

DevOps Transformation

VMware Perspective

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Staff Multi-Cloud Solutions Architect

December 2022

Agenda

DevOps

Recap

DevOps and VMware

VMware Aria Automation

Infrastructure As Code

GitOps

VMware Aria Automation Pipelines (Code Stream)

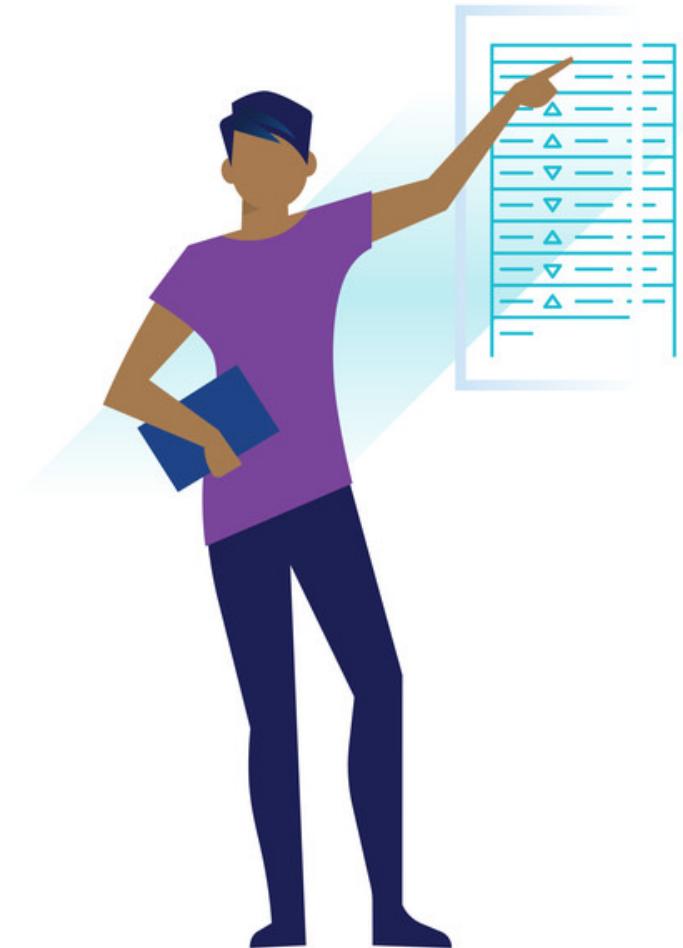
Demo 1

Demo 2

Future Sessions

Simplifying Development (Tanzu Application Platform)

Shift Left



Advantages of DevOps



SCALE



VELOCITY



RELIABILITY

DevOps for Apps

DevOps Principles

App Programming



REPEATABILITY

Infrastructure-as-code

Git source control/CI



COLLABORATION

Iterative development

Release Automation



CONTINUITY

Infrastructure Pipelines

DevOps for Infrastructure

DevOps for Infrastructure



Infrastructure-as-code

is the ability to express and manipulate infrastructure the same way as application code



Iterative development

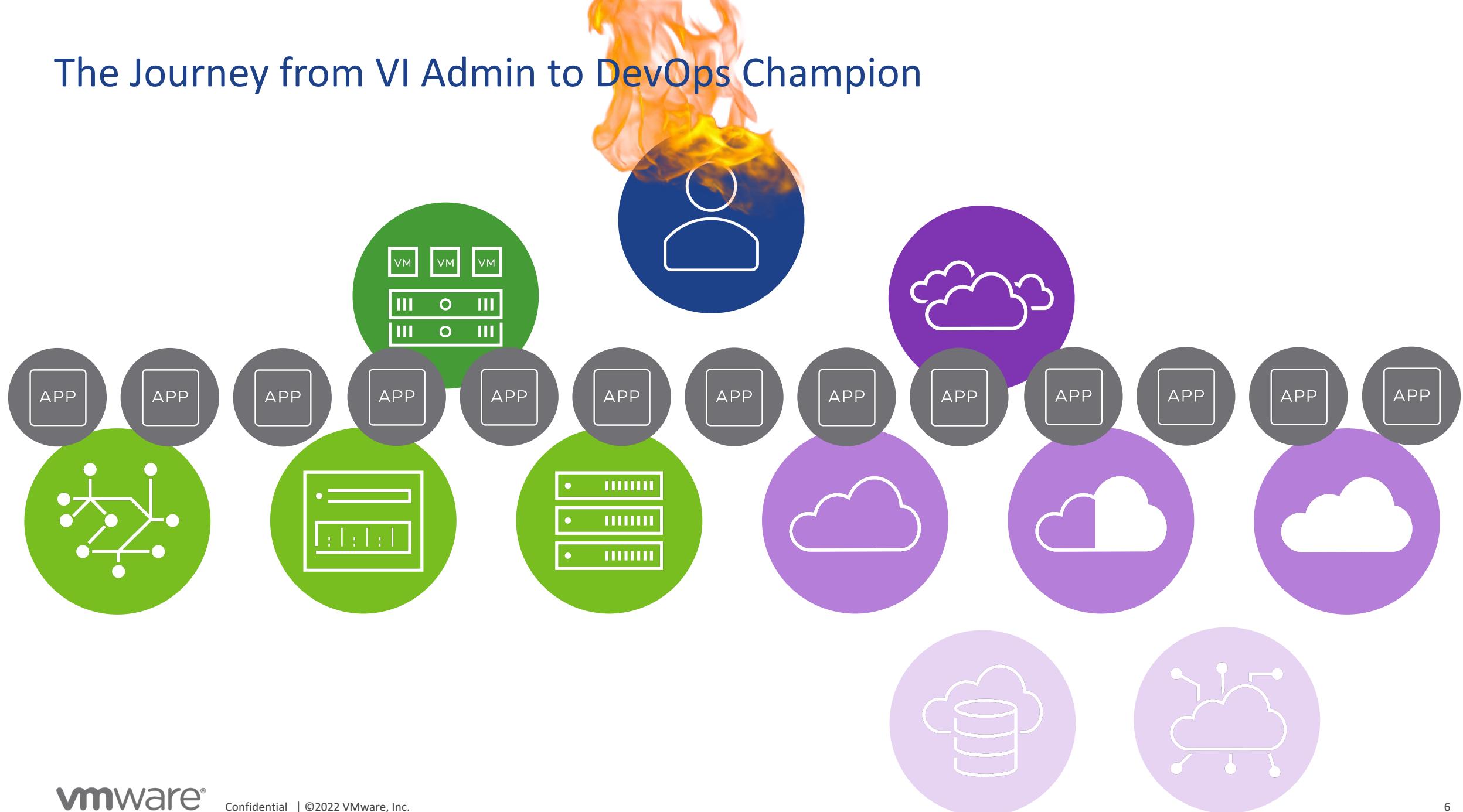
is the collaborative updating of the infrastructure, by the developers and/or operators, as needs evolve



