An Integration Fabric For Microservices

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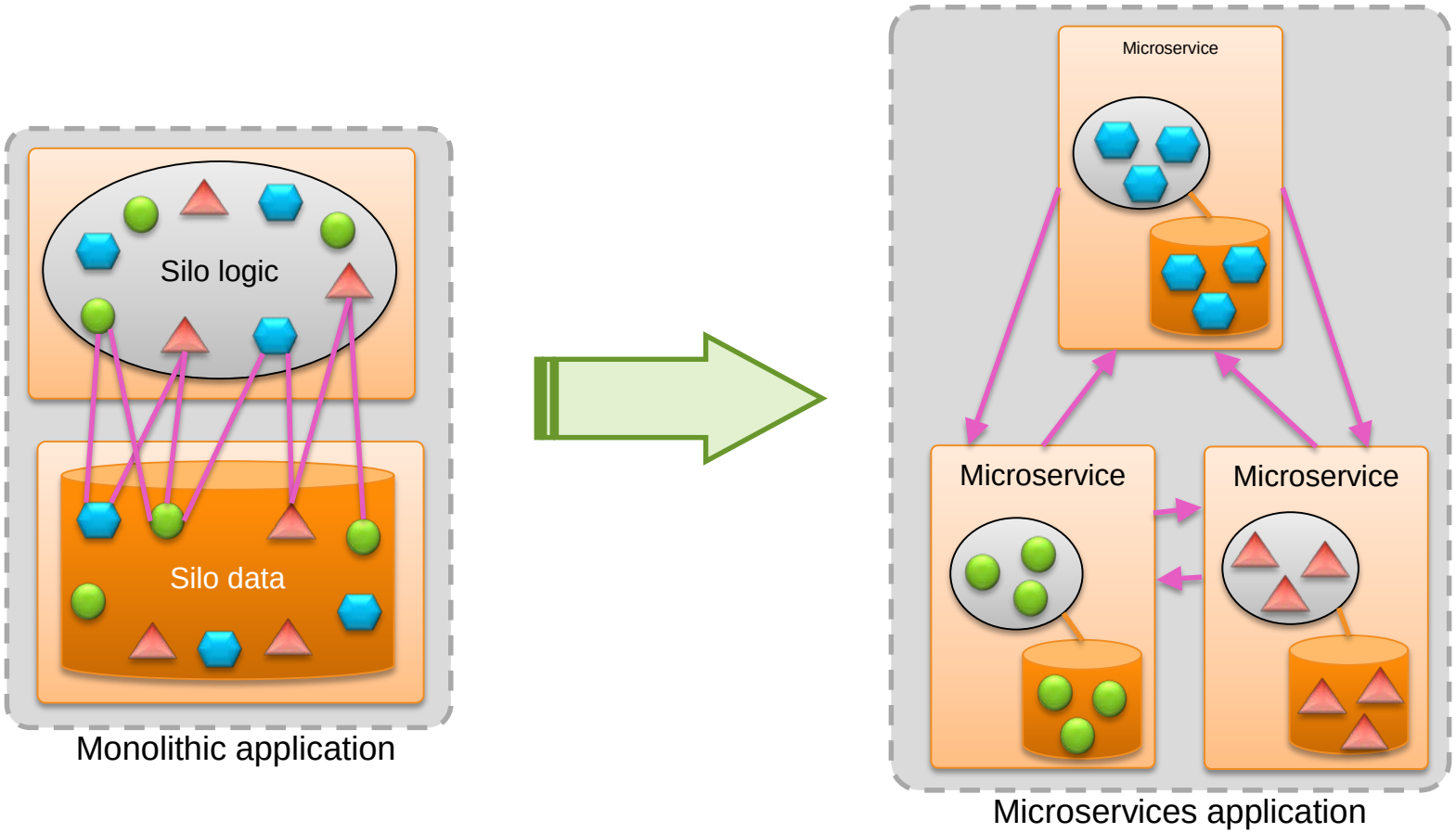
Microservices

An **engineering approach** focused on **decomposing** an application into **single-function** modules with **well defined interfaces** which are **independently** deployed and operated by a **small team** who owns the **entire lifecycle** of the service.

Microservices accelerate delivery by **minimizing communication** and coordination between people while **reducing the scope** and risk of change.

