

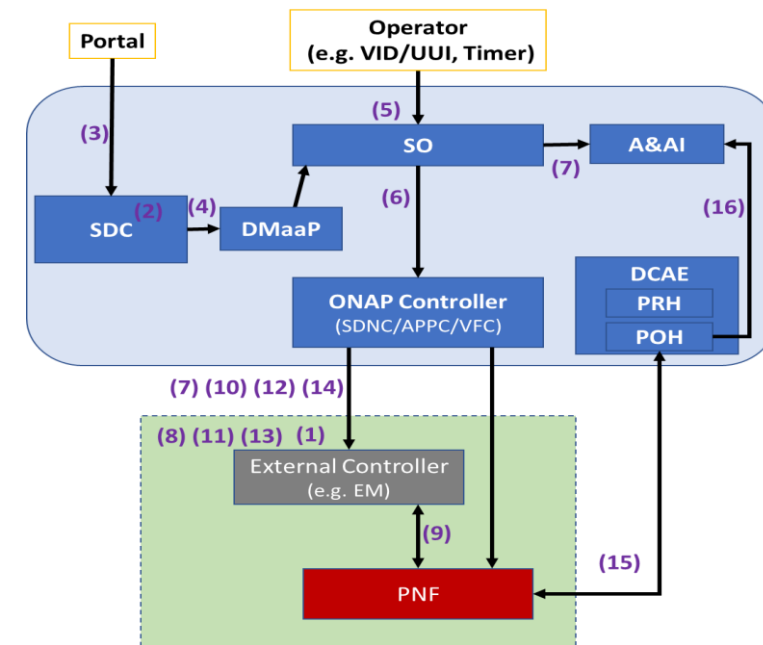


PNF software upgrade for Frankfurt release

Zu Qiang (Ericsson)

Current Development Status

- ✓ VNF in place software upgrade is supported
 - ✓ using Ansible and Chef
 - ✓ with LCM API
 - ✓ 'generic' SO building blocks
- ✓ PNF in place software upgrade is supported in Casablanca and updated in Dublin
 - With the support of an EM
 - Ansible protocol only
 - Plan to use LCM API with existing SO building blocks
 - Impacts on SDNC only (not E2E solution yet)



PNF software upgrade use cases

- Use case 1:

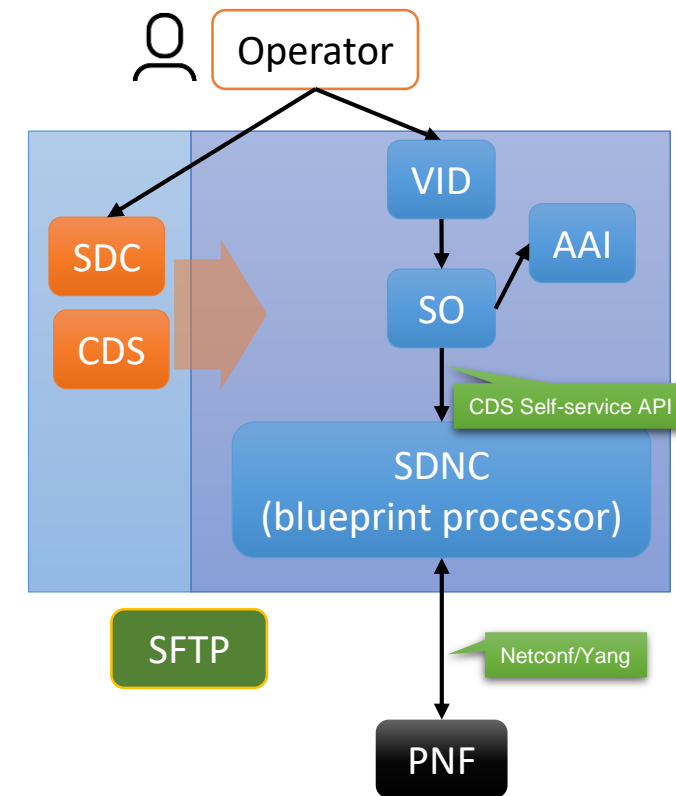
- A solution is required to support PNF software update without impacts on PNF schema and service template
- This solution can be used for PNF software correction update

