Traffic Migration in ONAP

Based on vFW VNF use case

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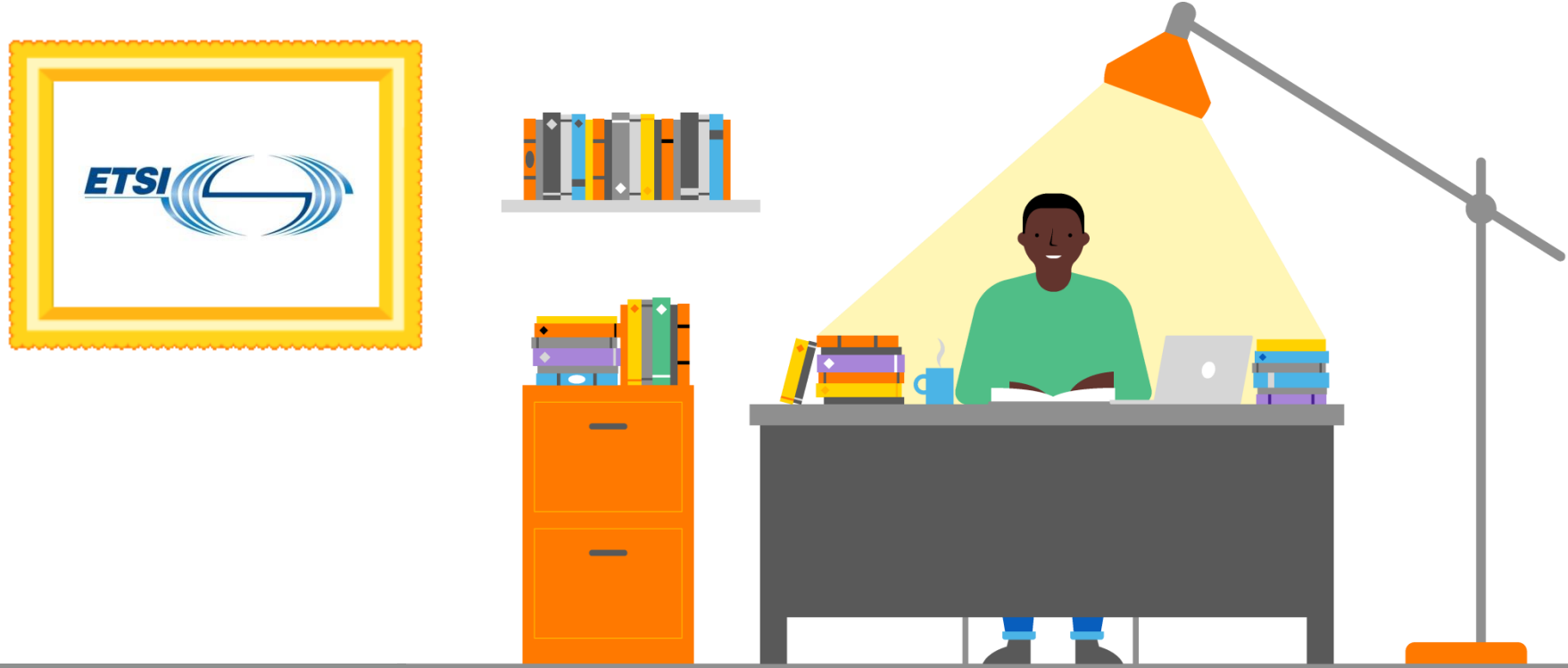

ETSI NFV - BACKGROUND

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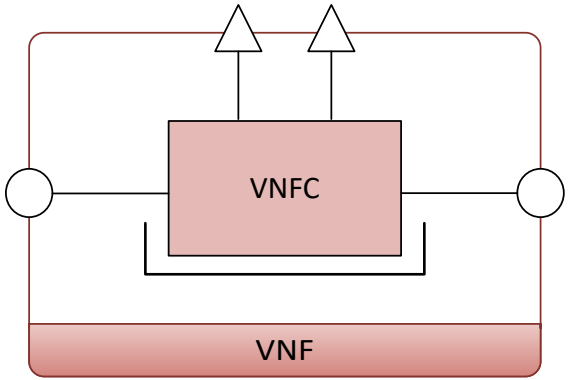
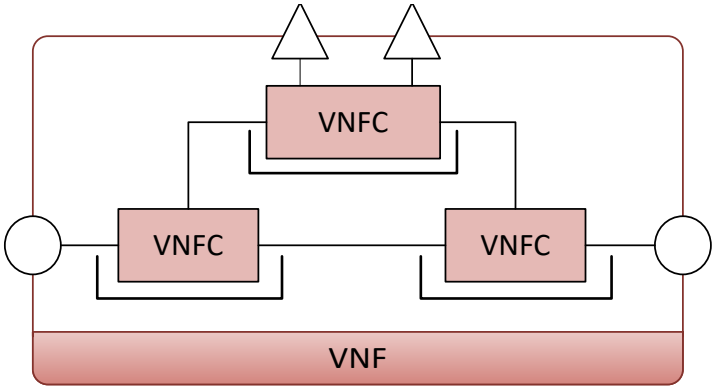
Types of VNFs (1/3)

ETSI GS NFV-SWA 001

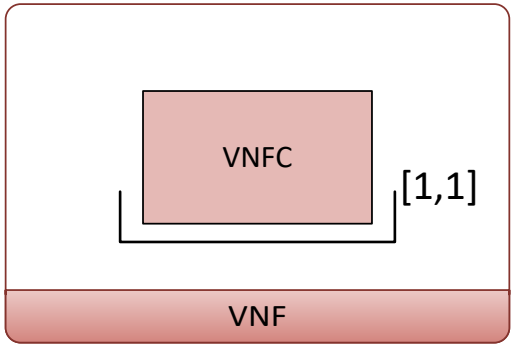


Single Component

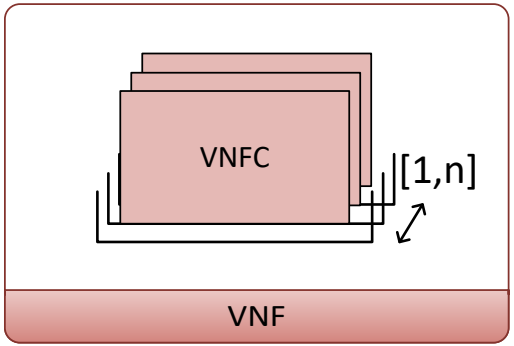


Multiple Components

Types of VNFs (2/3)



