VOLTE test case input collection for tracking

Volte VNF:

VNFs	Intended VNF Provider	VNF provided	SDC onboarding and certification state	Tosca Parser Validated	Notes	Finalized
vCSCF Example	----------	----------	Provided as an example of passing and valid VNF	Yes 2.11.17		
CSCF_SI	Nokia	Yes	Yes	Yes 12.11.17		
vCSCF	Nokia	Yes	Yes	Yes 12.11.17		
vMME	ZTE	Yes	Yes	Yes 2.11.17		
vMME	Huawei	Yes	Yes	Yes 2.11.17		
vSPGW	ZTE	Yes	Yes	Yes 2.11.17		
vSPGW	Huawei	Yes	No	Yes 12.11.17		
vHSS	Huawei	Yes	Yes	Yes 2.11.17		
vSBC & vPCSCF	Huawei	Yes	Yes	Yes 2.11.17		
vPCRF	Huawei	Yes	Yes	Yes 2.11.17		
vTAS	Nokia	Yes	No			

link to the SDC normative types supported for R1

https://gerrit.onap.org/r/gitweb?p=sdc.git;a=tree;f=catalog-be/src/main/resources/import/tosca;h=b62ee0c033acbb522d6e0f77b10f91169632e59c;hb=refs/heads/release-1.1.0

To add artifacts to the CSAR:

Create following folders hierarchy in the csar:

/Artifacts/<Deployment or Informational>/<ArtifactType>/<ArtifactFile>

Example

resource-ZteEpcMmeVf-csar_fix.zip

vCSCF Example | CSCF_SI & vCSCF | vMME ZTE & Huawei | vSPGW ZTE & Huawei | | vHSS | vSBC & vPCSCF | vPCRF | vTAS

vCSCF Example

vCSCF_aligned.csar

this CSAR successfully passed onboarding and certification.

in order for the csars to work, we had to fix a lot of errors in the original CSAR.

original version:

vCSCF.csar

main service template fixes:

