



# PNF Software Upgrade Enhancement in Honolulu

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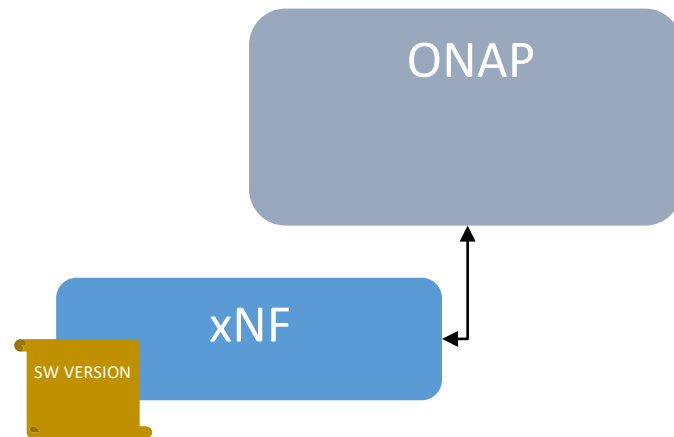
# Business Driver

- **Executive Summary:** In Rel 6 (REQ-84) and Rel 7 (REQ-324), PNF sw upgrade requirement in ONAP has progressed covering both with/without schema updates. A schema update in relation to a xNF software upgrades is a routine for network upgrade to support new xNF features, improve efficiency or increase xNF capacity on the field, and to eliminate bugs. This use case provides to ONAP an advantage in orchestrating and managing the Life Cycle of a Network Services in-line with business and service objectives. In Rel 8, the feature will be enhanced with PNF sw version management during sw upgrade procedure.
- **Business Impact:** Deployment and orchestration of new services over CNFs, VNFs and PNFs in a model and software driven way simplifies the network management. Enables operators and service providers to manage the Life Cycle of a Network Service. Assuring continuity of operation of services is crucial for production and carrier grade environments. The actualization or upgrades of software and in consequence required changes in the service model is a natural part of service instance life cycle. Without the support of ONAP service update with schema change, service life cycle management by ONAP can be very difficult which can impact the quality and continuity of services.
- **Business Markets:** All operators and service providers that are using ONAP for service and network function Life Cycle Management
- **Funding/Financial Impacts:** Reduction in operations expense from using industry standard Interfaces.
- **Organization Mgmt, Sales Strategies:** *There is no additional organizational management or sales strategies for this requirement outside of a service providers "normal" ONAP deployment and its attendant organizational resources from a service provider.*

# xNF Sw Upgrade Use Cases

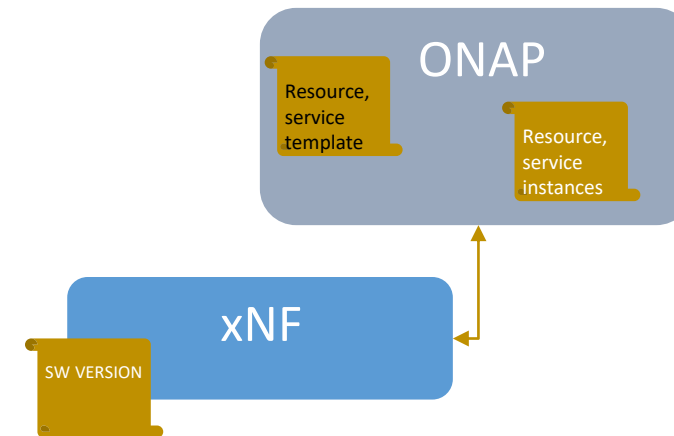
A new xNF software version, with/without interface changes, is available.

