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DEVELOPER
PROGRAM

Sail in the Cloud

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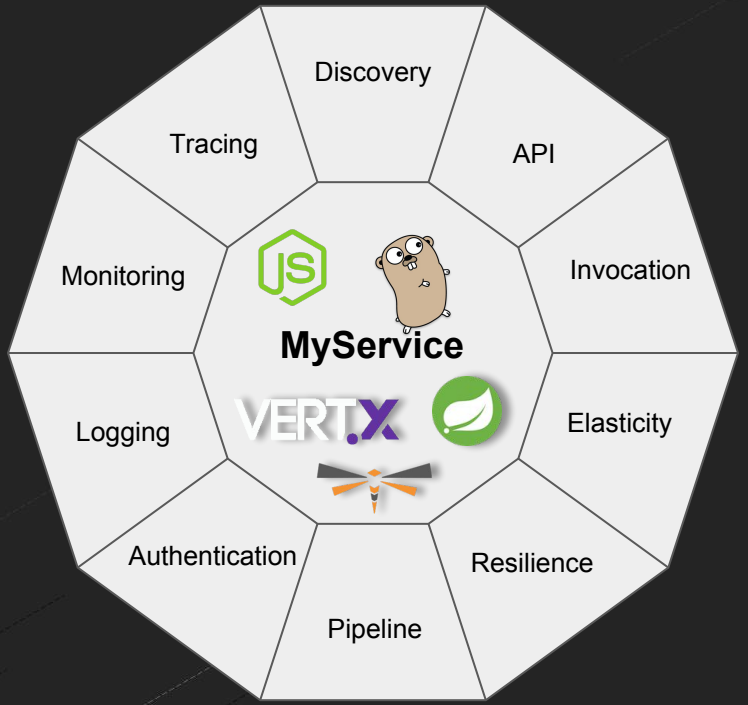
What is a microservice ?

The microservice architectural style is an approach to developing a single application as a suite of small services, each running in its own process and communicating with lightweight mechanisms, often an HTTP resource API.

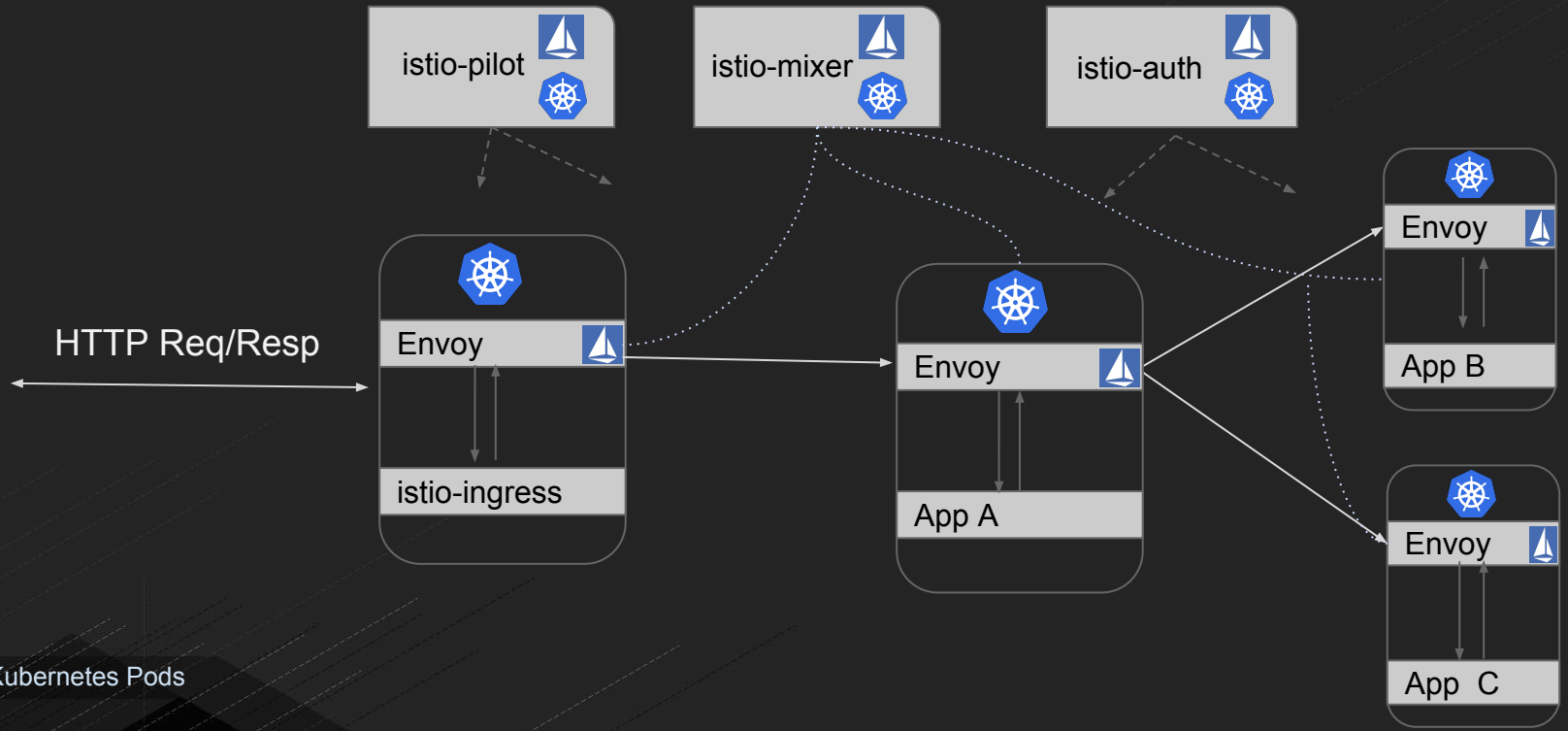
These services are built around business capabilities and independently deployable by fully automated deployment machinery. There is a bare minimum of centralized management of these services, which may be written in different programming languages and use different data storage technologies.

