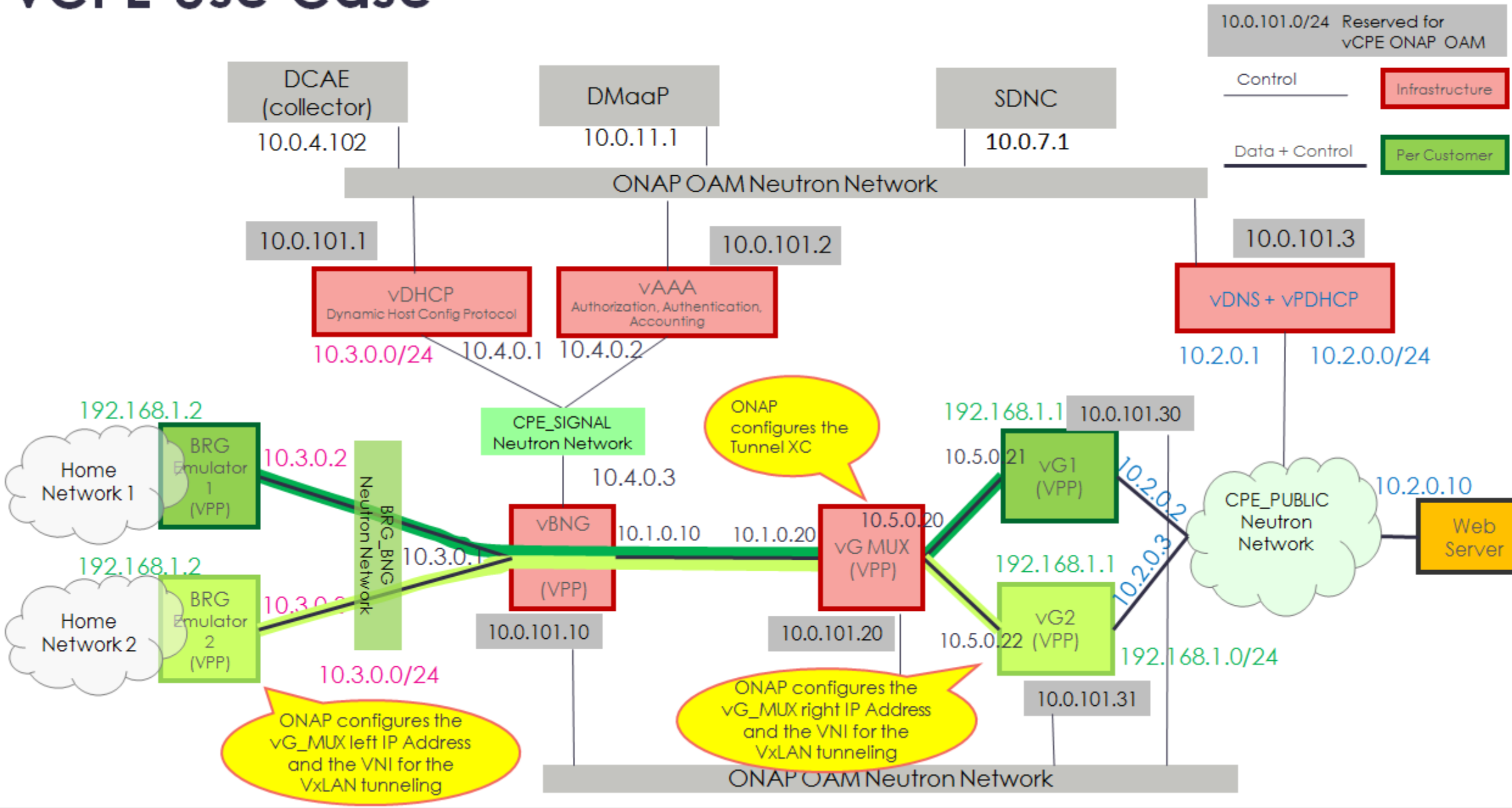
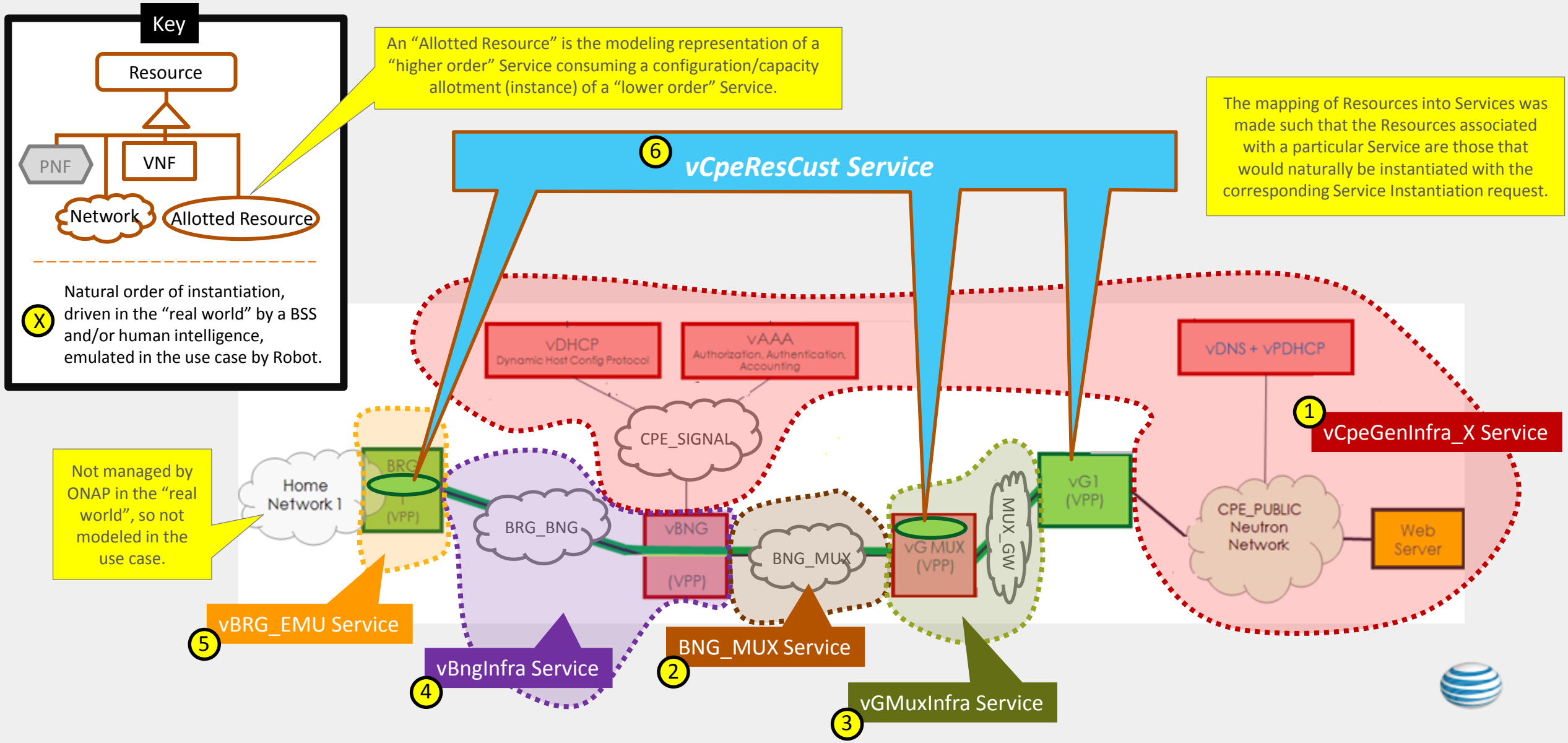
Illustrative Sequence Diagrams
for Residential Broadband vCPE Use Case

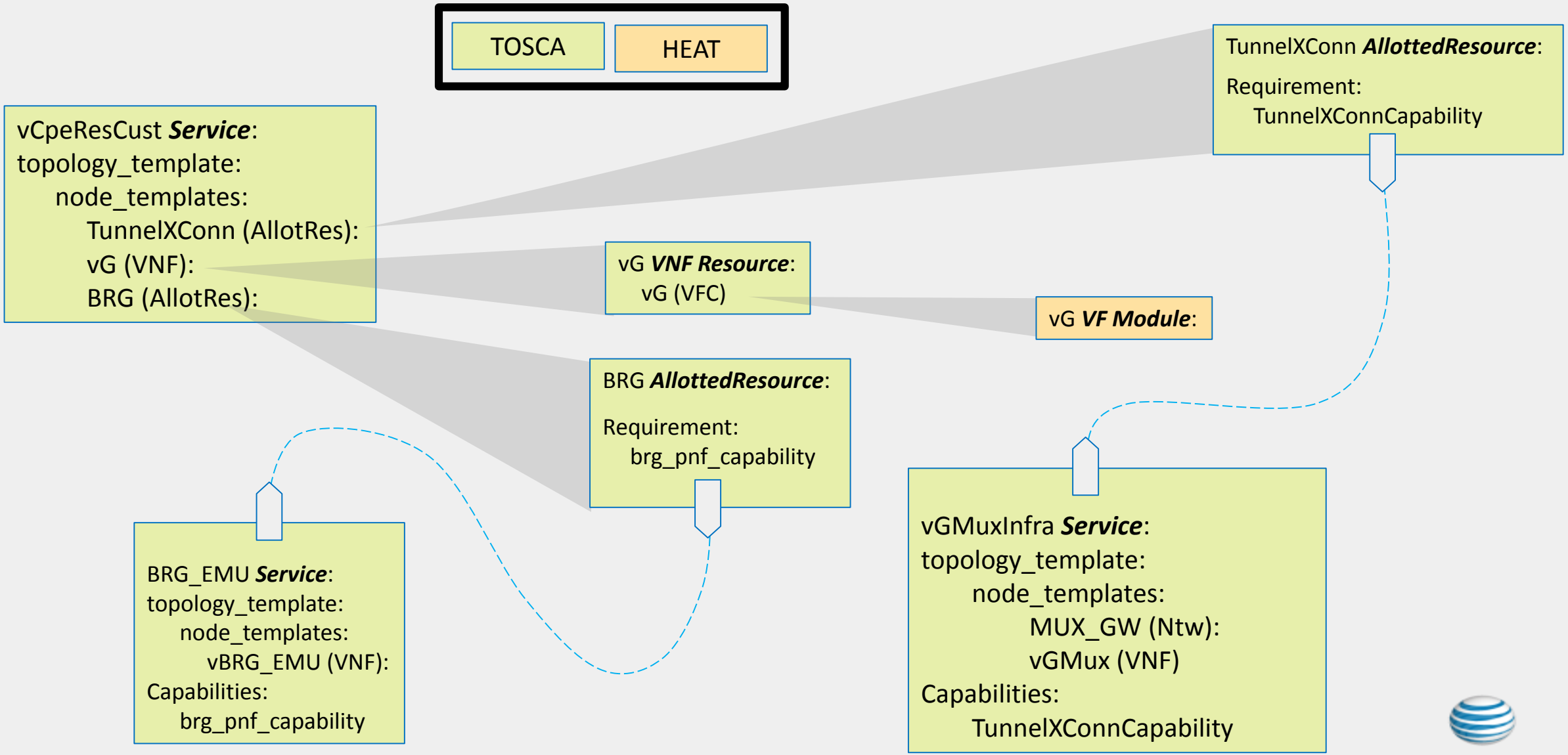
vCPE Use Case



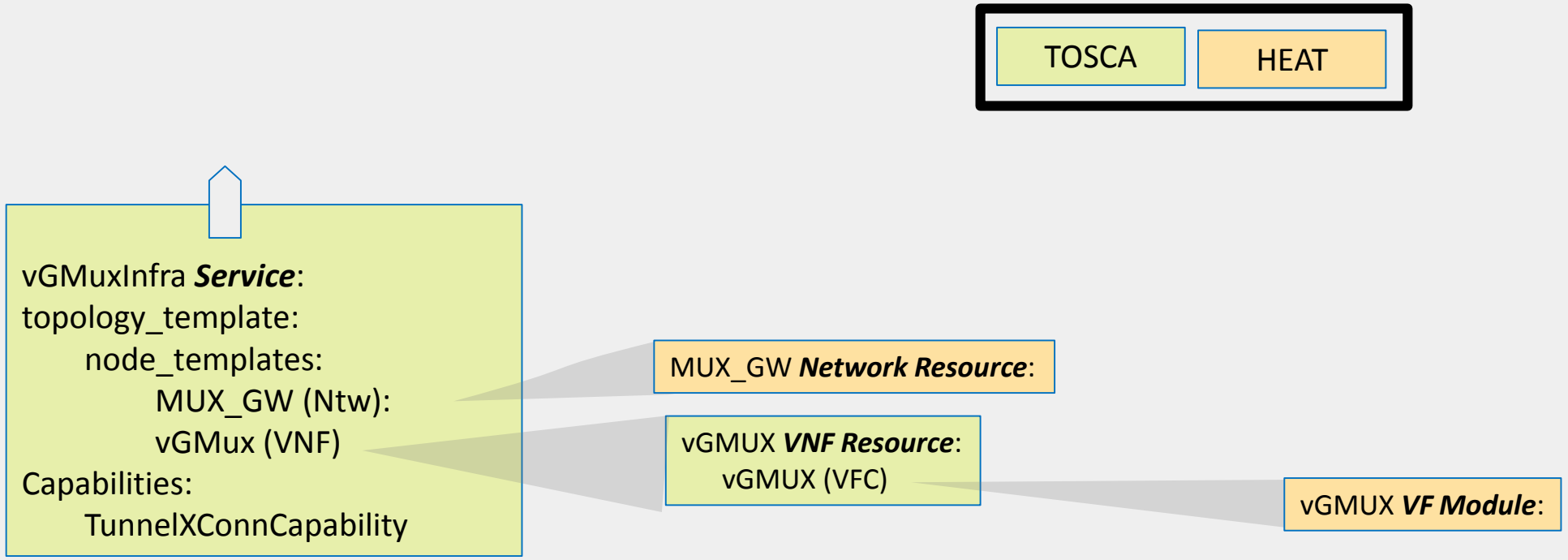
Overview of Services Defined for vCPE Use Case



Residential Broadband vCPE Use Case Model: vCpeResCust & vGMuxInfra Topology



Residential Broadband vCPE Use Case Model: vCpeResCust & vGMuxInfra Topology



Residential Broadband vCPE Use Case Model: BRG_EMU Topology (Use Case Only)

The BRG_EMU Service is an artificial construct to leverage ONAP to instantiate the BRG Emulator, which is implemented as a VNF in this Use Case. This Service would have no analogue in the "real world".

