



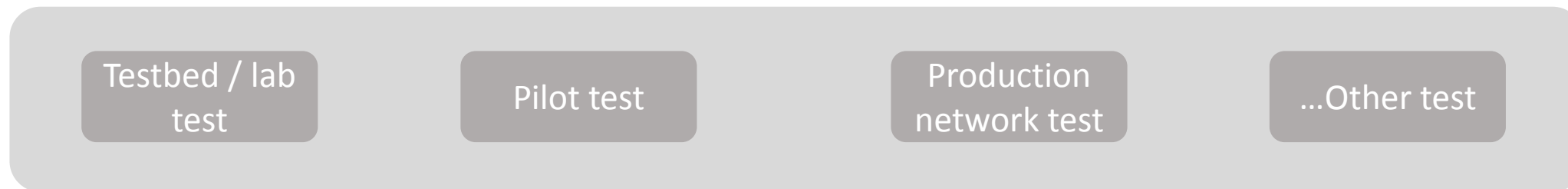
# OVP Automation Augment with ONAP

Yan Yang(China Mobile)

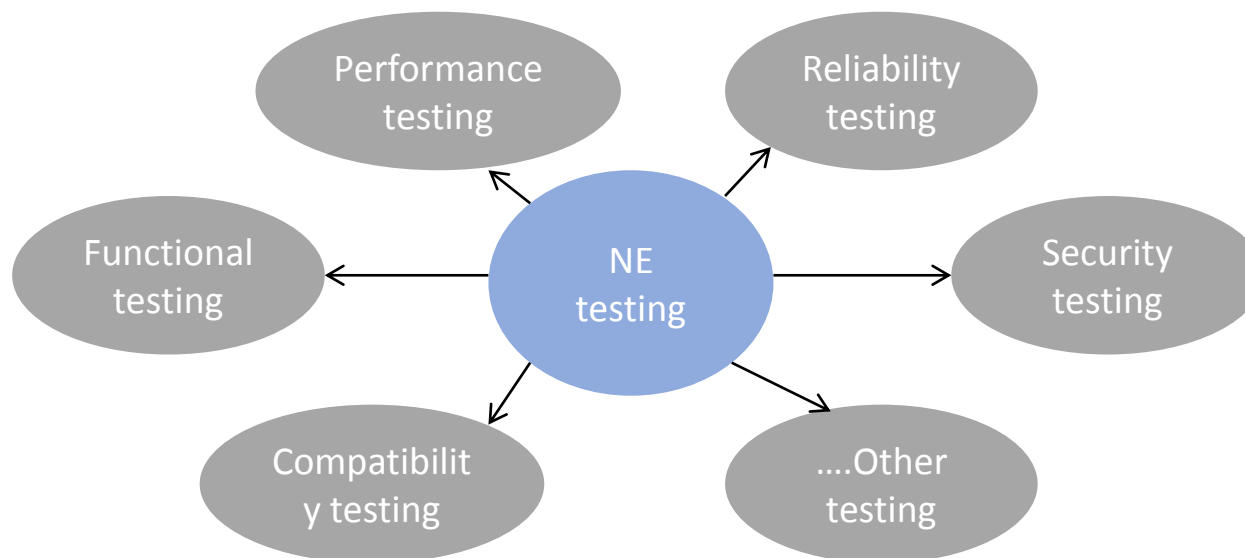
Kanagaraj Manickam (Huawei)

# NE Testing: Reality

- The traditional network element test is divided into two processes: procurement test and network access test
- Different rounds of test are usually required before a new device obtains the network access license

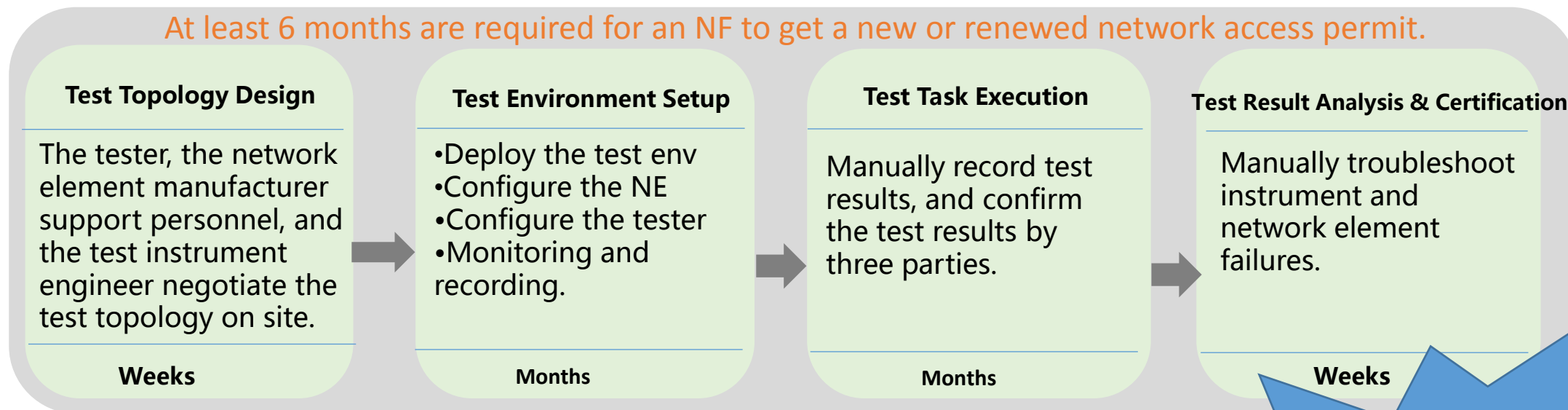


- Different type of testing will be performed in the network access test



# NE Testing: Reality

- The NE testing process is usually divided into four steps: test topology design, test environment setup, task execution and result analysis and certification.



