CloudCO-APPN-442:
Value Added Service (VAS) Based on NERG

Editor(s): Jie Hu

Contributor(s): Jinwei Xia; Junfeng Ma

Supporting Company/ies: China Telecom, Huawei, CAICT

Table of Contents

1 Summary/Objective

This application note describes the Value Added Service (VAS) as one extended service and chained with NERG service within a Cloud CO domain instance (See APPN002-NERG-FLAT, APPN003-NERG-OVERLAY). The VASs include, Parental Control, Broadband on Demand, etc.

The VASs are realized by a set of VNFs, for example, the Parental Control VAS is realized by the Firewall VNF to execute the fitering policies.

Interactions for the creation and activation of the VAS are provided.
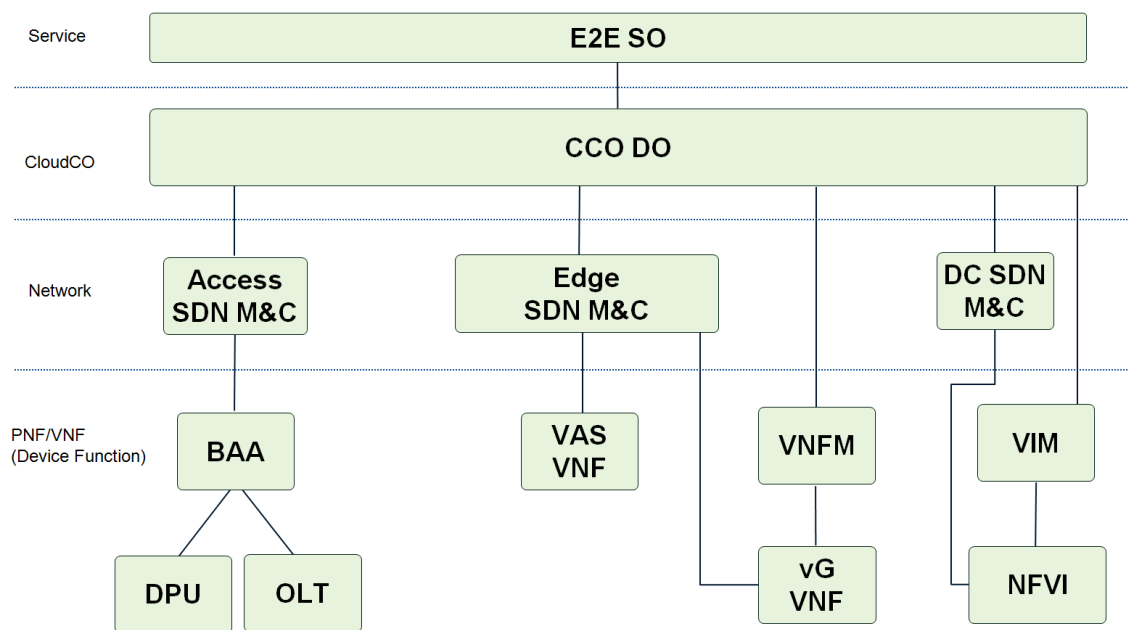
2 Assumptions and Preconditions

1. The Cloud CO Domain instance is already fully bootstrapped.

2. The NERG service is already successfully instantiated in the Cloud CO Domain.

3. The VAS VNF is managed through the Ms refenece point by the Edge SDN M&C.

3 Description of the System

The E2E SO issues a Parental Control Service creation request to the CCO DO via the CCO NBI.

CCO DO orchestrates the establishment of appropriate network service by requesting the:

- VIM to configure a pre-activation trail (user plane) from the vG VNF to the VAS VNF.
- Edge SDN M&C to configure the VAS VNF with the tenants' policies via the Ms reference point.

4 Components

| Component Framework Name	Component Description
CCO DO	TR-384, WT-411
Edge SDN M&C	Edge SDN Management and Control: TR-384, WT-411, WT-413 - Provides SDN Management and Control of the Routing and RG, as well as control plane functions that have been virtualized such as DHCP and AAA VNFs.
Access SDN M&C	Access SDN Management and Control: TR-384, WT-411, WT-413 - Provides SDN Management and Control of the DPU and OLT via the BAA
DC SDN M&C	Data Center SDN Management and Control: WT-411 - Provides SDN Management and Control of the NFVI , in this case the physical network fabric.
VIM	Virtualized Infrastructure Manager: WT-411, ETSI NFV - Controls the NFVI, deploys VNFs and interconnects them.
BAA	Broadband Access Abstraction layer: TR-384, WT-411, WT-413: Aggregates and virtualizes access to DPUs and vOLT PNFs.
DPU	Access PNF
OLT	OLT PNF
vG	The virtual gateway VNF: TR-317, TR-384-hosted in CCO Domain.
VAS	The VAS VNF.

