OVP TOSCA VNF Validation Testing on ONAP

Yan Yang (China Mobile)
Kanagaraj Manickam (Huawei)
CVC (Compliance and Verification Committee) Objective

Test Tools
- Compliance
- Validation
- Performance
- Agile and Scrum

Approval Process

Keeping it simple!

Unified VNF/NFVI Certification
Repository/Portal

VNFs
- Compliance A ✓
- Compliance B ×
- Validation A ✓
- Validation B ×
- Performance A ✓
- Performance B ×

NFVI
- Compliance A ✓
- Compliance B ×
- Validation A ✓
- Validation B ×
- Performance A ✓
- Performance B ×

Report

Standards / Requirements
- Operator Specific Req
- ETSI
- GSMA
- 3GPP
CVC Current Status

Approval Process

Standards / Requirements
- VNFRQTS
- Operator Specific Req
- Unified Certification Repository Portal

Compliance
- ONAP VTP/Dovetail
- VF/VNF Test repository
- VNFRQTS
- VNFs
- NFVI
- NFVI Compliance Tests

Validation
- ONAP VTP/Dovetail
- Test repository
- VNFRQTS
- VNFs
- NFVI
- NFVI Validation Tests

Performance
- ONAP VTP/Dovetail
- Test repository
- VNFRQTS
- VNF Performance Tests
- VNF Validation Tests
- NFVI Performance Tests
- NFVI Validation Tests

Interoperability
- Interoperability Testing Tools
- Test repository
- VNFRQTS
- VNFs
- NFVI
- NFVI Performance Tests
- NFVI Validation Tests

Self Certification
- Ad-hoc Testing
- Query Result
- ONAP VTP/Dovetail

Request Certification
- VNF/NFVI Vendor
- Approved Lab

Publish Result
In April 2019, the Linux Network Foundation released the OVP-VNF work plan to achieve compliance, validation and performance testing requirements, officially launched ONAP-based VNF certification testing work. In September 2019, the OVP-VNF test version 1.0 will be officially released.

OVP for VNF

Tosca Compliance & Validation Test - VNFSDK

- Cover 11 requirements
- 6 Tests in Casablanca, 26 Tests in Dublin

Heat Compliance & validation Test - VVP

- Cover 298 Requirements
- 180 Tests
1. Common VNF validation LCM requirements.

2. Common library of commands, functions, and automated scripts: e.g. create_vlm, create_service_instance, create_vnf, etc.

3. HEAT specific VNF validation LCM requirements.

4. HEAT World

5. Integration

6. TOSCA specific VNF validation LCM requirements.

7. TOSCA World

8. Dovetail integration to deliver results to portal and community review processes.

VNFSDK

VVP

Dovetail

ONAP CLI

ONAP

VTP

OVF VNF Validation Path

TOSCA VNF validation test cases - scripts
Service Provisioning (ONAP ESB VNF Test cases)

HEAT VNF validation test cases - scripts
Service Provisioning (ONAP ESB VNF Test cases)
Tosca VNF Validation on ONAP

ONAP Project involved in VNF Validation
- SDC - Invoke the test case
- VNFSDK+CLI - Execute the test case
- VF-C – Execute NS/VNFLCM
VTP VNF Testing Platform

A Test orchestration agile platform to manage and automate different kinds of VNF testing and across different SUT environment like MANO, cloud, VNFM, SDNCtrl, etc under one umbrella (OVP) and produce result analytics for VNFs.

Test case **Modeling & versioning (standardization)**
Test case management
Test orchestration
Environment management

NOTE: OCOMP is renamed from OCLIP
**VTP Domain Model**

- **Scenario** is a logical entity to model any given situations for which test cases are made, e.g., LFN OVP, vendor specific, functionality specific.
- **Test suite** is a logical entity that helps to group the tests into hierarchy with the notation `v1.02`.
- **Test case** models the given real test case with required inputs and outputs.

