



CORD

How to build a POD and automate deployments



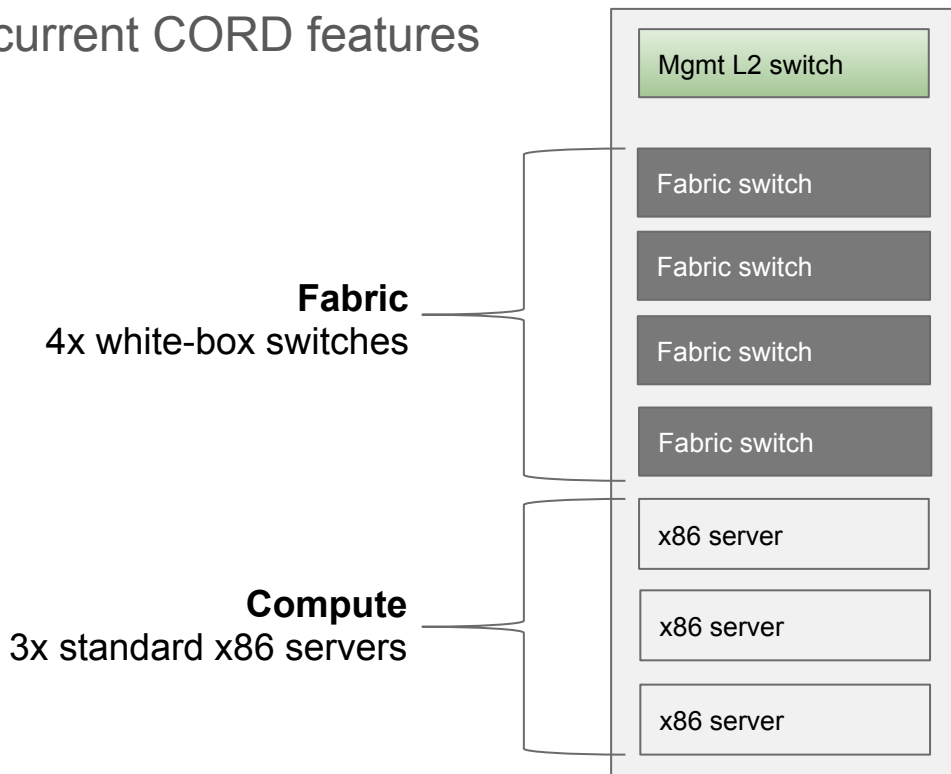
CORD
Central Office Re-architected as a Datacenter

#OpenCORD

Full POD: definition



The minimum amount of hardware that can be used to perform a full test of the current CORD features



Tricks

- Avoid company proxy servers
- Use suggested hardware

Suggested BOM includes:

- Server QuantaGrid D51B-1U (2x Intel E5-2630 v4 10C 2.2GHz 85W, 64GB of RAM 2133MHz DDR4, 2x hdd500GB)
- 40G NIC: Intel Ethernet Converged Network Adapters XL710 10/40 GbE PCIe 3.0, x8 Dual port
- Switches: Accton 6712 - 32x40GE

Software requirements



Dev node (operator laptops or 4th server)

- Ubuntu 16.04 (suggested) or Ubuntu 14.04
- Ansible, Libvirt, Vagrant, Vagrant plugins (versions matter!)

