



Service Mesh on AKS, the future is now

Thang Chung, Phuong Le, Phi Huynh



Who are we?



Thang Chung

Senior Solution Architect
NashTech Global



Phuong Le

Engineer Manager
NashTech Global

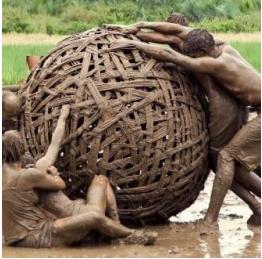


Phi Huynh

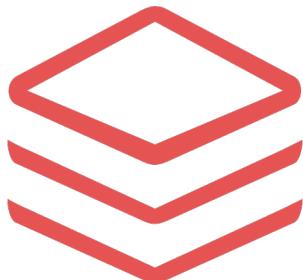
Senior Innovation Manager
NashTech Global



Our journey to service mesh



Monolithic App



N-Layer, Modular

Following of what the client wants

Big ball of mud

Hard to maintain and scale

N-Layer Architecture

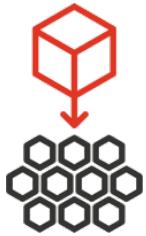
Cross-cutting concern

Modular architecture, still single monolithic deployment

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Our journey to service mesh

2017



Microservices

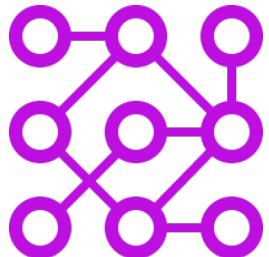
Split modular monolithic app to microservices

Containerization popularity

Managed-services from the cloud for orchestration

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Service Mesh

The era of service mesh

Control the complexity with ease

Modernize the digital platform

Why microservices?

A Membership
system for a **BIG**
GYM aggregator in
the UK

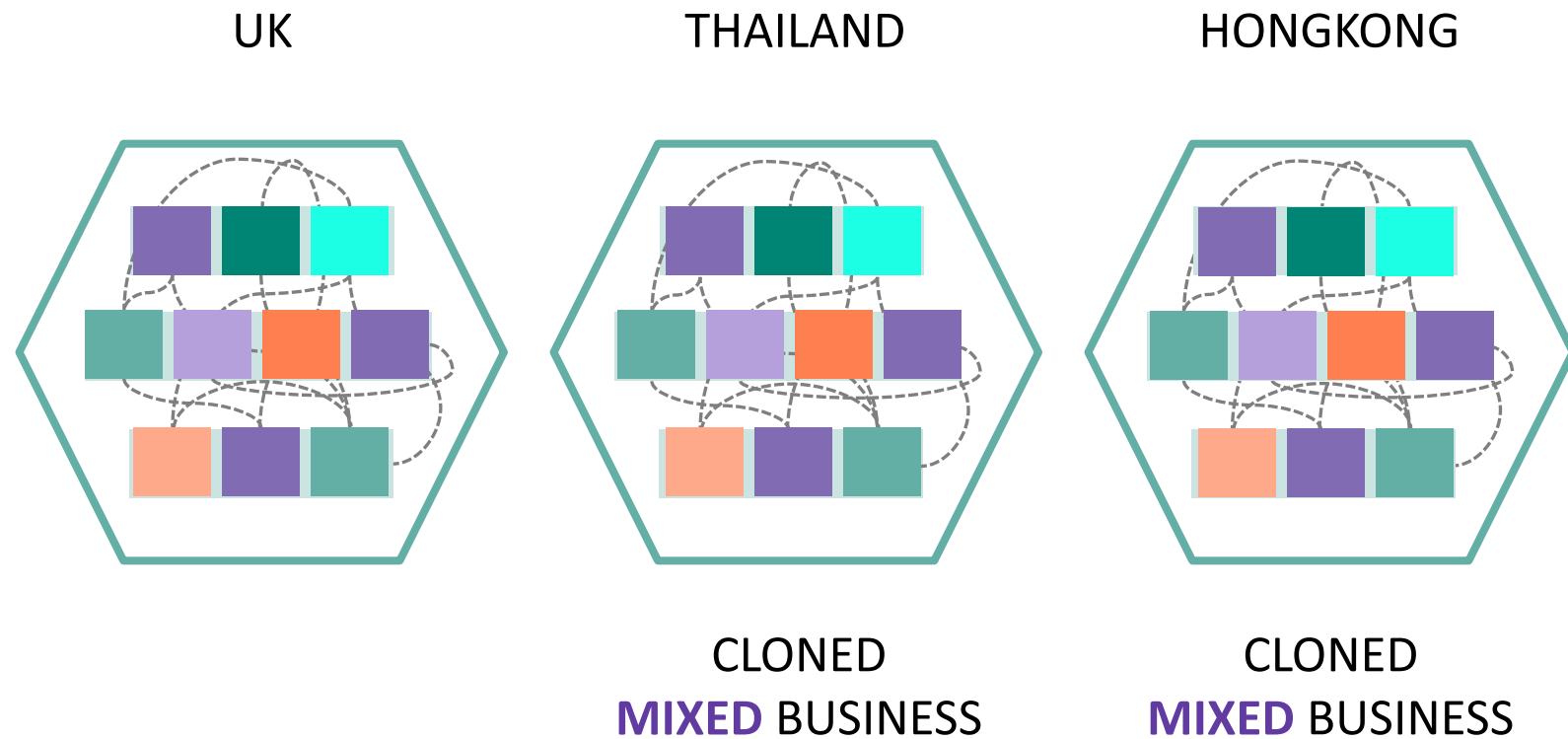
N-Layer
Monolith application



Everything is just fine 😊

Why microservices?

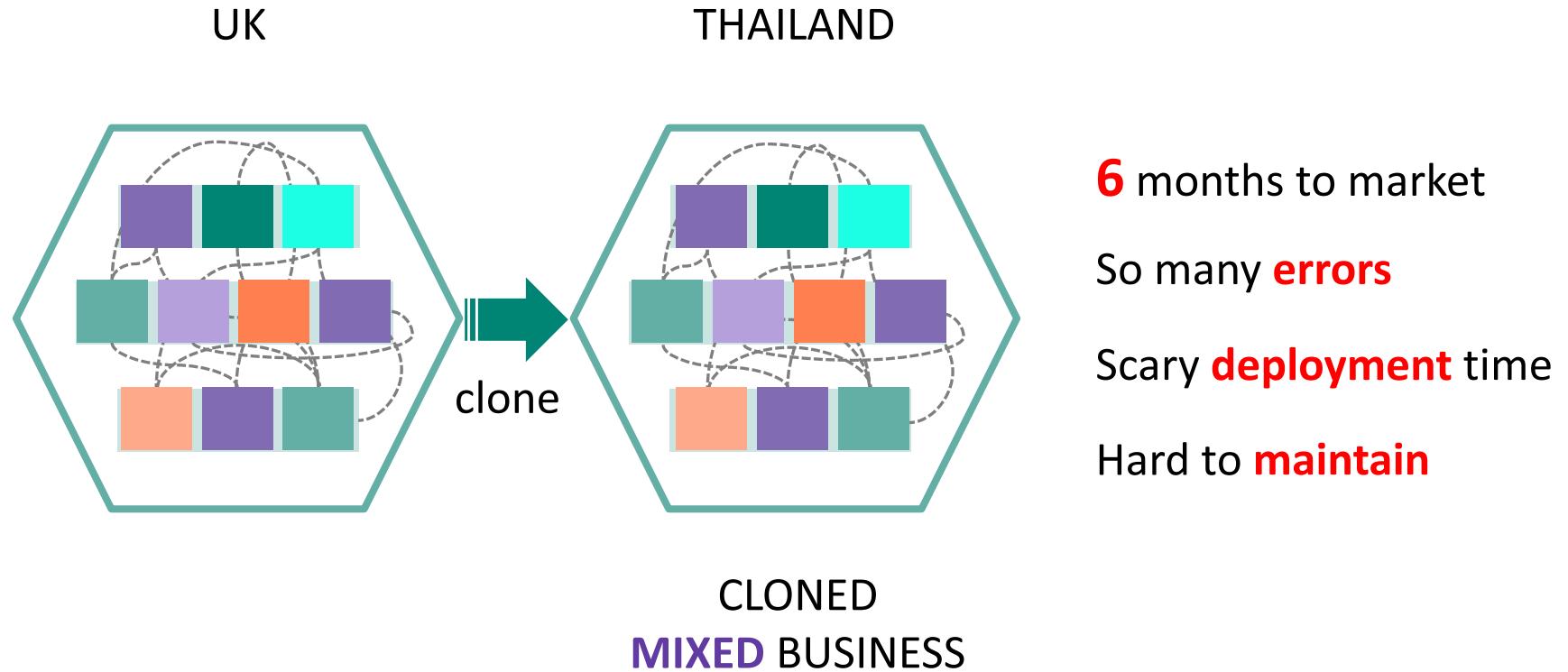
When we
scale
to a new
market



It's not so good, we need something better!