Fixes

`imports:`
`- openovnf__tosca.nodes.nfv.VNF.vPCRF.yaml`
`- openonfv__tosca.capabilities.Scalable.yaml`
`- openonfv__tosca.capabilities.nfv.Metric.yaml`
`- openonfv__tosca.nodes.nfv.VnfVirtualLinkDesc.yaml`
`- openonfv__tosca.capabilities.network.Bindable.yaml`
`- openonfv__tosca.capabilities.Attachment.yaml`

```
- openonfv__tosca.capabilities.nfv.VirtualBindable.yaml
- openonfv__tosca.capabilities.nfv.VirtualLinkable.yaml
- openonfv__tosca.requirements.nfv.VirtualStorage.yaml
- openonfv__tosca.nodes.nfv.VDU.VirtualStorage.yaml
- openonfv__tosca.relationships.nfv.VirtualBindsTo.yaml
- openonfv__tosca.nodes.nfv.VDU.Compute.yaml
- openonfv__tosca.relationships.nfv.VirtualLinksTo.yaml
- openonfv__tosca.capabilities.nfv.VirtualCompute.yaml
- openonfv__tosca.capabilities.Container.yaml
- openonfv__tosca.capabilities.nfv.VirtualStorage.yaml
- openonfv__tosca.requirements.nfv.VirtualBinding.yaml
- openonfv__tosca.capabilities.Endpoint.Admin.yaml
- openonfv__tosca.capabilities.OperatingSystem.yaml
- openonfv__tosca.nodes.nfv.VduCpd.yaml
- openonfv__tosca.relationships.nfv.VDU.AttachedTo.yaml

metadata:
  vendor: Huawei
  csarVersion: v1.0
  csarProvider: Huawei
  id: vPCRF_NF_HW
  version: v1.0
  csarType: NFAR
  name: vPCRF
  vnfdVersion: v1.0
  vnfmType: hwvnfm

topology_template:
  node_templates:
    PUPDU_Storage:
      attributes:
        tosca_name: PUPDU_Storage
      properties:
        id: PUPDU_Storage
        size_of_storage: 200G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    USRSU:
      attributes:
        tosca_name: USRSU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 24G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: USRSU
        descrption: the virtual machine of USRSU
      requirements:
      - virtual_storage:
          capability: tosca.capabilities.nfv.VirtualStorage
          node: USRSU_Storage
# commented out becouse node needs to be an instance name inside the template
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    USPID3_VduCpd_Fabric:
      attributes:
        tosca_name: USPID3_VduCpd_Fabric
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: USPID3
```

```
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Fabric
      type: tosca.nodes.nfv.VduCpd
    PUPDU_VduCpd_Base:
      attributes:
        tosca_name: PUPDU_VduCpd_Base
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: PUPDU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Base
      type: tosca.nodes.nfv.VduCpd
    OMU_VduCpd_Fabric:
      attributes:
        tosca_name: OMU_VduCpd_Fabric
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: OMU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Fabric
      type: tosca.nodes.nfv.VduCpd
    USPID3:
      attributes:
        tosca_name: USPID3
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 24G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: USPID3
        descrption: the virtual machine of USPID3
      requirements:
      - virtual_storage:
          capability: tosca.capabilities.nfv.VirtualStorage
          node: USPID3_Storage
# commented out becouse node needs to be an instance name inside the template
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    UPIRU_VduCpd_Base:
      attributes:
        tosca_name: UPIRU_VduCpd_Base
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
# commented out becouse no instance exists in the template named UPIRU
#      - virtual_binding:
#          capability: tosca.capabilities.nfv.VirtualBindable
#          node: UPIRU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Base
      type: tosca.nodes.nfv.VduCpd
```

```
    OMU2ManageNet:
      attributes:
        tosca_name: OMU2ManageNet
      properties:
        role: root
        layer_protocol: ipv4
# commented out becouse node needs to be an instance name inside the template
#      requirements:
#      - virtual_binding:
#          node: tosca.nodes.Root
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    OMU_Storage:
      attributes:
        tosca_name: OMU_Storage
      properties:
        id: OMU_Storage
        size_of_storage: 256G
        rdma_enabled: false
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    UPSPU:
      attributes:
        tosca_name: UPSPU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 24G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: UPSPU
        descrption: the virtual machine of UPSPU
      requirements:
      - virtual_storage:
          capability: tosca.capabilities.nfv.VirtualStorage
          node: UPSPU_Storage
# commented out becouse node needs to be an instance name inside the template
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    PUPDU_VduCpd_Fabric:
      attributes:
        tosca_name: PUPDU_VduCpd_Fabric
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: PUPDU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Fabric
      type: tosca.nodes.nfv.VduCpd
    USPID2BossNet:
      attributes:
        tosca_name: USPID2BossNet
      properties:
        role: root
        layer_protocol: ethernet
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: USPID3
# commented out becouse node needs to be an instance name inside the template
```

```
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    OMU_VduCpd_Base:
      attributes:
        tosca_name: OMU_VduCpd_Base
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: OMU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Base
      type: tosca.nodes.nfv.VduCpd
    USPID3_Storage:
      attributes:
        tosca_name: USPID3_Storage
      properties:
        id: USPID3_Storage
        size_of_storage: 300G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    UPIRU2DataNet2:
      attributes:
        tosca_name: UPIRU2DataNet2
      properties:
        role: root
        layer_protocol: ipv4
# commented out becouse node needs to be an instance name inside the template
# commented out becouse no instance exists in the template named UPIRU
#      requirements:
#      - virtual_binding:
#          capability: tosca.capabilities.nfv.VirtualBindable
#          node: UPIRU
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    USPID2ManageNet:
      attributes:
        tosca_name: USPID2ManageNet
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: USPID3
# commented out becouse node needs to be an instance name inside the template
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    UPIRU2DataNet3:
      attributes:
        tosca_name: UPIRU2DataNet3
      properties:
        role: root
        layer_protocol: ipv4