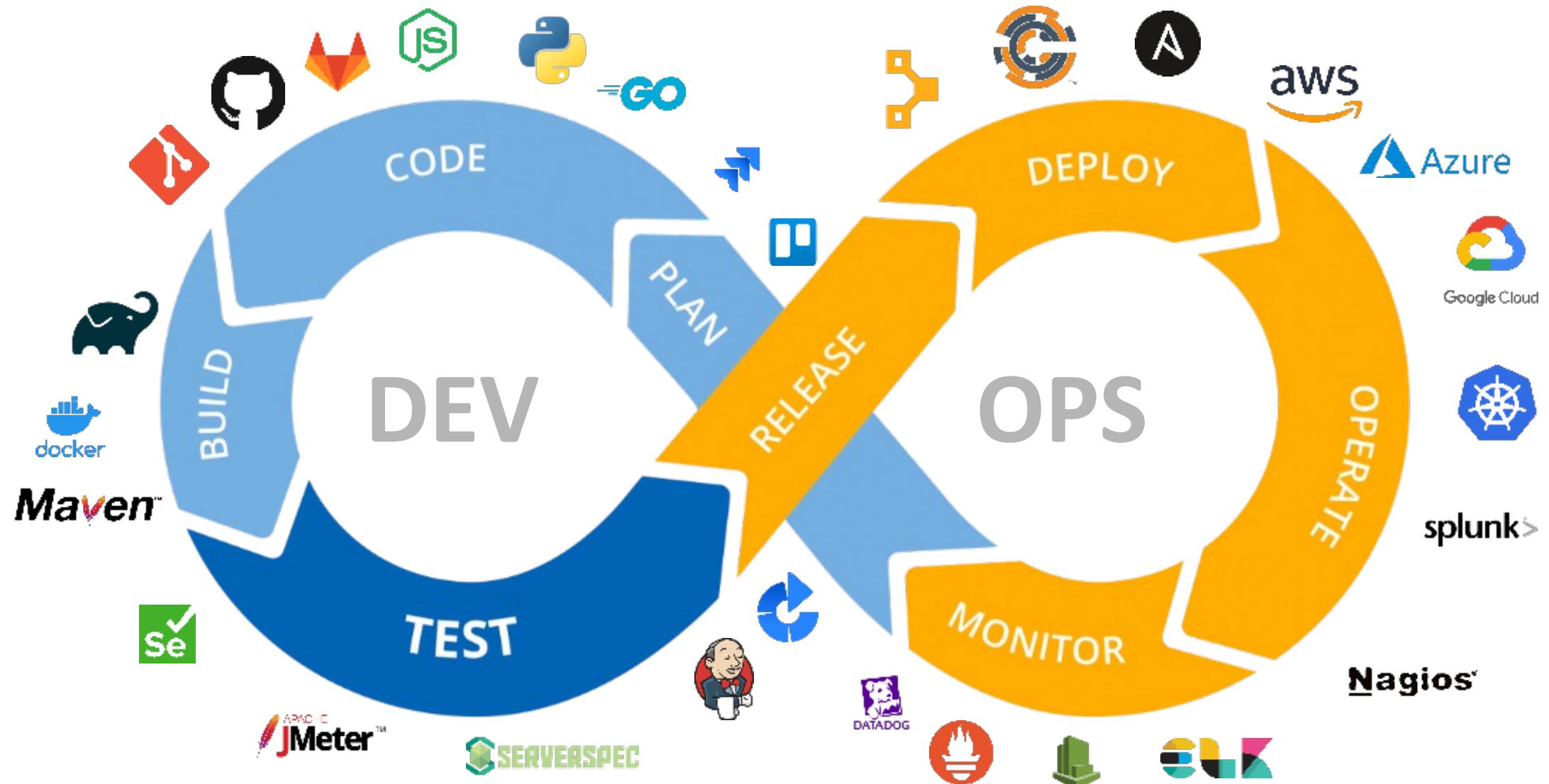
Infrastructure Pipelines

are continuous delivery pipelines, specifically built to manage infrastructure in an automated way

The Journey from VI Admin to DevOps Champion



What is DevOps, and why?

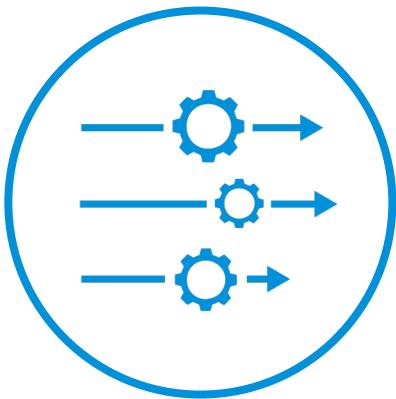


Enabling Modern Automation Use Cases

VMware Aria Automation isn't just a VM provisioning tool



Self Service
Multi-Cloud



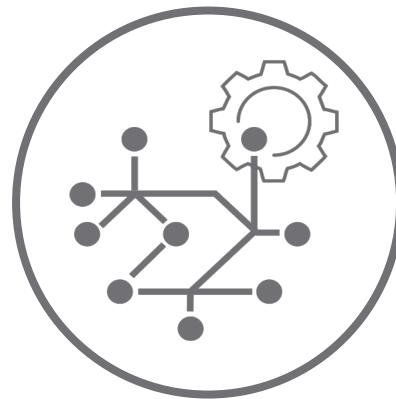
DevOps for
Infrastructure



Kubernetes
Automation



SecOps – Multi-
Cloud
Governance

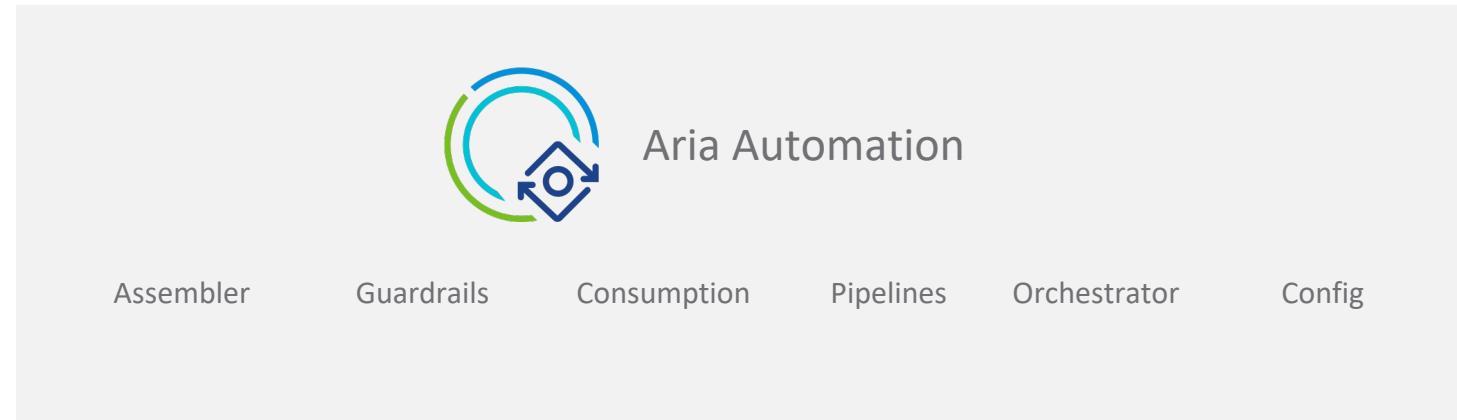


Network
Automation

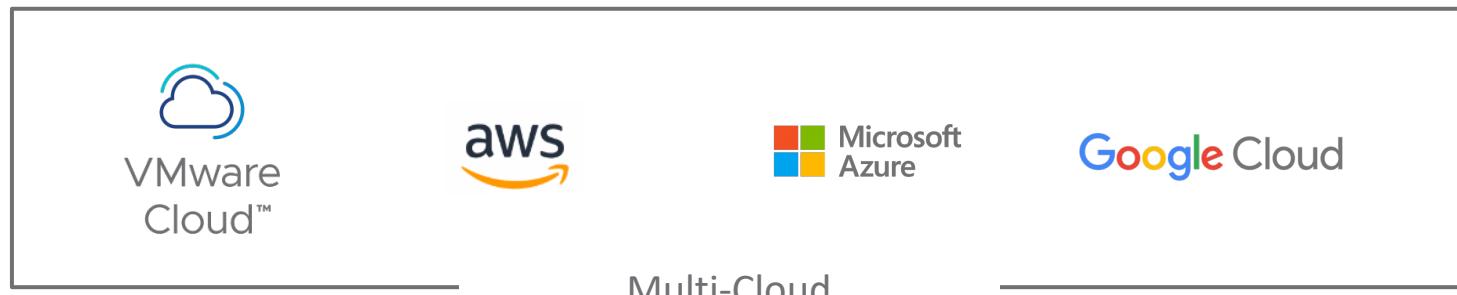
VMware Aria Automation

Aria Automation – Multi-Cloud Infrastructure Automation Platform

Formerly vRealize Automation



Aria Automation Templates



Assembler

Orchestrates and expedites infrastructure and application delivery in line with DevOps principles

