72 Services

THE REAL VALUE OF MICROSERVICES

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ABOUT ME

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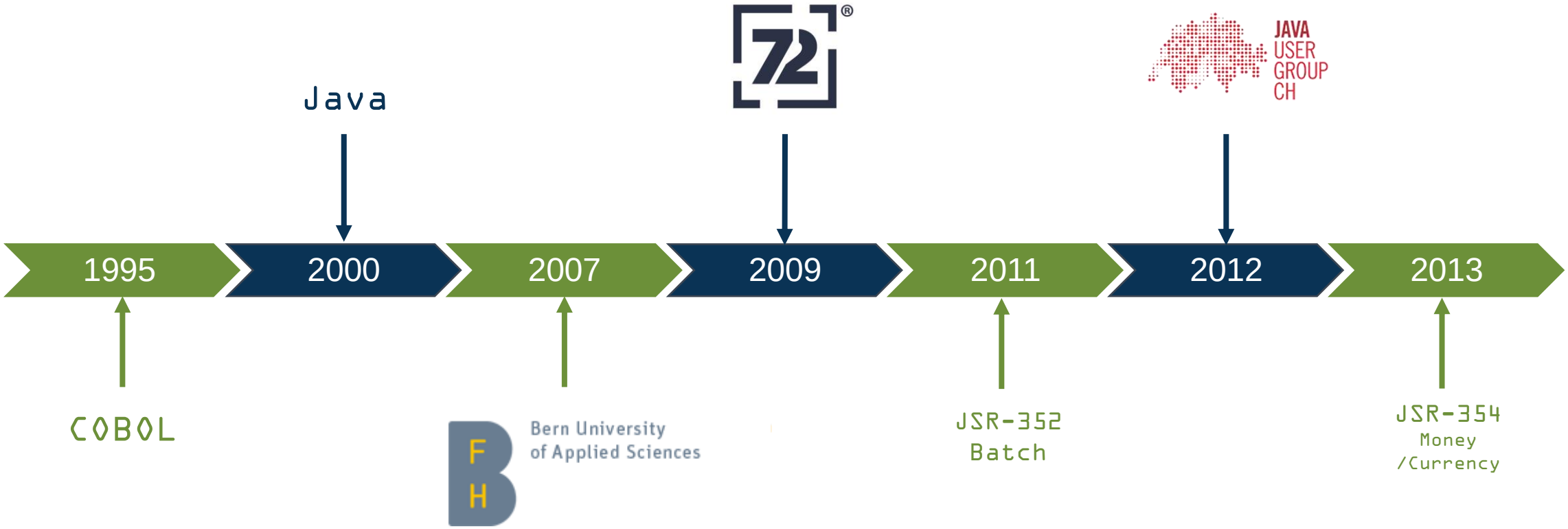
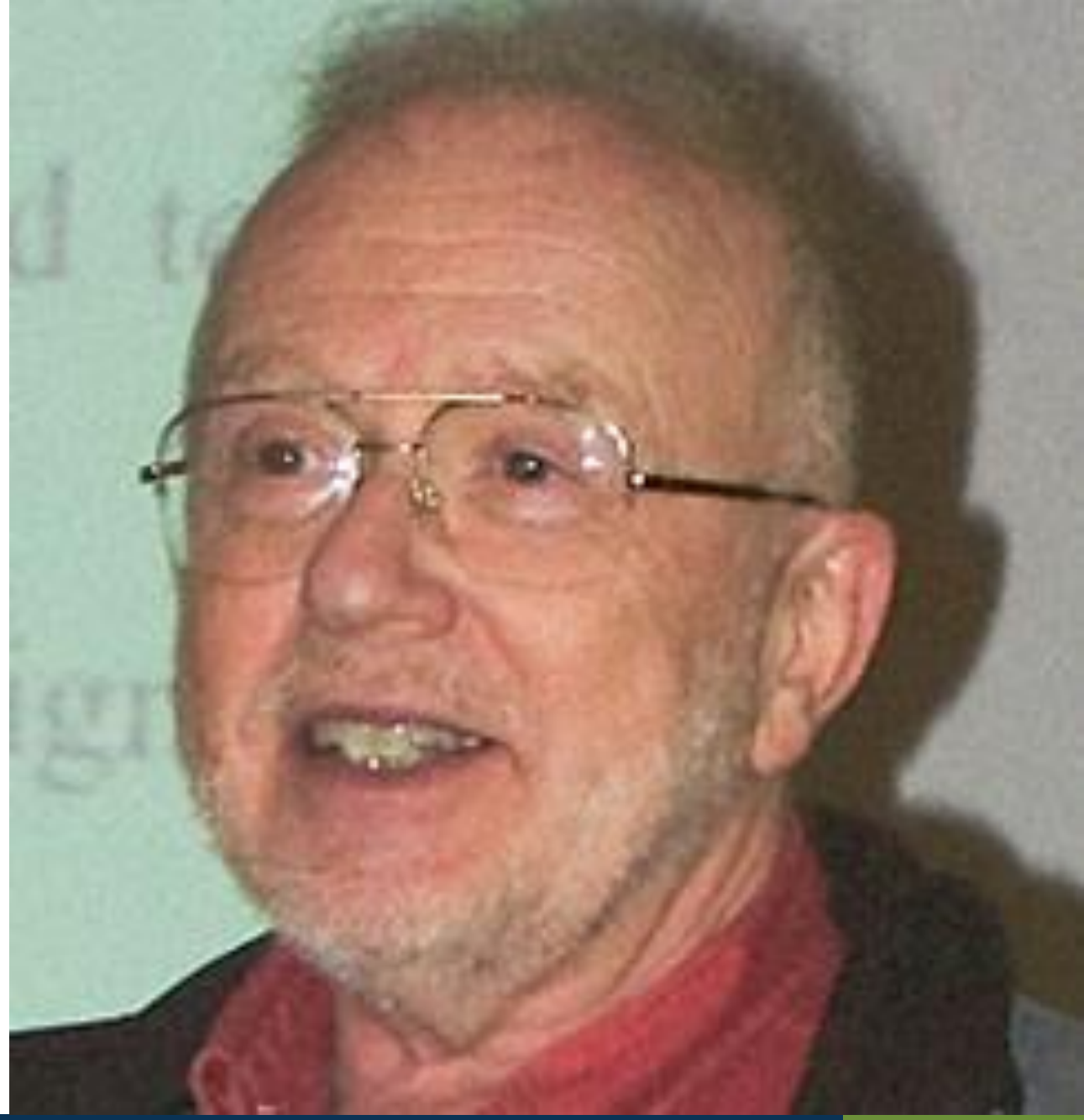


