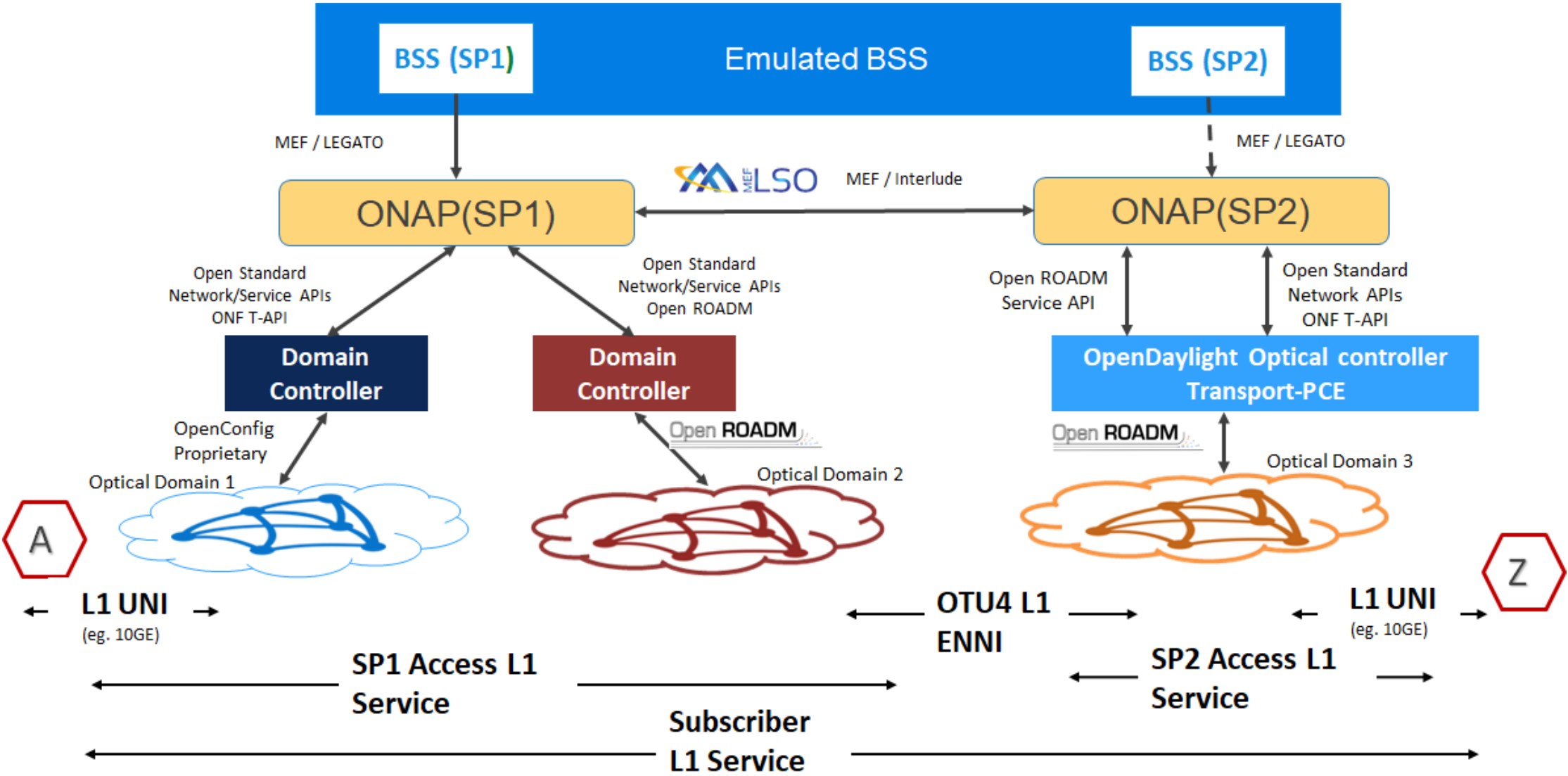# Multi Domain Optical Network Services Use