



Integration / Open Labs

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- What's the purpose for building Open Labs?
- Legal Requirements
- Requirements for each lab
- Identified Labs for ONAP release 1 (in progress)
- Align with ONAP release plan (from release 1 draft)

What's the purpose for building Open Labs?

- **The primary focus of the ONAP Open Labs is to support the CI/CD of the board approved release use cases**
- Capacity permitting the Open Labs might also support:
 - ONAP demos
 - Show case at conference
 - Users – details on access limitations will have to be worked
 - Interoperability testing with multi-vendor's hardware and software in “real” environment outside the board approved use case

Legal Requirements

- The LF shall develop a standard license for software or hardware donations to the OpenLab
- All OpenLab providers commit to accept all software/hardware needed for an ONAP board approved use case under the standard license to perform integration testing
- Each VNF/PNF vendor who wants to support an ONAP board approved use case will have to provide software/hardware to at least 3 integration labs in 3 geographic regions under the standard license to be considered part of the official ONAP use case. The VNF/PNF vendor shall present his support plan for the official use cases to the TSC for approval.
- None of those provisions shall restrict the use of the Open Lab for demos outside the official ONAP release use cases. Even though the standard license is still recommended in such cases other licenses could be negotiated between the lab and the VNF vendor.

Action items: commitments from vendors

- Hardware equipment: a vendor should propose the type and quantity of equipment it plan to donate and the target lab(s).
- VNF/Software needs to be either open source or follow the legal guidelines previously outlined
- Support: each vendor must commit technical support for the equipment/VNF/PNF/software to be donated
- Documentation: each vendor must provide sufficient publicly available documentation to allow for the integration of the equipment/VNF/PNF/software
- APIs: each vendor providing equipment/VNF/PNF/software will ensure that all APIs interfacing the equipment/VNF/PNF/software with ONAP are freely available.
- TSC approval: each hardware/software donation must be approved by the ONAP TSC.

Minimum equipment requirements for each lab (in progress)

- Multiple open stack instances of which at least one each is dedicated to the following teams working on the current release:
 - Dev team
 - CIST team
 - E2E team
 - S3P team
- 32 servers configured
 - 2x10G and 4x1G ports
 - 240G memory
 - 16TB disk
- 2 racks for servers
- 2 ToR switches with 32x10G ports each
- 2 ToR switches with 64x1G ports each

Minimum support requirements for each lab

- Man power: A lab manager and supporting IT admins
 - Tasks to perform: account management, hardware/software configuration and basic maintenance, interactions with vendors, support the integration project
 - Response time SLA: At a minimum the support team shall respond within 4 hours during local business hours for official ONAP use cases related issues. Other issues are worked best effort.
- Facility: rack space, power & cooling, Internet access, secure remote access, reasonable isolation from the rest of the hosting company's IT environment for security purpose

Action Items: Lab Requirements for CI/CD

- Jenkins should be run in each lab
 - Deployment strategy TBD; possible options:
 - Separate master Jenkins instance per lab
 - Jenkins slave to LF central Jenkins instance
- Jenkins should run, in each lab:
 - ETE or other test suites using lab environment
 - (Optional) Automatic deployment/spin-up of ONAP platform
- Jenkins access provided to Integration team
 - Allow visibility to see active CI/CD processes and results
 - Allow setup/configuration of CI/CD Jenkins jobs

Open Lab for Release 1 (in progress)

	Contact Person	Status	Notes
CMCC	Chengli Wang	With a lot of PNFs/VNFs	It is inheritance from OPEN-O, and has VoLTE and vCPE for both residential and enterprise.
China Telecom	Yi Yang	With a lot of PNFs/VNFs	It is inheritance from OPEN-O, and has enhanced vCPE implemented.
Orange	Roberto Kung	New	
University Lab (WINLAB)	Tracy Van Brakle (???)	New	