- Changes after the introduction of NFV

Introduction of open source components

Introduction of software component disaggregation

The frequency for software upgrades

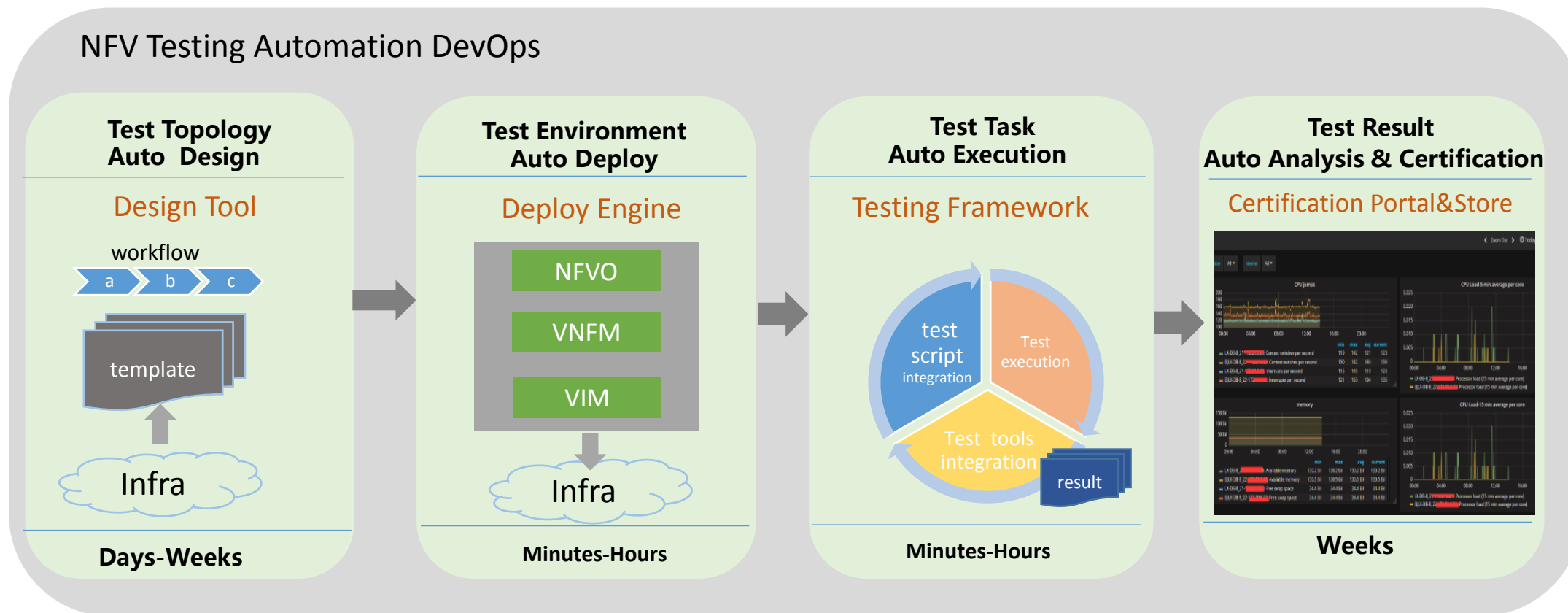
Introduction of new function and service

Automated Testing

# NE Testing: Vision - Testing Automation DevOps

## Objectives :

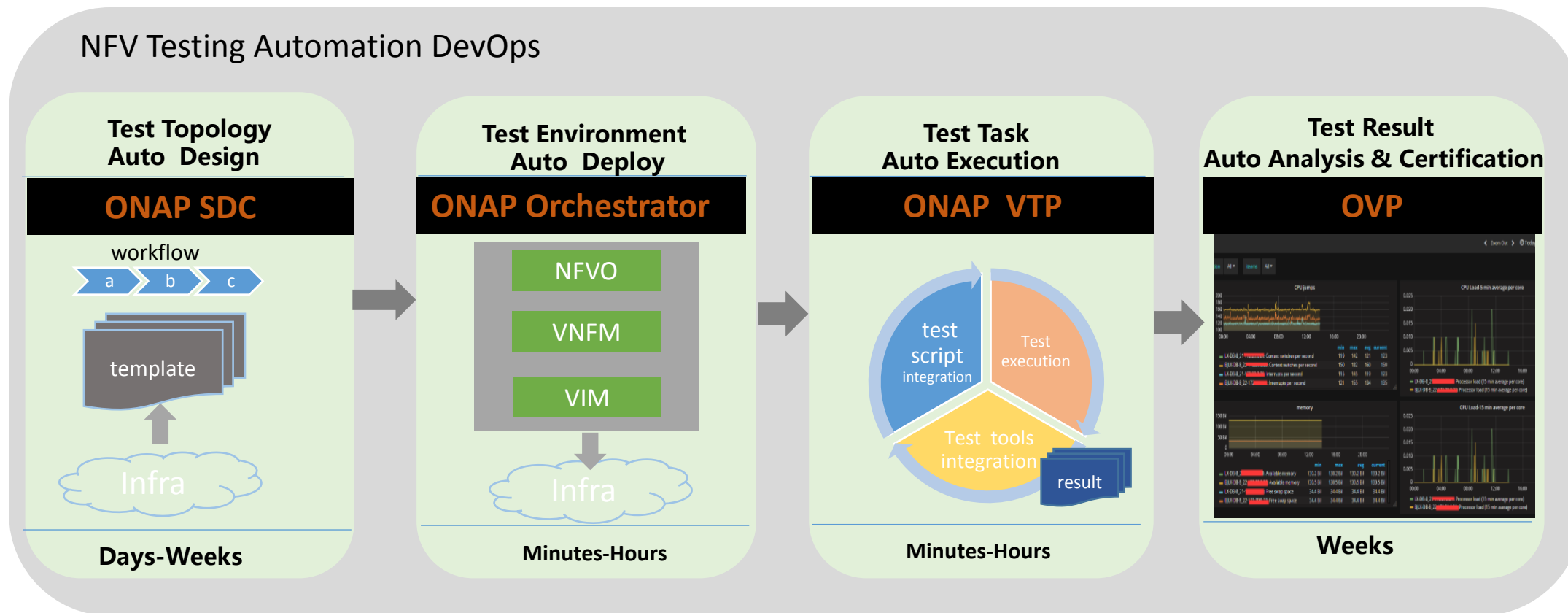
1. Common NFV automated test platform
2. Self-service certification NFV stores
3. Open ecosystem of 5G + AI and 5G + edge



# NFV Testing Automation with OVP+ONAP

## Function mapping with ONAP components

- Test Topology Design - ONAP SDC
- Test Environment Deploy - ONAP Orchestrator(SO, VF-C, APPC, etc)
- Test Task Execution - ONAP VTP(VNFSDK, VVP)
- Test Result Certificate - OPNFV OVP



