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CICD Pipelines in IoT

CICD Pipelines for Cisco's IoT Edge comput e platforms

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DEVNET - 1559

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Barcelona | January 27-31, 2020

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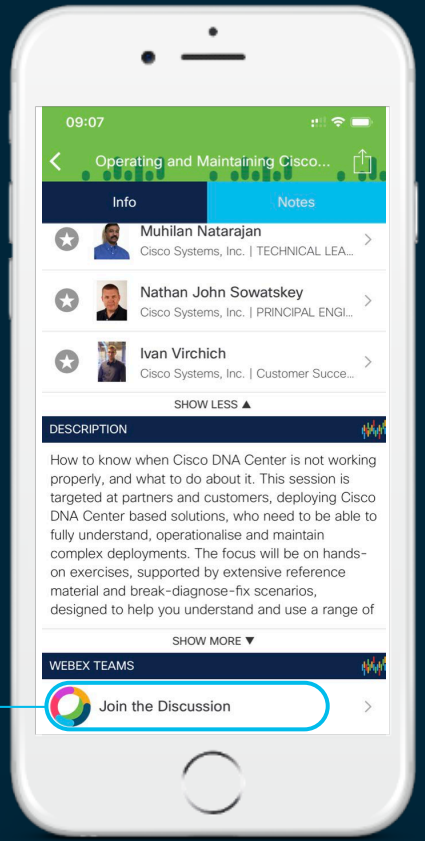


Agenda

- Brief Intro or Re-intro to Cisco IoT/Edge platforms
- Brief Intro to Containers and Docker
- CICD
- Cisco IoT APIs for CICD Integration
- Auto and Manual Deployment
- DevNet and Additional Resources

