draft-bernini-nfvrvg-vnf-orchestration

VNF Pool Orchestration For Automated Resiliency in Service Chains
Problem statement

• Automated, flexible and elastic provisioning of service chains
• Implement control mechanisms and procedures to steer the traffic through the different VNFs
• Address new challenges concerning the reliability of the provided virtualised services
VNF Pool orchestration

• Top objectives are:
  – evolve operators’ DCs towards very dynamic infrastructures to deploy VNFs and service chains with high elasticity
  – provide automated functions for deployment, provisioning and composition of resilient VNFs within operators' DCs

• Integration of SDN and NFV technologies is key
  – to provide benefits to operators in terms of robustness, ease of management, control and provisioning of their infrastructures and services
  – to enable virtualisation of network infrastructures, services and functions while supporting dynamic and flexible network traffic engineering

• In practice, VNF Pool orchestration combine and extend two existing proposals
  – ETSI NFV Architecture
  – VNFPOOL
VNFPOOL

Service control entity

VNF-A
- Pool Manager
  - VNF-A#1
  - ... VNF-A#n
  - VNF-A Pool

VNF-B
- Pool Manager
  - VNF-B#1
  - ... VNF-B#m
  - VNF-B Pool
Integration of VNFPOOL into ETSI NFV
Real life implementation
Proposed framework

- **Orchestrator**
  - management, coordination, and control of VNFs instantiation and configuration
  - access point for the operator

- **SDN controller**
  - dynamic traffic steering for VNF chains
  - augmented by a set of enhanced network applications and management VNFs for operator’s use
    - VNF chain configurator
      - Implementation of service composition and chain logic (e.g. path computation)
      - Coordination of both north-south and east-west VNF chains
    - Edge configurator
      - provisioning of the edge router for north-south VNF chains exiting the DC
Resiliency Functions for Chained VNFs

- VNF Pool manager coordinates VNFs reliability providing high availability and resiliency functions
  - covers both stand-alone and chained VNFs
  - addresses the requirements set by VNFPOOL architecture
    - service continuity, topological transparency, load balancing and scaling, auto scale of VNFs instances, multiple VNF resiliency classes
  - different types and degrees of reliability oriented functions
    - persistence of VNFs configuration
    - monitoring of operational status and performance of VNFs
    - autonomous replacement of master VNF with backups from the pool
    - coordination with the VNF chain configurator for service chain reconfiguration
    - cold recovery vs. hot recovery strategies
I-D merging opportunities

- Other I-Ds are tackling complementary service chaining aspects
  - e.g. draft-lee-nfvrgrg-resource-management-service-chain

- We see VNFPOOL as a key concept for orchestration and resource management in VNF chains
  - we are open for discussion on merging options …
  - ... for us, complementarity is crucial for coherent merges
Questions, REACTIONS

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