# commented out becouse node needs to be an instance name inside the template
# commented out becouse no instance exists in the template named UPIRU
#      requirements:
#      - virtual_binding:
#          capability: tosca.capabilities.nfv.VirtualBindable
#          node: UPIRU
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    PUPDU2DataNet3:
      attributes:
```

```
        tosca_name: PUPDU2DataNet3
      properties:
        role: root
        layer_protocol: ethernet
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: PUPDU
# commented out becouse node needs to be an instance name inside the template
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    USRSU2DataNet1:
      attributes:
        tosca_name: USRSU2DataNet1
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: USRSU
# commented out becouse node needs to be an instance name inside the template
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    USRSU2DataNet2:
      attributes:
        tosca_name: USRSU2DataNet2
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: USRSU
# commented out becouse node needs to be an instance name inside the template
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    UPIRU_Storage:
      attributes:
        tosca_name: UPIRU_Storage
      properties:
        id: UPIRU_Storage
        size_of_storage: 4G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    PUPDU2SignalNet1:
      attributes:
        tosca_name: PUPDU2SignalNet1
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: PUPDU
# commented out becouse node needs to be an instance name inside the template
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    UPIRU2DataNet1:
      attributes:
        tosca_name: UPIRU2DataNet1
      properties:
        role: root
        layer_protocol: ipv4
# commented out becouse node needs to be an instance name inside the template
# commented out becouse no instance exists in the template named UPIRU
#      requirements:
```

```
#      - virtual_binding:
#          capability: tosca.capabilities.nfv.VirtualBindable
#          node: UPIRU
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    USPID3_VduCpd_Base:
      attributes:
        tosca_name: USPID3_VduCpd_Base
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: USPID3
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Base
      type: tosca.nodes.nfv.VduCpd
    Base:
      attributes:
        tosca_name: Base
      properties:
        vl_flavours:
          flavours:
            flavourId: test2
        connectivity_type:
          layer_protocol: ipv4
          flow_pattern:
      type: tosca.nodes.nfv.VnfVirtualLinkDesc
    USRSU_Storage:
      attributes:
        tosca_name: USRSU_Storage
      properties:
        id: USRSU_Storage
        size_of_storage: 200G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    UPSPU_VduCpd_Base:
      attributes:
        tosca_name: UPSPU_VduCpd_Base
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: UPSPU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Base
      type: tosca.nodes.nfv.VduCpd
    PUPDU:
      attributes:
        tosca_name: PUPDU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 24G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: PUPDU
        descrption: the virtual machine of PUPDU
      requirements:
      - virtual_storage:
```

```
          capability: tosca.capabilities.nfv.VirtualStorage
          node: PUPDU_Storage
# commented out becouse node needs to be an instance name inside the template
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    USRSU_VduCpd_Base:
      attributes:
        tosca_name: USRSU_VduCpd_Base
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: USRSU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Base
      type: tosca.nodes.nfv.VduCpd
    OMU:
      attributes:
        tosca_name: OMU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 16G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: OMU
        descrption: the virtual machine of OMU
      requirements:
      - virtual_storage:
          capability: tosca.capabilities.nfv.VirtualStorage
          node: OMU_Storage
# commented out becouse node needs to be an instance name inside the template
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    UPIRU_VduCpd_Fabric:
      attributes:
        tosca_name: UPIRU_VduCpd_Fabric
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
# commented out becouse no instance exists in the template named UPIRU
#      - virtual_binding:
#          capability: tosca.capabilities.nfv.VirtualBindable
#          node: UPIRU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Fabric
      type: tosca.nodes.nfv.VduCpd
    UPSPU_Storage:
      attributes:
        tosca_name: UPSPU_Storage
      properties:
        id: UPSPU_Storage
        size_of_storage: 4G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    PUPDU2ManageNet:
      attributes:
        tosca_name: PUPDU2ManageNet
      properties:
```

```
        role: root
        layer_protocol: ethernet
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: PUPDU
# commented out becouse node needs to be an instance name inside the template
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    USRSU_VduCpd_Fabric:
      attributes:
        tosca_name: USRSU_VduCpd_Fabric
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: USRSU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Fabric
      type: tosca.nodes.nfv.VduCpd
    UPIRU2SignalNet1:
      attributes:
        tosca_name: UPIRU2SignalNet1
      properties:
        role: root
        layer_protocol: ipv4
#      requirements:
#      - virtual_binding:
#          capability: tosca.capabilities.nfv.VirtualBindable
#          node: UPIRU
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    Fabric:
      attributes:
        tosca_name: Fabric
      properties:
#original property was not a map as defined in the data type
#original property: vl_flavours:
#                                        flavours: test2
#
        vl_flavours:
          flavours:
            flavourId: test1
        connectivity_type:
          layer_protocol: ipv4
          flow_pattern:
      type: tosca.nodes.nfv.VnfVirtualLinkDesc
    UPSPU_VduCpd_Fabric:
      attributes:
        tosca_name: UPSPU_VduCpd_Fabric
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: UPSPU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Fabric
      type: tosca.nodes.nfv.VduCpd

  substitution_mappings:
    node_type: tosca.nodes.nfv.VNF.vPCRF
tosca_definitions_version: tosca_simple_yaml_1_0
```