Martin Fowler

Microservices Properties



Istio Service Mesh



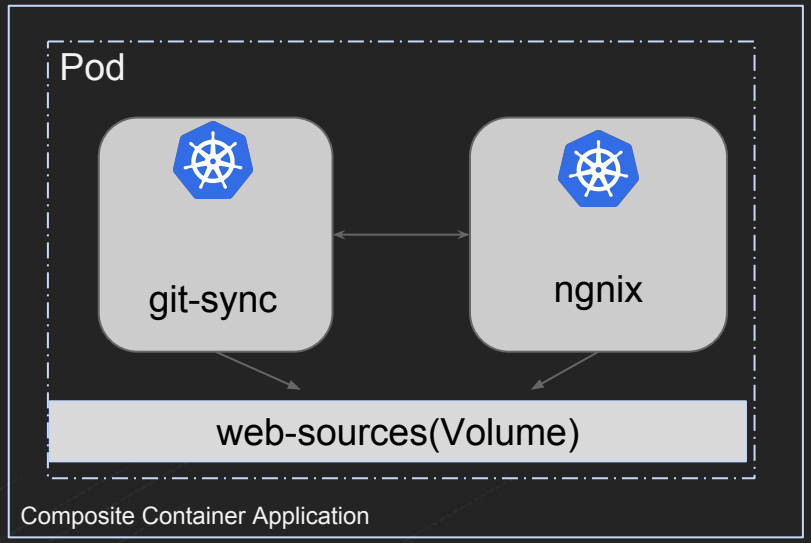
Istio Components

- Control Plane
  - Istio-Pilot
    - Traffic Management
  - Istio-Mixer
    - Access Control
  - Istio-Auth
    - TLS and Certificates

- Data Plane
  - Envoy proxy deployed as “side-cars” with applications

Sidecar

SideCars



- Two or more containers deployed to same pod
- Share
  - same namespace
  - same Pod IP
  - Shared lifecycle
- Used to enhance the containers

Source: http://blog.kubernetes.io/2015/06/the-distributed-system-toolkit-patterns.html

Demo

Distributed Tracing

Istio - Distributed Tracing

- Zero code change
- Propagate set of headers
  - x-request-id
  - x-b3-traceid
  - x-b3-spanid
  - x-b3-parentspanid
  - x-b3-sampled
  - x-b3-flags
  - x-ot-span-context
- Integrated with Zipkin

