

# Common NFVI Telco Taskforce Antwerp Face-To-Face Sessions

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 THE **LINUX** FOUNDATION



# Discussion Outline\*

## Requirements

- Intended Strategy
- Requirements
- Recommend multiple labs, multiple racks/lab

## Intake & Onboarding

- Community Labs
- Lab Assignment, Access, Support

## Lab Procurement (Present, Future)

## CNTT-RI Lab Recommendation

## Appendix

- Infrastructure Requirements

\***Challenges:** *Inventory, Quantity, Ownership, Self Service, LaaS/CI/Community, ...?*



# Requirements



## Problem Statement

**Infrastructure needed to support physical manifestation of RA's (aka RI), with considerations:**

- **Robust** and **Diverse**
- Compliant and **Compatible within OVP Ecosystem**
- Community Driven

## Strategy

- **Sufficient** Compute and Controller **Nodes** - Parallel Testing (failover, multiple profile)
- Multiple Racks – Contingency and Failover
- Remote Access & Baremetal Provisioning - **Manifest Validations**
- **Second Environment** – parallel release/RI/etc testing

## High Level Hardware Requirement

- 3 x Controller Nodes
- 10 x Compute Nodes (4 general + 2 per B/N/C)
- 1 x Jump Host
- 1 x Spine Switch and 2 x Leaf Switch in 1 x 48u Rack

# Requirements.. continued



## Promote Using OPNFV Templates

- POD Description File (PDF) – *add diff POD sizes/flavors*
- Scenario Description File (SDF) – *add new feature index for flavor size & POD quantity*

### PDF (yaml)

**Metadata** (Lab Owner, Location)  
**H/W per node** (Cpu, Disks, NICs)  
**Common Network Info** (IP range, Subnets)



### SDF (yaml)

**Metadata** (Name, Purpose, Owner)  
**Components** (SDN-C, NFV features)  
**Deployment Tools** (installers)  
**Hardware Prerequisites** (SRIOV, DPDK)

## Benefits

- Aligns to existing [OPNFV Standards](#)
- Easily maintained and edited [Templates](#) and YAML
- OPNFV installers can Consume
- CICD Pipelines built to consume PDFs/SDFs
- Provides details for Test Developers for Test Framework Design

# Intake/Onboarding

[Support Process Link](#)

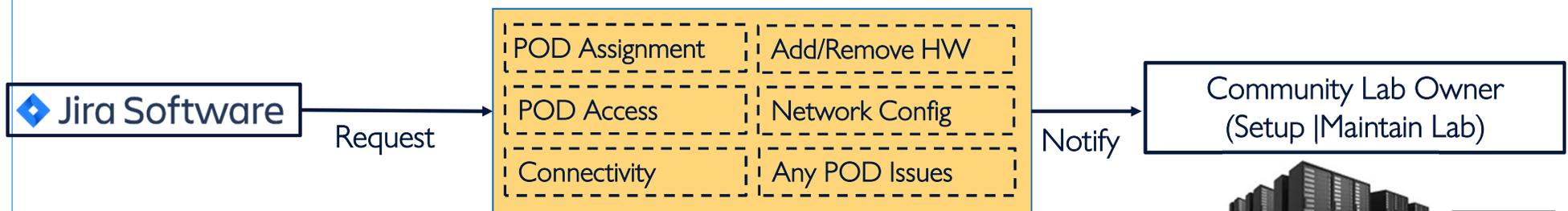
**IRC channel #opnfv-pharos**

## OPNFV Community Labs

- OPNFV dedicated hardware
- 6-server PODs
- Pharos Compliant (h/w, ntwk, remote mgmt)
- All donated
- One CI lab hosted by LF
- Managed by individual companies

## OPNFV Process for Lab Resource Assignment, Access and Support

1. Identify h/w requirement (# servers, special h/w)
2. Select a lab from [Community Labs](#) matching requirements, # PODs, availability
3. Contact lab owner(s) and confirm lab availability
4. Initiate and track lab support requests using [Jira](#) – access, connectivity, config