- Use case 2:

- A solution is required to support PNF software upgrade and PNF schema update (i.e. new onboarded PNF artifacts), considering service level impacts

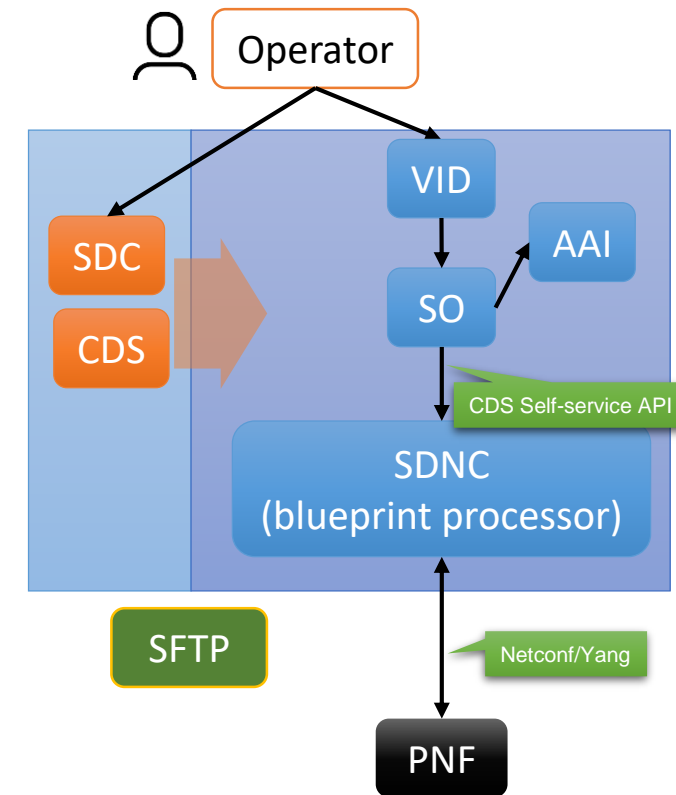
Proposed PNF SW Upgrade for UC1 in Frankfurt

- ✓ PNF software upgrade is one aspect of Software Management. The purpose of this procedure is to upgrade the software currently running on the PNF to a target software version without impacts on PNF schema and service template.
- ✓ Details
 - Enhancement and additions of PNF in-place software update.
 - Support direct PNF NETCONF interface with the vendor-specific YANG model.
 - Enhance SO in-place software upgrade workflow with generic SO building blocks, which can be used for workflow design in the design time.
 - Using CDS self-service API between SO and controller with the support of PNF in-place software upgrade
 - Enhance VID to demonstrate single PNF in-place software upgrade
 - Enhance SO procedure to support AAI update after the software upgrade completion.