# Gap Analysis - Auto Design (SDC)

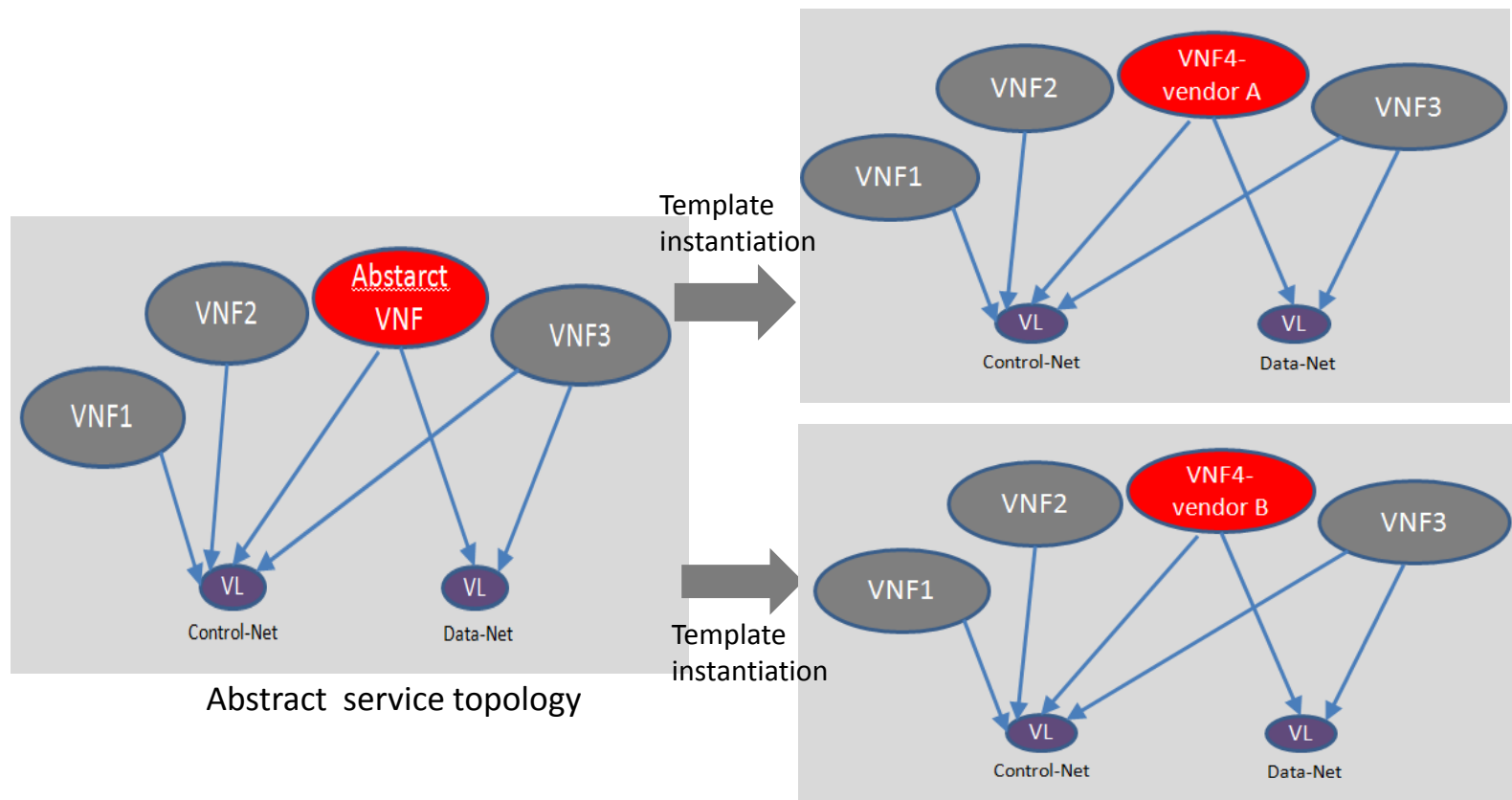
**Goal:** Quickly design a test service (topology) composed with tested VNF and test environment

**Current situation:** The service design need to be repeated for each VNF/test vendor

**Possible solution:** Define abstract testing service (topology) template for each type of VNF

**Enhance SDC to support:**

1. Abstract topology template definition
2. Flag the abstract VNF that can be replaced by real VNF
3. Instantiate step1 template using vendor VNF into a deployable template in runtime