Guardrails

Multi-cloud governance and policy management – powered by Idem Project

Consumption

Aggregates native content from multiple clouds and platforms into a single catalog with tag-based policies

Pipelines

Speeds infrastructure delivery and streamlines troubleshooting with release pipelines and analytics

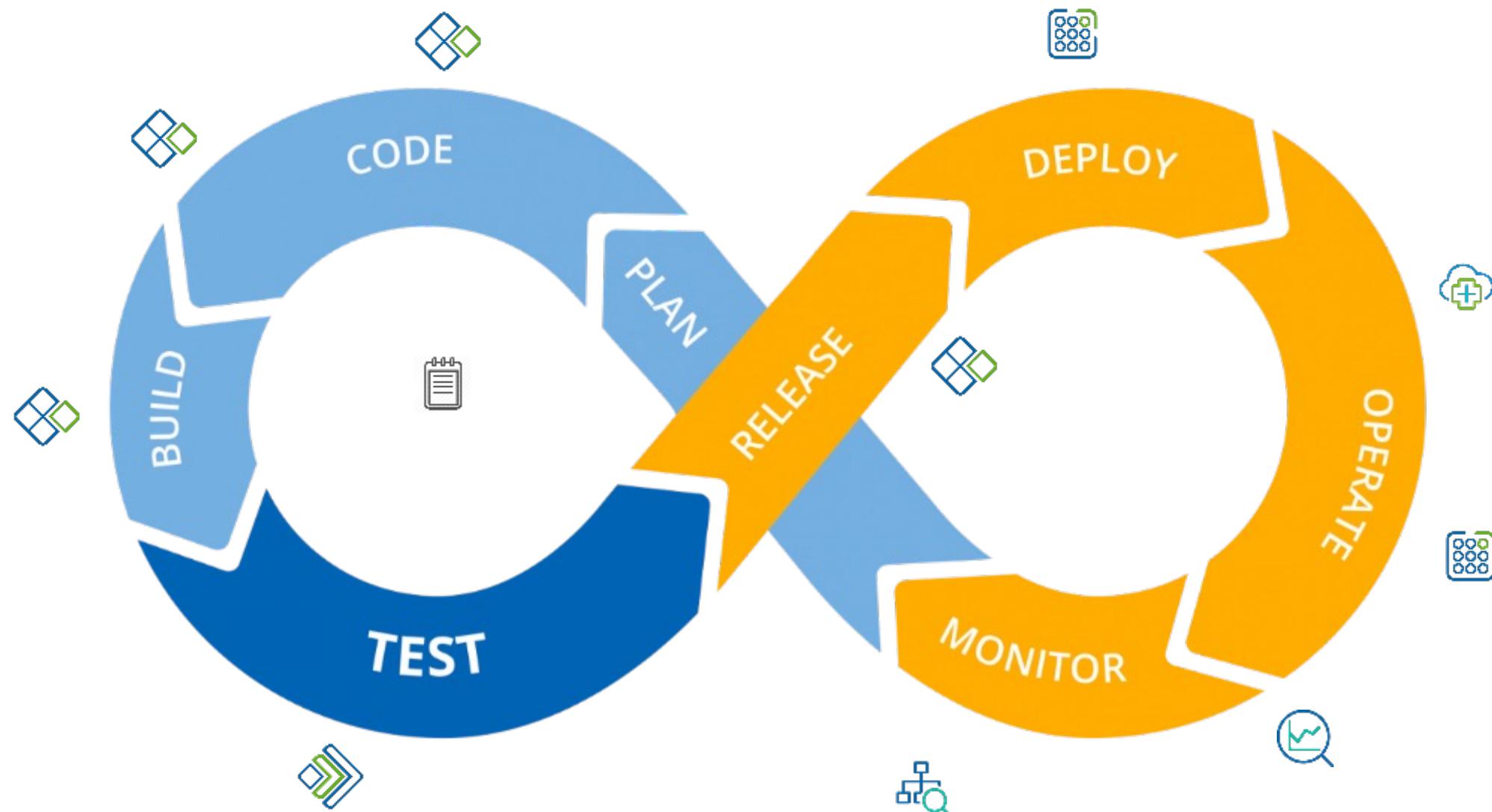
Orchestrator

Workflow orchestration that simplifies the automation of complex IT tasks

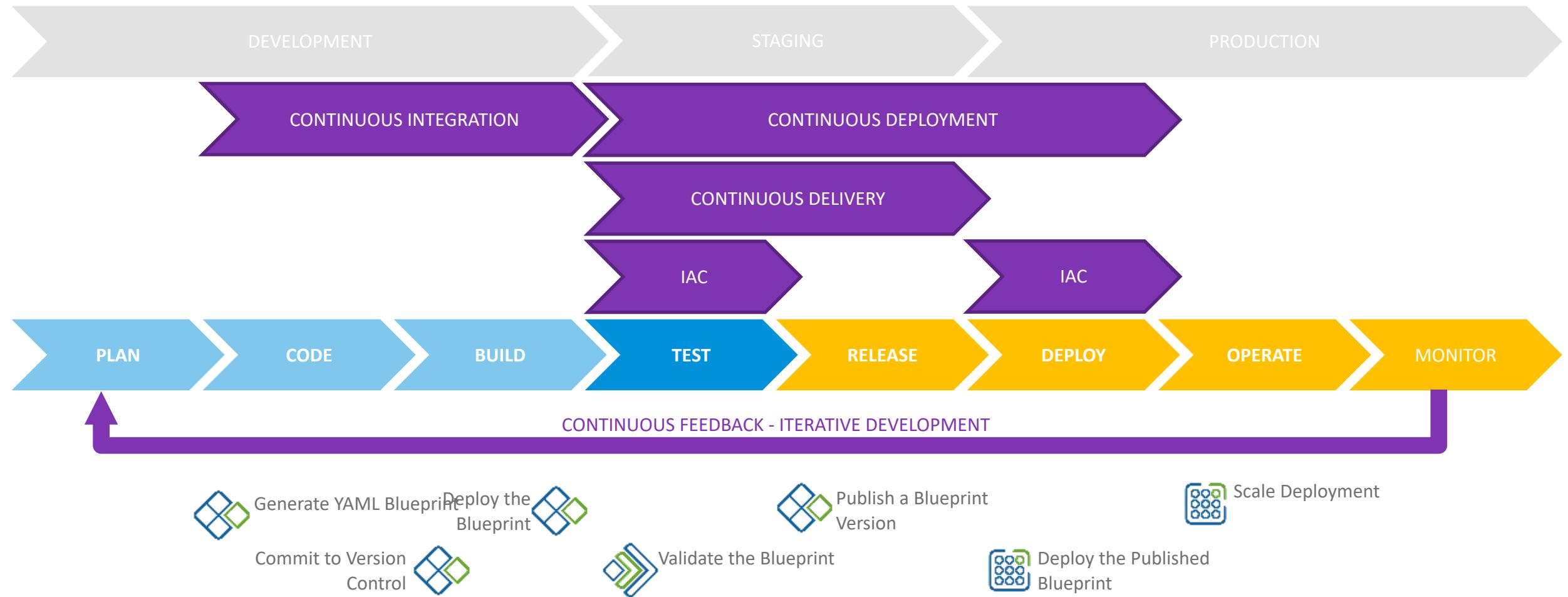
Config

Event-drive software configuration management capability for virtualized, hybrid or public cloud – powered by Salt

What does DevOps look like in vRealize Automation?