Demo

Canary Release

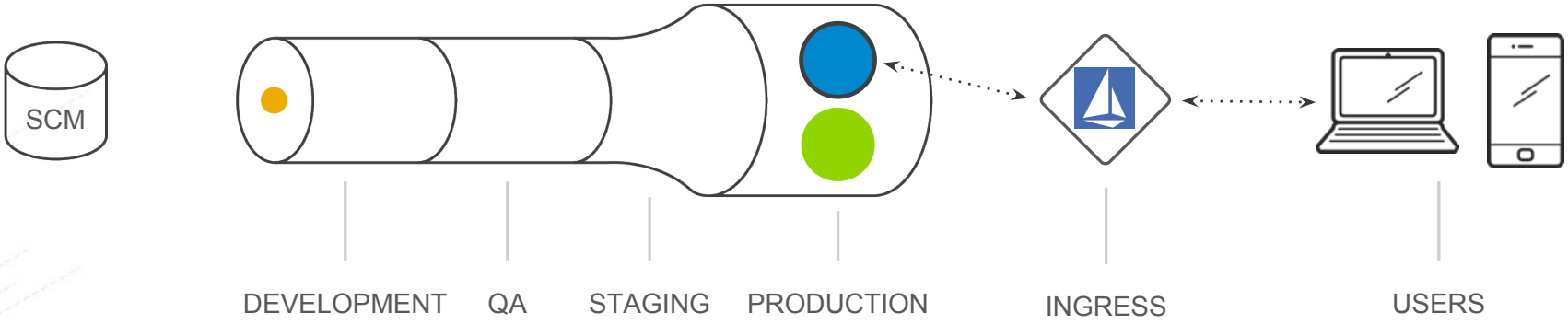
Microservice Architecture - Principles

Canary Release

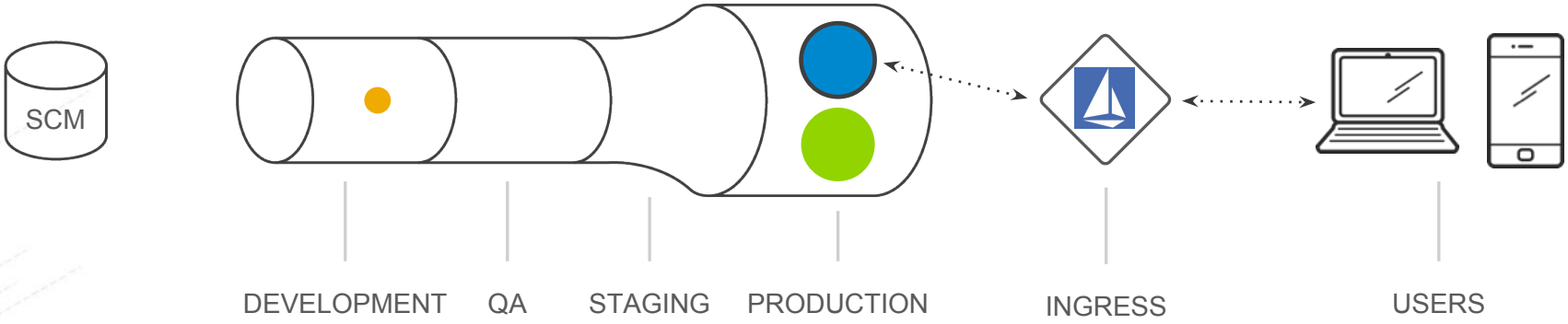
Canary release is a technique to reduce the risk of introducing a new software version in production by slowly rolling out the change to a small subset of users before rolling it out to the entire infrastructure and making it available to everybody.

Source: https://martinfowler.com/bliki/CanaryRelease.html

Canary Deployment



Canary Deployment



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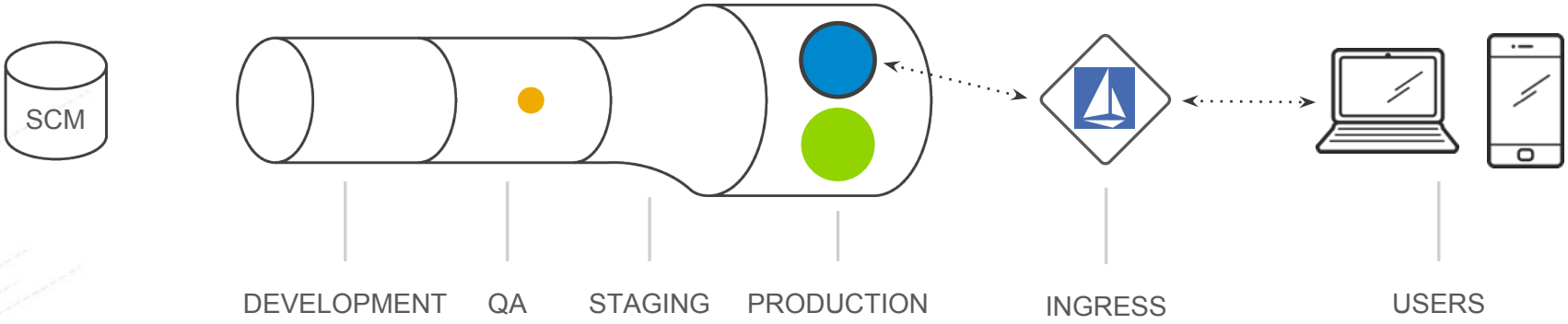