# Gap Analysis - Auto Deploy (Orchestrator)

**Goal:** Reduce unnecessary replication for different VNF vendor/revision between testing iterations

**Current situation:** The entire test environment need to be redeployed each time

**Possible solution:** Only replace the VNF to be tested

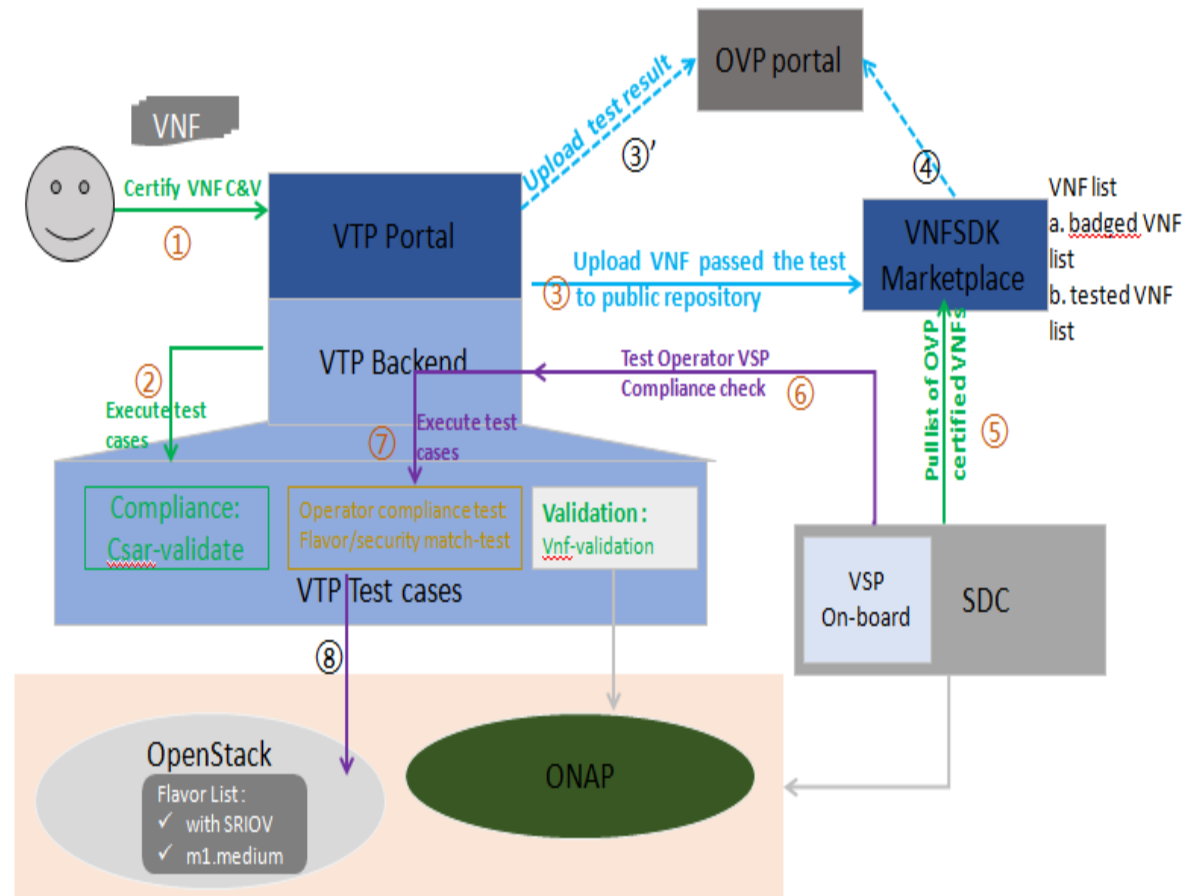
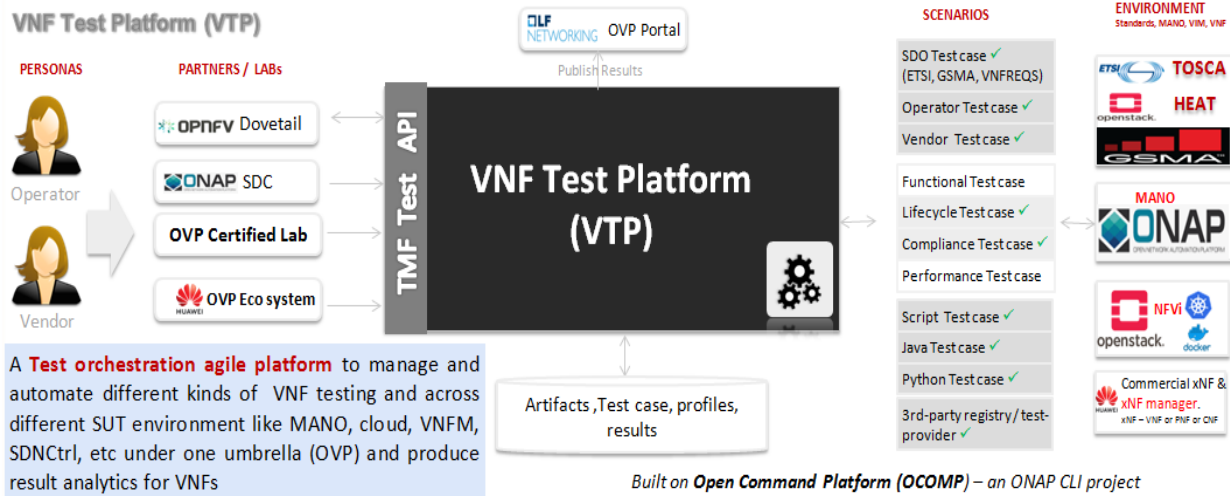
**Enhance Orchestrator to support:**

1. Only deploy the newly updated or upgraded VNF
2. Build the relationship between the existing instances with the new deployed instance

# Gap Analysis – Auto Testing (VTP)

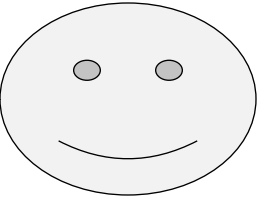
## Goals:

1. Test instruments integration
2. Integration with OVP portal for automated OVP verification certification
3. VTP capability expansion
  - Loading different test scripts and cases
  - Flexible test process definition
  - Test report customization