1972

The effectiveness of a “modularization” is dependent upon the criteria used in dividing the system into modules.

On the criteria to be used in decomposing systems into modules - David L. Parnas

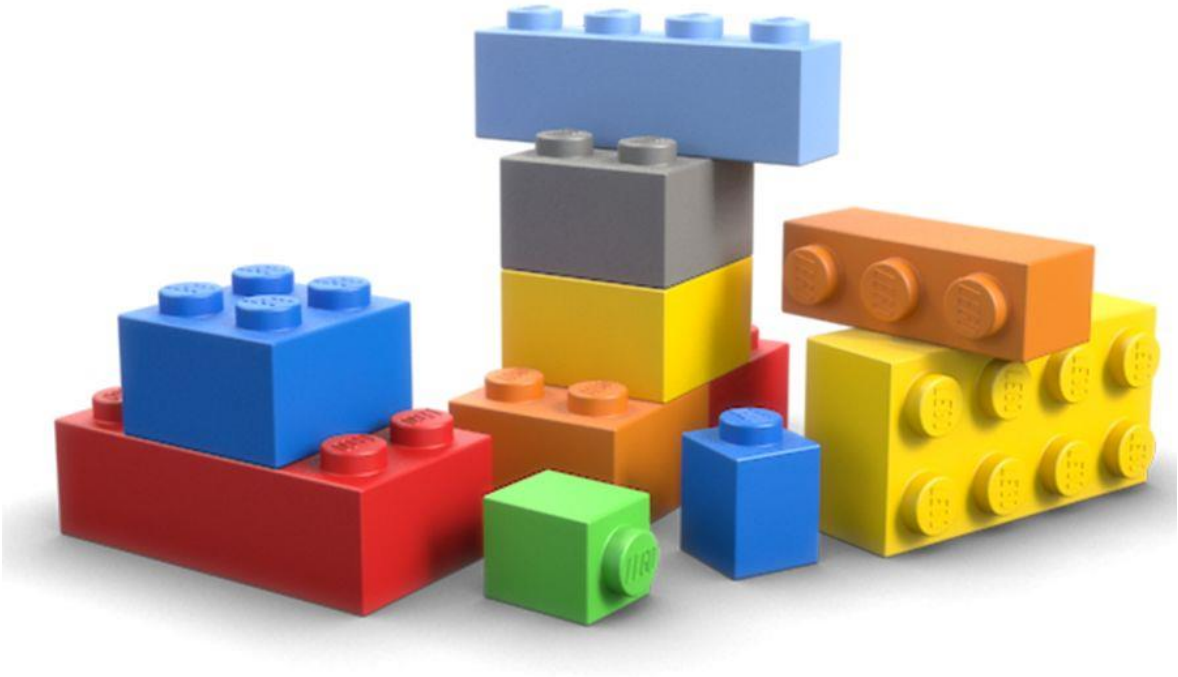
Published in Communications of the ACM Volume 15 Issue 12, Dec. 1972



IT'S ALL ABOUT MODULARITY

Module

A self-contained component of a system, often interchangeable, which has a well-defined interface to the other components.



Source: https://en.wiktionary.org/wiki/module

DOES THE SIZE MATTER?