Non-parallelizable VNFC
Non-parallelizable VNF



Parallelizable VNFC
Parallelizable VNF

Types of VNFs (3/3)

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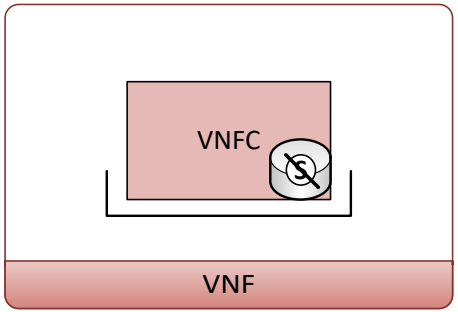
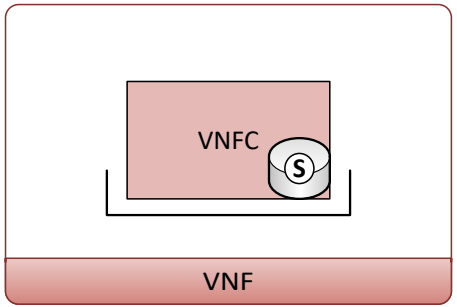
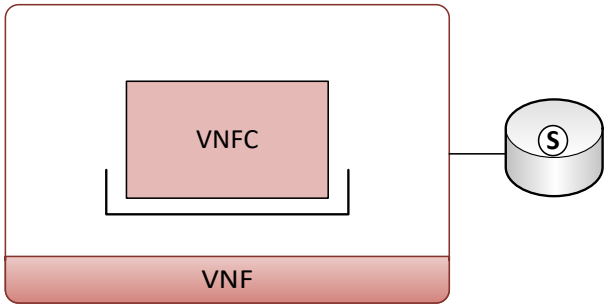


Stateless VNFC
Stateless VNF



Stateful VNFC
Stateful VNF

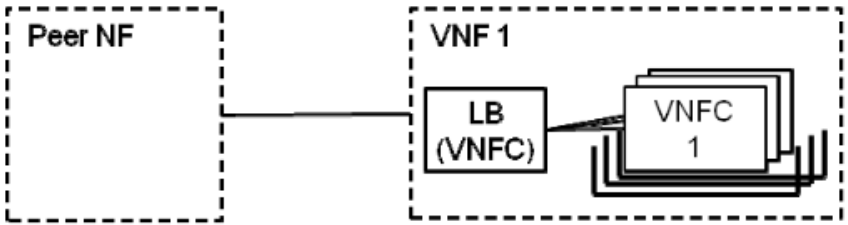


Externalized state of VNFC
Externalized state of VNF

VNF-internal Load Balancer

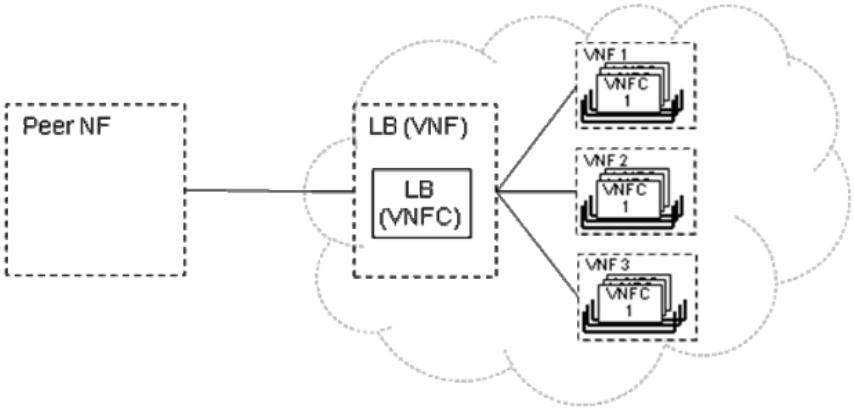
ETSI GS NFV-SWA 001

- Peer NF sees 1 logical NF composed of 1 VNF
- VNF contains replicable VNFC
- Build-in VNF load balancing mechanism
- LB sees pool of VNFC
- VNFM instantiates the LB



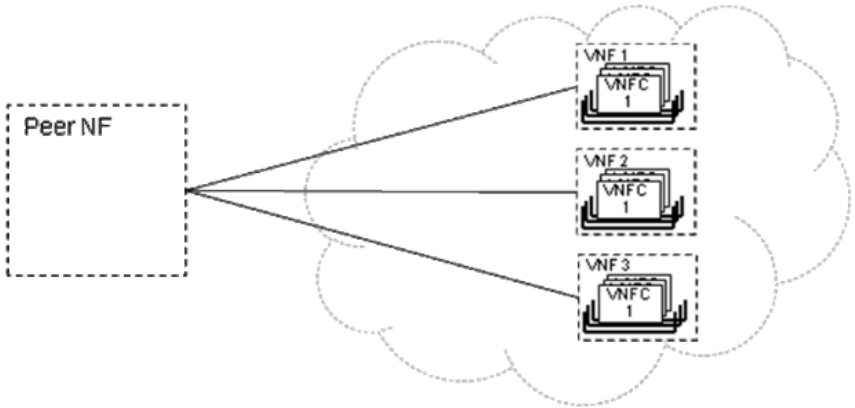
VNF-external Load Balancer

- Peer NF sees 1 logical NF
- NF supports parallelizable VNFs
- NFVO instantiate LB in front of VNF pool
- LB can be a NF or VNF



