NFV Configuration Problem Statements

Haibin Song   haibin.song@huawei.com
Georgios Karagiannis   g.karagiannis@utwente.nl
Evangelos Haleplidis   ehalep@gmail.com
Barbara Martini   barbara.martini@cnit.it
Lingli Deng   denglingli@chinamobile.com

History

◈ Presentation at Appsarea meeting @ietf 87 talking about VNF descriptor and remote installation and configuration template from the VNF user's perspective
  ◈ draft-song-appsawg-service-template-00

◈ Presentation and side meetings @ietf 88 and ietf 89

◈ Relative drafts
  ◈ draft-deng-nfvcon-nb-use-cases-00
  ◈ draft-song-opsawg-virtual-network-function-config-01
  ◈ draft-zhou-nfvcon-arch-00
  ◈ draft-xjz-nfv-model-datamodel-01
  ◈ draft-xjz-nfv-model-problem-statement-00

◈ Mailing list
  ◈ https://www.ietf.org/mailman/listinfo/nfvcon

What are the main use cases

- ◈ VNF (Virtual Network Function) Store
    - ◈ Require a protocol between VNF Store service provider and user (descriptor, life cycle management and etc.)

- ◈ VNPaaS (Virtual Network Platform as a Service)
    - ◈ VNFaaS
        - ◆ Require life cycle management/VNF orchestration/log between user and VNFaaS provider
        - ◆ VNF Migration
            - ◇ Require policy/indication for migration from users
        - ◆ VNF Template
            - ◇ For VNF descriptor, installation, configuration and operation

    - ◈ VNPaaS is more complicated
        - ◆ Require the orchestration and operation of VNFs/infrastructure belonged to a same platform

Protocol in scope

◈ Focus on only the protocol between VNF user and VNF service provider

◈ And for this protocol, only consider the following at the beginning (virtualization related)
- ◈ life cycle management
- ◈ VNF orchestration
  - ◆ Including automatic resource scheduling
- ◈ VNF Migration
  - ◆ Policies/Actions
- ◈ VNF description
  - ◆ Environment, Service type, VNF components….
- ◈ VNF configuration
  - ◆ Generic Configuration, address when/where/which to apply specific configuration template

Data Model in Scope

◈ For the pre-said protocol, only focus on the following data models

  ◈ VNF descriptor, installation, configuration and operation information

  ◈ VNF life cycle management

  ◈ VNF migration

Out of Scope

◈ Network infrastructure abstract view to the user, which could be used for VNF configuration

◈ Definition of policies to VNFs to direct the traffic for service chaining

Gap analysis

- Netconf/YANG
  - Focus on the network management system to device
  - NFVCon requires user friendly interface, may use Restconf?

- http/json
  - Might be more appropriate for VNF consumers to support as most end hosts have already supported JavaScript?

- ForCES
  - ForCES protocol might be suitable for the control plane (and the management for that matter)
  - ForCES model might be capable for describing the operational parameters of VNFs as well as capabilities and events

- *Non-IETF activities*
  - *Openstack (relative APIs, **IETF protocols can be complementary to those APIs**)*
    - *VNF life cycle management API proposal*
    - *Horizon-NFV-configuration (configure service type, vendor, boot-source, and other options)*

Security considerations

◈ Need protection against user identity attack

◈ Need protection against man-in-the-middle attack

◈ NFV control and management plane also needs identity verification

IETF related work

- SFC
  - Currently not chartered to do VNF installation, configuration, or operation
  - But the policies related to service chaining could defined in SFC

- Netconf
  - The protocol may be used for extension in NFV configuration

- Proposed NFVRG
  - The RG is research oriented, target NFV architecture and etc

- Proposed APONF
  - APONF now targets at the Network Service Graph and the policies for traffic steering with Netconf/Yang

Thank you!