

Cloud Native Architecture Migration Strategies

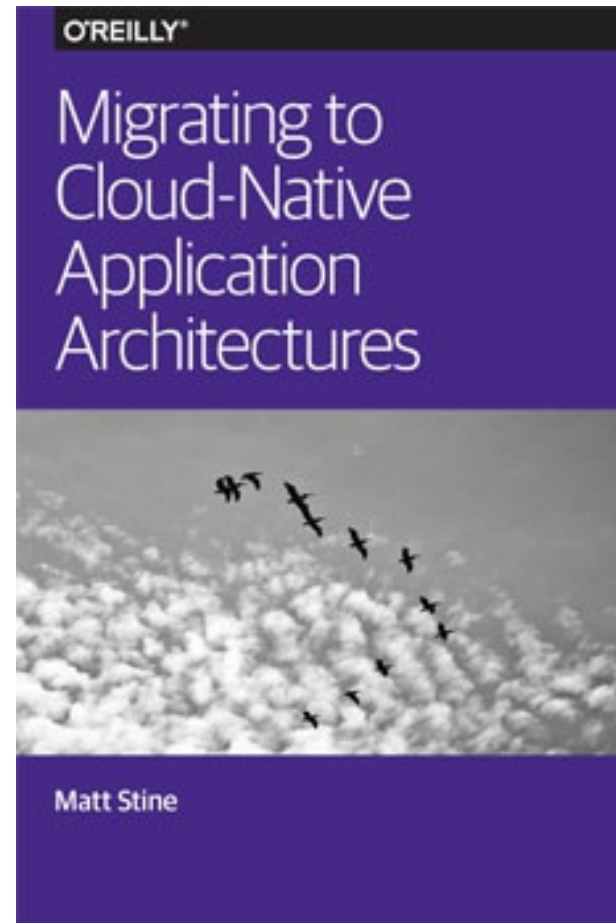
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Your Instructor

- 17 years in the Enterprise IT industry
- 5 years as a Cloud Platform and Application Architect
- Frequent speaker on the conference circuit
- Host of the Software Architecture Radio podcast

Your Instructor



<http://www.oreilly.com/programming/free/migrating-cloud-native-application-architectures.csp>

Topics

- Rationale
- What is Cloud Native?
 - Maturity Models
- Selection Strategy
 - SNAP Analysis
- Lift and Shift?
- Migration Strategy
 - Decomposition Strategies
 - Strategic DDD
 - Strangler Pattern
 - Hexagonal Architecture
- Should You Start Cloud Native?
 - Modular Monoliths
 - App Continuum

Rationale

Rationale

Bring THE GREAT CONFLICT
into balance

Rationale

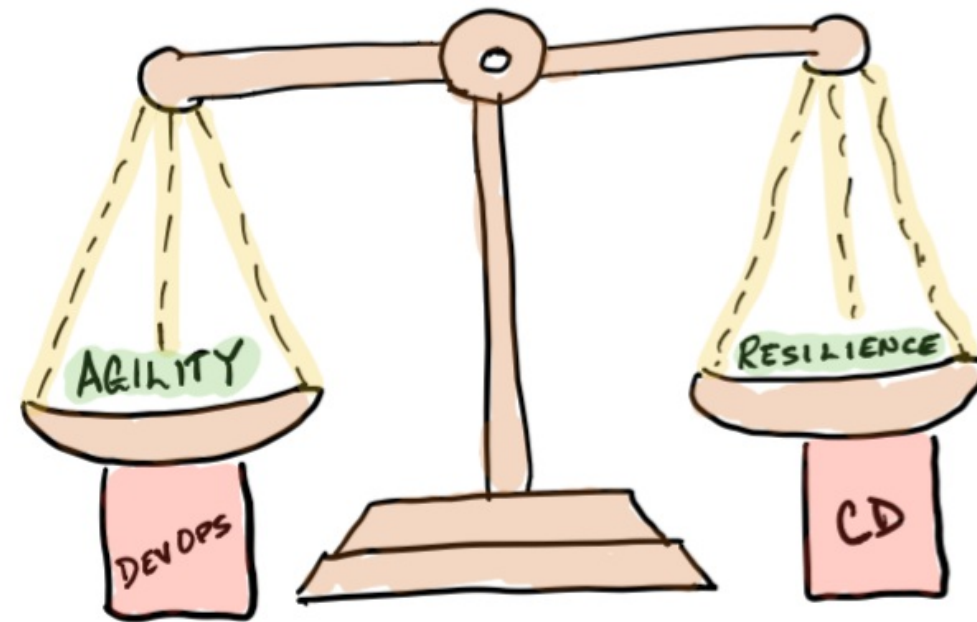
Balancing:



Agility and Resilience

Rationale

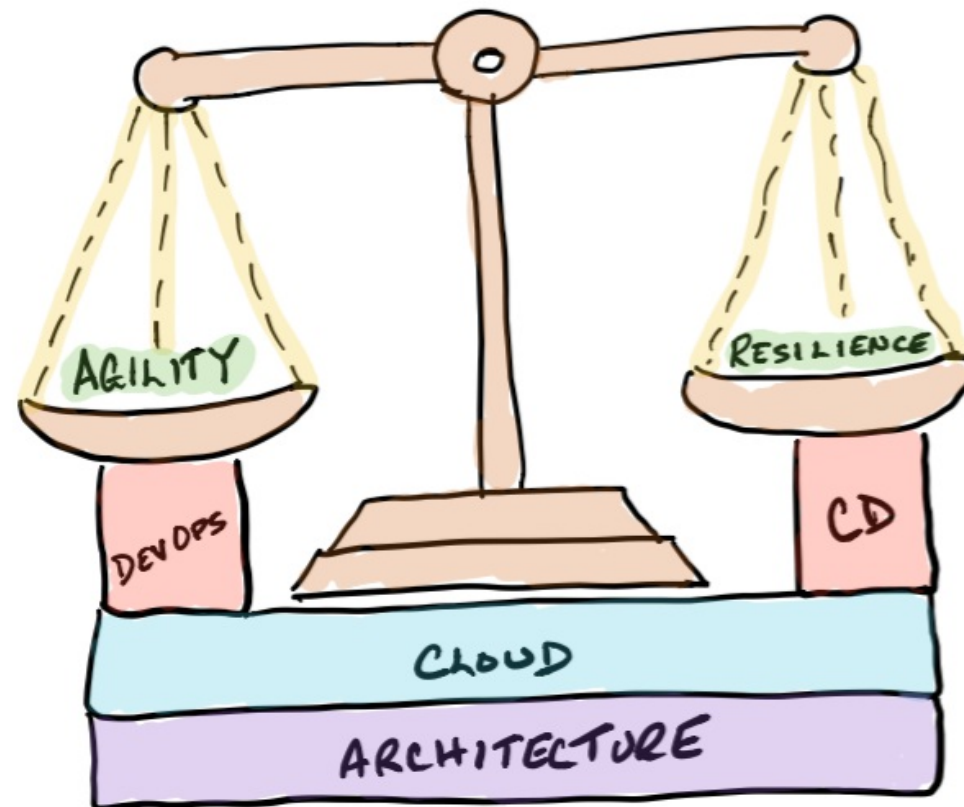
Supported By:



DevOps and Continuous Delivery

Rationale

On a Foundation of:



Cloud and Architecture

Rationale

Other Rationales

Rationale

Deployment environment approaching EOL

The software has to go *somewhere*

Rationale

Lower Capital/Operating
Expenses of IT

What is Cloud Native?