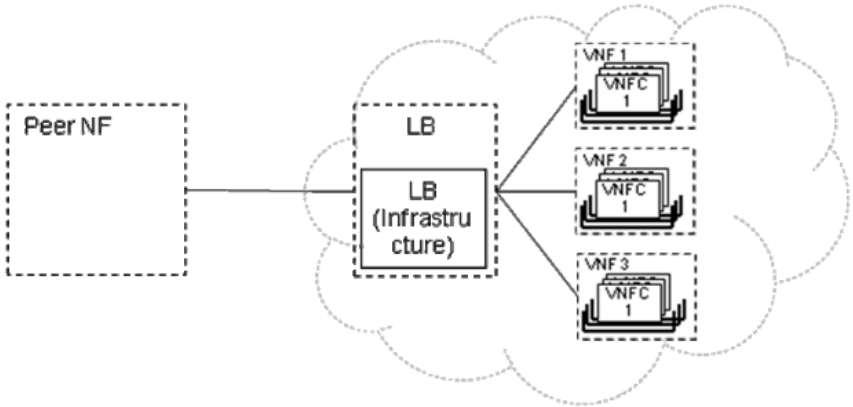
VNF E2E Load Balancing

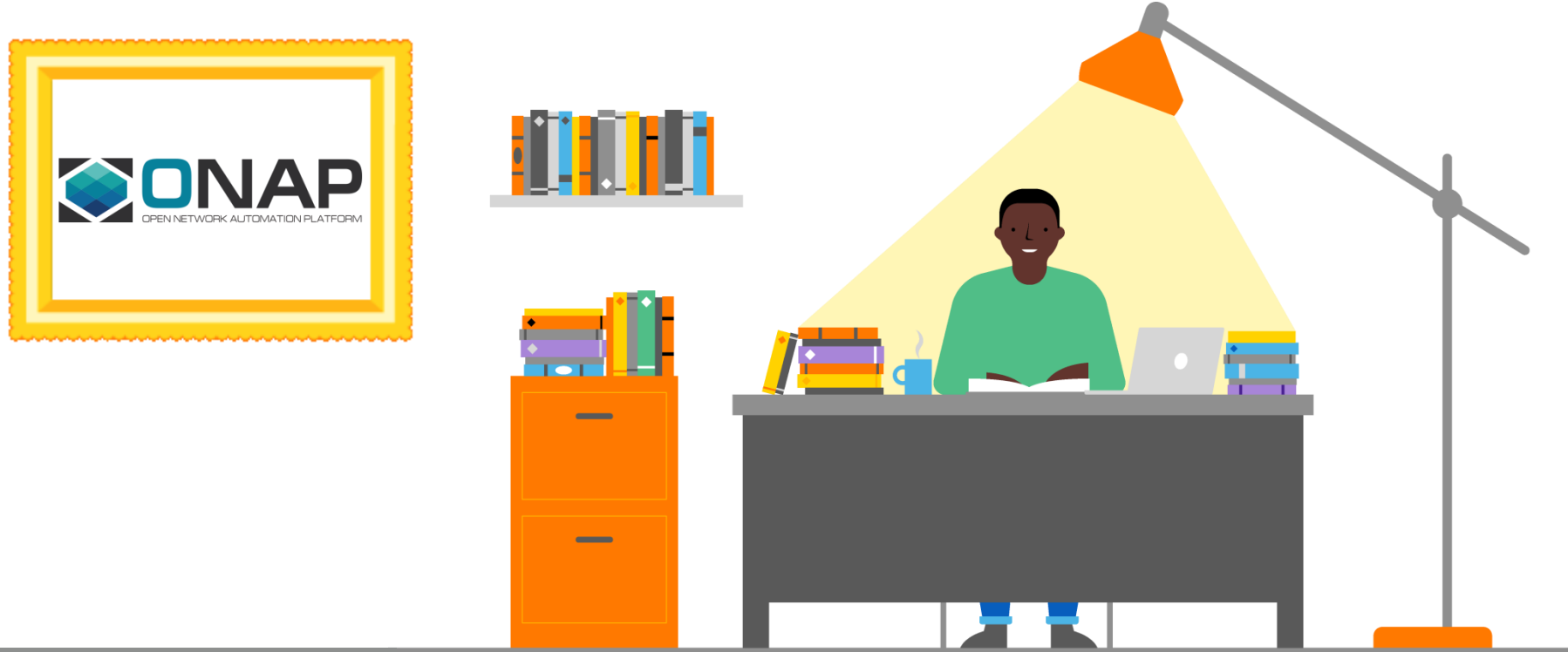
- Peer NF sees multiple logical NFs
- LB is done in Peer NF
- NFVO may instantiate multiple VNFs
- NFVO does not instantiate LB



Infrastructure Network Load Balancer

- Peer NF sees 1 logical NF
- NFVO may instantiate multiple VNFs
- NFVO does not instantiate LB
- NFVO configures LB in NFVI