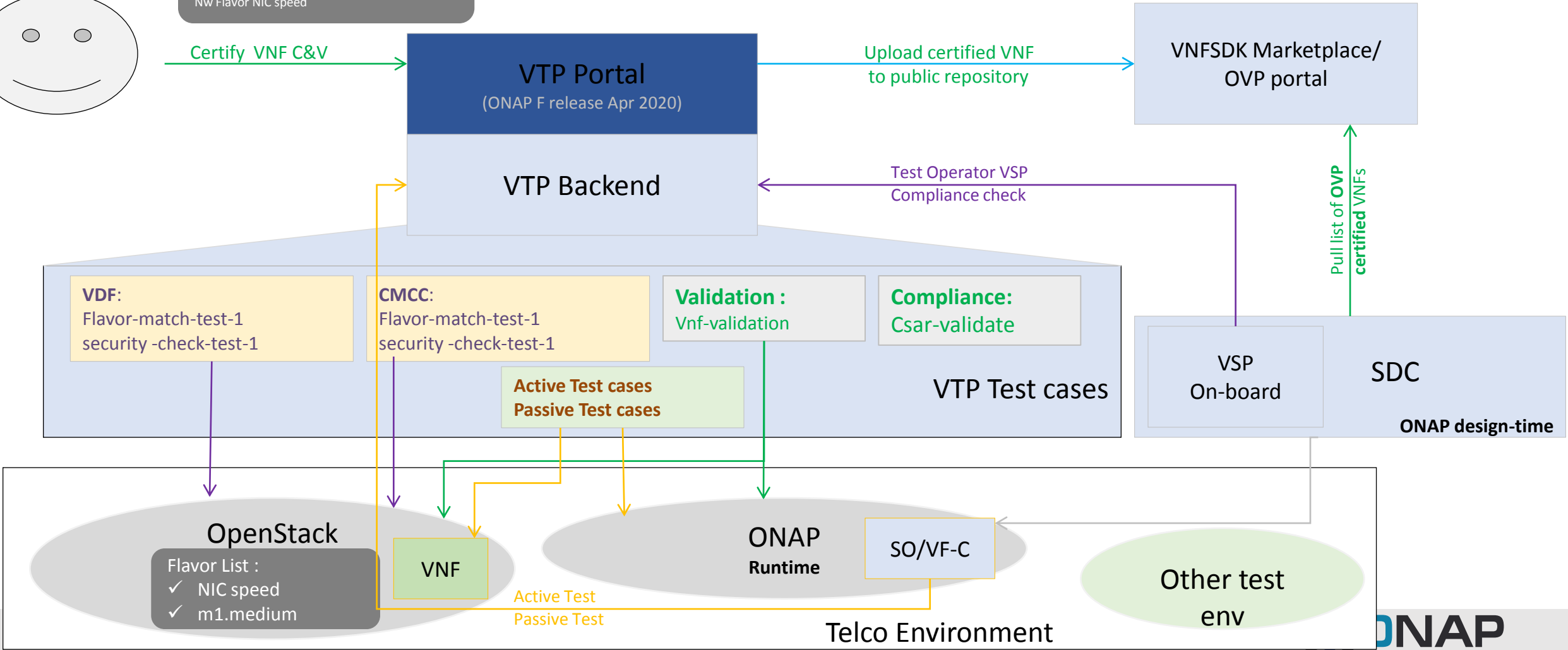


# VTP scenarios



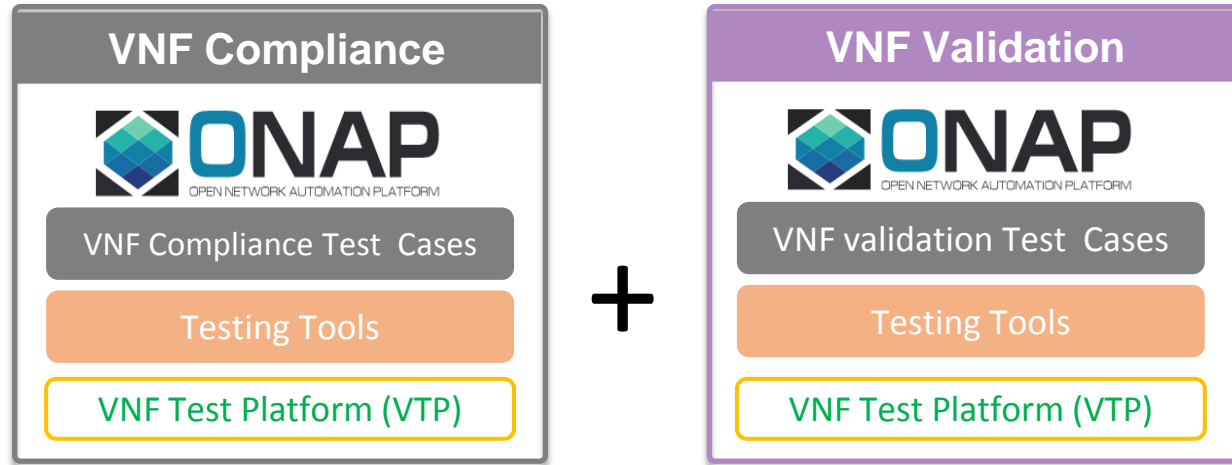
**VNF:**  
Compute Flavor 4GB 2vCPU  
Nw Flavor NIC speed

**Badging:** OVP VNF Compliance & Validation  
**Design-time:** Operator specific VSP compliance check  
**Runtime:** Active/Passive Test (ONAP G release ??)



# OVP VNF Compliance and Validation Testing with ONAP

The demo shown on 2019 ONS EU



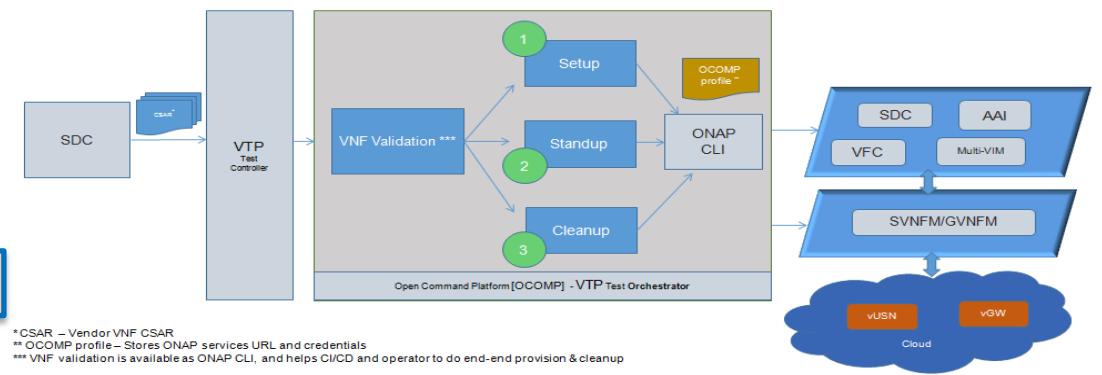
789 numbered requirements

VNF Requirements

Cover 309 requirements , 213 test cases

VNFSDK – TOSCA compliance test cases      VVP– HOT compliance test cases

## OVP | Demo: TOSCA VNF Validation Testing



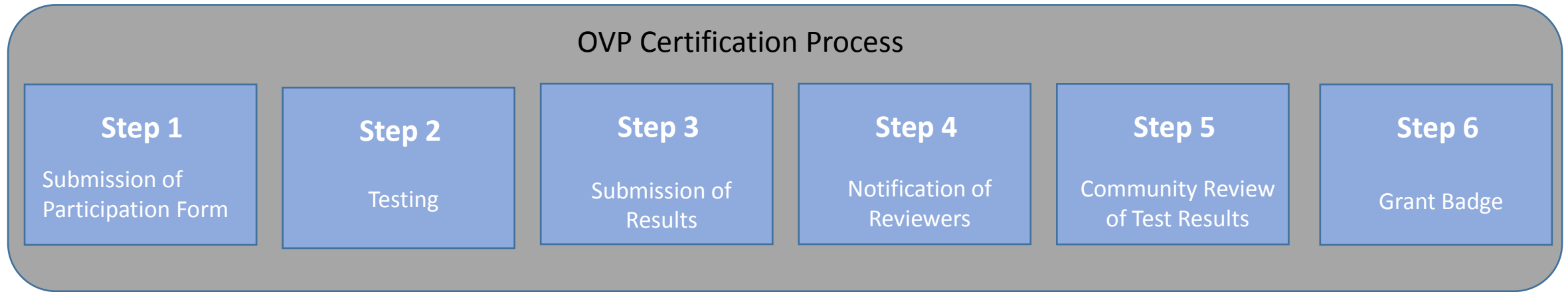
\*CSAR – Vendor VNF CSAR  
 \*\* OCOMP profile – Stores ONAP services URL and credentials  
 \*\*\* VNF validation is available as ONAP CLI, and helps CI/CD and operator to do end-end provision & cleanup