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# PMO & FMO Lab Procurement



## Present Mode of Operations (PMO)

### How Many OPNFV Community Labs Exist Today? Where Are They? Who Owns/Manages the Labs?

- [Community Labs](#) lists 18 active labs, locations, owners (companies) and contacts
- Owners manage labs

### How Many Labs Can Be Used, or Secured, by One Particular Team, and For How Long?

- No limit
- Contingent on availability
- Inactive users: access revoked
- Inactive projects: resources reassigned



## Future Mode of Operations (FMO)

### How Does a Test Project Expand a Lab to Meet Project Needs, or Increase Lab Quantities?

- Identify h/w requirements, analyze gaps
- Contact lab owners to **survey & discuss** desired lab(s) changes
- Same JIRA [Documented Process](#) to request lab resource increase (**Pending Lab Team Alignment**)



### What if an N+1, or Multiple versions of RI (Assume Different OPNFV Releases) are needed?

- Non-issue
- Identify the project needs – e.g. h/w quantities, PODs, configurations
- Work with lab owners to discuss special configurations
- Submit JIRA ticket requesting lab changes, or for new lab

# CNTT-RI Recommendation

## Goal

Select a secure, stable, and configurable lab, enabling automated reference implementation (RI) validations

## Vision & Recommendation

- ✓ Establish at least 2 community labs (leverage testing & HW expertise)
  - ✓ Supports multiple RI validations in parallel
  - ✓ Readily available supplier test apparatus & expertise
  - ✓ Leverage geo diversity
- ✓ Establish Self Service Vendor Labs

## Qualifications – Must be Satisfied for Lab Selection

- **Available** with Outage Contingency (4-nine uptime)
- **Current & Stable** (current patch sets)
- Demonstrated **Integration with the OVP Ecosystem**
- **Secure** (physical, and logical)
- Support Readily Available (business days, follow the sun)
- Capable of handling performance loads
- **Configurable with minimal downtime**
- Sufficient capacity to expand nodes/racks
- **Effortless onboarding process** for Users and Developers (VNFs)
- Ability to simulate rack failover



# Backup Slides

# Infra: Requirements

[https://github.com/cntt-n/CNTT/blob/master/doc/ref\\_impl/chapter02.md](https://github.com/cntt-n/CNTT/blob/master/doc/ref_impl/chapter02.md)

## Strategy

- 4<sup>th</sup> compute - supports parallel host profile/failover testing (e.g. executing SRIOV and OVS-DPDK in concurrently)
- Logical/physical 2x racks to mimic rack-level failover (vm-reset)
- Recommend 2<sup>nd</sup> env available - supports parallel testing, possibly of different distributions/RIs

## Configuration

### •Controller Nodes:

- 3 x
  - 2x dual-port 10Gbps NIC.
  - 2.2GHz 14C/28T.
  - 256GB RAM.
  - 10TB HDD.
  - 3.2TB SSD.

### •Compute Node

- 4x
  - 2x dual-port 25Gbps NIC.
  - 2.2GHz 24C/48T.
  - 512GB RAM.
  - 2TB HDD

### •Jump/Baremetal manager

- 1x
  - 2x dual-port 10Gbps NIC.
  - 2.2GHz 14C/28T.
  - 256GB RAM.
  - 10TB HDD

### •Networking

- 1x Spine Switch
  - Total: 32x100G
- 2x Leaf Switch
  - 48 x 25/10G
  - 6 x 100G

### •Miscellaneous

- 1x 48u Rack
- Cables and Transcievers

# Infra: Leverage PDF and SDF Templates

## Defined

- Point of Devliery (PoD) Descriptor File (PDF) and Scenario Descriptor File (SDF)
- Installers consume the PDF to execute any tasks on a POD (for hardware and config info)
- CICD Pipelines consume PDFs to assign, and execute on, integration/deployment tasks
- Test frameworks need to know the deployment options to trigger the appropriate test cases.