Jason McGee, IBM Fellow and VP, CTO Cloud Pla

Microservices

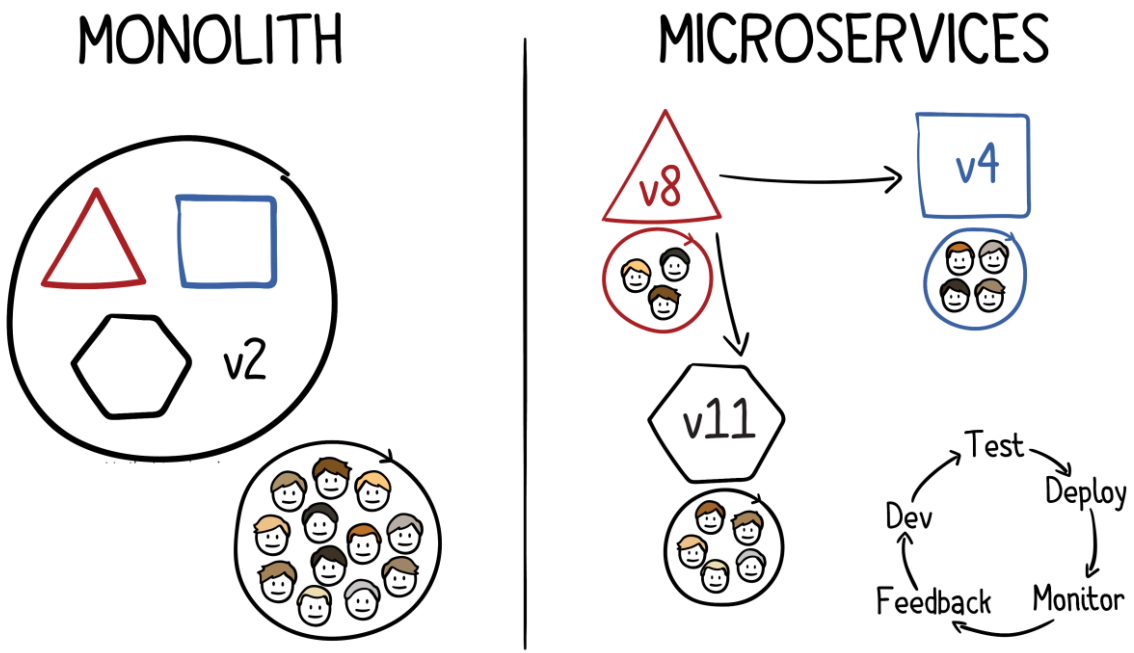


Resilience → Agility → Scale

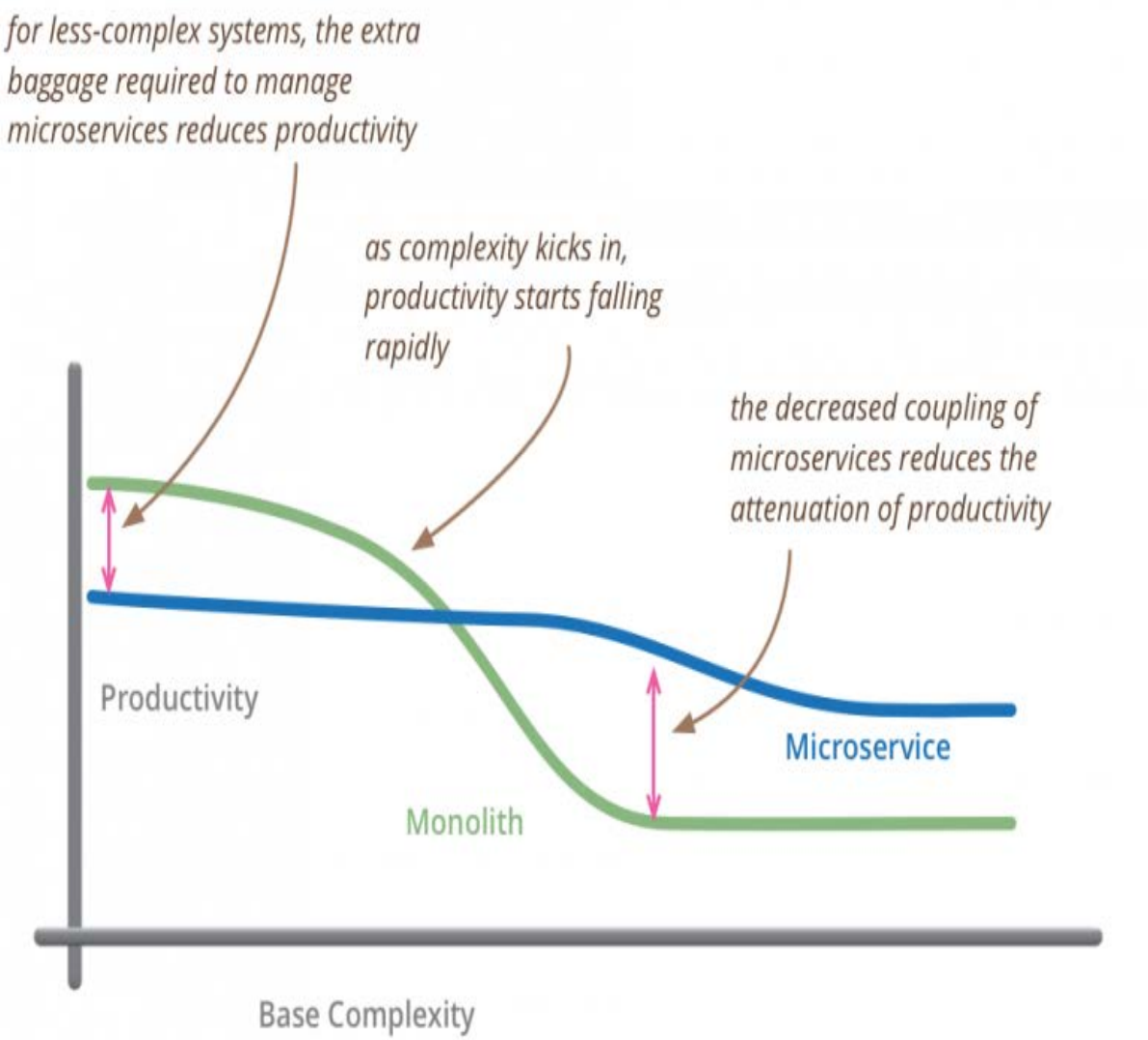
Culture

“Any organization that designs a system (defined more broadly here than just information systems) will inevitably produce a design whose structure is a copy of the organization's communication structure.”