ONAP – vFW use case

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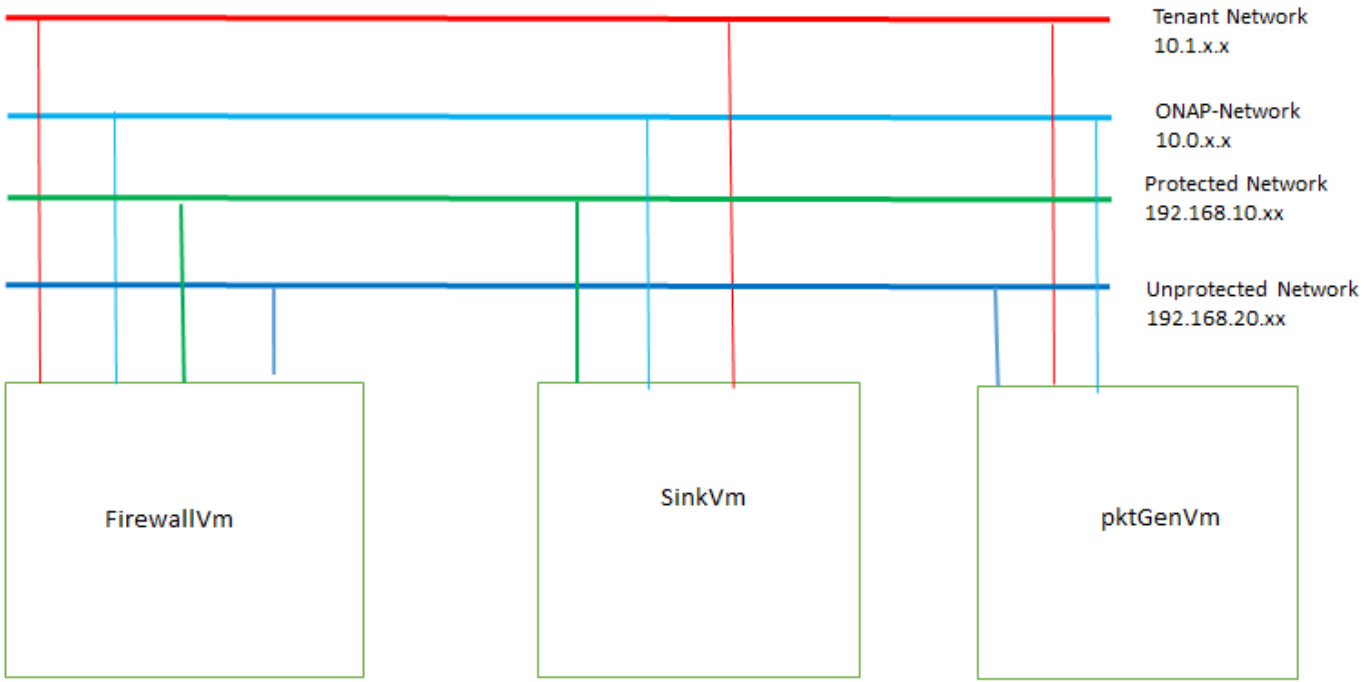
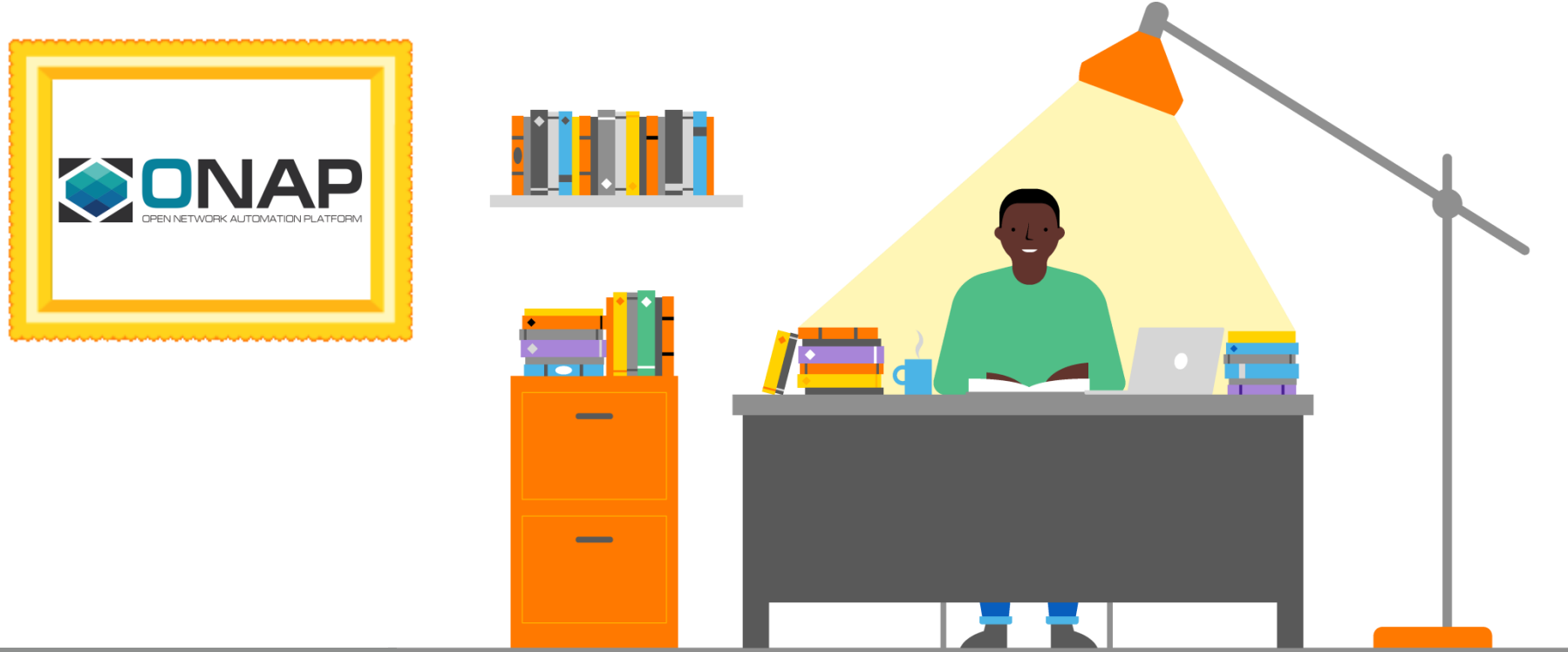
vFireWall demo use case





