Cloud Native DevOps at the Scale of Salesforce

K8s(EKS), CloudBees CI, JCasC

Aaron Nassiry
Venkat Kothapalli

DEVOPS
WORLD
by CloudBees
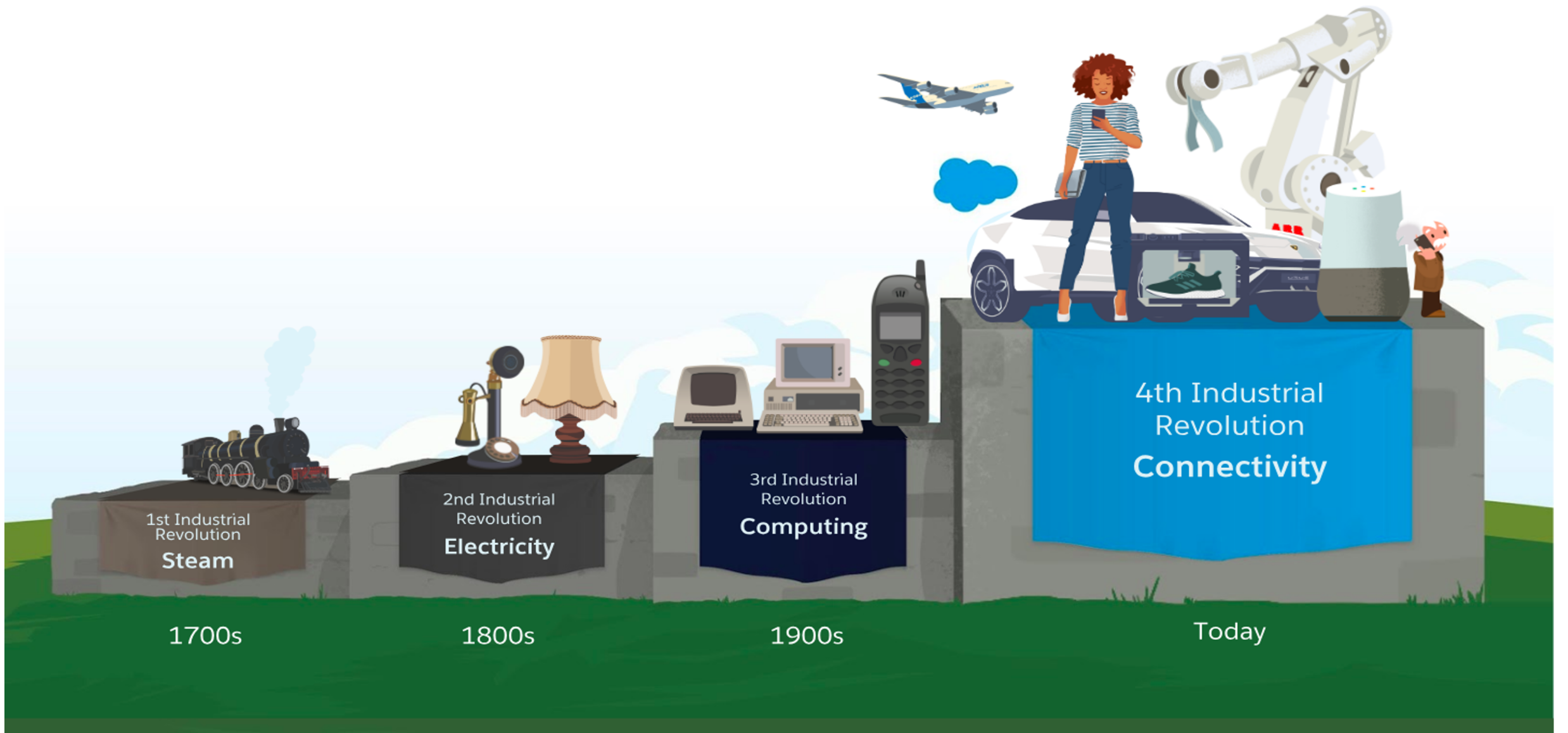
K8s, CloudBees CI, JCasC