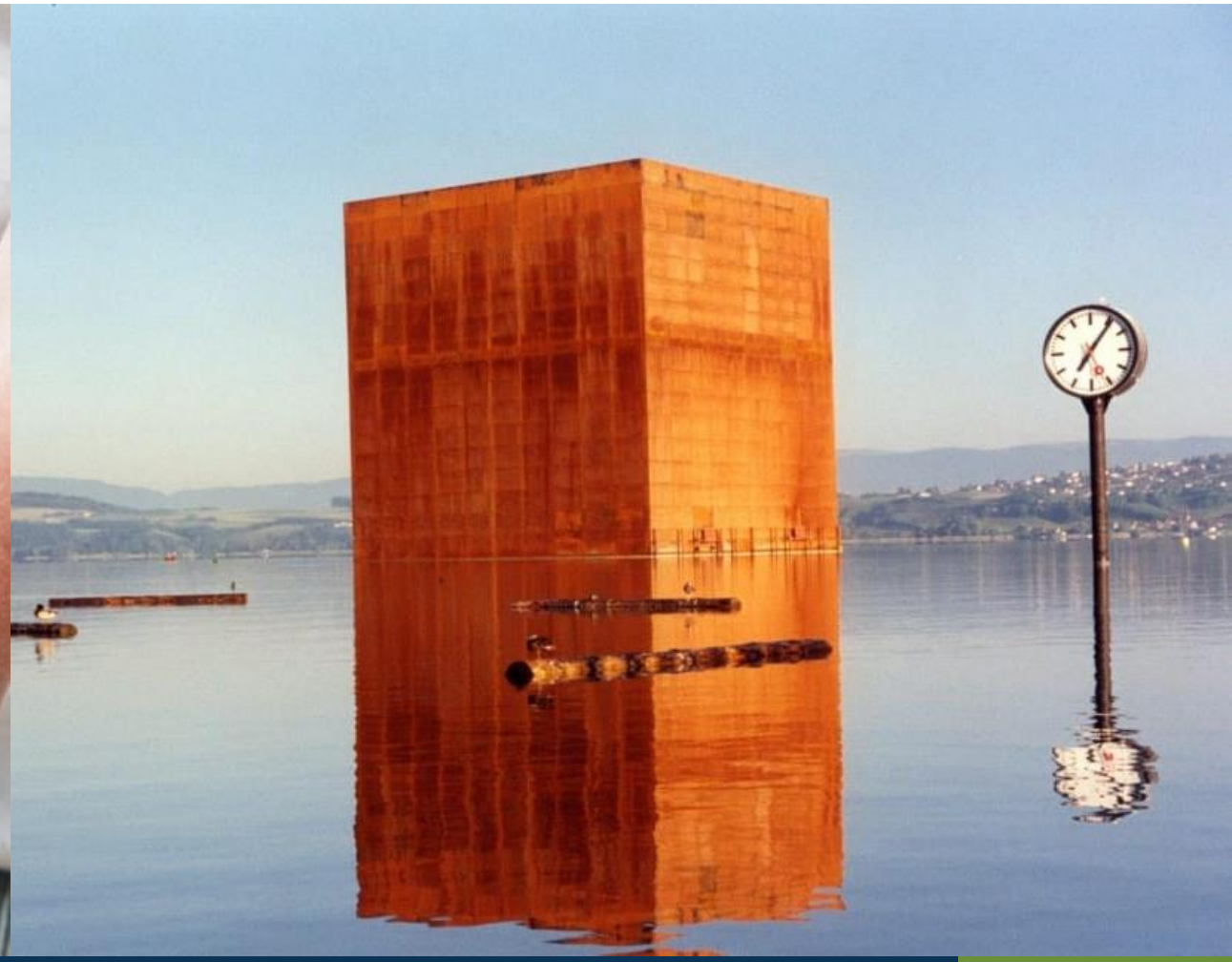
- The term MICRO is misleading
- Scope matters
  - Bounded Contexts
- Design for Maintenance
  - 3 to 10 developers per Microservice during project development
  - But how many developers will maintain the system?

WHAT ABOUT SERVICES?

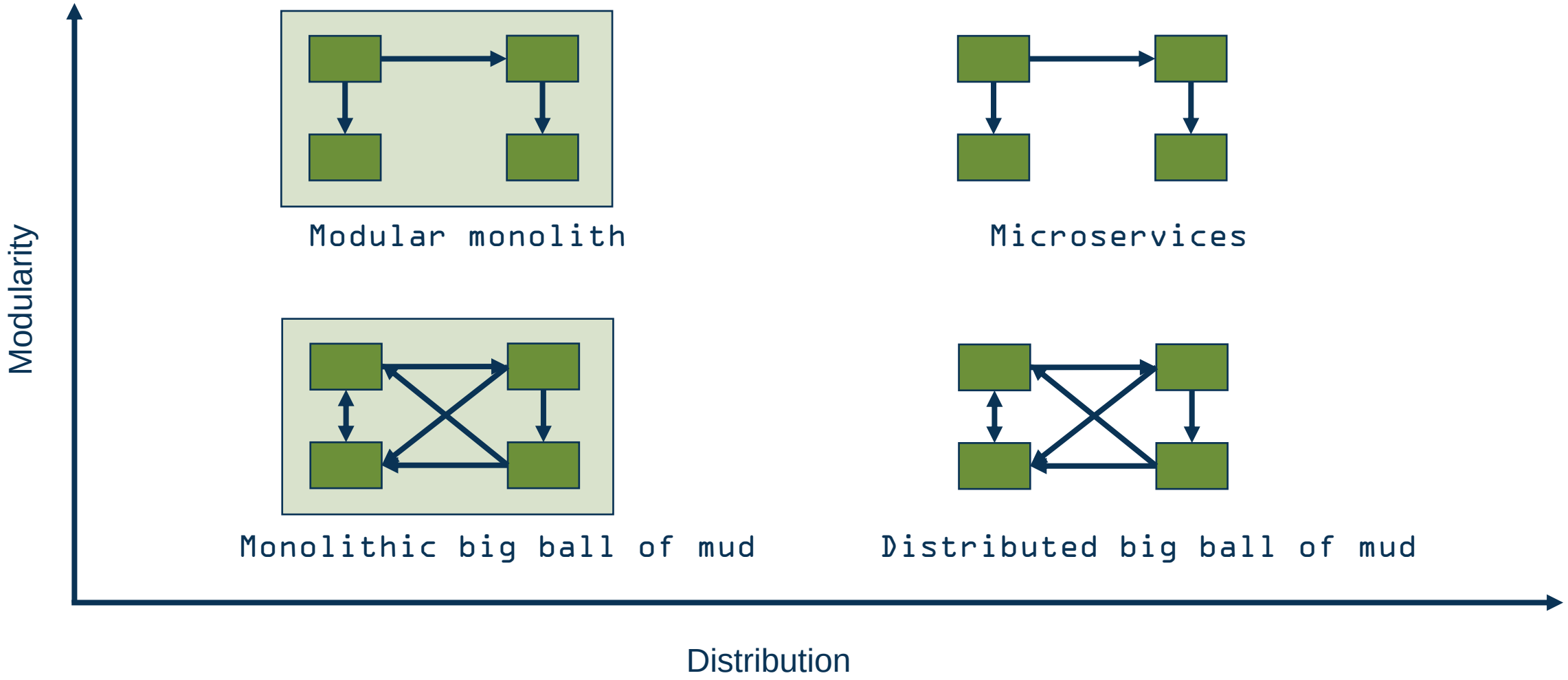
- Service-Oriented Architecture (SOA) is an architectural style that supports service-orientation
- Service-orientation is a way of thinking in terms of services and service-based development and the outcomes of services
- Service
  - Is a logical representation of a repeatable business activity that has a specified outcome (e.g., check customer credit, provide weather data)
  - Is self-contained
  - May be composed of other services
  - Is a black box to consumers of the service

