

CICD Hacks

Cloud Native - Ubuntu, Multipass, Microk8s

Agenda

1. Canonical Introduction
2. The Canonical Distribution of Kubernetes
3. CICD in Cloud Native
4. Questions and Answer

Introduction - Ubuntu

ubuntu[®]
is everywhere!

More people use Ubuntu than anyone knows!



People use Ubuntu directly and indirectly most of the time without even knowing!



Hundreds of millions of PCs, servers, devices, virtual machines, and containers have booted Ubuntu to date!

Ubuntu in the Cloud



Ubuntu images launched by Docker users



HashiCorp's Vagrants images of Ubuntu 14.04 LTS downloads



20 million

launches of Ubuntu instances in 2015 in:



public cloud

AWS, Microsoft Azure, Google Compute Engine, Rackspace, Oracle Cloud, VMware



private cloud

OpenStack - Including some of the world's largest private clouds, like Deutsche Telekom



bare metal

Ubuntu at scale on bare metal with MAAS

There's also plenty of Ubuntu in:



Kubernetes and Apache Mesos



Cloud Foundry and Heroku



Running within the International Space Station

In November 2015



2 million new Ubuntu Cloud instances launched

Ubuntu Cloud instances:

- 67,000 Ubuntu Cloud instances launched in 24 hours
- 2,800 Ubuntu Cloud instances launched in 1 hour
- 46 Ubuntu Cloud instances launched each minute
- Approx. 1 Ubuntu Cloud instances launched each second

IOT and Ubuntu

- drones: DJI MIT Sail project, UAVIA
- running on the world's most clever robot hubo
- network switches
- home and industrial gateways
- IOT dev boards
- digital signage



Ubuntu in your everyday life



Ubuntu phones from Meizu and BQ



Anyone can install Ubuntu on Google Nexus tablet or phone



Are all running on Ubuntu



Canonical is a company behind Ubuntu

Canonical introduction

2004

FOUNDED

600+

EMPLOYEES

34+

COUNTRIES





Canonical's distribution of
Kubernetes

Why Canonical Kubernetes?



Pure **upstream**, latest & greatest versions



Operates on AWS, Azure, GCE, OpenStack, VMWare, bare metal



Bare metal operations with MAAS



100% **compatible** with Google's Kubernetes



Secured. TLS, Kernel Live patching, confinement



Upgradable between each Kubernetes Release



Cost effective at scale

extensible by design



NFS



any CPU architecture



x86



s390x

enterprise traction



CICD in Cloud Native

What are the basics?

What are the problem areas?



CICD : A Basic Setup - Logical

1. Source Code (Repo)
2. Continuous Integration (CI)
3. Continuous Delivery (Cd)
4. Continuous Deployment (CD)
5. Runtime Environment