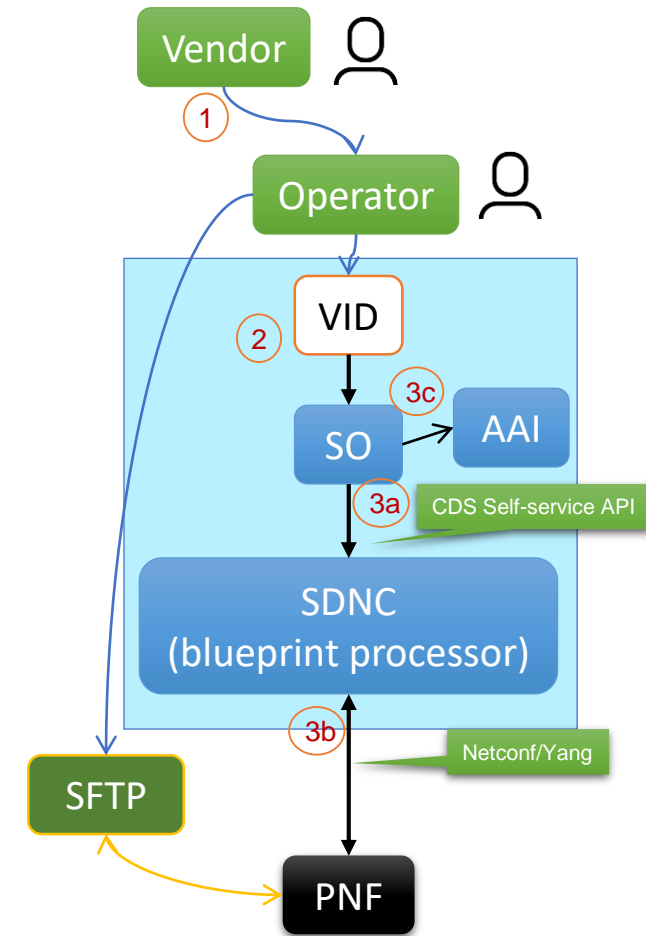
Pre-conditions (Frankfurt)

- ✓ ONAP is ready to use
- ✓ SO upgrade workflows are ready to use
- ✓ A SDC service template with one PNF resource is designed (including CBA association) and it is distributed to run time
- ✓ Service instantiation is completed, including PNF PnP.
 - A PNF instance is in operation with connectivity between PNF-ONAP, PNF-SFTP