ONAP projects      OVP test cases      OCOMP is renamed from OCLIP

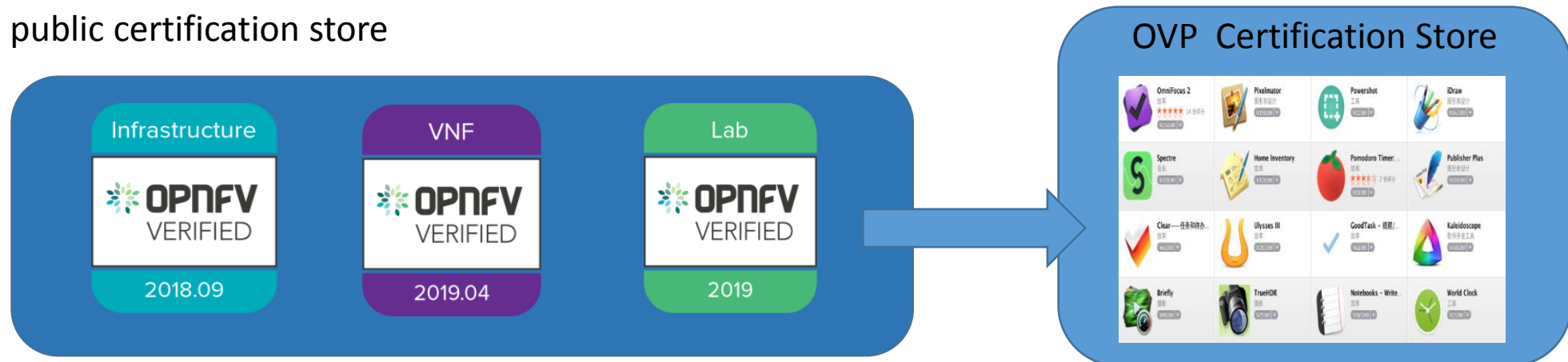
# Gap Analysis – Auto Analysis & Certification( OVP )

## Goals:

1. Integrate with test framework to collect the test result automatically(Step3 manually)



2. Building public certification store

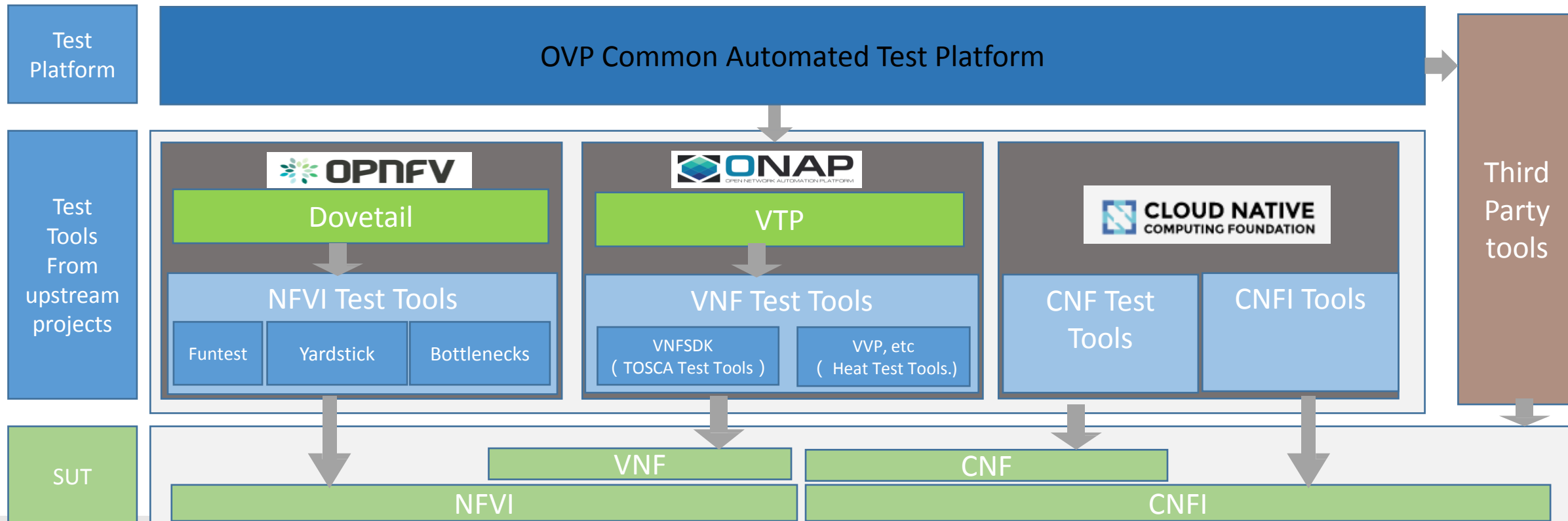


# Suggestions for OVP

**Suggestions: OVP provides common testing platform, focusing on process automation and integration of test tools from different upstream open source projects/communities and third party vendors (SUT vendors and Instrument vendors)**

**Benefit:**

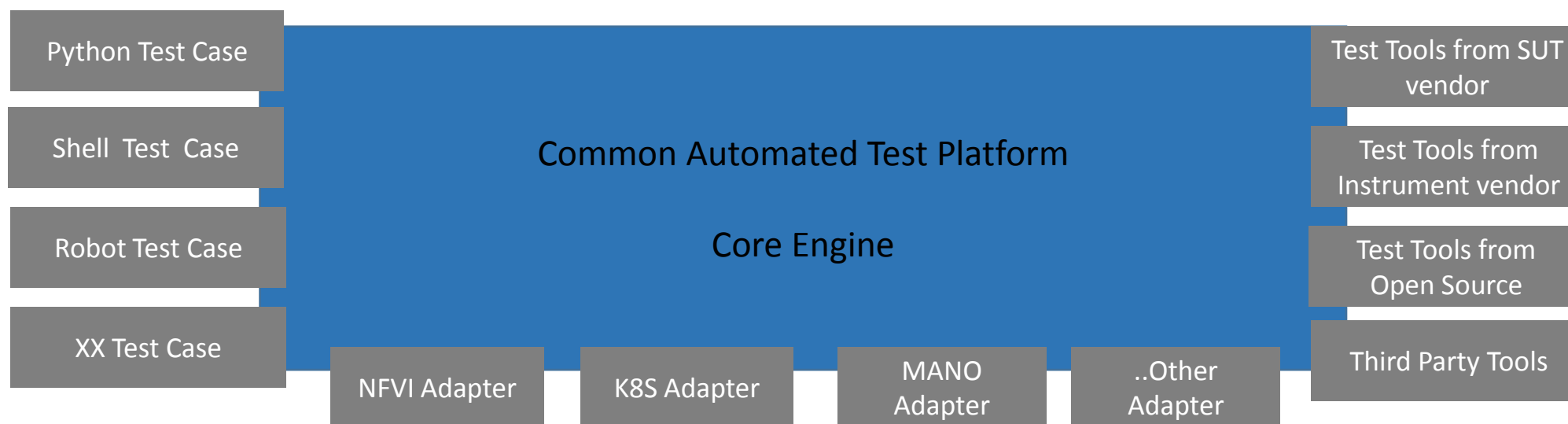
1. Reduce duplication of work across communities, specific test tools and test cases in different areas can be completed in the upstream projects and communities
2. OVP as the open verification program can leverage the capabilities of existing tools to quickly provide automated testing and certification.