— Melvyn Conway, 1968



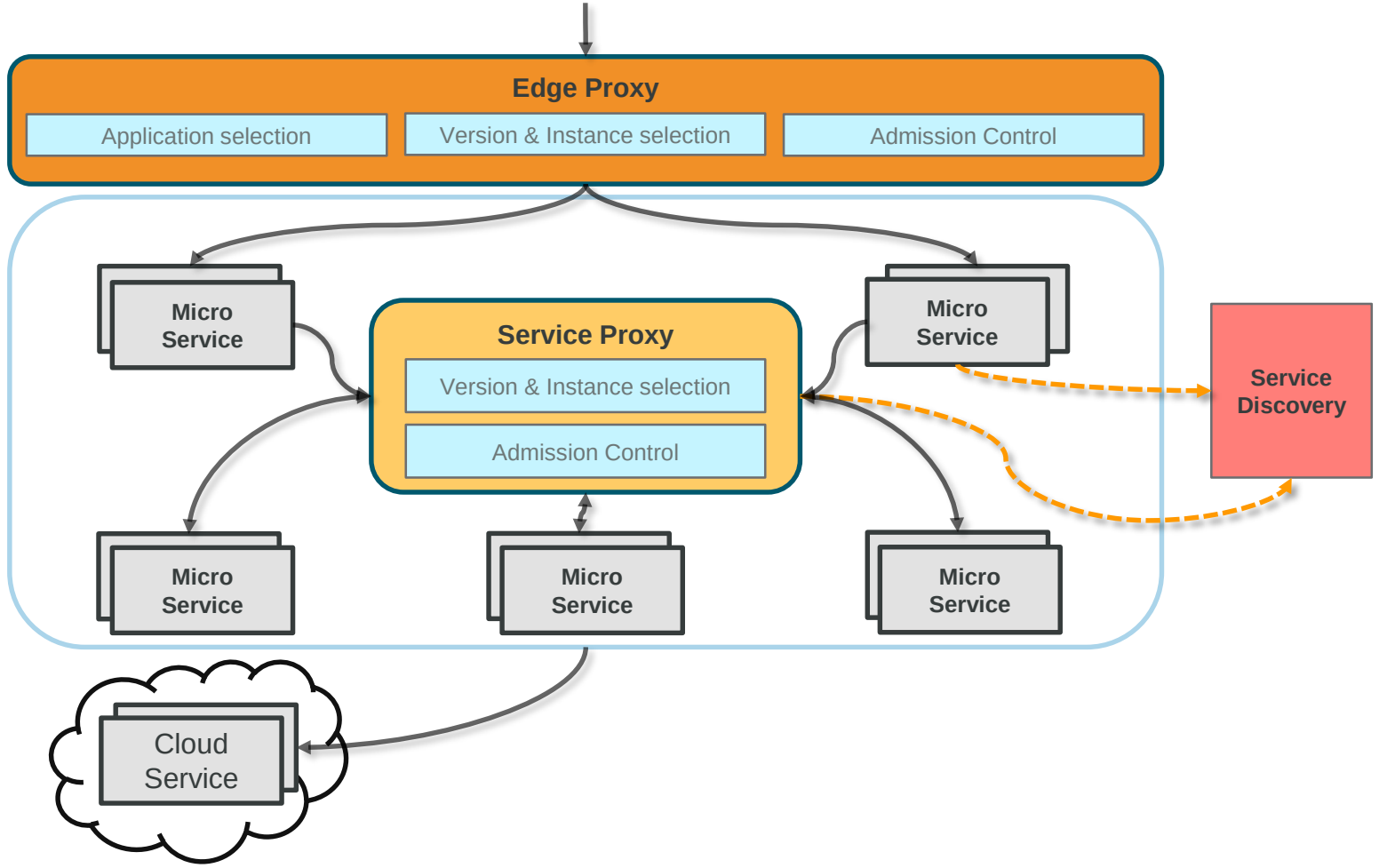
Microservices add complexity



http://martinfowler.com/bliki/MicroservicePremium.html

but remember the skill of the team will outweigh any monolith/microservice choice

Microservices Fabric



Our Journey

Use Netflix OSS components: Eureka, Ribon etc

Proprietary Fabric on IBM Bluemix

Open source fabric for Polyglot Microservices


Amalgam8

Compose and Orchestrate your Polyglot Microservices with Amalgam8

Amalgam8

Platform & Runtime Independent

Multi-Tenancy Supported

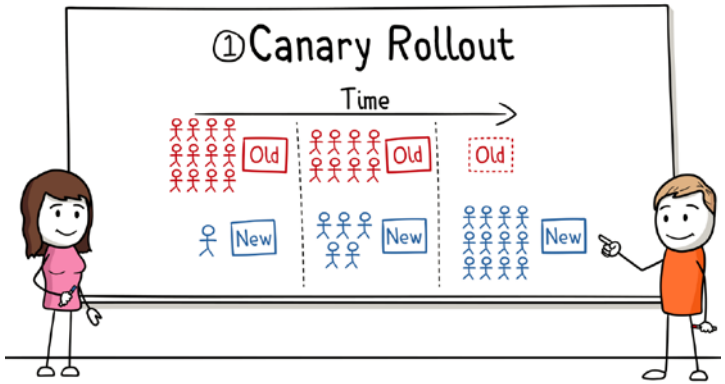
Shortens Development Cycles

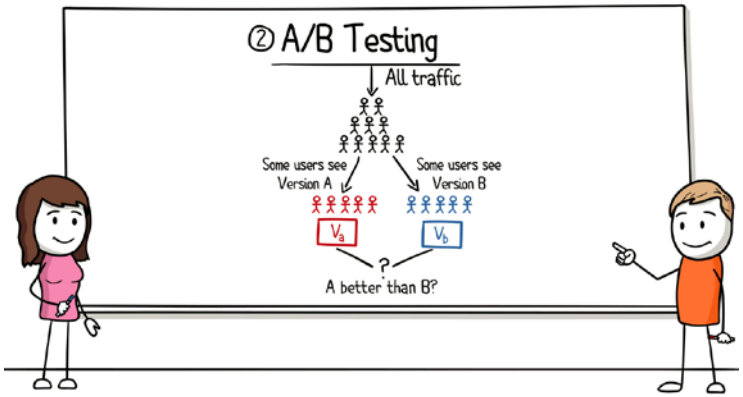
- Simplified Service Discovery & Load Balancing
- Red/Black Deployment & Canary Testing