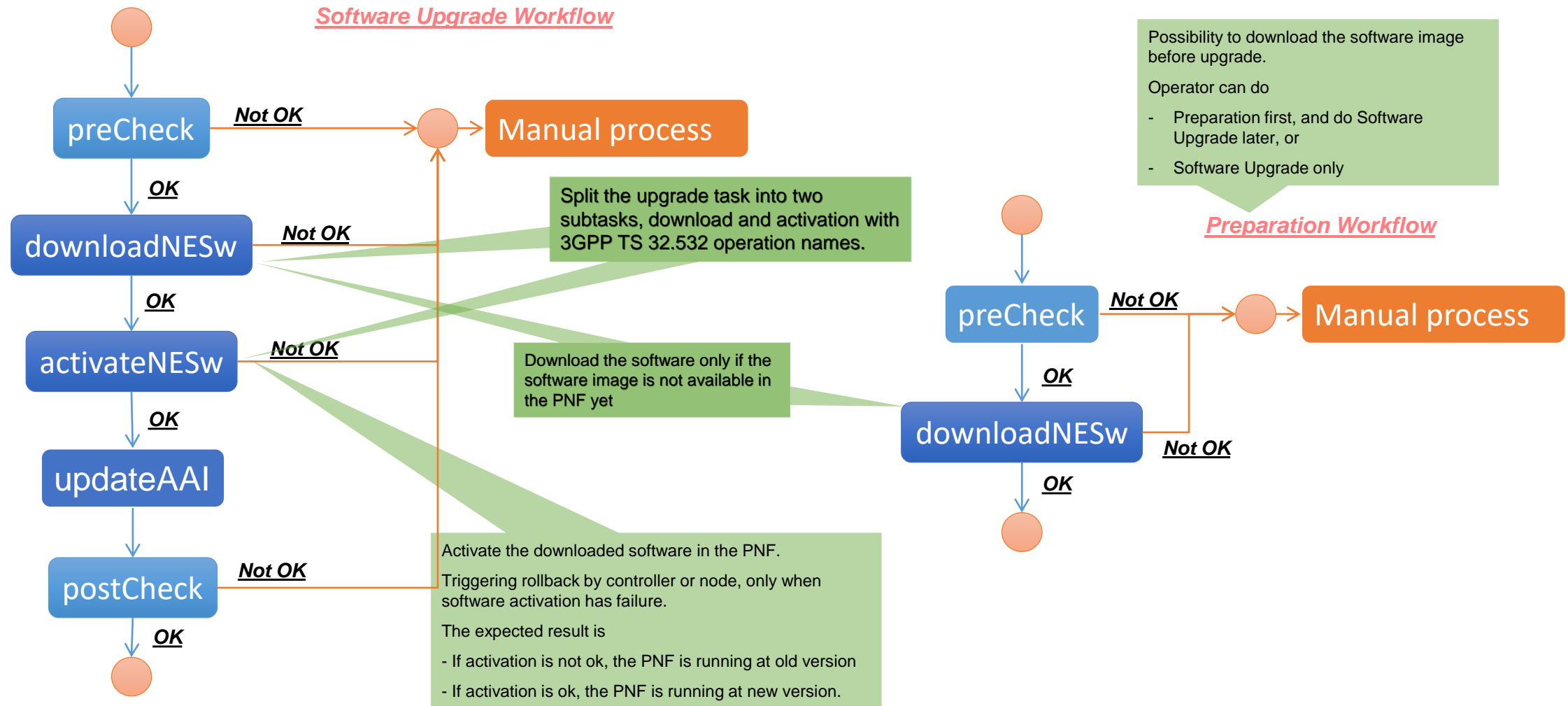


Upgrade one PNF instance (Frankfurt)

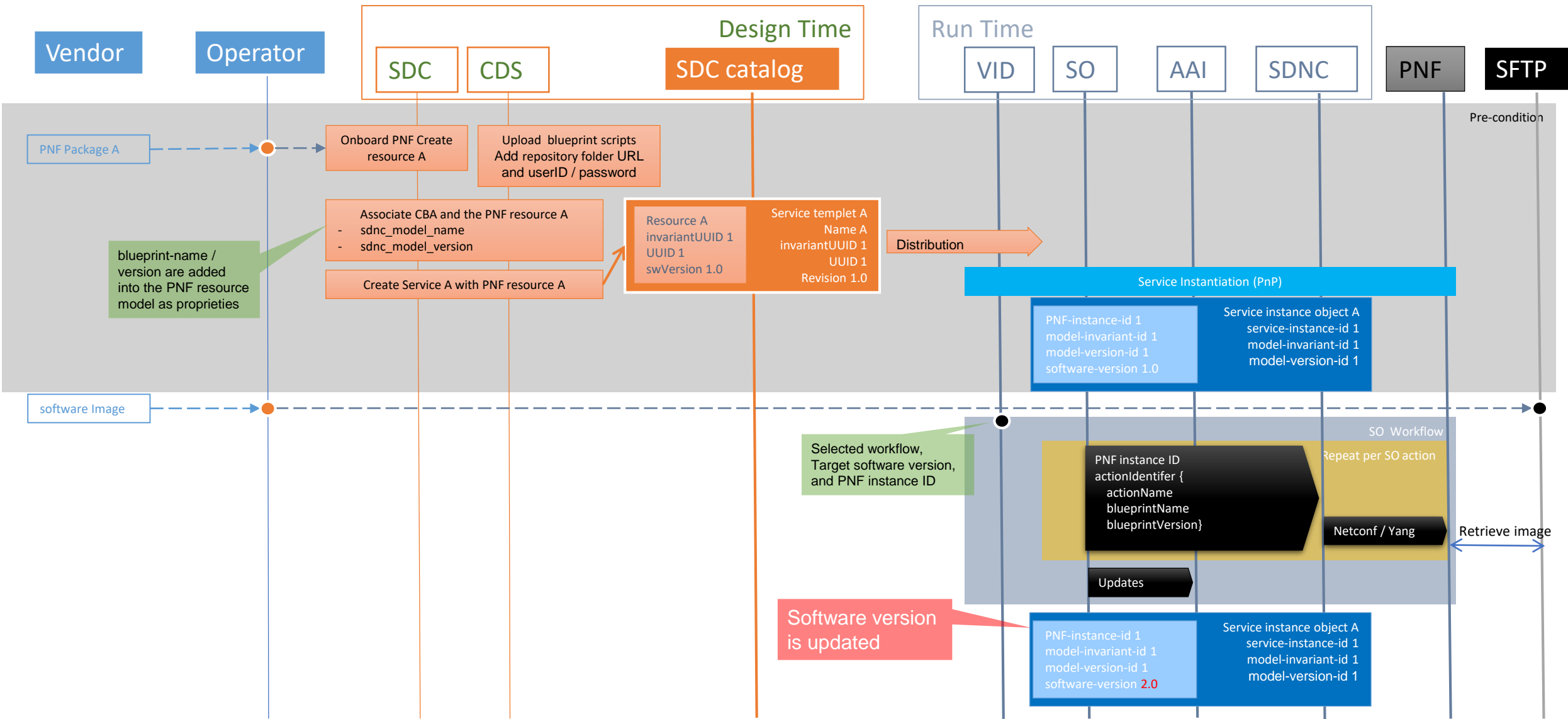
1. Vendor delivers the new software image to the operator and stored in the SFTP server
2. At the VID, operator
 - selects a work-flow, and a PNF instance,
 - provides the target software version, and
 - initiates the upgrade procedure
3. SO executes the workflow
 - a) SO sends CDS request(s) with action-identifier {actionName, blueprintName, blueprintVersion} to the blueprint processor inside the controller using CDS self-service API
 - b) Controller/blueprint processor executes the blueprint scripts including sending Netconf request(s) to the PNF instance
 - c) SO updates the A&AI with the active software-version when the upgrade is completed