# Requirements for Vendors/Operators

Capabilities for common automated test platform :

1. Support loading and importing of different forms of use cases and user different executor to execute test case
2. Provide unified tool access standards, providing tool pre-deployment or on-demand deployment capabilities
3. Provide adapter layer to integrate with different SUT

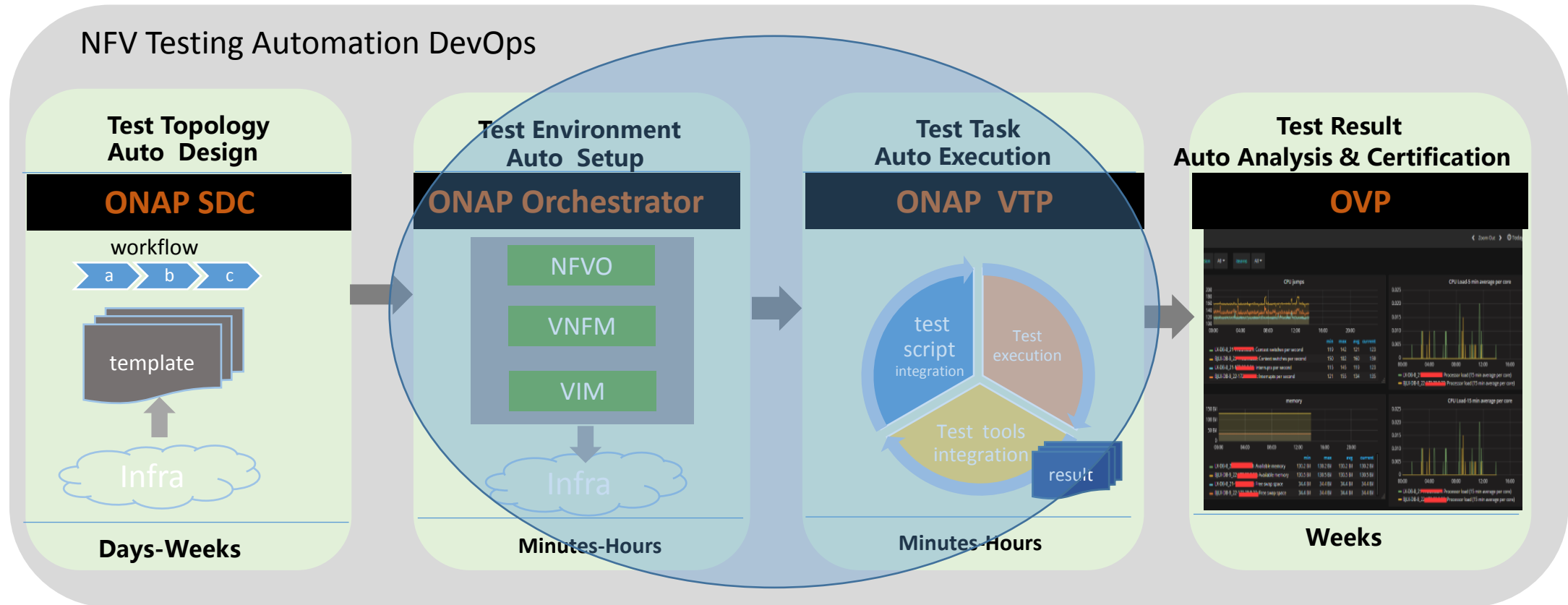


Requirements for SUT vendors and test tools/instruments vendors :

1. No requirements for test case format except for formats not supported by the platform
2. Follow the unified tool access standards to integrate with test platform
3. Follow the SUT adapter layer specification to integrate with test platform

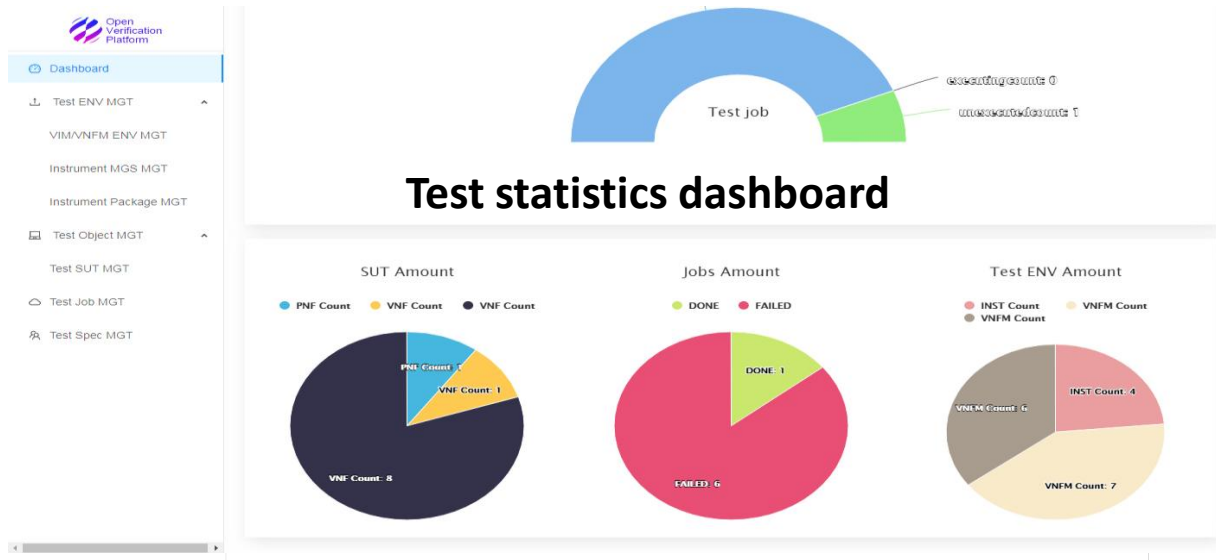
# Automation Testing: where are we

Making some progress in Automated Test Environment Setup and Test Task Execution.



