AN UPDATE ON OSM TO THE NFVRG

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• Delivering an open source MANO stack aligned to ETSI NFV (information and data) models
  • Capable of consuming published models for NFV service and deployment (VNFD, NSD, etc.)
  • Extending these models, and recommending back to ETSI NFV
• Assuring predictable behavior of VNF and NS
  • Under these models
• Enabling an eco-system of model-based VNF solutions
  • Ready to be offered to cloud and service providers
  • No need of integration on a per- customer and/or MANO vendor
OSM AS OF TODAY

• Open community-based NFVO, founded on these principles:
  • Compliance and feedback to ETSI NFV ISG architecture and specs
  • Base implementation on information model
  • Independent IOP labs to test & integrate in the community
  • Open governance model based on technical meritocracy

• Types of engagement
  • Developers (as you could expect...)
  • Early adopters
  • Testers (modules & IOP)
  • Advisors

• End-User Advisory Board
  • Service providers and other end users of the technology (not integrators or resellers) will become members
  • Produce feature requests to the technical groups

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A PRODUCTION-QUALITY NFV MANO STACK

Layering
- Capturing and automating real production complexity
- Covering e2e lifecycle of network services

Abstraction
- Avoiding complex integration efforts
- Providing a consistent model-based approach

Modularity

Simplicity

Architectural Principles
OSM COMPONENTS

Run-Time Scope
- Automated end-to-end Service Orchestration
- Superset of ETSI NFV MANO
- Plugin model for multiple VIMs/SDN Controllers
- Generic VNFM style functionality with support for integrating Specific VNFM
- PNF integration
- Greenfield and brownfield deployments
- GUI

Design-Time Scope
- Network Service Definition (CRUD operations)
- Model-Driven Environment with Data Models aligned with ETSI NFV
- VNF Package Generation
- GUI

GUI & Design-Time Tools

Network Service Or orchestrator

VNF Configuration & Abstraction

Resource Orchestrator (Includes VIM/SDN Connectors)

OpenVIM

OpenStack

VMware

OSS/BSS

EMs

Specific VNFM

VNFs

PNFs

NFVI

ODL

Floodlight

Ve-Vnf

NF-Vi

Ve-Vnfm

Main NFV reference points

Extract from Figure 4, NFV Reference Architecture Framework, ETSI GS NFV 002 V1.2.1 (2014-12)

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• Data Modelled Language: YANG
• Format Encoding: YAML, JSON, XML
• **Note:** Data Model Translator included in the architecture to optionally decouple OSM internals from the user input formats.
• OSM open to supporting multiple input formats to align with industry directions

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• Will work with the ETSI NFV ISG community for clarifications, bug fixes (sightings) and feature advances.
• Possible intersect with OSM Release THREE
HOW OSM BEHAVES

Service Orchestrator (SO)  
(seeded from Riftware)

VNF Configuration Agent (VCA)  
(seeded from Juju)

Resource Orchestrator (RO)  
(seeded from OpenMANO)

VNF  VNF  VNF  
VIM  VIM  VIM
• Need to map functional interfaces to network connection points
• More on this when talking about draft-aranda-nfvr-g-recursive-vnf
FROM RELEASE ZERO...

• Simplified on-boarding process
• Human-readable VNF and NS descriptors
• Multi-VIM support: OpenStack, OpenVIM
• EPA Support, assuring predictable performance
• Underlay configuration with SDN
• Web interface
• Documentation
  • Installation guides
  • How-to guides for users and developers
  • Data model in detail
  • Minimal infrastructure requirements
  • Videos
  • ...

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... TO RELEASE ONE...

• Multi-VIM
  
• Multi-SDN
  
• Plugin model for adding new VIMs and SDN frameworks
• Multi-site network services
• Simplified installation
  • Including support for OpenVIM
• Enhancements to VNF and NS models
  • Contributed to ETSI NFV

Available at: osm.etsi.org
... TO WHAT IS BEING DISCUSSED FOR RELEASE TWO...

- Interoperability with public clouds
- Service chaining use case
- OSM sandbox
- Auto-scaling VNF with horizontal scale out of VDUs
- Deployment of OSM in reduced environments
- Distribution of OSM SW as container images
- Unified CLI
- Interchangeable PNFs and VNFs

Beware: This is a list of features discussed by the EUAG
Not a commitment from the OSM team
...AND OTHER PROPOSED FEATURES RELATED TO DEVOPS

• Emulated multi-PoP environment
  • Facilitate the whole model-driven development cycle
  • Environment based on Mininet/Containernet
  • Executed on single physical or virtual machine

• Mediated interactions
  • Embrace the openness of a NFV Service Platform without compromising security
  • Use AuthN/AuthZ at scale: external systems, package signing...
  • A Gatekeeper as a mediator of all MANO operations
  • Rely on a microservice architecture to guarantee modularity and extensibility
GETTING REAL

• A network of remote labs enables continuous and automated testing with different VIMs and NFVIs

• Fully integrated with OSM CI/CD pipeline

• Bring realistic conditions to OSM testing

• Minimize barriers for community engagement

• Securely connected over ETSI’s HIVE (Hub for Interoperability and Validation)
• Interoperability tests, in a combination of 1 MANO + 1 VIM + 1 VNF
  • Objective is to check that they can work together
  • ETSI does not certify NFV solutions
  • 10 VIMs x 15 VNFs = 150 combinations
    • Only a random sample per MANO

• Test sessions randomly scheduled the day before
  • Based on pre-testing activities & daily feedback
  • VIM, VNF and MANO sitting in the same table

• An 8 days event
  • At the 5TONIC lab in Leganés (Spain)
  • 23 January to 3 February
  • See http://www.etsi.org/news-events/events/1104-1st-nfv-plugtests
OSM AT THE PLUGTESTS

- OSM interoperated with all VIMs and VNFs participating in the PlugTests

- Objective: A unique OSM descriptor for all VIMs
  - All OSM VIM plugins were used in the tests: OpenStack, VMware, OpenVIM
  - A wide range of OpenStack platforms were tested successfully
    - From Kilo- to Newton-based
    - Deployment on specific segments: regions, availability zones
    - Access to VMs through both provider external network and tenant network connected to the public/external network

- A total of 32 test sessions in 8 days, all successful
  - Addition/removal of VNF and NS packages into the Catalog
  - Instantiation and termination of NS instances.
  - Update operations on running NS instances (start/stop VNF instance)

- 22 bugs collected, many already fixed
IOP MATRIX

- OSM passed successfully all scheduled tests
- All VNFs, all VIMs
- Most time spent on creation and debugging of descriptors

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<th>VIM 1</th>
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- Blank = combinations not tested during the Plugtests (likely to work)
- Note that all VNFs and VIMs were assigned at least once
FACILITATING HORIZONTAL VIRTUALIZATION

Baremetal

Vertically Virtualized

Horizontally Virtualized

Technology availability and maturity
Standard availability (OpenStack)
Telefonica-led UNICA development
Include OSM service orchestration as part of the UNICA architecture
Find out more and come join the party at

osm.etsi.org