What is Cloud Native?

Is this service a
microservice?

What is Cloud Native?

Is this application "Cloud
Native?"

What is Cloud Native?

The answers to these
questions are not binary.

What is Cloud Native?

The answers to these
questions are fuzzy.

What is Cloud Native?

Enter:

Cloud Native Maturity Models

What is Cloud Native?

Maturity Models:

- Give you specific, iterable targets
- Help you estimate the effort ahead
- Help you evaluate what should be migrated
- Help you prioritize migration order

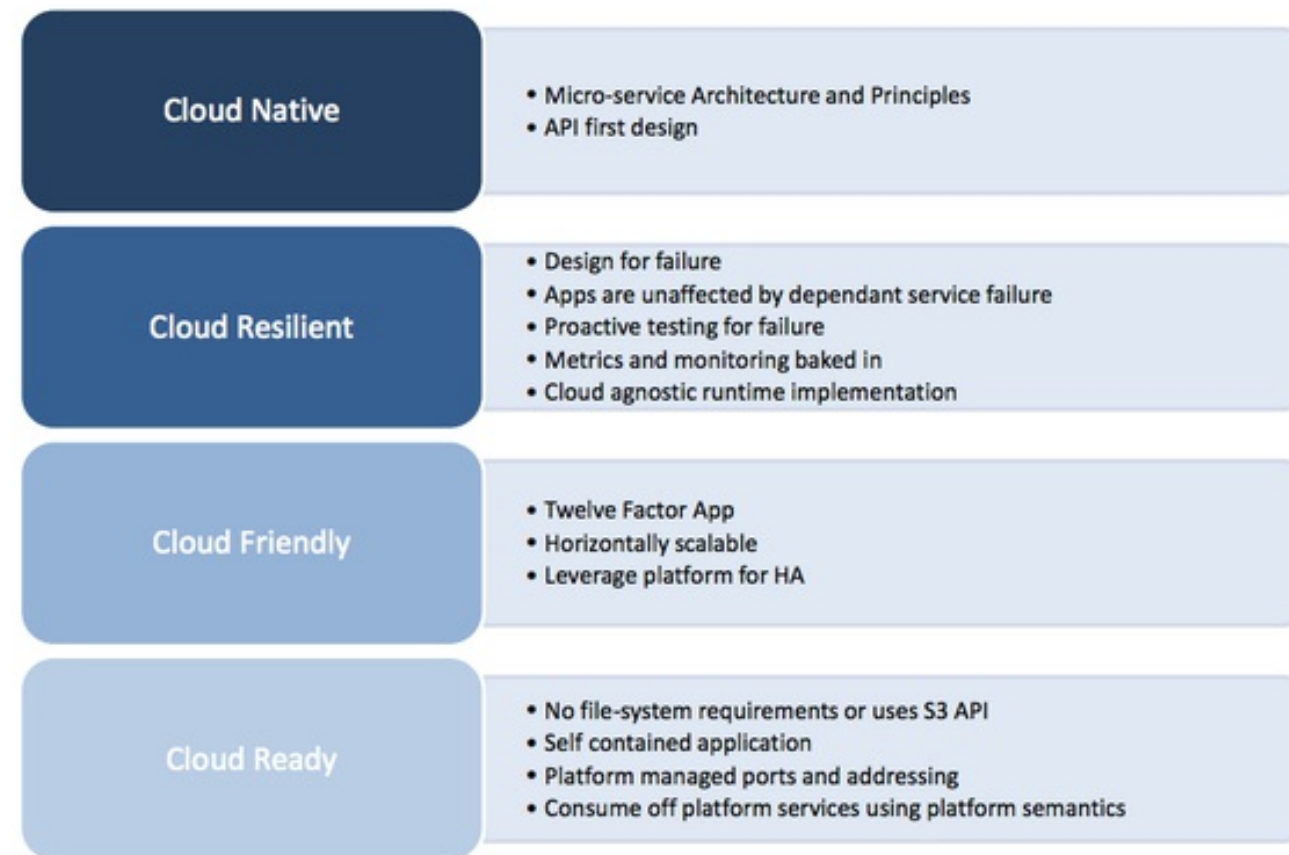
What is Cloud Native?

You probably need to
develop your own maturity
model.

What is Cloud Native?

A Useful Starting Point:

Cloud Native Maturity Model



Cloud Foundry Financial Services User Group

Selection Strategy

Selection Strategy

Start in the **Cloud Ready** or
Cloud Friendly categories.

Selection Strategy

Moving less cloudy apps will
be more expensive!

Selection Strategy

Consider ROI

Selection Strategy

One evaluation technique:

SNAP Analysis

Selection Strategy

Walk the app portfolio, asking the following:

- # of users?
- Transactions per second?
- Language/version?
- Framework components used?
- Container API's used?
- Deployment type?
- Data integrations?

Selection Strategy

Walk the app portfolio, asking the following:

- Data access techniques?
- Distributed Transactions?
- External integration API's?
- Third party libraries?
- Front end techniques?
- Batch/ETL processing?
- Logging technique?