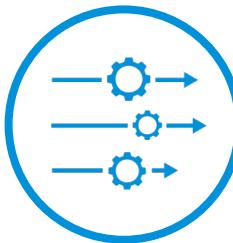


What does DevOps look like in vRealize Automation?



DevOps for Infrastructure

Embrace DevOps-powered infrastructure delivery and consumption in IT workflows easily



INFRASTRUCTURE-AS-CODE / DATA

express and manipulate infrastructure based on machine-readable files

REPEATABILITY



GITOPS

collaborative updating of infrastructure by developers and/or operators, as needs evolve

COLLABORATION



INFRASTRUCTURE PIPELINES

continuous delivery pipelines, specifically built to manage infrastructure in an automated way

CONTINUITY

Outcome

Promote consistent changes and roll-backs across environments.

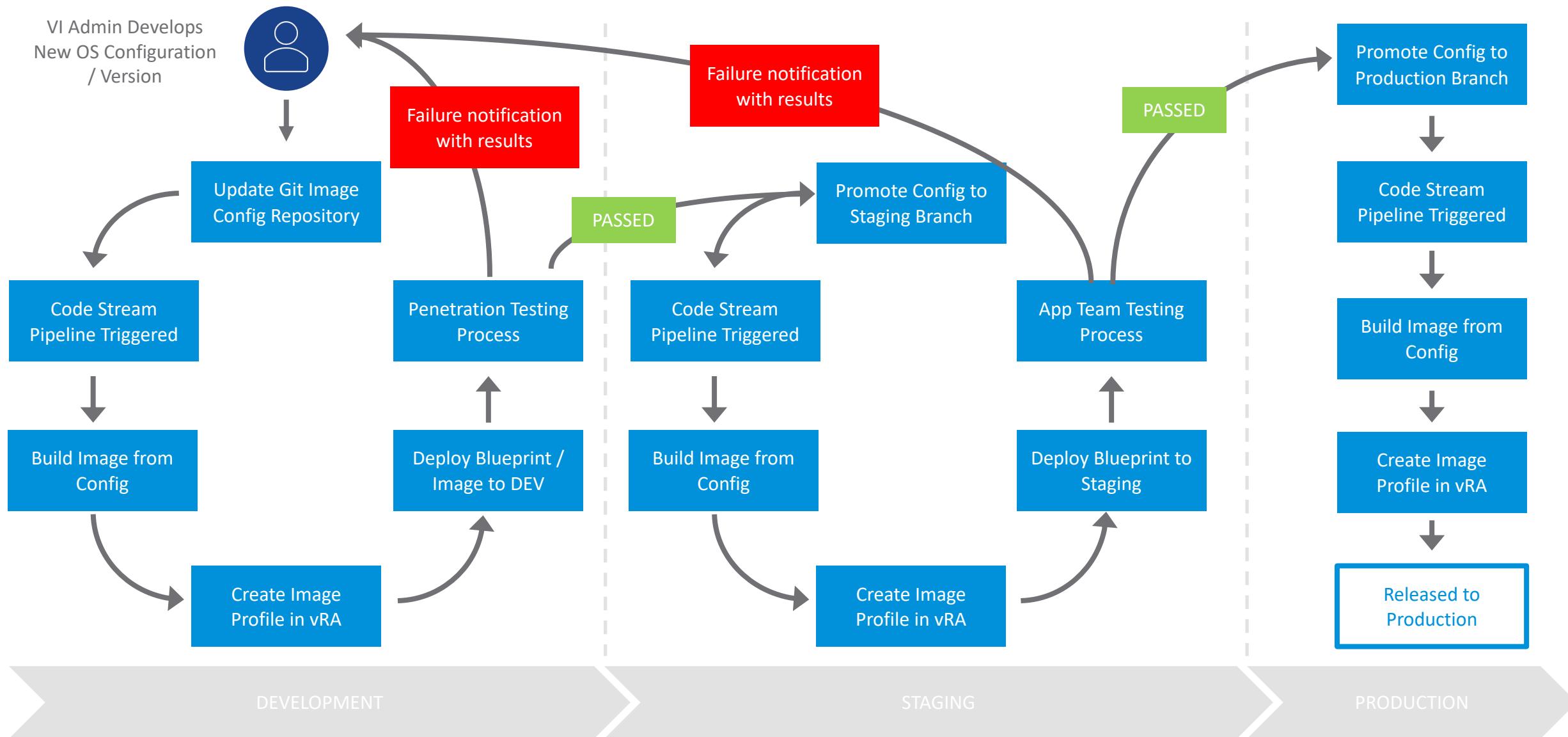
Remediate configuration drift towards desired state configurations.

Benefit

Positive ROI via efficiency, higher productivity and faster time to value.

Deliver infrastructure via faster, smaller, more frequent release cycles that allows scalability and reliability.

Security Penetration and Application Testing Pipeline





Define, Build, Deploy and Manage across Clouds

vRealize Automation - Functional overview

Service Broker

LOBs, Service consumers

Aggregates native content from multiple clouds and platforms into a single catalog with role-based policies

Cloud Assembly

Cloud admins, Infra developers

Streamlines infrastructure and application delivery and management in line with DevOps principles

Code Stream

SREs, Platform teams

Speeds software delivery and streamlines troubleshooting with release pipelines and analytics



Service Broker: Multi-Cloud Catalog & Policy Definitions



Cloud Assembly: Infrastructure-as-Code, Blueprints and Extensibility



Code Stream:
Release Pipelines

vmware®

aws

Microsoft
Azure

Google Cloud



YAML-based IaC in Cloud Assembly

YAML
INFRASTRUCTURE-AS-CODE

```
>>> Code Properties Inputs
 1  formatVersion: 1
 2  name: MOAD-Retail-LB
 3  version: 1
 4  inputs:
 5    environment:
 6      type: string
 7      enum:
 8        - AWS
 9        - Azure
10        - vSphere
11      description: Target Environment
12      default: vsphere
13      title: Select Environment for Deployment
14    image:
15      type: string
16      enum:
17        - Ubuntu-18
18      default: Ubuntu-18
19      title: Select Image/OS
20    size:
21      type: string
22      enum:
23        - small
24        - medium
25        - large
26      description: Size of Nodes
27      default: medium
28      title: Node size
29    clustersize:
30      type: string
31      enum:
32        - small
33        - medium
34        - large
35      description: Front End Cluster Size
36      default: small
37      title: Front End Cluster Size
38    username:
39      type: string
40      description: The username you would like to have for the installation.
41      default: demouser
42      title: System Admin Account Username
43    password:
44      type: string
45      description: The password you would like to use for the ocuser account.
46      default: [REDACTED]
47      title: OpenCart Admin Account Password
48      pattern: '[a-zA-Z0-9@#$]+'
49
```



