Red Hat Summit

Connect

Abilitare workflow GitOps attraverso GitLab e piattaforme Red Hat: overview e scenari d'uso

Cristiano Casella, Head of Platform Engineering, Seacom
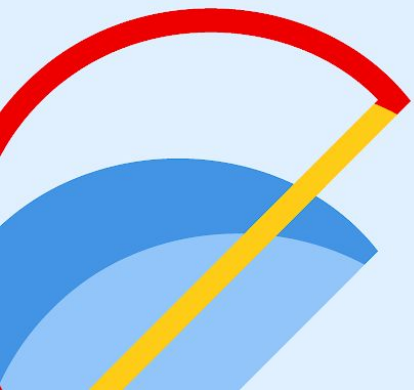Marco Caronna, Field CTO, Gitlab

Milano, 19/11/2024

Agenda

▸ What is GitOps

▸ GitOps benefits

▸ GitLab + RedHat

▸ Use Case
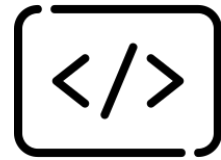
What is GitOps

What is GitOps

Hard Version

" GitOps is an operational framework

that takes **DevOps best practices**

used for application development such as version control,

collaboration, compliance, and CI/CD,

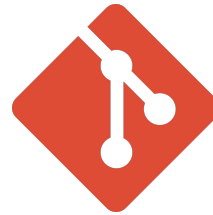and applies them to **infrastructure automation**.

What is GitOps

Easy Version

X as code
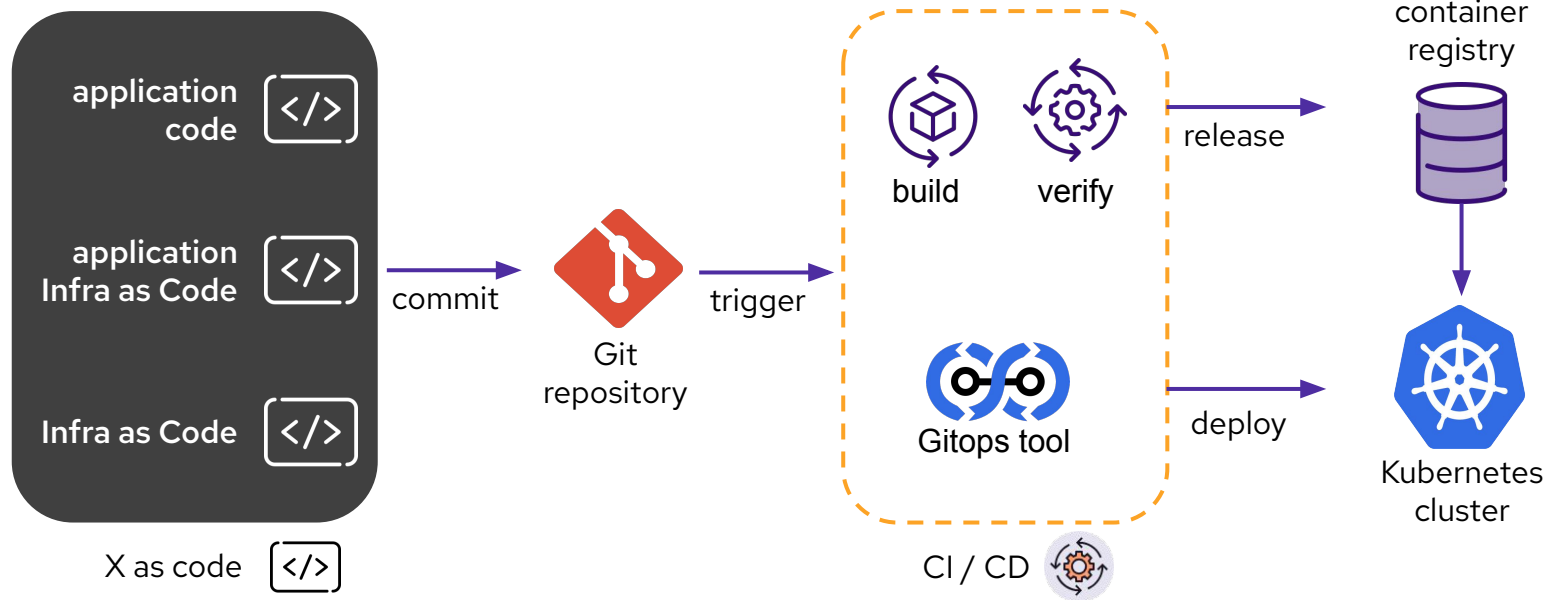(declarative)
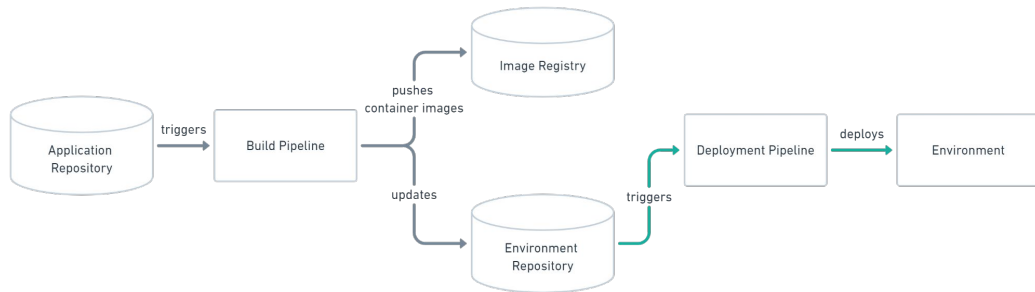
Git
(version control)