Why microservices?

When we
deploy
to a new
market



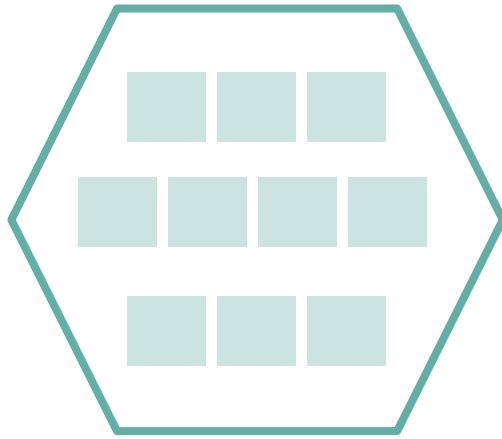
6 months to market
So many **errors**
Scary **deployment** time
Hard to **Maintain**

Error-prone, manual & takes so much time

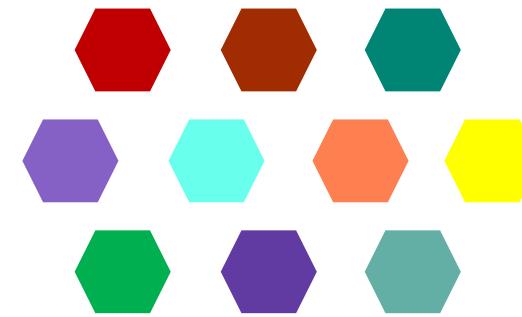
Now we've made an important decision...

Go with **microservices** ...

Now we've made an important decision...

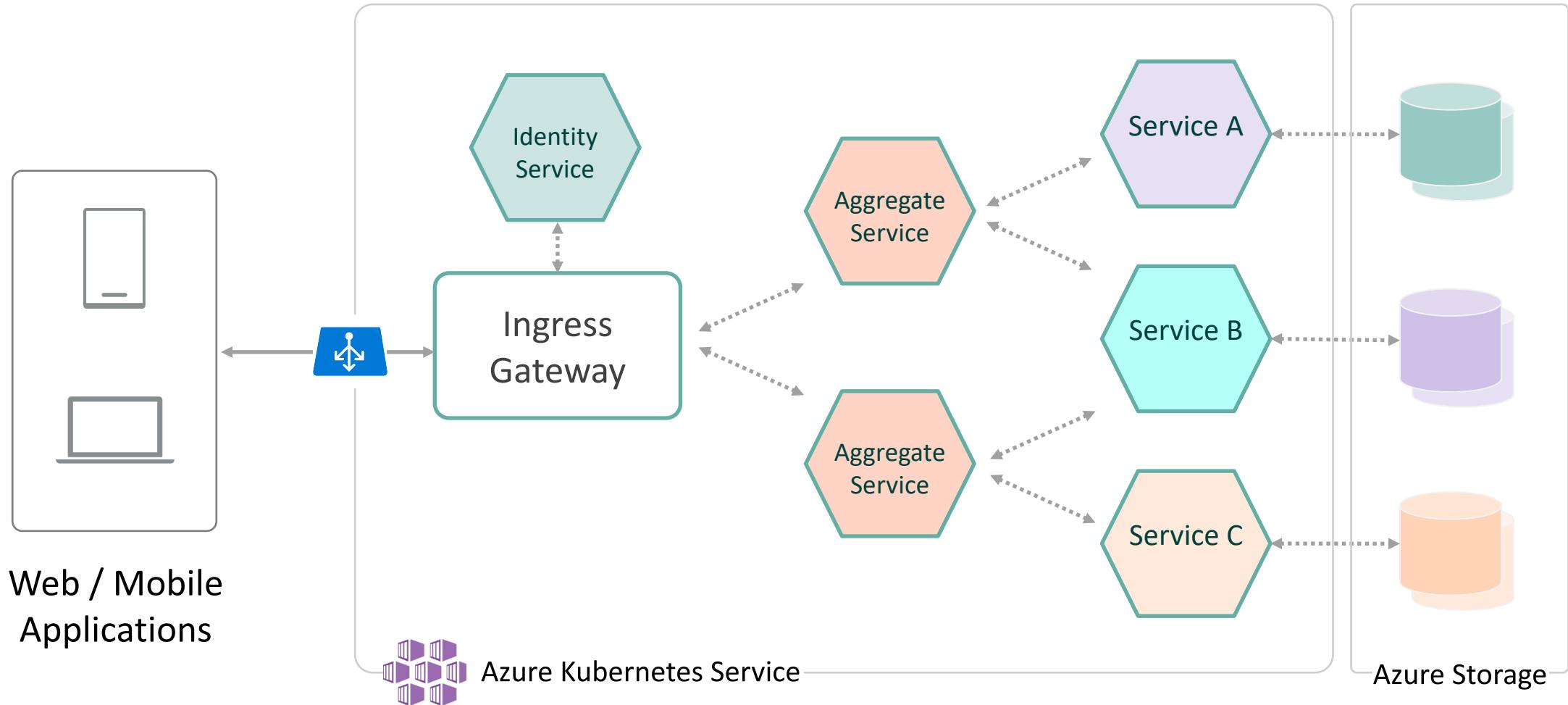


Monolithic



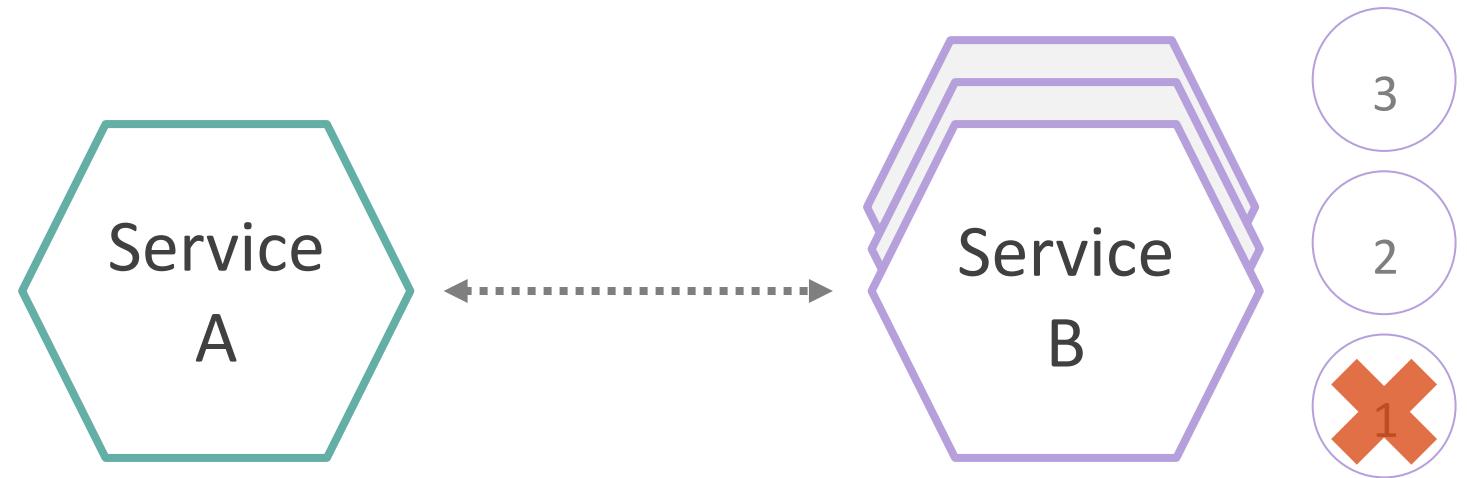
Microservices

Microservices approach



Microservices, life is **not** a bed of roses ...

How to deal with
communication
between the
services?