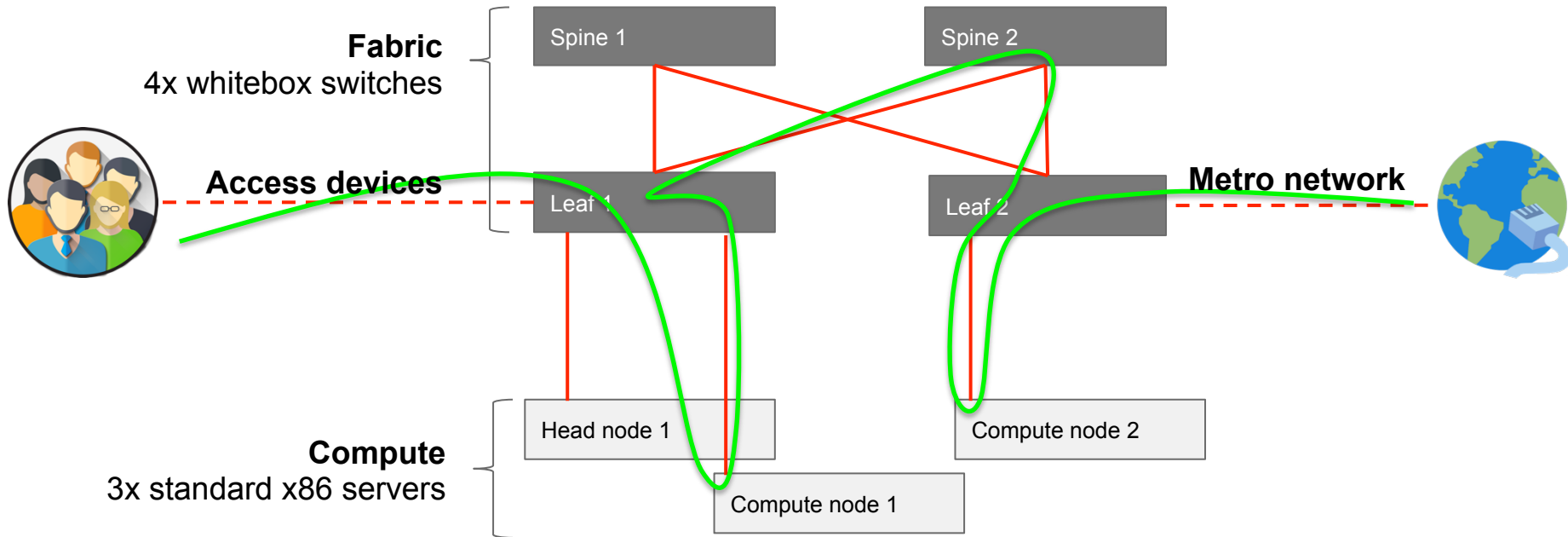
Head node

- Ubuntu 14.04
- Accessible from the dev node without password, sudoer - no password