CI / CD
(automation)

gitops

What is GitOps

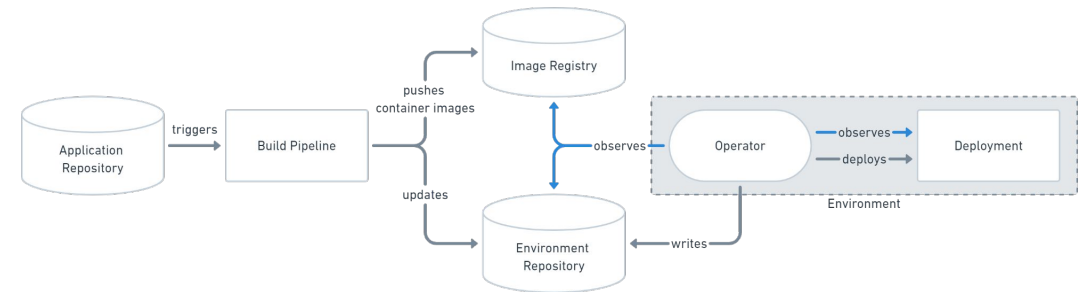## Easy Version with some more details

What is GitOps

Push vs. Pull

Push based GitOps

Suitable for all environments

Pull based GitOps

Primarily for Kubernetes/Openshift environments

Images: https://www.gitops.tech/
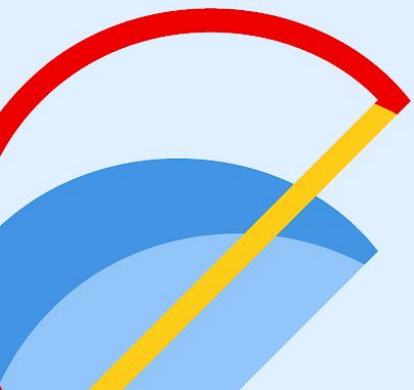
GitOps Benefits

GitOps Benefits

Hard Version

Collaboration on infrastructure changes

Faster time to market

Simplified auditing

Less risk

Less error prone

Reduced costs and downtime

Improved access control
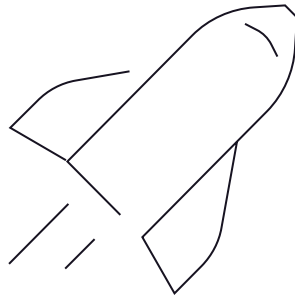
Collaboration with compliance