Assets in China Telecom's Lab

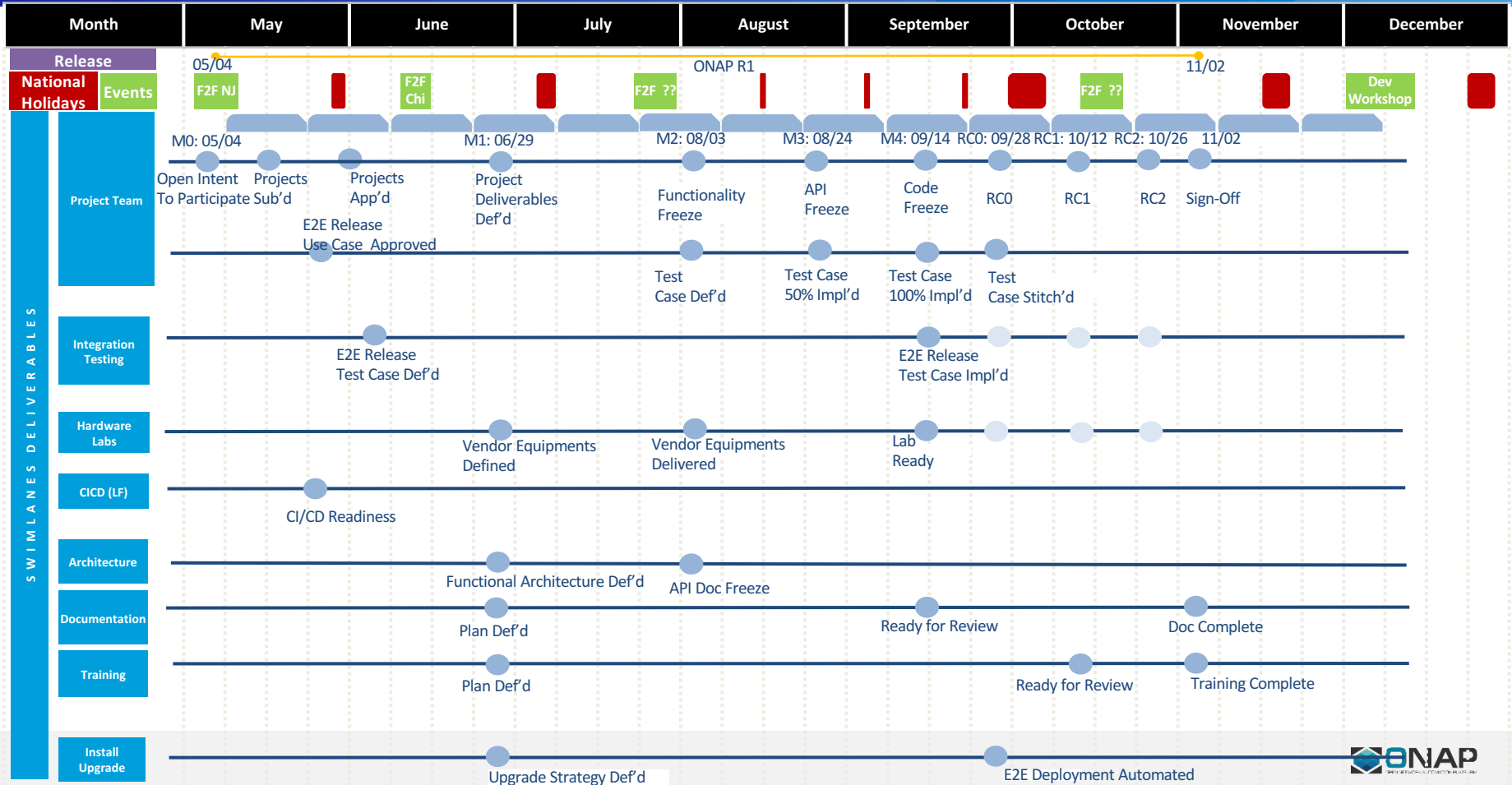
ZTE:

- Racks (5) :
- Servers (9) : 4 Servers to install Ubuntu Openstack (4 ZXCloud R5300) and 5 Servers to install ZTE TECS cloud env (4 DELL R630, 1 DELL R730)
- Routers (4) : 2 T8000, 2 M6000-8S PLUS
- Switches (3) : 2 ZXCTN 5936, 1 Cisco 2950
- Thin CPE (1) : 1 MCG 5362
- IPRANs (4) : 2 ZTE 6150, 2 ZTE 9000-3E

2. Huawei:

- Racks(2) :
- Servers (10) : 8 Huawei 2288 V3, 2 HP servers
- Firewalls (2) : 2 USG6390
- Routers (2) : 1 NE40 X3, 1 NE40 X8
- Switches (3) : 1 Huawei 5850, 2 Huawei 6850
- Thin CPE (1) : 1 AR169
- IPRANs (4) : 2 ATN910, 2 CX600

ONAP Release Planning DRAFT Proposal



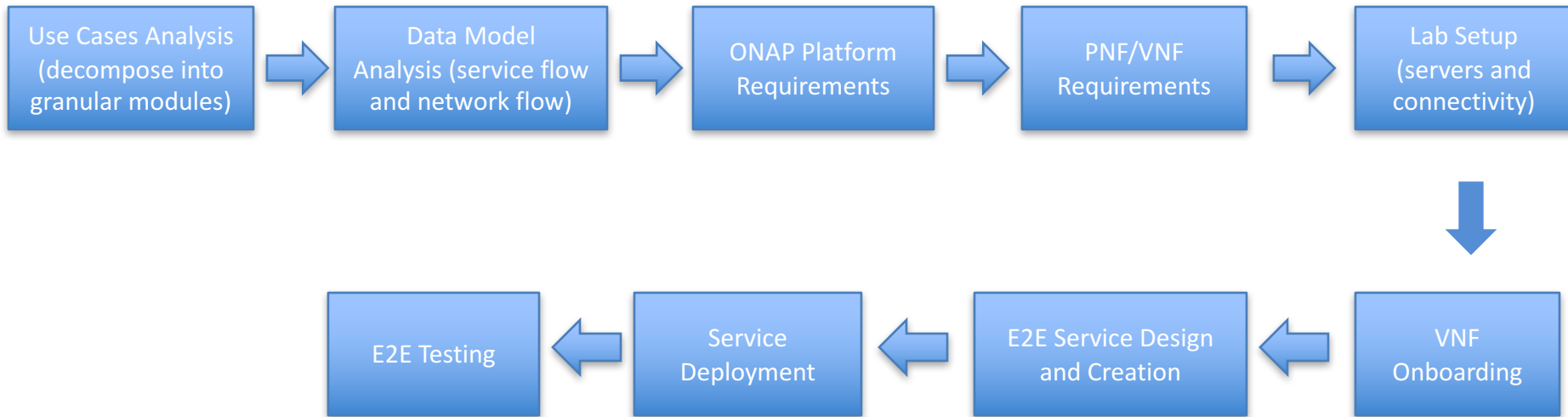
SWIMLANES DELIVERABLES

BACKUP

Open Labs

Category	Description	Problem Being Solved
Open Labs	<ul style="list-style-type: none">• Scripts and definitions for setting up a POC sample deployment of use cases in lab settings• Provisioning, installation, and setup of all the telco equipment such as switches, routers, and gateways to enable end to end testing• Allow remote access to the lab environment for interoperability testing• Automatic updates of code in lab environment from future releases	<ul style="list-style-type: none">• Support the needs of consistent, reproducible lab setup for demo and POC purposes• Promote easy interoperability testing with different hardware devices, SDN controllers, etc.• Automate the process of keeping the lab code up to date with the latest changes