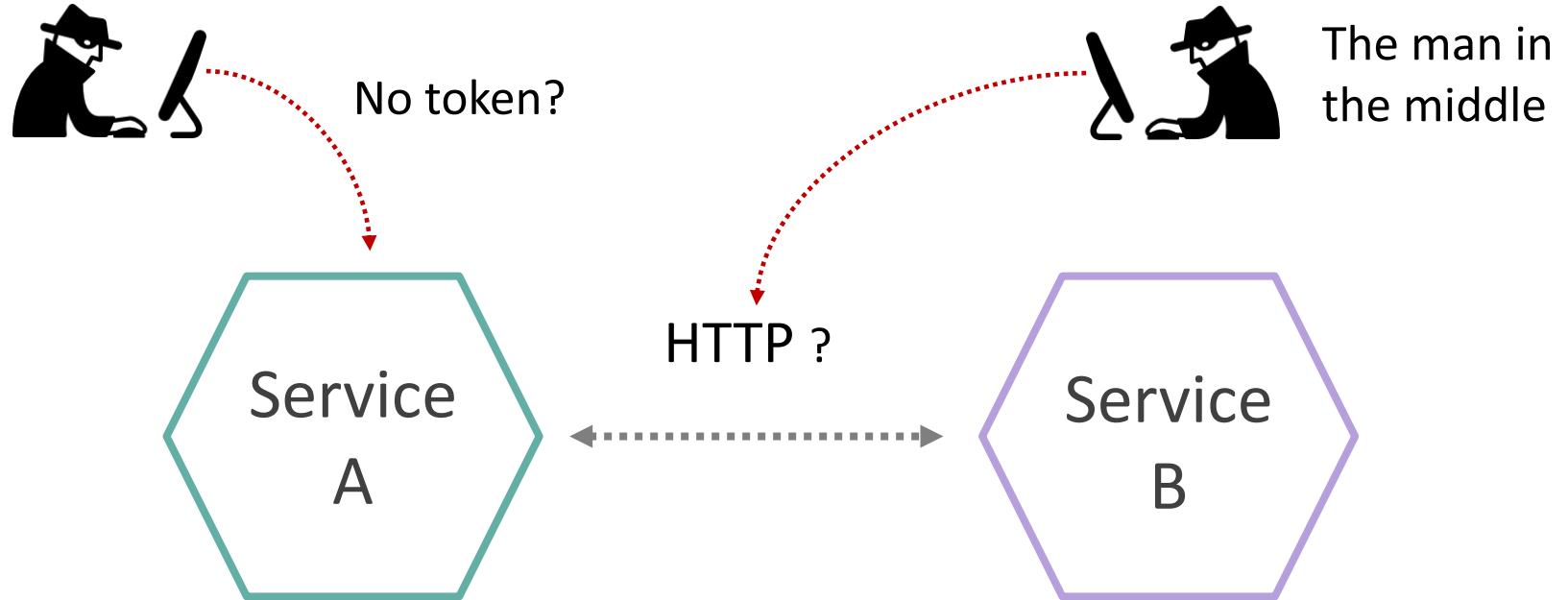
Microservices, life is not a bed of roses ...

The most complex challenge in realizing microservice architecture is not building the services themselves, but the communication between services.

<https://medium.com/microservices-in-practice/service-mesh-for-microservices-2953109a3c9a>

Microservices, life is **not** a bed of roses ...

How to ensure
security for the
microservices?



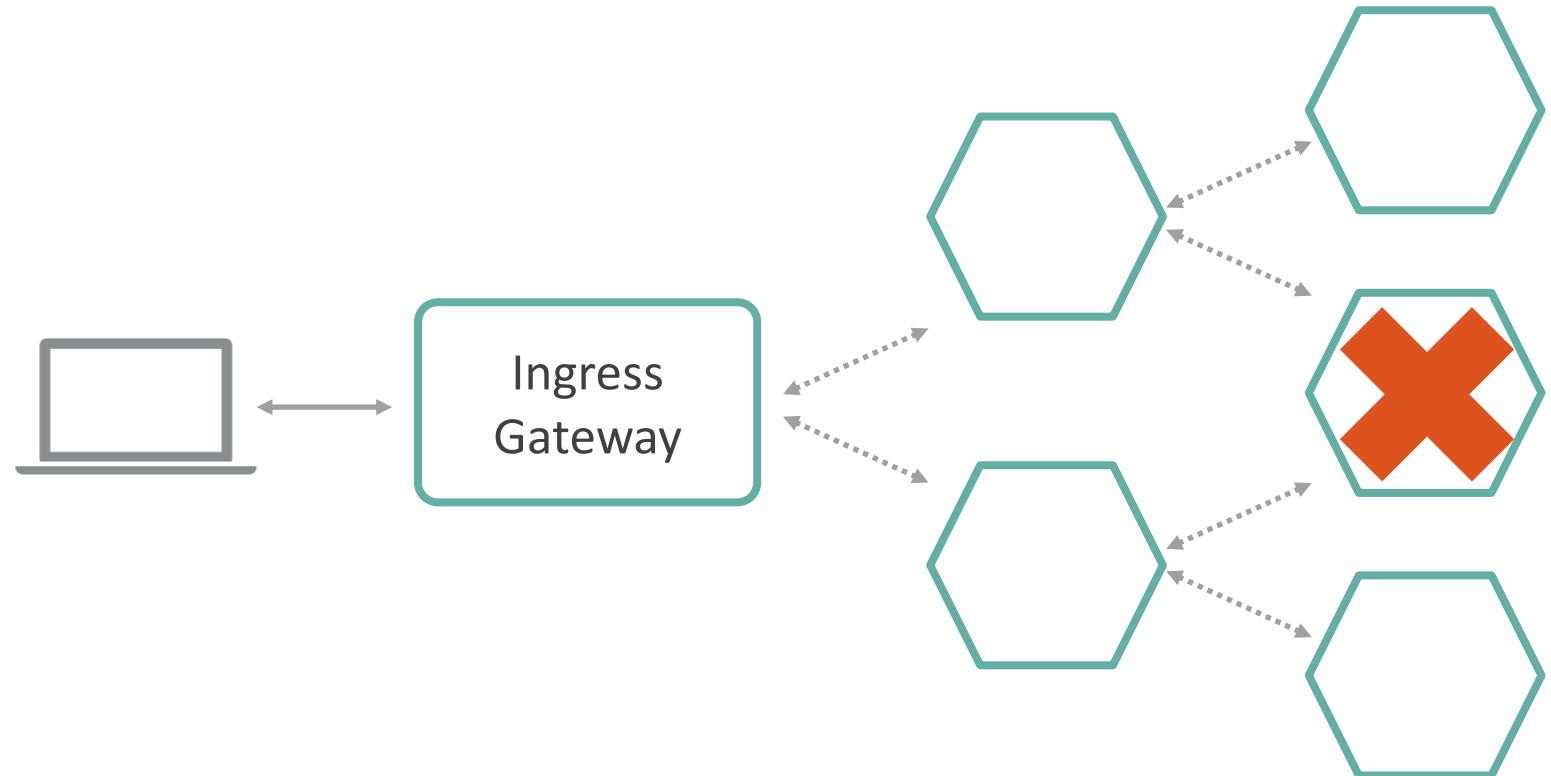
Data on transit is **plain text / encrypted**