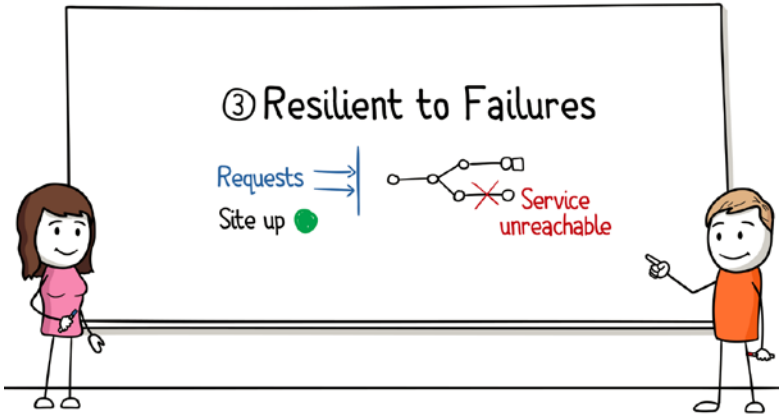
Target Capabilities

Runtime functions Core services needed to build microservices apps

Lifecycle services Services needed to enable DevOps practices







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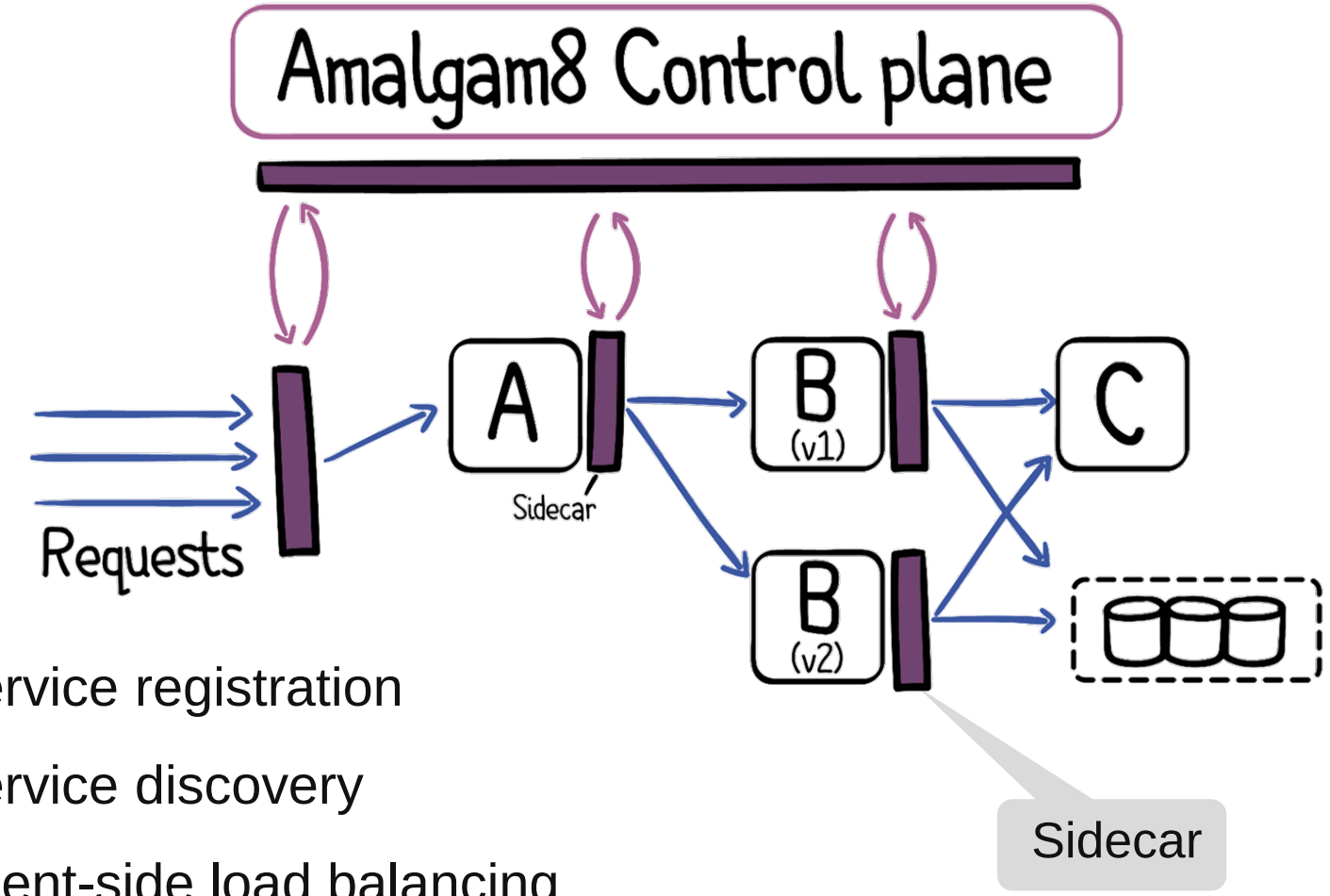