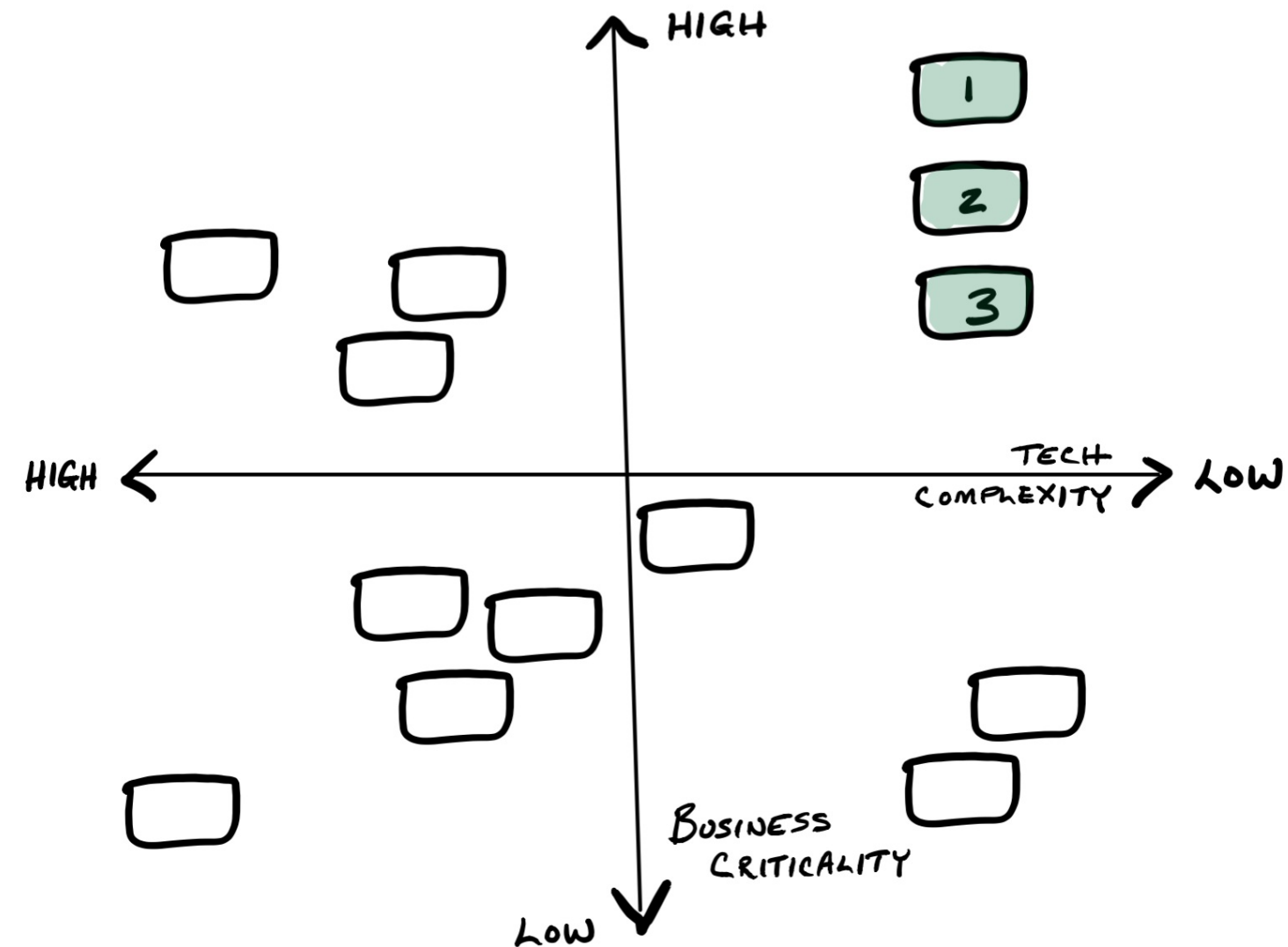
Selection Strategy

Walk the app portfolio, asking the following:

- Configuration technique?
- CI/CD?
- Packaging/build tool?
- File system access/NFS?
- Testing/test coverage?
- Runs on cloud platform of choice?
- Credential management?

Selection Strategy

SWOT-style Quadrant



Lift and Shift?

Lift and Shift?

What does it even mean?

Lift and Shift?

Minimum Viable Port

What is the absolute least amount of work we can do to run this in the cloud?

Lift and Shift?

When is this OK?

- Rationale #2: We have to move it!
- Immovable Deadline

Lift and Shift?

Plan to revisit when
the fire is out!

This app is not "checked off!"

Migration Strategy

Migration Strategy

Decomposition Strategies

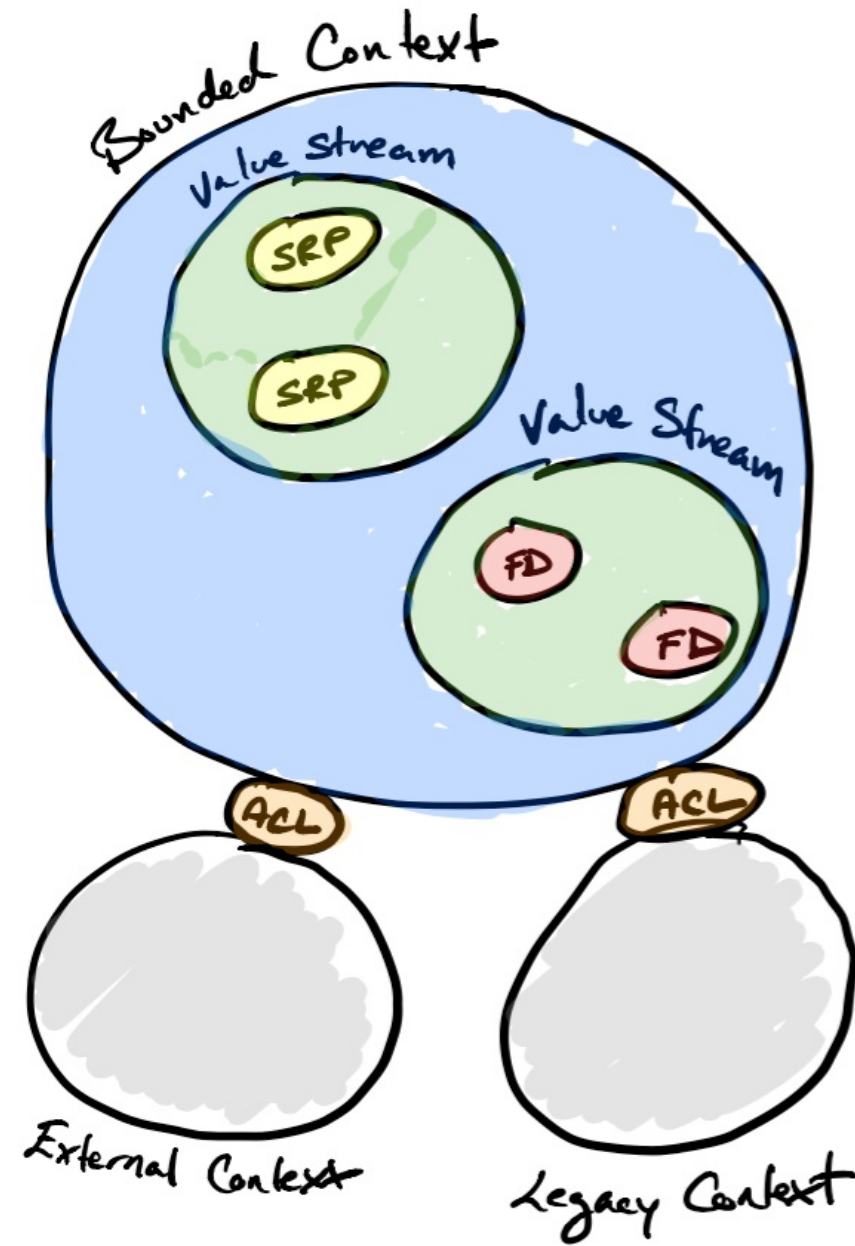
Migration Strategy

Decomposition Strategies

What's yours?