Automation of CI/CD on the Cloud

DEVOPS
WORLD
by CloudBees

1st Industrial Revolution
Steam

2nd Industrial Revolution
Electricity

3rd Industrial Revolution
Computing

4th Industrial Revolution
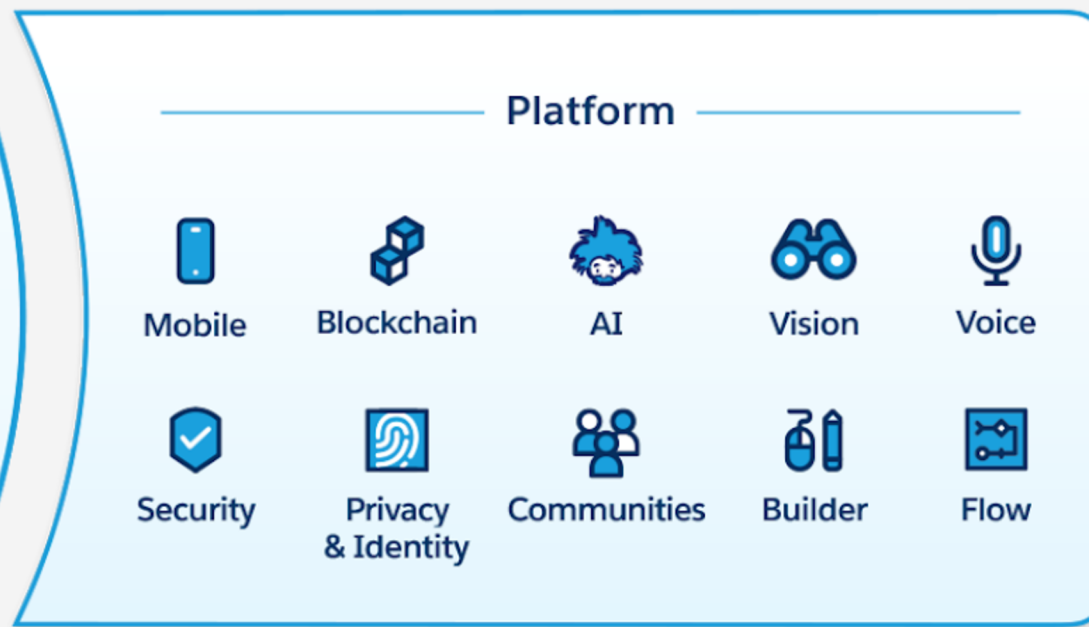**Connectivity**
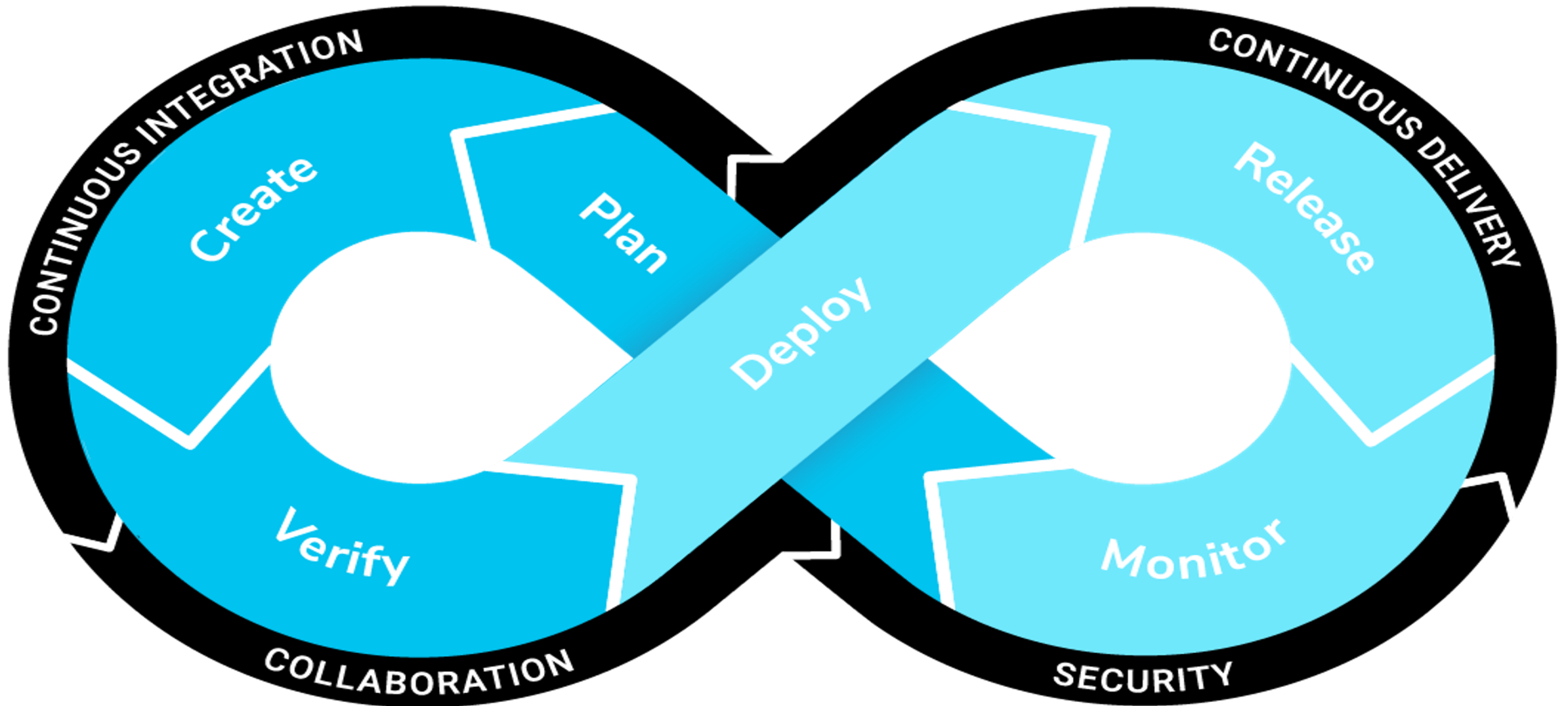
1700s