5 Actors

| Actor Name	Actor Description	Actions at CCO Perimeter (CCO DO NBI, User action)
Service Provider	The Service provider creates the VAS, and also creates service users	1. Create VAS 2. Creates VAS user for a tenant.
Service User	The tenant of the VAS	1. User connects the Premises PNF to the network.

6 Interactions

6.1 Interaction 1: Create VAS

1. CCO DO receives a VAS creation request.
2. CCO DO requests VIM to deploy and instantiate a VASI VNF inside the CloudCO Domain. This VNF is managed by the Edge SDN M&C via the Ms reference point.
3. CCO DO requests VIM to create a virtual network to connect the vG VNF and the VAS VNF.
4. CCO DO reports 'Service Ready'.
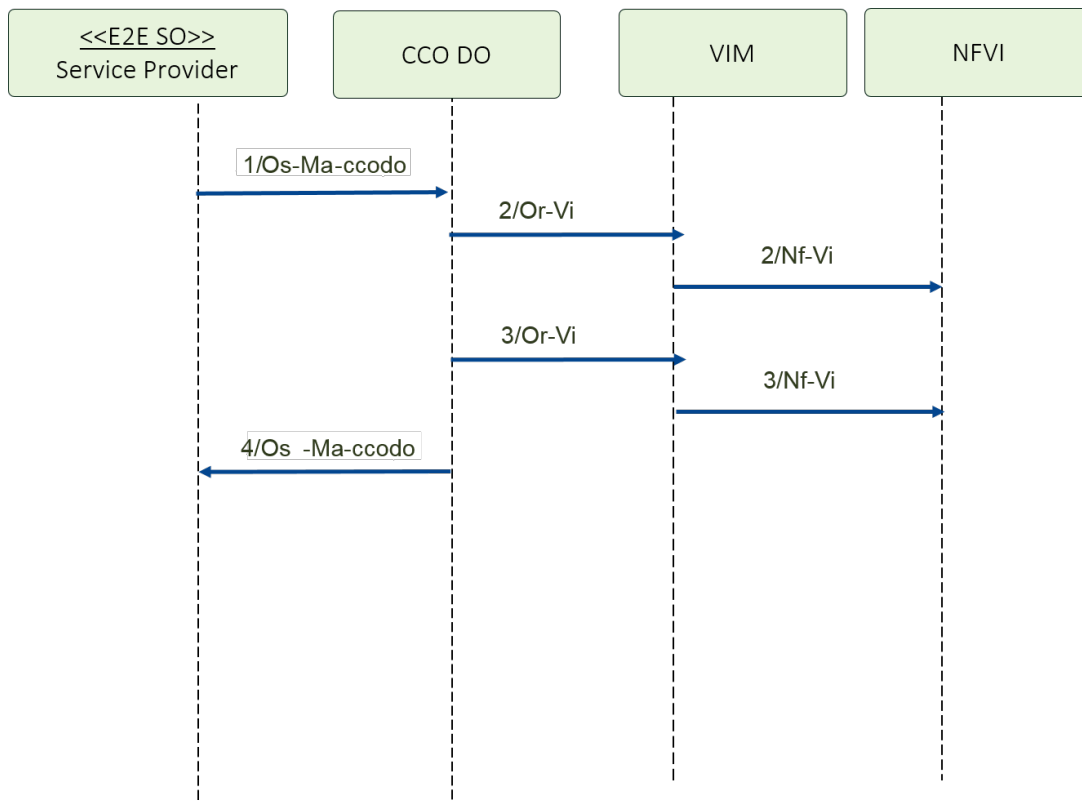
6.2 Interaction 2: Create VAS User

