



Service IM Offline Discussion -Modeling Network Slice by Network Service

Lin Meng
CMCC

Current Situation

- ONAP will have 5G use cases in the following releases but we didn't have modeling work on network slicing
- 3GPP's specification indicates that network slice could be supported by network service
- There exists a debate on whether we should model NS by service or differentiate them and model them separately.

Modeling of Network slicing (3GPP 28.541)

NetworkSlice
nSSId
operationalState
administrativeState
serviceProfileList
sST

NetworkSliceSubnet
mFIdList
constituentNSSIdList
operationalState
administrativeState
nsInfo
sliceProfileList
sST

ServiceProfile
serviceProfileId
sNSSAList
pLMNIdList
perfReq
maxNumberOfUEs
coverageAreaTList
latency
uEMobilityLevel
resourceSharingLevel

SliceProfile
sliceProfileId
sNSSAList
pLMNIdList
perfReq
maxNumberOfUEs
coverageAreaTList
latency
uEMobilityLevel
resourceSharingLevel

- A **CustomerFacingService** is what is bound to a Product, not a Service. In 5G network, it corresponds to **NetworkSlice**.
- A **ResourceFacingService** is not linked directly to Product; rather, it is linked to Resource. In 5G network, it corresponds to **NetworkSliceSubnet** and **NetworkService**.

Modeling of Network slicing (GSMA GST)

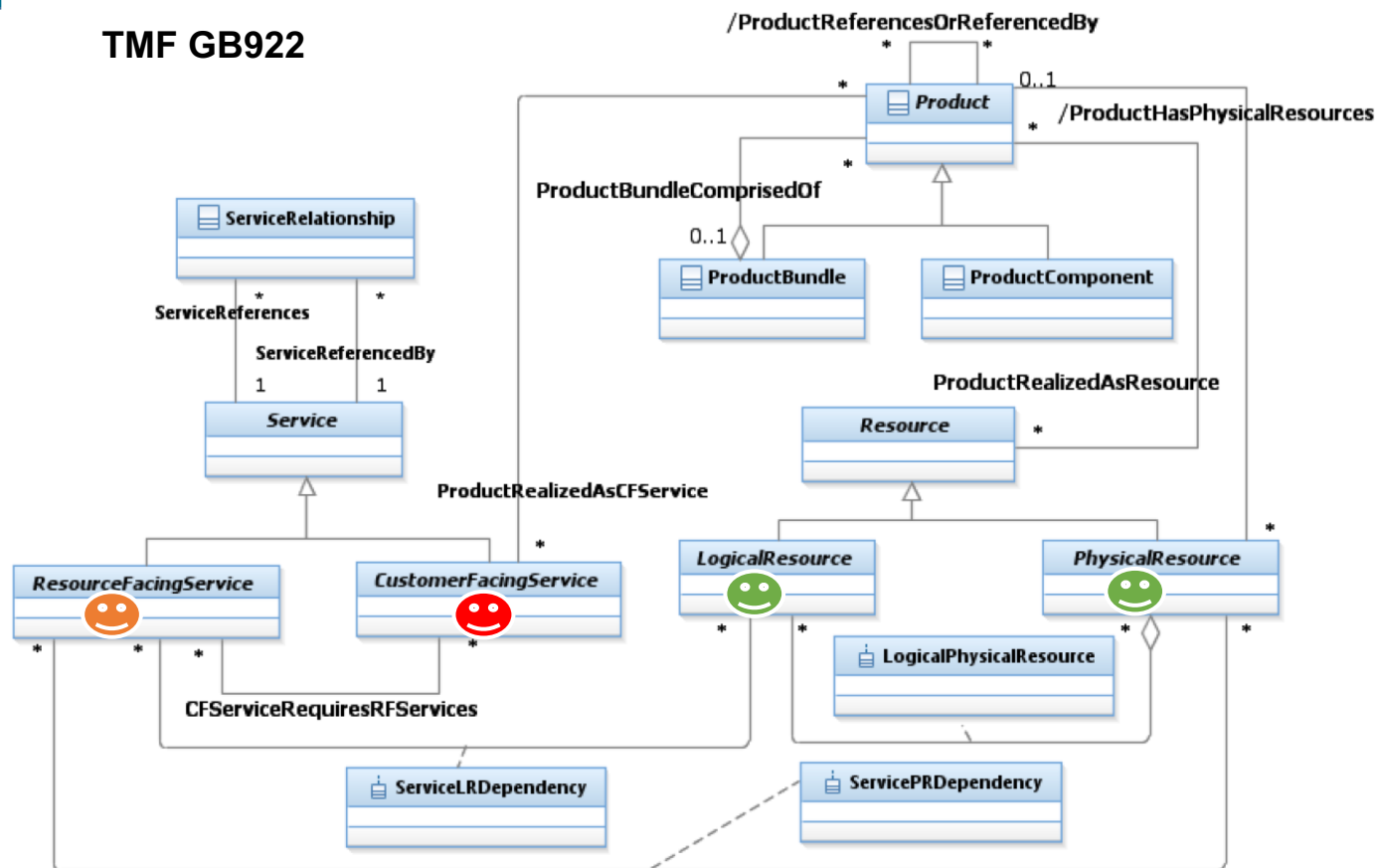
NO.	Name	NO.	Name
1	Maximum Supported Packet size	12	Real-time Charging/Billing
2	Cyclic traffic	13	User Management openness
3	Downlink Bandwidth per user	14	Delay Tolerance
4	Uplink Bandwidth per user	15	Predictive OoS
5	Downlink Bandwidth per slice	16	Synchronicity
6	Uplink Bandwidth per slice	17	Cloud support
7	Terminal Density	18	Positioning support
8	Reliability	19	Location base message delivery
9	Device velocity	20	Supported Access technologies
10	Spectrum	21	Isolation
11	KQI Monitoring	22	Custom user plane termination
		23	Support for non-IP traffic
		24	Session and Service Continuity

- The Generic slice template is a set of Potential slice attributes which could be used to define, once values are given to these attributes, the Network Slice characteristics.