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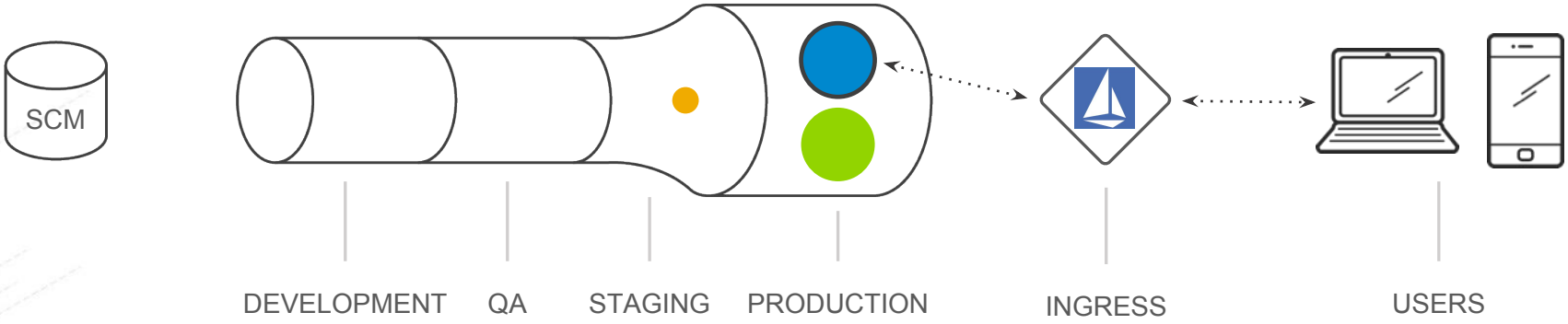

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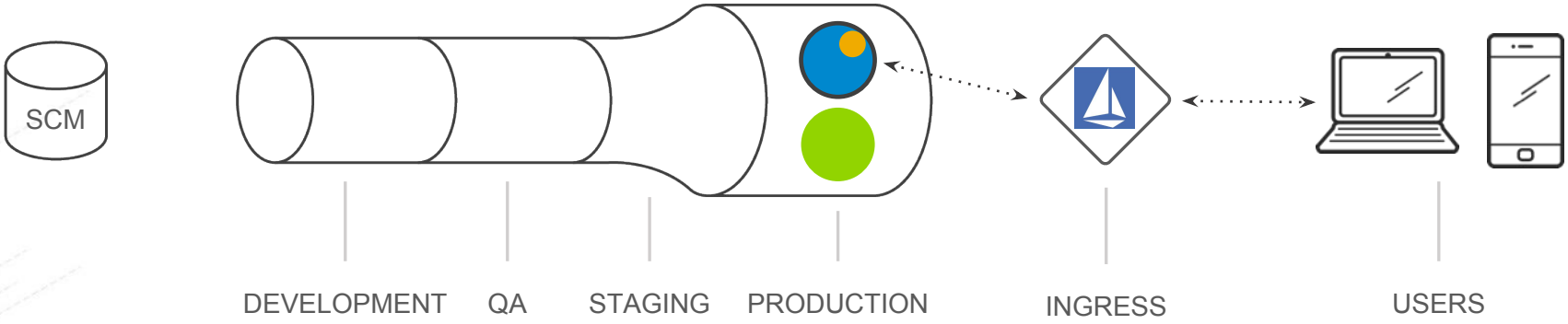
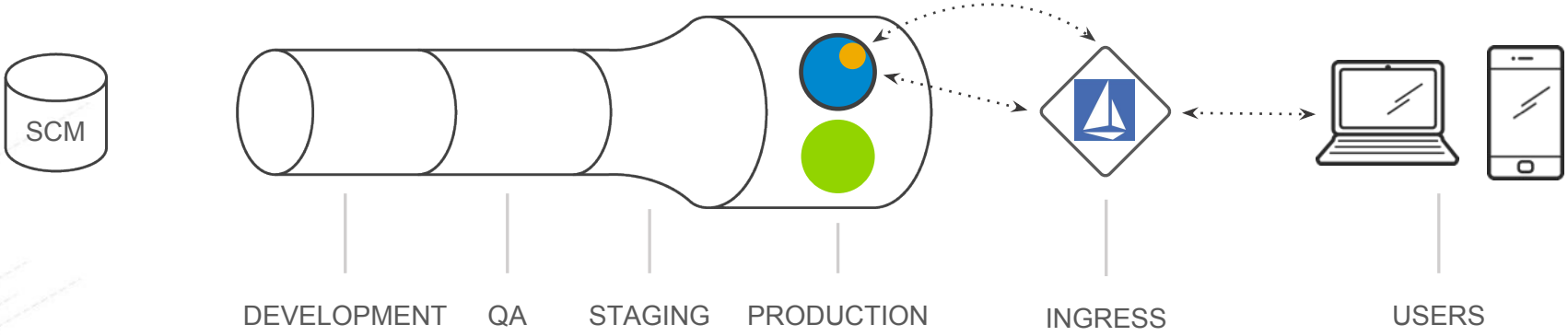