- Bounded Contexts
- Value Streams
- Single Responsibility Principle
- Failure Domains
- Anti-Corruption Layers

Migration Strategy



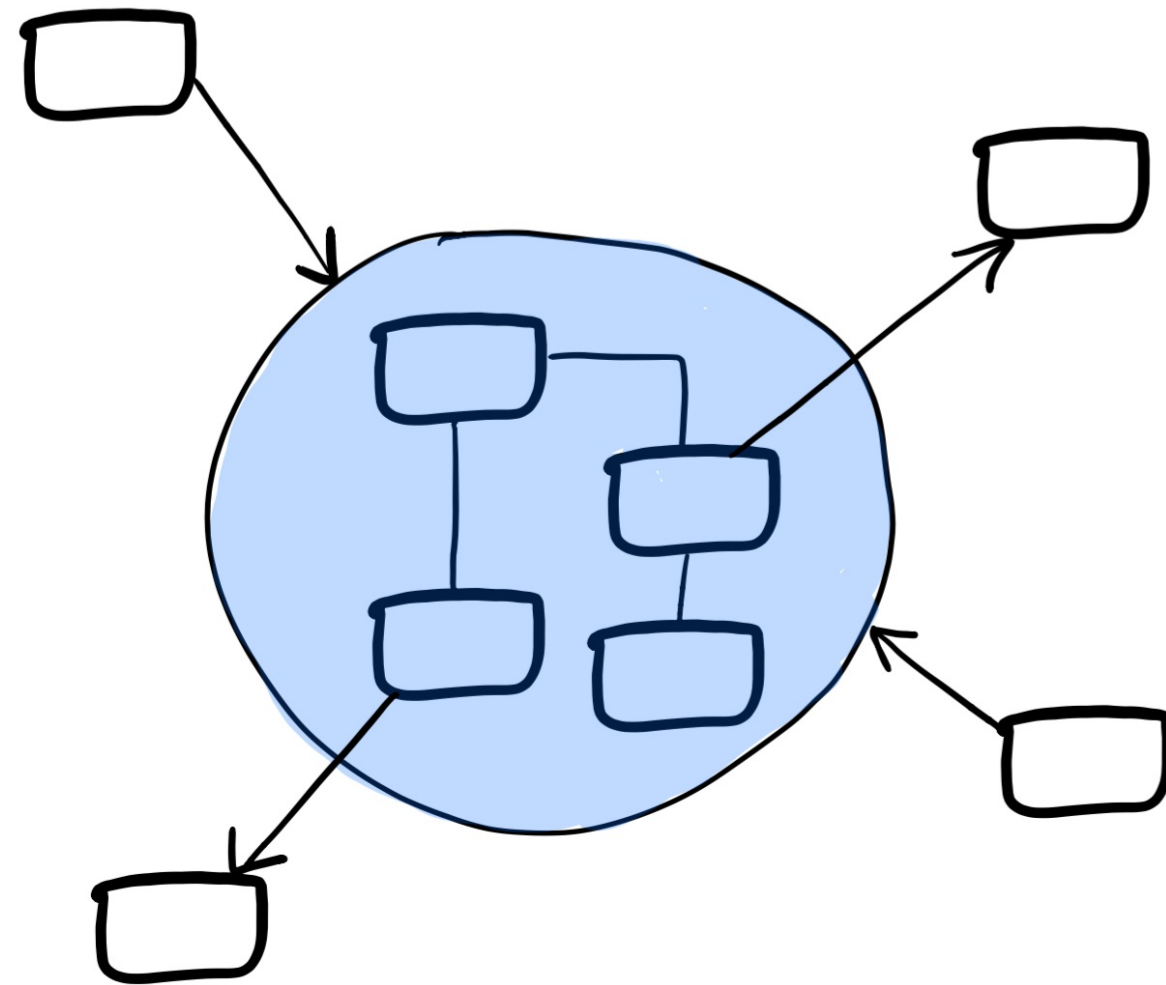
Strategies are not mutually exclusive!

Migration Strategy

Strategic DDD

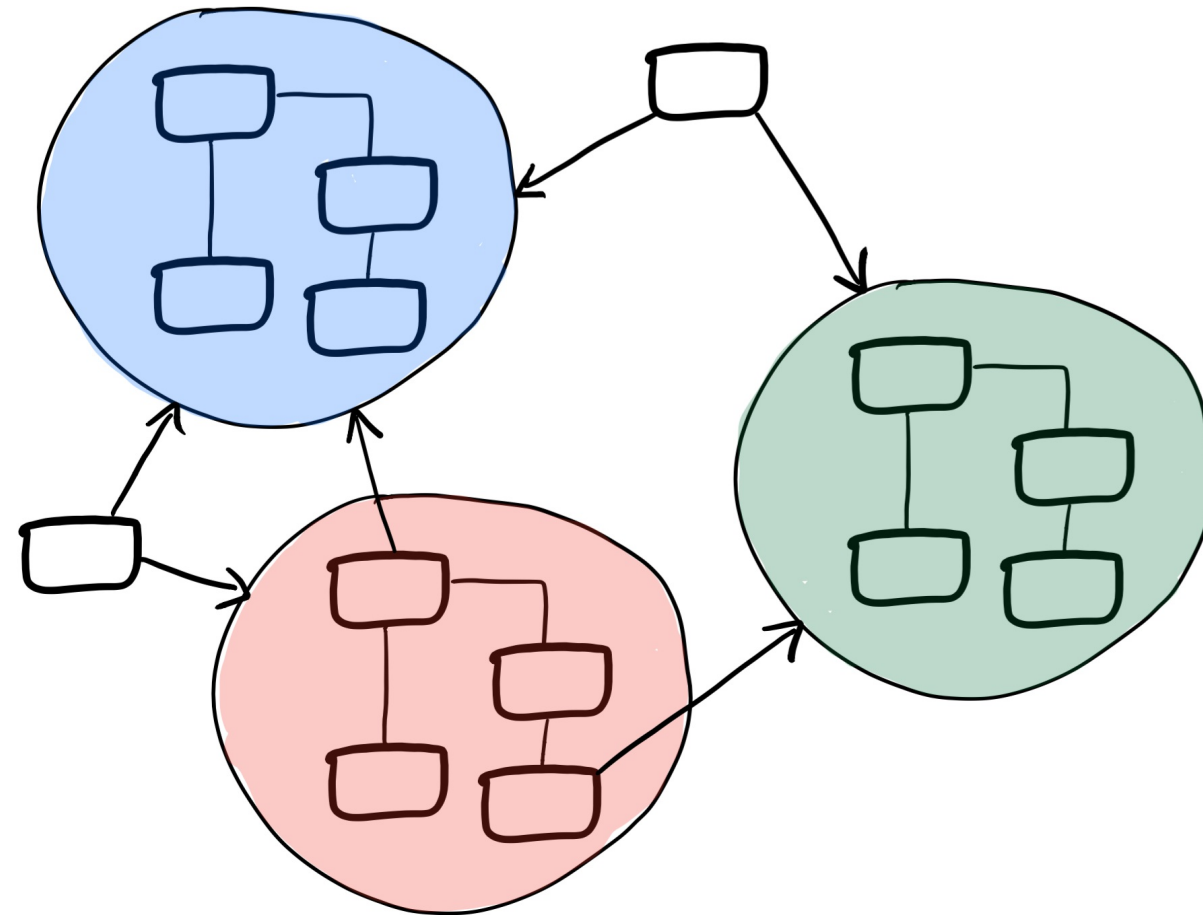
Migration Strategy

Bounded Context



Subdomain with internally consistent ubiquitous language.