Does service have **authentication?**

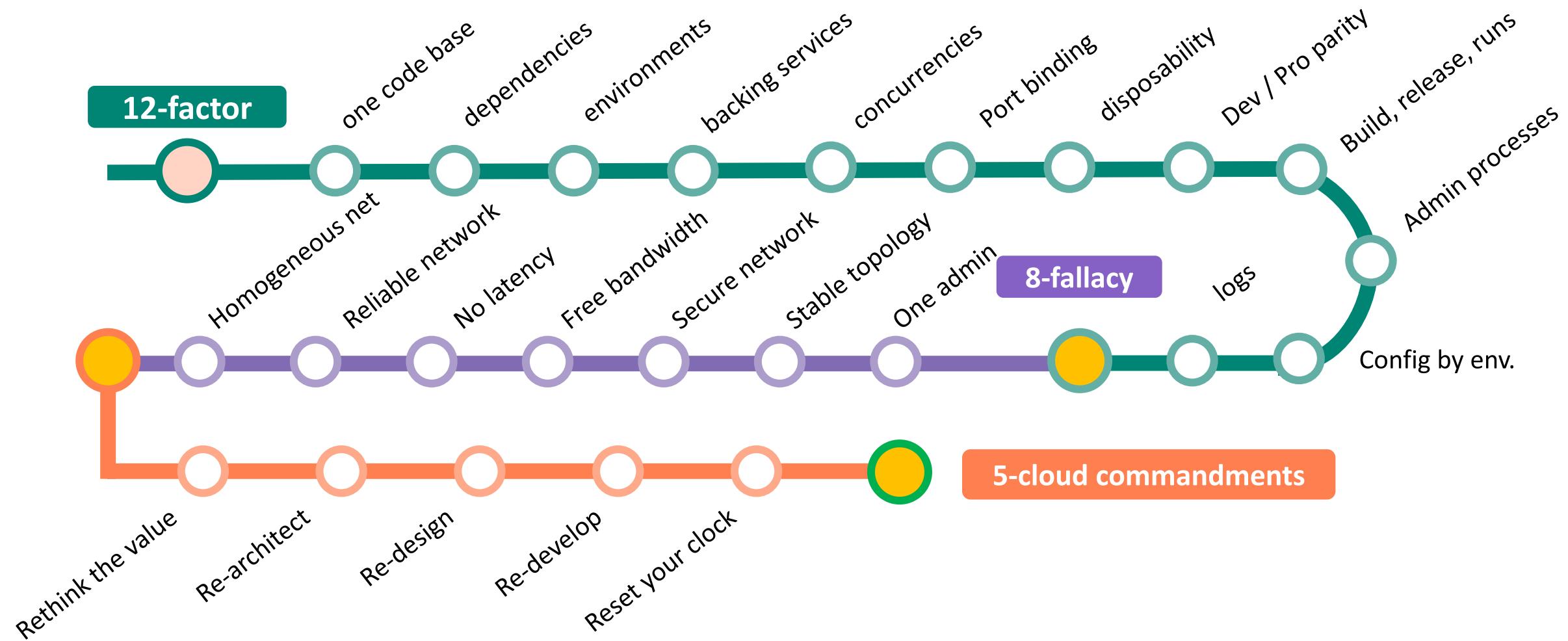
How to ensure **authorization** for services

Microservices, life is **not** a bed of roses ...

How to monitor
the health
of many
microservices?



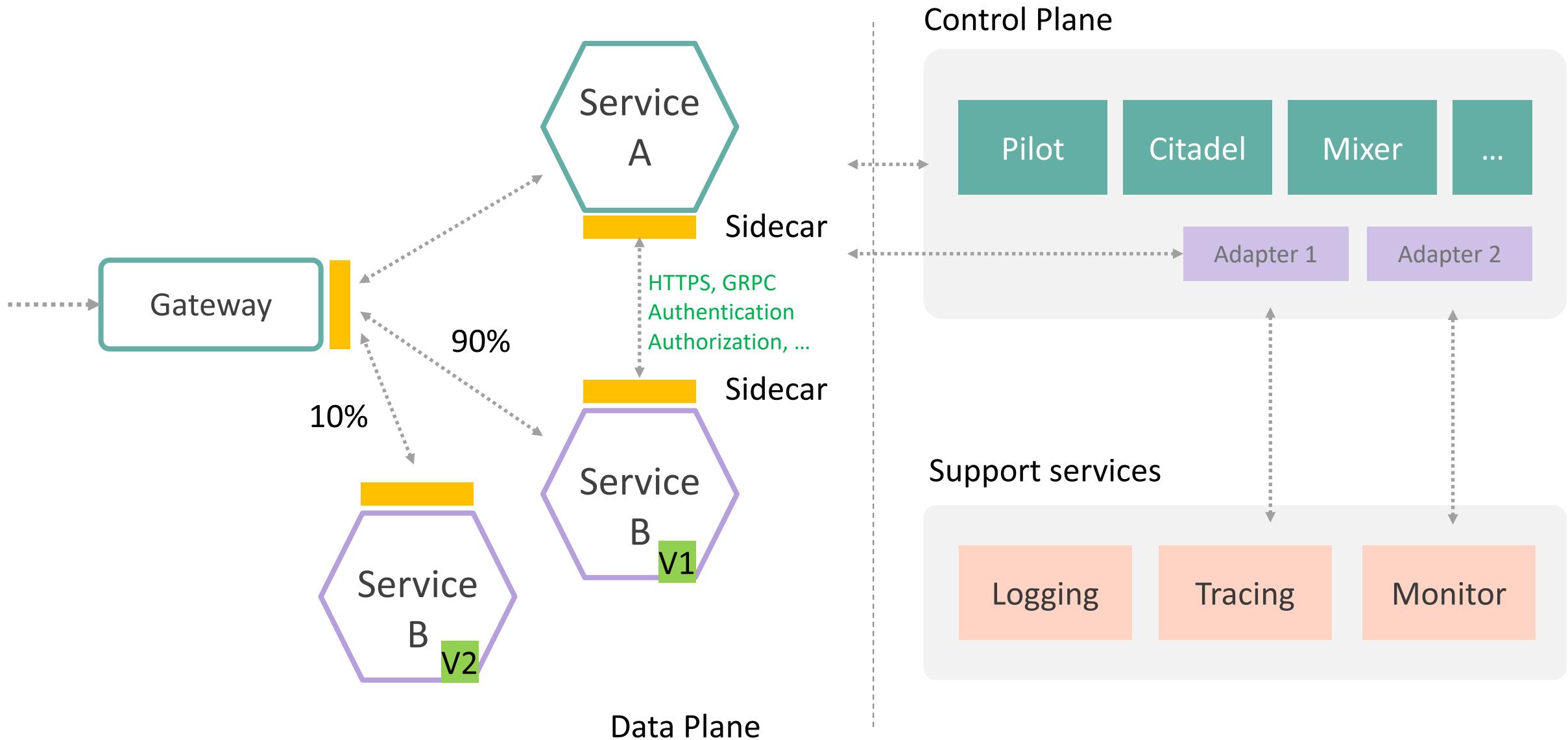
And lot of other factors need to be ensured...



Service Mesh with Istio

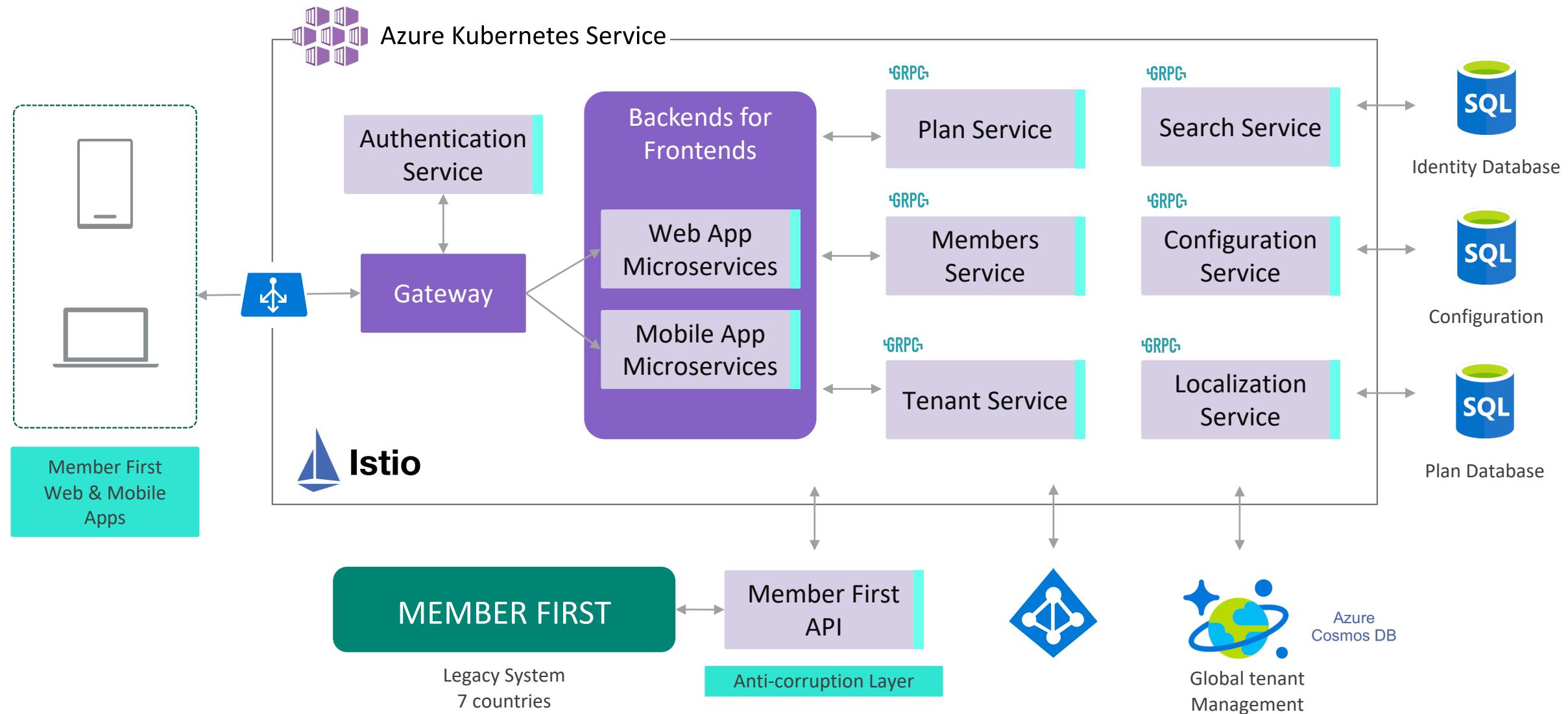
the rescuer!!!