- Service registration
- Service discovery
- Client-side load balancing

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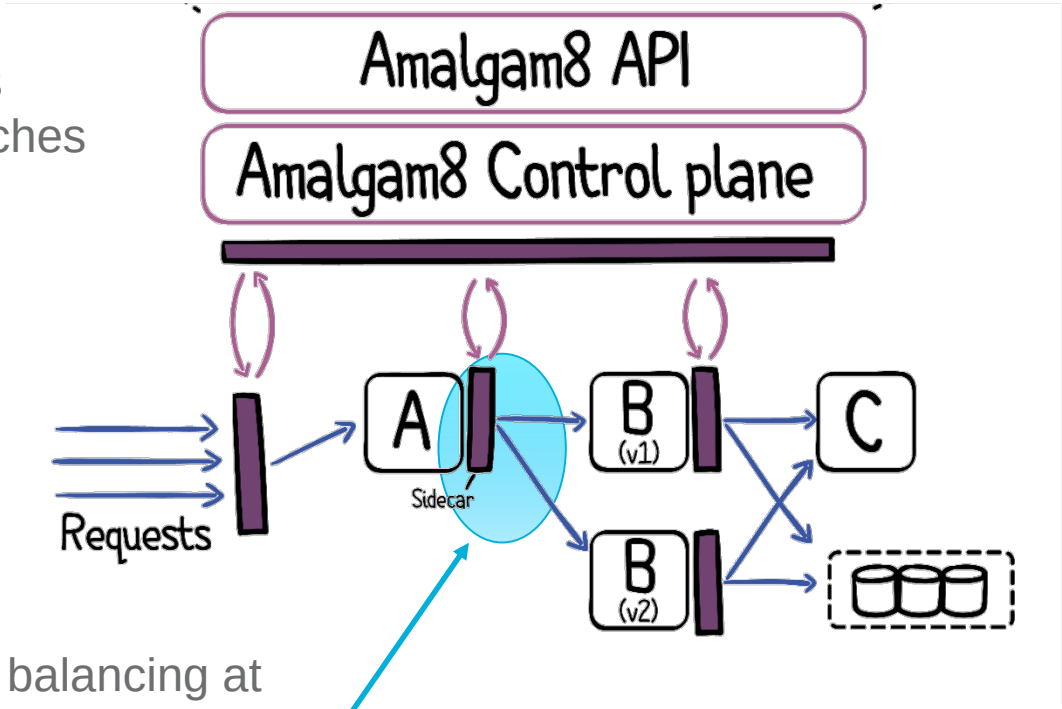
- Continuous delivery tasks
  - Internal releases/dark launches
  - Canary deployments
  - Red/Black deployments
  - **Testing in production**



- How
  - Dynamically control of load balancing at sidecars
    - Setup routing rules using Control Plane APIs. Optimized rules are percolated to sidecars.
    - Rules determine how requests are load balanced across versions
    - Program fault injection rules to simulate failures of dependencies