ONAP Use Cases Integration Test Process in Open Labs



Comments from Catherine

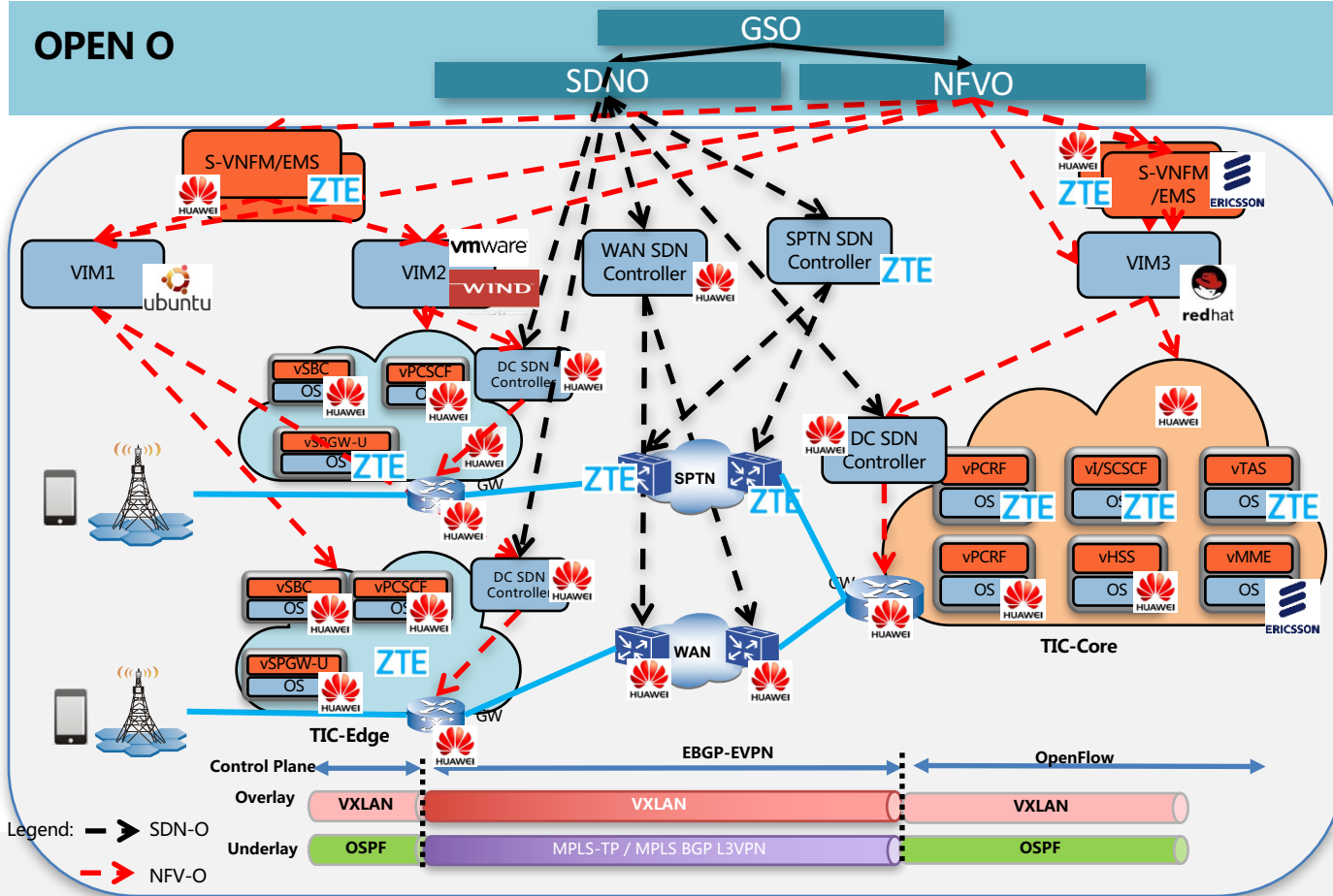
> 1) LAB

- > - 4 ONAP Lab centers have been identified
- > Strategy is to have 2 lab centers to cover EMEA/APAC timezone and 2 labs covering NAR/CALA timezone -The 2 EMEA/APAC Lab centers will perform the same activity than NAR/CALA centers
- > We also need to define an access strategy to ensure that we are not causing trouble to running test cases.
- > Clear notifications including schedule time when running E2E/Performance/CIST testing are running.
- > These 3 labs should have limited access to the concerned people and will give a temporary access to impacted dev team for troubleshooting purpose (at least read only)
- > I believe the development lab will have not a lot of access restrictions
- > - From a security access, we need to think what will be required in order to avoid unnecessary hacks.
- > Only ONAP registered members should have an access so we can put in place a tracking system.
- > The Lab centers should be isolated to avoid that anybody have an access to the other VMs from China Telecom (i.e. DMZ, private networks) etc.
- > -Need to be sure that a Lab Manager is identified for each Lab Center in order to ensure a constant monitoring of the Lab Center including helpdesk. Helpdesk support should be provided within 4-8 hours to avoid any impact on ONAP Release Plan
- > - Configuration management will be posted on the onap wiki per Labs and per Lab Center.
- > These labs should be as much as possible in sync. except if there is a need to have n+1 (what it is officially released and what it is under development/testing)
- > Possibility that 2 lab centers to cover EMEA/APAC timezone (1 is N and the other is n+1) - Same strategy for the 2 labs located in NAR/CALA
- > - Per Lab Center, several labs will be setup
- > - 1 Lab non-resilient for Development Team
- > - 1 lab resilient for CIST Team
- > -1 lab resilient for E2E Team
- > -1 lab resilient for S3P Team
- > See Testing Roles/Responsibilities section to further information about testing type performed by each team <https://wiki.onap.org/display/DW/Integration>
- > - Non-Resilient lab should consider a minimum of 20-25 VMs (including VMs to host tools) while resilient lab should consider the double size
- > Currently 14 VMs are required to host ONAP.
- > Here are currently the ONAP VM Sizing