TOSCA | HEAT

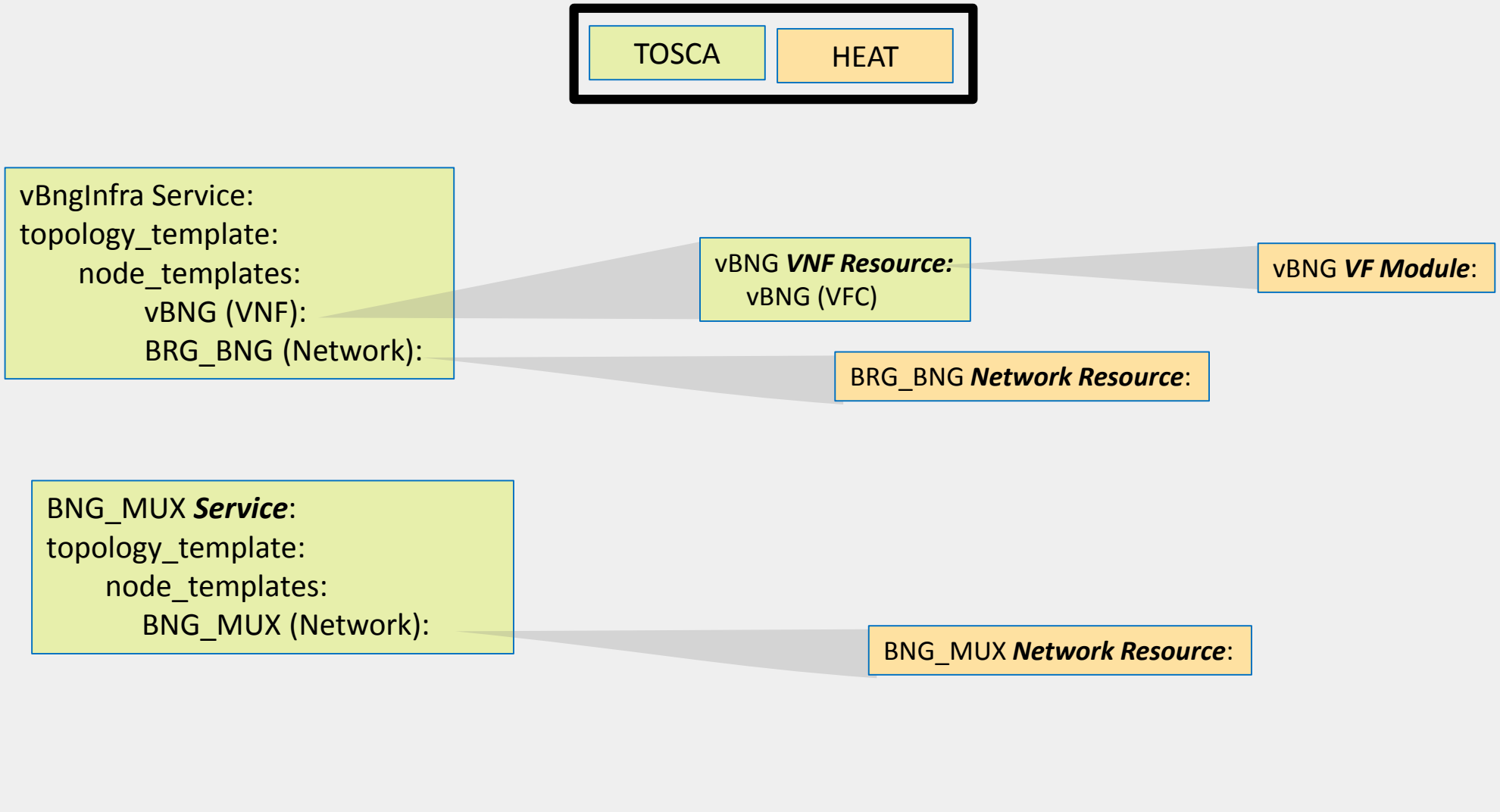
BRG_EMU ***Service***:
topology_template:
node_templates:
vBRG_EMU (VNF):
Capabilities:
brg_pnf_capability

vBRG_EMU ***VNF Resource***:
vBRG (VFC)

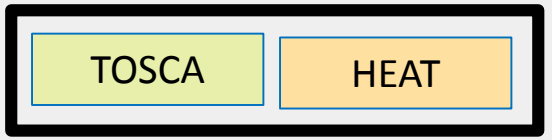
vBRG_EMU ***VF Module***:

The vBRG_EMU VNF has no modeling relationship with the BRG Allotted Resource which is referenced in the vCpeResCust Service. The BRG Allotted Resource is designed to be useful in the "real world" in which a BRG is a true Allotted Resource, whereas the vBRG_EMU VNF is a construct that is useful only for standing up the BRG Emulator used in this Use Case.

Residential Broadband vCPE Use Case Model: vBngInfra and BNG_MUX Topology



Residential Broadband vCPE Use Case: vCpeGenInfra Topology



vCpeGenInfra_Heat ***Service***:
topology_template:
node_templates:
CPE_PUBLIC:
CPE_SIGNAL:
vCpeGenInfraVnfs_HEAT:

CPE_PUBLIC_HEAT ***Network Resource***

CPE_SIGNAL_HEAT ***Network Resource***

vCpeGenInfraVnfs_HEAT ***VNF Resource***:
vCpeGenInfraVnfs_H (VFC)

vCpeGenInfraVnfs_H ***VF Module***:
vDHCP (VM)
vAAA (VM)
vDNS+DHCP (VM)
webServer (VM)

vCpeGenInfra_Tosca ***Service***:
topology_template:
node_templates:
CPE_PUBLIC:
CPE_SIGNAL:
vCpeGenInfraVnfs_TOSCA:

CPE_PUBLIC_TOSCA ***Network Resource***

CPE_SIGNAL_TOSCA ***Network Resource***

vCpeGenInfraVnfs_TOSCA ***VNF Resource***:
vDHCP (VM)
vAAA (VM)
vDNS+DHCP (VM)
webServer (VM)

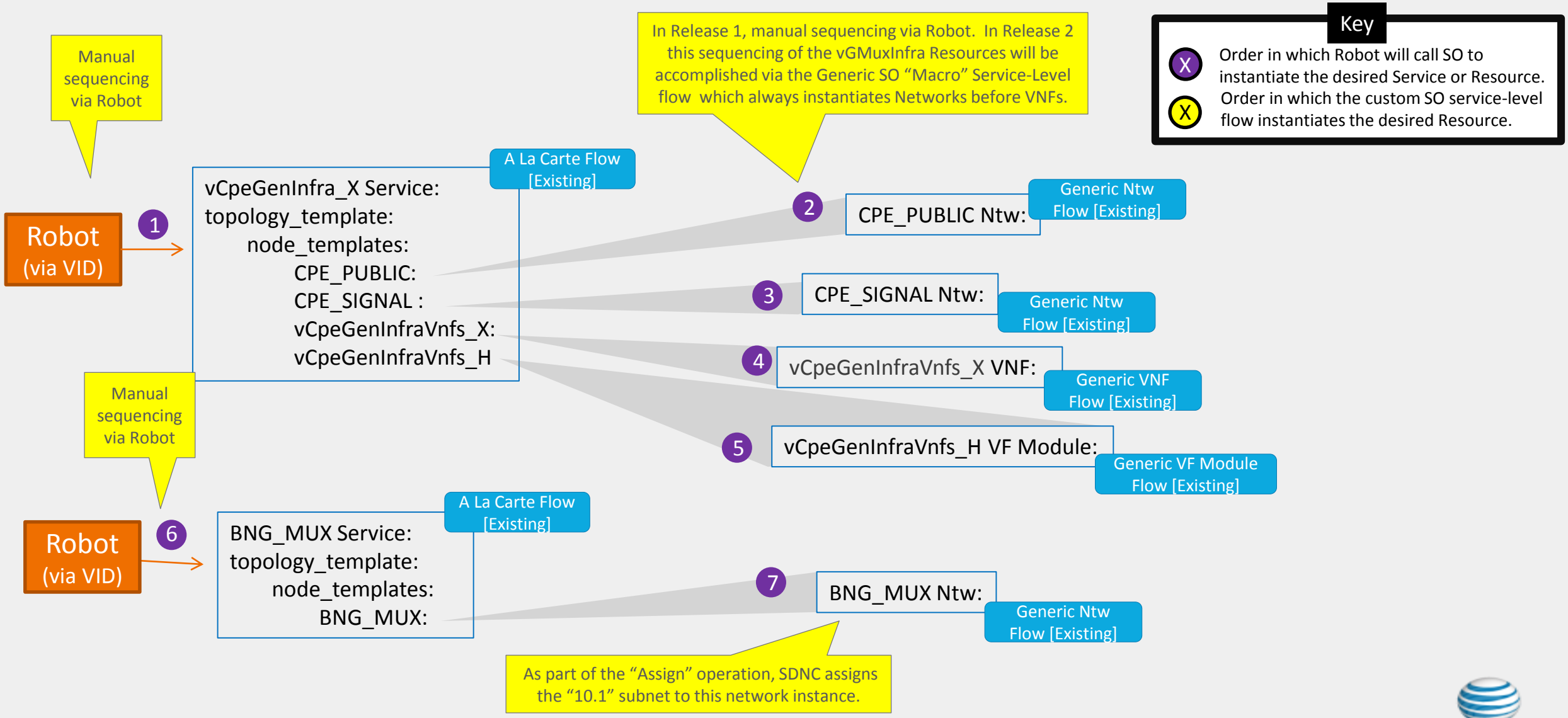
vDHCP (VM)

vAAA (VM)

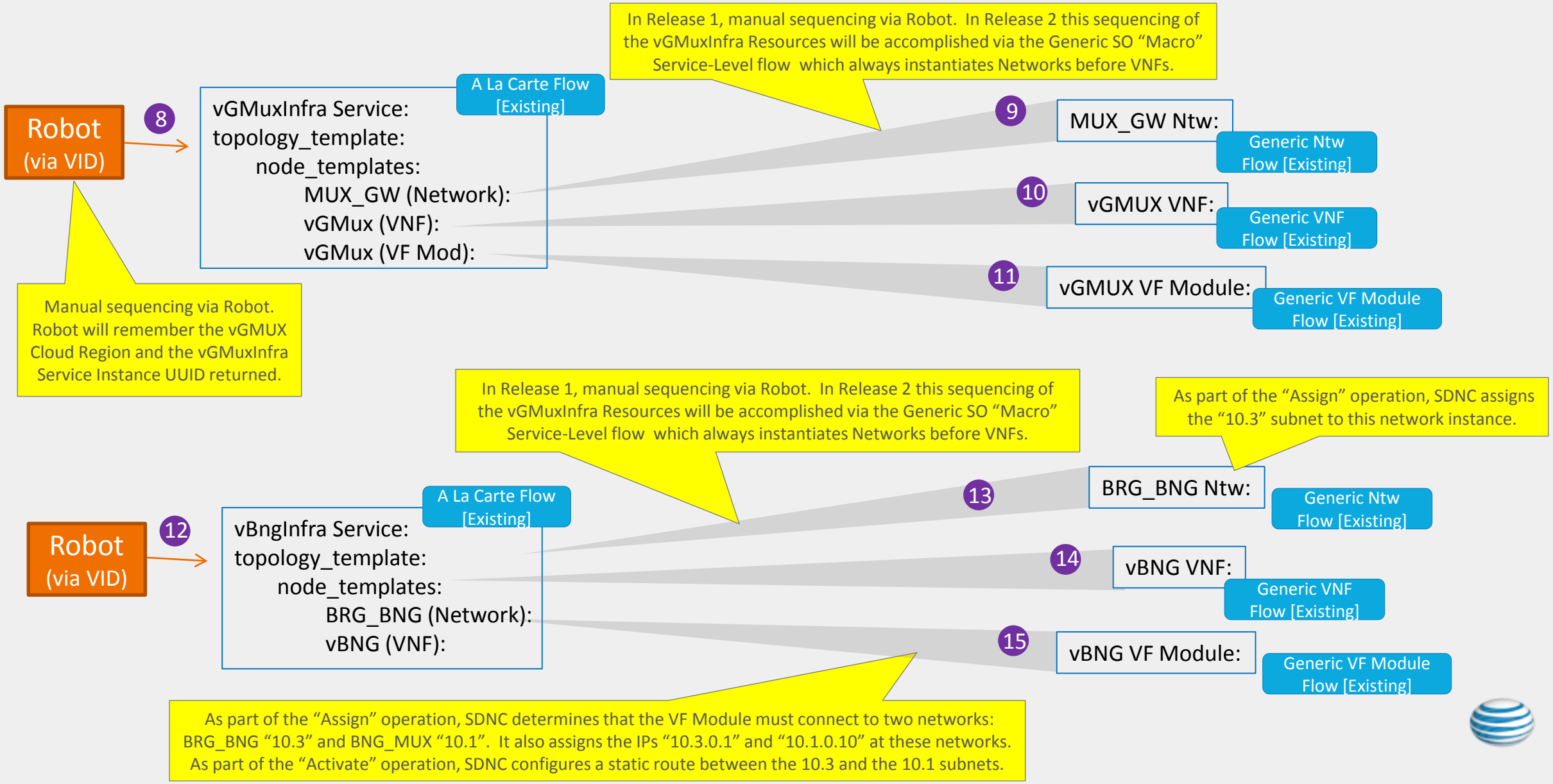
vDNS+DHCP (VM)

webServer (VM)

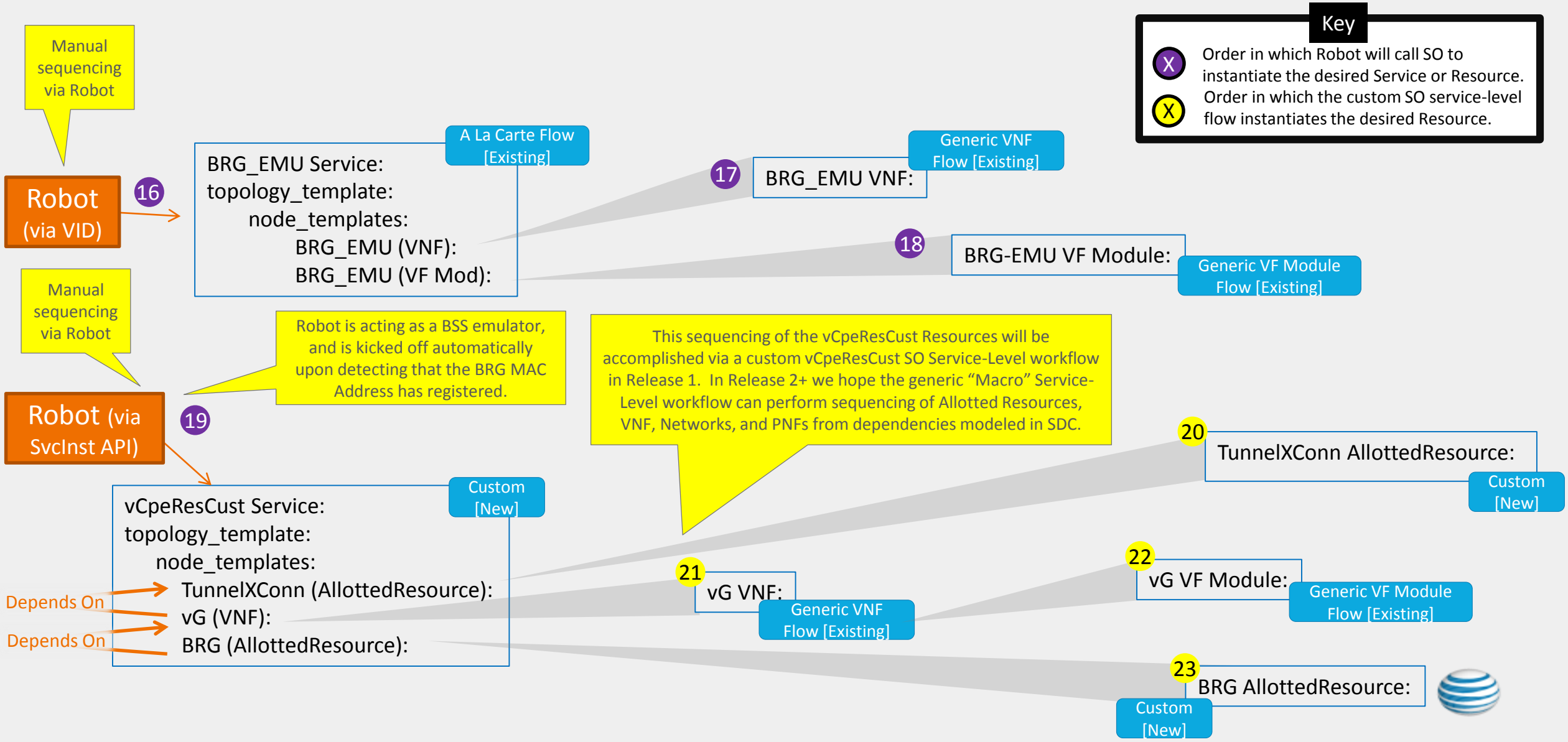
Residential Broadband vCPE Use Case Model: Infrastructure Instantiation Sequencing