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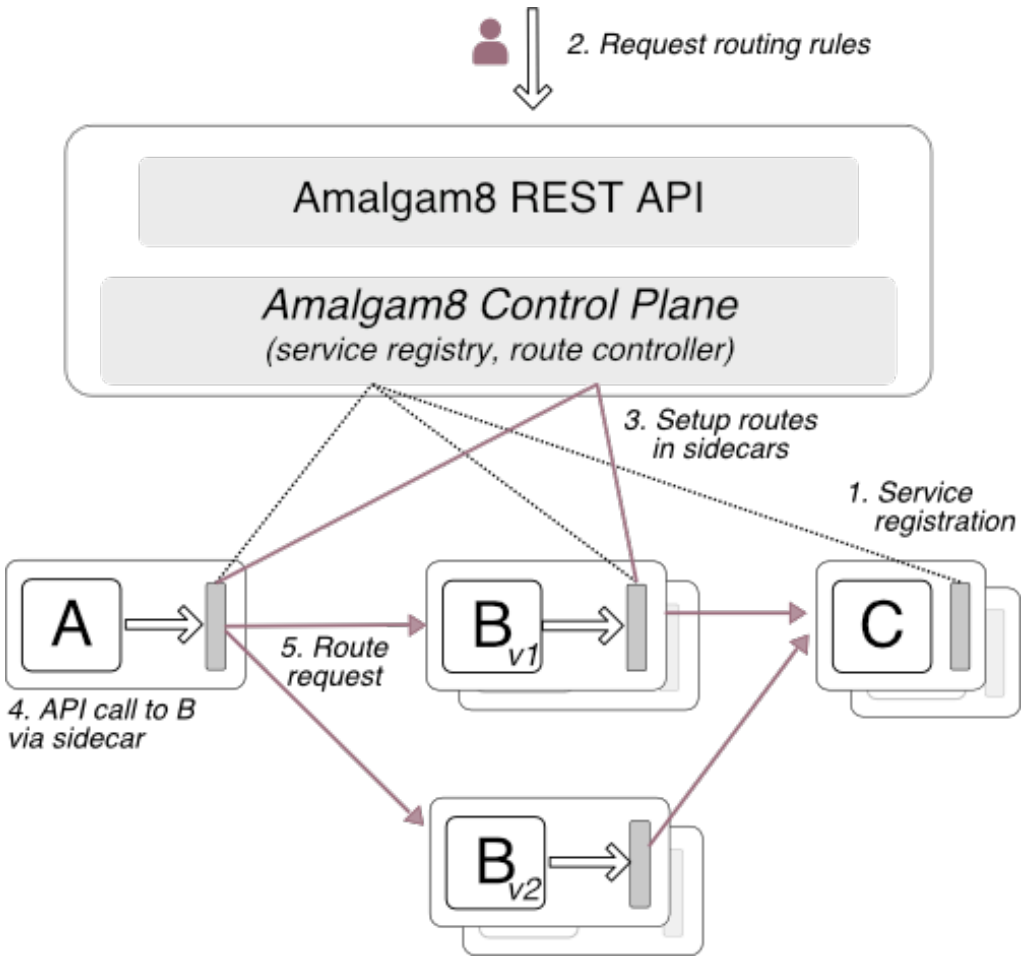