CSCF_SI & vCSCF

cscf_is from Nokia: cscf_si.csar

The latest fixes in cscf CSAR, still working on the VDU normative:

cscf_si_fixed.csar

The main service template comented out all node_types (please see the comments inside the CSAR).

These are the current issues:

CSCF_SI Issues

```
# Properties defined here not found in any type in the inheritance chain
#  node_templates:
#    lb:
#      type: tosca.nodes.nfv.VDU
#      properties:
#        description: ..
#      requirements:
#        - virtual_compute: lbCompute
#        - sw_image: cscfImage
#        - virtual_storage: lbDataVolume


#Node type that not found in any spec - changed to tosca.nodes.nfv.VDU.VirtualStorage
    lbDataVolume:
      type: tosca.nodes.nfv.VDU.VirtualStorage
#      type: tosca.nodes.nfv.VirtualStorage
      properties:
        type_of_storage: volume
        size_of_storage: 300 GB


#Node type that not found in any spec
    # lbCompute:
      # type: tosca.nodes.nfv.VirtualCompute
      # properties:
        # virtual_memory:
            # virtual_mem_size: 32768 MB
        # virtual_cpu:
            # cpu_architecture: x86
            # num_virtual_cpu: 12
            # virtual_cpu_clock: 2100 MHz


#    cscfImage:
#Changed from tosca.nodes.nfv.SwImage
#      type: tosca.nodes.nfv.VduCpd
#      properties:
#        name: CSCF Image
#        version: 1.0
#        container_format: qcow2
#        checksum: 835fd4c0c5f8abadc1593ba185ca18cb
#        min_disk: 38 GB
#        min_ram: 16384 MB
#        size: 3 GB
#        disk_format: bare
#        sw_image: cscf.qcow2
#        operating_system: Linux
#        supported_virtualisation_environments:
#          - KVM


#    cscfCpdeth0:
##Changed from tosca.nodes.nfv.ICP
#      type: tosca.nodes.nfv.VduCpd
```

```
#      properties:
#        layer_protocol: ipv4
#        role: leaf
#        description: connection point
#      requirements:
#        - virtual_binding: cscf
#        - virtual_link: internalNetworkVl


#tosca.nodes.nfv.ECP
#[AK] an external port. In the NFV specs, there is no such type. The specs mentions an “external CP” type
VnfExtCpd, but does not define it !!!!
    # oamCpdeth1:
      # type: tosca.nodes.nfv.ECP
      # properties:
        # layer_protocol: ipv4
        # role: leaf
        # description: External connection point
      # requirements:
        # - internal_connection_point: oamICpdeth1


#The groups section not supported:


  # groups:
    # cscfScalingGroup:
      # type: tosca.groups.nfv.ElementGroup
      # description: ..
      # members: [ cscf ]


# policies:
#This section not supported
```