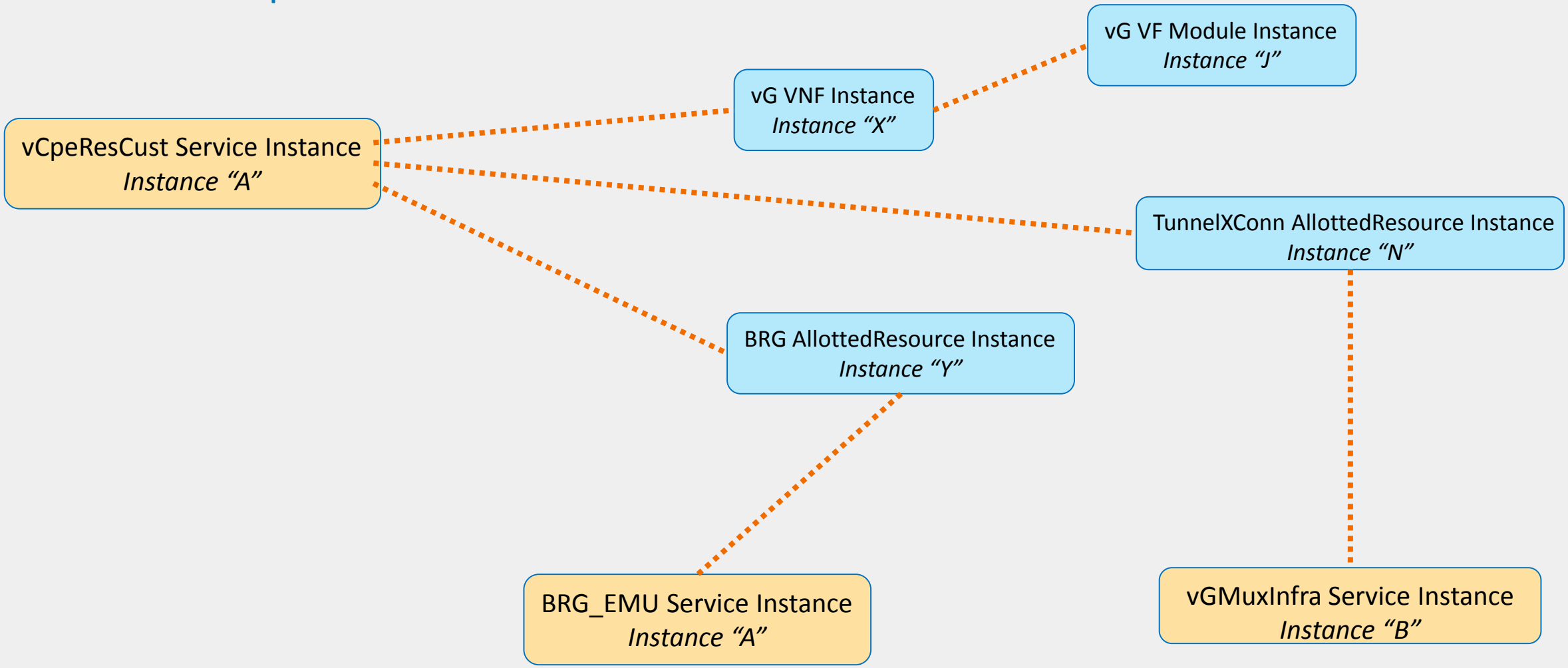
Residential Broadband vCPE Use Case Model: Infrastructure Instantiation Sequencing



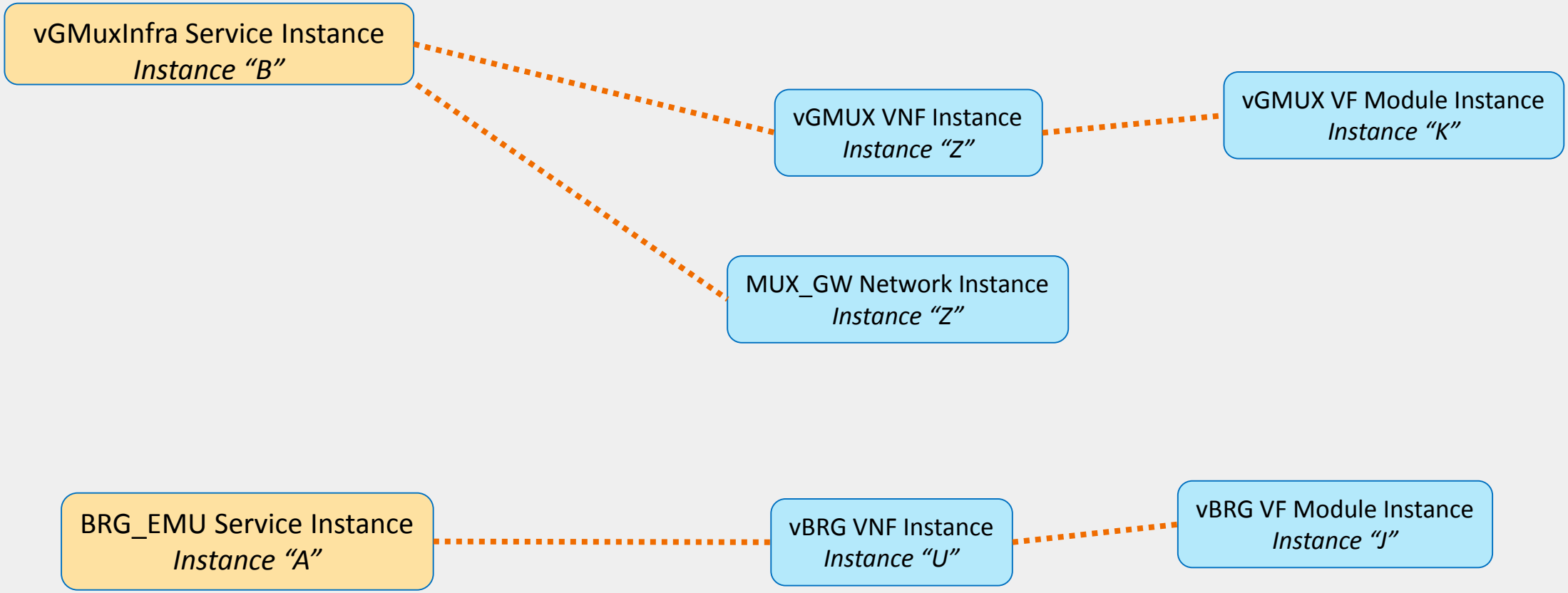
Residential Broadband vCPE Use Case Model: Instantiation Sequencing



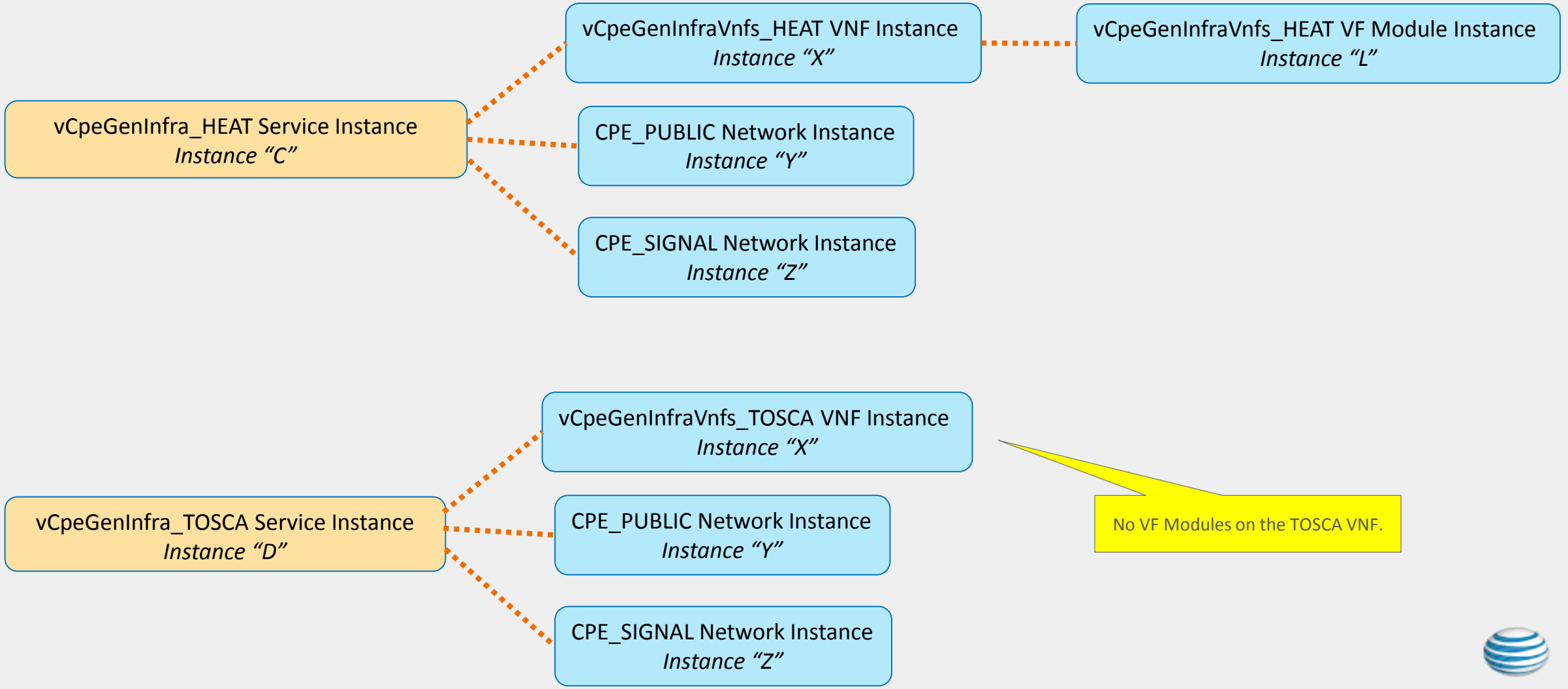
Residential Broadband vCPE Use Case Model: vCpeResCust & vGMuxInfra Inventory Instance Example



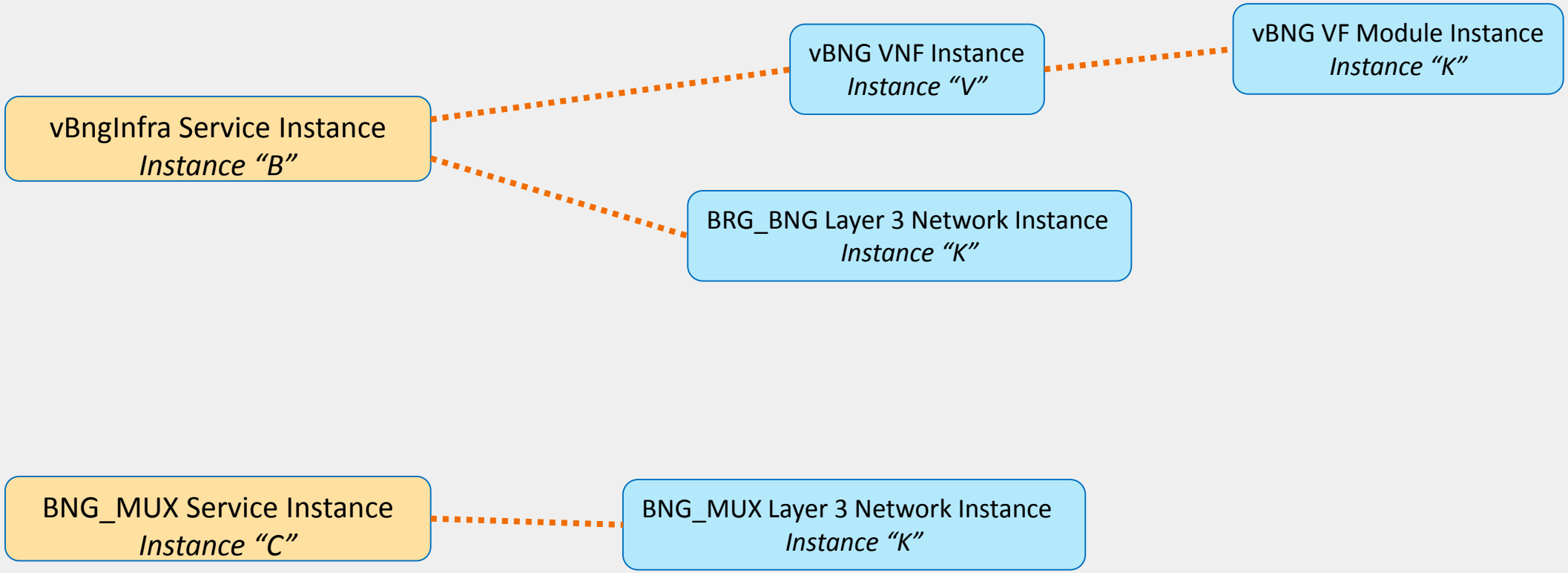
Residential Broadband vCPE Use Case Model: BRG_EMU and vCpeGenInfra Inventory Instance Example



Residential Broadband vCPE Use Case Model: BRG_EMU and vCpeGenInfra Inventory Instance Example



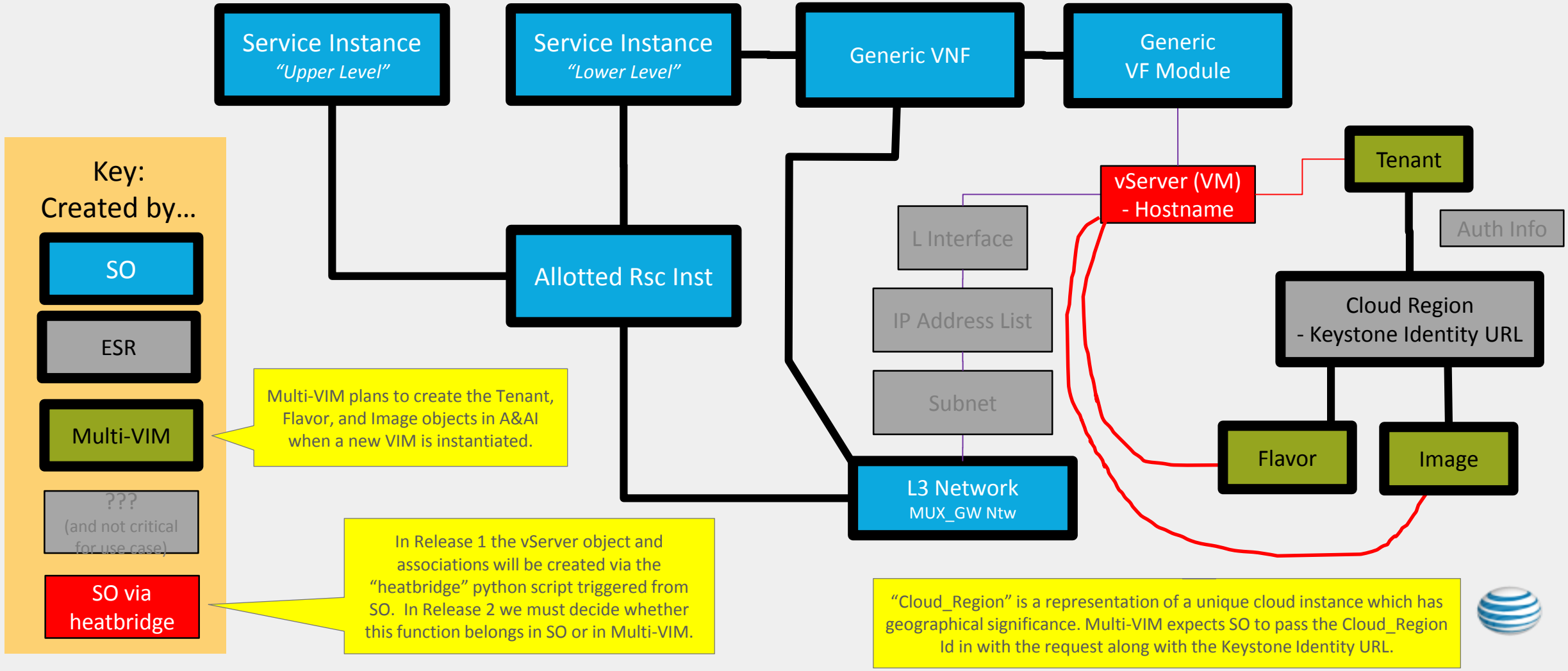
Residential Broadband vCPE Use Case Model: vCpeResCust & vGMuxInfra Topology



A&AI Detail Example

The Cloud Region object in A&AI is created via the ESR (A&AI) portal

- User inputs backend Cloud information into ESR portal
- ESR stores the backend Cloud information as auth model into AAI, key is cloudowner_cloudregion
- User triggers VIM register service exposed by Multi VIM which will trigger registry implements in different VIM plugins to fill in VIM Model information into AAI
- Each plugin handles AAI query about the backend Cloud information for backend Cloud operations



Residential Broadband vCPE Use Case Overview

Key

(X) Order in which Robot will call SO to instantiate the desired Service or Resource.

