Developing ONAP Into an End-to-End Open Testing Automation Framework

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Introduction

• Challenges of Tier 1 carrier consuming ONAP
  - The size of ONAP
  - The complexity of existing infrastructure and operating environment at tier 1 carrier
  - The project segmentation of ONAP code development
  - The lack of documentation

• Opportunity of improvement on ONAP
  - Function-based horizontal segmentation of ONAP
  - Microservice-based code and document organization
  - Clearly defined system integration points and associated API library
A New ONAP Project: OTF
MANO Testing Requirements

1. NFVi/VIM Testing
   - measuring and benchmarking NFVI functions and performance
   - auditing all configurations and ensure that golden configuration is maintained for each of the services of NFVI

2. Generic NFV/NFVM Testing
   - a.k.a NFV Life Cycle Management (LCM) testing
   - include VNF qualification testing, VNF Design Phase testing, VNF deployment planning testing, Load/Stress testing and etc.

3. MANO Testing
   - the System Under Test (SUT) is MANO itself instead of VNFM and the VNFs it manages

4. VNF/PNF Use Case and Network Service (NS) Testing
   - testing of features unique to specific VNF/NS vendors
   - testing of features unique to specific network functions
   - testing of service chained network services that consist of multiple VNF/PNFs
   - allow easy integration (e.g. plug-and-play) of Testing Strategies, Test Cases, Test Scripts, Testing Tools, and etc.
1. There is no common testing framework across ONAP
   - testing code are spread across multiple projects, making it difficult for operator to consume/adopt
   - E.g. NFVi/VIM testing code reside in OPNFV, Onboarding testing in VNFSDK, MANO testing in OOM, and etc.

2. There is no clear modulization/boundary for testing code
   - Requires significant code discovery and integration effort, further decrease operator deplorability
   - Code are highly fragmented, making gap analysis, code development, and code testing effort harder

3. There is major gap in testing automation in ONAP
   - VNF/PNF Use Case and Network Service (NS) Testing are largely missing
   - There is no runtime testing
   - No common testing result recording and analysis platform
   - No testing policy function
   - No closed loop action based on testing results

4. Documentation is lacking
High Level Service Design and Onboarding Testing Workflow
Examples Workflow for Onboarding Testing