1. CCO DO receives a VAS User creation request with tenant policies.
2. CCO DO requests the VIM to change the service chaining of VNFs to make sure the user plane traffic to be processed by the VAS VNF.
3. CCO DO requests the Edge SDN M&C to configure the VAS with the tenant policies.
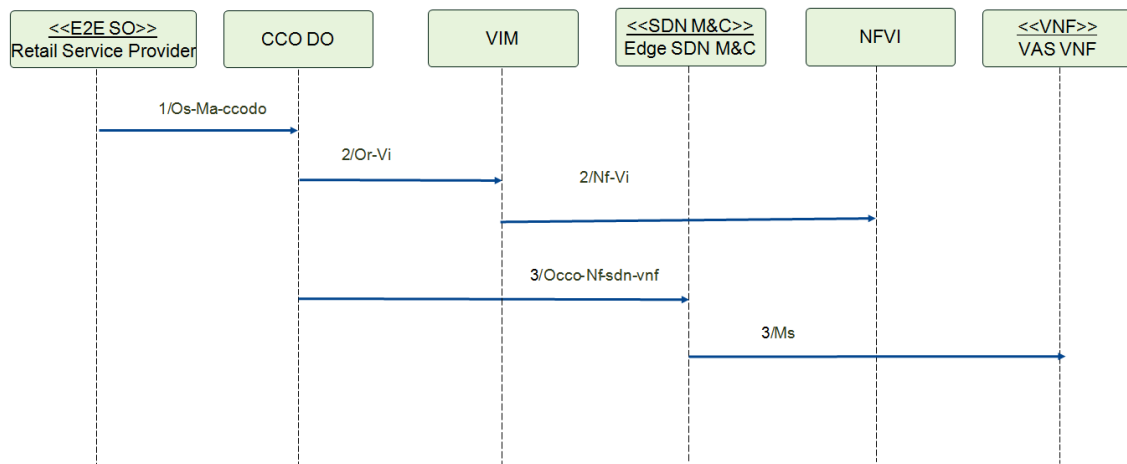
6.3 Interaction 3: Invoking VAS

1. The user plane traffic of the Service User is sent to vG VNF along the path established during the NERG service.

2. The traffic is delivered to the VASVNF through the service chaining.

3. The VAS VNF processes the traffic based on the tenant policies.

4. The VAS VNF reports a tenant activation to CCO DO via the Edge SDN M&C.

5. The VAS VNF collects the status of Service User and reports to CCO DO via the Edge SDN M&C.
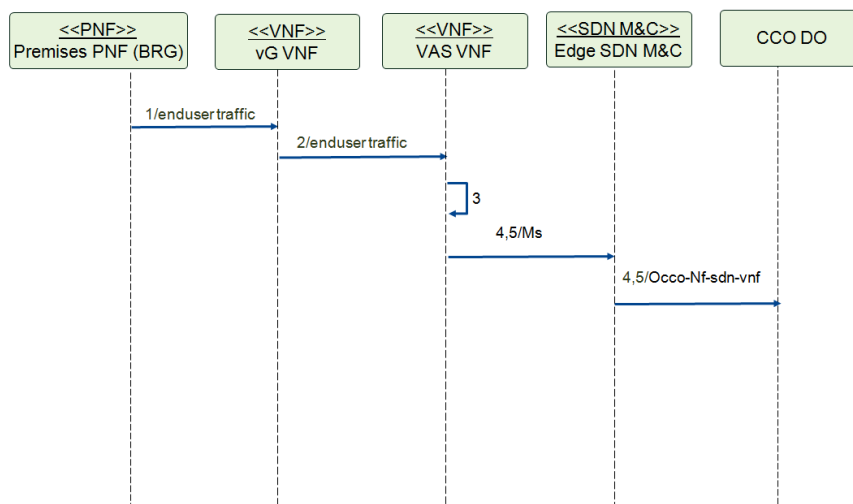
7 Success Criteria

Interaction 1:

1. The VAS VNF is successfully deployed and instantiated in CCO.
2. The virtual network between vG VNF and VAS VNF has been setup.
3. The virtual network between Edge SDN M&C and VAS VNF has been setup.

Interaction 2:

1. VAS User is created in the CCO DO.
2. The traffic of the tenant is configured to be forwarded to VAS VNF.
3. VAS VNF is configured with the tenant policies.

Interaction 3:

1. The VAS VNF process the traffic based on the tenant policies.