Enhanced with Low-Code Interface for Quick Ramp-up

MOAD-Retail-LB [SETTINGS](#) [VERSION HISTORY](#) [ACTIONS](#) ▾

GRAPHICAL DESIGN CANVAS

YAML INFRASTRUCTURE-AS-CODE

```
formatVersion: 1
name: MOAD-Retail-LB
version: 1
inputs:
  environment:
    type: string
    enum:
      - AWS
      - Azure
      - vSphere
    description: Target Environment
    default: vSphere
    title: Select Environment for Deployment
  image:
    type: string
    enum:
      - Ubuntu-18
    default: Ubuntu-18
    title: Select Image/OS
  size:
    type: string
    enum:
      - small
      - medium
      - large
    description: Size of Nodes
    default: medium
    title: Node Size
  clusterSize:
    type: string
    enum:
      - small
      - medium
      - large
    description: Front End Cluster Size
    default: small
    title: Front End Cluster Size
  username:
    type: string
    description: The username you would like to have for the installation.
    default: demouser
    title: System Admin Account Username
  password:
    type: string
    description: The password you would like to use for the ocuser account.
    default: 
    title: OpenCart Admin Account Password
    pattern: '[a-zA-Z0-9@#$]+'
```

DEPLOY

TEST

VERSION

CLOSE

Last saved 4 hours ago

VMware

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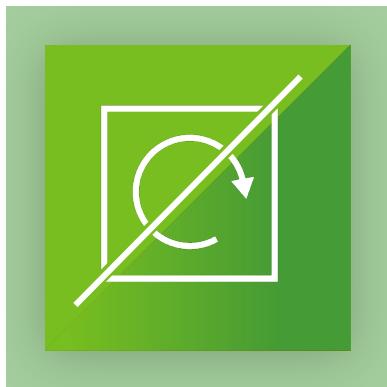
Achieve your SLOs with Infrastructure as Code



Lead Time to
Changes



Release
Frequency



Change Failure
Rate



Mean Time to
Recovery

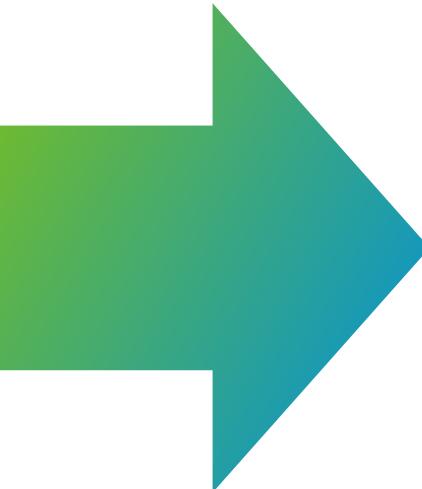
Operational Performance Drives Strategic Outcomes



Lead Time to
Changes



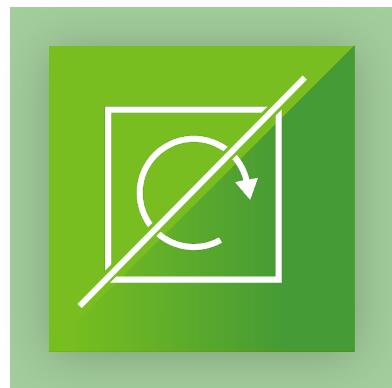
Release
Frequency



EFFICIENCY



VELOCITY



Change Failure
Rate



Mean Time to
Recovery



RELIABILITY



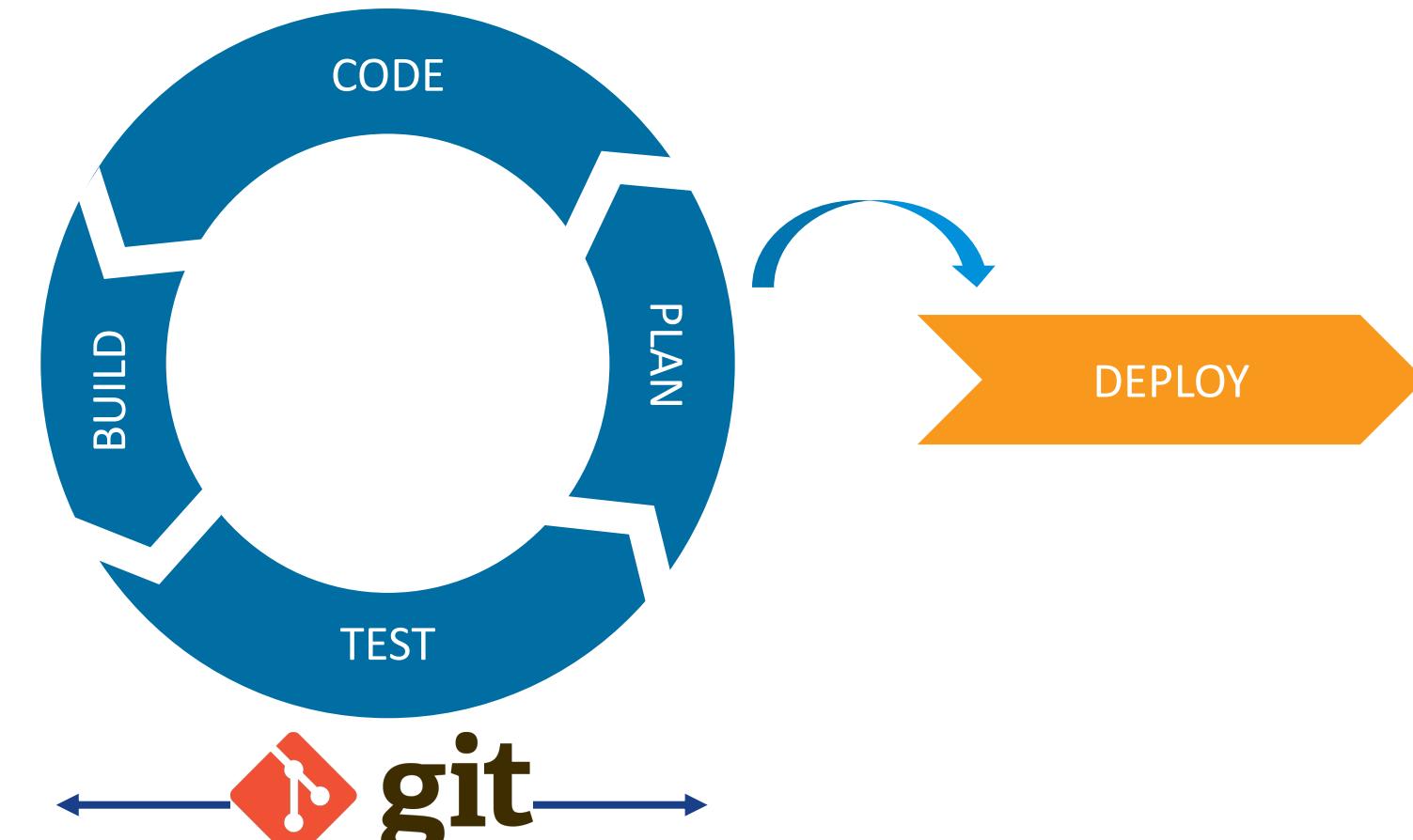
ACCOUNTABILITY



GitOps – Git as the single source of truth for desired state

Expanding use of Git beyond Continuous Integration

FROM...