Service	Resource	SO Flow	SDNC Northbound API	SDNC DG	SDNC Inputs	SDNC Assignments	Pre-Load?	SDNC Configuration
(1) vCpeGenInfra_X		CrGenSvcInstance (A La Carte) -> DoCreateServiceInstance	N/A	N/A	N/A	N/A	N/A	N/A
"	(1a) CPE_PUBLIC (Network)	CreateNetworkInfra (A La Carte) -> DoCreateNetwork	VNF-API	Generic DG	NULL Set	cpe_public_net_cidr, cpe_ public_net_id	Yes	NULL Set
"	(1b) CPE_SIGNAL (Network)	CreateNetworkInfra (A La Carte) -> DoCreateNetwork	VNF-API	Generic DG	NULL Set	cpe_signal_net_cidr, cpe_signal_net_id	Yes	NULL Set
"	(1c) vCpeGenInfraVnfs_HEAT (VNF)	CreateVnfInfra (A La Carte) -> DoCreateVnf	N/A	N/A	N/A	N/A	N/A	N/A
"	(1d) vCpeGenInfraVnfs_X (VF Module)	CrVfModuleInfra (A La Carte) -> DoCreateVfMod	VNF-API	Generic DG	NULL Set	cpe_public_net_id, cpe_signal_net_id, onap_private_net_id, vdhcp_name_0, vaaa_name_0, vdns_name_0, vweb_name_0, vdns_private_ip_0 (cpe_public), vdns_private_ip_1 (onap_private), vweb_private_ip_0 (cpe_public), vweb_private_ip_1 (onap_private), vdhcp_private_ip_0 (cpe_signal), vdhcp_private_ip_1 (onap_private), vaaa_private_ip_0 (cpe_signal), vaaa_private_ip_1 (onap_private), Etc….. (see HEAT)	Yes	NULL Set
(2) BNG_MUX		CrGenSvcInstance (A La Carte) -> DoCreateServiceInstance	N/A	N/A	N/A	N/A	N/A	N/A
"	(2a) BNG_MUX (Network)	CreateNetworkInfra (A La Carte) -> DoCreateNetwork	VNF-API	Generic DG	NULL Set	bng_gmux_private_net_cidr, bng_gmux_private_net_id	Yes	NULL Set

We would have preferred to have used the SO "generic service-level" flow, which, triggered by a Service-Level instantiation request from Robot for a given Service (e.g., vCpeGenInfra_X), would automatically decompose it into its component Resources, and orchestrate instantiation of the same. However, in Release 1 we used "pre-load" assignments, which currently isn't a supported option for this "generic service" approach. In R2 we would like to extend this use case to leverage dynamic resource assignment along with this "generic service" approach to demonstrate model-driven service-level automation for the vCpeGenInfra_X, BNG_MUX, vGMuxInfra, vBngInfra, and BRG_EMU Services.

Residential Broadband vCPE Use Case Overview

Key

(X) Order in which Robot will call SO to instantiate the desired Service or Resource.

Service	Resource	SO Flow	SDNC Northbound API	SDNC DG	SDNC Inputs	SDNC Assignments	Pre-Load?	SDNC Configuration
(3) vGMuxInfra		CrGenSvcInstance (A La Carte) -> DoCreateServiceInstance	N/A	N/A	N/A	N/A	N/A	N/A
"	(3a) MUX_GW (Network)	CreateNetworkInfra (A La Carte) -> DoCreateNetwork	VNF-API	Generic DG	NULL Set	mux_gw_private_net_cidr, bng_gmux_private_net_id	Yes	NULL Set
"	(3b) vGMUX (VNF)	CreateVnfInfra (A La Carte) -> DoCreateVnf	N/A	N/A	N/A	N/A	N/A	N/A
"	(3c) vGMUX (VF Module)	CrVfModuleInfra (A La Carte) -> DoCreateVfMod	VNF-API	Generic DG	NULL Set	bng_gmux_private_net_id, mux_gw_private_net_id, onap_private_net_id, VNI_POOL, vgmux_name_0, vgmux_private_ip_0 (bng_gmux), vgmux_private_ip_1 (onap_private), vgmux_private_ip_2 (mux_gw), Etc…	Yes	NULL Set
(4) vBngInfra		CrGenSvcInstance (A La Carte) -> DoCreateServiceInstance	N/A	N/A	N/A	N/A	N/A	N/A
"	(4a) BRG_BNG (Network)	CreateNetworkInfra (A La Carte) -> DoCreateNetwork	VNF-API	Generic DG	NULL Set	brgemu_bng_private_net_cidr, brgemu_bng_private_net_id	Yes	NULL Set
"	(4b) vBNG (VNF)	CreateVnfInfra (A La Carte) -> DoCreateVnf	N/A	N/A	N/A	N/A	N/A	N/A
"	(4c) vBNG (VF Module)	CrVfModuleInfra (A La Carte) -> DoCreateVfMod	VNF-API	Generic DG	NULL Set	cpe_signal_net_id, bng_gmux_private_net_id, brgemu_bng_private_net_id, onap_private_net_id, vbng_name_0, vbng_private_ip_0 (brgemu_bng), vbng_private_ip_1 (onap_private), vbng_private_ip_2 (cpe_signal), vbng_private_ip_3 (bng_gmux), Etc.…	Yes	NULL Set

Residential Broadband vCPE Use Case Overview

Key

(X) Order in which Robot will call SO to instantiate the desired Service or Resource.

(X) Order in which the custom SO service-level flow instantiates the desired Resource.

Service	Resource	SO Flow	SDNC Northbound API	SDNC DG	SDNC Inputs	SDNC Assignments	Pre-Load?	SDNC Configuration
BRG_EMU (5)		CrGenSvcInstance (A La Carte) -> DoCreateServiceInstance	N/A	N/A	N/A	N/A	N/A	N/A
" (5a)	BRG_EMU (VNF)	CreateVnfInfra (A La Carte) -> DoCreateVnf	N/A	N/A	N/A	N/A	N/A	N/A
" (5b)	BRG_EMU (VF Module)	CrVfModuleInfra (A La Carte) -> DoCreateVfMod	VNF-API	Generic DG	NULL Set	vbrgemu_bng_private_net_id, vbrgemu_name_0, Etc…	N/A	NULL Set
"	BRG_EMU (VNF) [Event Handling]	N/A	N/A	Custom Process [Event Handling; New]	N/A	N/A	N/A	N/A
vCpeResCust (6)		Custom_vCpeResCust	GENERIC-RESOURCE	Generic DG	NULL Set	NULL Set	N/A	NULL Set
"	TunnelXConn (AR) (6a)	Custom_vCpeResCust -> Custom_TunnelXConn	GENERIC-RESOURCE	Custom Sub-DG [New]	[On "Assign"] BRG_WAN_MAC_Address	VNI, vgmux_private_ip_2 (mux_gw), vgmux_private_ip_0 (bng_gmux) vgw_private_ip_0 (mux_gw)	Yes	[On "Create"] Xconn: {vbrgemu_private_ip_0, VNI, vgw_private_ip_0}
"	vG (VNF) (6b)	Custom_vCpeResCust -> DoCreateVnfAndModule -> DoCreateVnf	GENERIC-RESOURCE	Generic DG	[On "Assign"] VNI, vgmux_private_ip_2 (mux_gw)	cpe_public_net_id, mux_gw_private_net_id, onap_private_net_id, Etc…	No	NULL Set
"	vG (VF Module) (6c)	Custom_vCpeResCust -> DoCreateVnfAndModule -> DoCreateVfMod	GENERIC-RESOURCE	Custom Sub-DG [New]	NULL Set	vgw_private_ip_1 (onap_private), vgw_name_0, Etc…	Yes	[On "Activate"] vgw_private_ip_0 (mux_gw), VNI, vgmux_private_ip_2 (mux_gw)
"	BRG (AR) (6d)	Custom_vCpeResCust -> Custom_BRG	GENERIC-RESOURCE	Custom Sub-DG [New]	[On "Assign"] vgmux_private_ip_0 (bng_gmux), VNI, BRG_WAN_MAC_Address	NULL Set	N/A	[On "Activate"] BRG_BRG_BNG_IP, VNI, VGMUX_BNG_MUX_IP

Residential Broadband vCpeGenInfra_X Data

Service Level

1

A La Carte Flow [Existing]

vCpeGenInfra_X Service:
topology_template:
node_templates:
cpe_public_net (Network)
cpe_signal_net (Network)
vCpeGenInfraVnfs_X (VNF)
vCpeGenInfraVnfs _HEAT (VF Mod)
SO Input Attributes:
{NULL Set}

Resource Level

2

CPE_PUBLIC Network:
SO Input Attributes:
{NULL Set}
SDNC Assigned Attributes:
cpe_public_net_cidr,
cpe_ public_net_id

As part of the Network-level "Assign" operation, SDNC assigns the network name and the "10.2" subnet to this network instance.

3

CPE_SIGNAL Network:
SO Input Attributes:
{NULL Set}
SDNC Assigned Attributes:
cpe_signal_net_cidr,
cpe_signal_net_id

As part of the Network-level "Assign" operation, SDNC assigns the network name and the "10.4" subnet to this network instance.

4

vCpeGenInfraVnfs_X VNF:
SO Input Attributes:
{NULL Set}
SDNC Assigned Attributes:
{NULL Set}
SDNC Configured Attributes:
{NULL Set}

In Release 2, using the generic "Macro" Service-level flow and the "Generic-Resource" SDNC API, a separate "assign" call will be made at the VNF level which will result in SDNC assigning each of the "external connection point" (*_NET_ID) values.

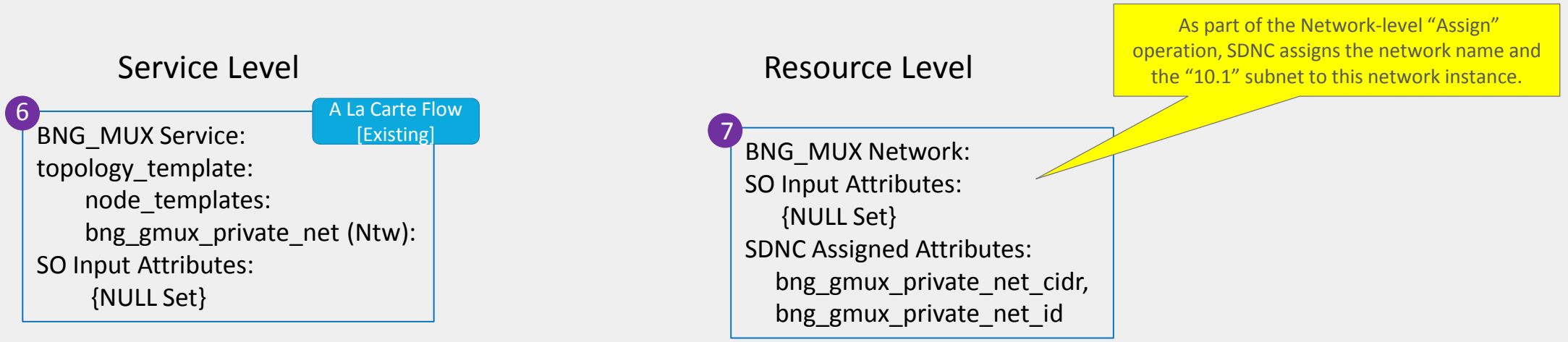
VF Module Level (HEAT+TOSCA)

5

vCpeGenInfraVnfs _HEAT VF Module:
SO Input Attributes:
{NULL Set}
SDNC Assigned Attributes:
cpe_public_net_id,
cpe_signal_net_id,
onap_private_net_id,
vdhcp_name_0, vaaa_name_0,
vdns_name_0, vweb_name_0,
vdns_private_ip_0 (cpe_public),
vdns_private_ip_1 (onap_private),
vweb_private_ip_0 (cpe_public),
vweb_private_ip_1 (onap_private),
vdhcp_private_ip_0 (cpe_signal),
vdhcp_private_ip_1 (onap_private),
vaaa_private_ip_0 (cpe_signal),
vaaa_private_ip_1 (onap_private),
Etc... (see HEAT)

As part of the VF Module-level "Assign" operation, SDNC determines that this VNF must connect to three network types. It also assigns the VM Names and the IPs for the relevant VMs each of the networks

Residential Broadband vCPE Use Case Model: BRG_EMU Service Data Mappings



Residential Broadband vCPE Use Case Model: vGMuxInfra Service Data Mappings

Service Level

Resource Level

VF Module Level

As part of the Network-level "Assign" operation, SDNC assigns the "10.5" subnet to this network instance.

As part of the VF Module-level "Assign" operation, SDNC determines that the vGMUX must connect to three network types and assigns the network names for each. It also assigns the IPs "10.1.0.20", "10.5.0.20" and "10.0.101.20" , respectively, on these three networks. In addition, SDNC assigns the "VNI Pool" that will be used to make assignments for future vGs that will home to this vGMUX.

8

A La Carte Flow [Existing]

vGMuxInfra Service:
topology_template:
node_templates:
vgmux (VNF):
mux_gw_private_net (Network):
SO Input Attributes:
{NULL Set}

9

MUX_GW Network:
SO Input Attributes:
{NULL Set}
SDNC Assigned Attributes:
mux_gw_private_net_cidr,
bng_gmux_private_net_id

11

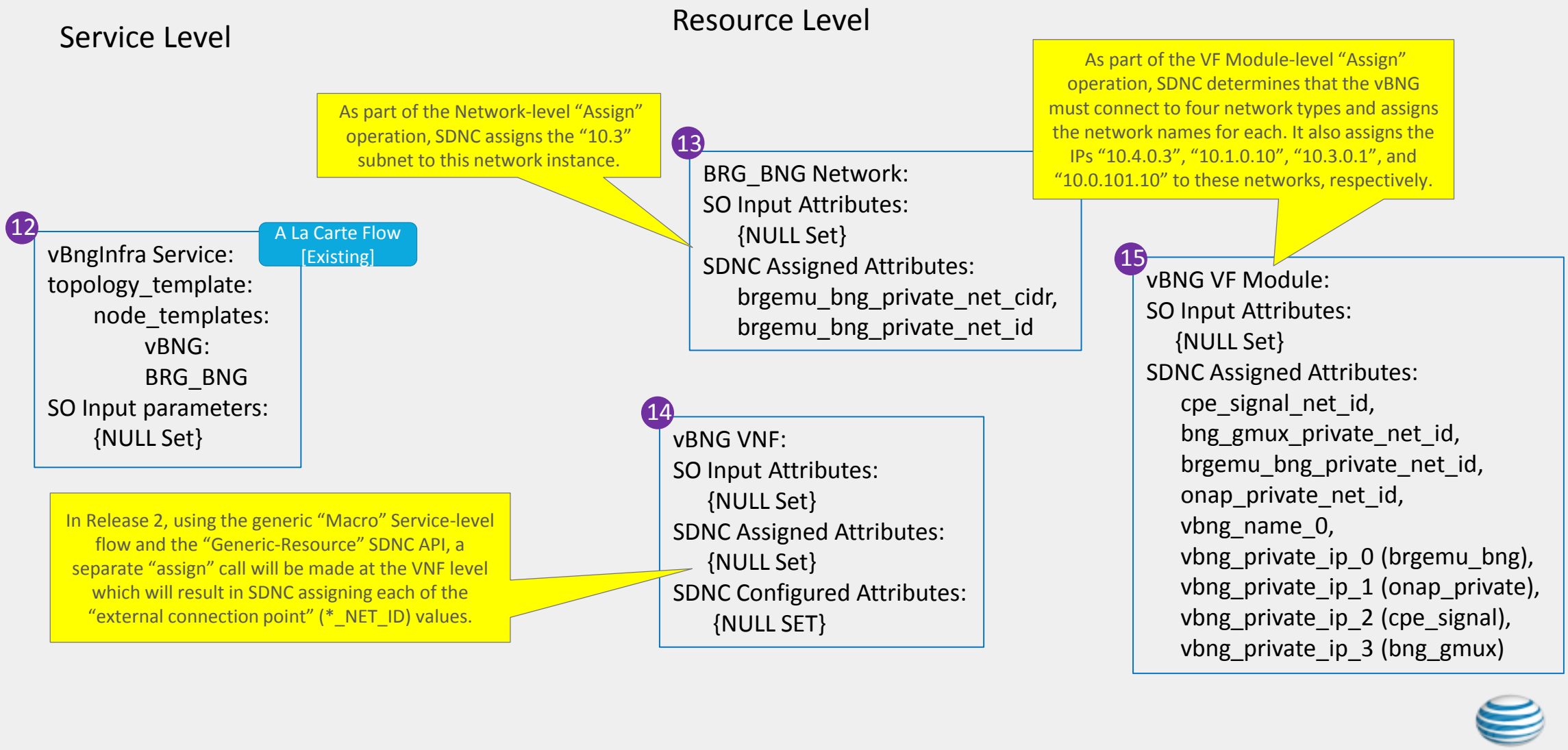
vGMUX VF Module:
SO Input Attributes:
{NULL Set}
SDNC Assigned Attributes:
bng_gmux_private_net_id,
mux_gw_private_net_id,
onap_private_net_id,
VNI_POOL,
vgmux_name_0,
vgmux_private_ip_0 (bng_gmux),
vgmux_private_ip_1 (onap_private),
vgmux_private_ip_2 (mux_gw)

In Release 2, using the generic "Macro" Service-level flow and the "Generic-Resource" SDNC API, a separate "assign" call will be made at the VNF level which will result in SDNC assigning each of the "external connection point" (*_NET_ID) values.

