

# 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](#)

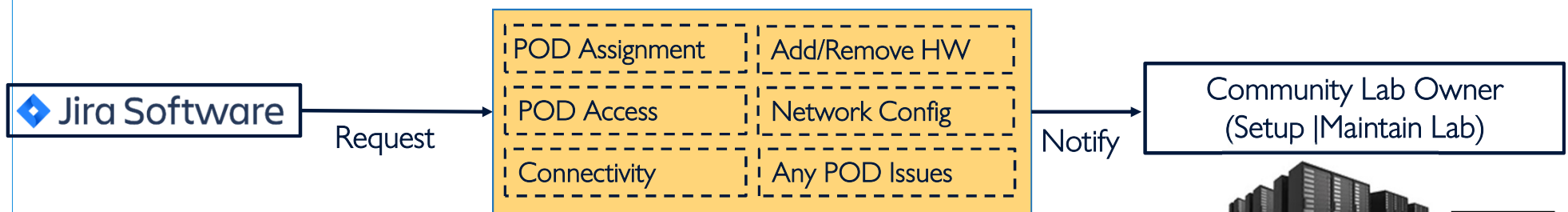
**IRC channel #opnfv-pharos**

## 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



# 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