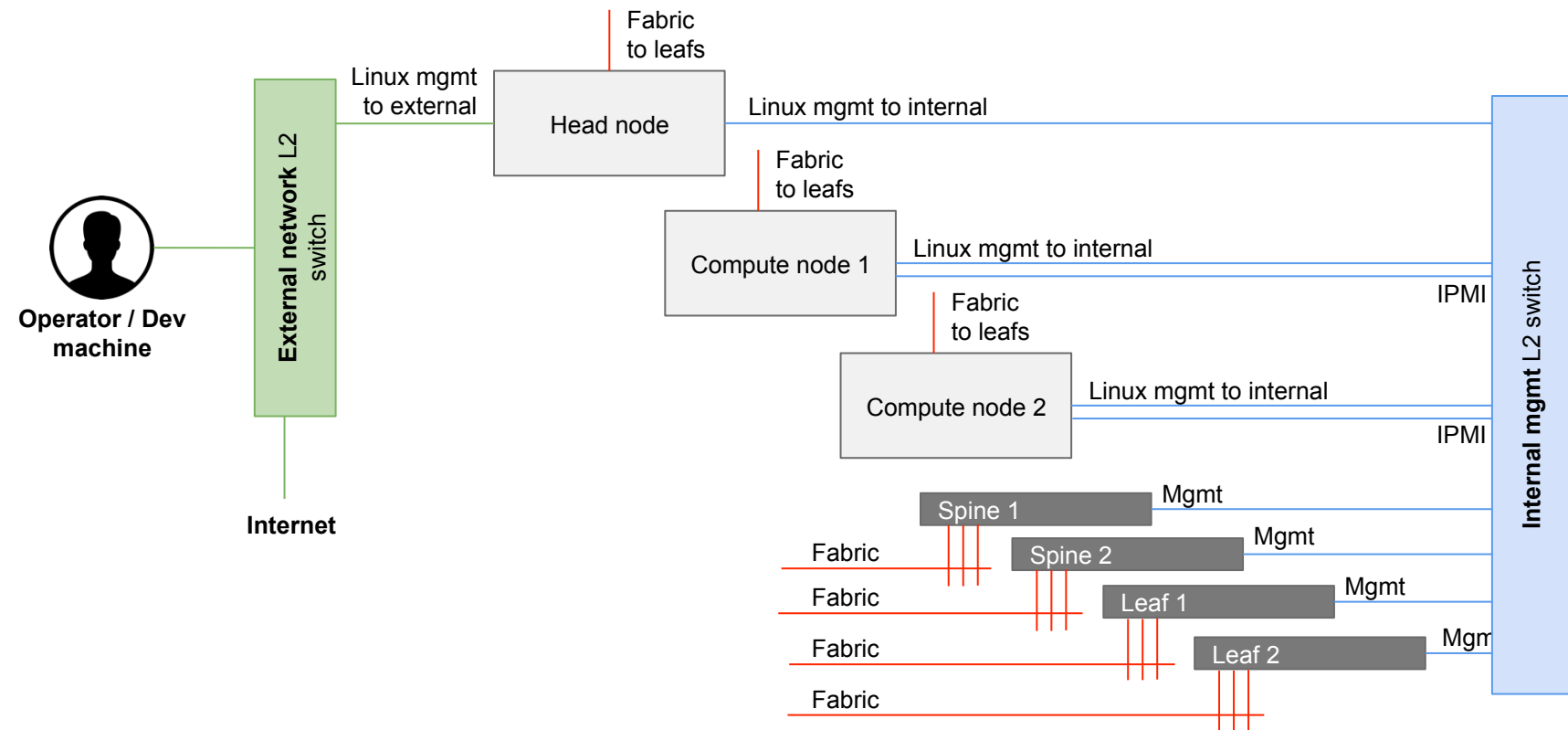
Compute nodes, switches

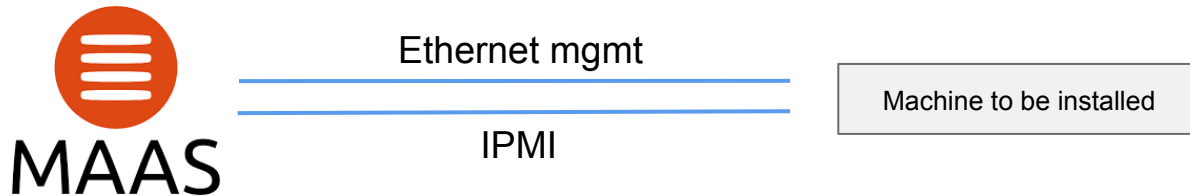
- We'll take care of them!

Network connectivity: user / data plane



Network connectivity: a complete view





An “evolution” of the old **PXE servers**
(Basically **DHCP** server + **TFTP**)

Used to install an OS on remote
machines and to customize it

The OS is installed using the
Ethernet mgmt interface, and it's
started/stopped using the IPMI interface