10

vGMUX VNF:
SO Input Attributes:
{NULL Set}
SDNC Assigned Attributes:
{NULL Set}
SDNC Configured Attributes:
{NULL Set}

Residential Broadband vCPE Use Case Model: vBNG Service Data Mappings



Residential Broadband vCPE Use Case Model: BRG_EMU Service Data Mappings

In Release 2, we hope to leverage the generic "Macro" Service-level flow and the "Generic-Resource" SDNC API. This "Macro" flow will orchestrate the VNF and VF Module Service-Level Resources. At that time, the BRG_WAN_MAC_Address would be entered as SO Input at the Service-level, and the Macro flow itself would pass to the VNF level and on to the VF level flow where it is actually needed for the HEAT construction.

The BRG_WAN_MAC_Address is communicated via the BRG HEAT.

Service Level

A La Carte Flow [Existing]

16

BRG_EMU Service:
topology_template:
node_templates:
vbrg_emu (VNF):
SO Input Attributes:
{NULL SET}

VF Module Level

18

vBRG_EMU VF Module:
SO Input Attributes:
BRG_WAN_MAC_Address
SDNC Assigned Attributes:
vbrgemu_bng_private_net_id,
vbrgemu_name_0

Resource Level

17

vBRG_EMU VNF:
SO Input Attributes:
{NULL SET}
SDNC Assigned Attributes:
{NULL SET}
SDNC Configured Attributes:
{NULL SET}

In Release 2, using the generic "Macro" Service-level flow and the "Generic-Resource" SDNC API, a separate "assign" call will be made at the VNF level which will result in SDNC assigning each of the "external connection point" (*_NET_ID) values.

Residential Broadband vCPE Use Case Model: vCpeResCust Input Data Mappings (R1)

As part of the TunnelXConn"Assign" operation, SDNC assigns the vG IP "10.5.0.21" on the MUX_GW network

As part of the VNF-level "Assign" operation, SDNC determines that the vG connects to three networks. SDNC also finds the VGMUX_MUX_GW_IP (10.5.0.20) which it will later configure along with the VG_MUX_GW_IP and VNI

Service Level

19

Custom [New]

vCpeResCust Service:
topology_template:
node_templates:
vG (VNF):
TunnelXConn (AllottedResource):
BRG (AllottedResource):
SO Input Attributes:
BRG_WAN_MAC_Address
vGMxuInfra_UUID
vGMux_Cloud_Region
Homing Attributes:
vGMuxInfra_UUID

Mapped From

Mapped From

Allotted Resource

20

TunnelXConn AllottedResource:
SO Input Attributes:
BRG_WAN_MAC_Address

Custom [New]

SDNC Assigned Attributes:
VNI;
vgw_private_ip_0 (mux_gw),
vgmux_private_ip_2 (mux_gw),
vgmux_private_ip_0 (bng_gmux)
SDNC Configured Attributes:
Xconn: {vbrgemu_private_ip_0 (vbrgemu_bng), VNI}

Mapped From

Mapped From

VNF Level

21

vG VNF:
SO Input Attributes:
VNI
vgmux_private_ip_2 (mux_gw)
SDNC Assigned Attributes:
cpe_public_net_id,
mux_gw_private_net_id,
onap_private_net_id
SDNC Configured Attributes:
vgw_private_ip_0 (mux_gw),
VNI,
vgmux_private_ip_2 (mux_gw)

23

BRG AllottedResource:

Custom [New]

Key:
BRG_WAN_MAC_Address
SO Input Attributes:
vgmux_private_ip_0 (bng_gmux),
VNI,
BRG_WAN_MAC_Address
SDNC Assigned Attributes:
{NULL Set}
SDNC Configured Attributes:
vbrgemu_private_ip_0 (vbrgemu_bng),
VNI,
vgmux_private_ip_0 (bng_gmux)

VF Module Level

22

vG VF Module:
SO Input Attributes:
{NULL Set}
SDNC Assigned Attributes:
vgw_private_ip_1 (onap_private),
vgw_name_0

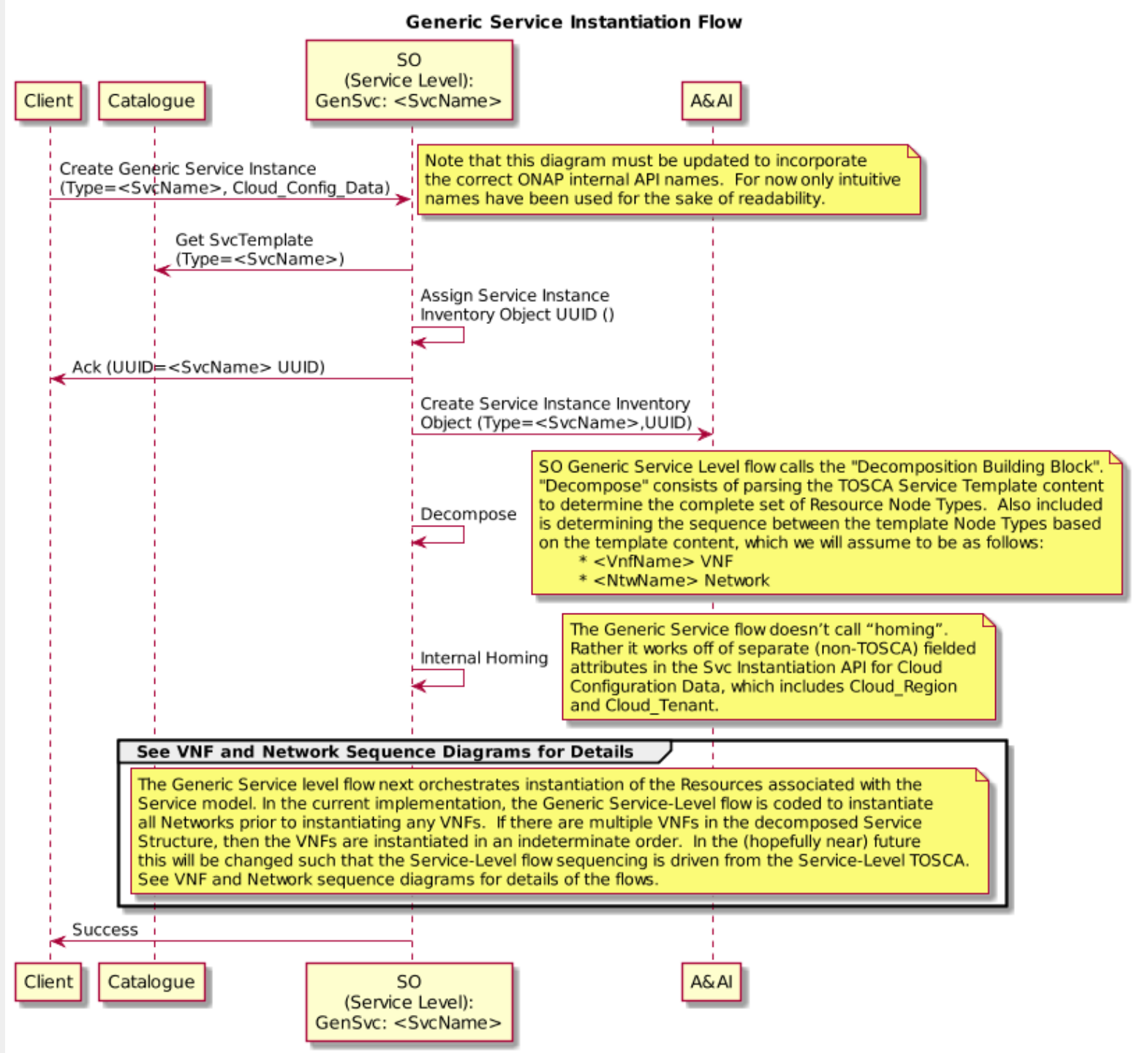
As part of the VF Module-level "Assign" operation, SDNC assigns the vG IP "10.0.101.30" on the ONAP_OAM network

The Input Data for the vCpeResCust Resources will be mapped by the custom vCpeResCust SO Service-Level workflow in Release 1. In Release 2+ we hope a generic Service-Level workflow can derive this data mapping from information contained in the SDC model.

Generic
Service Level Processing
("Macro")

CreateGenericMacroServiceNetworkVnf
-> DoCreateServiceInstance

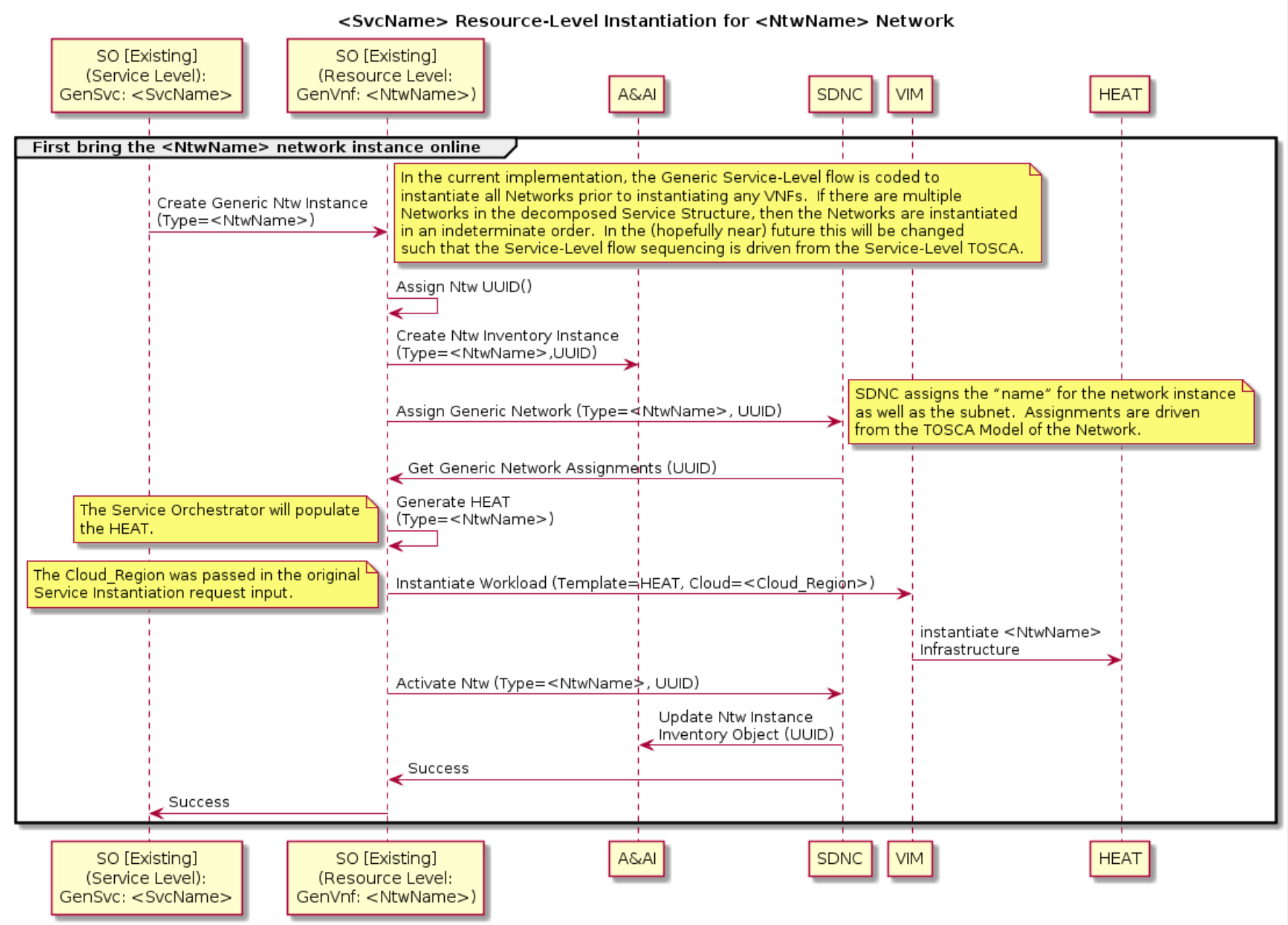
onap_uc_Generic_Service.html



Generic
Resource Level Processing:
Networks (“Macro”)

CreateGenericMacroServiceNetworkVnf
-> DoCreateNetworkInstance

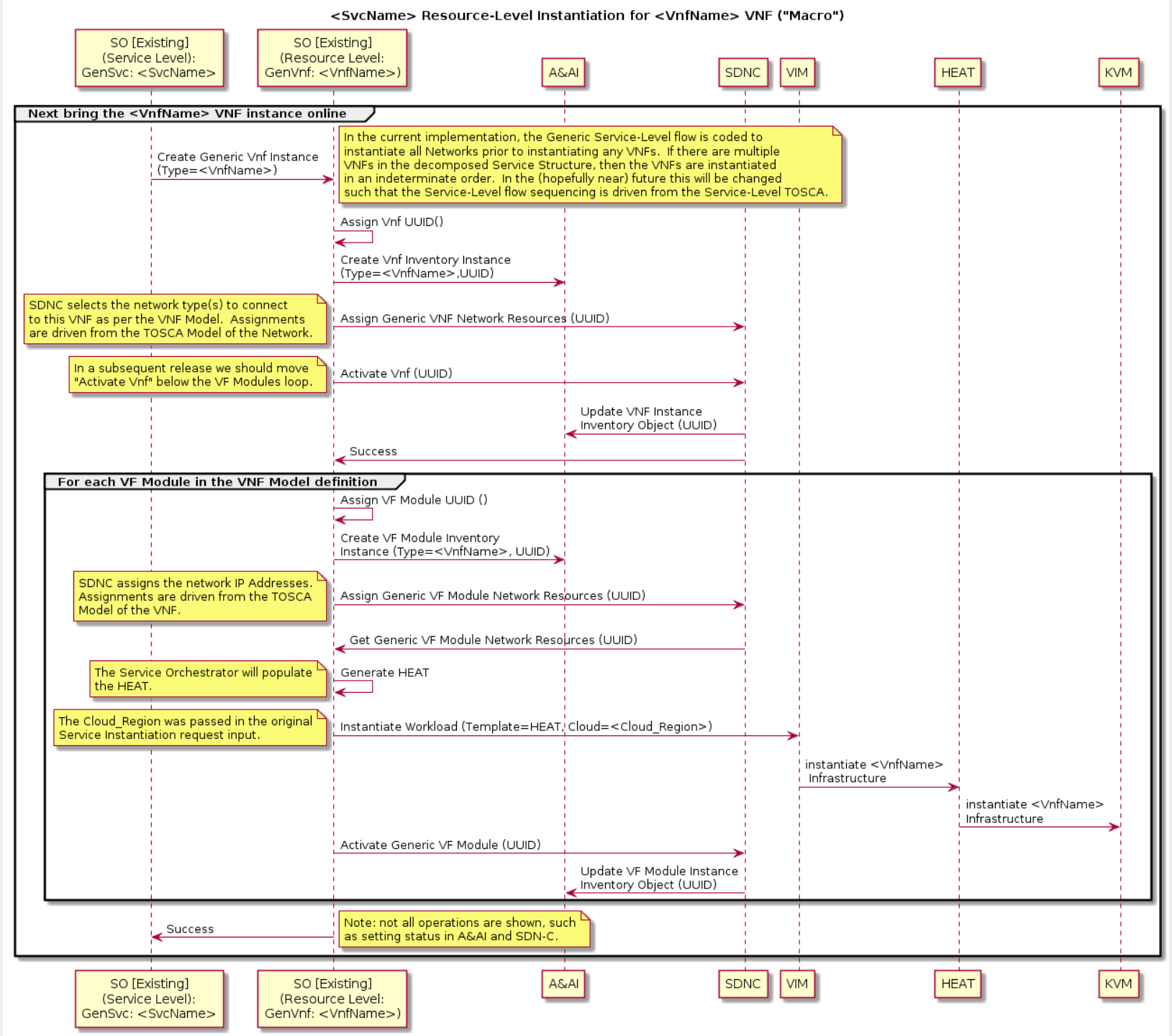
onap_uc_Generic_Resource_Ntw.html



Generic Resource Level Processing: VNFs (“Macro”)

