Continuous Infra Environment Setup

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What is contra-env-setup?

- A generic way to automate the setup of an CI/CD environment
- Can be deployed on:
  - OpenShift instance
  - Locally or externally with Minishift
What is it used for?

- Setting up CI/CD environments
- Deployment of infrastructure-as-code environment in OpenShift/Minishift
- Deployment of Jenkins CI pipelines from pipeline-as-code
Who is it for?

People just starting with CI/CD pipelines

Developers who want to setup the local development environment

Teams that want a way to automate the setup of testing or production environments
How does it work?

- Based on Ansible
- Utilizes different playbook roles to accomplish the required tasks
- Can be customized to include different roles
- Can be extended with custom playbook hooks
How does it work?

- Uses Minishift to create a local OpenShift instance
- Connects to an existing OpenShift cluster otherwise
- Utilizes OpenShift s2i templates to create resources
- The s2i templates can be modified with custom Ansible variables via jinja2 templating
How does it work?

- Creates Jenkins instances from s2i templates
- Deploys Jenkins 2.0 pipelines
- Has built-in support for Contra High level DSL (H-DSL) and its helper containers
What does it do?

Local
- Install prerequisites
- Create the Minishift VM
- Deploy OpenShift Templates
- Setup Pipelines

Existing VM
- Prepare the Existing VM
- Deploy OpenShift Templates
- Setup Pipelines

OpenShift Cluster
- Deploy OpenShift Templates
- Setup Pipelines
What does it do?

In case of deployment to a local machine:

1. Sets up prerequisites and prepares the machine for nested virtualization
2. Creates a Minishift VM with a specified profile
3. Deploys up the desired OpenShift s2i templates on the created Minishift VM
4. Sets up the Jenkins CI pipelines (H-DSL or regular pipelines)

When deploying to an existing OpenShift instance, the steps 1 and 2 are skipped
Contra environment overview
Contra environment infrastructure

The contra-env-infra repository at https://github.com/CentOS-PaaS-SIG/contra-env-infra holds infrastructure-as-code:

- CI/CD Infrastructure:
  - Jenkins master and slave
- Helper containers:
  - H-DSL Ansible and Linchpin executor containers
  - Metrics and reporting – InfluxDB and Grafana
  - Container tools which help build containers
Contra environment sample project

Satellite sample project repository at https://github.com/CentOS-PaaS-SIG/contra-env-sample-project

with examples of pipeline-as-code containing:

- Use of existing and sample shared libraries
  - https://github.com/openshift/contra-lib

- H-DSL (High level DSL) and pipeline examples
  - https://github.com/openshift/contra-hdsl
CI-CD of the environment setup

- All repositories use contra-env-setup to test their basic components
- Contra-env-setup can be run from a specialized container with limited capacity
- An OpenStack VM can be used for testing
Future developments

- Following further developments of infrastructure-as-code
- More advanced examples for H-DSL and shared libraries
- Knative components support
- Operator support
Conclusion

- Contra-env-setup allows us to repeatedly set up our environment just the way we want it
- Emphasises good parts of working on Continuous Integration and Delivery
- Gives freedom to developers to use their skills where they can shine the best
Links and Contacts

Repositories:

https://github.com/CentOS-PaaS-SIG/contra-env-setup
https://github.com/CentOS-PaaS-SIG/contra-env-sample-project
https://github.com/CentOS-PaaS-SIG/contra-env-infra

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