Traffic Migration – basic flow diagrams

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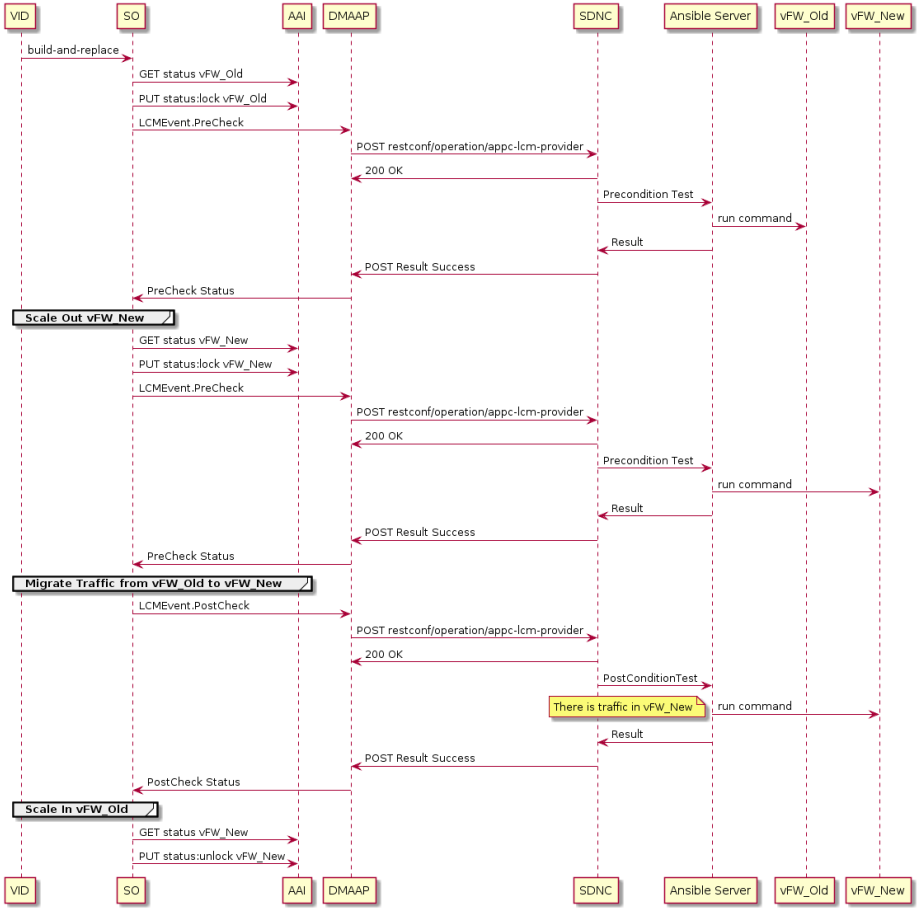
Build-and-replace – first idea

- PreCheck/HealtCheck Old Instance
- ScaleOut New instance
- PreCheck/HealtCheck New Instance
- Migrate Traffic from Old to New Instance
- PostCheck/HealtCheck New Instance
- ScaleIn Old Instance



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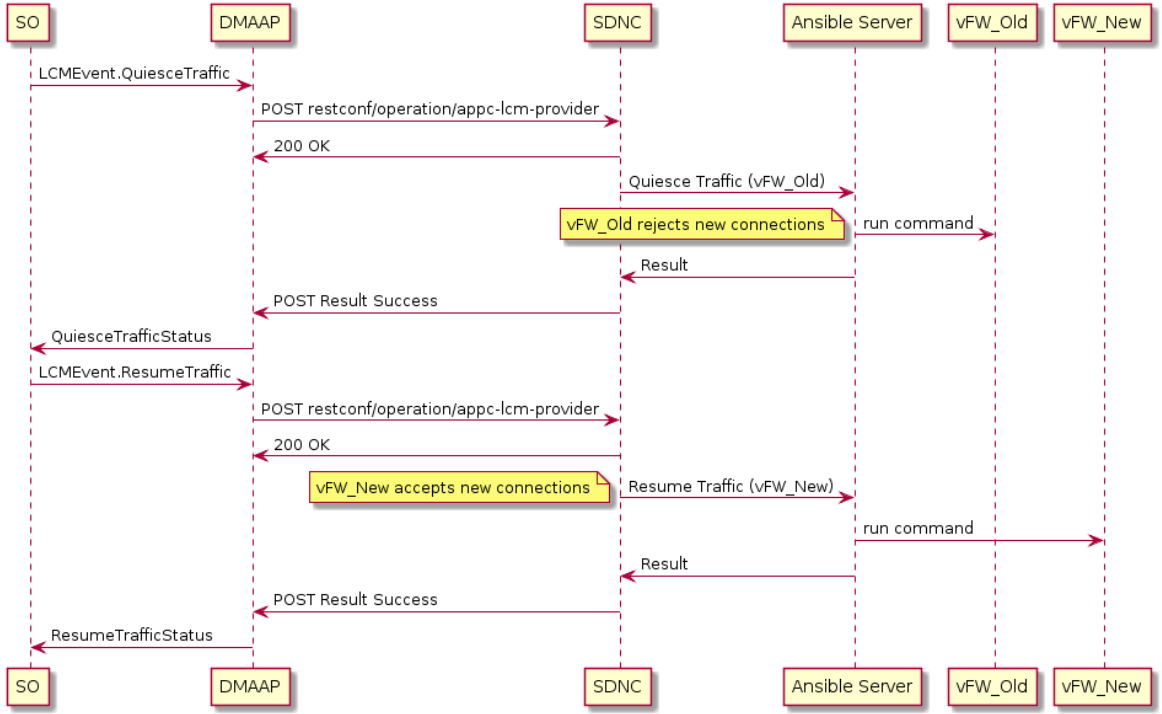
vFireWall – Quiesce + Resume

- Reject new connections on vFW_Old
- Accept new connections on vFW_New
- Is Ansible server used here?
- Quiesce can take a lot of time we just wait till ongoing connections will finish
- It is possible that service will not work for a moment
- It is not traffic migration