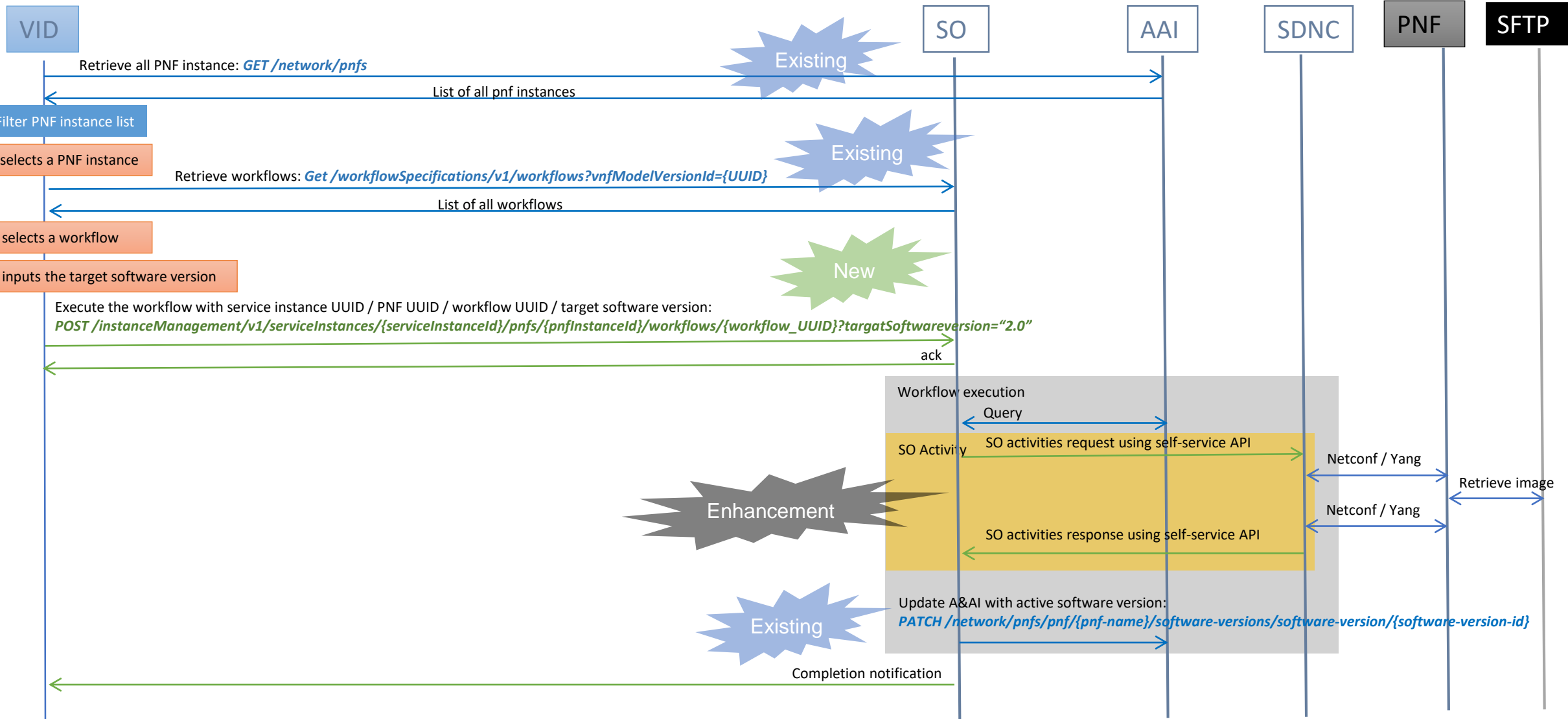
SO Workflows



Upgrade one PNF instance (Frankfurt)



API impacts in Frankfurt



ONAP Impacts in Frankfurt

Story	components
Support generic workflow design	SDC/SO
Support creating of SO upgrade workflows for PNF upgrade, including Upgrade and Preparation	SDC/SO
Create or modify SO activity building block for PNF upgrade, including downloadNESw, activateNESw, updateAAI, preCheck, postCheck	SDC/SO
Support PNF upgrade UI	VID
Update VID-SO API to execute the workflow of PNF software upgrade with target software version: POST /instanceManagement/v1/serviceInstances/{serviceInstanceId}/pnfs/{pnfInstanceId}/workflows/{workflow_UUID}?targetSoftwareversion="2.0"	VID/SO
PNF and CBA association enhancement to support PNF upgrade	SDC/CDS
Support PNF upgrade with CDS self-service API	SO/CCSDK
Implement updateAAI activity for A&AI updates with active software-version	SO
Documentation	VNFRQTS
integration / testing and demo	Integration

