Towards a cloudified service function chaining infrastructure

A SFC-enabled cloud platform

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Introduction

SDN and NFV are two Burning Telco topics

SDN adds network automation, programmability and agility

NFV aims to transform network architectures through the implementation of network functions in software (VNF), allowing dynamic service deployment, service assurance and security

Examples of VNFs: HSS, GGSN, IMS, CPE, AAA, policy control, CDN, load balancers, firewall, IDS, DPI, etc…

Cloud + SDN + NFV
ETSI NFV ISG

NFV ISG initiated in October 2012

Virtualised Network Functions (VNFs)

VNF VNF VNF VNF VNF

NFV Infrastructure (NFVI)

Virtual Compute Virtual Storage Virtual Network

Virtualisation Layer

Hardware resources

Reference architectural framework

OSS/BSS Service, VNF and Infrastructure Description

EMS 1 EMS 2 EMS 3

VNF 1 VNF 2 VNF 3

Virtual Computing Virtual Storage Virtual Network

Virtualisation Layer

Network Hardware Storage Hardware Computing Hardware

NFV Management and Orchestration

Orchestration

VNF Manager(s)

Virtualised Infrastructure Manager(s)

Main NFV reference points

Execution reference points Other reference points

MCN Workshop 19 June 2014
Service Function Chaining

- Active SF
- Passive SF
- Packet Flow
- Set of Flow Classifiers

SFC example

End-to-end network service

- NS-A & SF-A Interface
- NS-A & SF-E Interface

MCN Workshop
19 June 2014
CNPG project

• Funded by PT-I&S
• Participating in the OpenStack NFV group
• Coordination with the OpenStack Neutron Advanced Services team for a Advanced Network Service Common Framework
  • https://review.openstack.org/#/c/92200/
• Extending OpenStack Neutron API
  • Traffic Steering Abstraction
    • https://review.openstack.org/#/c/92477/
  • Service chaining specification
    • https://review.openstack.org/#/c/93524/
• External attachment points
  • https://review.openstack.org/#/c/87825/
• OpenDaylight

SFC-enabled platform

[Diagram of SFC-enabled platform with connections and components described in the text]

[Diagram showing NFV Infrastructure and OpenDaylight as part of the SFC-enabled platform]

https://review.openstack.org/?q,topic:bp/traffic-steering-abstraction.n.z
References

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3. IETF SFC WG
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4. OpenStack NFV Team
   https://wiki.openstack.org/wiki/Teams/NFV