CreateGenericMacroServiceNetworkVnf
-> DoCreateVnfAndModules
-> DoCreateVnf
-> DoCreateVfModule

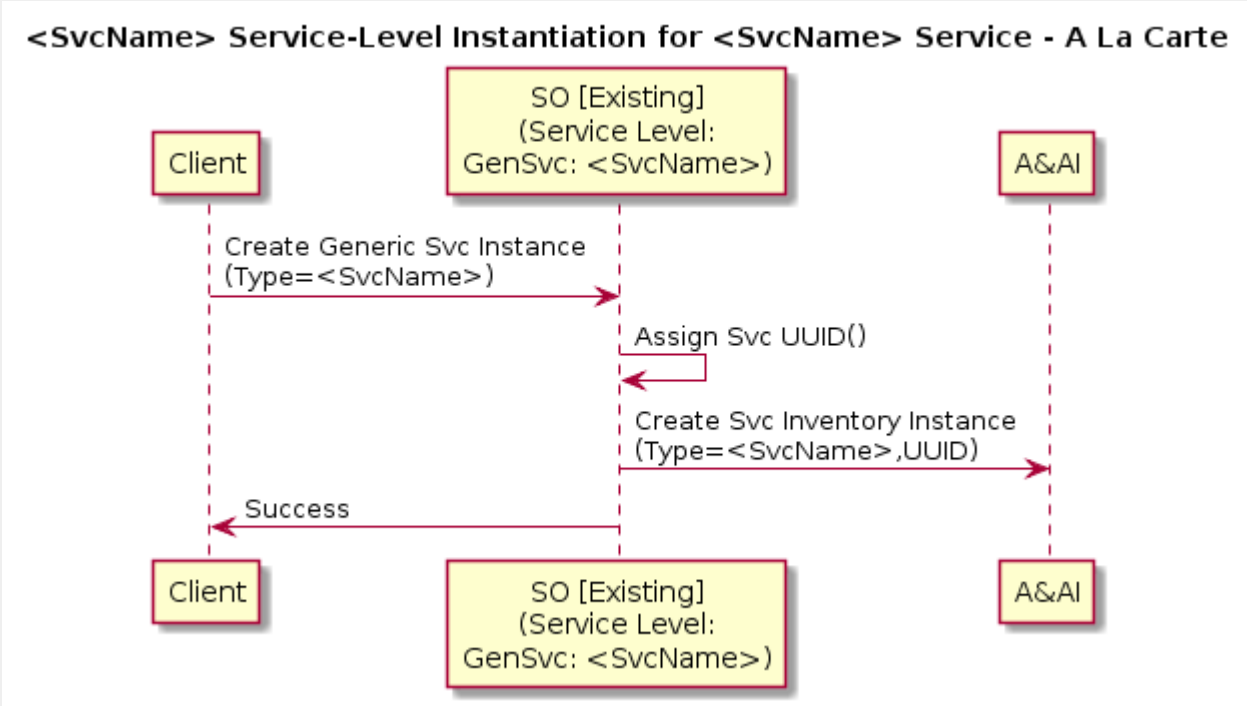
onap_uc_Generic_Resource_VNF.html



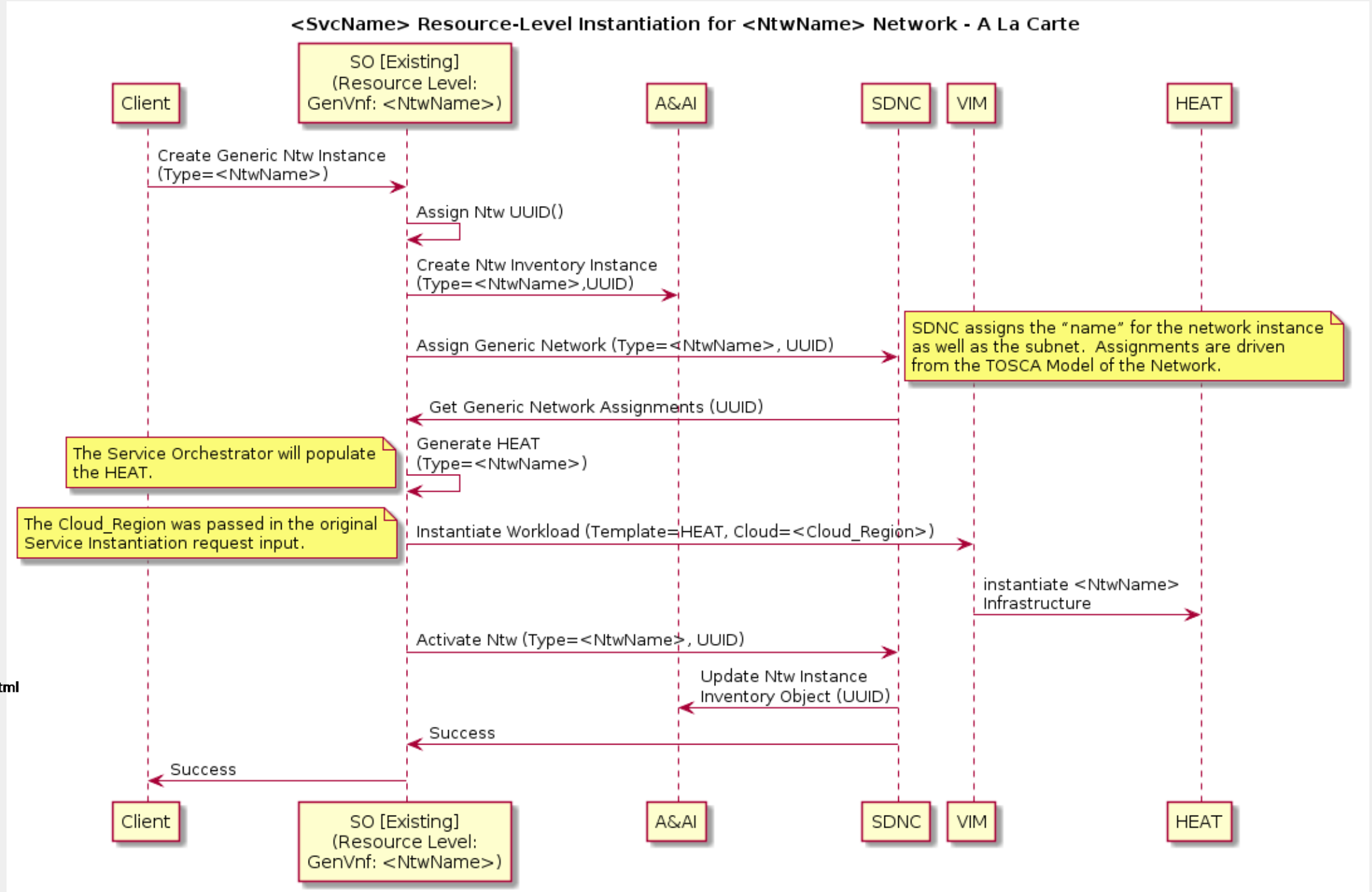
Generic
Resource Level Processing:
Services (“A La Carte”)

CreateGenericALaCarteServiceInstance

onap_uc_Generic_Resource_Service_ALaCarte.html



Generic Resource Level Processing: Network ("A La Carte")

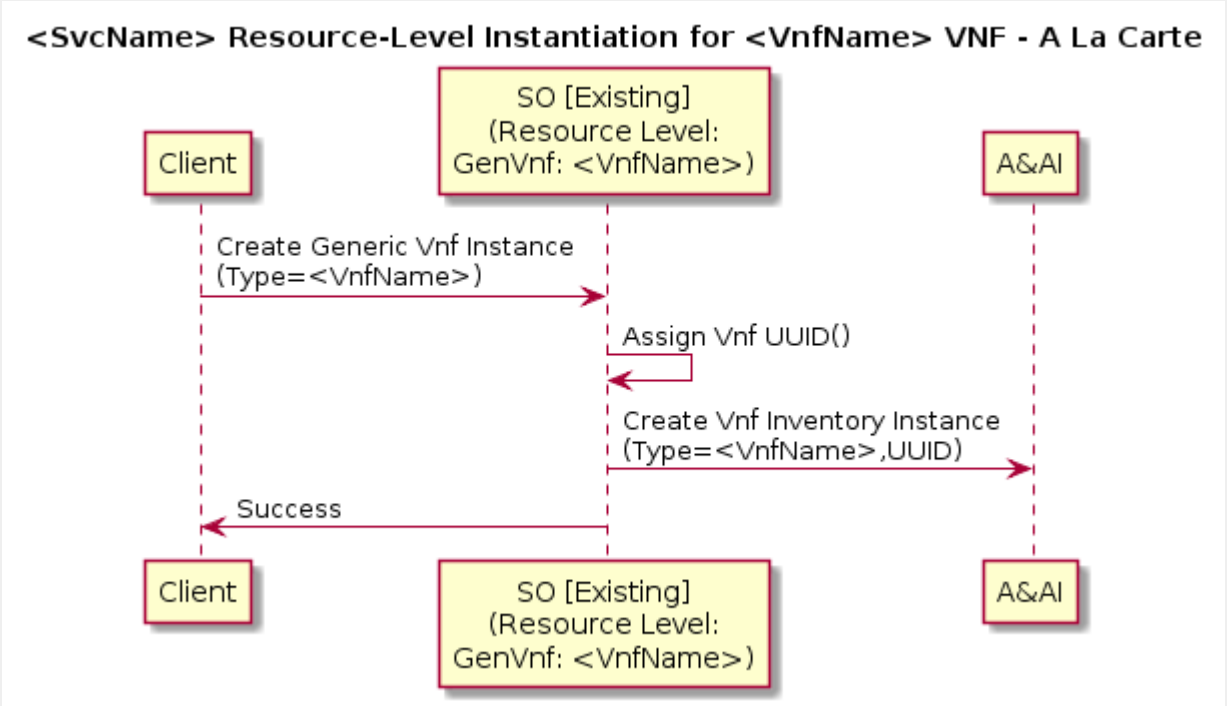


onap_uc_Generic_Resource_Ntw_ALaCarte.html

Generic
Resource Level
Processing:
VNFs (“A La Carte”)

CreateVnfInfra

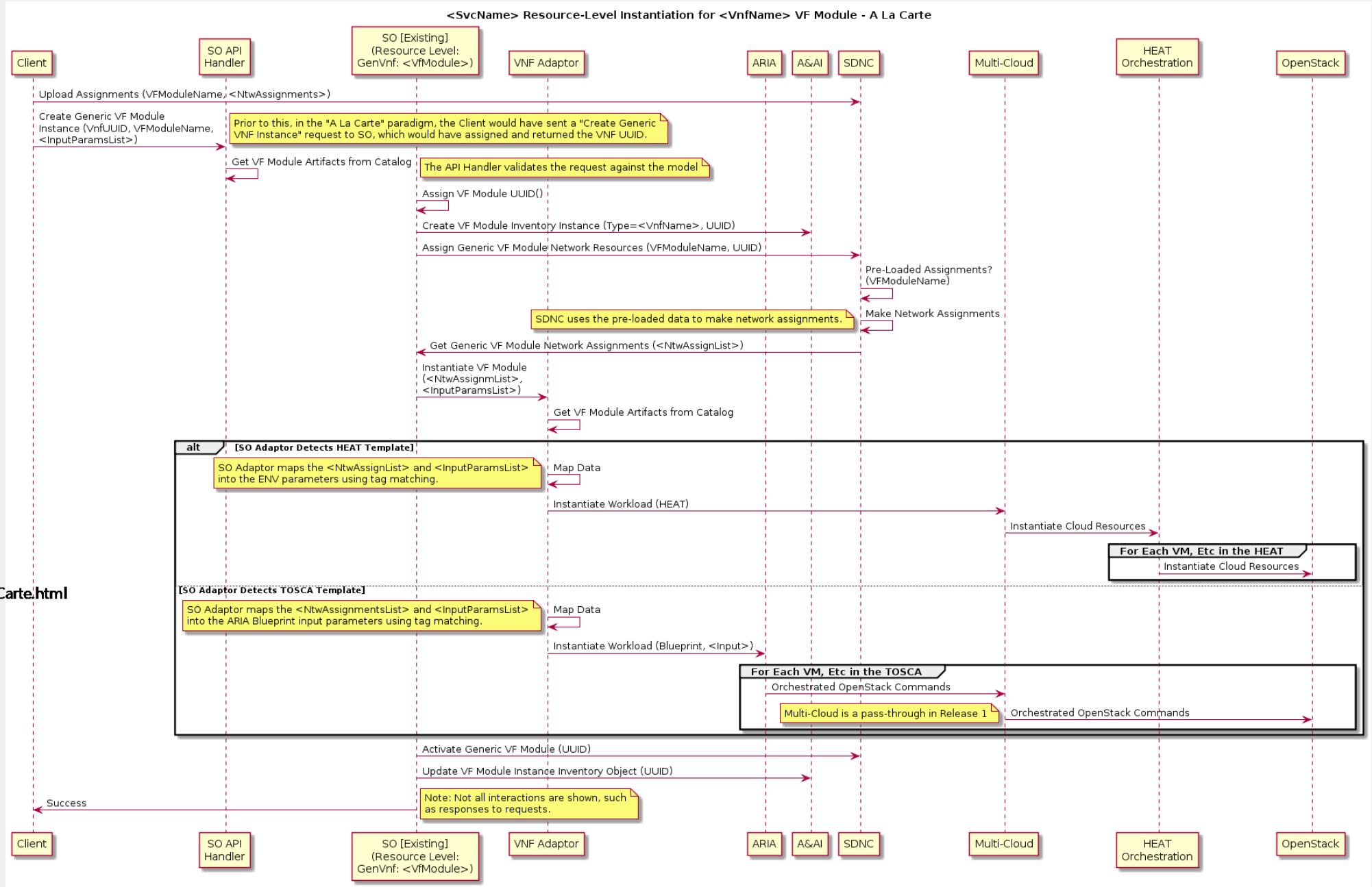
onap_uc_Generic_Resource_VNF_ALaCarte.html



Generic Resource Level Processing: VF Module (“A La Carte”)

CreateVfModuleInfra

onap_uc_Generic_Resource_VF_Module_ALaCarte.html



Assumptions

Once the BRG_EMU VNF Controller configures the vBRG_EMU VNF (see prior slide), that VNF will initiate DHCP interactions. This will result in an event being generated, which will be intercepted by the BRG Allotted Resource Controller. Note that the BRG_EMU VNF Controller shown in the prior sequence diagram is a *different* Controller function, and hence may be a different Controller instance, than the BRG Allotted Resource Controller which receives this event.