Source: http://www.opengroup.org/soa/source-book/soa/p1.htm

ARE THEY REALLY THE SAME?

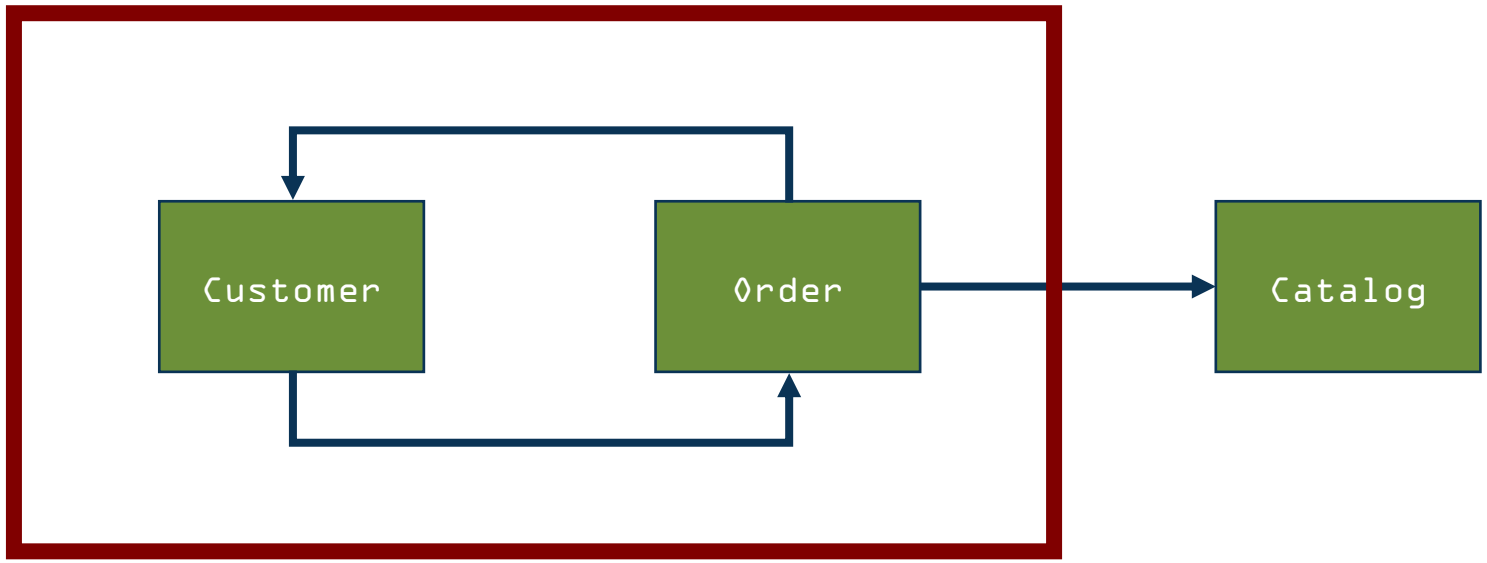


MODULARITY AND DISTRIBUTION



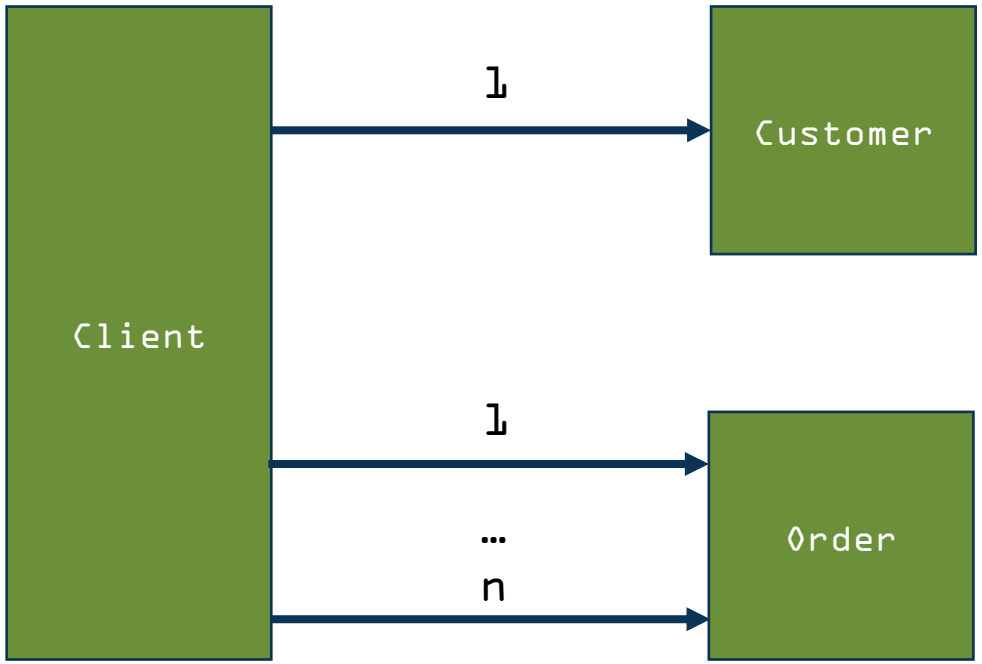
DISTRIBUTED BIG BALL OF MUD

If you can't build a modular monolith, what makes you think microservices are the answer? - Simon Brown