Case Impact Analysis in R6
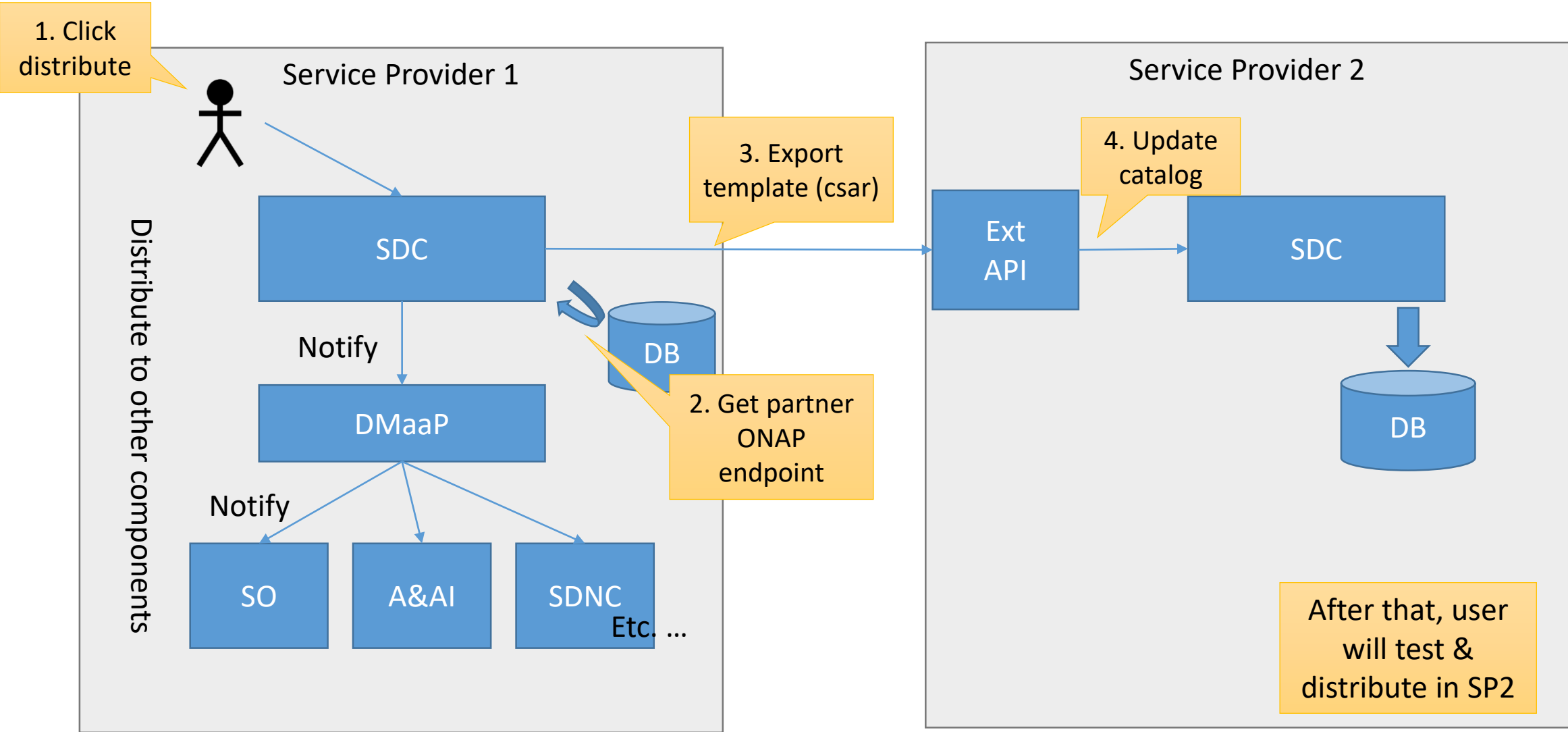
Use case Overview