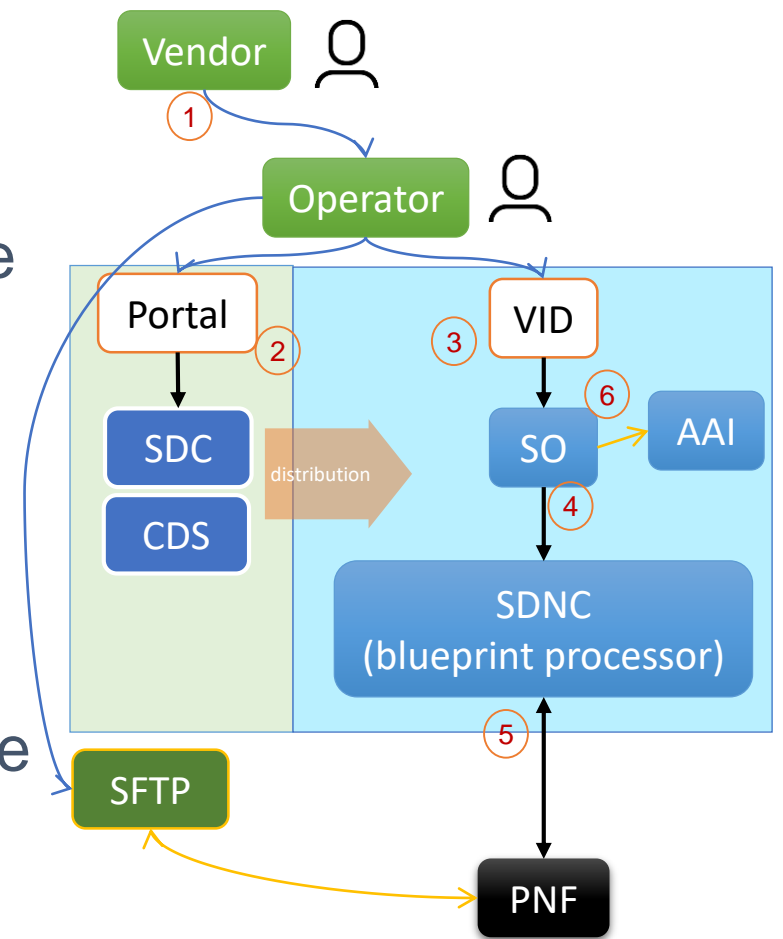
Next steps to support UC2

➤ Enable service level LCM operations

- PNF software upgrade with updated service template
- PNF schema update with updated service template
- Service template update with multiple resource instances

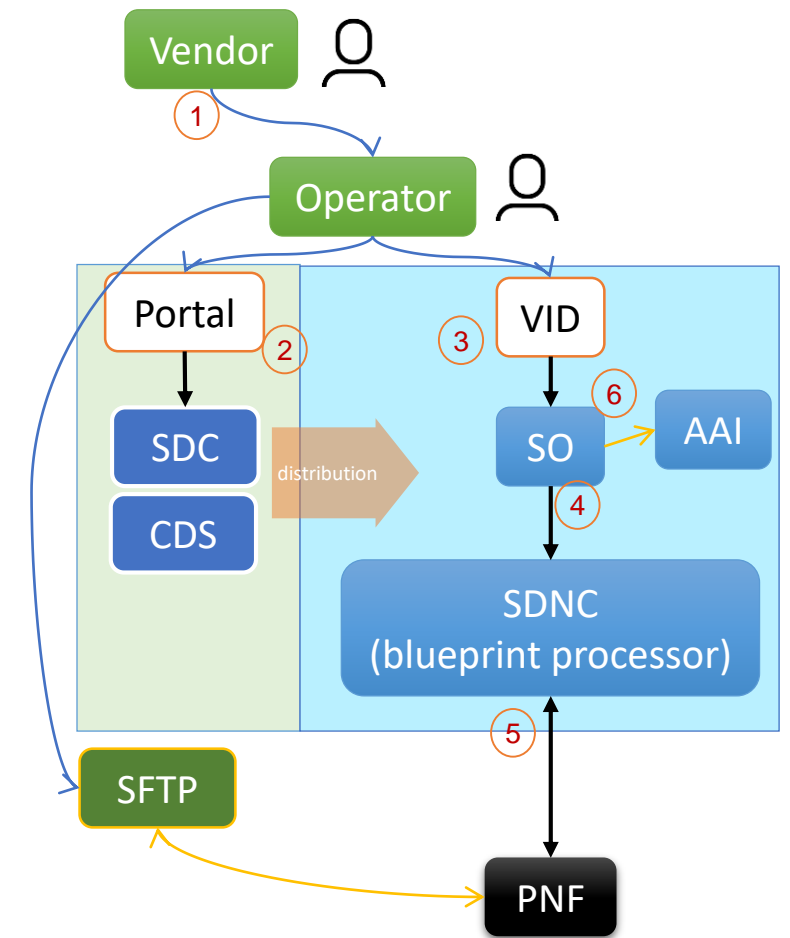
➤ Including:

- Updating the design time service template using vendor provided onboarding package
- Upgrading a run time service instance based on the updated service template
- Updating the run time catalog at software upgrade completion