1800s

1900s

Today

DEVOPSWORLD
by CloudBees

3

Salesforce Customer 360

Fast Time to Value | #1 CRM | Trusted Platform

How do we do it?

What we lacked with our Legacy CI/CD Environment

DEVOPSWORLD
by CloudBees

What we lacked with our Legacy CI/CD Environment

Cloud Native Technologies

Amazon Elastic File System (Amazon EFS)

Amazon EKS

Auto Scaling event

- Scalability
  - Pay as you go
  - Scale up or down elastically
  - Ephemeral
  - Environmentally Friendly

- Disaster Recovery

- Automatic software updates

CloudBees CI (Core) Environment

CloudBees CI Environment

- **Cluster Auto Scalar and Auto Scaling Groups**
  - Ephemeral (On Demand) EKS Worker Nodes
  - Reduced operational cost of not running agents 24 x 7

- **Immutable, Customized, Ephemeral Build Agents**
  - Consistent, predictable runtime env for Jenkins jobs
  - no remnants of stale builds or stale workspaces
  - write once run anywhere

- **Customized Docker Images**
  - Customized Operations Center Docker image
  - Customized Managed Master Docker image

CloudBees CI Environment

- Elastic File System (EFS)
  - Scale on demand to petabytes without disruption to Jenkins