Developer



Laptop



Code Repo



Continuous
Integration



Continuous
Delivery



Continuous
Deployment



Runtime





CICD : A Basic Setup - Example Resources



UBUNTU



git



Jenkins

CircleCI



OCI registry

Harbor



DockerHub

GCR



Spinnaker

Argo



Juju

Snap



amazon
web services™



LXD

K8s



MAAS

Open
Stack



Developer



Laptop



Code Repo



Continuous
Integration



Continuous
Delivery



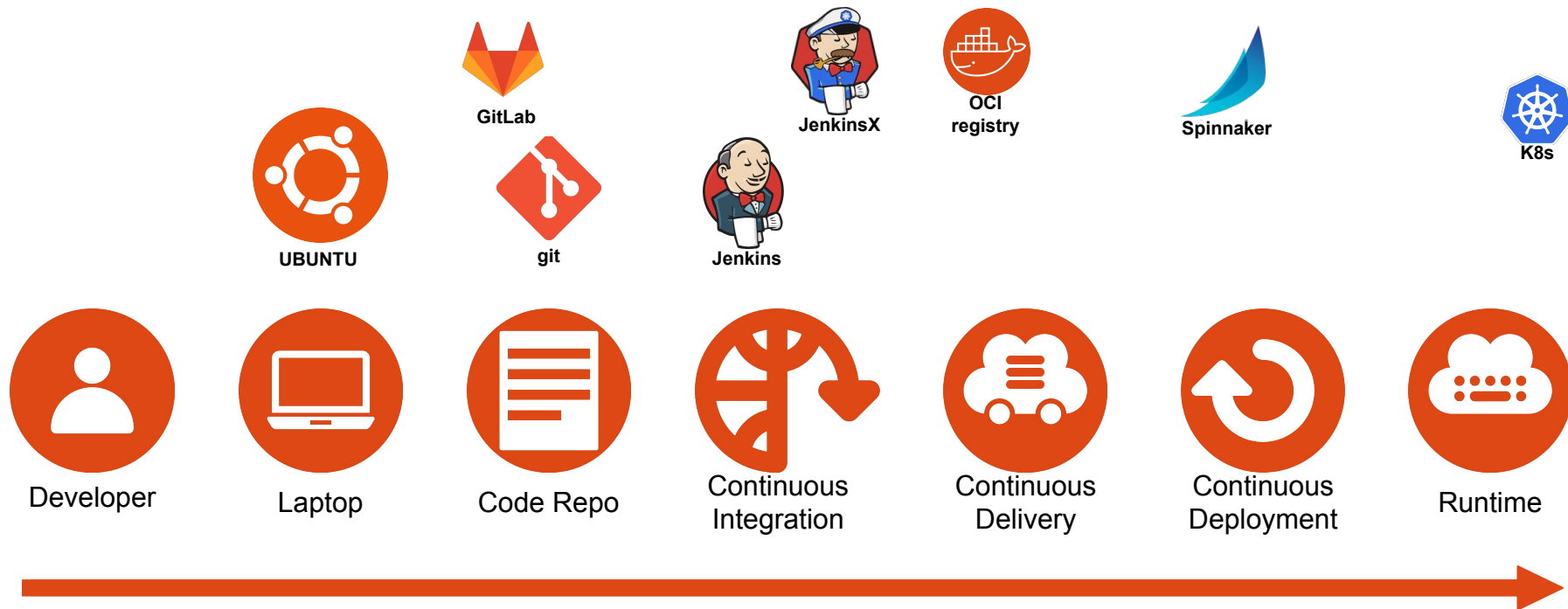
Continuous
Deployment



Runtime

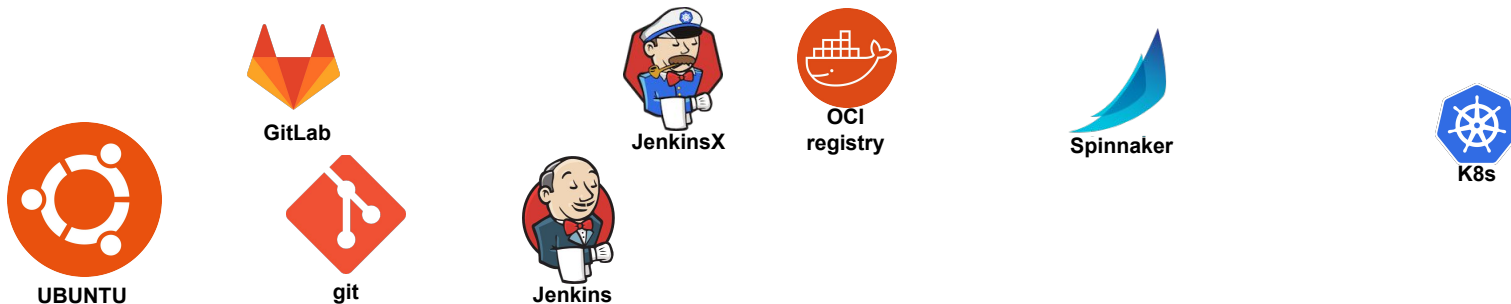


CICD : A Basic Setup - Specific Thread





CICD : A Basic Setup - Problem?



The Problem?

- Eliminate Internet Access
 - Large Images Slows build-deploy-test loop
- Empower “Airplane Mode”

The Benefit?