Service Mesh in a nutshell



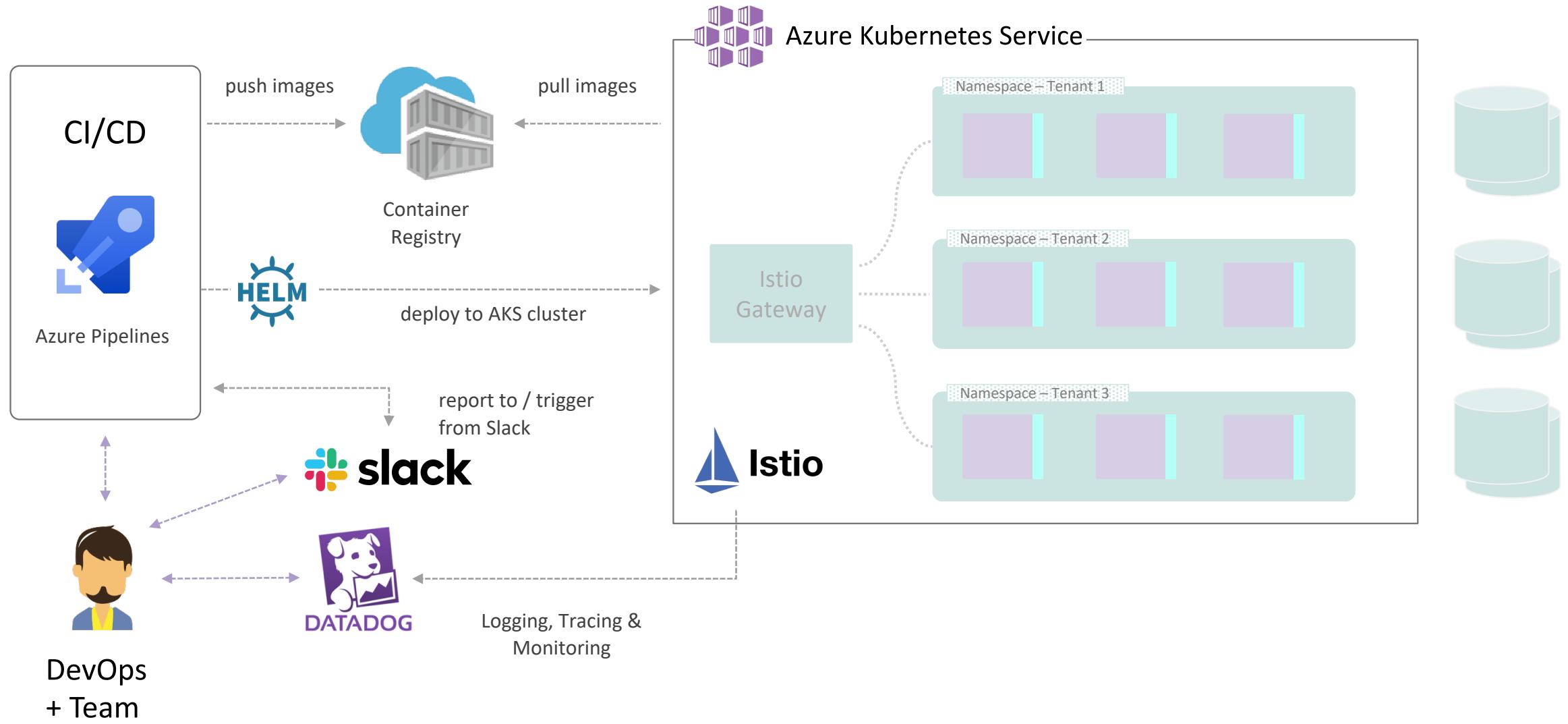
Case Study: Evolution Wellness Solution

Evolution
Wellness

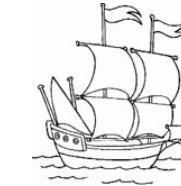
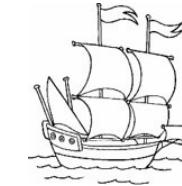