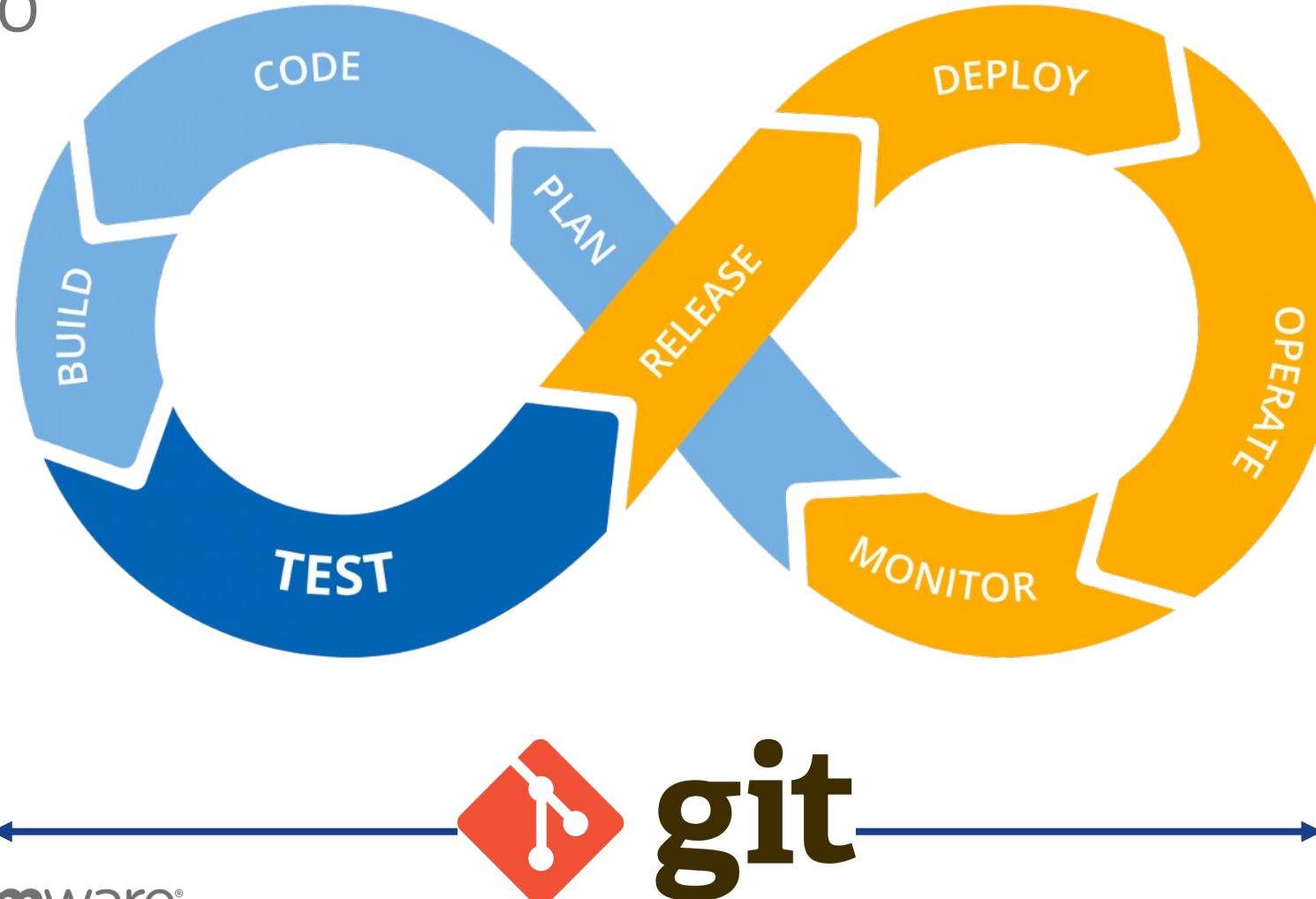


- X Dev process is based on Git. Deployment and operations are managed separately.
- X Changes can get hard to track with multiple systems of record.
- X Configuration diffs become a headache. What's the latest desired state? Where can it be found?

GitOps – Git as the single source of truth for desired state

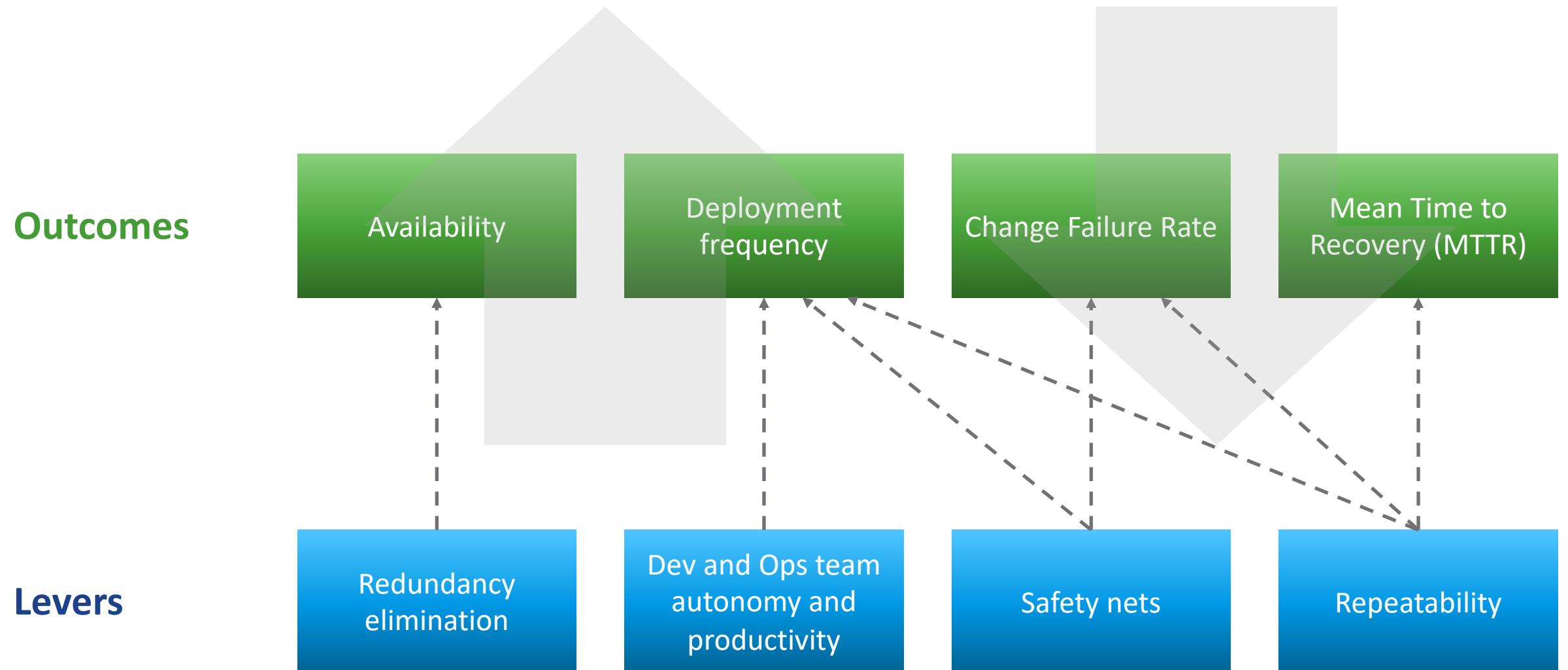
Expanding use of Git beyond Continuous Integration

...TO



- ✓ All operations are committed by pull requests
- ✓ All configuration diffs between desired state and reality are resolved automatically
- ✓ All changes are observable, verifiable and auditable