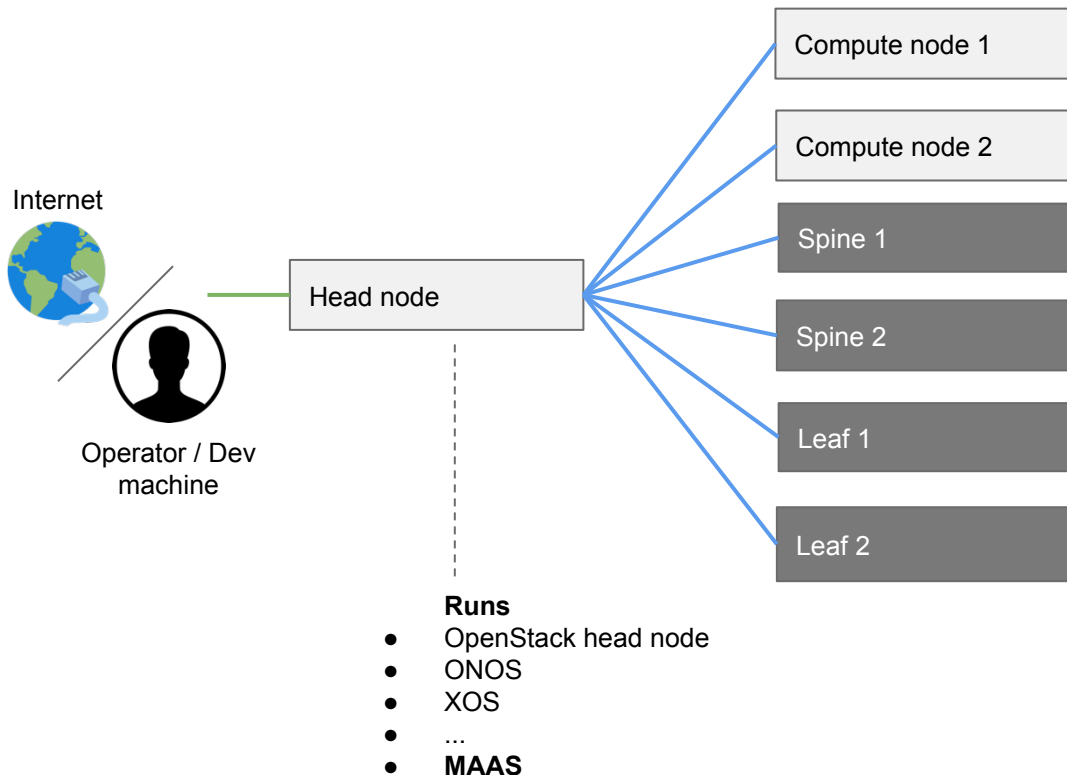
PXE Client

The node boots from the network

It gets an IP address from the DHCP server

MAAS installs the OS

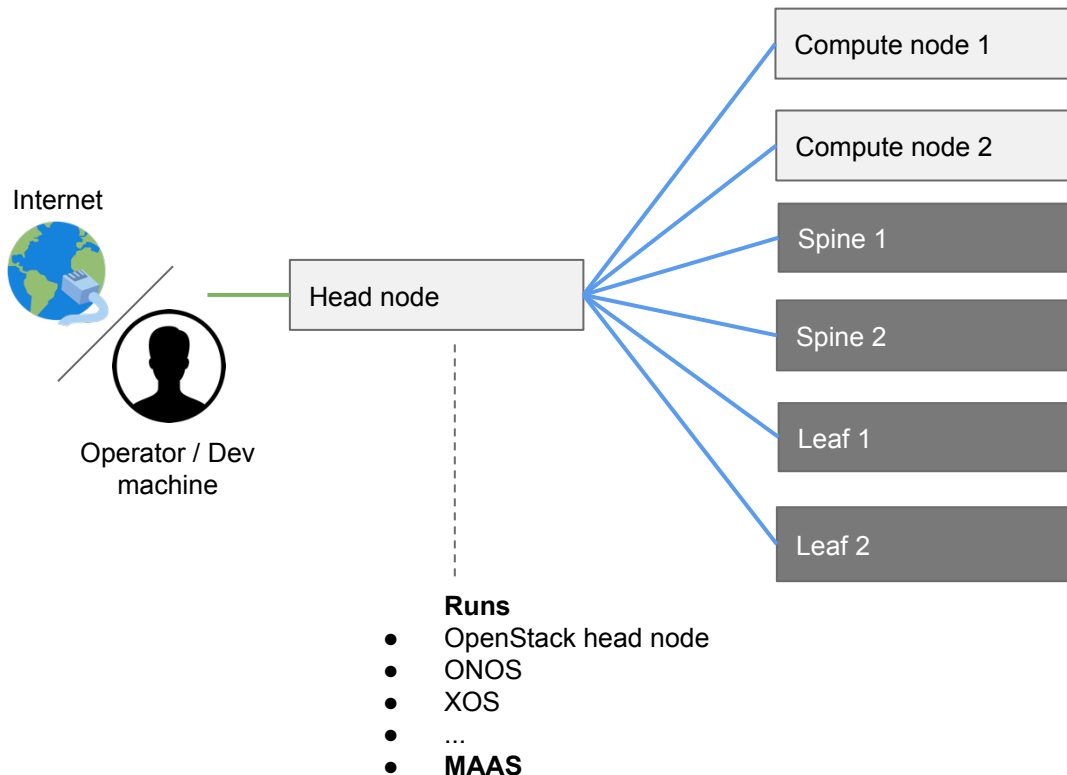
Deployment steps



Steps to deploy:

1. Download CORD repo on the dev machine
2. Create the CORD dev VM on the dev machine
3. Fetch CORD packages on the dev machine
4. Push the software to the head node
5. Deploy and configure the head node
6. Reboot (to deploy) the compute nodes and the switches
7. Add your configurations