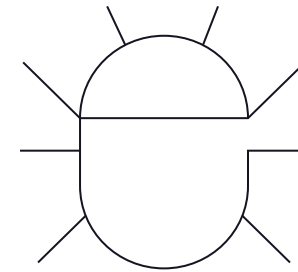# GitOps Benefits

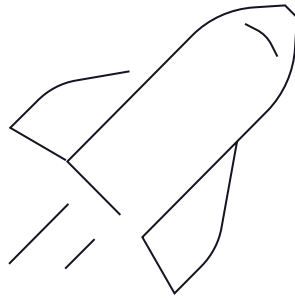## Easy Version

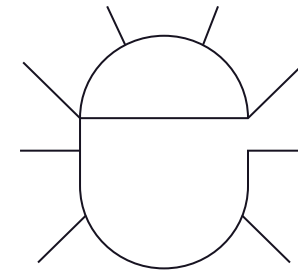Move Faster   vs.   Decrease Mistakes

GitOps Benefits

Easy Version

AND

Move Faster
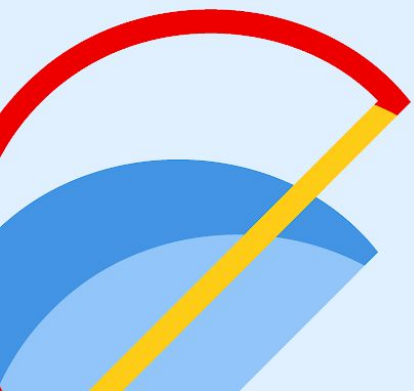
Decrease Mistakes

GitLab + RedHat

GitLab + Ansible

▸ Infrastructure as Code (IaC) or X-as-Code (XaC – infra, config, policy, etc.)

▸ Declarative code describes the desired state

▸ Stored in a Git version control

▸ Git tooling as the UI

AAP as orchestrator for CI/CD

Deploying IaC

If it is accepted, the changes will be merged into the main branch.

2

Gitlab

Merge Request

Webhook **3**

Once ansible catches the Git webhook, it will execute its CI/CD playbooks

4

Development

1

```
---
name: example
key: value
declarative: data
```

Modify Declarative Data model

Continuous Integration and Delivery

Developer

5

Approve for production

Ansible Automation Platform

Production

6

Continuous Deployment

+

OPENSHIFT

GitLab + OpenShift

- ▶ Agent Based Integration
- ▶ Operator Based Integration
- ▶ Enables both Push and Pull Models