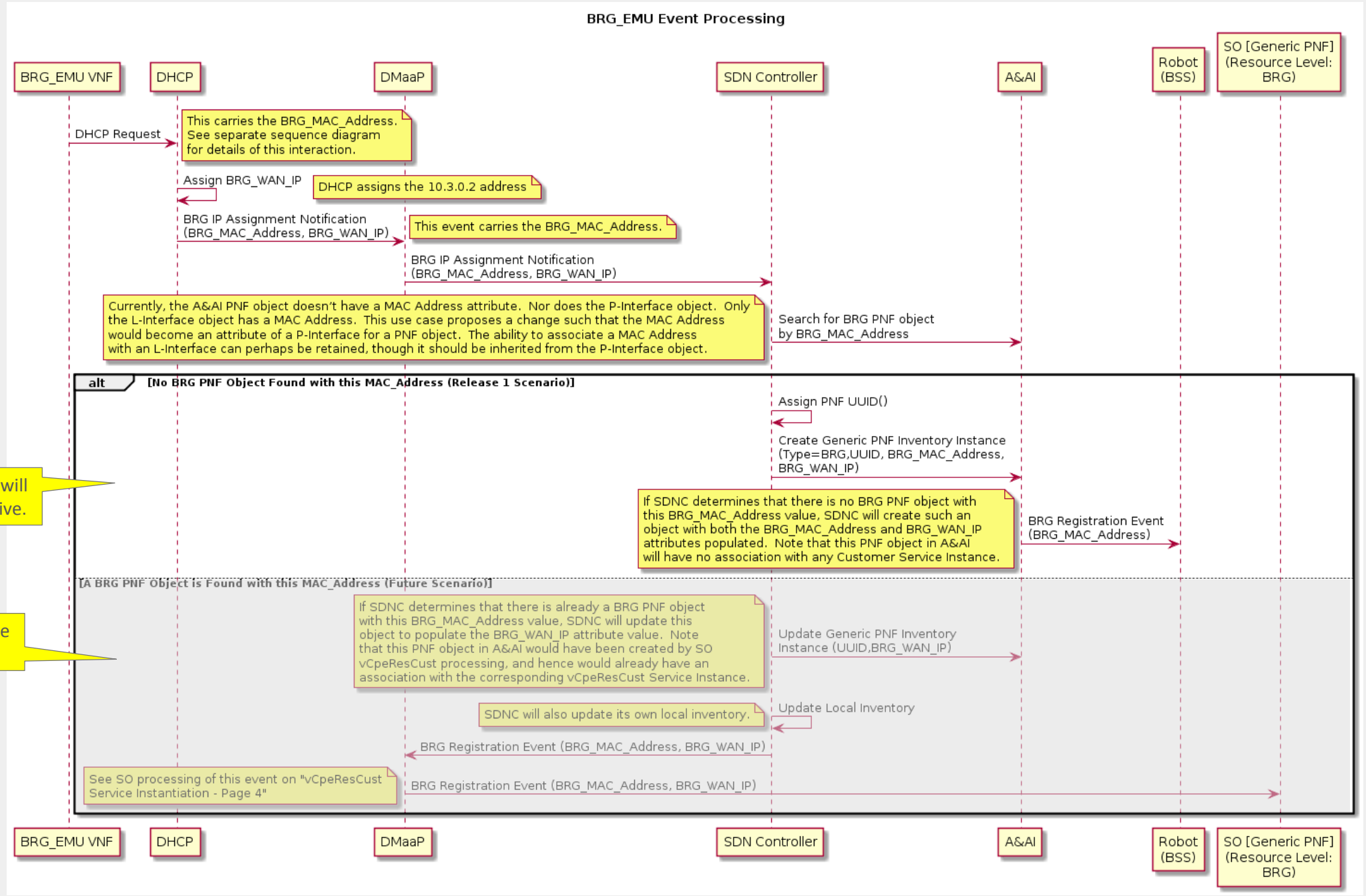
Being independent of each other, the vCpeResCust service instantiation request may be received in ONAP before the BRG Allotted Resource Controller receives this event notification, or it may be received after. The following sequence diagrams show both possibilities. However, in Release 1, only the latter will be supported.

BRG_EMU Event Processing (Custom)

onap_uc_res_vcpe_r1_brg_event.html

In Release 1 Use Case we will support only this alternative.

We will defer this alternative until Release 2 or beyond.



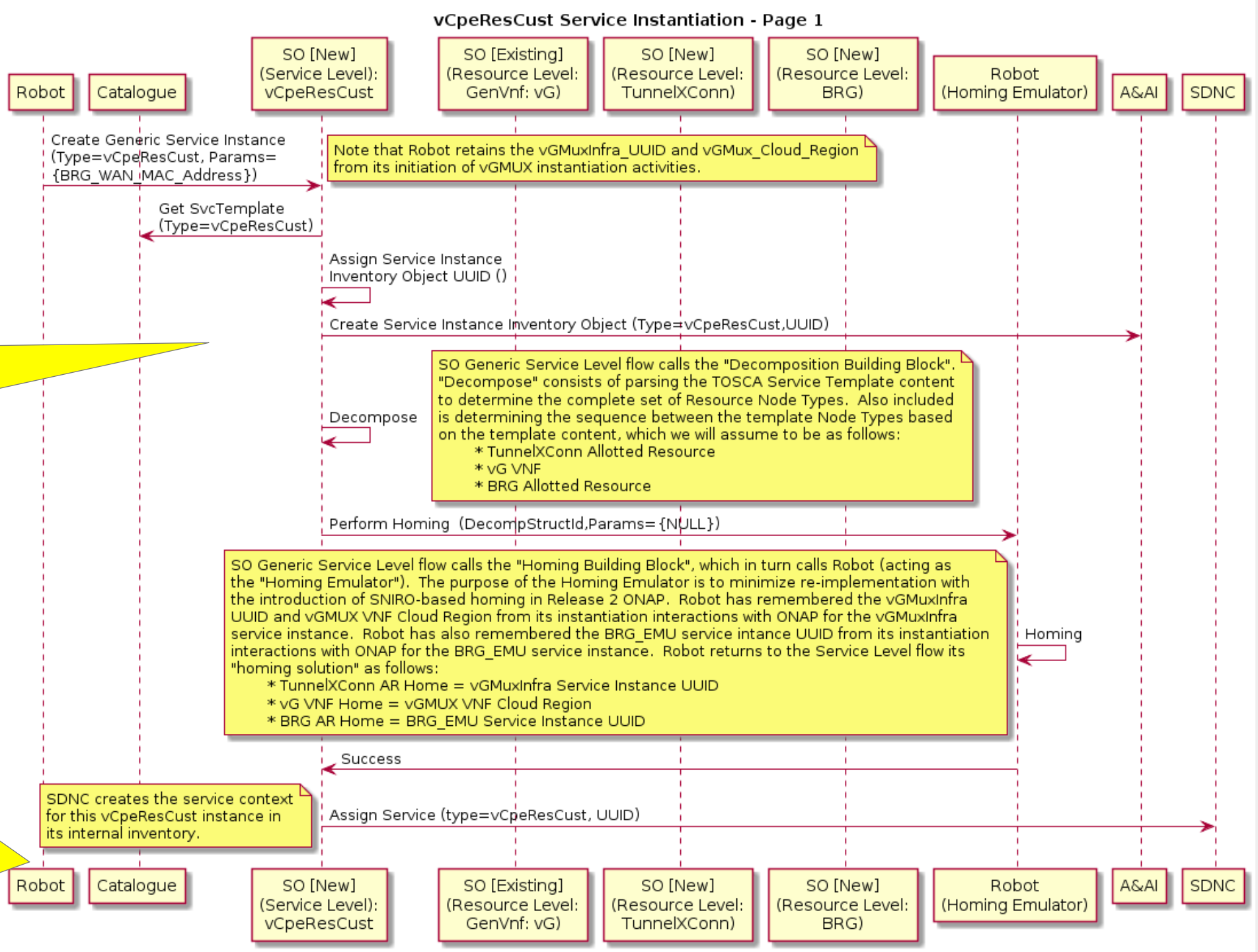
vCpeResCust Service Level Processing (Custom)

Because the vCpeResCust service involves an Allotted Resource, the generic Service Level ("top level") SO flow will not support this Service. So in Release 1 we either needed to extend the generic Service Level flow to support Allotted Resources or build a Custom flow for vCpeResCust.

onap_uc_res_vcpe_r1_p1.html

Next the vCpeResCust Service Level custom flow will call the associated Resource level flows in the proper order (see slide 19):

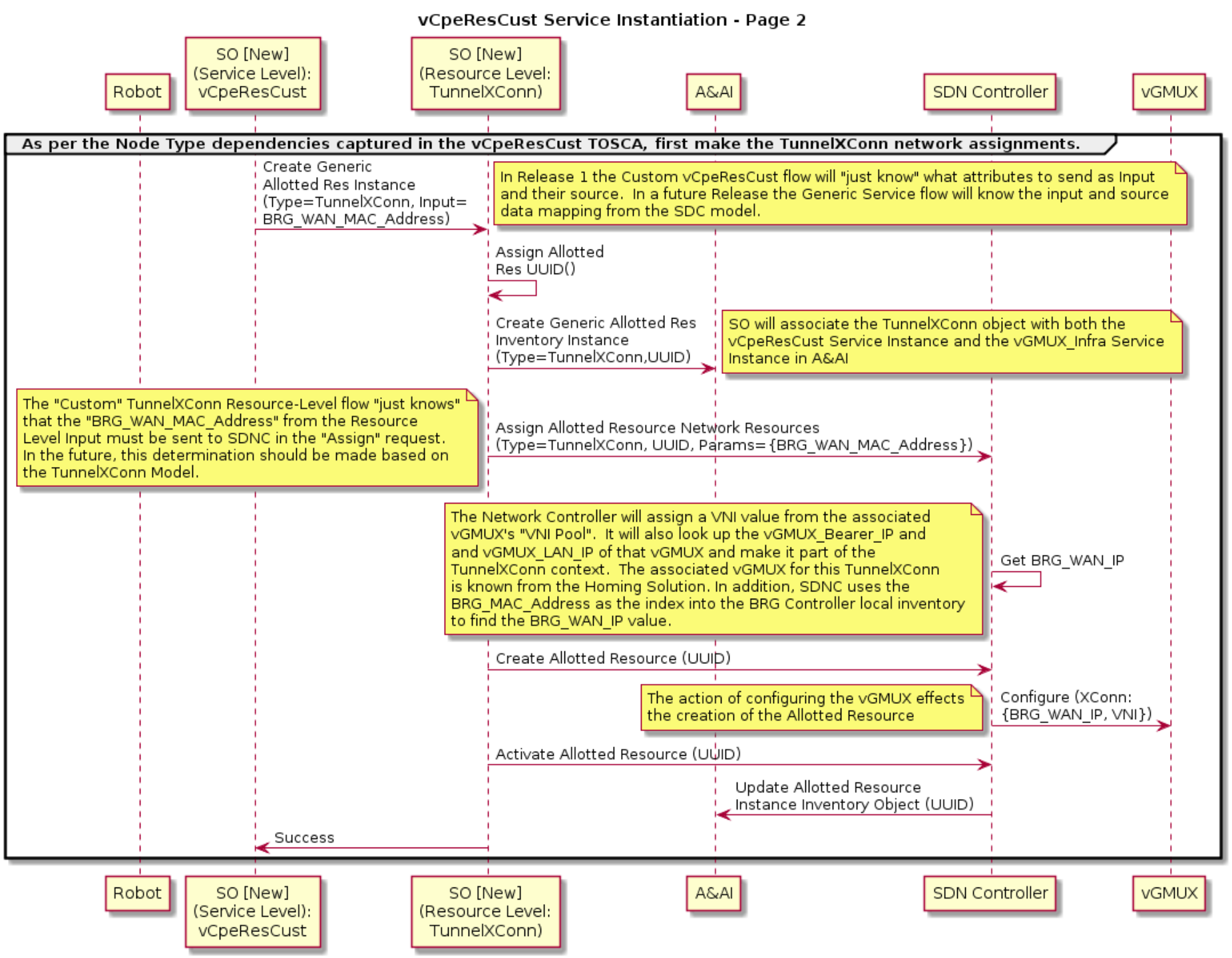
- TunnelXConn Allotted Resource (assigned, created, and configured)
- vG VNF + VF Module (assigned, instantiated, and configured)
- BRG Allotted Resource (assigned, created, and configured)



vCpeResCust Resource Level Processing:

- *TunnelXConn Allotted Resource (Custom)*

onap_uc_res_vcpe_r1_p2.html



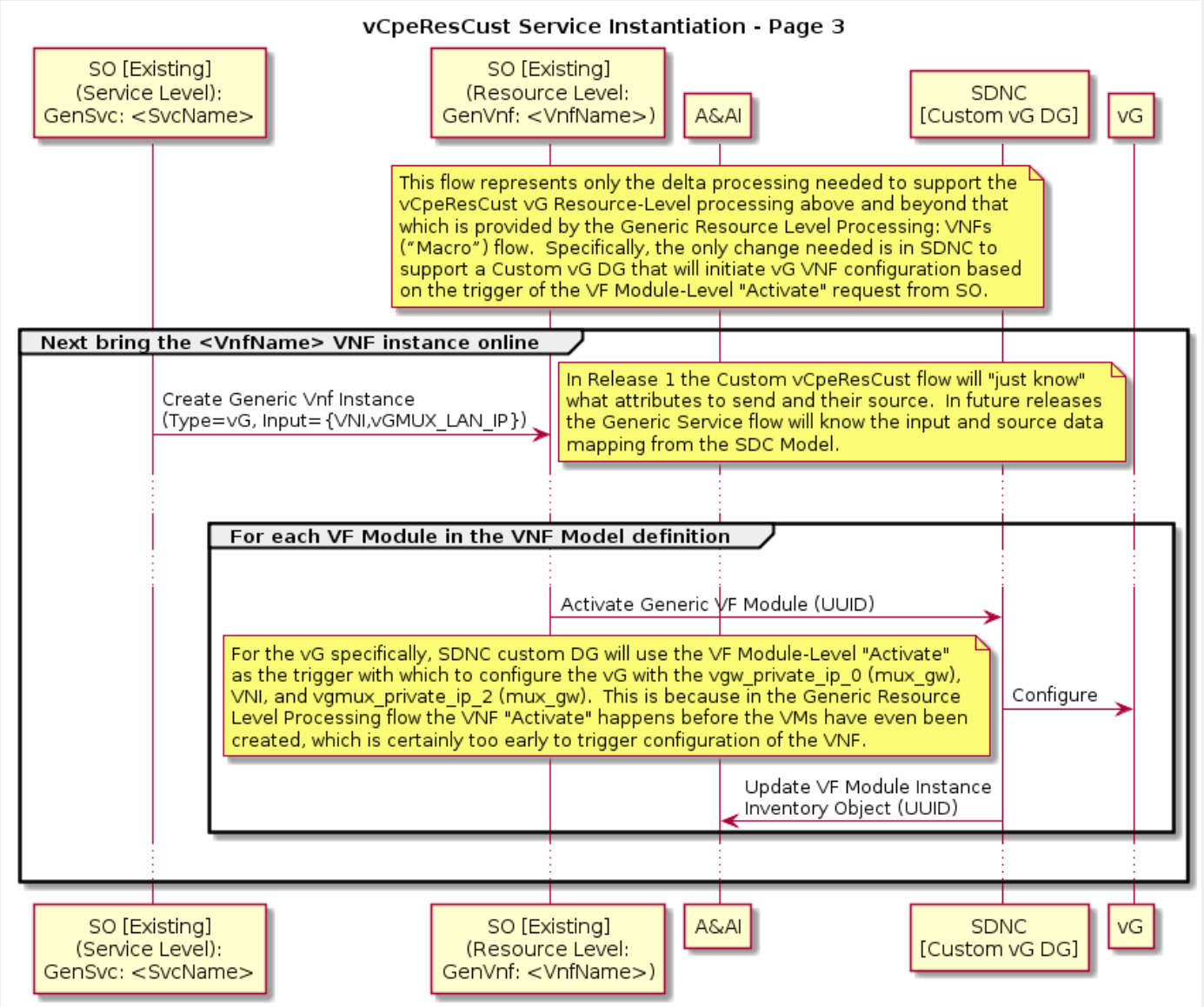
vCpeResCust Resource Level Processing:

- *vG (Generic SO, Custom DG)*

The vG VNF leverages the Generic Resource Level Processing: VNFs (“Macro”) flow shown on slide 28, with one exception. Rather than using the “Generic DG” SDNC behavior which is shown on slide 28, SDNC will have a “Custom DG” for the vG VF Module-level processing. This DG will use the VF Module-Level activation as the trigger to configure the vG, as shown in the diagram to the right.