BEWARE OF THE N+1 SELECT PROBLEM

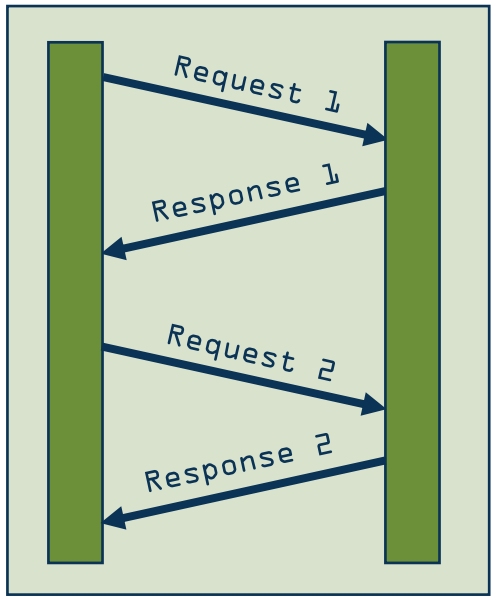
- Use Case: Select orders of customers
  - 1 request to get all customers
  - n requests to get customers orders



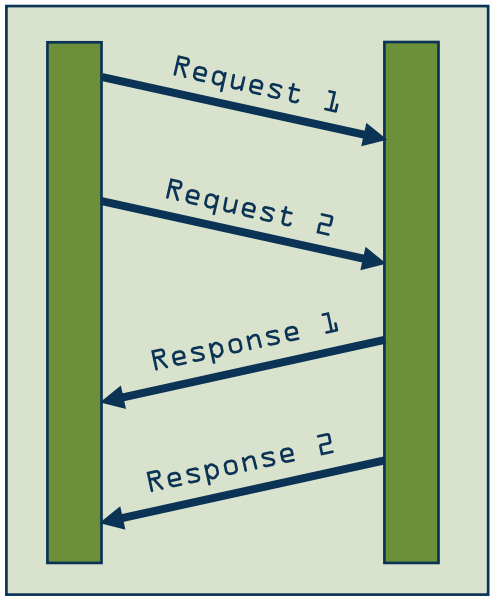
DISTRUBUTION AND COMMUNICATION

First Law of Distributed Object Design: Don't distribute your objects
- Martin Fowler