Red Hat

GitLab / Openshift Integration - Agent Based

▶ GitLab Runner Certified Operator

▶ Integrate with OpenShift Clusters
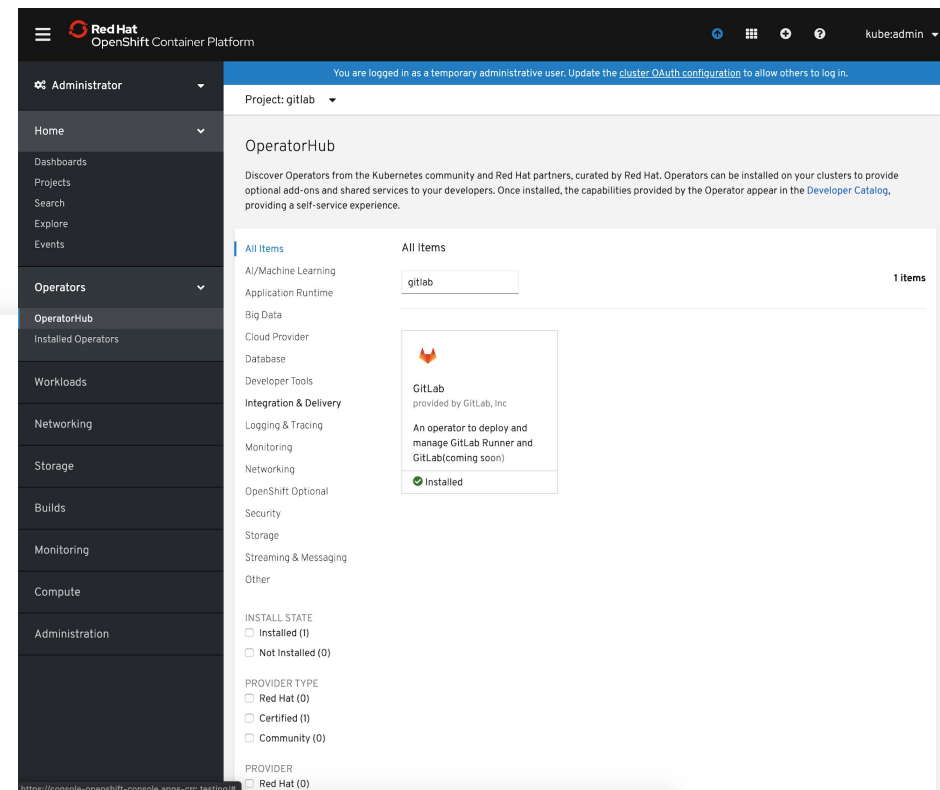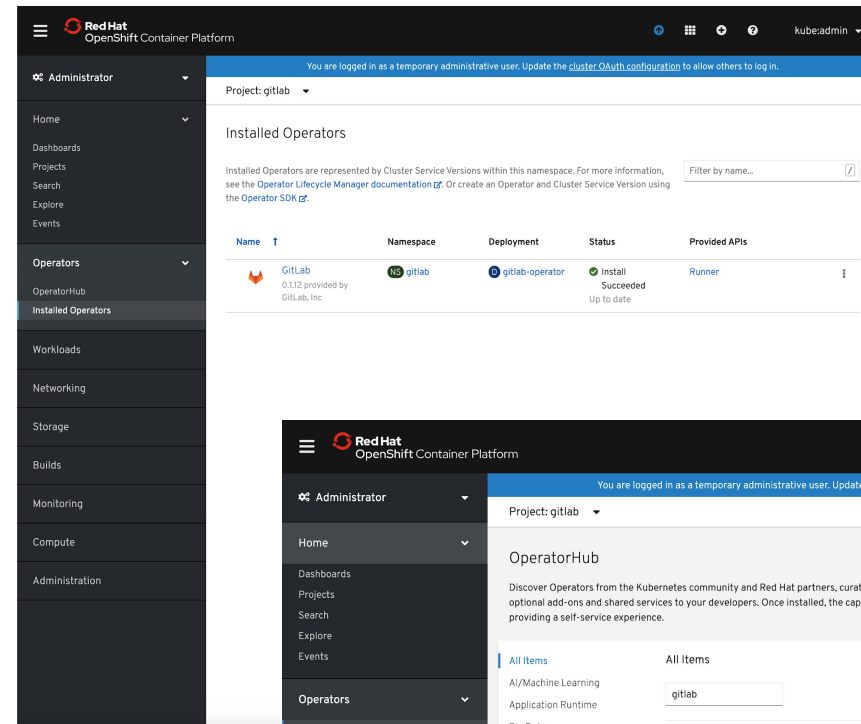
▶ Deploy applications

▶ Monitor Cluster Health

GitLab / Openshift Integration - Operator Based

▸ Deploy via Manifests or manual build

▸ GitLab Custom Resource Definition

▸ OAuth Integration with GitLab projects and groups

```yaml
apiVersion: apps.gitlab.com/v1beta1
kind: GitLab
metadata:
  name: gitlab-server
spec:
  chart:
    version: "4.11.3"
    values:
      global:
        hosts:
          domain: apps.openshift-cluster.example.com
        ingress:
          configureCertmanager: true
      certmanager-issuer:
        email: plamb@redhat.com
```

Use Case
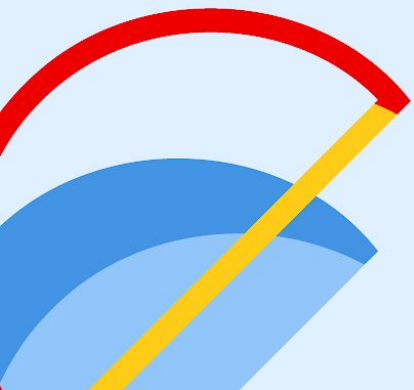
Public Sector Company – RedHat – GitLab integrated architecture