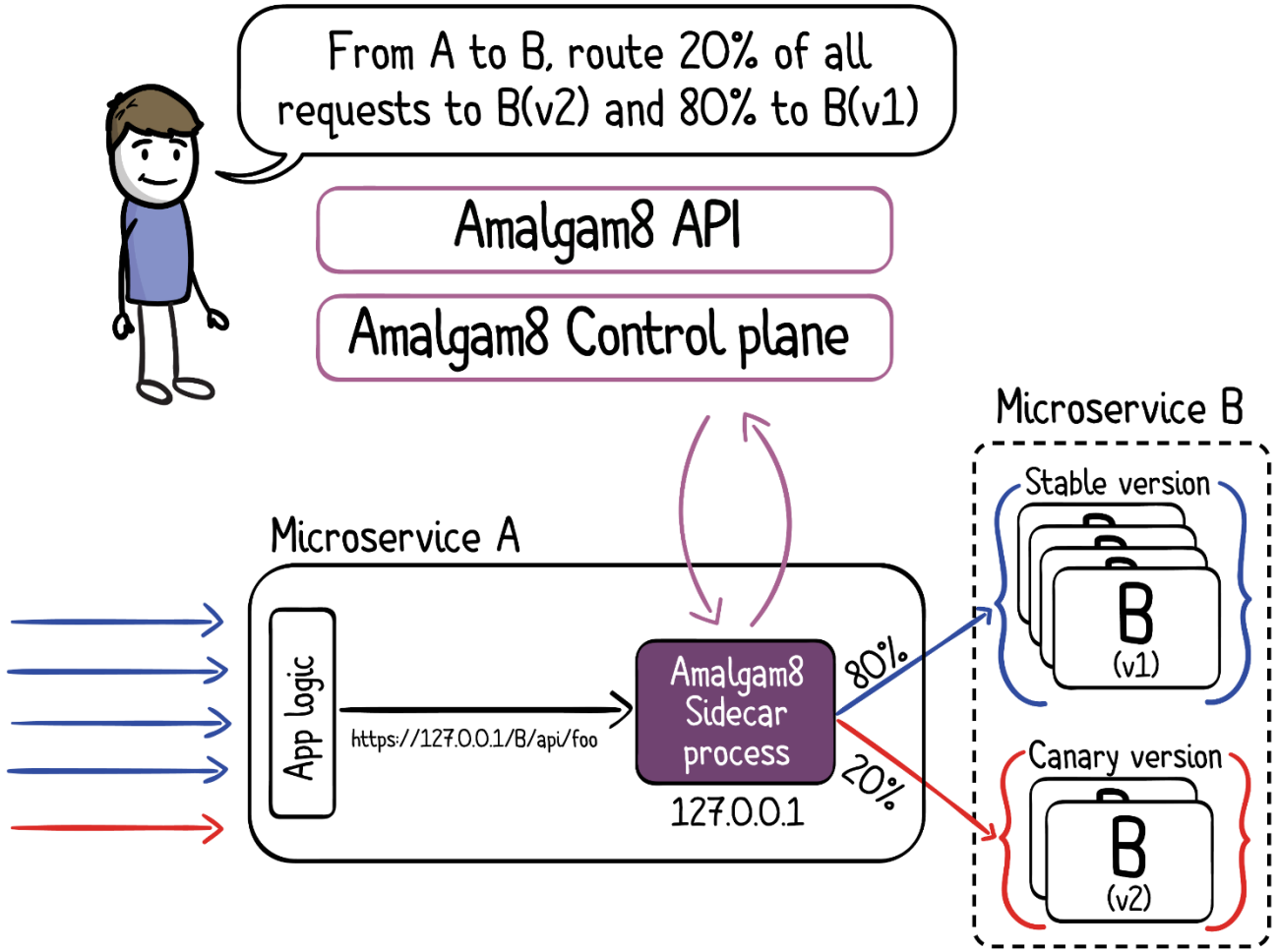
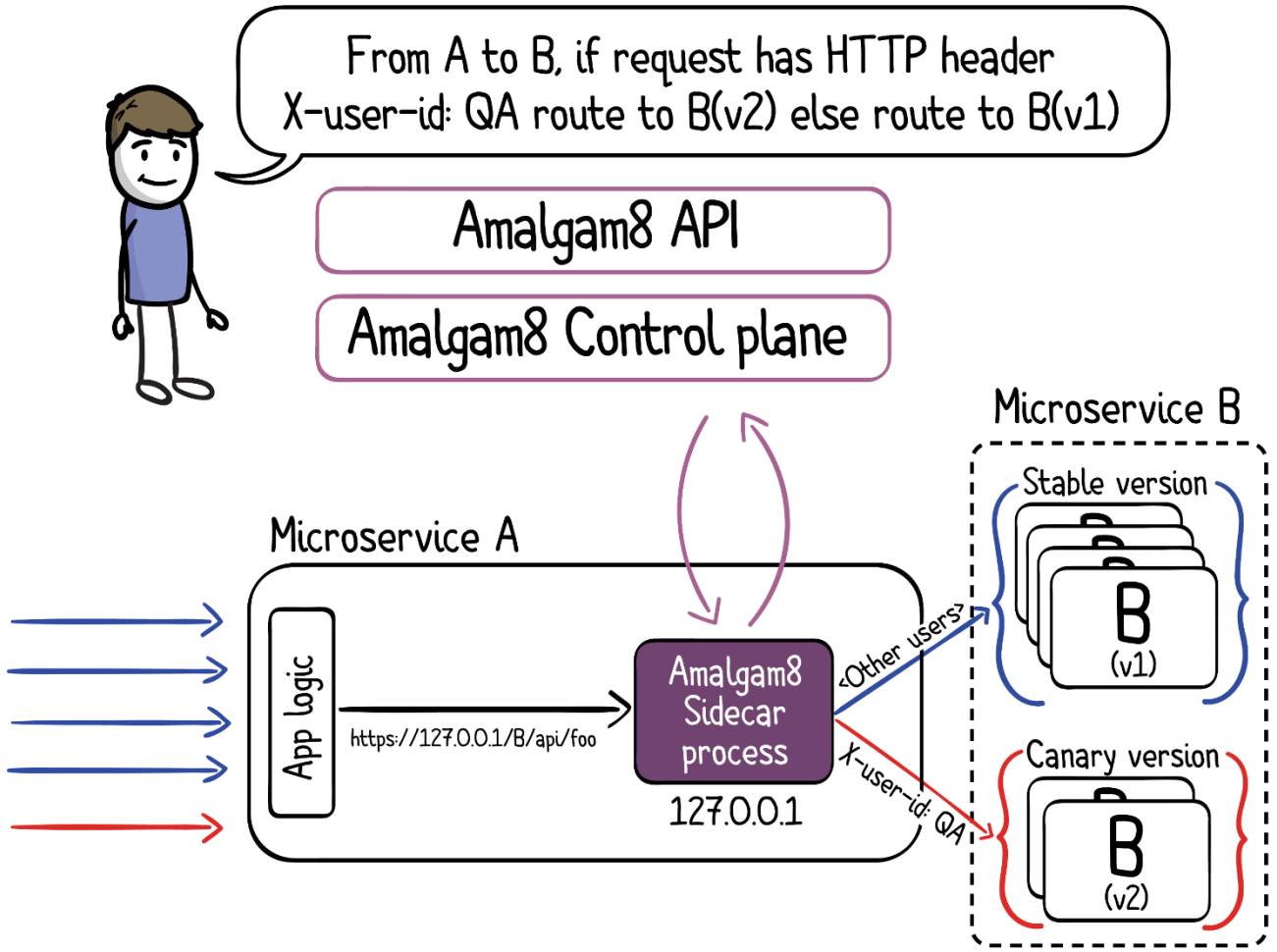

