

Testbed Automator Script Overview

Purpose: Automates the setup and configuration of a testbed environment.

Key Tasks

- Install necessary software packages
- Set up Kubernetes and networking tools
- Configure various networking plugins like Flannel, Multus, OpenVSwitch (OVS)
- Install storage management systems (OpenEBS)

Technologies and Tools

Kubernetes

- Kubeadm: Initializes the Kubernetes cluster.
- kubectl: CLI tool to interact with the Kubernetes cluster.
- Helm: Package manager for Kubernetes applications.

Networking

- Flannel: Container Network Interface (CNI) for Kubernetes.
- Multus: Meta-CNI for multi-network interfaces.
- OpenVSwitch (OVS): Used for advanced networking and bridge management.

Technologies and Tools (Cont.)

Containerization

- Containerd: CRI-compatible container runtime.

A container runtime builds on top of operating system kernel features and improves container management with an abstraction layer, which manages namespaces, cgroups, union file systems, networking capabilities, etc.

Storage

- OpenEBS: Manages the storage available on each of the Kubernetes nodes and uses that storage to provide Local or Replicated Persistent Volumes to Stateful workloads.

Deploying `testbed-automator`

You can use the `install.sh` script as follows:

```
git clone https://github.com/niloysh/testbed-automator
cd testbed-automator
./install.sh
```

Note: Do NOT run the `install.sh` script as `sudo` or `root`. Run it as a regular user and provide the password when prompted.

Verify Deployment

On completion, run `kubectl get pods -A` you should see:

```
n6saha@nuc2:~/testbed-automator$ kubectl get pods -A
```

NAMESPACE	NAME	READY	STATUS	RESTARTS	AGE
cluster-network-addons	cluster-network-addons-operator-5ddc679dbc-bwlxs	2/2	Running	0	8h
cluster-network-addons	ovs-cni-amd64-l849l	1/1	Running	0	8h
kube-flannel	kube-flannel-ds-hsm9v	1/1	Running	0	8h
kube-system	coredns-5dd5756b68-bw924	1/1	Running	0	8h
kube-system	coredns-5dd5756b68-wwnwk	1/1	Running	0	8h
kube-system	etcd-nuc2	1/1	Running	2 (8h ago)	8h
kube-system	kube-apiserver-nuc2	1/1	Running	8 (8h ago)	8h
kube-system	kube-controller-manager-nuc2	1/1	Running	2 (8h ago)	8h
kube-system	kube-multus-ds-cg6bq	1/1	Running	0	8h
kube-system	kube-proxy-z46tw	1/1	Running	0	8h
kube-system	kube-scheduler-nuc2	1/1	Running	2 (8h ago)	8h
openebs	openebs-localpv-provisioner-56d6489bbc-gnnjq	1/1	Running	0	8h
openebs	openebs-ndm-d7mgc	1/1	Running	0	8h
openebs	openebs-ndm-operator-5d7944c94d-4tdjz	1/1	Running	0	8h

After confirming deployment, proceed with [Lab 1](#) to deepen your understanding of the tools you've just deployed.