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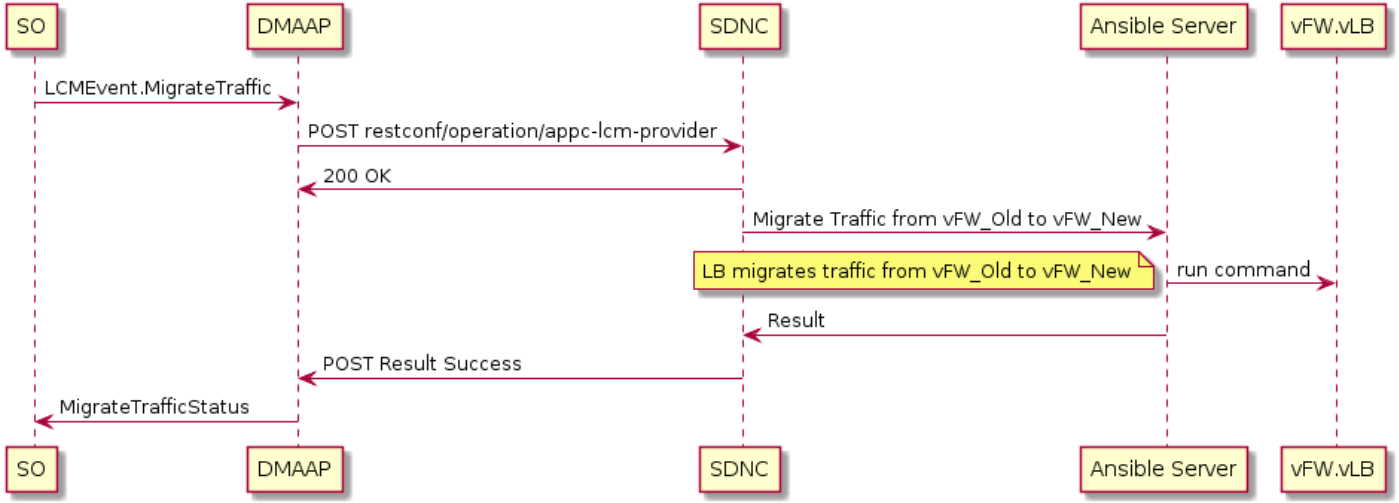
vFireWall – Internal/External Load Balancer



- Internal Load Balancer VNF required – must be added to vFW NS
- Ansible Server used to reconfigure LB
- Question: New instance of vFW is a new VNF in NS or new VNFC in VNF

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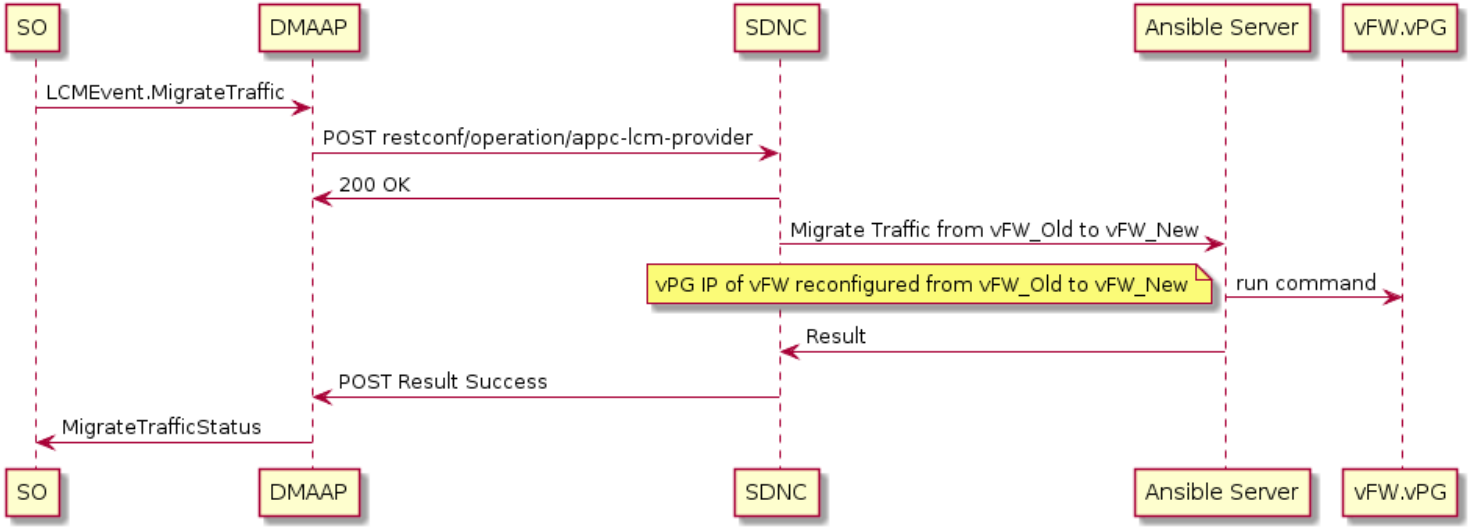
vFireWall – E2E Load Balancer



- Internal Load Balancer VNF required – must be added to vFW NS
- Ansible Server used to reconfigure vPG to send packets to different vFW
- Question: New instance of vFW is a new VNF in NS or new VNFC in VNF

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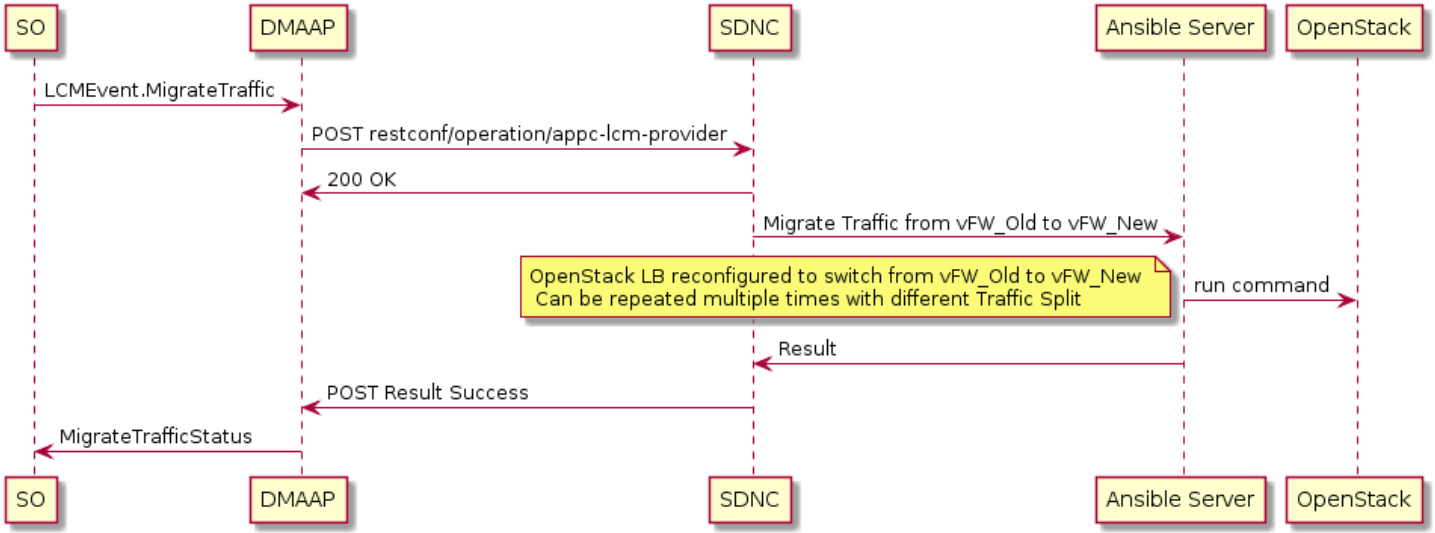
vFireWall – Infrastructure Load Balancer