GITLAB EPICS/ISSUES

DEVELOPER

GITLAB SOURCE REPOSITORY*
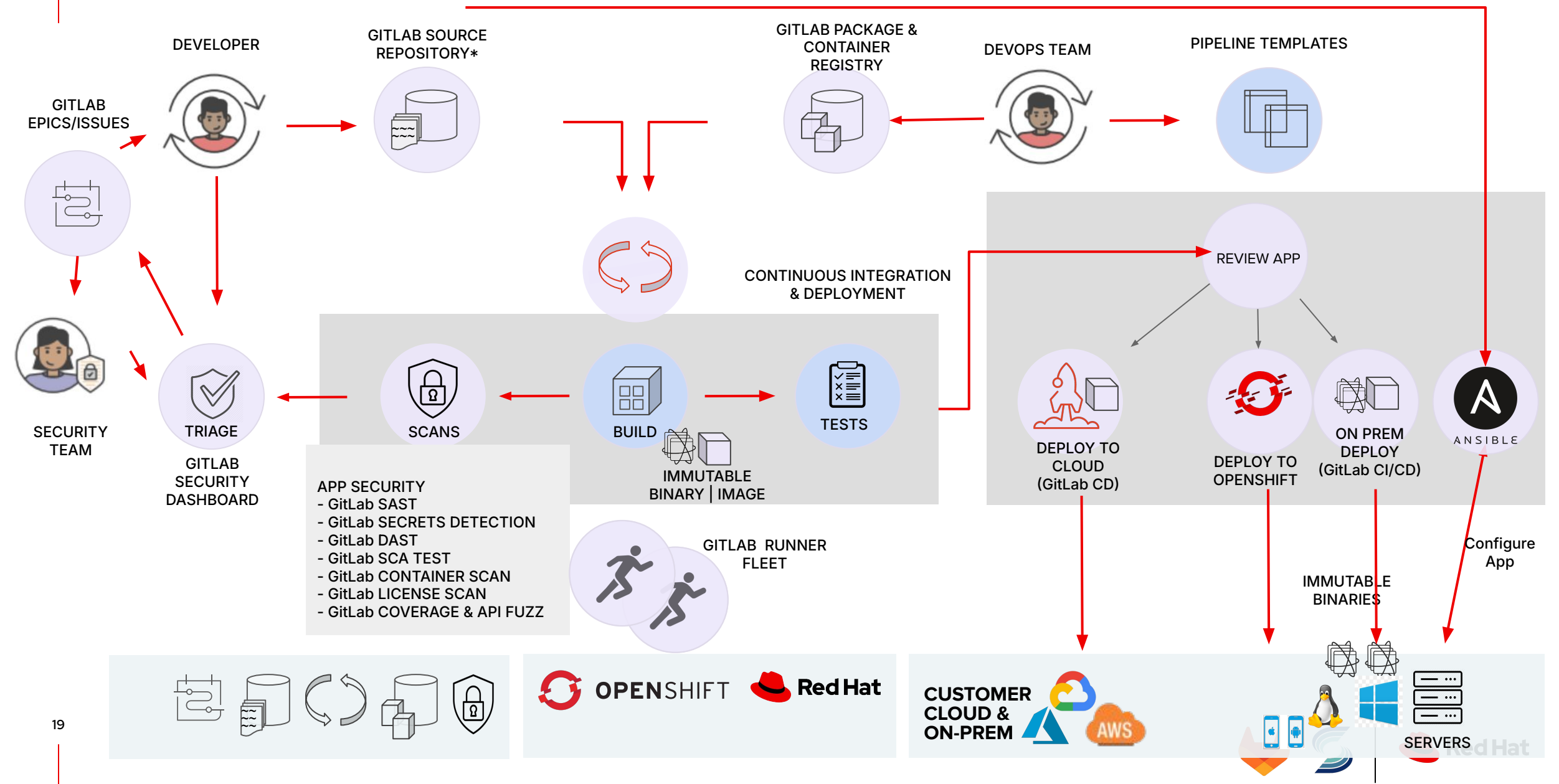
GITLAB PACKAGE & CONTAINER REGISTRY

DEVOPS TEAM

PIPELINE TEMPLATES

SECURITY TEAM

TRIAGE

GITLAB SECURITY DASHBOARD

CONTINUOUS INTEGRATION & DEPLOYMENT

REVIEW APP

SCANS

BUILD

IMMUTABLE BINARY | IMAGE

TESTS

DEPLOY TO CLOUD (GitLab CD)

DEPLOY TO OPENSHIFT

ON PREM DEPLOY (GitLab CI/CD)

ANSIBLE

Configure App

APP SECURITY
- GitLab SAST
- GitLab SECRETS DETECTION
- GitLab DAST
- GitLab SCA TEST
- GitLab CONTAINER SCAN
- GitLab LICENSE SCAN
- GitLab COVERAGE & API FUZZ

GITLAB RUNNER FLEET

IMMUTABLE BINARIES

OPENSHIFT Red Hat

CUSTOMER CLOUD & ON-PREM

SERVERS

19

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Q&A

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Thank you