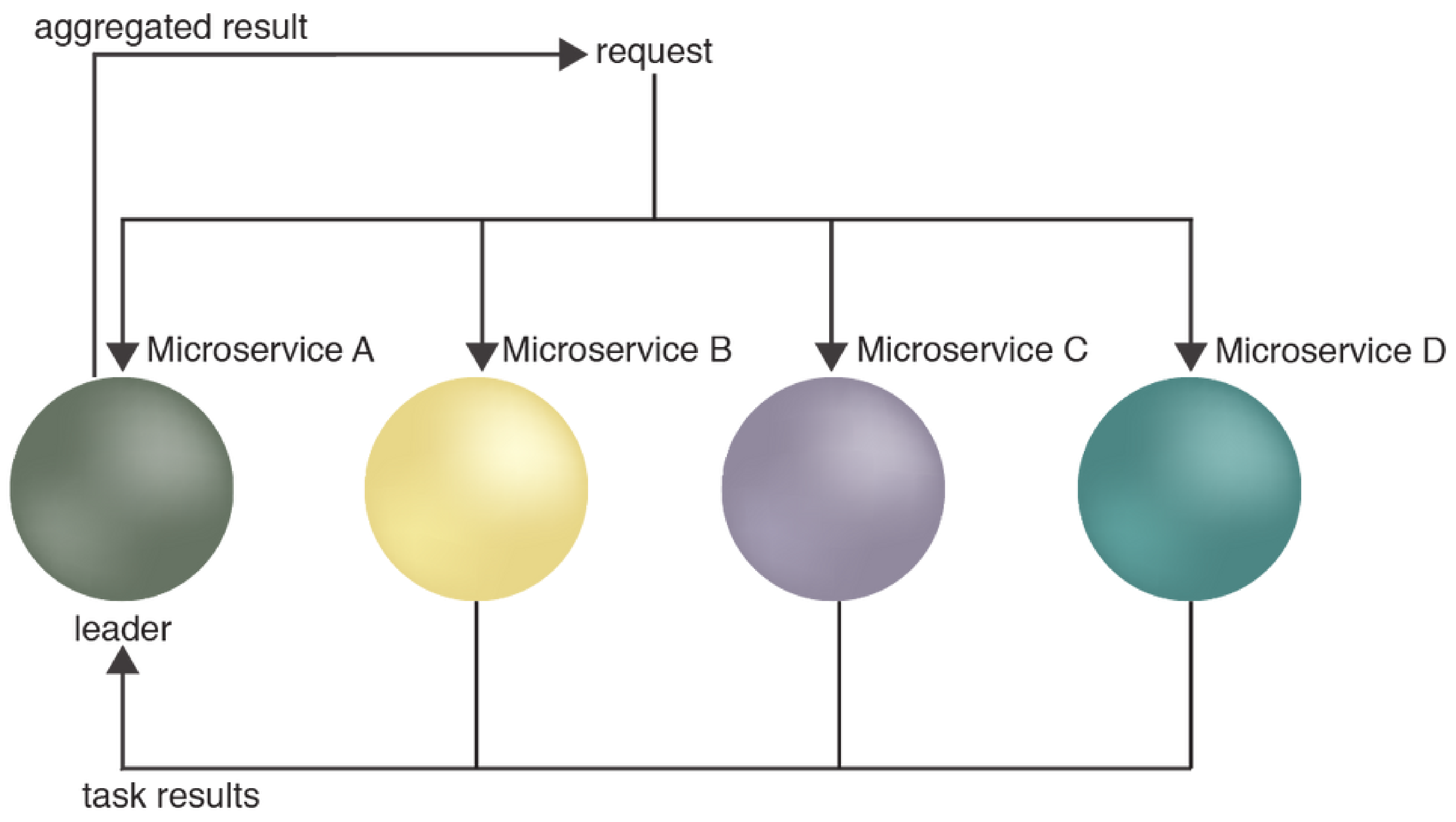
LEADER ELECTION PATTERN



Designate a leader among instances of a microservice for tasks like coordination and decision-making.

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Thank you!

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