Requirements to SDC

- 1. Service modeling
  - No impact: can be done with existing sdc features
- 2. Service template export/import to remote ONAP
  - We want to use the same template in both ONAP
  - Export a template to remote ONAP's catalog
  - Some overlaps with 3rd-paty operational domain manager (?)

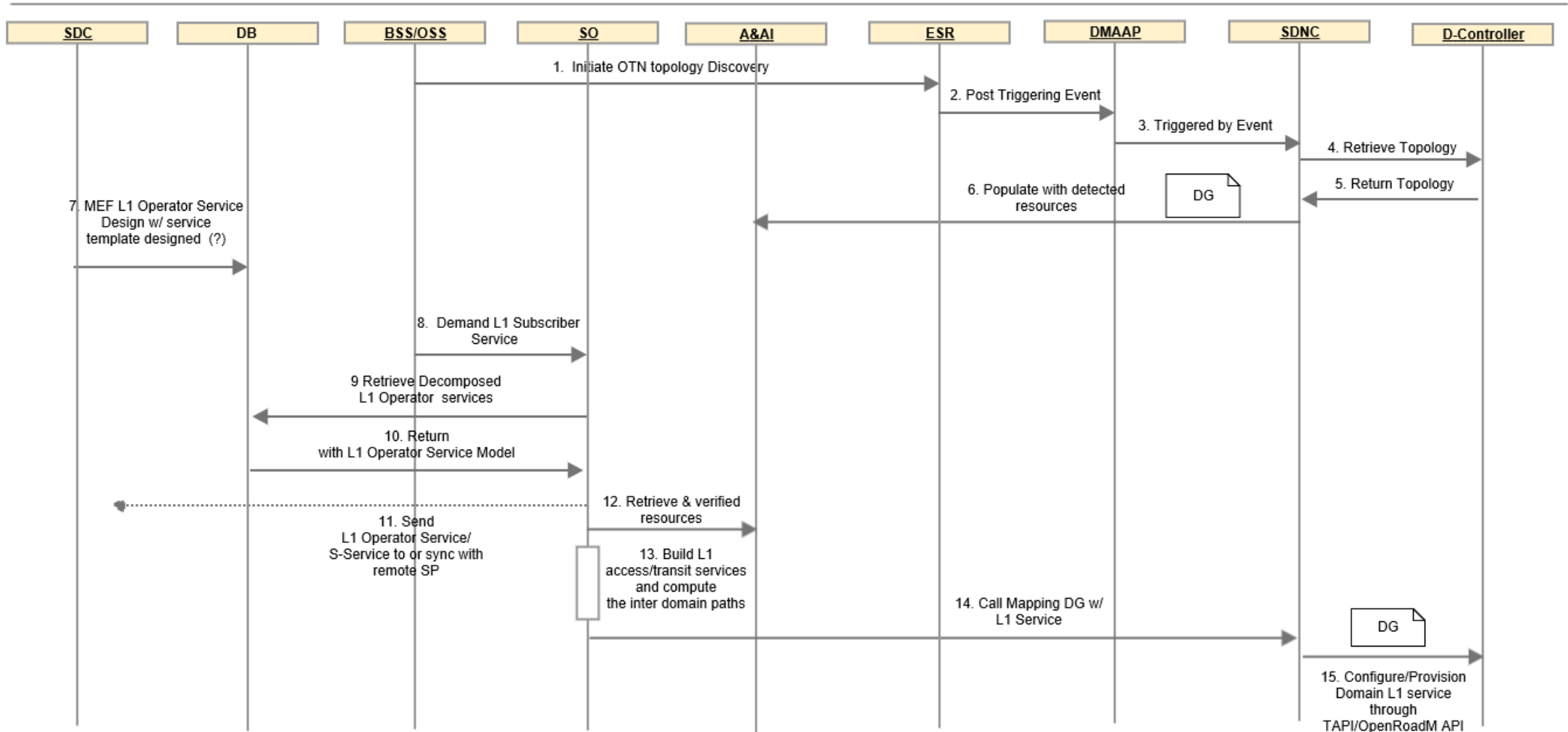# Diagram: Exporting/Importing Service Template < Draft >

# Potential Impacts to SDC

Code changes in Frankfurt:

- Export a service template to remote ONAP SDC catalog
  - Conversion logic between SDC/ExtAPI ?