Nokia CSCF is updated on 2017-10-25

IS-CSCF from Nokia: cscf_si_fixed.csar

updated after SDC-533 - Getting issue details... STATUS

cscf_si_fixed - passed.csar

```
#add property requested_additional_capabilities with empty value
    oam:
      type: tosca.nodes.nfv.VDU.Compute
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 32G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
```

IS-CSCF v3 from Nokia: vCSCF_v3.0.csar

updated after SDC-533 - Getting issue details... STATUS

vCSCF_v3.0 - passed.csar

```
#add property requested_additional_capabilities with empty value
    oam:
      type: tosca.nodes.nfv.VDU.Compute
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 32G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
```

vMME ZTE & Huawei

ZTE MME is updated on 24/10/2017

version 0 mme from ZTE: resource-ZteEpcMmeVf-csar.csar - original VNF

version 1 mme from ZTE: ZteEpcMmeVf-csar.csar

resource-ZteEpcMmeVf-csar_fix.csar - Latest fixed

Fixes

```
#Next section moved from GlobalSubstitutionTypesServiceTemplate to the MainServiceTemplate
node_types:
  org.openecomp.resource.vfc.VNF.vMME:
    derived_from: tosca.nodes.Root
    description: MME_VFC
    properties:
      vendor:
        type: string
        default: ERICSSON
      csarVersion:
        type: string
        default: v1.0
      csarProvider:
        type: string
        default: ERICSSON
      id:
        type: string
        default: vMME
      version:
        type: string
        default: v1.0
      csarType:
        type: string
        default: NFAR
    requirements:
    - virtualLink:
        occurrences:
        - 0
        - UNBOUNDED
        capability: tosca.capabilities.network.Linkable
```

SDC-474 - Getting issue details... STATUS

Passed after SDC-474 closed:

resource-ZteEpcMmeVf-csar_fix.csar

Huawei vMME is updated on 25/10/2017

Huawei vMME: Huawei vMME.csar

vSPGW ZTE & Huawei

Huawei SPGW Package is updated on 26/10/2017, self-test on latest SDC env successfully.

~~Latest CSAR that fails cause all node templates are commented out.TOSCA.yaml file Definitions/MainServiceTemplate.yaml cannot be modeled to VF as it does not contain 'topology_template.~~

~~Huawei_vSPGW.csar~~

Huawei_vSPGW

```
# Property list of fetched capability virtual_compute is empty.
#    SDU:
#      type: tosca.nodes.nfv.VDU.Compute
#      attributes:
#        tosca_name: SDU
#      capabilities:
#        virtual_compute:
#          properties:
#            virtual_memory:
#              virtual_mem_size: 24G
#            requested_additional_capabilities: {}
#            virtual_cpu:
#              num_virtual_cpu: 4
#      properties:
#        configurable_properties:
#          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
##This section replaced by list
##            additional_vnfc_configurable_properties:
##              aaa: '1'
#        name: SDU
#        descrption: the virtual machine of SDU
#      requirements:
#      - virtual_storage:
#          capability: virtual_storage
#          node: SDU_Storage
##      - local_storage:
##          node: tosca.nodes.Root


    Base:
      attributes:
        tosca_name: Base
      properties:
        vl_flavours:
# The value "test2" of type tosca.datatypes.nfv.VlFlavour should be json object
#Cannot parse value "test2" from type tosca.datatypes.nfv.VlFlavour of key flavours
#          flavours: test2
          flavours:
            flavourId: test2
        connectivity_type:
          layer_protocol: ipv4
          flow_pattern:
      type: tosca.nodes.nfv.VnfVirtualLinkDesc
```

fixed vSPGW from Huawei: Huawei_vSPGW_fixed.csar

updated after **SDC-533** - Getting issue details... STATUS

Huawei_vSPGW_fixed - passed.csar

```
#add property requested_additional_capabilities with empty value
    oam:
      type: tosca.nodes.nfv.VDU.Compute
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 32G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
```

ZTE SPGW last updated 24/10/2017

version 0 spgw from ZTE: resource-ZteEpcSpgwVf-csar.csar. comment from SDC team: ZteEpcSpgwVf - Fails to onboard

version 1 spgw from ZTE: ZteEpcSpgwVf-csar.csar

vHSS

Huawei HSS Package is updated on 20/10/2017

HSS from Huawei:Huawei_vHSS.csar

no issue found there was a mistake in the VDUCPD definition updated, please delete the SDC data and pull lates Docker 22.10

vSBC & vPCSCF

Huawei PCSCF is integreted with SBC.