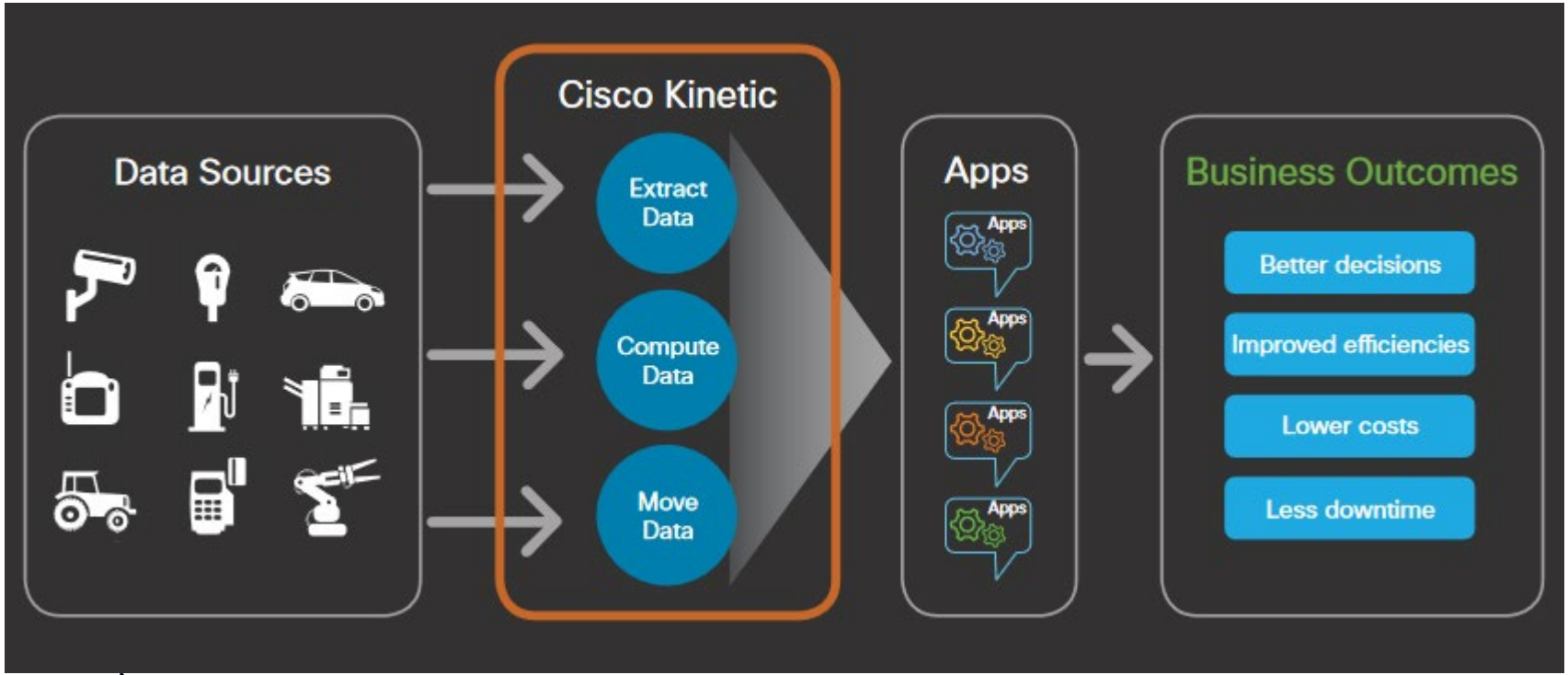
Brief Intro to Cisco IoT/Edge platforms

Brief Intro to Cisco IoT/Edge platforms

- Cisco IOx
  - "Docker-ized" / "containerized app at the edge
  - Application management
  - Open Compute Platforms

- IOx / Device Management
  - Cisco Kinetic
    - Cloud managed
    - GUI / APIs
  - Field Network Director (FND)
    - Fog Director APIs