- Import the template via Ext API

- Register remote ONAP info in DB
  - Might include db schema change

High Level Sequence Diagram

MDON Sequence Diagram High Level (Intra-SP)

# AAI Tree Structure (after Current 3ʳᵈ Party Controller Onboarding)
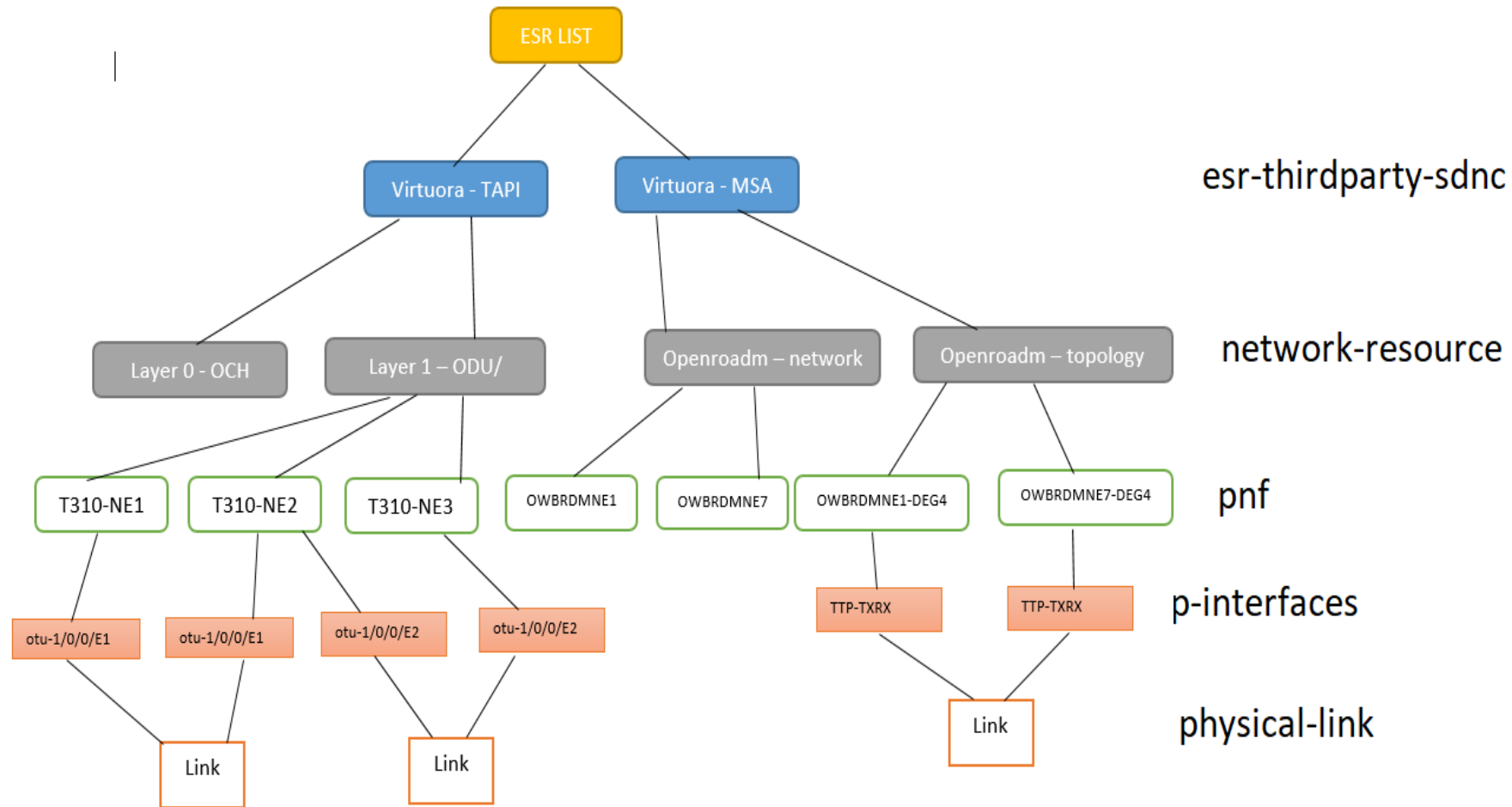
AAI Change Proposal

- For "**network-resource**", add string "**network-type**" attribute. (This has already been proposed for the CCVPN use case, we can reuse it to determine if its a OpenRoadM topology or OTN topology).

