
# Heat-based VNF Onboarding & Instantiation Testing Approach

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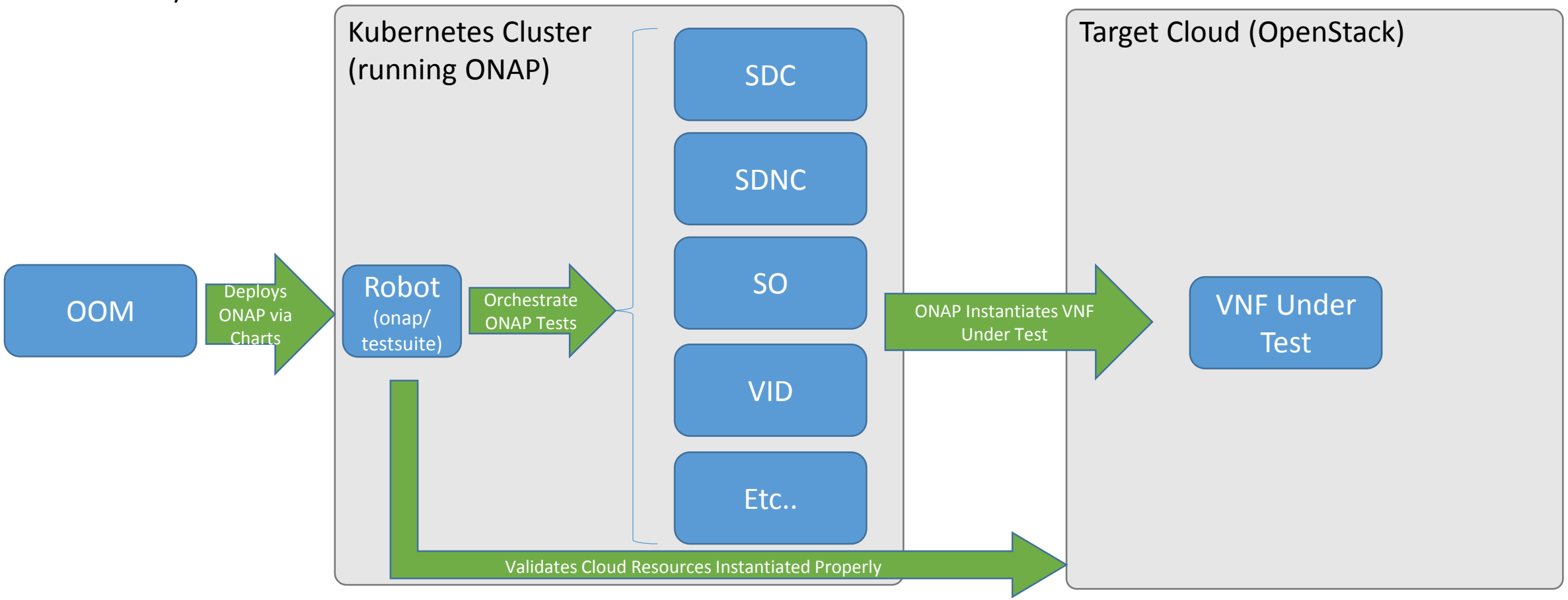
# Objectives

- Execute and validate the test case as defined by the VNFRQTS project
- Ensure testing automation covers both the existing package validation and the new test case
- Leverage existing automation provided by ONAP Integration Testing suite
- Enable testing automation to leverage future enhancements and fixes to the ONAP test suite
- Ensure unified test case results can be consumed by the OVP portal (preferably with no or limited changes)
- Ensure test case produces all necessary artifacts and logs needed to support the review and approval process orchestrated by the OVP portal

# High-level Architecture Overview

ROBOT is an existing container deployed by OOM into the same K8s cluster as the other ONAP components. It contains the existing automated test cases executed under ONAP Integration Testing suite. It interacts with ONAP and APIs and GUIs today to orchestrate onboarding, distribution, and deployment (and other functions as well). The current approach is to extend ROBOT's capabilities to handle an arbitrary VNF.



# Actors

- **VNF Provider** - Responsible for developing, packaging, and distributing a VNF that is compliant with ONAP VNF Requirements as well as providing any additional artifacts required to setup the ***Test Lab*** or ***Test Engine***.
- **Test Lab** - Hosts the ONAP and Cloud environment used to execute the test cases. The environment will host a deployed instance of ONAP using the official El Alto release of ONAP and a compatible OpenStack cloud instance (version TBD).
- **Test Lab Provider** - Responsible for establishing the ***Test Lab*** and supporting the ***Tester*** in the configuration of the ***Test Lab*** for any VNF specific requirements such as virtual machine images or networks. This will include providing the ***Test Engine*** access to the necessary ONAP APIs/GUIs as well as access to the OpenStack APIs.
- **Tester** - Responsible for:
  1. Ensuring the test lab is configured per the VNF's requirements and needs.
  2. Configuring the ***Test Engine*** for execution. The artifacts required will be provided by the ***VNF Provider***.
  3. Executing the test cases using the ***Test Engine***.
  4. Reporting the results of the test case to the ***VNF Provider***.
- **Test Engine** - Provides automation of the test execution and verification of the success or failure of the individual test cases. The ***Test Engine*** must also provide further documentation on how it and the ***Test Lab*** must be configured for successful execution and verification of the test cases.

Source – VNF Requirements – VNF Onboard and Instantiate Test Case

# User Experience

| Test Lab Setup | VNF Provider Pre-requisites | Test Case Configuration | Test Case Execution | Test Results & Submission |
|---|---|---|---|---|
| Prerequisite for Testing<br><br>Not cared for by **Test Engine** in any way<br><br>**Test Lab Provider** must setup:<br><br>- OpenStack (target cloud setup)<br>- ONAP Deployment<br>- Tenant created in target cloud and provided to ONAP as target for instantiation<br>- ONAP connected to Target Cloud and Tenant<br>- ONAP customer and subscriber setup | VNF Provider must gather the necessary inputs for test execution:<br><br>Input to **Test Lab Provider**<br><br>- NOTE: These steps are not automated by the **Test Engine**<br>- (optional) ONAP/OpenStack Networks to be created<br>- (optional) VM Image to onboard to Glance<br><br>Input to **Test Engine**<br><br>- Heat Template Archive<br>- VNF-API-compatible Preload JSON artifact (supported today)<br>  - **Stretch goal**: support GR-API preloads<br>- Any additional Test Engine config data defined as required by the **Test Engine** | Tester must…<br><br>- Follow instructions to configure the **Test Engine** by assembling the input artifacts in the proper structure, location, and formats to be read by the Test Engine<br>- Exec into ROBOT container<br>- Mount file system with config data and Heat Template Archive<br><br>**NOTE:** Still experimenting on best options to pass configuration and VNF data into ROBOT. | Tester must…<br>Download logs from Robot log endpoint URL<br><br>- Invoke the test case from the command line<br>- Monitor progress and results<br>- Capture logs and reports<br>- Return these results to the **VNF Provider**<br><br>**NOTE:** The test case will execute the package validation as well<br><br>- **[Working Now]** Native execution of VVP<br>- **[Stretch Goal]** Executing Dovetail<br><br>**NOTE:** There are issues and security concerns with running Docker in Docker which is what would be required for this feature. Long term we may move VVP to a deployable component via OOM | VNF Provider must…<br><br>- Review results and correct any failures encountered during the test case<br>- Once passing submit the archive of the results to the OVP portal for review and approval. |

# Reviewer Experience

The results package will consist of the following artifacts for review