Brief Intro to Cisco IoT/Edge platforms

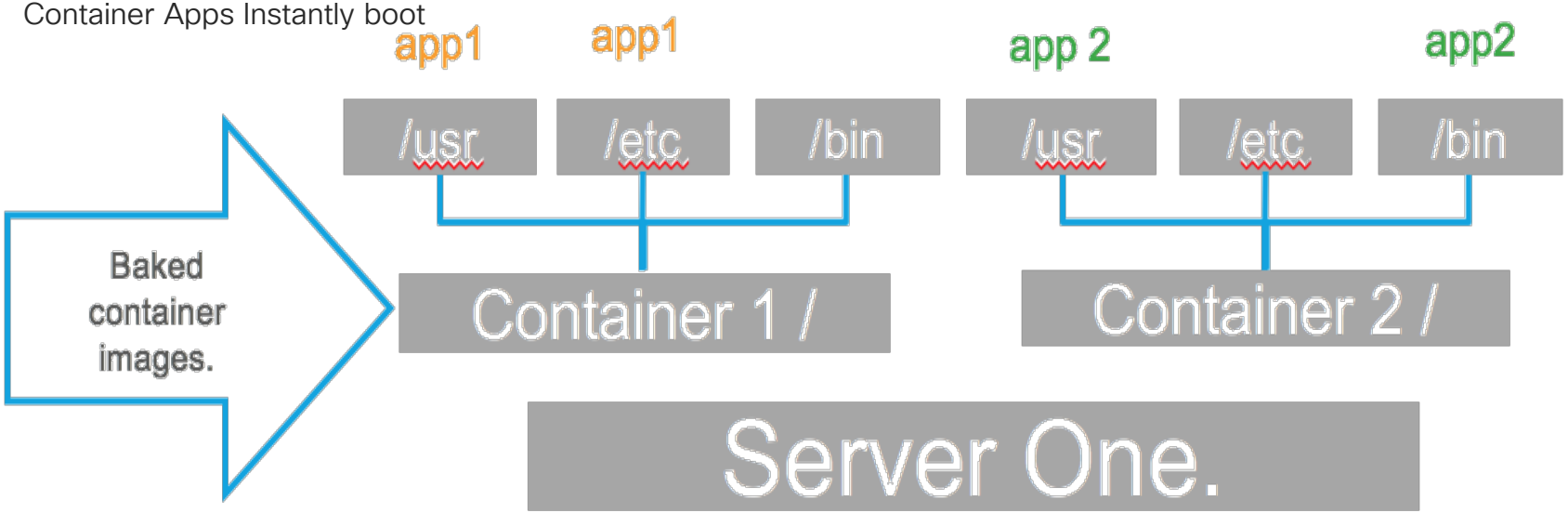


The Cisco IoT Platforms

Brief Intro to Containers and Docker

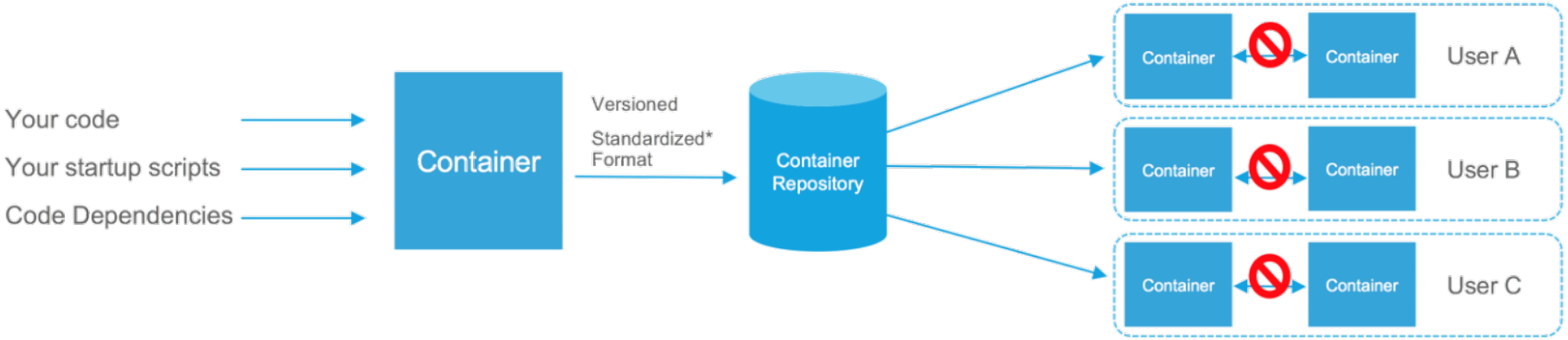
Brief Intro to Containers and Docker

- Containers are…
  - Separation of code and processes
  - Can pre-bake container images w/ code and dependancies
  - Container Apps Instantly boot



“Container”

Business: Doing things faster, realizing value using new tools



Tools for **building** your application into a container.

Often automated.

BUILD TOOLING

Build output: A container image.

STANDARD FORMAT

Versioned container image given a name, uploaded to a repository. Allows other systems to consume the container, run it immediately on their systems.

Systems could be same company (Private repo) or anyone online (Public repo)

DISTRIBUTION & VERSIONING

Container image is pulled from repository and ’run’.

The container system on the destination OS will automate the necessary kernel features to set up the isolated contents of the container image and run the binaries / code inside.

APP ISOLATION

A manifest (embedded with the built container image) tells the system what to run and what ports (if any) are needed to access the application. **Experience is consistent**.