- Add following attributes to "**p-interface**":

    i. "**orchestration-status**" :   To indicate the current status of the p-interface. For eg (Allocated, Free).

    ii. "**network-interface-type**" :   To indicate if that p-interface is a UNI, NNI or ENNI.

    iii. "**physical-location-id**" :   To indicate the CLLI.

- Add **Edge Rule** to represent "**service-instance" to "p-interface**" relationship to indicate the p-interfaces associated with that particular service. (Note: If we use the "**service-instance" to "pnf**" relationship, it becomes unclear as to which p-interface is used for that service, as a **pnf** can have many p-interfaces).

- For "**service-instance**" following attributes are added :

    i. "**due-date**": To indicate the due-date of the service

    ii. "**end-date**" : To indicate the end date of the service

    iii. "**service-rate**" : To indicate the service-rate

    iv. "**service-layer**" : To indicate the service-layer WDM or OTN

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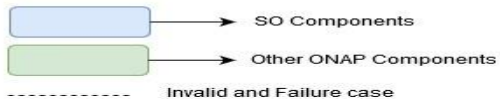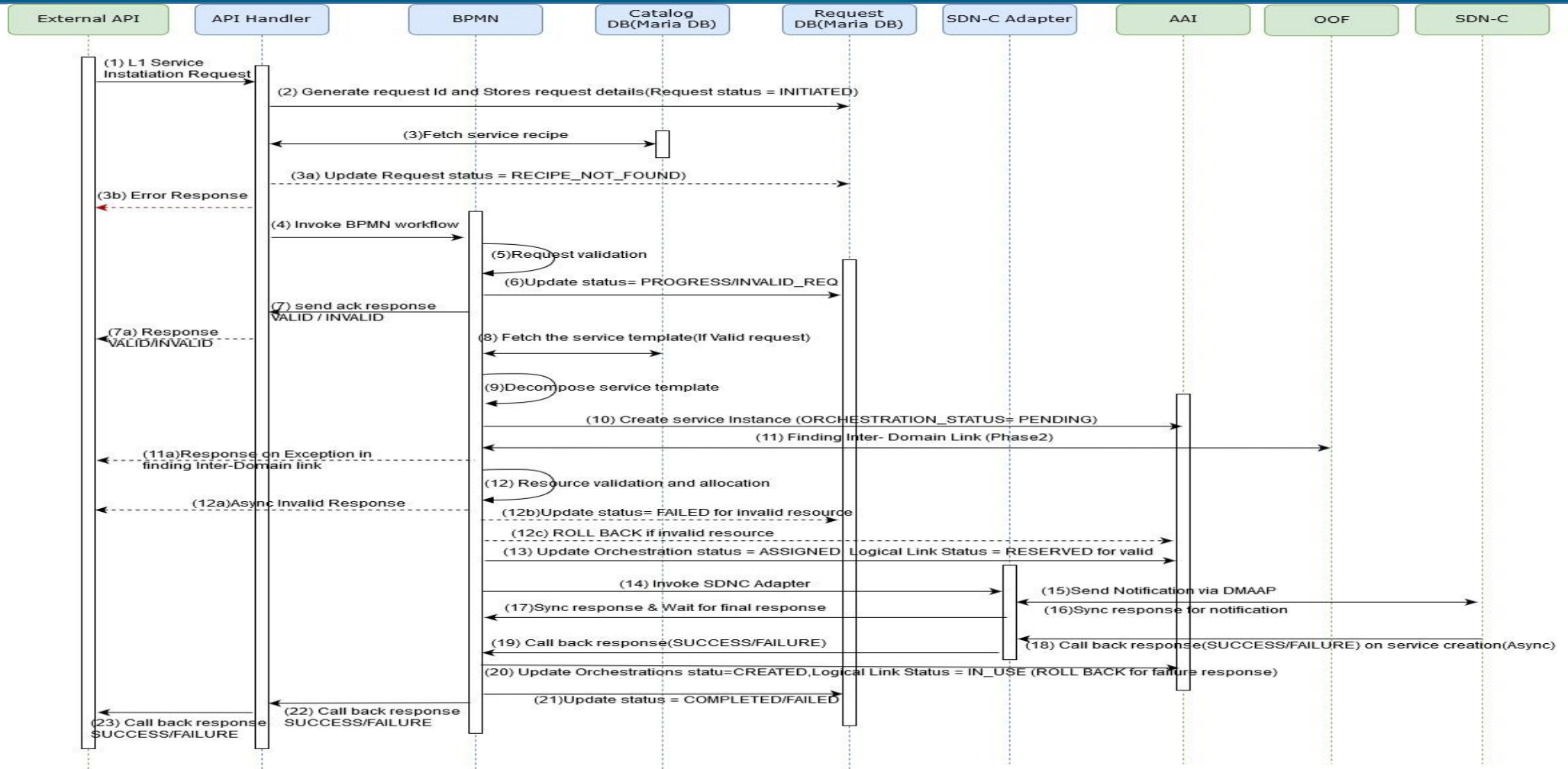
Service Creation