Canary Deployment



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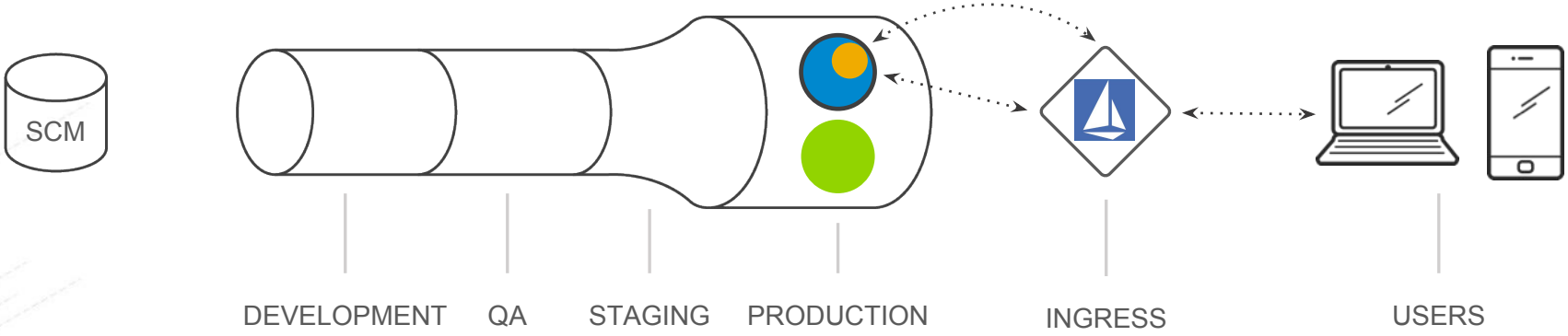

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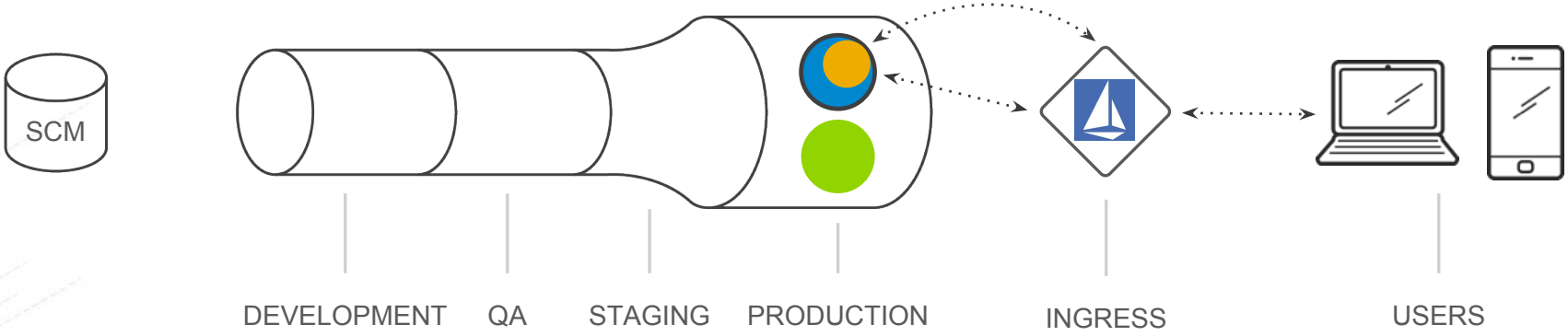