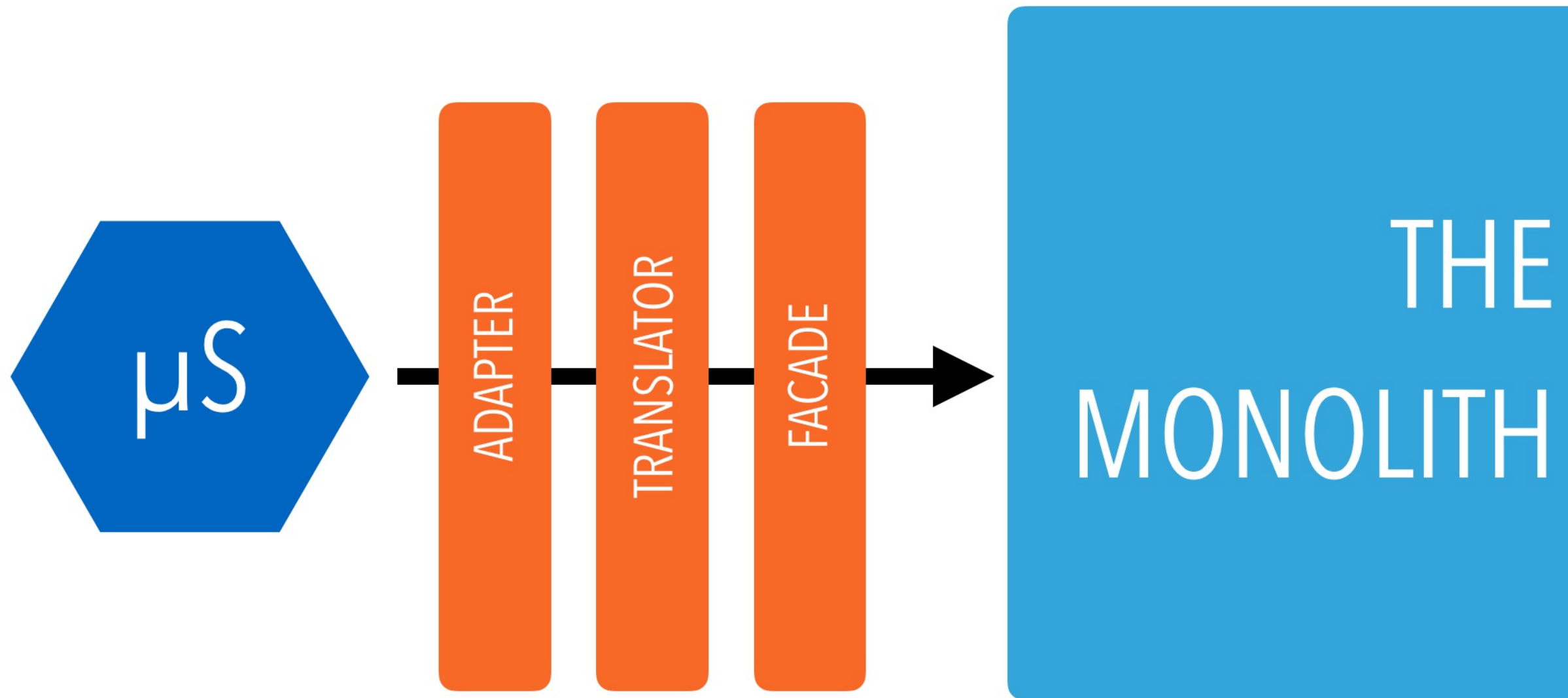
Migration Strategy Context Map



Define relationships, communication links, and translation points.