- > <https://wiki.onap.org/display/DW/Tutorial%3A+Configuring+and+Starting+Up+the+Base+ONAP+Stack?preview=%2F1015882%2F3245312%2FONAP+DEMO+SIZING.pdf>
- > Nevertheless the Sizing of VMs used by the S3P lab should be reviewed based on

Performance KPIs for Release 1

- > Limited Performance testing will be performed as part of Release 1 scope.
- > Priority is currently given to the 2 use cases certification
- > Technical assessment will be performed in order to consider any potential new project and their needs in terms of memory, CPU, disk storage
- > -Although ONAP is currently OS agnostic, the OS baseline will be Ubuntu 16.04.
- > It is important that a complete lab supports the same OS version
- > If there is a need to support CentOS then one of the two Lab Center could be built accordingly considering CentOS-7 (1611) or above
- > - Openstack flavor:
- > 1 Lab Center could certify considering Ocata (latest version) and/or Newton (EOL: 2017-10-11)
- > - Need to identify the VNF vendors that will provide VNF to support vVolte and VCPE
- > How do we proceed for that?
- > -Shall we consider an open sourced version of ICE or do we need to consider something similar to be consumed by our Lab Centers?
- > Or is it outside of our Integration ONAP scope?
- > -Web Browsers supported: ONAP will be certified based on the latest version of Mozilla
- > It is up to the community to contribute if there is a need to test with other web browsers
- > -Need to define Network Topology to identify all the connectivity between all the VMs/Containers.
- > We can re-use what we did for the ONAP Demo setup. To be extended based on the additional project needs
- > -Is there any license that we will need to buy (although we should limit this and find an open source alternative)?
- > -Need to identify traffic generator tools
- > -CI/CD environment linked to each ONAP labs
- > Local Maven/Jenkins/Nexus is required to reduce the traffic with the LF CI/CD foundation
- > Sonar and Gerrit will be the master on the Linux Foundation and we do not expect to create any copy on any Lab Center
- > - IP addresses? Other network considerations?
- > - Concerning GPL OpenSources (i.e. MariaDB, etc) should be downloaded directly from the original open source containers (i.e. Docker.io)

OEPN-O Mercury VoLTE Deployment: : End to end MVs Real Devices



OPEN-O Mercury

SDN Controllers /
VIM / G-VNFM / S-
VNFM

Equipment / VFs

Legend:
 -> SDN-O
 -> NFV-O