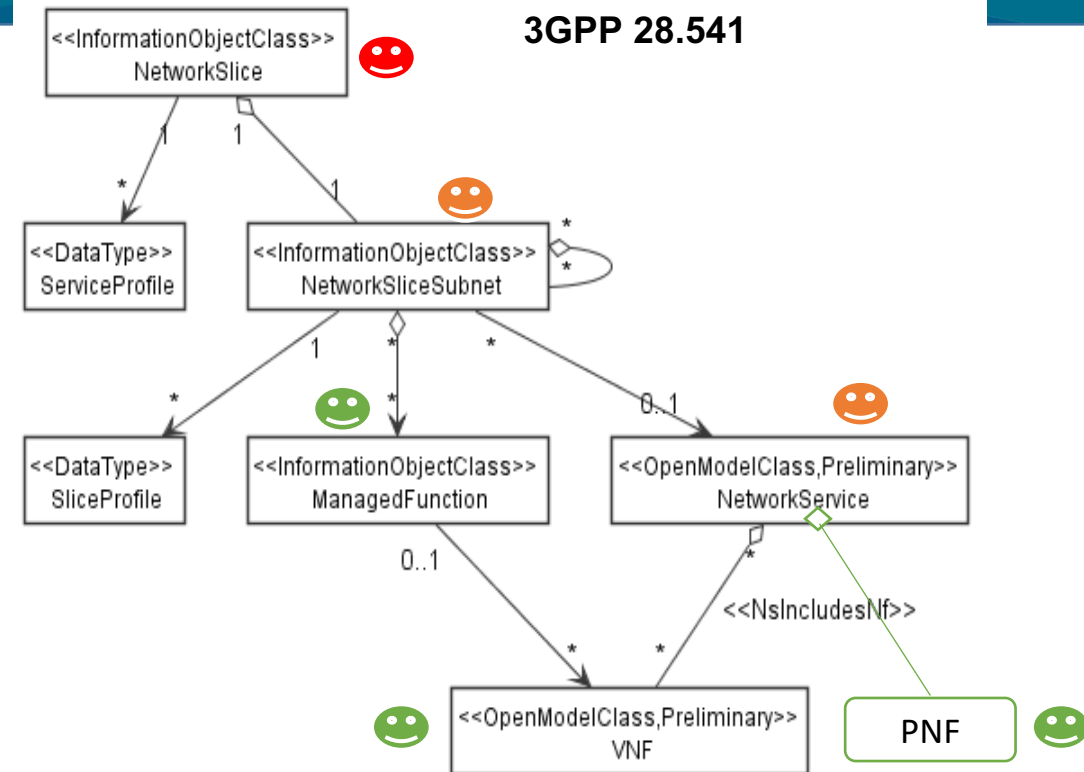
- Some of the characteristics in network slice described in **3GPP 28.541** has **reference in GSMA GST** such as SST.
- It is expected that Standardised SST (Slice/Service Type) values (see TS 23.501 for a definition of SST) will refer to Network Slice Characteristics defined by some of the GST attributes populated with standardised values.

Modeling of Network slicing

TMF GB922



3GPP 28.541



- Network service is a resource oriented class, it has direct association with resource
- Network slice has some customer facing attributes, which corresponds to service in ONAP.
- Network service and service in ONAP has different attributes and are managed by different modules. So they should be modeled separately.

Modeling of Network Slice(4 layer)

- *Combining works in TMF SID, GSMA GST, and 3GPP SA5*
- GST<->Service Profile/Slice Profile<->Service Descriptor
- **Network Slice**<->CustomerFacingService<->**Composite Service**
- **NetworkSliceSubnet**<->ResourceFacingService<->**Atomic Service**
- **NS**<->ResourceFacingService<-> **Resource**
- ManagedFunction<->**Resource** (delete)
- **VNF / PNF**

Comparison between NS instance and Service instance

AAI	VFC	AAI	VFC
service-instance-id	ID	environment-context	
	NSPACKAGEID:	workload-context	
service-instance-name	NAME	vnf type:This field	
description	DESCRIPTION	has been overloaded in service-specific	
model-invariant-id	NSDINVARIANTID	ways and clients should expect changes	
model-version-id	NSDID	to occur in the future to this field as	
	SDNCONTROLLERID	ECOMP matures	
	NSLEVEL: : eg: scale	created-at:create time of Network	CREATETIME
	FLAVOURID : eg: scale	Service	
	STATUS	updated-at:last update of Network	LASTUPTIME
	NSDMODEL	Service	
	SCALEPARAMS	persona-model-version	
service-type		widget-model-id	
service-role		widget-model-version	
selflink		vhn-portal-url:URL customers will use to	
orchestration status		access the vHN Portal	
service-Instance-location-id		resource-version	
bandwidth-total:Indicates		input-parameters	INPUTPARAMS
the total bandwidth to be used for this service			SERVICETYPE (different from servicetype in A&AI, here refers to subscription)
property-value:This			GLOBALCUSTOMERID (Correspond to customer ID, the parent class of NS is SERVICETYPE, the parent class of SERVICETYPE is customer.)
object is used to store slices of services being offered			

Attributes of Network service and service are different, which are managed by different modules.
Service and Network Service should be modeled separately.