Migration Strategy

Anti-Corruption Layers



Migration Strategy

The Strangler Pattern

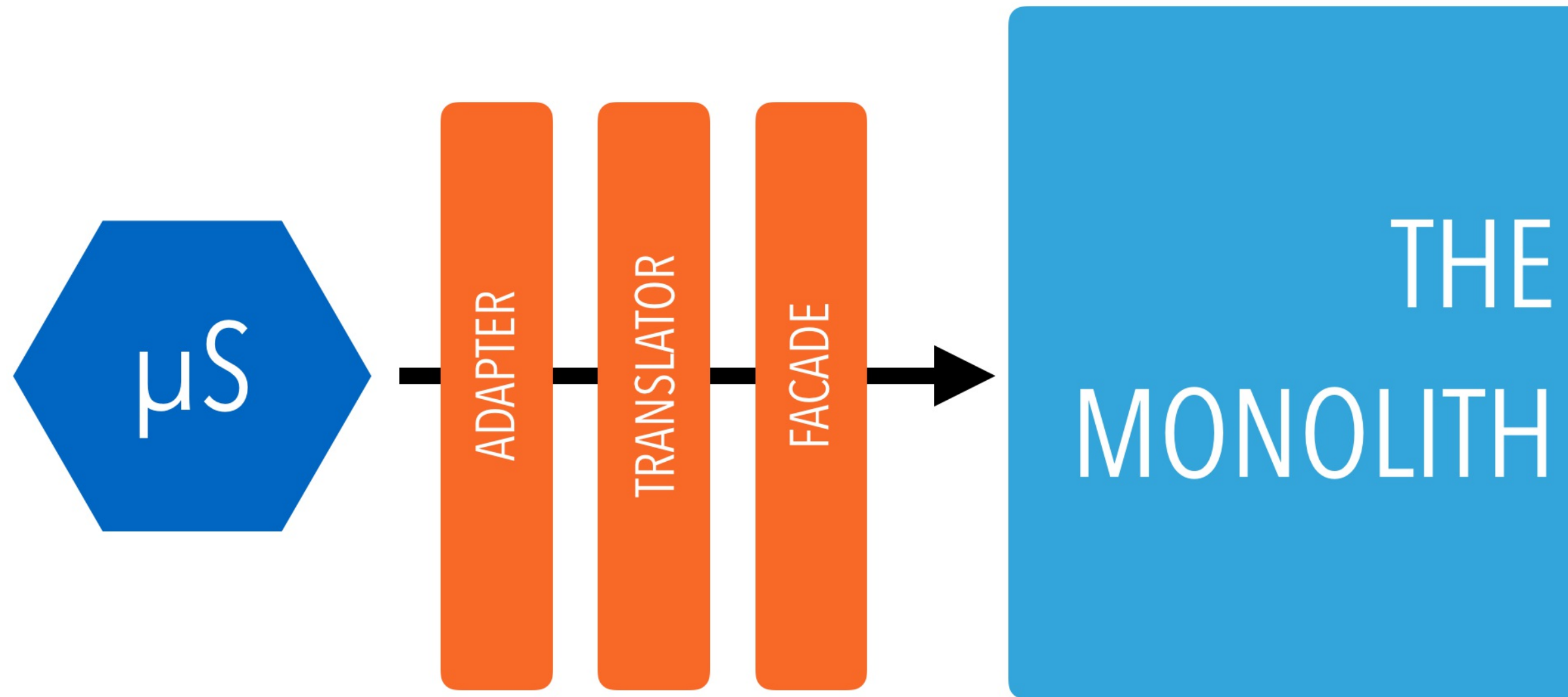
Migration Strategy

New Features as Microservices



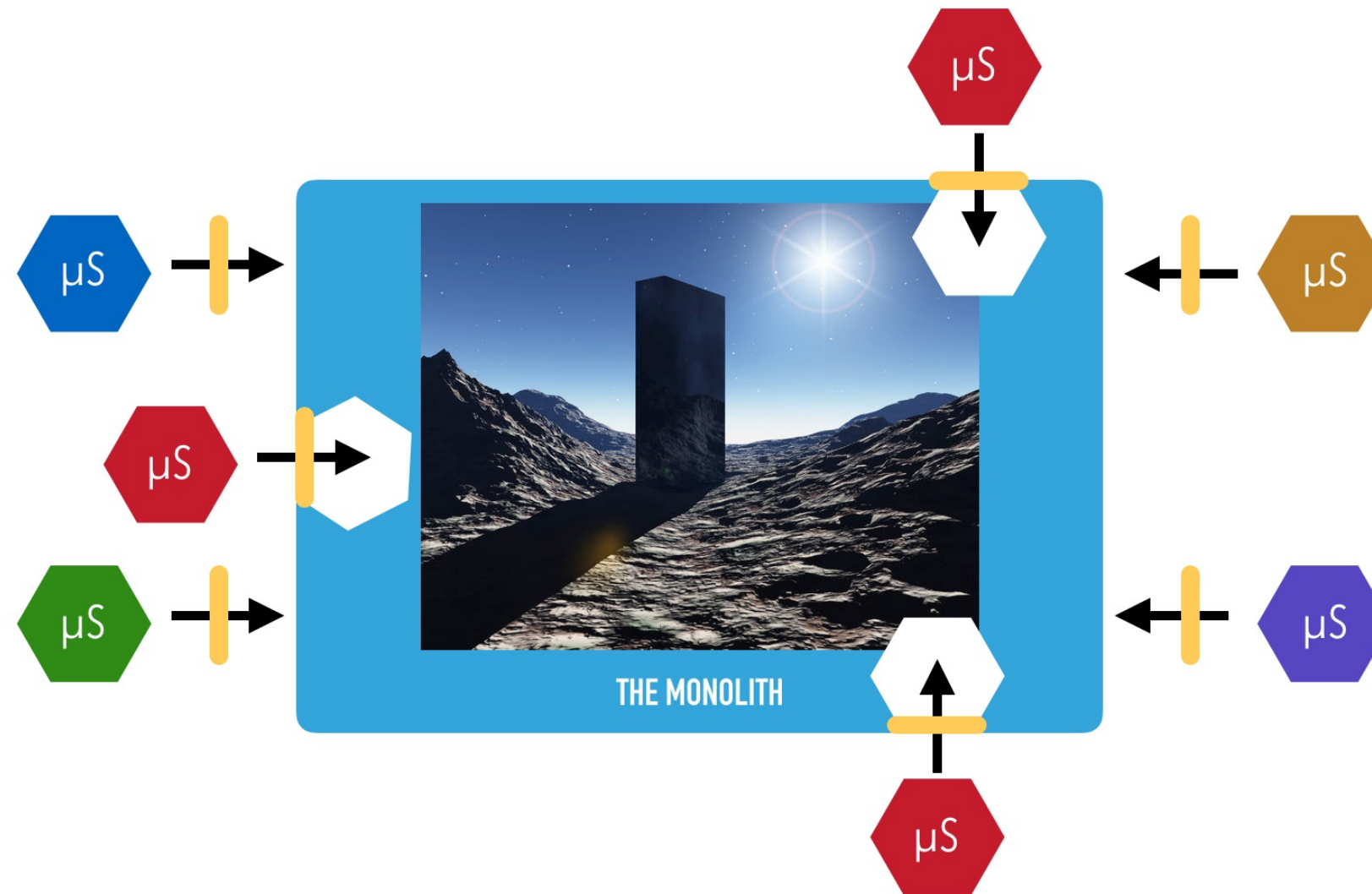
Migration Strategy

Anti-Corruption Layers



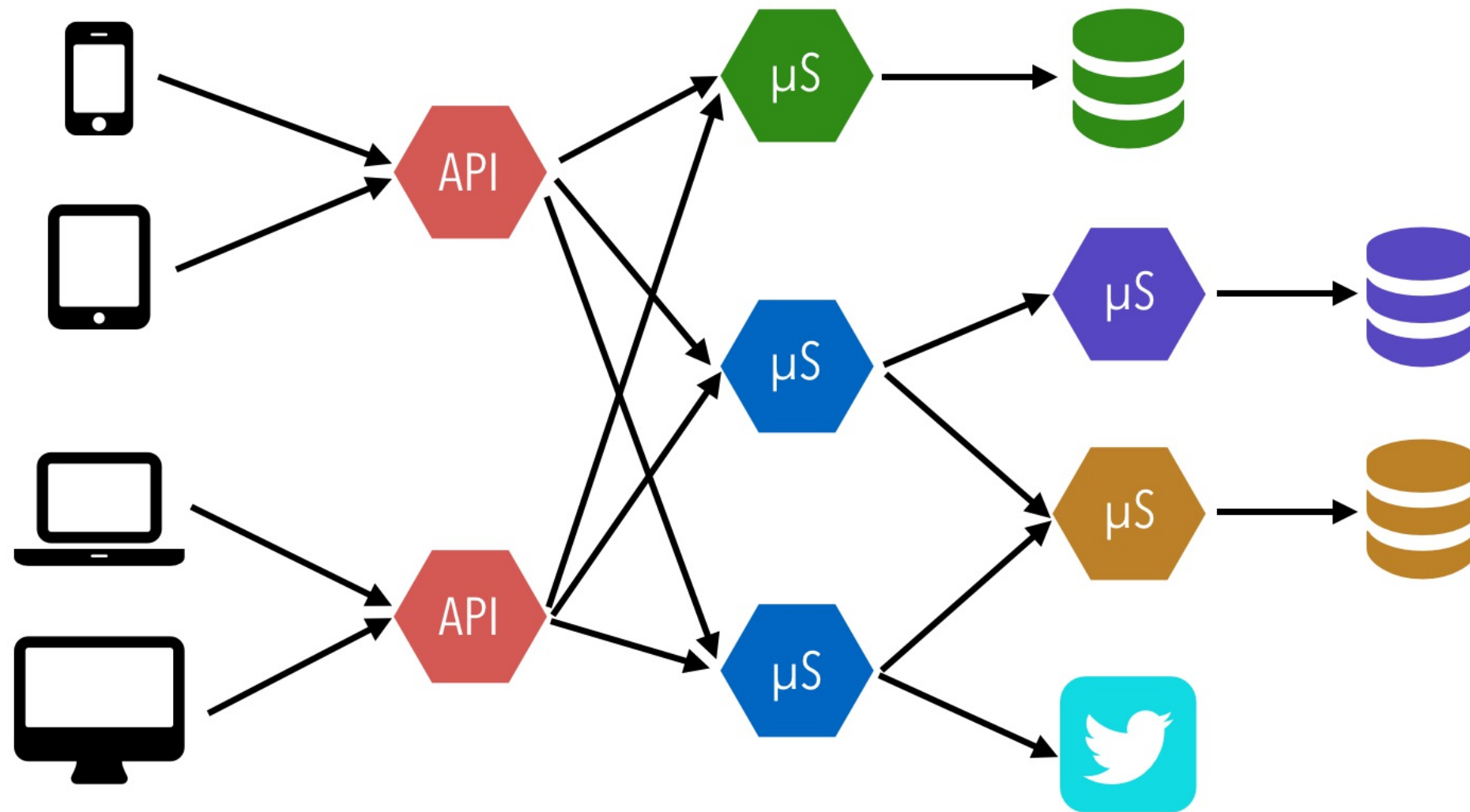
Migration Strategy

Strangle the Monolith



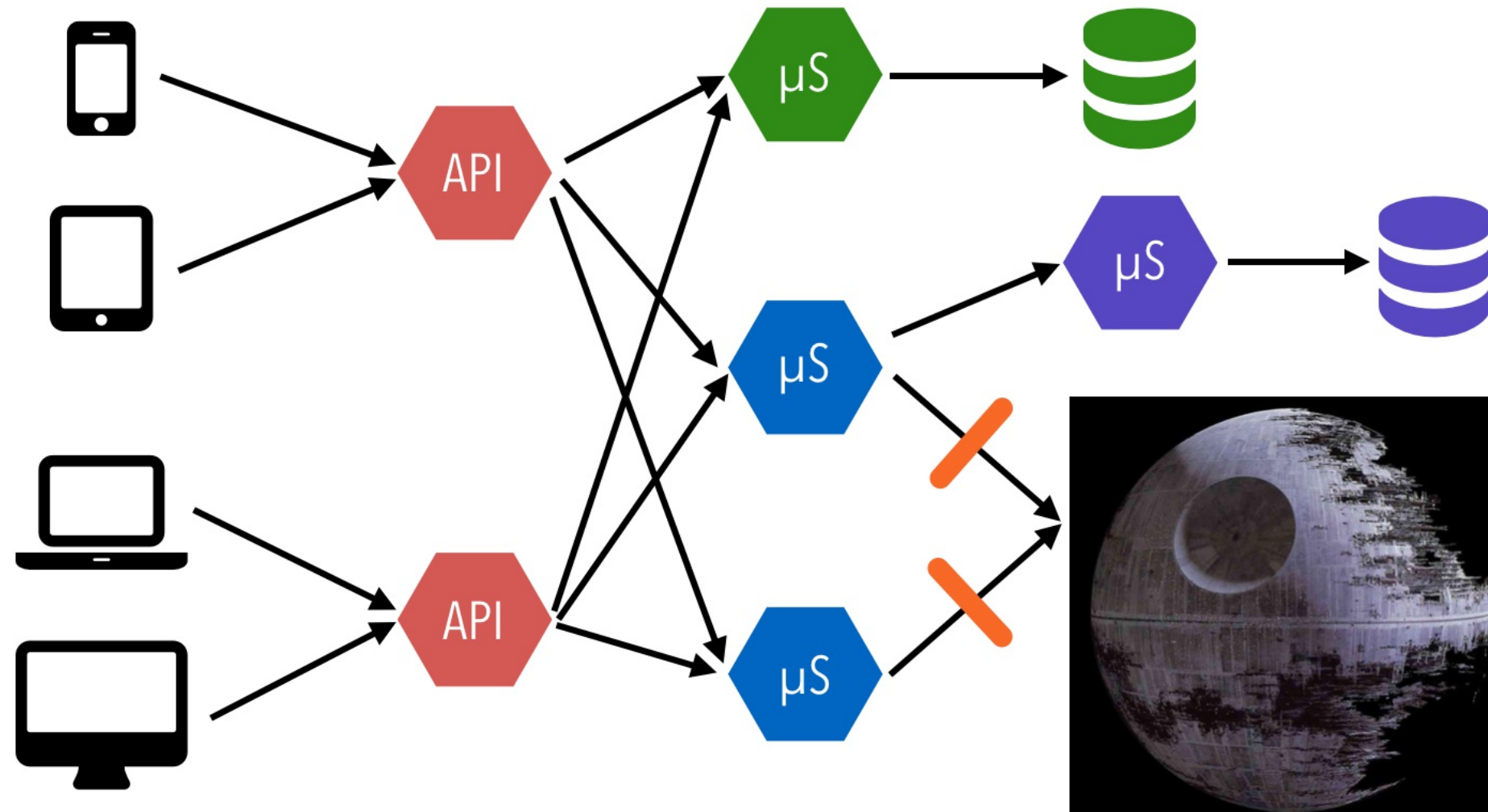
