DevOps in the Palm of Your Hand

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Agenda

- Introduction
  - Continuous Infra Environment Setup @ 11:00 to 11:25 in room D0206
- Evolution of the Platform landscape
- Evolution of the DevOps landscape
- DevOps Infrastructure components and tools
- Project integrations with DevOps Infrastructure
- DevOps pipeline and metrics demo
- Future of DevOps Infrastructure and CI/CD
- Q&A
Introduction
Evolution of the Platform Landscape

- Bare metal on Fedora/RHEL/CentOS, Ubuntu, Debian, SLES, etc.
- Virtualization
  - RHEV, OpenStack, VMware, etc.
- Clouds
  - AWS, GCE, Azure, Digital Ocean, Rackspace, etc.
- Kubernetes/OpenShift
  - 1st Dockercon in 2014
  - 1st KubeCon in 2016 - 1000 people
    - Kubernetes, prometheus, and fluentd
  - 3rd kubecon in 2018 - 8000 people
    - Almost 30 projects - Sandbox, Incubating, Graduated
Evolution of the DevOps Landscape

- **Configuration Management**
  - Current: Ansible, CFengine, Chef, Puppet, Saltstack, etc.
  - New: APBs

- **Monitoring**
  - Current: Nagios and Zabbix
  - New: Prometheus

- **CI/CD Tools and Services**
  - Bamboo, CircleCI, Jenkins, Team City, Travis CI, Zuul, etc.
DevOps Infrastructure Components and Tools

● Current project components
  ○ s2i templates
  ○ Dockerfiles
  ○ Jenkins shared libraries and pipelines (optional)
  ○ Hooks

● Contra H-DSL
  ○ Simple YAML DSL that defines primitives
    ■ Helper containers
    ■ Provision/Configure infrastructure
    ■ Execute tests
    ■ Collect artifacts/logs
Project Integration with DevOps Infrastructure

- Contra-env-setup project config file
  - contra-env-setup.yml
- S2i templates
- Dockerfiles
- Jenkins libraries and pipelines
Project Integration with DevOps Infrastructure

# Initial setup variables for contra-env-setup
run_cleanup: true
run_prereqs: false
setup_containers: true
setup_pipelines: true
setup_sample_project: false
force_repo_clone: true
modify_scc: false

## Minishift specific variables
# Set to false if deploying to an Enterprise Cluster
setup_minishift: true
profile: minishift
# default minishift version to install
minishift_version: "v1.26.0"

# default openshift version to install
oc_version: "v3.11.0"

# OpenShift user. update if deploying to an Enterprise Cluster
username: "developer"
# OpenShift password. update if deploying to an Enterprise Cluster
password: "developer"
Demo

ansible-playbook -vv -i "localhost," contra-env-setup/playbooks/setup.yml \
-e user=$USER \ 
-e @devconfcz-demo/config/contra-env-setup.yml -K -k
Future of DevOps Infrastructure and CI/CD

- The future is cloud native
  - APBs
  - Helm Charts
  - Operators
  - Knative
    - Serving
    - Eventing
    - Build ➔ build-pipeline
Knative

- Extends Kubernetes
  - Source-centric
  - Container-based applications
- Run anywhere
  - On-premise
  - Cloud
  - Third-party data centers
- Identify common patterns
- Codify best practices
Future of DevOps Infrastructure Components & Tools

- **Current project components**
  - s2i templates
  - Dockerfiles
  - Jenkins shared libraries and pipelines (optional)

- **Future project components**
  - APBs
  - Helm charts
  - Knative templates
  - Operators
Important Links

- **contra-env-setup**
  - contra-env-infra
  - contra-env-sample-project
  - contra-hdsl
- **Devconfcz-demo_project**
- **Knative**
  - Knative community