CONSISTENT EXPERIENCE

SPEED

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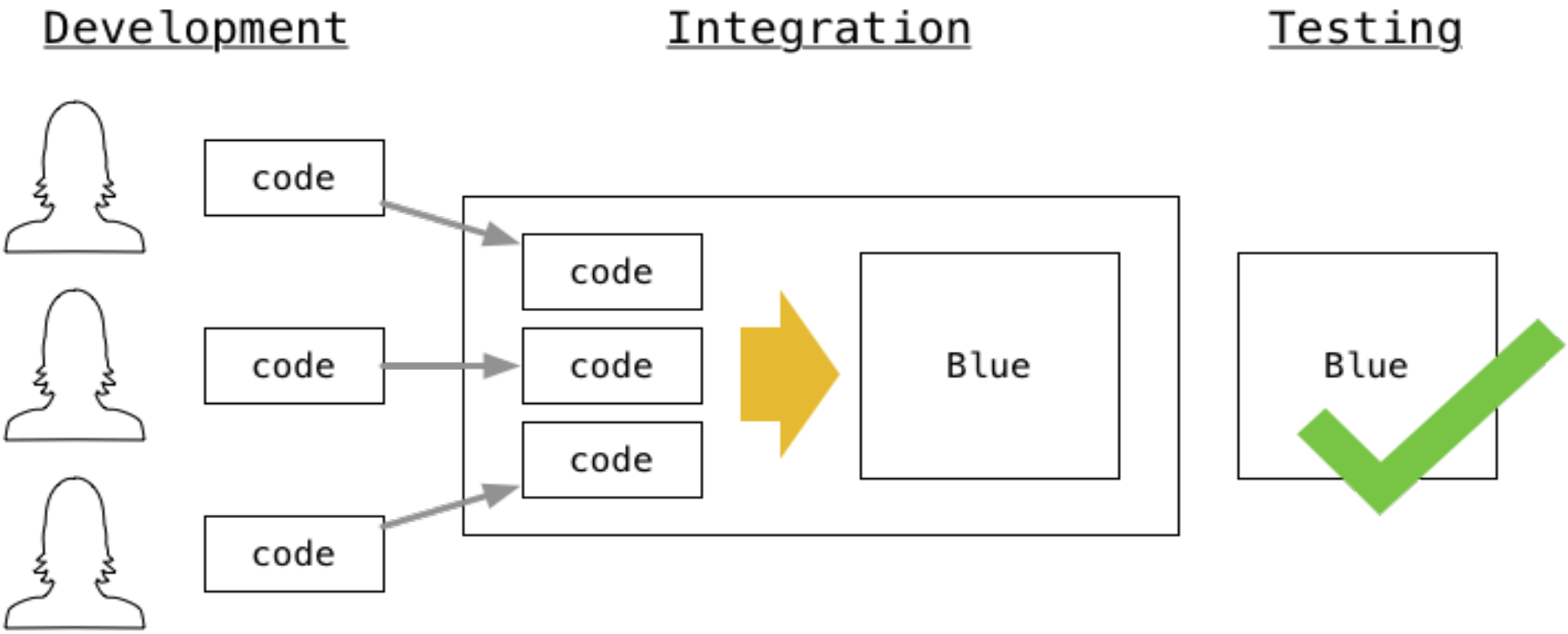
Brief Intro to Containers and Docker

- Docker…
  - Automates the process of running containers
  - Provides a set of tool chains that make building and running applications easier

CICD

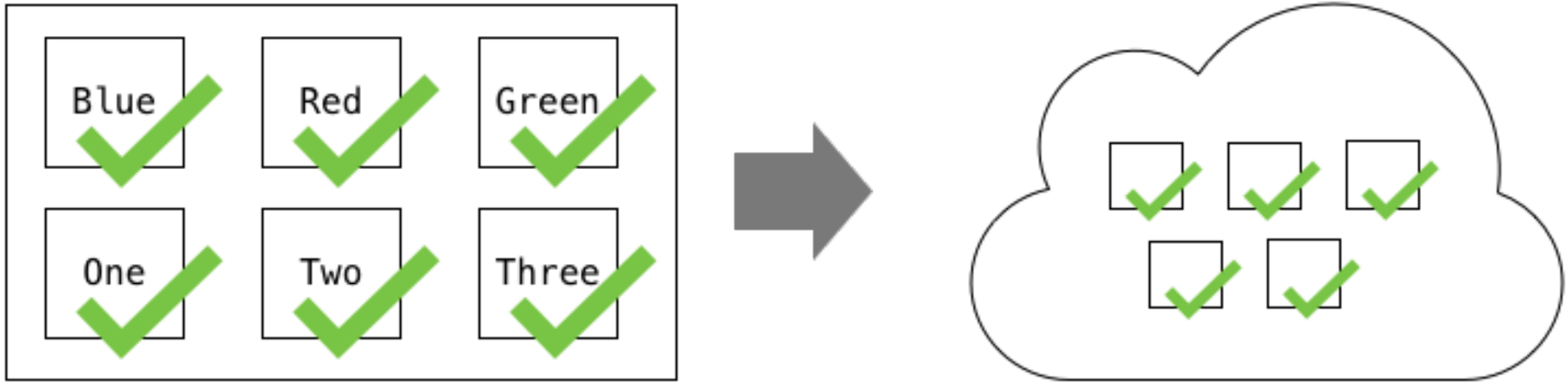
CICD Principles – Continuous Integration (CI)