Deployment

Evolution
Wellness



Preferable technical stacks



Istio



envoy



kiali



elastic



JAAGER



OPENTRACING



Azure Kubernetes Service

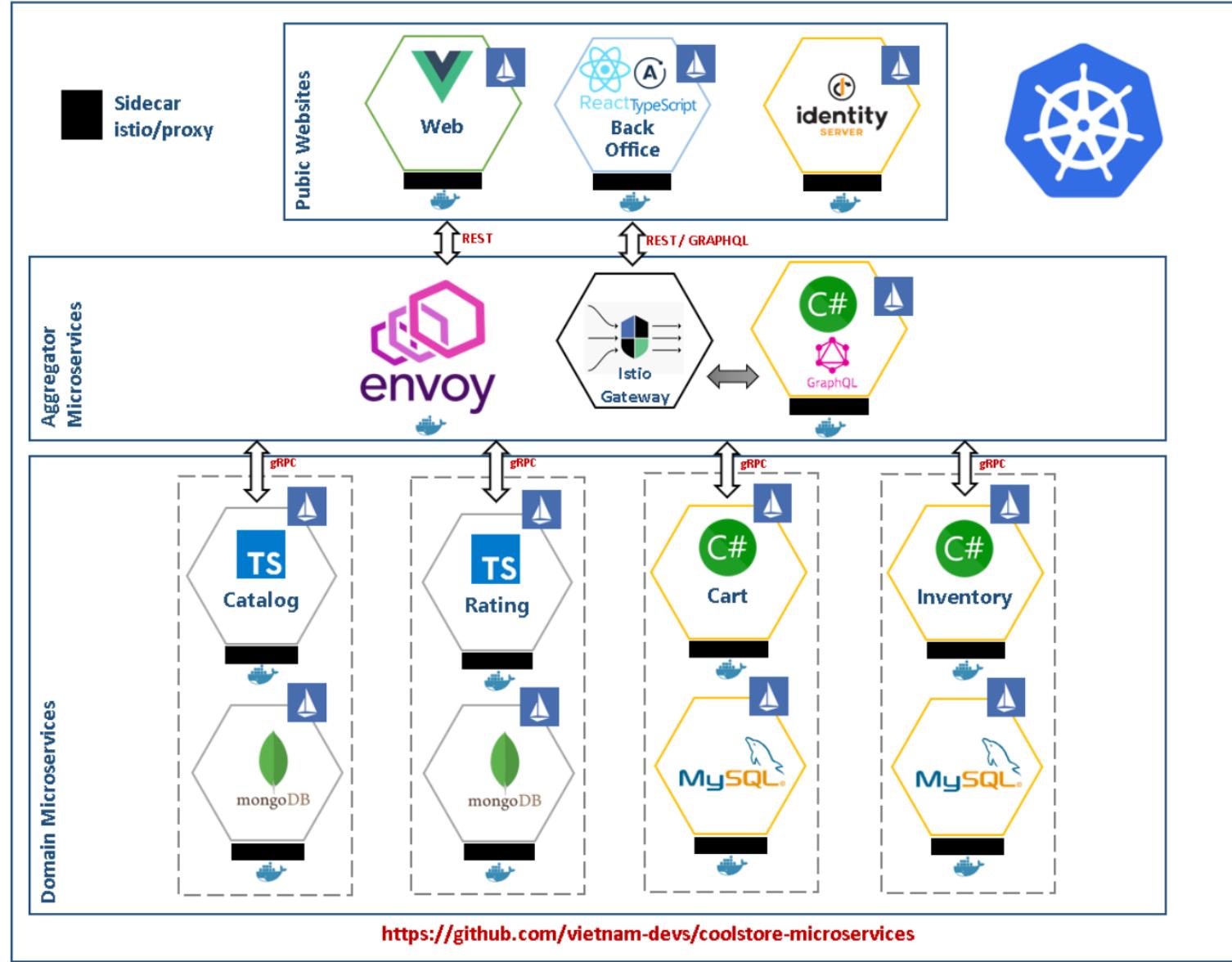


Istio Service Mesh Demo

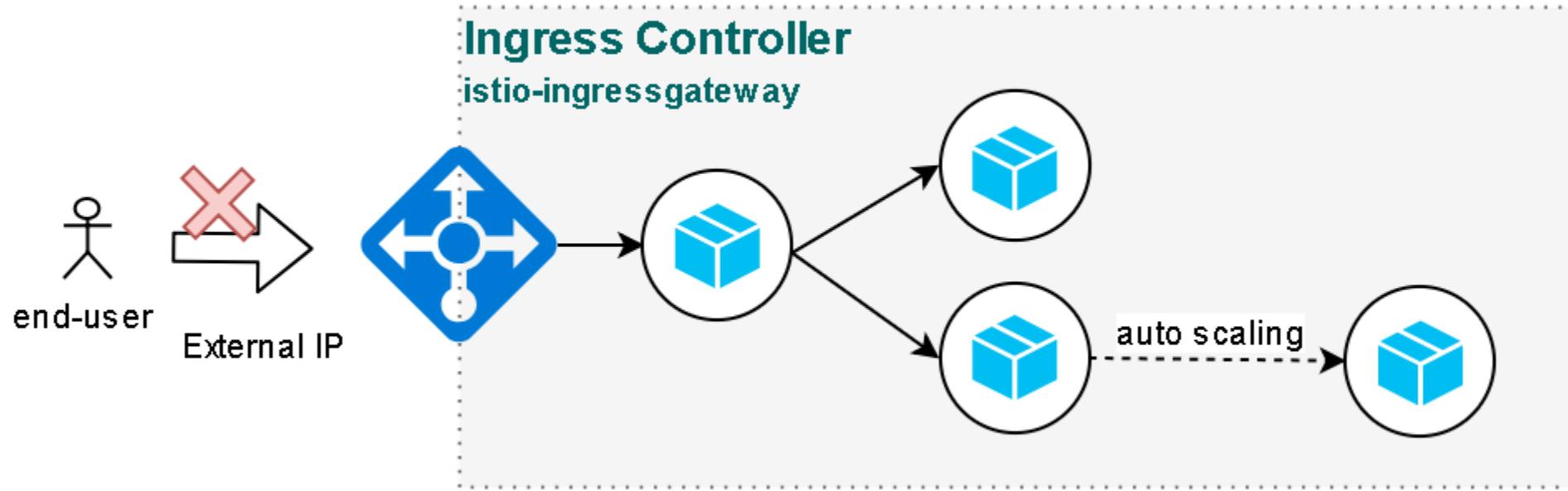
Phuong Le, Thang Chung

Quick intro to coolstore-microservices project

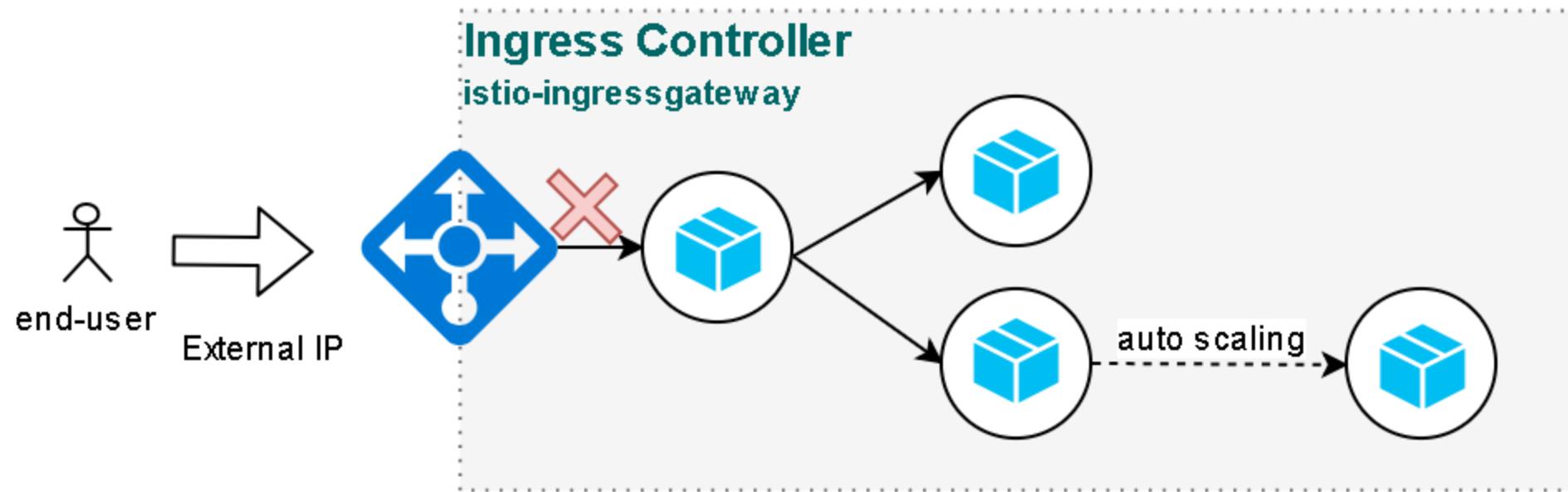