SBC/PCSCF from Huawei: vSBC_huawei.csar

alignment:

1. the package has to end with .csar
2. remove all unneeded sources from MainServiceTemplate.mf
3. remove unused imports from MainServiceTemplate.yaml
4. in MainServiceTemplate.yaml you canto create a relationship using node: tosca.nodes.Root it needs to be a name of an instance in the template you want to connect to. commented out for now.
5. removed from GlobalSubstatutionService template.yaml all types defined in SDC normatives.
6. MainServiceTemplate.yaml commented out substitution mapping the type there is not defined in csar.
7. removed GlobalSubstitutionServiceTemplate.yaml not used in csar.
8. TOSCA.meta removed unneeded source entries updated the entry point to point to MainServiceTemplate.yaml
9. property vl_flavours no defined according to data type

fixed:

vSBC_aligned.csar

fixed main service template:

```
metadata:
  vendor: Huawei
  csarVersion: v1.0
  csarProvider: Huawei
  id: vSBC_vP-CSCF
  version: v1.0
  csarType: NFAR
  vnfdVersion: v1.0
  vnfmType: hwvnfm
topology_template:
  node_templates:
    SCU:
      attributes:
        tosca_name: SCU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
```

```
              virtual_mem_size: 24G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 2
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: SCU
        descrption: the virtual machine of SCU
      requirements:
      - virtual_storage:
          capability: virtual_storage
          node: SCU_Storage
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    LBU2SignalNet1:
      attributes:
        tosca_name: LBU2SignalNet1
      properties:
        role: root
        layer_protocol: ethernet
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: LBU
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    CCU_VduCpd_Intra1:
      attributes:
        tosca_name: CCU_VduCpd_Intra1
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: CCU
      - virtual_link:
          capability: virtual_linkable
          node: Intranet1
      type: tosca.nodes.nfv.VduCpd
    LBU_VduCpd_Intra1:
      attributes:
        tosca_name: LBU_VduCpd_Intra1
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: LBU
      - virtual_link:
          capability: virtual_linkable
          node: Intranet1
      type: tosca.nodes.nfv.VduCpd
    OMU2ManageNet:
      attributes:
        tosca_name: OMU2ManageNet
      properties:
        role: root
        layer_protocol: ipv4
#      requirements:
#      - virtual_binding:
#          node: tosca.nodes.Root
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    LBU_VduCpd_Intra2:
      attributes:
```

```
        tosca_name: LBU_VduCpd_Intra2
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: LBU
      - virtual_link:
          capability: virtual_linkable
          node: Intranet2
      type: tosca.nodes.nfv.VduCpd
    OMU_Storage:
      attributes:
        tosca_name: OMU_Storage
      properties:
        id: OMU_Storage
        size_of_storage: 256G
        rdma_enabled: false
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    HRU:
      attributes:
        tosca_name: HRU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 12G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 3
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: HRU
        descrption: the virtual machine of HRU
      requirements:
      - virtual_storage:
          capability: virtual_storage
          node: HRU_Storage
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    VPU_Storage:
      attributes:
        tosca_name: VPU_Storage
      properties:
        id: VPU_Storage
        size_of_storage: 4G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    SCU_VduCpd_Intra1:
      attributes:
        tosca_name: SCU_VduCpd_Intra1
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: SCU
      - virtual_link:
          capability: virtual_linkable
          node: Intranet1
      type: tosca.nodes.nfv.VduCpd
    HRU_VduCpd_Intra2:
      attributes:
        tosca_name: HRU_VduCpd_Intra2
      properties:
        role: root
```

```
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: virtual_binding
      node: HRU
  - virtual_link:
      capability: virtual_linkable
      node: Intranet2
  type: tosca.nodes.nfv.VduCpd
HRU_VduCpd_Intra1:
  attributes:
    tosca_name: HRU_VduCpd_Intra1
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: virtual_binding
      node: HRU
  - virtual_link:
      capability: virtual_linkable
      node: Intranet1
  type: tosca.nodes.nfv.VduCpd
CCU_Storage:
  attributes:
    tosca_name: CCU_Storage
  properties:
    id: CCU_Storage
    size_of_storage: 4G
    type_of_storage: volume
  type: tosca.nodes.nfv.VDU.VirtualStorage
BSU_VduCpd_Intra1:
  attributes:
    tosca_name: BSU_VduCpd_Intra1
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: virtual_binding
      node: BSU
  - virtual_link:
      capability: virtual_linkable
      node: Intranet1
  type: tosca.nodes.nfv.VduCpd
Intranet1:
  attributes:
    tosca_name: Intranet1
  properties:
    vl_flavours:
      flavours:
        flavourId: test1
    connectivity_type:
      layer_protocol: ipv4
      flow_pattern:
  type: tosca.nodes.nfv.VnfVirtualLinkDesc
Intranet2:
  attributes:
    tosca_name: Intranet2
  properties:
    vl_flavours:
      flavours:
        flavourId: test2
    connectivity_type:
      layer_protocol: ipv4
      flow_pattern:
  type: tosca.nodes.nfv.VnfVirtualLinkDesc
VPU:
  attributes:
    tosca_name: VPU
  capabilities:
```

```
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 8G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 5
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: VPU
        descrption: the virtual machine of VPU
      requirements:
      - virtual_storage:
          capability: virtual_storage
          node: VPU_Storage
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    LBU2SignalNet2:
      attributes:
        tosca_name: LBU2SignalNet2
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: LBU
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    OMU_VduCpd_Intra1:
      attributes:
        tosca_name: OMU_VduCpd_Intra1
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: OMU
      - virtual_link:
          capability: virtual_linkable
          node: Intranet1
      type: tosca.nodes.nfv.VduCpd
    LBU:
      attributes:
        tosca_name: LBU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 24G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: LBU
        descrption: the virtual machine of LBU
      requirements:
      - virtual_storage:
          capability: virtual_storage
          node: LBU_Storage
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    CMU_VduCpd_Intra1:
      attributes:
```

```
        tosca_name: CMU_VduCpd_Intra1
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: CMU
      - virtual_link:
          capability: virtual_linkable
          node: Intranet1
      type: tosca.nodes.nfv.VduCpd
    CMU_Storage:
      attributes:
        tosca_name: CMU_Storage
      properties:
        id: CMU_Storage
        size_of_storage: 4G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    BSU:
      attributes:
        tosca_name: BSU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 8G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 1
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: BSU
        descrption: the virtual machine of BSU
      requirements:
      - virtual_storage:
          capability: virtual_storage
          node: BSU_Storage
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    CMU:
      attributes:
        tosca_name: CMU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 8G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 1
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: CMU
        descrption: the virtual machine of CMU
      requirements:
      - virtual_storage:
          capability: virtual_storage
          node: CMU_Storage
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    SCU_Storage:
      attributes:
        tosca_name: SCU_Storage
      properties:
        id: SCU_Storage
```

```
        size_of_storage: 4G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    HRU_Storage:
      attributes:
        tosca_name: HRU_Storage
      properties:
        id: HRU_Storage
        size_of_storage: 4G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    CCU:
      attributes:
        tosca_name: CCU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 16G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 2
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: CCU
        descrption: the virtual machine of CCU
      requirements:
      - virtual_storage:
          capability: virtual_storage
          node: CCU_Storage
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    OMU:
      attributes:
        tosca_name: OMU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 16G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: OMU
        descrption: the virtual machine of OMU
      requirements:
      - virtual_storage:
          capability: virtual_storage
          node: OMU_Storage
#      - local_storage:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VDU.Compute
    BSU_Storage:
      attributes:
        tosca_name: BSU_Storage
      properties:
        id: BSU_Storage
        size_of_storage: 4G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    UPIRU_VduCpd_Intra1:
      attributes:
        tosca_name: UPIRU_VduCpd_Intra1
      properties:
        role: root
        layer_protocol: ipv4
```

```
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: VPU
      - virtual_link:
          capability: virtual_linkable
          node: Intranet1
      type: tosca.nodes.nfv.VduCpd
    UPIRU_VduCpd_Intra2:
      attributes:
        tosca_name: UPIRU_VduCpd_Intra2
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: VPU
      - virtual_link:
          capability: virtual_linkable
          node: Intranet2
      type: tosca.nodes.nfv.VduCpd
    HRU2MediaNet1:
      attributes:
        tosca_name: HRU2MediaNet1
      properties:
        role: root
        layer_protocol: ethernet
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: HRU
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
    LBU_Storage:
      attributes:
        tosca_name: LBU_Storage
      properties:
        id: LBU_Storage
        size_of_storage: 4G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    HRU2MediaNet2:
      attributes:
        tosca_name: HRU2MediaNet2
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: virtual_binding
          node: HRU
#      - virtual_link:
#          node: tosca.nodes.Root
      type: tosca.nodes.nfv.VduCpd
#  substitution_mappings:
#    node_type: tosca.nodes.nfv.VNF.vSBC
tosca_definitions_version: tosca_simple_yaml_1_0
```