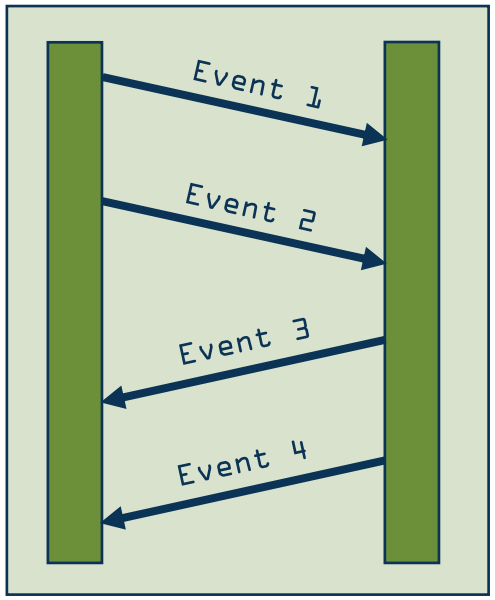
Synchronous



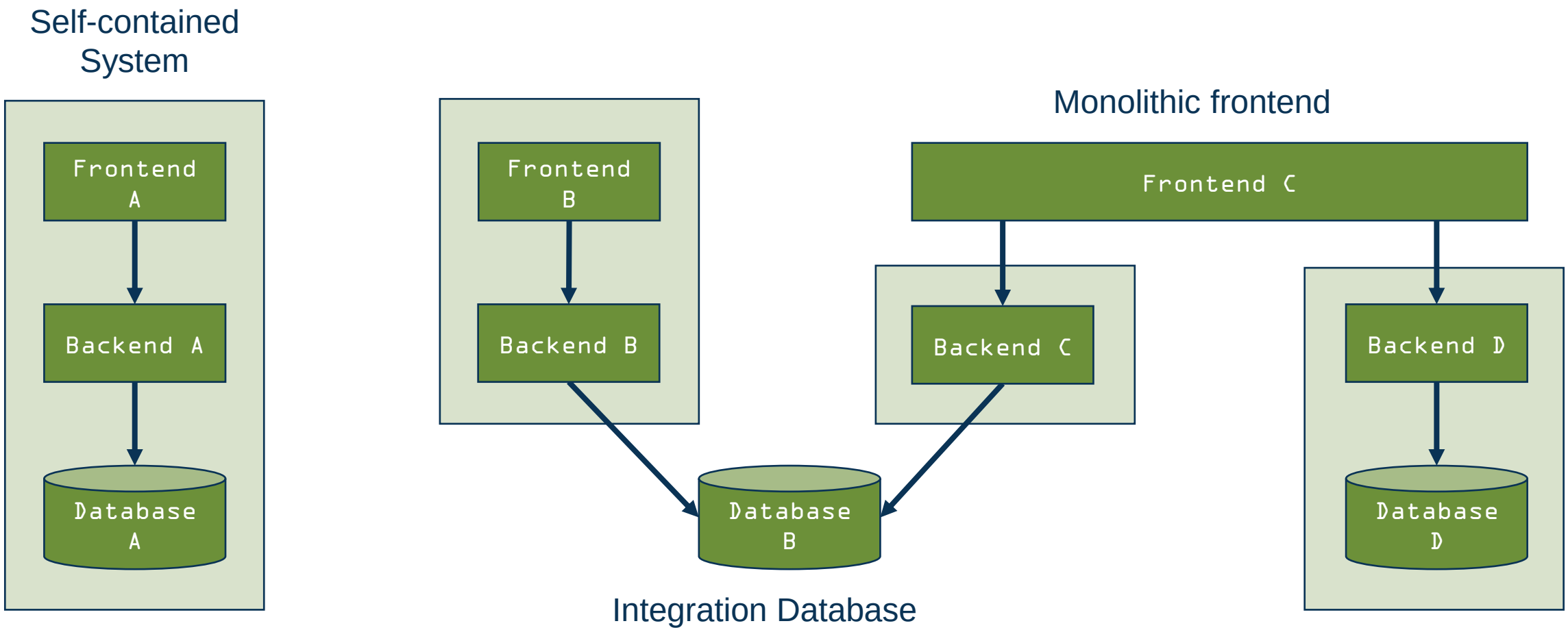
Asynchronous



Event based



SUBSYSTEMS (AKA GARTNERS MINISERVICES)

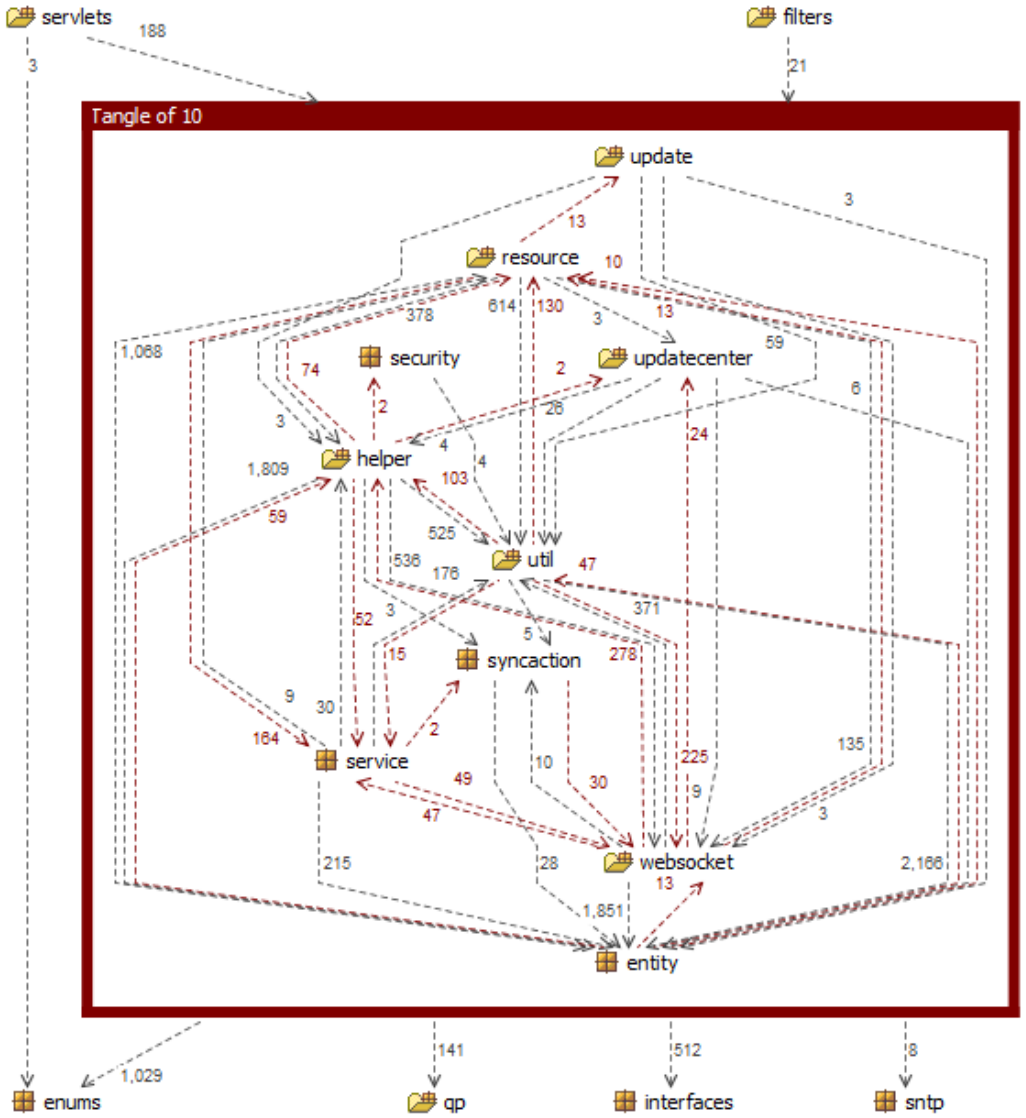


HOW TO BREAK THE MONOLITH?