- Several Masters
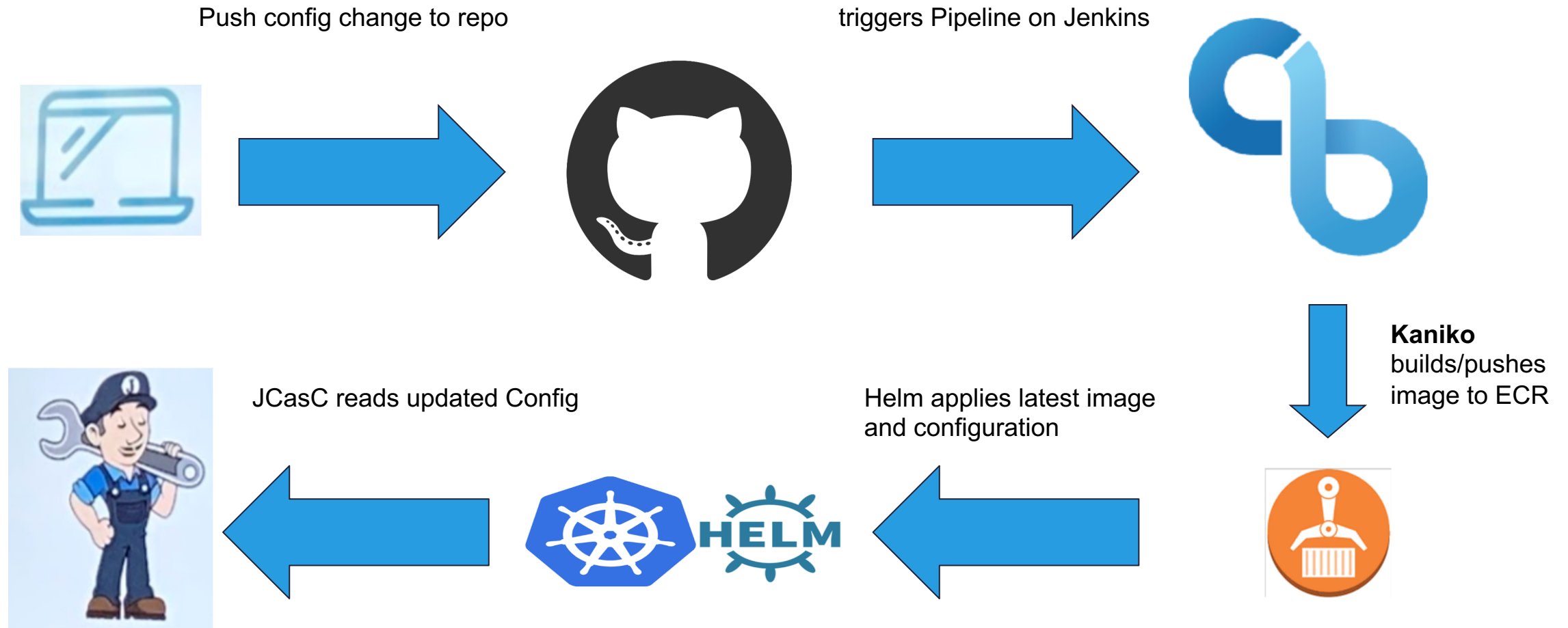 - Masters Divided based on Organizational Domains and Technologies

CloudBees CI as Code (JCasC)

- What is configured with Code

  - Global Tools
  - K8s pod templates
  - Static Agents
  - All plugins specified in a plugins.txt file
  - Maven settings.xml
  - Optimized JVM settings for Masters
  - Default Timezone for Master
  - Default Timezone for Agents
  - Single Sign On
  - Identity Roles roles
  - Connectivity to other CI tools

Deploying CloudBees CI

Push config change to repo

triggers Pipeline on Jenkins

Kaniko
builds/pushes
image to ECR

JCasC reads updated Config

Helm applies latest image
and configuration

DEVOPSWORLD
by CloudBees

Metrics

- Better Audit trail as everything is managed through git

- Replaced all static CloudBees CI agents down to 0

- Hundred$ of thousand$ of in yearly savings for not having static agents

- Extra sanity from not having any more disk space capacity alerts

- Engineering excitement for using K8s and deploying everything with Code

- CloudBees CI upgrades from once a year to once a quarter

- CloudBees CI upgrades from 3 person 3 weeks to 1 person 1 day

Questions

@realnassiry

DEVOPS WORLD
by CloudBees