ON OSM

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THE GOALS

• 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 basis
THE NATURE

• And Open Source Community hosted by ETSI
  • Easing alignment with NFV ISG
  • Driven by service provider requirements
  • Supported by key players in the virtualization space
  • And open to new fellow travellers
1. EPA support

Addressing the aspects required by deployments in the field

2. Multi-VIM

3. Multi-site

4. SO and RO can be detached

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THE SEEDS

• OSM does not start from scratch
• The project starts with running code from the beginning
  • OpenMANO (RO)
    • [https://github.com/nfvlabs/openmano](https://github.com/nfvlabs/openmano)
  • Juju charms (VNF models & configuration)
    • [https://jujucharms.com](https://jujucharms.com)
  • RIFTware Launchpad (SO/NS management)
    • [https://github.com/RIFTIO/RIFT.ware](https://github.com/RIFTIO/RIFT.ware)

• What helps to
  • Avoid over-engineering due to excess of abstraction
  • Start getting traction at SP level
  • Ecosystem steering

• Seed code represents an initial starting point
  • All components pluggable/replaceable for OSM
THE BASIC CONCEPTS

• Resource Orchestration (RO)
  • Set of operations for the allocation of compute, network and storage resources for the deployment of VNFs and their interconnection

• Service Orchestration (SO)
  • Set of operations for the automatic configuration of P/VNFs, networks and traffic forwarding between P/VNFs in a coordinated way
  • Configuration is driven by stimulus coming from
    • Operator / OSS (high level service primitives)
    • VNF / EM
    • Infrastructure / VIM
  • Nothing prevents service orchestration from requesting changes in resources

• Life Cycle Management (LCM)
  • Set of operations related to the life cycle of a VNF or NS, involving changes in resources and changes in P/VNF and network configuration in a coordinated fashion
  • It can be considered a limited subset of SO operations
THE MAPPING(S)

- Map NFVO and VNFM features in a way that avoids functional fragmentation
- And make them pluggable

- Automated deployment & interconnection of all components from an NFV Network Scenario
- Management of lifecycle at Network Service level
THE MODEL-DRIVEN APPROACH

LOCAL DEVELOPMENT & TESTING
- Open development environment
- Functional tests
- Low cost
- Integration from the beginning

TEST POOL FOR DEVELOPERS
- Real servers and switches
- Performance tests (EPA can be enforced)
- Cost-effective shared infrastructure
- Move the value to VNF services

SERVICE PROVIDER
- Production/pre-production environment
- Real network scenarios
- Final service configuration
- Fast deployment
- Low final integration cost

• OSM is committed to apply the models defined by ETSI NFV
• And contribute back according to development and experimentation results
THE CHALLENGES FOR THE RO

- Smooth integration with legacy OSS whenever needed
  - Fully decoupled
  - Relaying on the model-driven approach
- Facilitate horizontal virtualization
  - Escape from *virtualized boxes*
  - Enable going beyond fixed (ossified?) architectures
- Assure proper resource allocation and interconnection for each component
  - Based on EPA-enabled descriptors
- Further automation at SO level
  - Assuring predictable behaviour
THE ChALLENGES FOR THE SO

• Seamless management of multi-tenancy
  • Multi-tenant infrastructure vs multi-tenant VNF in same service

• A coherent E2E view at the NS level
• Automated configuration of VNFs
  • Agnostic to configuration method
• Smooth integration of automation-capable PNFs
THE CHALLENGES FOR THE MODELS

• Ready for automating realistic NFV environments
  • VNFDs
    • Self-contained
    • Capacity: VDUs, VLs,..
  • Configuration and lifecycle
  • Monitoring (and what to do with it)
• Network scenario descriptors
  • Actions and parameters at scenario level
  • Replicable template, with personalization
  • Composition of scenarios

• Practical considerations (experimental evidence)
  • L2 topology is relevant
    • EPA + Connectivity
    • VNF placement is relevant for configuration
  • Single vs multi-tenant VNFs
    • Container types
    • Lifecycle considerations
  • Image pre-configuration
  • PNFs and integration with legacy OSS
THE CHALLENGES FOR THE VIM

- EPA support in reference VIMs
  - Assuring interoperability with reference VIM layers capable for predictable performance
  - A VIM layer capable of supporting EPA natively will be assumed
  - The project will provide an EPA-ready VIM module to start

- Close interaction with key open-source projects for VIM
  - Assuring a proper EPA support as soon as available
  - OpenStack, as industry reference VIM
  - OpenDaylight, supporting the creation of native E-LAN and E-Line L2 services in OpenStack and elsewhere
  - Facilitating OPNFV integration
  - Continue the evolution of the OpenVIM component in OpenMANO
THE DEMO AT MWC

- Demonstrate the feasibility of the concepts, starting with the existing code seeds
- As realistic as possible, with commercial VNFs
- Proof of main concepts in OSM
  - E2E automation
  - EPA and infrastructure network control – SLA can be guaranteed
  - Multi-Site
  - Multi-VIM
  - Combination of multi-tenant and single-tenant VNFs
  - Connection to external physical lines
- Useful for next stages of the project
  - Identification of required enhancements
  - Further code development
THE MWC DEMO VIDEOS

https://www.youtube.com/watch?v=JJlxwJStkTk

https://www.youtube.com/watch?v=yyo26w8HSn8
Find out more and come join the party at

osm.etsi.org