A Real World Example

SYSTEM ISSUES

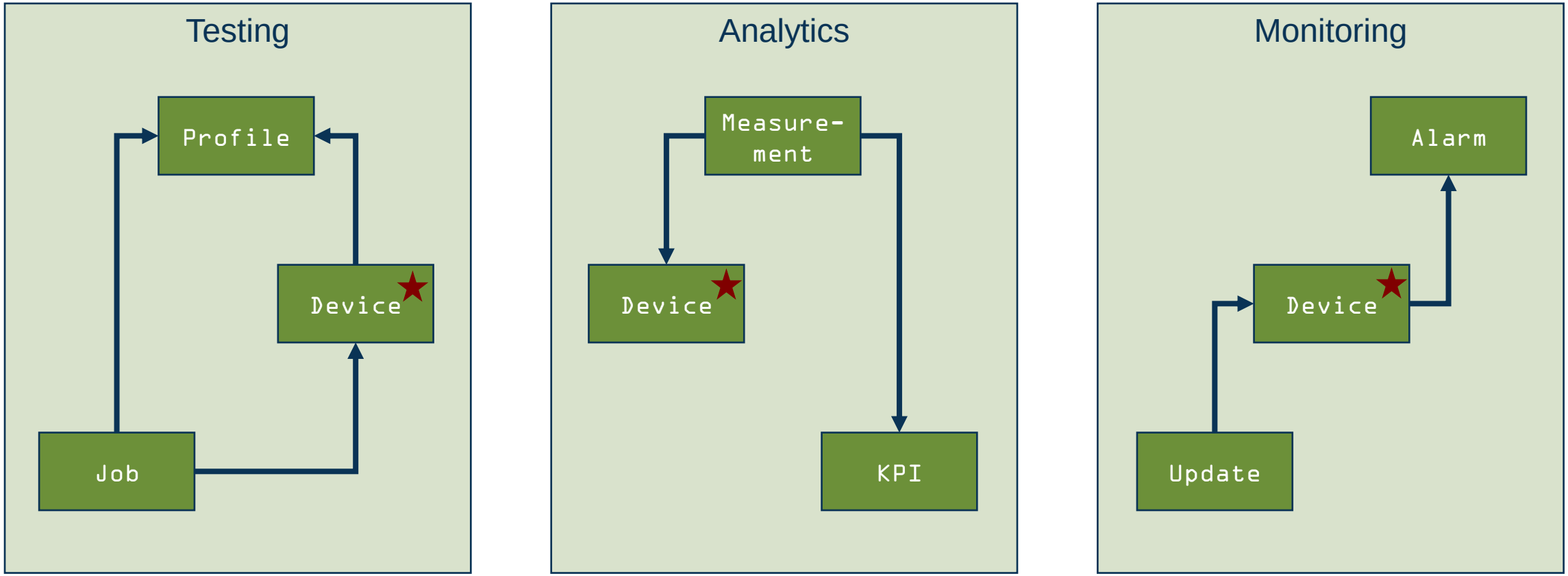
- Cyclic `dependencies`
- No component `structure`
- Meaningless `names`



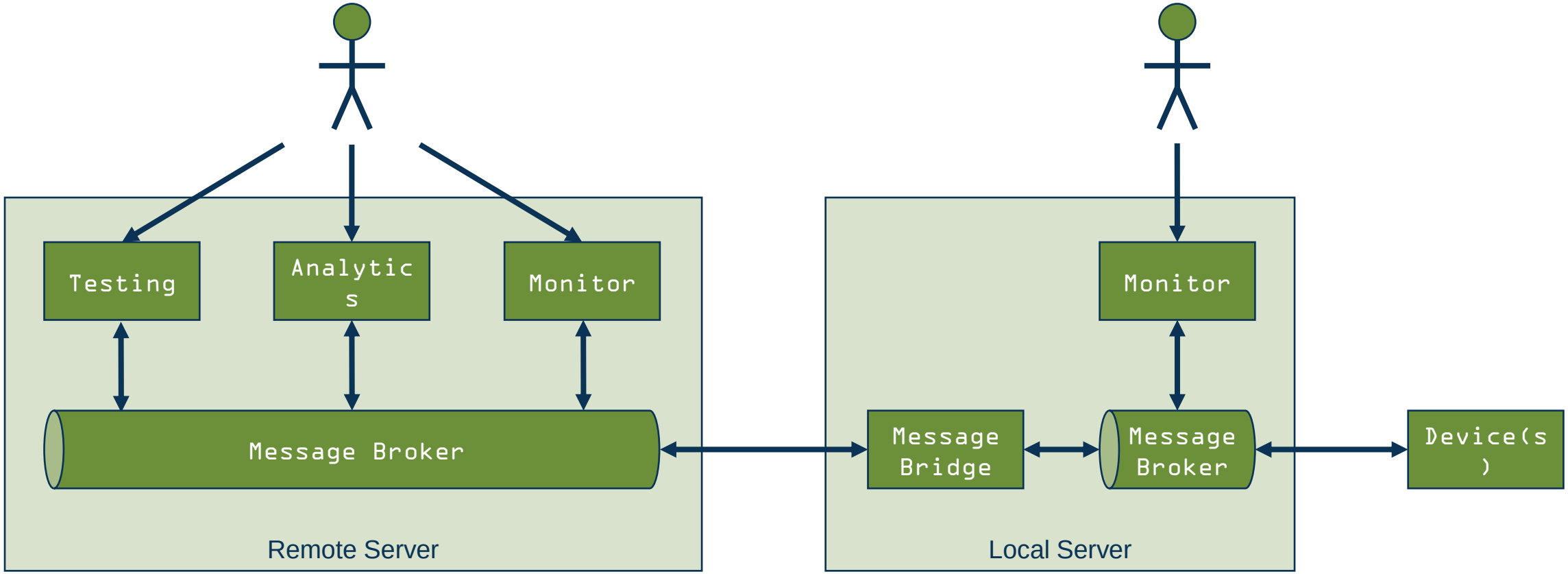
3 STEP REFACTORING

- Step 1: Define target architecture
  - Define bounded contexts
  - Introduce pattern language
  - Separate infrastructure code from business code
- Step 2: Move existing code to newly defined subsystems
- Step 3 (optional): Distribute the subsystems