This is because it was lately determined that the MSO Macro flow (as described on slide 28) requests the “VNF Activate” prior to starting the VF Module-level loop, which is a poor implementation given the VM hasn’t even been instantiated yet at the point in the flow when this “VNF Activate” occurs. The “correct” implementation would be to move this “VNF Activate” request after the VF Module loop. However, until this can be done, it was decided to use the “Custom DG” solution described above.

onap_uc_res_vcpe_vG_r1.html



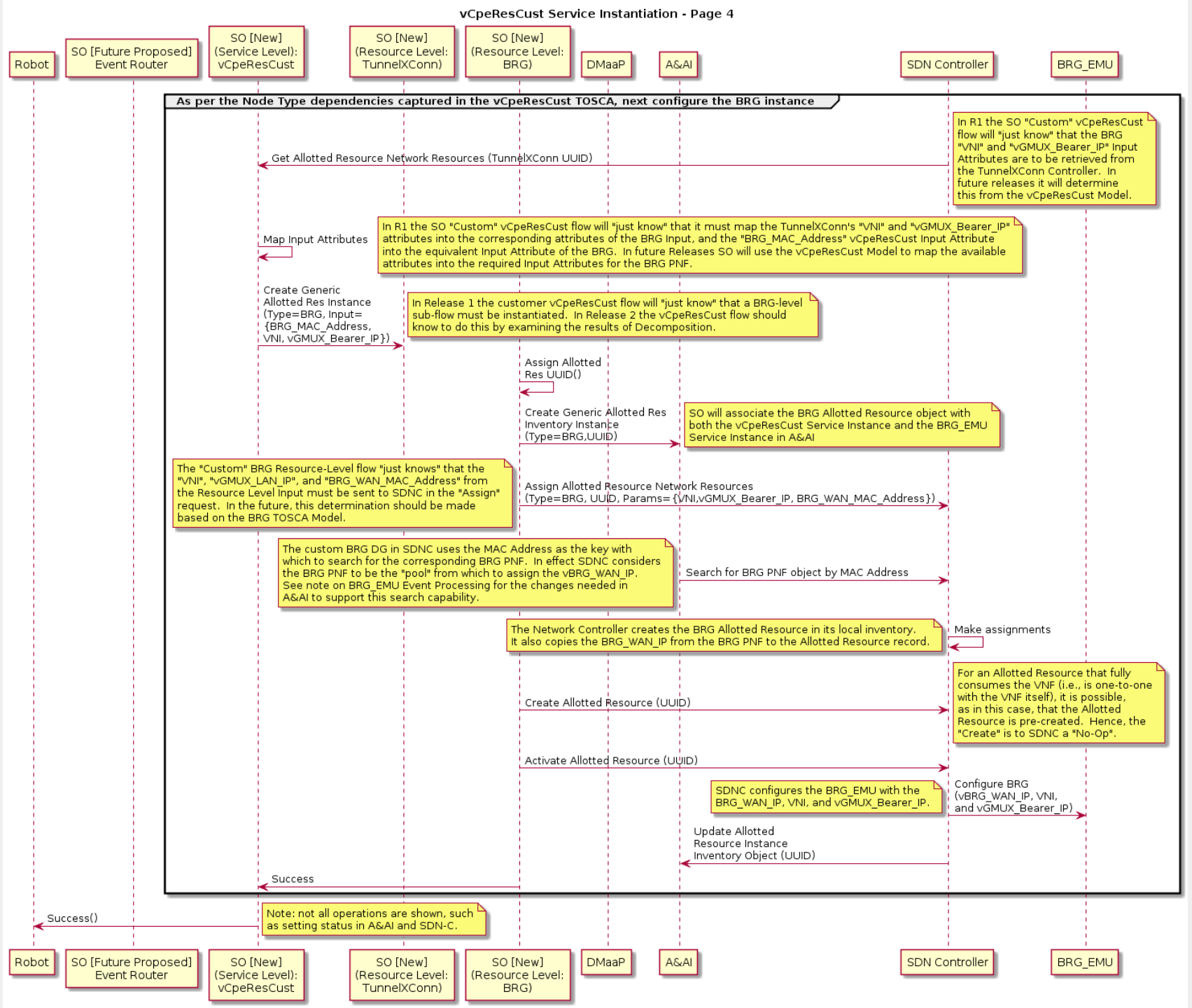
vCpeResCust Resource Level Processing:

- *BRG Allotted Resource (Custom)*

onap_uc_res_vcpe_r1_p4.html

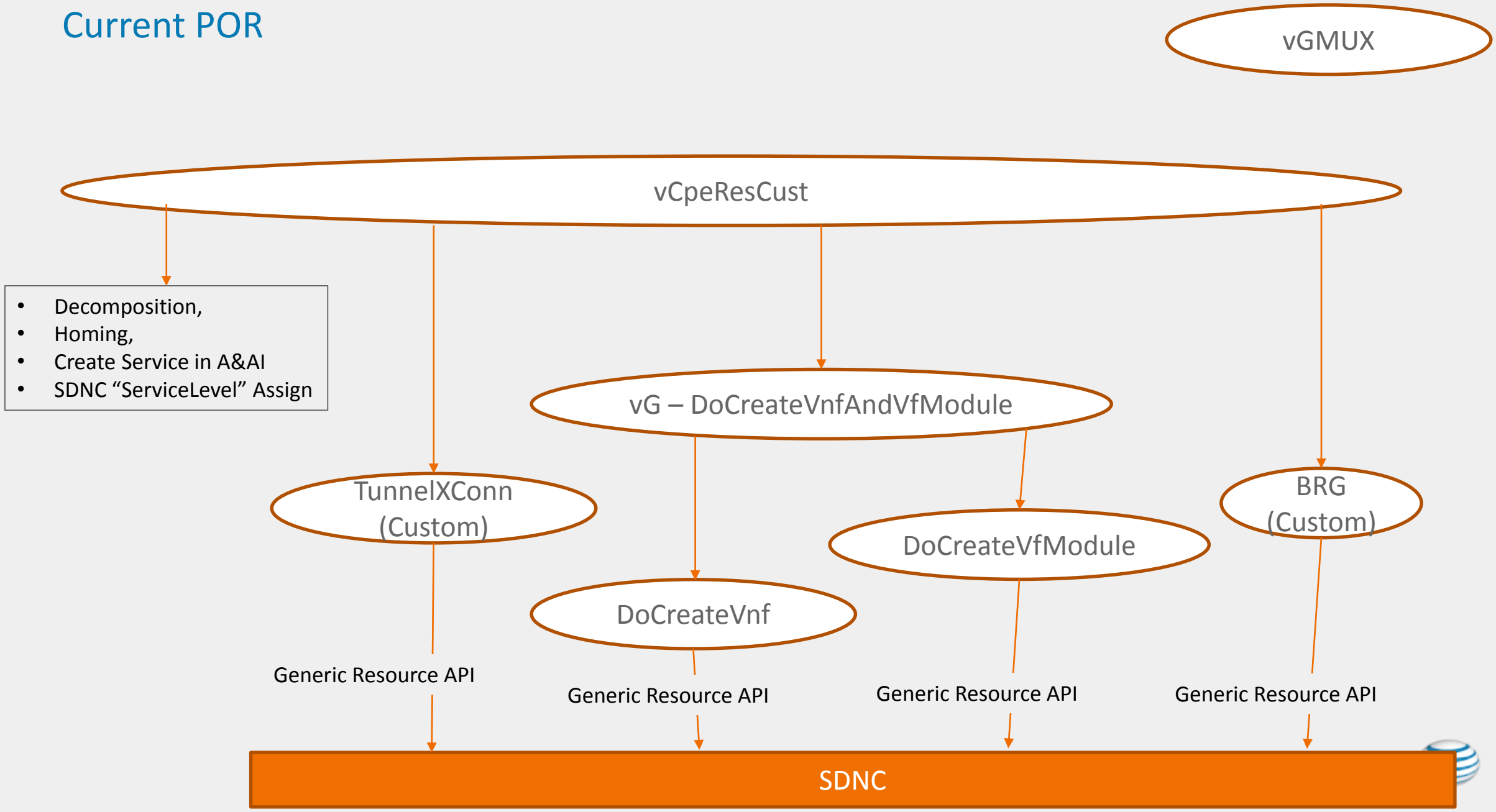
Future:

- Add step to get monitoring in place at the Service and Resource level (via REST call)
- Add step to get Security in place
- Add step to notify turn up to Ops; need to define a REST call to an external system.

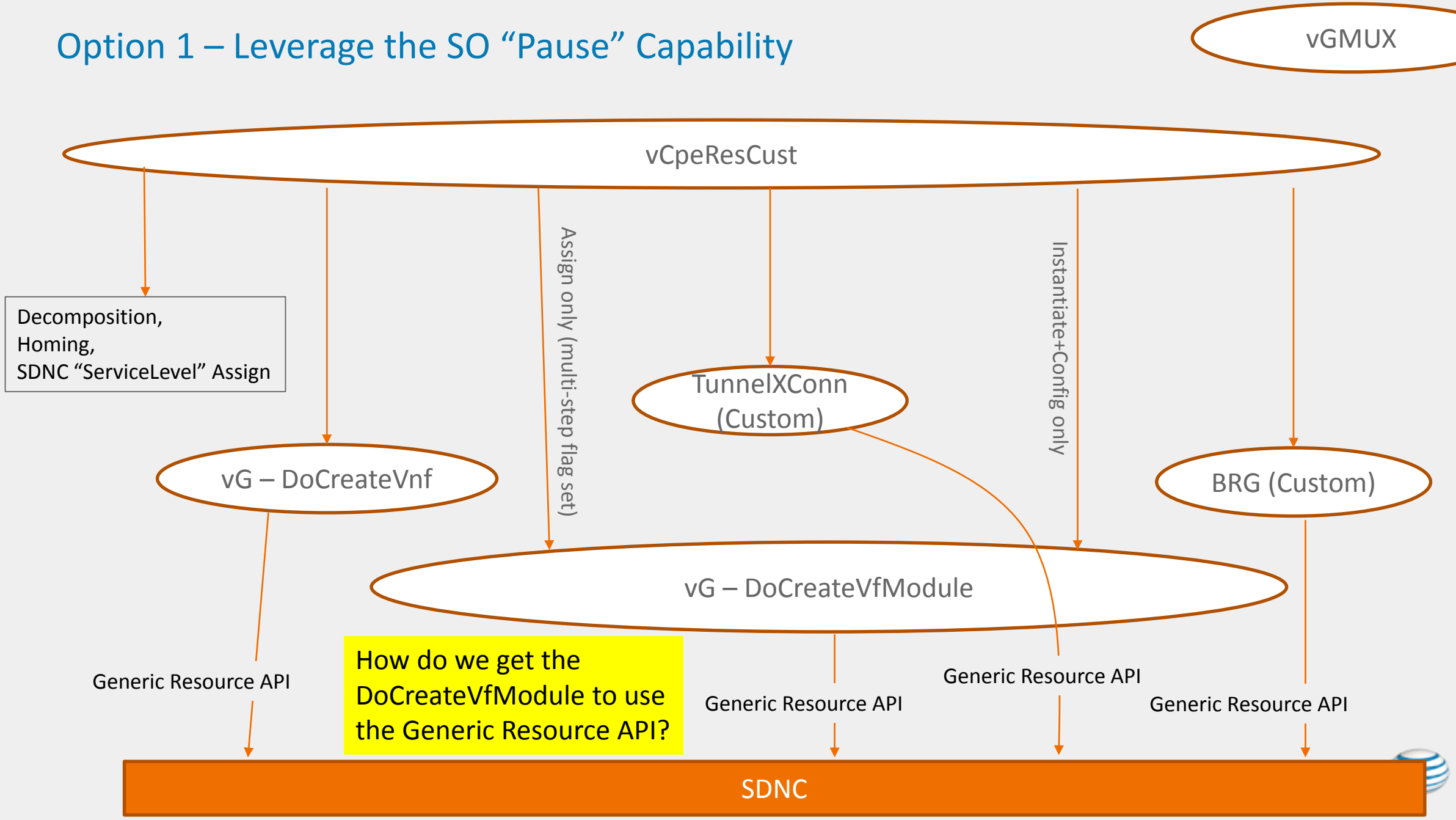


Backup Slides

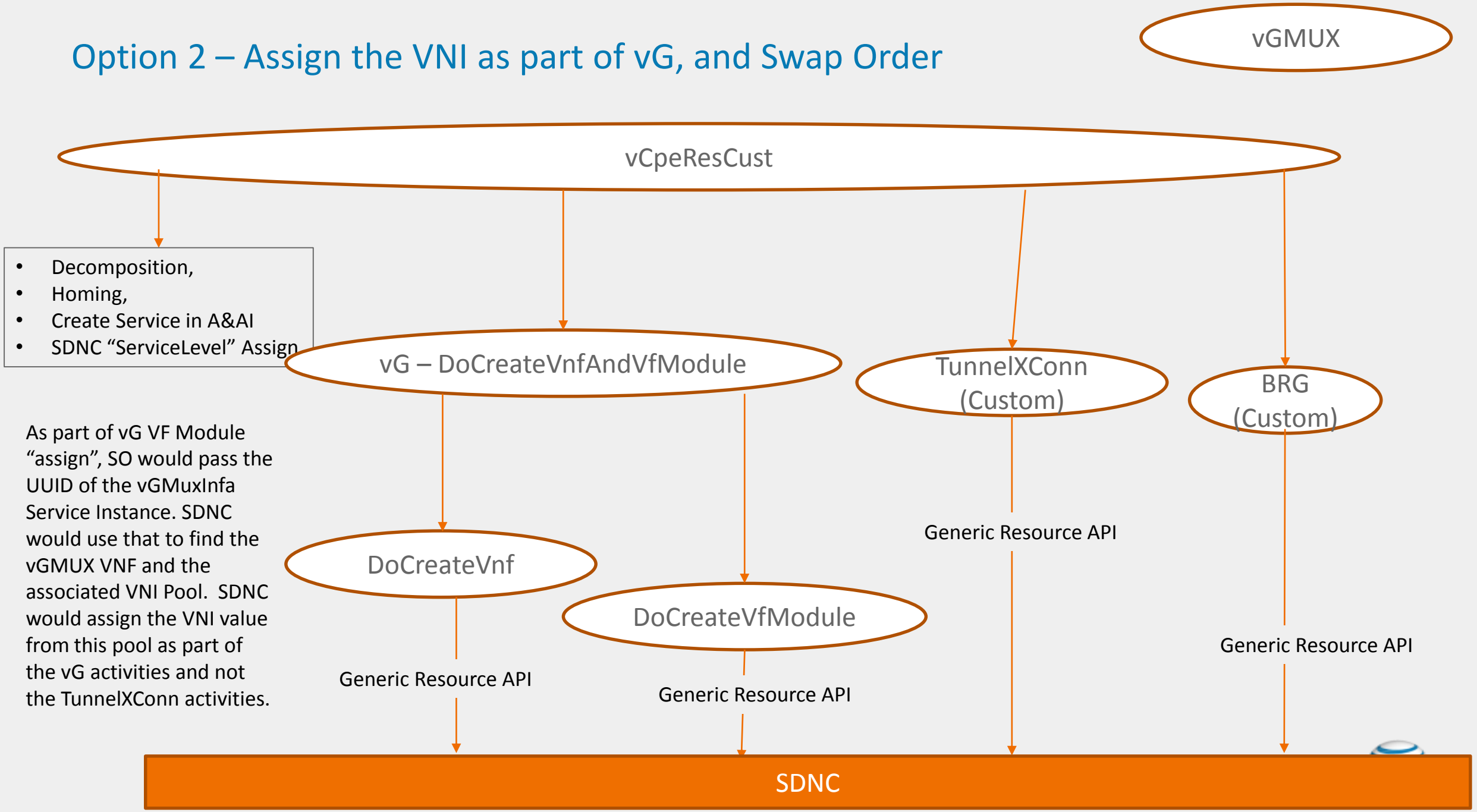
Current POR


vGMUX
vCpeResCust
Decomposition,
Homing,
Create Service in A&AI
SDNC "ServiceLevel" Assign
vG – DoCreateVnfAndVfModule
TunnelXConn (Custom)
DoCreateVfModule
BRG (Custom)
DoCreateVnf
Generic Resource API
Generic Resource API
Generic Resource API
Generic Resource API
SDNC

Option 1 – Leverage the SO "Pause" Capability



Option 2 – Assign the VNI as part of vG, and Swap Order



Option 3 – Assign the vG IP address as part of the TunnelXConn