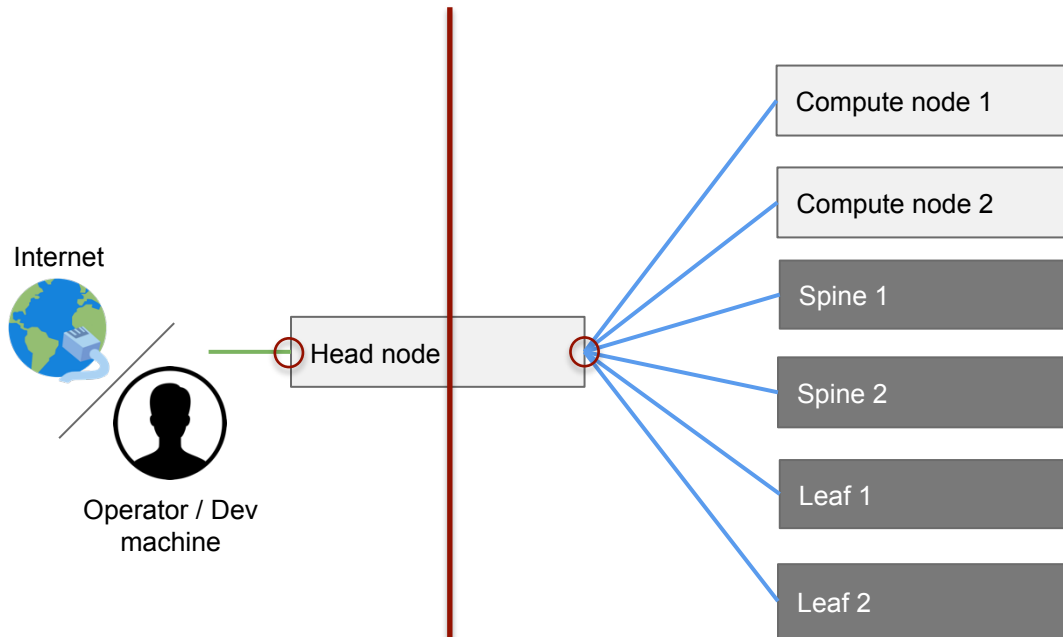
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Broadcast domains



Broadcast domain 1: external network

- Routable IP addresses
- Access to Internet
- Addresses given by the administrator

Broadcast domain 2: internal/management network

- NON routable IP addresses (only internal to the POD)
- NO access to Internet
- Addresses given to clients by DHCP of CORD MAAS (configurable)