High level architecture



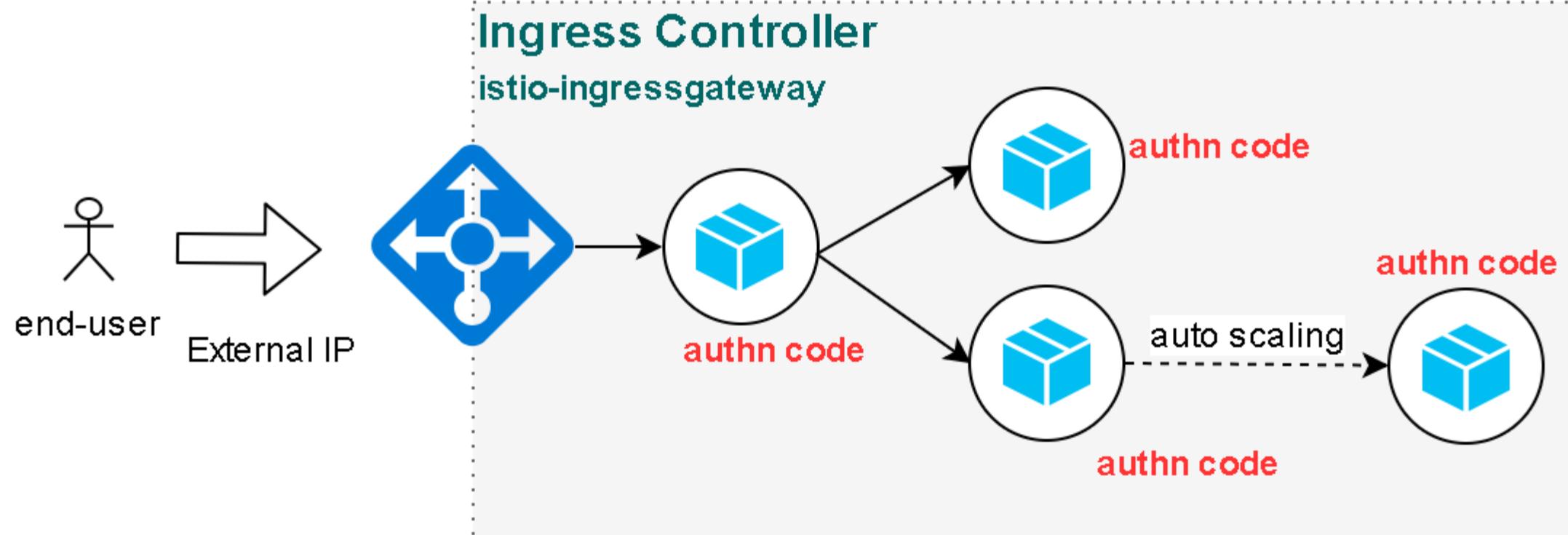
Demo 1: istio-ingressgateway

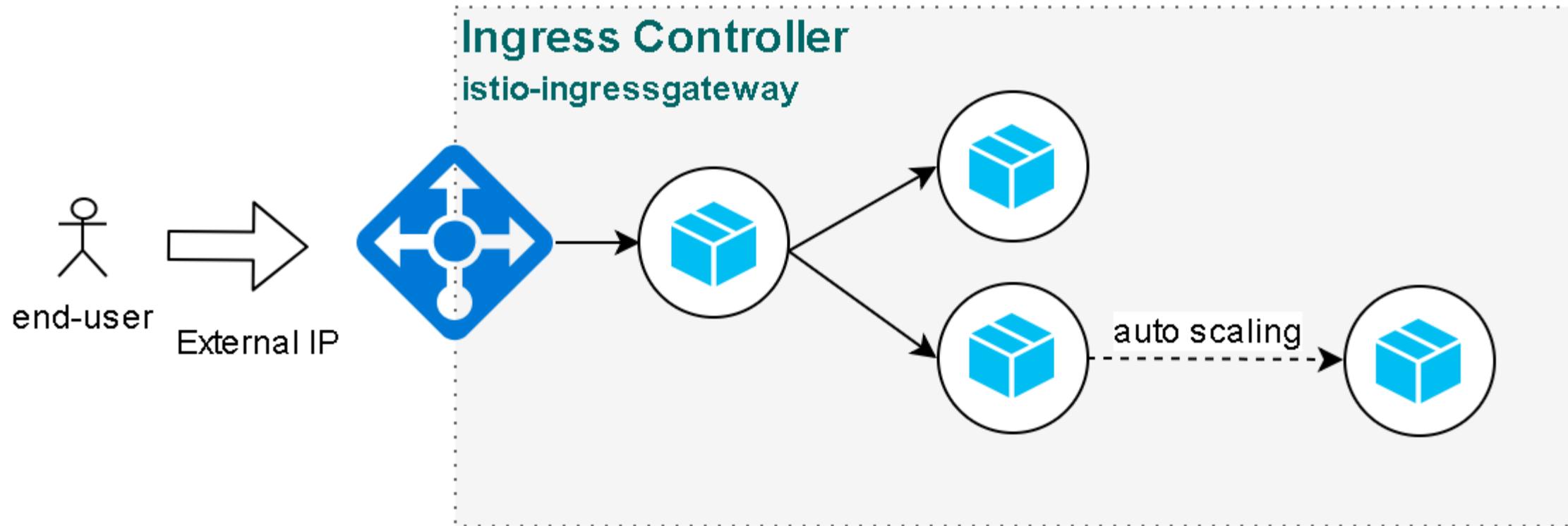


Demo 2: Virtual service everywhere



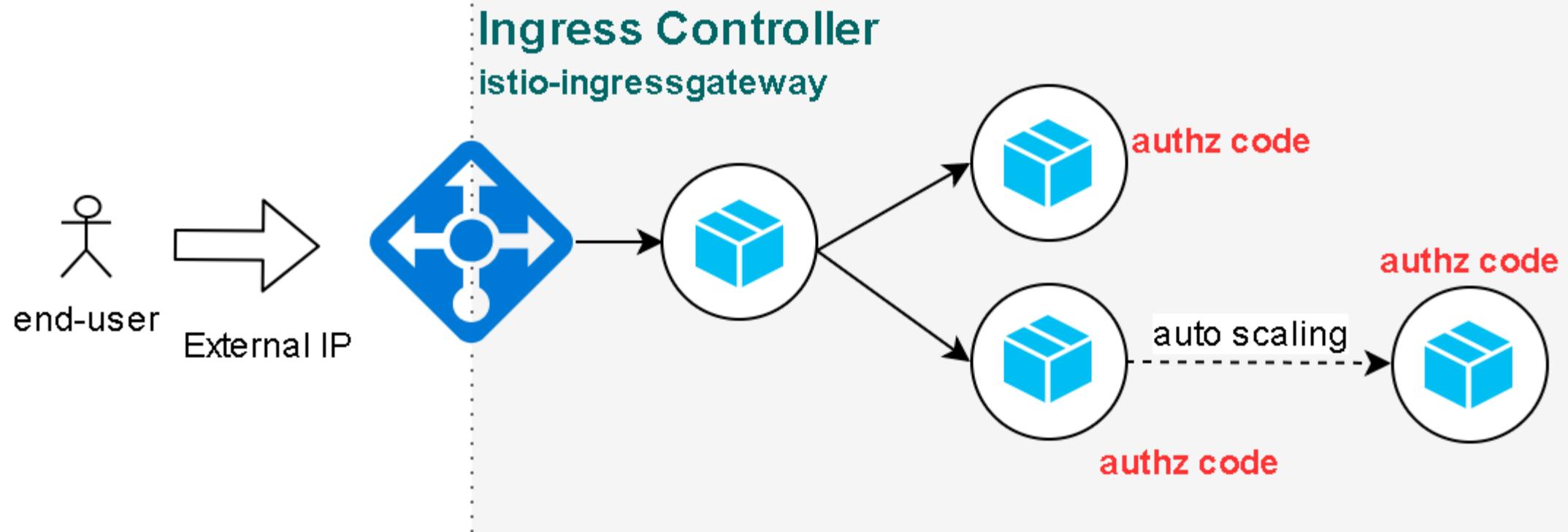
Demo 3: authn with istio on AKS

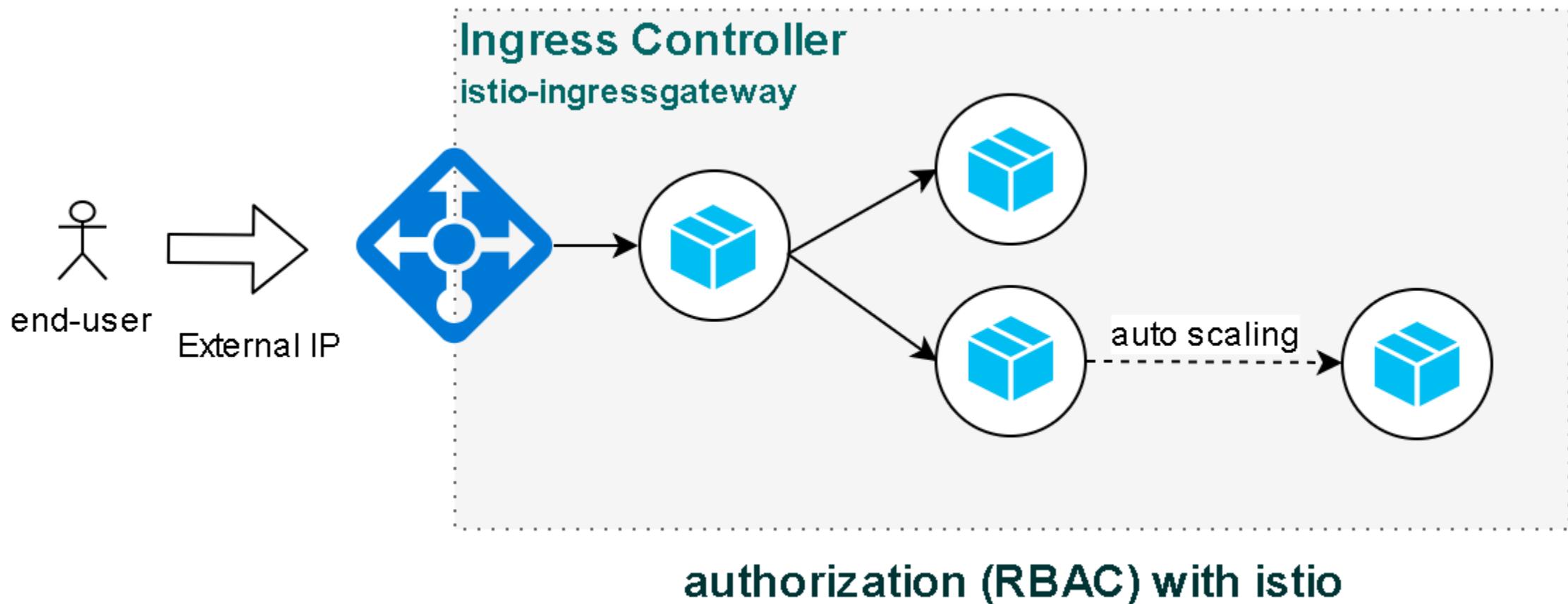




request authentication (origin url) with istio

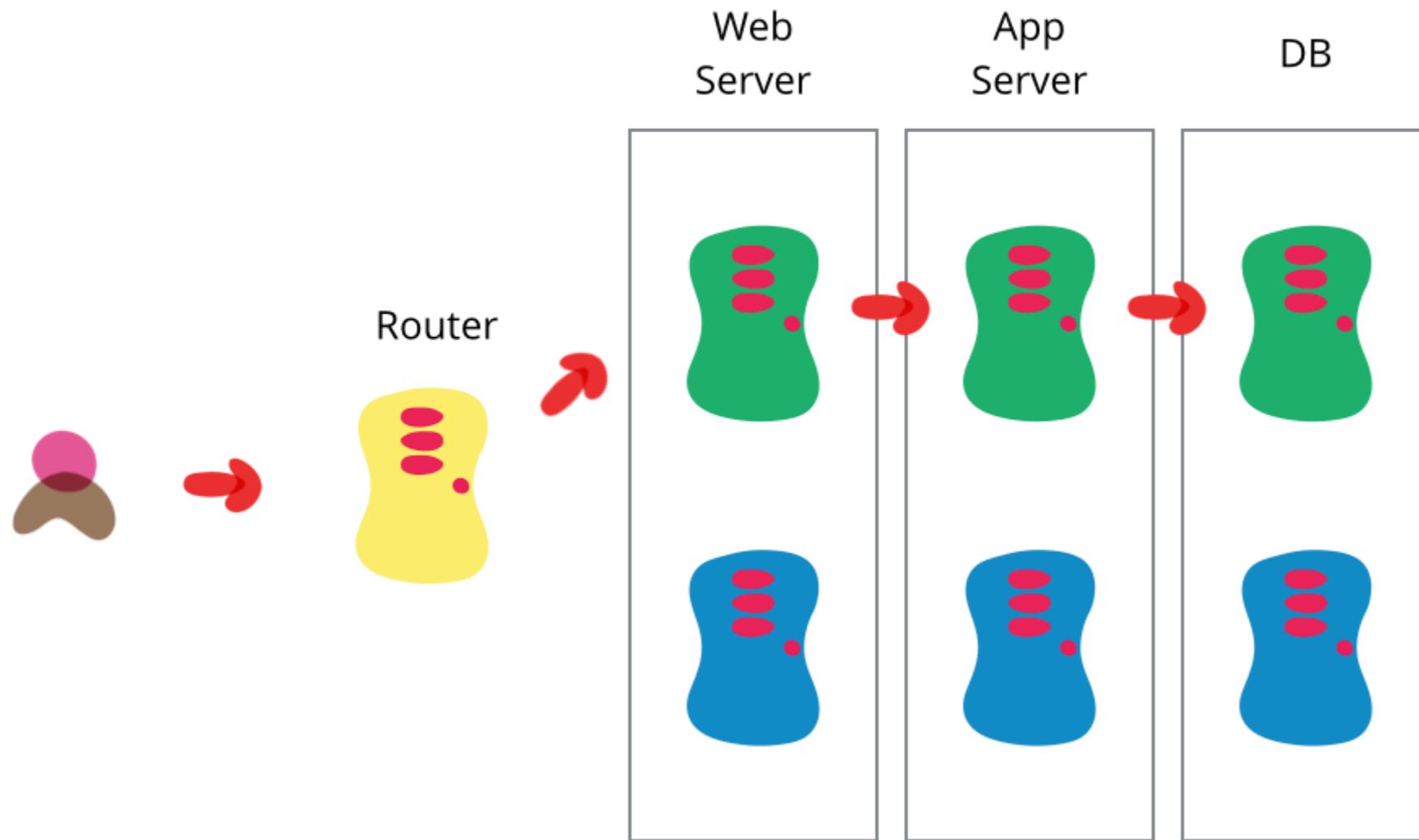