2. Request routing rules
Amalgam8 REST API
Amalgam8 Control Plane
(service registry, route controller)
3. Setup routes
in sidecars
1. Service
registration
A
B v1
C
5. Route
request
4. API call to B
via sidecar
B v2

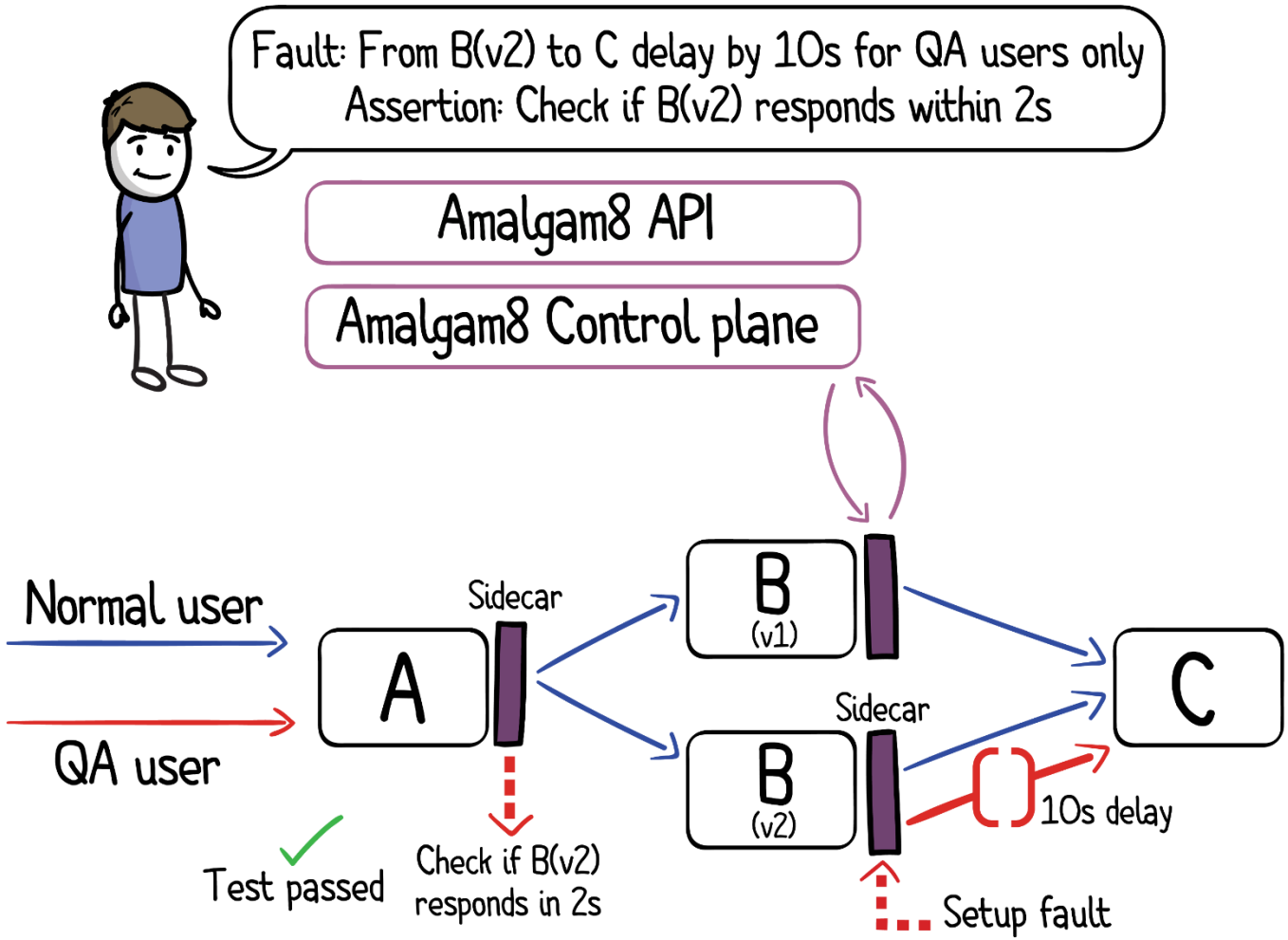
Version-based routing



Content-based routing



Systematic Resiliency Testing



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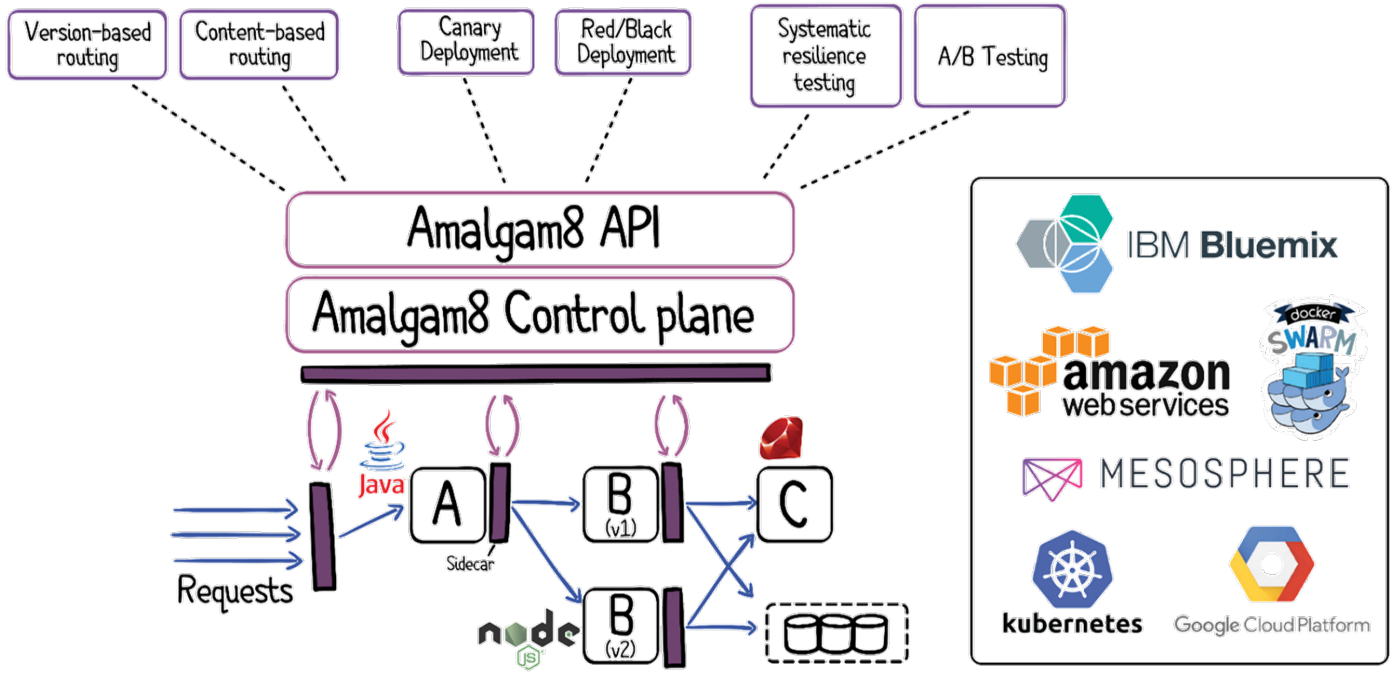
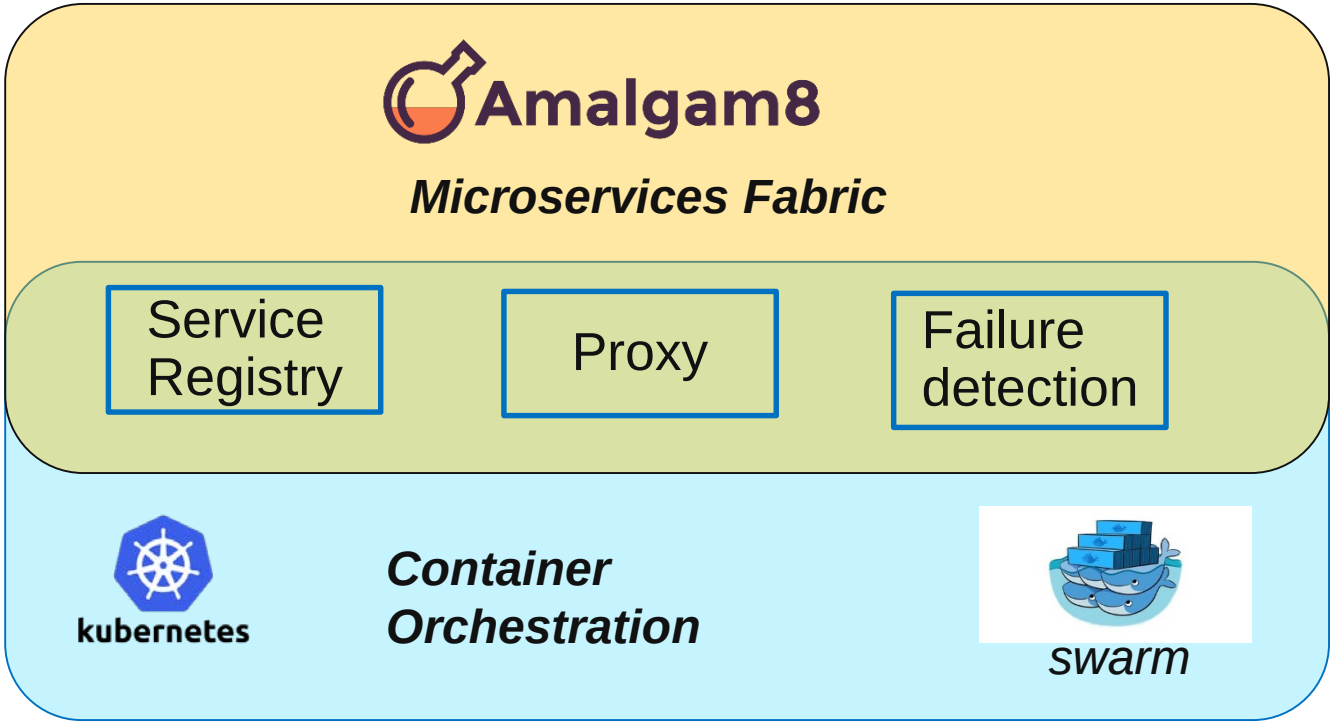
Easy to build rich toolset for continuous delivery, experimentation and testing

Programmable

Polyglot



What's next?



Orchestrator API becomes the platform

Microservices runtime value-add services => be integrated into the platform

References

- Amalgam8
  - Webpage: amalgam8.io
  - Docs: amalgam8.io/docs
  - Code: github.com/amalgam8
  - Slack: self invite via amalgam8-slack-invite.slack.com