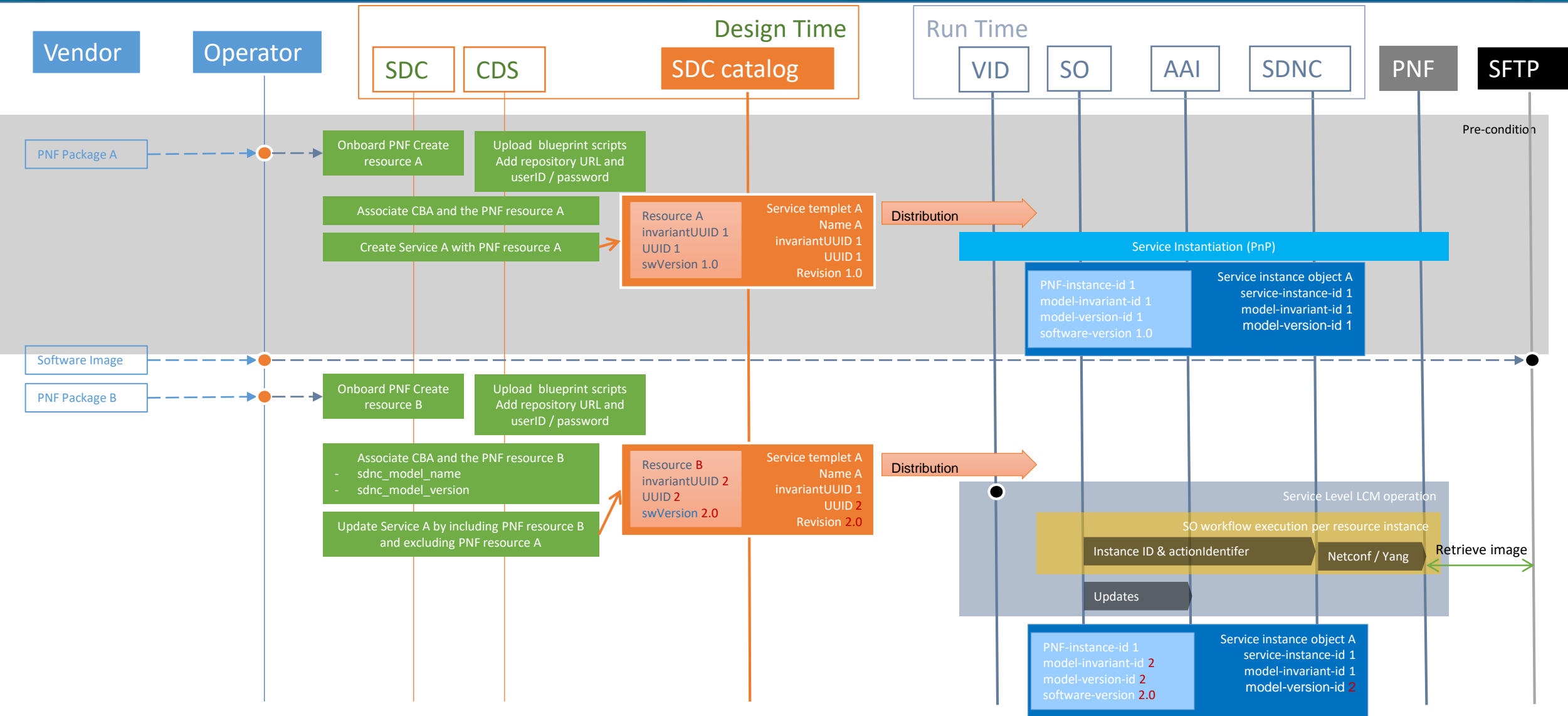


Key issues to support next steps

- Modelling/SDC/AAI:
 - Onboarding the software version information using vendor provided onboarding package
 - Supporting software version in internal model
- SDC/SO/VID:
 - Resource upgrade path
 - Service upgrade options
- SO: Executing the workflow at service level
- AAI:
 - Support updating resource model ID/version
 - Support updating service model ID/version



Service level operation example for next steps





ONAP

OPEN NETWORK AUTOMATION PLATFORM