Demo 4: authz with istio on AKS



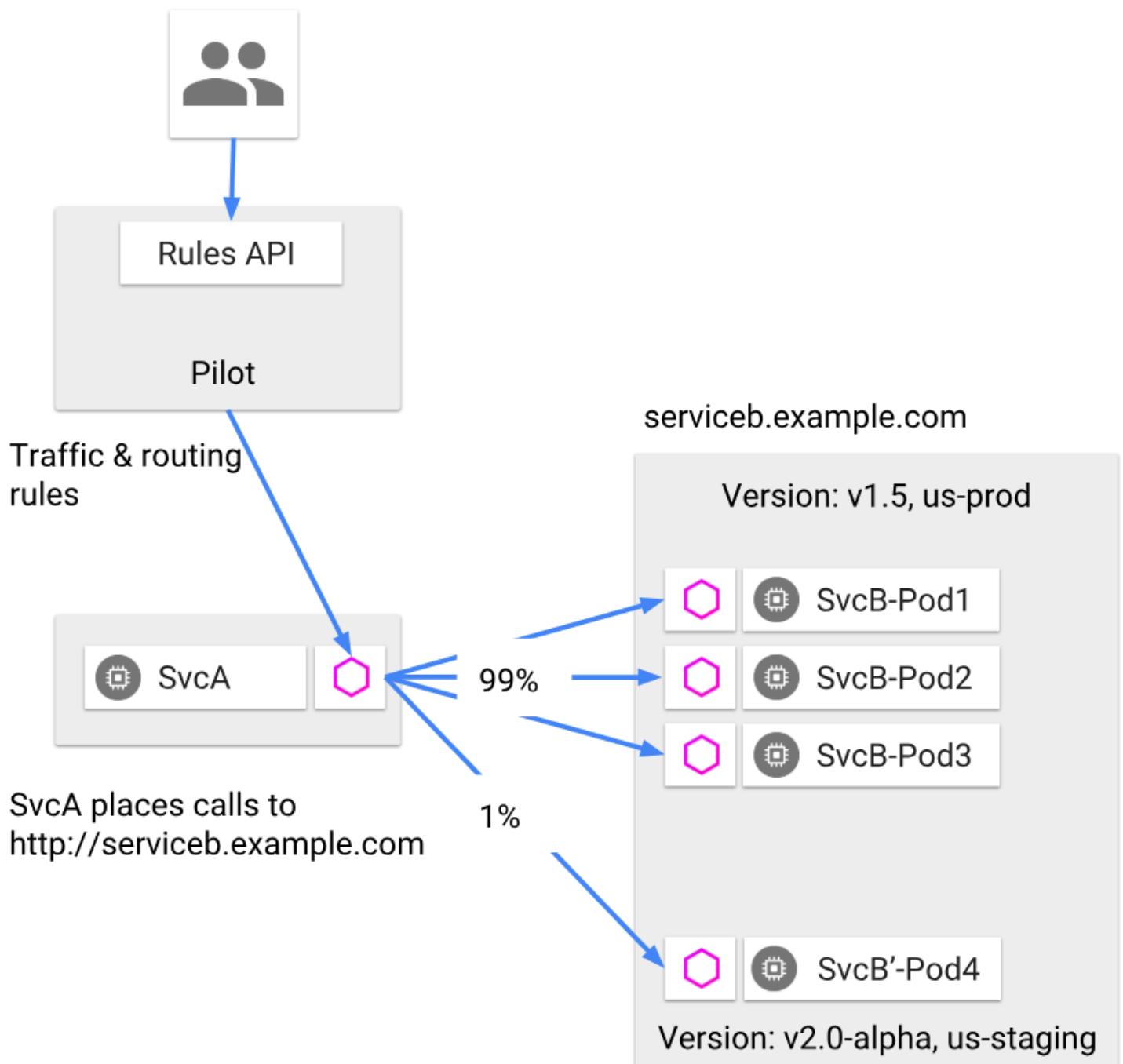


phuong (normal user)	http://cool-store.ml	curl catalogs endpoint => 200
phi (admin)	http://cool-store.ml	curl catalogs endpoint => 200
thang(tester)	http://cool-store.ml	Curl catalogs endpoint => 403

Demo 5: Shadow (a.k.a blue/green) deployment



Demo 6: Canary deployment



Q & A