CICD Principles – Continuous Delivery and Continuous Deployment (CD)

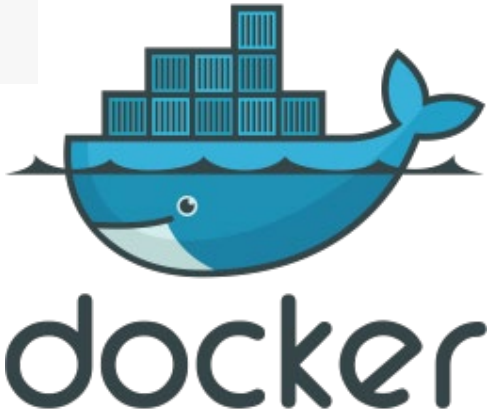
Delivered Code

Deployed Applications



CICD - Tools

- Git / Code Repo
- CI/CD Server
- Container Repository
- Deployment Destination



CICD Demo to Fog Director

Cisco IoT APIs for CICD Integration

Cisco IoT APIs for CICD Integration

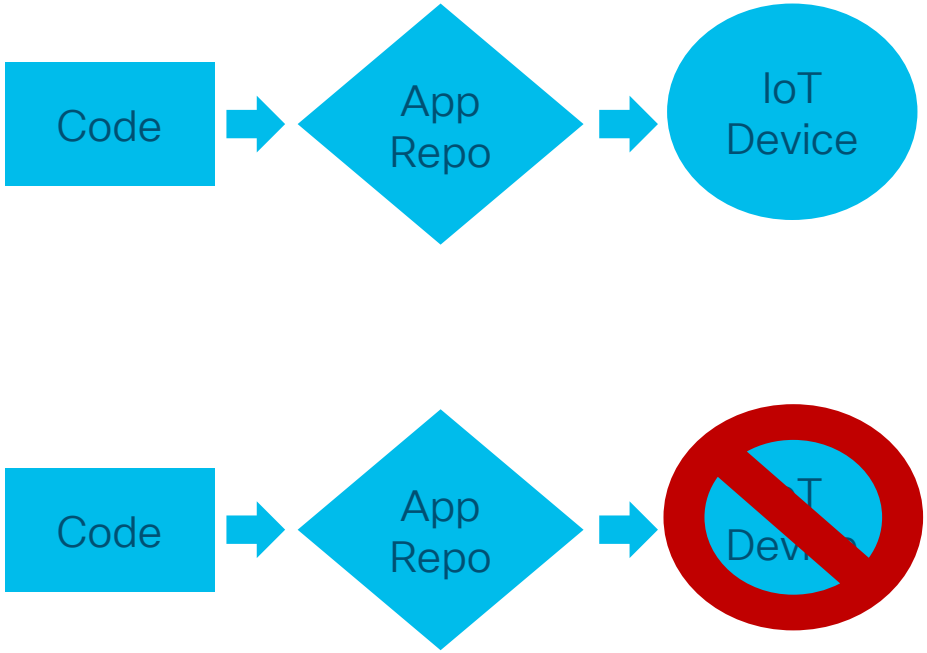
- FND w/ Fog Director APIs
  - pull directly from a Docker repository
  - Auto repackage our application for deployment on IOx
- Cisco Kinetic
  - Cloud based
  - Use APIs to load the application

API Demo

Auto and Manual Deployment

Auto and Manual Deployment for Edge

- When to deploy?
  - Should CICD deploy your app to your IoT?
  - Manual Deployments
  - Auto Deployment – built into the CICD



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