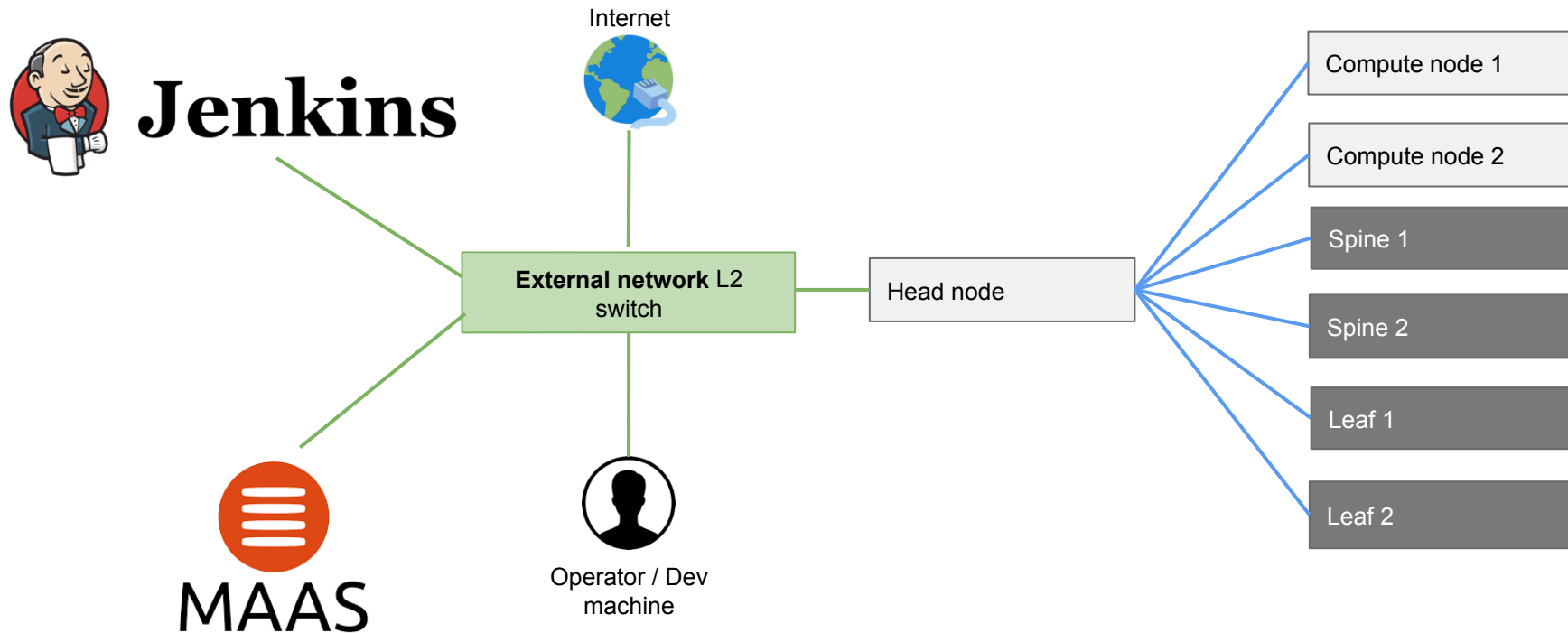


Building a CORD POD requires ~3-4 hours (human interaction)

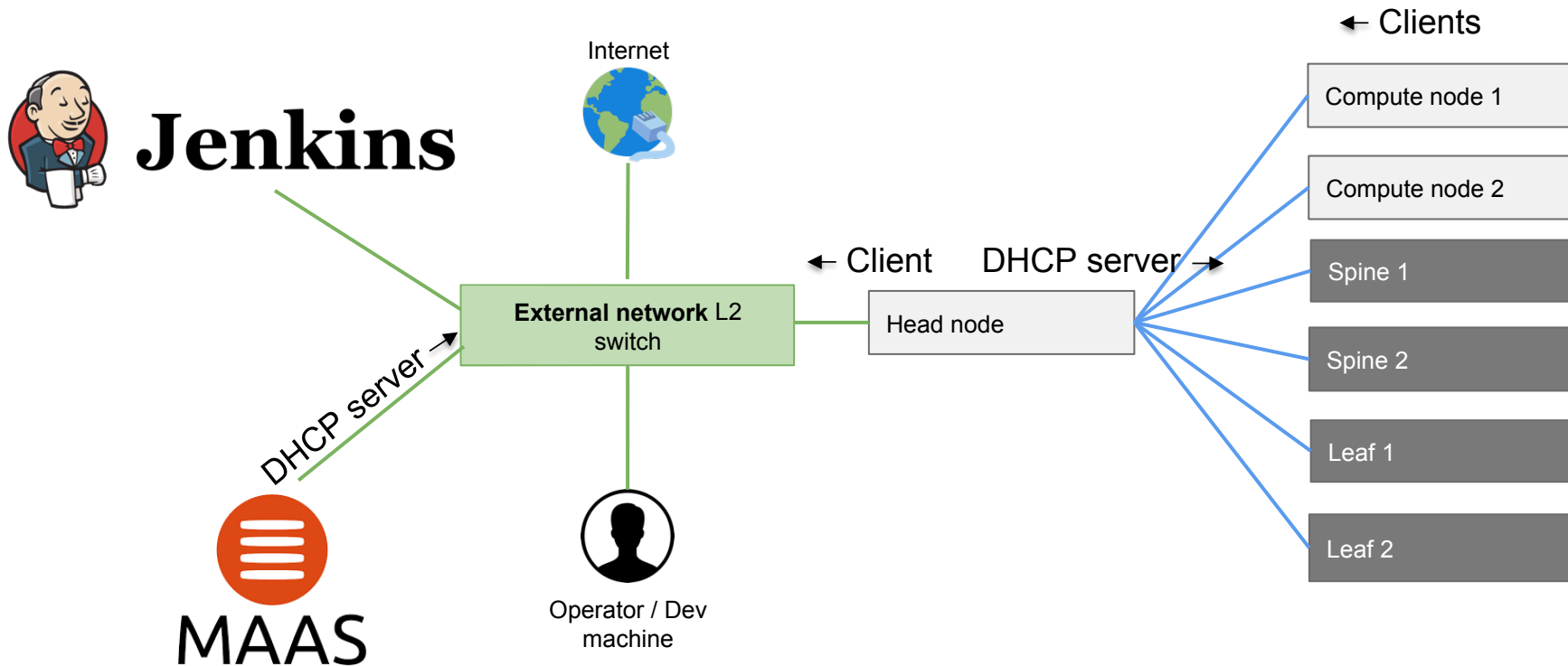
Is there a way to automatically reset a POD?

How do I do “CI”? What if I want to test a fresh installation with the latest changes every day?