- Fast Builds
- Fast Deploys
- Fast build-deploy-test loop



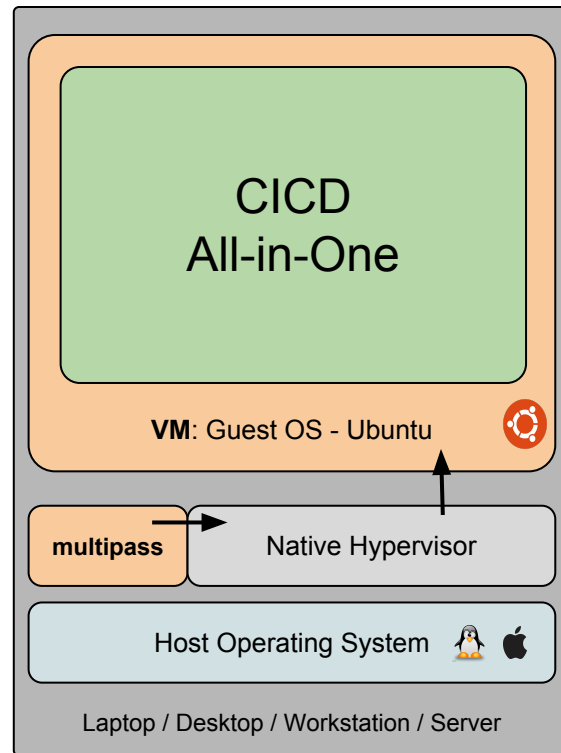
CICD : A Basic Setup - All-in-One

Goals:

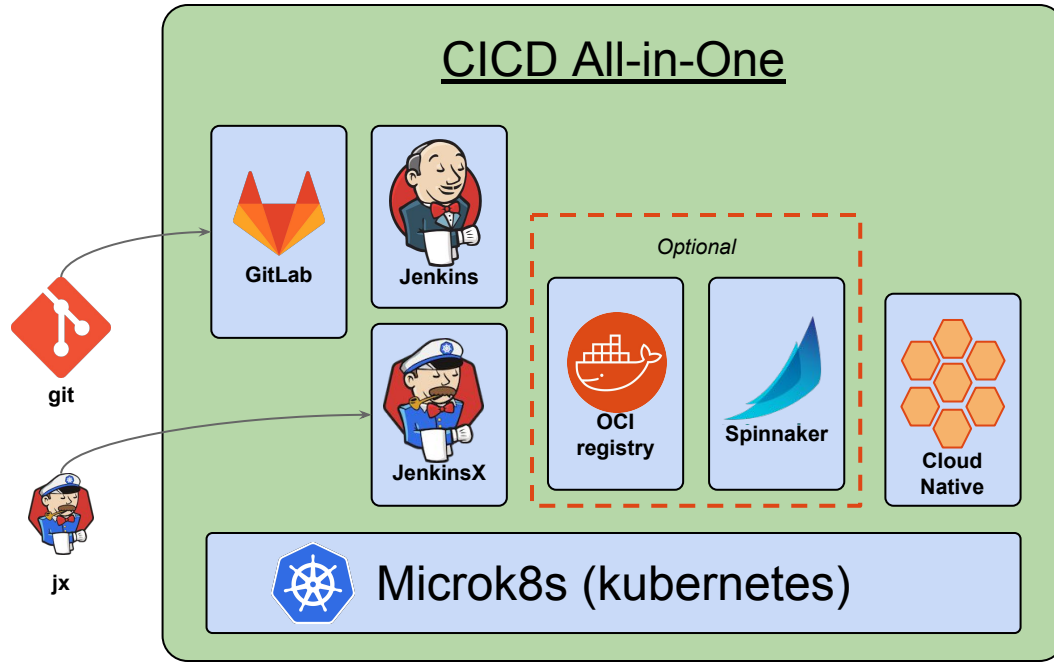
1. Build Self Sufficient VM
2. Allow VM to be Ephemeral
3. Restart VM and keep State

Key Tools:

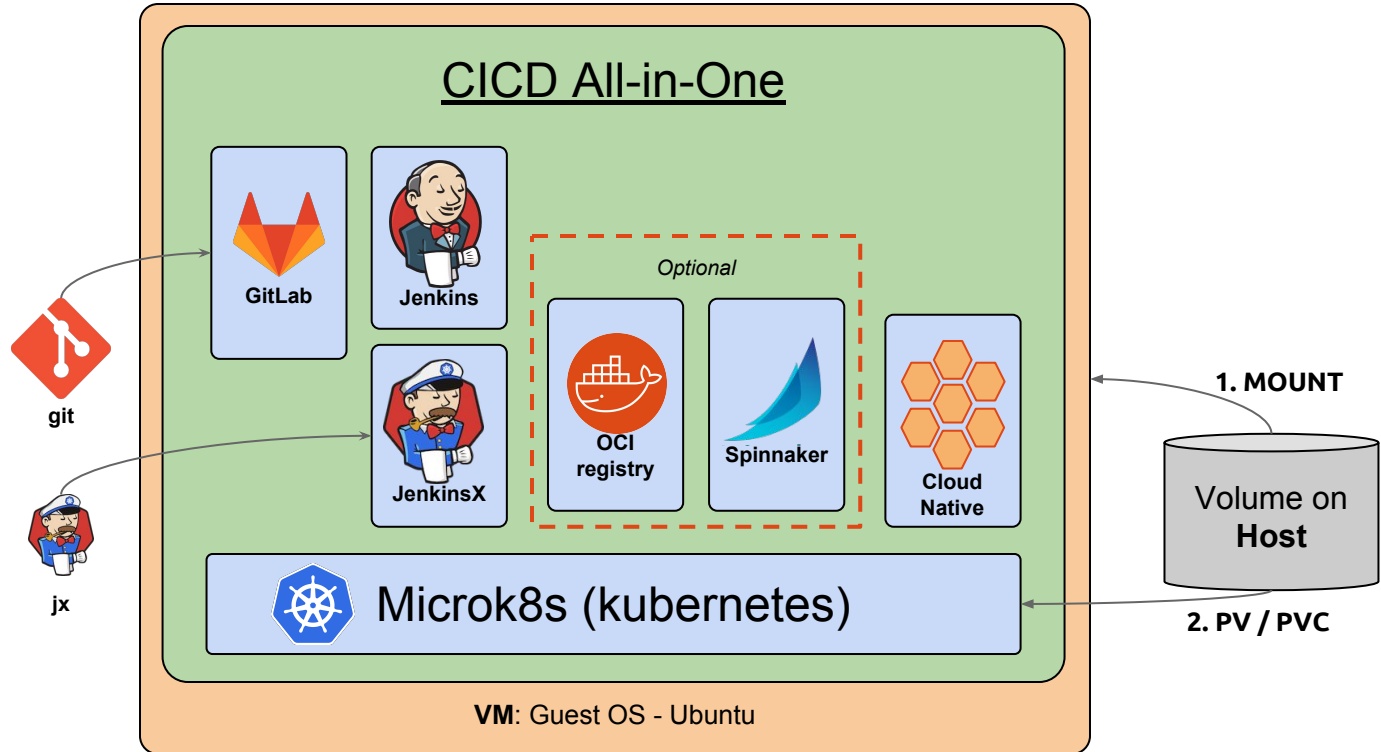
1. Multipass - launch vms
2. Microk8s - launch kubernetes



CICD : A Basic Setup - All-in-One



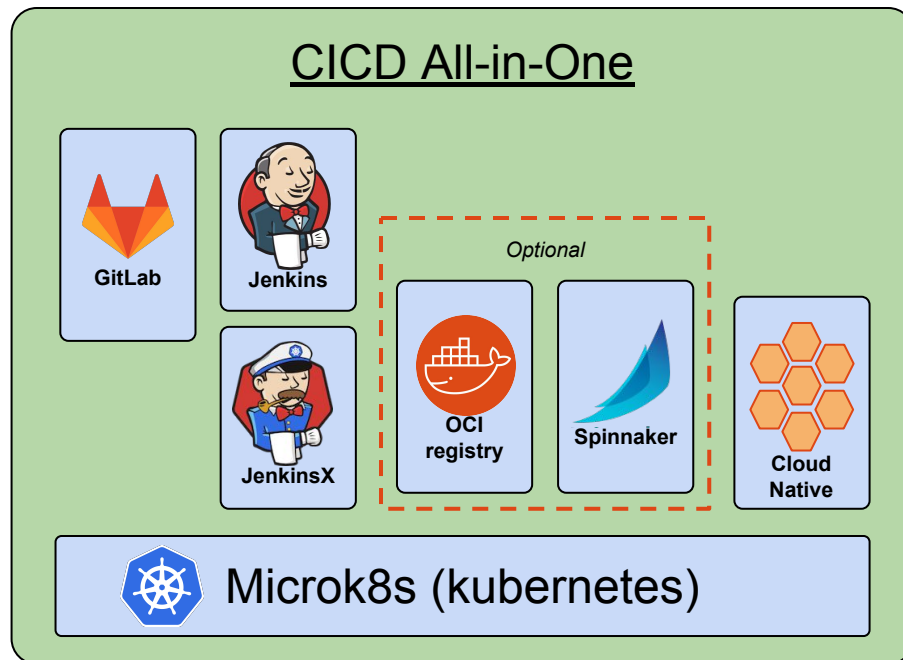
CICD : A Basic Setup - Storage ..