- Required Load Balancer service plugin in Neutron (Octave project)
- Ansible Server used to reconfigure OpenStack LB
- Instead of Ansible Server SDNC can call REST API of OpenStack directly

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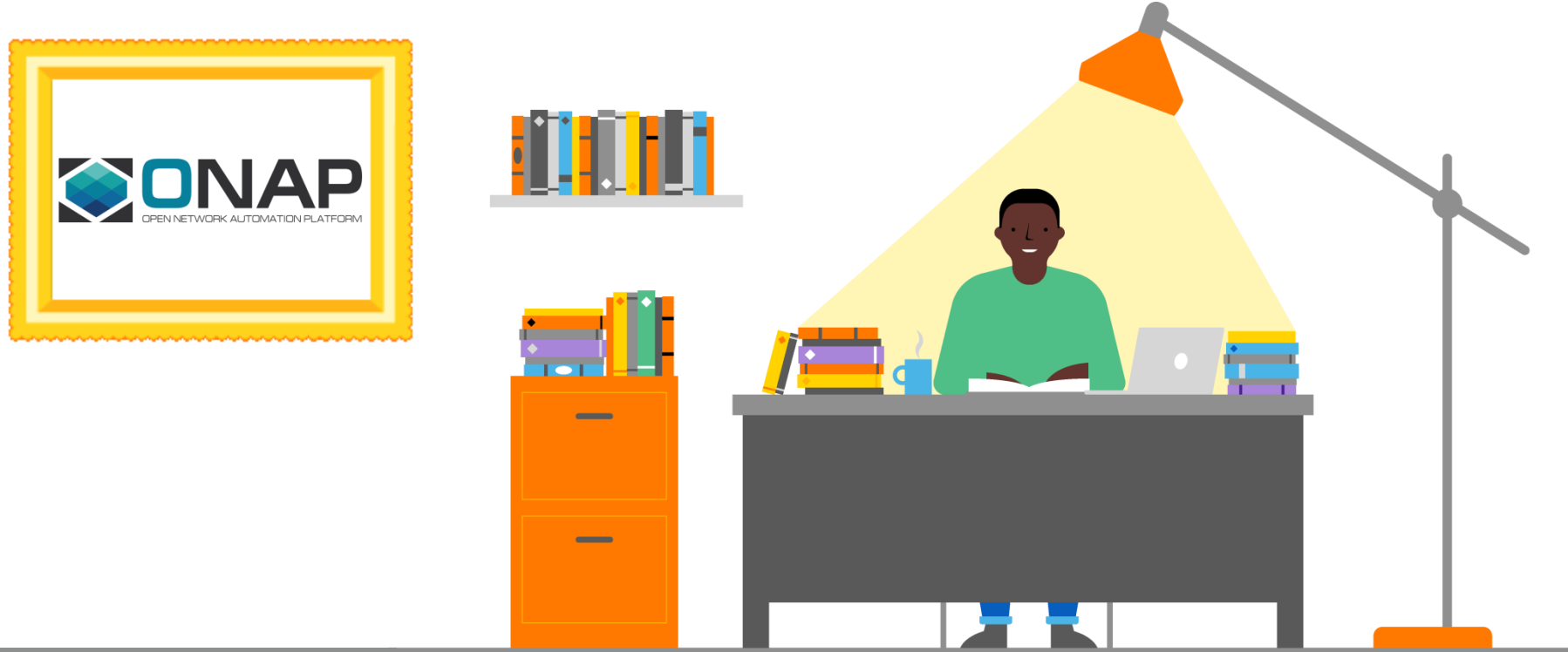