# VTP Standalone Portal

Developing independent VTP portal to improve the usability of VTP which can combine with OVP Portal to provide test service



### Test Job Management

Create Test Job | All | Select date

ID	Test Specification	Created Time	Status	Action
411874564762189824	OVP-Compliance-SPEC	2020-01-07	●	Start Edit Delete Download More
401812960637763224	OVP-Compliance-SPEC	2020-01-10	●	Start Edit Delete Download More
401436077760135168	FW-SPEC	2019-12-09	●	Start Edit Delete Download More
401418577639063552	FW-SPEC	2019-12-09	●	Start Edit Delete Download More
401378748746383360	OVP-Compliance-SPEC	2019-12-09	●	Start Edit Delete Download More

### Test case and specification management

ID	Name	Description	Status	Action
51	Demo-Spec	v1.0 VNF CMCC	2019-12-05	Edit Delete
50	DNS-SPEC	v1.0 VNF CMCC	2019-12-05	Edit Delete
2	OVP-Compliance-SPEC	V1.0 VNF CVC	2019-04-17	Edit Delete

csar-validate-r07879: The VNF Package MUST include all relevant playbooks to ONAP to be loaded on the Ansible Server. [enable]

csar-validate-r01123: The VNF package Manifest file MUST contain: VNF package meta-data, a list of all artifacts (both internal and external) entry's including their respected URI's, an algorithm to calculate a digest and a digest result calculated on the content of each artifacts, as specified in ETSI GS NFV-SOL004. The VNF Package MUST include VNF Identification Data to uniquely identify the resource for a given VNF provider. The identification data must include: an identifier for the VNF, the name of the VNF as was given by the VNF provider, VNF description, VNF provider, and version. [enable]

### Test Result Show

**Test Job Info**

ID: 411874564762189824  
 Job Name: Test-wt-03  
 SUT Name: FW-OVP-SUT  
 Job Description: Test-wt-03  
 Test Job Status: DONE

**Test Case**

● DONE ● FAILED

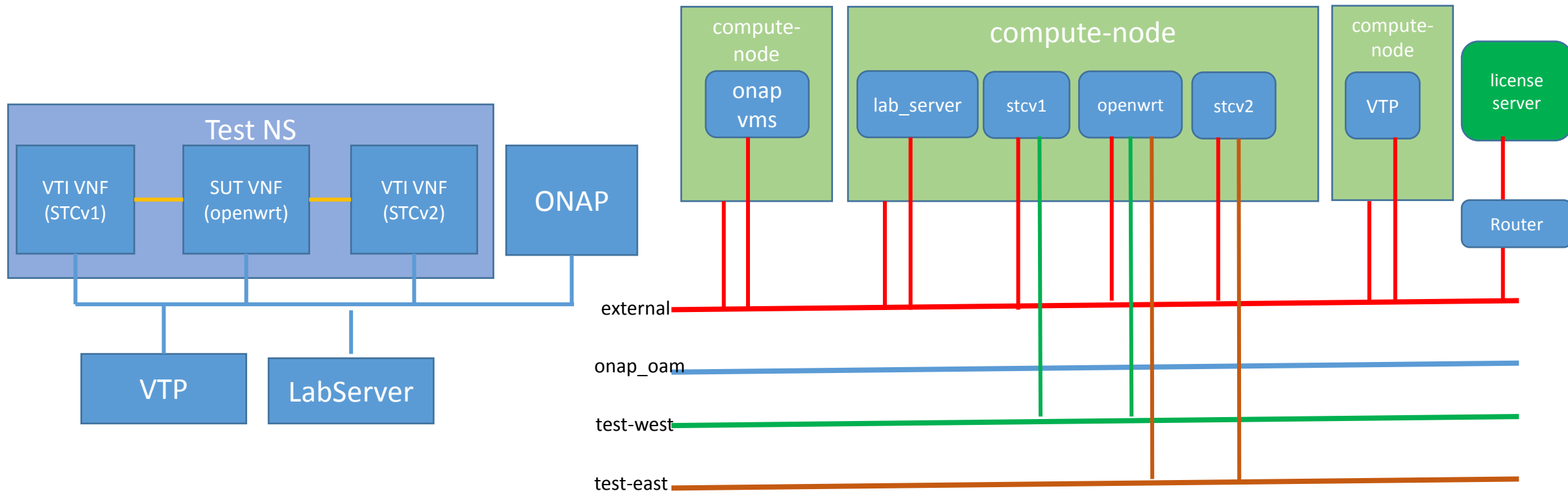
**Test Job Detail**

Test-wt-03

- Case Name: csar-validate-r17852 ●
- Case Name: csar-validate ●
- Case Name: csar-validate-r23823 ●
- Case Name: csar-validate-r13390 ●
- Case Name: csar-validate-r51347 ●
- Case Name: csar-validate-r77707 ●
- Case Name: csar-validate-r04298 ●

# Test Instrument Integration

## 1. Virtual test instrument(vTI) LCM with ONAP( Done)



## 2. Test process automation ( Test NS deployment, test instrument configuration, function and performance test execution)

VTP integrates with virtual test instrument to perform function and performance testing(undergoing)

The verification of the instrument integration solution provides the feasibility basis for OVP to provide functional test certification by integrating third-party test instruments



# NFV Testing Automation Survey in EUAG

- Part1: Testing process and content
- Part2: Testing Participants and Collaboration
- Part3: Test Restrictions
- Part4: Changes of NFV Network Element Access Test
- Part5: Status and Requirements of Test Automation
- Part6: Community Work Requirements

**Welcome feedback your requirements to help building open source testing and certification ecosystem**

**More expertise for NE and test instrument integration (esp. LCM and configuration) is welcome**

**Contact Information: Yan Yang , email address : [yangyanyj@chinamobile.com](mailto:yangyanyj@chinamobile.com)**

# Back Slides

# VTP Portal and OVP Portal Integration

Have done:

1,2,3,5,6 7

Plan to do: 3',4

8 is operator's test cases