Operational Outcomes with GitOps



Why Iterative Development with GitOps

Continuous optimization and clean collaboration at scale



VELOCITY



EFFICIENCY



AT SCALE



RELIABILITY



ACCOUNTABILITY

Availability

Deployment frequency

Change Failure Rate

Mean Time to Recovery (MTTR)

Code Stream Focuses on Challenges That Hinder CICD Adoption



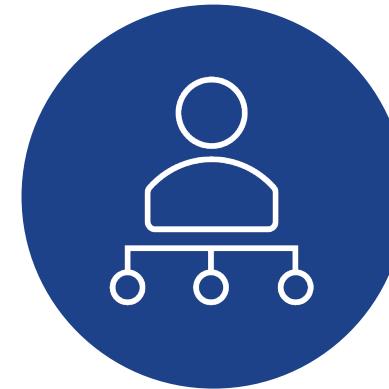
Time to value

Pipeline modeling, plugin maintenance, vast ecosystem integrations, Real CD - not scripts



Analyze KPIs

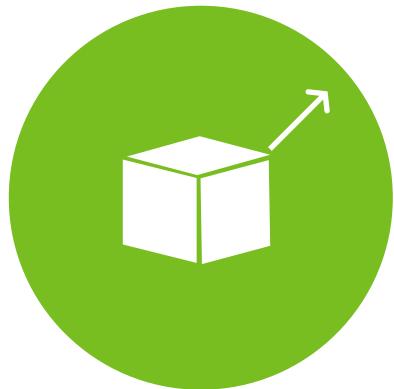
OOTB dashboards, alerts and troubleshooting



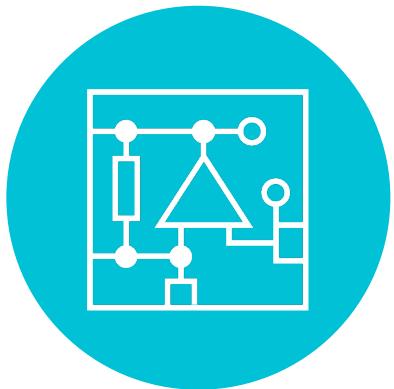
Governance

Security, role-based access, Audit, nested pipelines

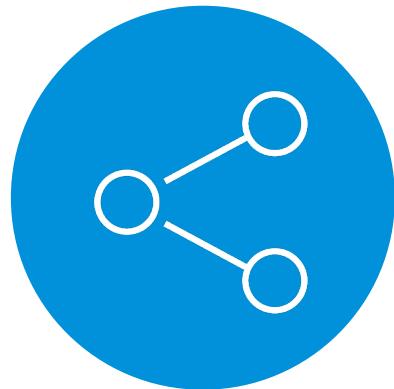
Common Infrastructure Pipelines Use Cases