SO Impacts in R6

Service Creation

mso-api-handlers->mso-api-handler-infra

- Expose API to check service request status (For user)

bpmn-> (so-bpmn-infrastructure-flows, so-bpmn-infrastructure-common)

- Status update enums = {INITIATED, PENDING, ASSIGNED, RECIPE_NOT_FOUND, IN_PROGRESS, INVALID_REQ, UNPROVISIONING, UNPROVSIONED, DELETE_INPROGRESS, RESERVED, COMPLETE, FAILED, PROVISIONED, CREATED}
- Create a BPMN workflow to instantiate service
  - ➢ 1 process flow and 4 sub-process flows
  - ➢ 5 respective groovy scripts have to be written for the process flows
- Expose API for call-back response from SDN-C

adapters-> mso-sdnc-adapter

- Introduce dmaap client to produce and consume notification to/fro SDN-C.

adapters-> mso-catalog-db-adapter

- Update SERVICE_RECIPE table in Catalog DB with new BPMN workflow name.

adapters-> mso-requests-db-adapter

- Create table in Request DB for Storing L1 Access Service request details and tracking request status.

Service Termination

bpmn->(so-bpmn-infrastructure-flows, so-bpmn-infrastructure-common)

- Create a BPMN workflow to terminate service
  - ➢ 1 process flow
  - ➢ 1 respective groovy script has to be written for the process flow

adapters-> mso-catalog-db-adapter

- Update SERVICE_RECIPE table in Catalog DB with new BPMN workflow name.

SDNC Requirements/Impacts in R6

- In **dmaap-listener** under ccsdk-sli-northbound package, new Consumer class needs to be written to read Dmaap notifications posted by SO.

- Under **ccsdk-sli-northbound** new package has to be added wherein we will be including new features for OpenRoadm Service Creation/Deletion, TAPI Service Creation/Deletion and OpenRoadm/TAPI topology synchronization.