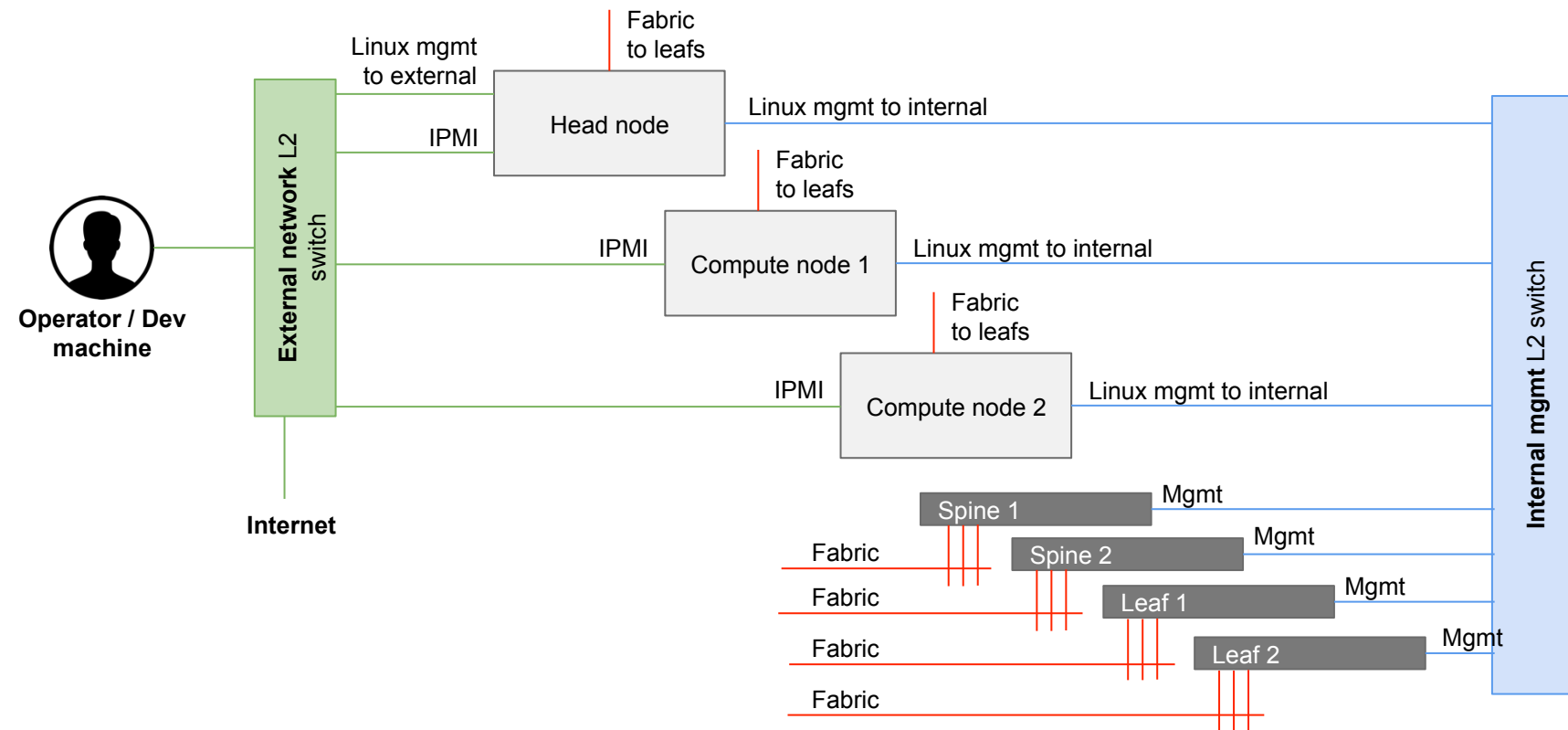
Automation: Jenkins integration



Broadcast domains



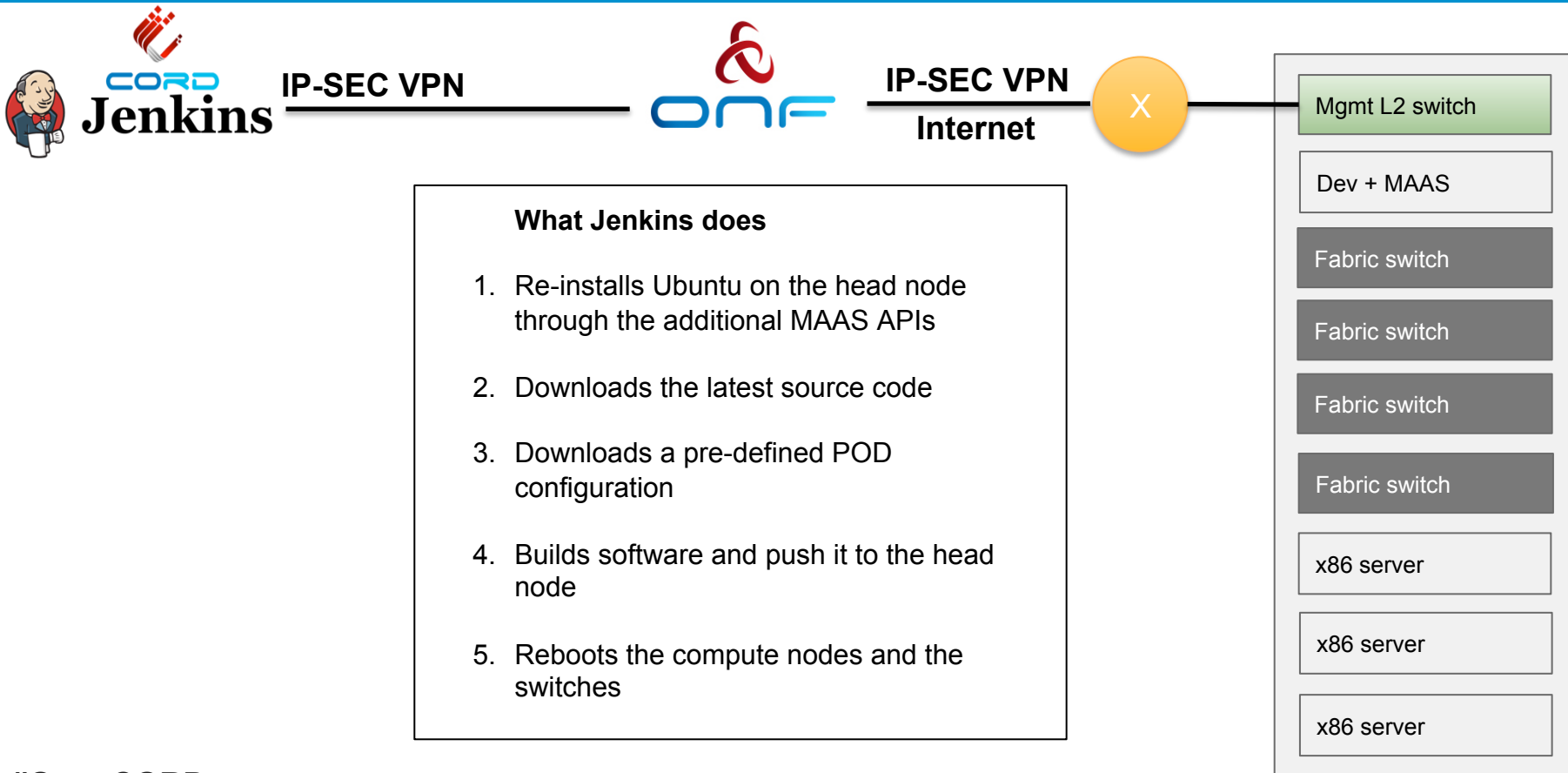
Network connectivity: a complete view



ONF “Jenkins as a Service”



Automated CORD POD



Jenkins scripts overview



Automation building blocks



Jenkinsfile

- REPO_ROOT/build/Jenkinsfile.newBuildSystem

CORD POD configurations

- <https://gerrit.opencord.org/pod-configs>

Jenkins deployment configurations

- pod-configs repository – deployment folder

Let's have a look at them...





Deploy CORD is not that difficult...

- Not lots of software required
- Two commands, few reboots

Automation

- People love it! Why do work, if software does it for you?
- For CI: deploy, configure, test, reset
- For CD: develop your code and test it on the fly

Deployment on demand

- Offered to all ONF collaborators and partners
- We take care of the setup for you
- You just need a VPN connection to us

References



Documentation

<http://guide.opencord.org> (!!!)

How to get help / works also from China

Mailing-list: cord-dev@opencord.org

Slack: slack.opencord.org

Presenter

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Thank you!