**Create and
Update Images**
Create Images,
Subscribe to
Marketplace content



Update Catalog
Automate test & release
of blueprints, workflows

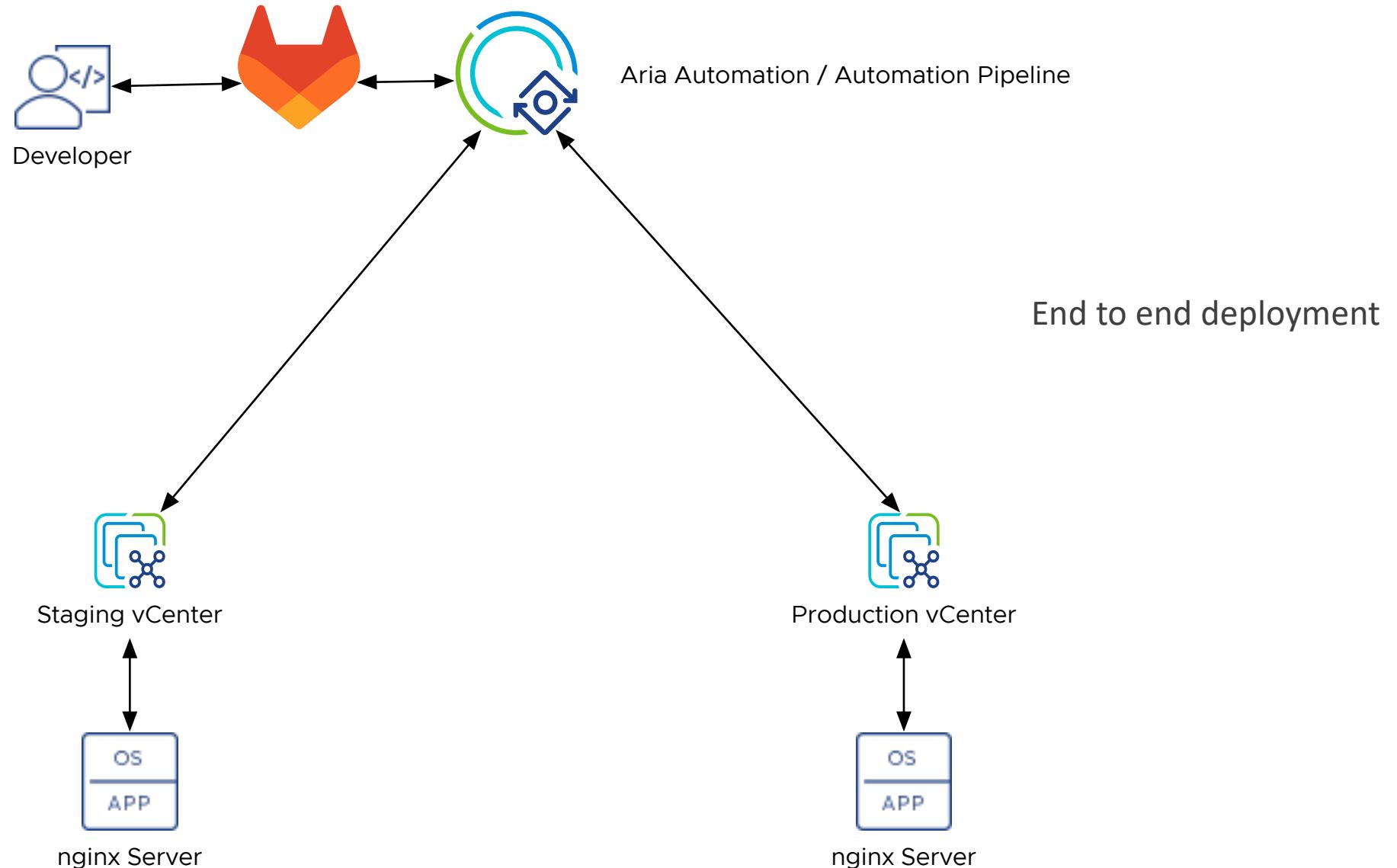


Content Release
Automate content test
and release to multiple
vRA instances

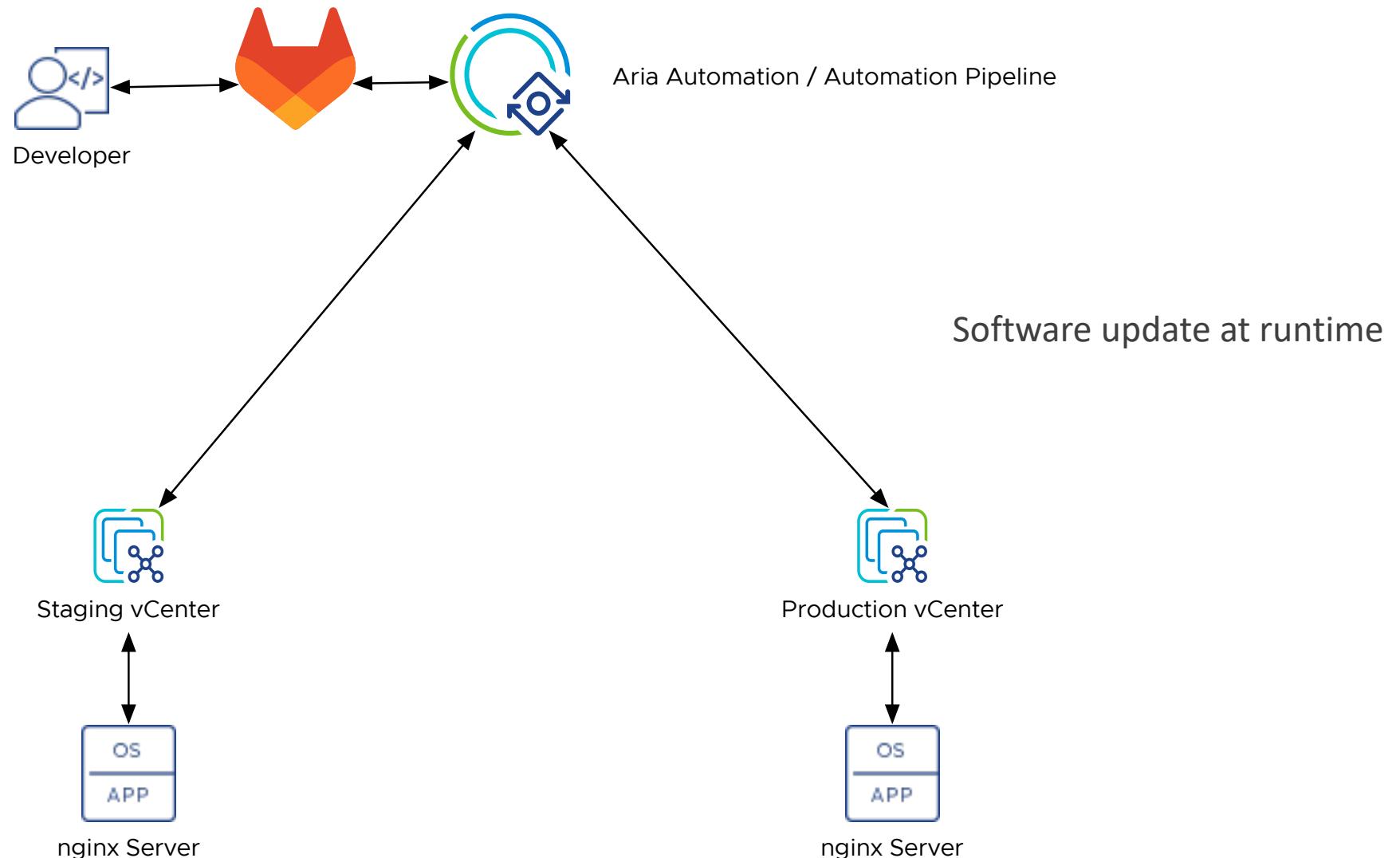


**Update
Deployments**
Automate deployment
updates with new
Blueprints and images

Demo 1: Deployment and Software Installation Pipelines



Demo 1: Deployment and Software Installation Pipelines



Simplifying Development

Tanzu Application Platform (TAP)

Upcoming 3rd Session

Confronting the challenges developers and operators face



DEV



OPS



My developers spend too much time focused on YAML and plumbing

I have too many bespoke supply chains to manage

I need to integrate with existing DevSecOps & Security Practices

Our apps are running across multiple cloud environments

Tanzu Application Platform Customer Outcomes

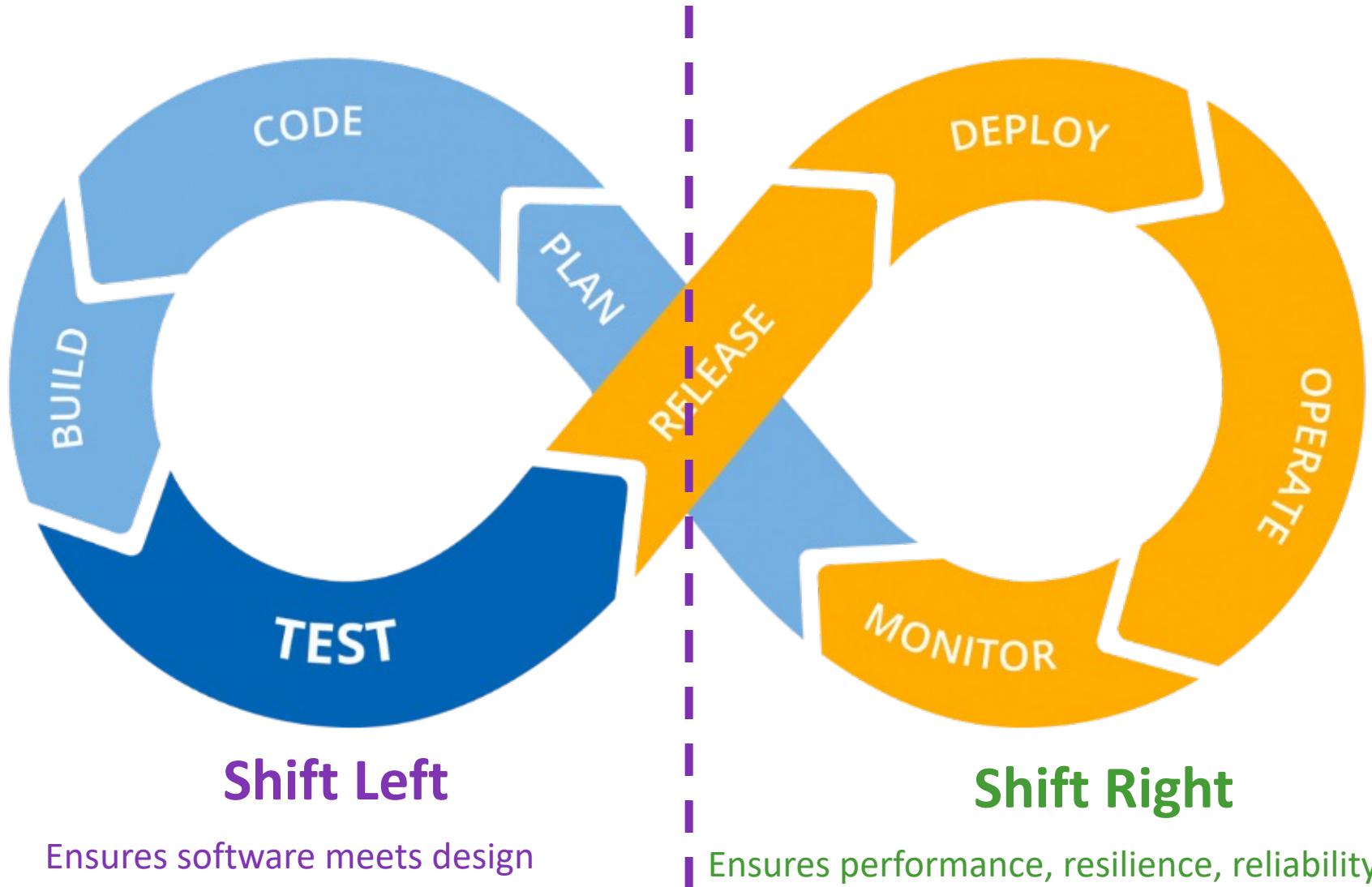
Enable Line of Business App Teams



Shift Left and Shift Right

Upcoming 4th Session

Shift Left and Shift Right



Thank You

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