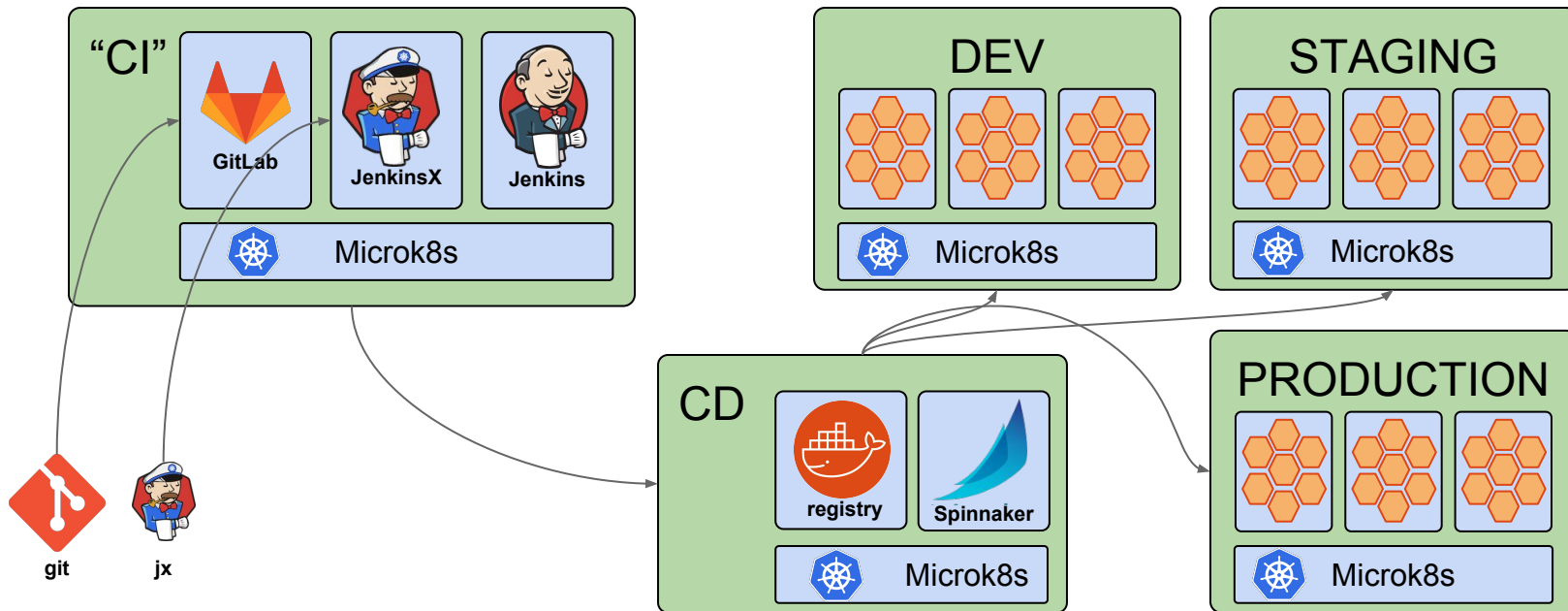


CICD : A Basic Setup - Demo

→ <https://github.com/canonical-labs/cicd-microk8s-basic>



CICD : A Basic Setup - Distributed



Thank you!

More info:

<https://microk8s.io>

<https://www.ubuntu.com/ai>

<https://discourse.ubuntu.com/c/multipass>

<https://www.ubuntu.com/kubernetes>

<https://github.com/canonical-labs/cicd-microk8s-basic>