vPCRF

PCRF from Huawei: vPCRF_Huawei.csar

alignment:

1. remove all unneeded sources from MainServiceTemplate.mf

2. remove unused imports from MainServiceTemplate.yaml
3. this is the example we provide we can see the commented out sections in the yaml removing them.
4. removed from GlobalSubstatutionService template.yaml all types defined in SDC normatives.
5. TOSCA.meta removed unneeded source entries updated the entry point to point to MainServiceTemplate.yaml
6. MainServiceTemplate.yaml commented out substitution mapping the type there is not defined in csar.
7. removed GlobalSubstitutionServiceTemplate.yaml not used in csar.

fixed:

fixed main service template:

```
metadata:
  vendor: Huawei
  csarVersion: v1.0
  csarProvider: Huawei
  id: vPCRF_NF_HW
  version: v1.0
  csarType: NFAR
  name: vPCRF
  vnfdVersion: v1.0
  vnfmType: hwvnfm

topology_template:
  node_templates:
    PUPDU_Storage:
      attributes:
        tosca_name: PUPDU_Storage
      properties:
        id: PUPDU_Storage
        size_of_storage: 200G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    USRSU:
      attributes:
        tosca_name: USRSU
      capabilities:
        virtual_compute:
          properties:
            virtual_memory:
              virtual_mem_size: 24G
            requested_additional_capabilities: {}
            virtual_cpu:
              num_virtual_cpu: 4
      properties:
        configurable_properties:
          test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
        name: USRSU
        descrption: the virtual machine of USRSU
      requirements:
      - virtual_storage:
```

```
      capability: tosca.capabilities.nfv.VirtualStorage
      node: USRSU_Storage
  type: tosca.nodes.nfv.VDU.Compute
USPID3_VduCpd_Fabric:
  attributes:
    tosca_name: USPID3_VduCpd_Fabric
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: USPID3
  - virtual_link:
      capability: tosca.capabilities.nfv.VirtualLinkable
      node: Fabric
  type: tosca.nodes.nfv.VduCpd
PUPDU_VduCpd_Base:
  attributes:
    tosca_name: PUPDU_VduCpd_Base
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: PUPDU
  - virtual_link:
      capability: tosca.capabilities.nfv.VirtualLinkable
      node: Base
  type: tosca.nodes.nfv.VduCpd
OMU_VduCpd_Fabric:
  attributes:
    tosca_name: OMU_VduCpd_Fabric
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: OMU
  - virtual_link:
      capability: tosca.capabilities.nfv.VirtualLinkable
      node: Fabric
  type: tosca.nodes.nfv.VduCpd
USPID3:
  attributes:
    tosca_name: USPID3
  capabilities:
    virtual_compute:
      properties:
        virtual_memory:
          virtual_mem_size: 24G
        requested_additional_capabilities: {}
        virtual_cpu:
          num_virtual_cpu: 4
  properties:
    configurable_properties:
      test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
    name: USPID3
    descrption: the virtual machine of USPID3
  requirements:
  - virtual_storage:
      capability: tosca.capabilities.nfv.VirtualStorage
      node: USPID3_Storage
  type: tosca.nodes.nfv.VDU.Compute
UPIRU_VduCpd_Base:
  attributes:
    tosca_name: UPIRU_VduCpd_Base
  properties:
    role: root
```

```
    layer_protocol: ipv4
  requirements:
  - virtual_link:
      capability: tosca.capabilities.nfv.VirtualLinkable
      node: Base
  type: tosca.nodes.nfv.VduCpd
OMU2ManageNet:
  attributes:
    tosca_name: OMU2ManageNet
  properties:
    role: root
    layer_protocol: ipv4
  type: tosca.nodes.nfv.VduCpd
OMU_Storage:
  attributes:
    tosca_name: OMU_Storage
  properties:
    id: OMU_Storage
    size_of_storage: 256G
    rdma_enabled: false
    type_of_storage: volume
  type: tosca.nodes.nfv.VDU.VirtualStorage
UPSPU:
  attributes:
    tosca_name: UPSPU
  capabilities:
    virtual_compute:
      properties:
        virtual_memory:
          virtual_mem_size: 24G
        requested_additional_capabilities: {}
        virtual_cpu:
          num_virtual_cpu: 4
  properties:
    configurable_properties:
      test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
    name: UPSPU
    descrption: the virtual machine of UPSPU
  requirements:
  - virtual_storage:
      capability: tosca.capabilities.nfv.VirtualStorage
      node: UPSPU_Storage
  type: tosca.nodes.nfv.VDU.Compute
PUPDU_VduCpd_Fabric:
  attributes:
    tosca_name: PUPDU_VduCpd_Fabric
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: PUPDU
  - virtual_link:
      capability: tosca.capabilities.nfv.VirtualLinkable
      node: Fabric
  type: tosca.nodes.nfv.VduCpd
USPID2BossNet:
  attributes:
    tosca_name: USPID2BossNet
  properties:
    role: root
    layer_protocol: ethernet
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: USPID3
  type: tosca.nodes.nfv.VduCpd
OMU_VduCpd_Base:
  attributes:
    tosca_name: OMU_VduCpd_Base
```

```
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: OMU
  - virtual_link:
      capability: tosca.capabilities.nfv.VirtualLinkable
      node: Base
  type: tosca.nodes.nfv.VduCpd
USPID3_Storage:
  attributes:
    tosca_name: USPID3_Storage
  properties:
    id: USPID3_Storage
    size_of_storage: 300G
    type_of_storage: volume
  type: tosca.nodes.nfv.VDU.VirtualStorage
UPIRU2DataNet2:
  attributes:
    tosca_name: UPIRU2DataNet2
  properties:
    role: root
    layer_protocol: ipv4
  type: tosca.nodes.nfv.VduCpd
USPID2ManageNet:
  attributes:
    tosca_name: USPID2ManageNet
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: USPID3
  type: tosca.nodes.nfv.VduCpd
UPIRU2DataNet3:
  attributes:
    tosca_name: UPIRU2DataNet3
  properties:
    role: root
    layer_protocol: ipv4
  type: tosca.nodes.nfv.VduCpd
PUPDU2DataNet3:
  attributes:
    tosca_name: PUPDU2DataNet3
  properties:
    role: root
    layer_protocol: ethernet
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: PUPDU
  type: tosca.nodes.nfv.VduCpd
USRSU2DataNet1:
  attributes:
    tosca_name: USRSU2DataNet1
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: USRSU
  type: tosca.nodes.nfv.VduCpd
USRSU2DataNet2:
  attributes:
    tosca_name: USRSU2DataNet2
  properties:
    role: root
```

```
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: USRSU
  type: tosca.nodes.nfv.VduCpd
UPIRU_Storage:
  attributes:
    tosca_name: UPIRU_Storage
  properties:
    id: UPIRU_Storage
    size_of_storage: 4G
    type_of_storage: volume
  type: tosca.nodes.nfv.VDU.VirtualStorage
PUPDU2SignalNet1:
  attributes:
    tosca_name: PUPDU2SignalNet1
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: PUPDU
  type: tosca.nodes.nfv.VduCpd
UPIRU2DataNet1:
  attributes:
    tosca_name: UPIRU2DataNet1
  properties:
    role: root
    layer_protocol: ipv4
  type: tosca.nodes.nfv.VduCpd
USPID3_VduCpd_Base:
  attributes:
    tosca_name: USPID3_VduCpd_Base
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: USPID3
  - virtual_link:
      capability: tosca.capabilities.nfv.VirtualLinkable
      node: Base
  type: tosca.nodes.nfv.VduCpd
Base:
  attributes:
    tosca_name: Base
  properties:
    vl_flavours:
      flavours:
        flavourId: test2
    connectivity_type:
      layer_protocol: ipv4
      flow_pattern:
  type: tosca.nodes.nfv.VnfVirtualLinkDesc
USRSU_Storage:
  attributes:
    tosca_name: USRSU_Storage
  properties:
    id: USRSU_Storage
    size_of_storage: 200G
    type_of_storage: volume
  type: tosca.nodes.nfv.VDU.VirtualStorage
UPSPU_VduCpd_Base:
  attributes:
    tosca_name: UPSPU_VduCpd_Base
  properties:
    role: root
    layer_protocol: ipv4
```

```
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: UPSPU
  - virtual_link:
      capability: tosca.capabilities.nfv.VirtualLinkable
      node: Base
  type: tosca.nodes.nfv.VduCpd
PUPDU:
  attributes:
    tosca_name: PUPDU
  capabilities:
    virtual_compute:
      properties:
        virtual_memory:
          virtual_mem_size: 24G
        requested_additional_capabilities: {}
        virtual_cpu:
          num_virtual_cpu: 4
  properties:
    configurable_properties:
      test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
    name: PUPDU
    descrption: the virtual machine of PUPDU
  requirements:
  - virtual_storage:
      capability: tosca.capabilities.nfv.VirtualStorage
      node: PUPDU_Storage
  type: tosca.nodes.nfv.VDU.Compute
USRSU_VduCpd_Base:
  attributes:
    tosca_name: USRSU_VduCpd_Base
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
  - virtual_binding:
      capability: tosca.capabilities.nfv.VirtualBindable
      node: USRSU
  - virtual_link:
      capability: tosca.capabilities.nfv.VirtualLinkable
      node: Base
  type: tosca.nodes.nfv.VduCpd
OMU:
  attributes:
    tosca_name: OMU
  capabilities:
    virtual_compute:
      properties:
        virtual_memory:
          virtual_mem_size: 16G
        requested_additional_capabilities: {}
        virtual_cpu:
          num_virtual_cpu: 4
  properties:
    configurable_properties:
      test: {"additional_vnfc_configurable_properties":{"aaa":"1"}}
    name: OMU
    descrption: the virtual machine of OMU
  requirements:
  - virtual_storage:
      capability: tosca.capabilities.nfv.VirtualStorage
      node: OMU_Storage
  type: tosca.nodes.nfv.VDU.Compute
UPIRU_VduCpd_Fabric:
  attributes:
    tosca_name: UPIRU_VduCpd_Fabric
  properties:
    role: root
    layer_protocol: ipv4
  requirements:
```

```
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Fabric
      type: tosca.nodes.nfv.VduCpd
    UPSPU_Storage:
      attributes:
        tosca_name: UPSPU_Storage
      properties:
        id: UPSPU_Storage
        size_of_storage: 4G
        type_of_storage: volume
      type: tosca.nodes.nfv.VDU.VirtualStorage
    PUPDU2ManageNet:
      attributes:
        tosca_name: PUPDU2ManageNet
      properties:
        role: root
        layer_protocol: ethernet
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: PUPDU
      type: tosca.nodes.nfv.VduCpd
    USRSU_VduCpd_Fabric:
      attributes:
        tosca_name: USRSU_VduCpd_Fabric
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: USRSU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Fabric
      type: tosca.nodes.nfv.VduCpd
    UPIRU2SignalNet1:
      attributes:
        tosca_name: UPIRU2SignalNet1
      properties:
        role: root
        layer_protocol: ipv4
      type: tosca.nodes.nfv.VduCpd
    Fabric:
      attributes:
        tosca_name: Fabric
      properties:
        vl_flavours:
          flavours:
            flavourId: test1
        connectivity_type:
          layer_protocol: ipv4
          flow_pattern:
      type: tosca.nodes.nfv.VnfVirtualLinkDesc
    UPSPU_VduCpd_Fabric:
      attributes:
        tosca_name: UPSPU_VduCpd_Fabric
      properties:
        role: root
        layer_protocol: ipv4
      requirements:
      - virtual_binding:
          capability: tosca.capabilities.nfv.VirtualBindable
          node: UPSPU
      - virtual_link:
          capability: tosca.capabilities.nfv.VirtualLinkable
          node: Fabric
      type: tosca.nodes.nfv.VduCpd

#  substitution_mappings:
```

```
#    node_type: tosca.nodes.nfv.VNF.vPCRF
tosca_definitions_version: tosca_simple_yaml_1_0
```

vTAS

TAS from Nokia: ntas.csar