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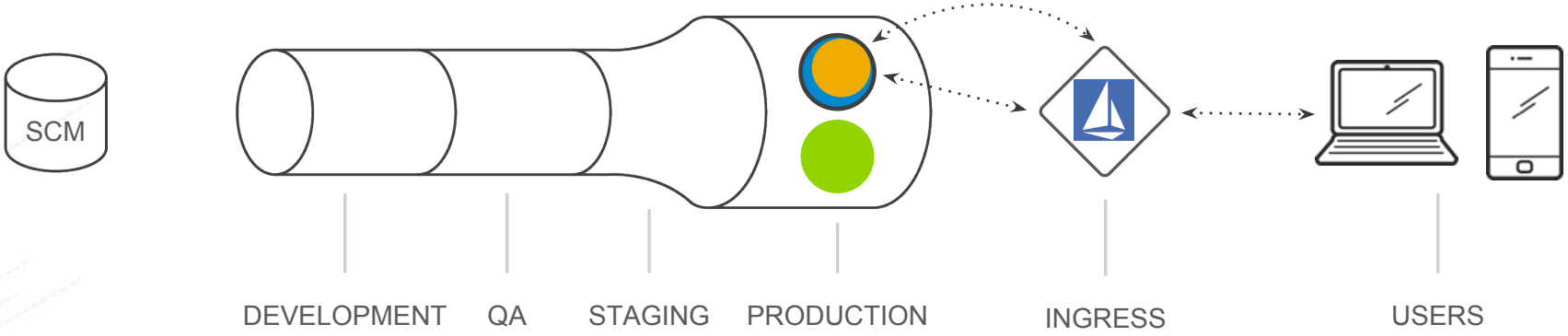

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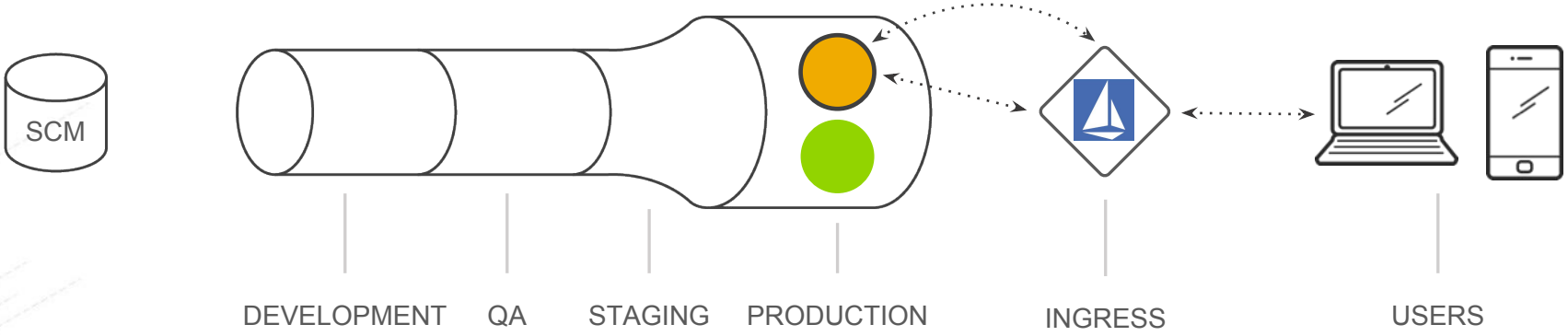


Demo

Circuit Breakers

Microservice Architecture - Principles

Circuit Breaker

The basic idea behind the circuit breaker is very simple. You wrap a protected function call in a circuit breaker object, which monitors for failures. Once the failures reach a certain threshold, the circuit breaker trips, and all further calls to the circuit breaker return with an error, without the protected call being made at all

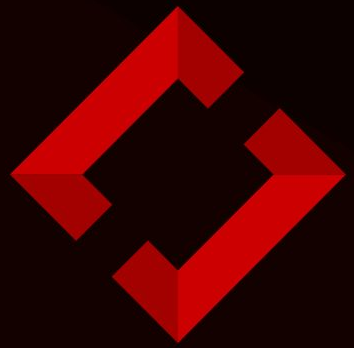
Source: https://martinfowler.com/bliki/CircuitBreaker.html

Demo

Summary

@kamesh_sampath

- Minikube
- Docker Maven Plugin
- Service Mesh https://istio.io
- Demo Repo - https://goo.gl/pRKKqL



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