- New DGs needs to be written for OpenRoadm Service Creation/Deletion, TAPI Service Creation/Deletion and OpenRoadm/TAPI topology synchronization.
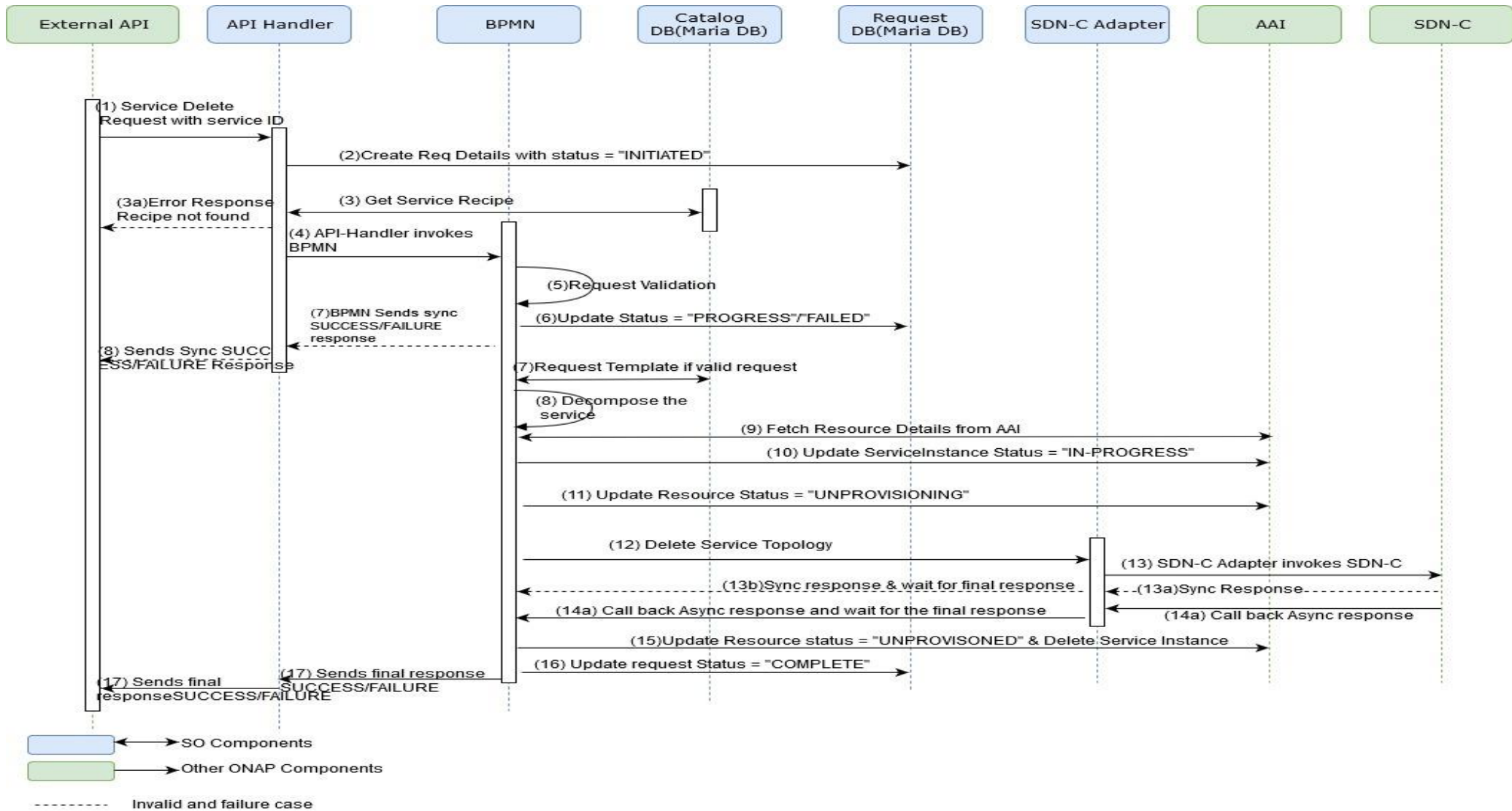
References

- https://wiki.onap.org/display/DW/Multi-domain+Optical+Network+Services

Bakcups

- Service Termination Flow
- Run Time Data Flow

Service Termination

Run-time Data Flow

SP (Service Provider) 1

BSS

L1 Service
SP1 Access | SP2 Access

request service creation

MEF LSO Legato

MEF LSO interlude

- forward service creation to partner ONAP
- break access service into domain services

SO

L1 Service
SP1 Access | SP2 Access

SP1 not process SP2 Access Svc

Dom 1 Service (OpenROADM)
Dom 2 Service (T-API)

SDN-C

call domain controller

Dom 1 Service (OpenROADM)
Dom 2 Service (T-API)

ONAP

Dom 1 Controller (OpenROADM)
Dom 2 Controller (TAPI)

compute path (intra-domain) configure devices

Device Config
Device Config

Device Config
Device Config

Device | Device | Device | Device

15

SP2

BSS

L1 Service
SP1 Access | SP2 Access

SO

SP2 not process SP1 Access Svc

Dom 3 Service (OpenROADM)

SDN-C

Dom 3 Service (OpenROADM)

ONAP

Domain 3 Controller (OpenROADM)

Device Config | Device Config

Device | Device

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