- **Execution** models every execution of a given test case with a unique identifier.
- **Parameter** is the instance of test case inputs, given by the user while executing the test case.
- **Result** is the instance of test case output, produced by VTP as part of execution.
- While execution, user could use **Profile** and **Artifact**.

- **Profile** models the system configurations and pre-defined test case parameters. Examples: GSMA profile, OpenStack environment details, etc.
- **Artifact** models the given binaries of any nature like VNF, Scripts, configuration files, certificates, etc.
- **Metadata** models tagging to support searching and intent-based testing.

- Test case results are searchable based on artifact, profile, scenario, test case, metadata as VTP captures every test case execution with parameters and results.

- Follows Open Command Specification (OCS) 1.0

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**THE LINUX FOUNDATION**

**LF NETWORKING ONAP**
* CSAR – Vendor VNF CSAR
** OCOMP profile – Stores ONAP services URL and credentials
Overall Work Flow for TOSCA VNF Validation

More Info : https://wiki.lfnetworking.org/display/LN/TOSCA+VNF+Validation+Planning
✓ **OCOMP unifies the model and actions** as ONAP managed object (using OCS YAML)
  - same user experience across all ONAP services, Network services, VNF and use-cases.
✓ Develop once, share across roles Certification, testing, devops and production/automation.
  - Saves everyone from duplicate effort spent on developing their own copy of same automation
✓ Every action available as its to different role
  - as command from CLI console (devops)
  - as test case from VTP (testing, certification, production)
✓ Tester fills the user role in the absence of user
  - All roles see same behavior for a given action

<table>
<thead>
<tr>
<th>Role</th>
<th>Operator/Vendor</th>
<th>OVP lab</th>
<th>CI/CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>As Command using CLI</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>As Test case using VTP</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

6X vs 1X

* ONAP managed object - ONAP CLI commands  # Open CLI Platform (OCLIP)
Tosca VNF Validation Modes and Operations

1. **setup**: Create requires Vendor, Service Subscription and VNF cloud in ONAP
2. **standup**: From the given VSP csar, VNF csar and NS csar, it creates VF Model, NS Model and NS service
3. **cleanup**: Remove those entries created during provision
4. **provision**: Run setup -> standup
5. **validate**: Run setup -> standup -> cleanup

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**VNF Instantiate & VNF Terminate Operation**

<table>
<thead>
<tr>
<th>Command</th>
<th>Modu les</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>vnfm</td>
<td>AAI</td>
<td>Register vnfmdriver to ONAP</td>
</tr>
<tr>
<td>vim</td>
<td>AAI</td>
<td>Register VIM under a given cloud region in ONAP</td>
</tr>
<tr>
<td>complex</td>
<td>AAI</td>
<td>Cloud complex in ONAP</td>
</tr>
<tr>
<td>customer</td>
<td>AAI</td>
<td>Customer in ONAP</td>
</tr>
<tr>
<td>service-type</td>
<td>AAI</td>
<td>Add service type in ONAP</td>
</tr>
<tr>
<td>onboard-vnf</td>
<td>VF-C</td>
<td>Onboard VNF to VF-C catalog</td>
</tr>
<tr>
<td>onboard-ns</td>
<td>VF-C</td>
<td>Onboard ns to VF-C catalog</td>
</tr>
<tr>
<td>create-ns</td>
<td>VF-C</td>
<td>Create ns based on onboarding ns CSAR file</td>
</tr>
<tr>
<td>instantiate-ns</td>
<td>VF-C</td>
<td>Instantiate NS</td>
</tr>
<tr>
<td>terminate-ns</td>
<td>VF-C</td>
<td>Terminate NS</td>
</tr>
<tr>
<td>delete-ns</td>
<td>VF-C</td>
<td>Delete NS</td>
</tr>
</tbody>
</table>
Welcome to Join the Live Demo

Demo:  Tosca VNF Validation on ONAP

Time : 11:30 AM on Friday

Location : Esperanza 2

Thank you !