Migration Strategy

End State #1



Migration Strategy

End State #2

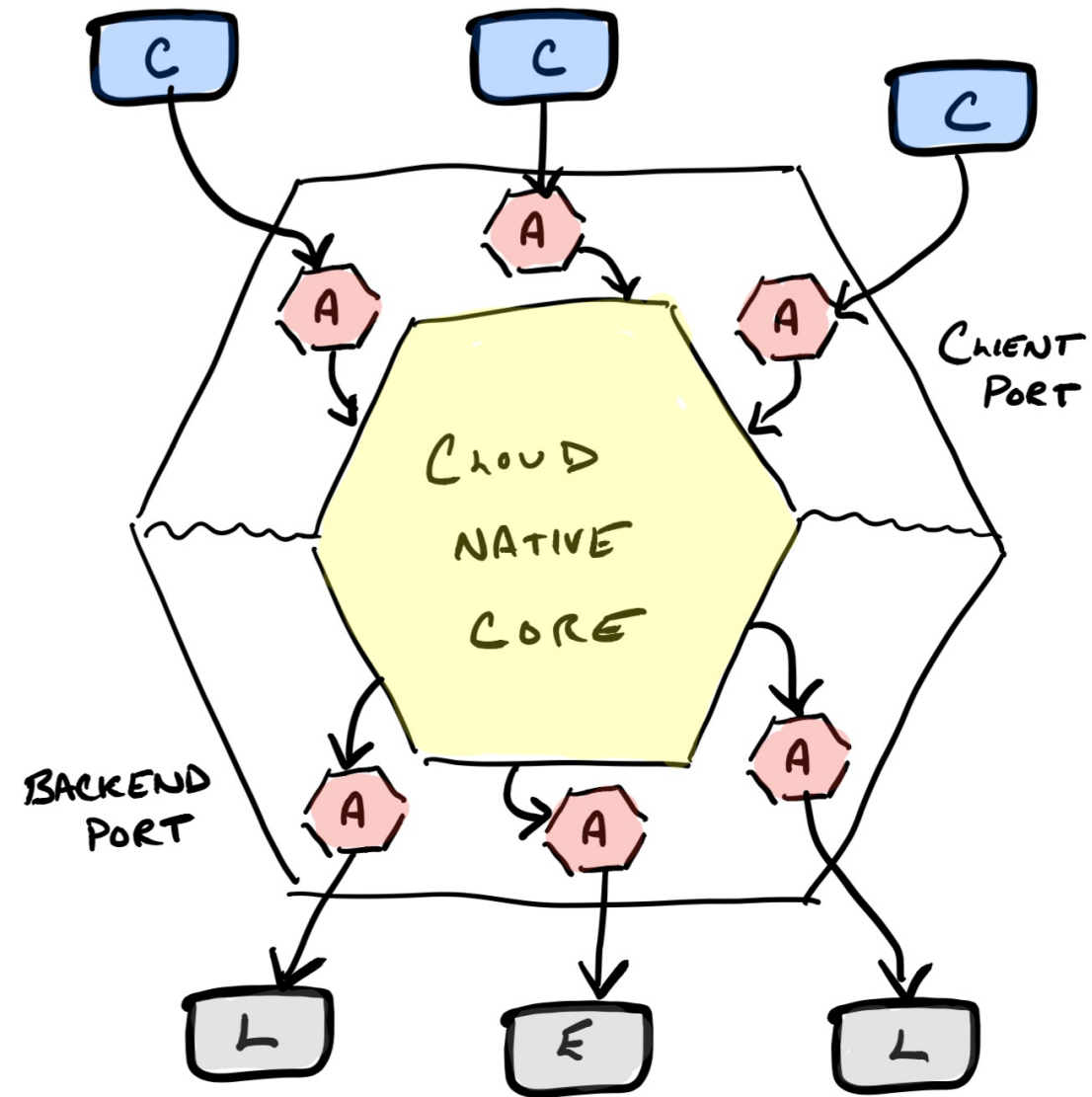


Migration Strategy

Hexagonal Architecture

Migration Strategy

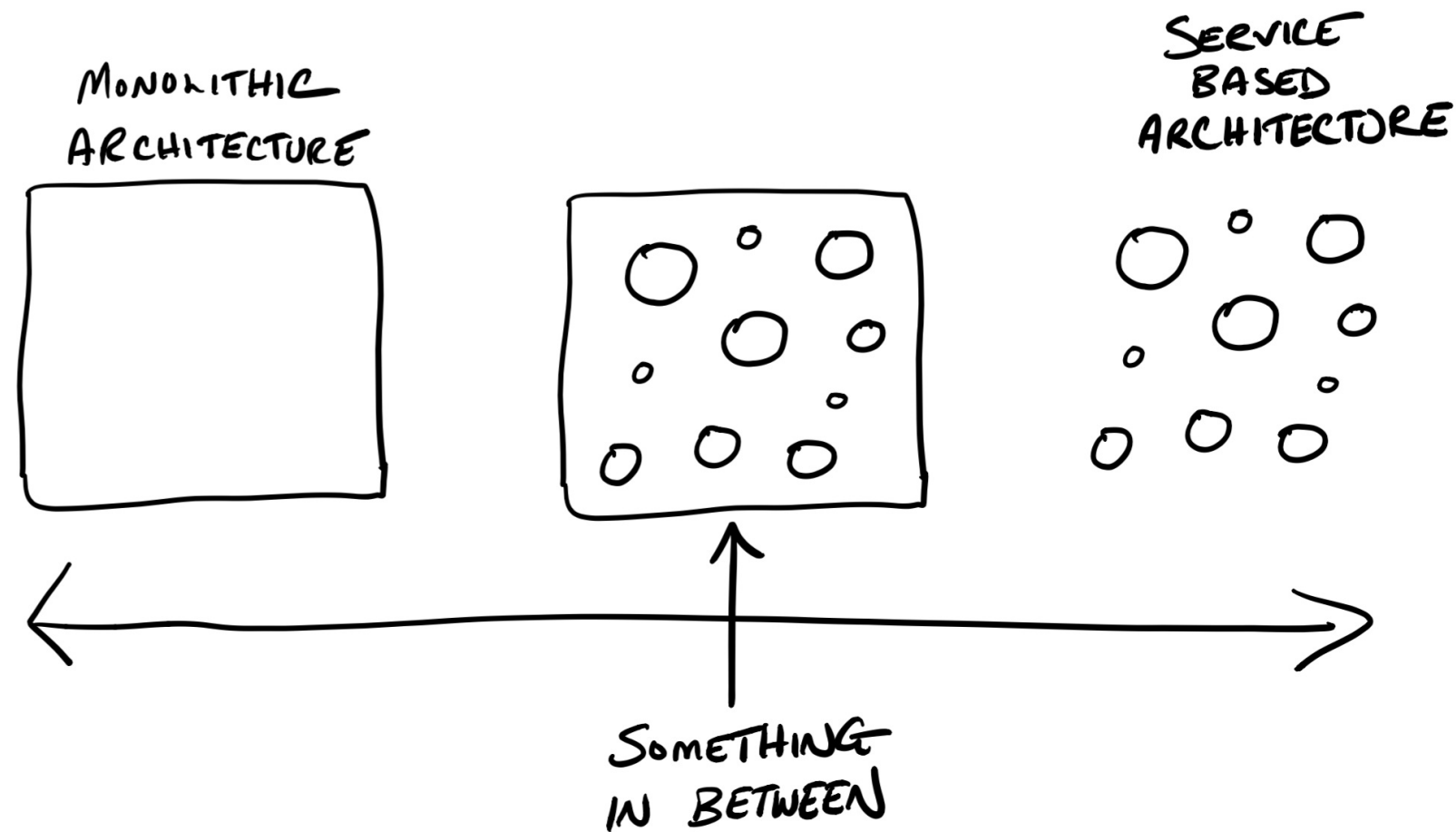
Ports and Adapters



Should You Start Cloud
Native?

Should You Start Cloud Native?

Modular Monoliths

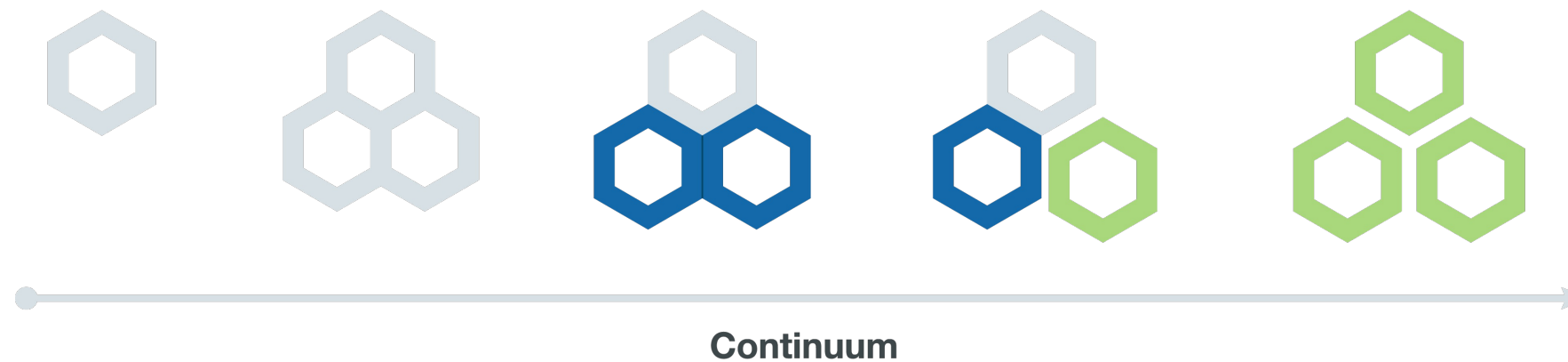


<http://www.codingthearchitecture.com/presentations/sa2015-modular-monoliths>

Should You Start Cloud Native?

The App Continuum

- Flat Structure
- Functional Groups
- Feature Groups
- Single App with Components
- Multiple Apps and Components
- Multiple Apps, Components, and Services



<http://www.appcontinuum.io/>

Thank You!

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