**PDF Contents** PDF Template: [https://gerrit.opnfv.org/gerrit/gitweb?p=pharos.git;a=blob\\_plain;f=config/pod1.yaml;hb=HEAD](https://gerrit.opnfv.org/gerrit/gitweb?p=pharos.git;a=blob_plain;f=config/pod1.yaml;hb=HEAD)

- › pod.yaml
- › Metadata
  - Labowner
  - Location
- › Hardware information per node
  - Cpu
  - Disks
  - OS (jumphost)
  - Remote management
  - Network Interfaces
- › Network.yaml
- › (Common for all PODs in a lab)
- › Metadata
  - Labowner
  - Location
- › Common Network Info
  - IP-address ranges
  - Subnets
  - Vlan configurations/tags

According to the new node plan for CNTT-RI, PDF should evolve to fit into different size of Pod. New feature index should also be added according to RM&RA

# Infra: Leverage PDF and SDF Templates

## Defined

- Scenario (test) define content and drive usage through a Scenario Descriptor File (SDF)
- Installers receive a list of components
- CI knows valid combinations of scenarios, options, installers
- CI pipelines receive tasks, and Release Managers understand dependencies

**SDF Contents** SDF Template (in review): <https://gerrit.opnfv.org/gerrit/#/c/30677/6/scenarios/templates/sdf-template.yaml>

- › Metadata
  - › Name
  - › History
  - › Purpose
  - › Owner
- › Components
  - › e.g. SDN controllers
  - › Versions
  - › Optional features, e.g. NFV features
- › Deployment Options
  - › Hardwaretypes
  - › Virtual deploy
  - › HA, NOHA
- › Deployment Tools
  - › Supporting install
  - › Valid options per
- › Hardware Prerequisites
  - › e.g. SRIOV, DPDK

New feature index should be added to SDF according to RM&RA. E.g., identify different flavor and the number of node, identify specific configuration

# Infra: Intake & Onboarding

## OPNFV Community Labs

- [Pharos Specification](#) provides information on minimum hardware and network requirement for an OPNFV lab.
- Current [Community Labs](#) are collections of OPNFV dedicated hardware, generally partitioned into Pharos-compliant PODs. Each POD is a cluster of 6+ servers.
- Except CI Lab hosted by LF, all [Community Labs](#) are donated and thus managed by individual companies.

## Community Lab Access and Support

- OPNFV uses [Jira](#) ("[Infra Group](#)" project / key "[INFRA](#)") to initiate and track lab support requests, including requests for POD access, connectivity, add/remove hardware, network configuration and POD issues, etc.
- OPNFV uses IRC channel #opnfv-pharos for communication with Pharos community and lab support.
- Just follow the [Documented Process](#) to request POD access and support of a community lab.

## How Can a Test Project Secure a Lab

- Identify hardware requirement of your test project, e.g. how many servers, any special hardware, etc.
- Based on information in [Community Labs](#) and related details of each lab, identify which lab(s) meet your requirement, how many PODs you need, their availability status, etc.
- Contact owner(s) of your desired lab(s) to confirm information accuracy and resource availability
- Follow the [Documented Process](#) to request POD resources, VPN access and support.

# CNTT | Roadmap

Reference Model

Reference Architecture

Reference Implementation

RM 1.0

RA 1.0  
openstack

RM 2.0

Botrange

RA 1.0  
openstack

RI 1.0  
openstack

RA 2.0  
openstack

RM 3.0

TBD

Stable

RA 2.0  
openstack

Infrastructure  
OPNFV VERIFIED  
2018.09

RI 2.0  
openstack

RA 3.0  
openstack

RM 3.x

TBD

Stable

RA 3.0  
openstack

VNF  
OPNFV VERIFIED  
2019.04

Infrastructure  
OPNFV VERIFIED  
2018.09

RI 3.0  
openstack

RA 3.x  
openstack

RM 3.x

TBD

Stable