Traffic Migration – Implementation ideas

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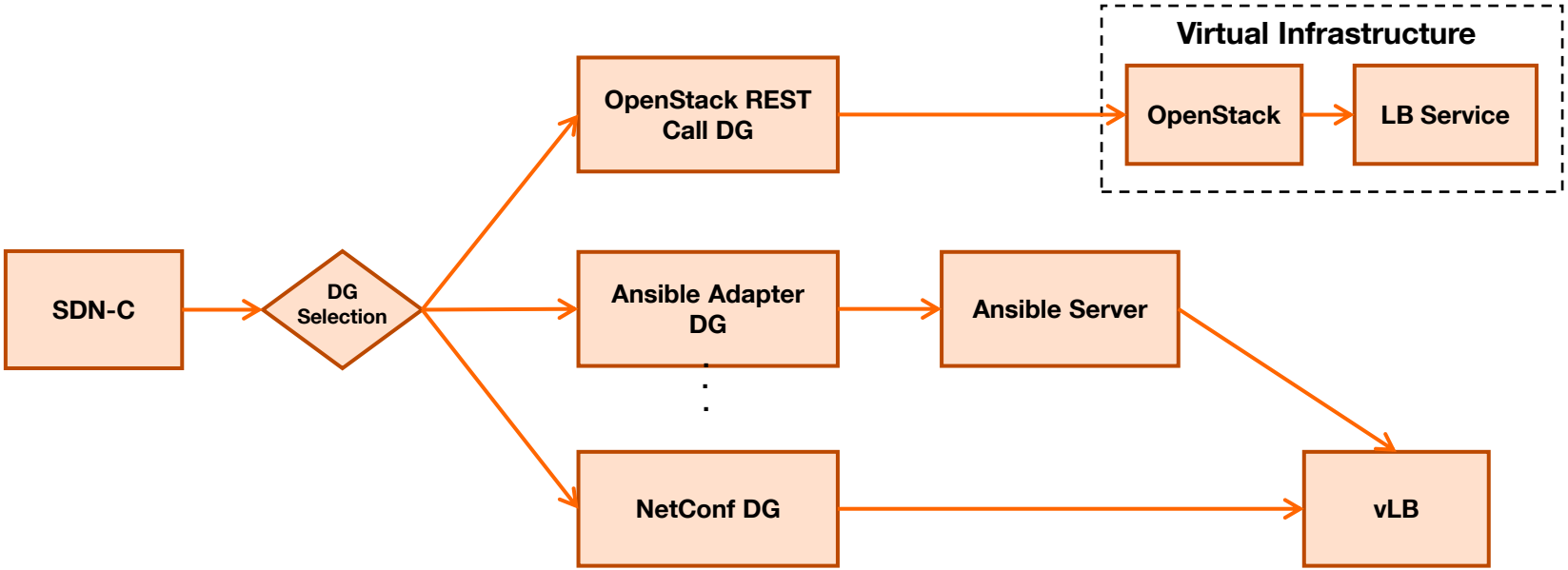
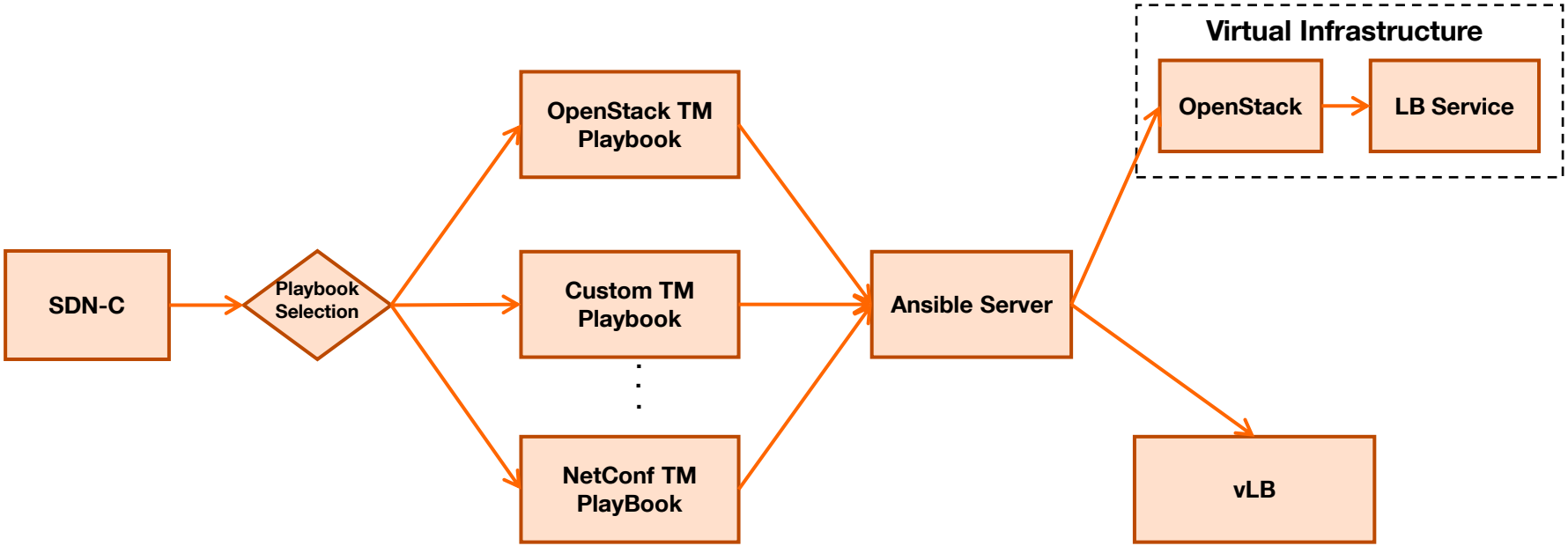
Traffic Migration API Implementation (v.1)



- When request comes to SDN-C appropriate DG is selected
- Selected DG is executed with parameters from request to SDNC
- Possibility to add different implementations of Traffic Migration in the future

Traffic Migration API Implementation (v.2)



- When request comes to SDN-C appropriate Ansible Playbook is selected
- Selected playbook is executed with parameters from request to SDNC
- Possibility to add different implementations of Traffic Migration in the future

Traffic Migration API – Payload proposition

```
"operations-timeout": <TIMEOUT_IN_SECONDS>,
"destination":  [{
                  "vnf-id": "<VNF_ID>", (optional)
                  "vnfc-name": "<VNFC_NAME>",
                  "vserver-id": "<VSERVER_ID>"
                  }, {…}],
"migration-driver-type": <"built-in", "custom">,
```

Request completed when TM procedure is finished

Format like "action-identifiers" field, vnf-id can be skipped if migration within the same NS

Instead of "built-in" maybe names for built-in methods in "type" and "name" only for customs

```
"configuration-parameters": { "<CONFIG- PARAMS>" },
(optional)
"distribution-policy": {
       "type": <DISTRIBUTION_TYPE>
       "distribution" : [0.3, 0.4, …] (optional)}
rollback-on-failure: <TRUE | FALSE>
```

Input for driver. How to deal with parameters that we need to take from AAI, i.e. vFW IP?

Types TBD, distribution specific to type. Or just distribution field