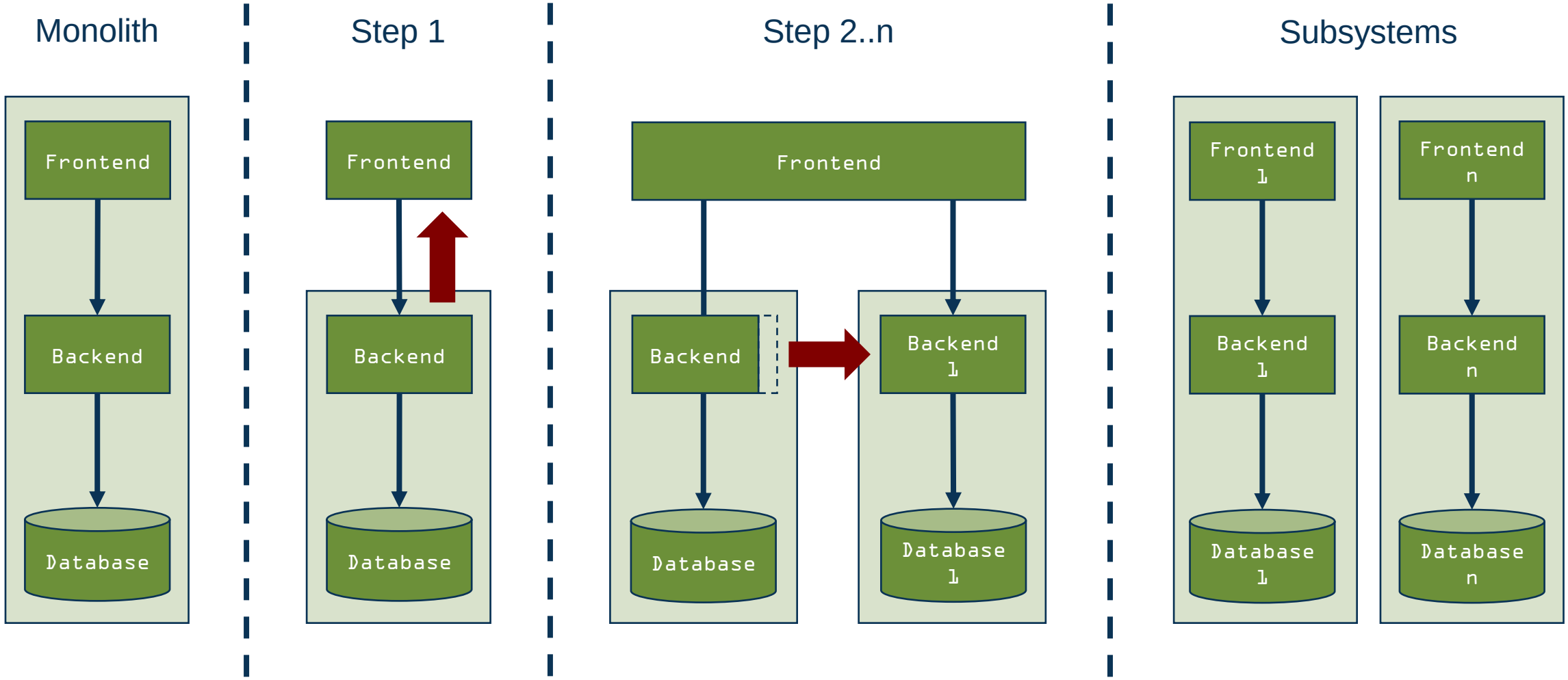
DEFINE BOUNDED CONTEXTS



TARGET SYSTEMS ARCHITECTURE

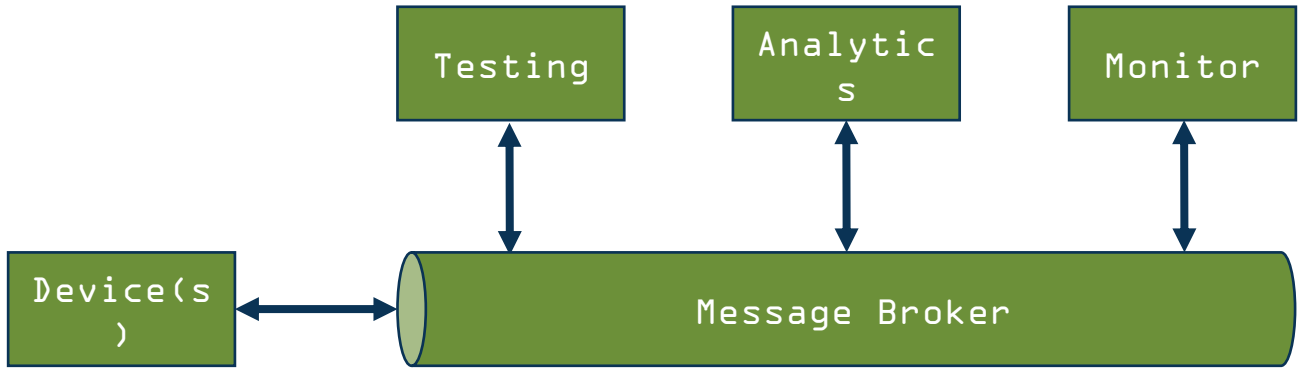


MIGRATION SCENARIO



DECOUPLING THROUGH MESSAGING

- `Messaging` enables modularity
- `Messaging` enforces independence
- Events `not Request/Response`



THE REAL VALUES

- A microservices architecture leads to modularity
- Developers are forced to follow the structure
- It's easier to replace a microservice instead of the whole system in the future

Think twice before you build a microservice based big ball of mud!

Thank you!

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