## xNF Resource Software Upgrade Use Case



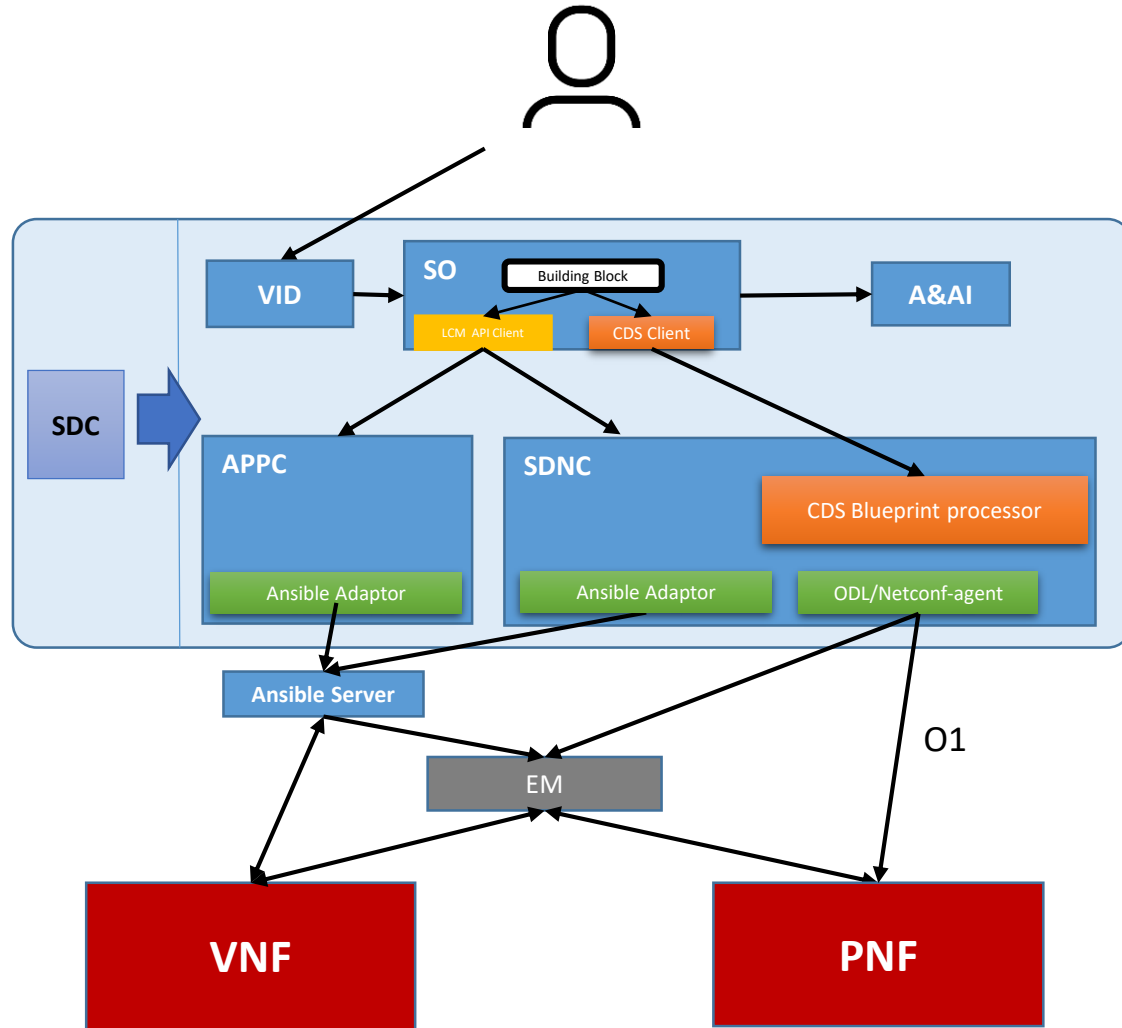
Upgrade the software version of the xNF instance

## Network Service Software Upgrade Use Case



In addition to sw version upgrade of the xNF instance, an ONAP update is required to support new interface capabilities

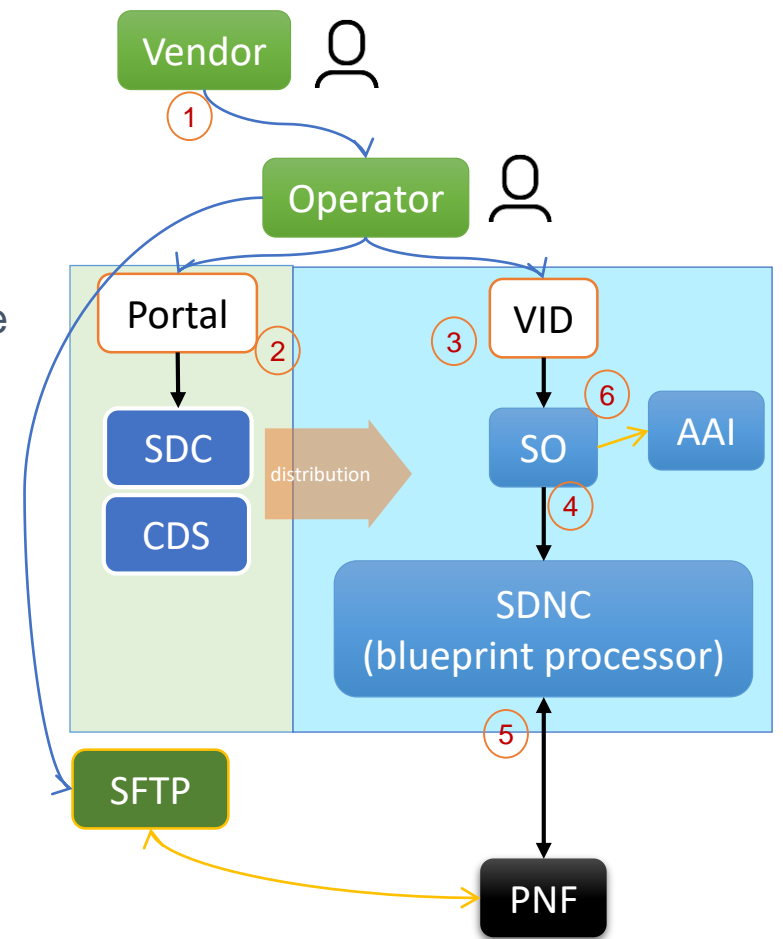
# xNF Software Upgrade without schema update



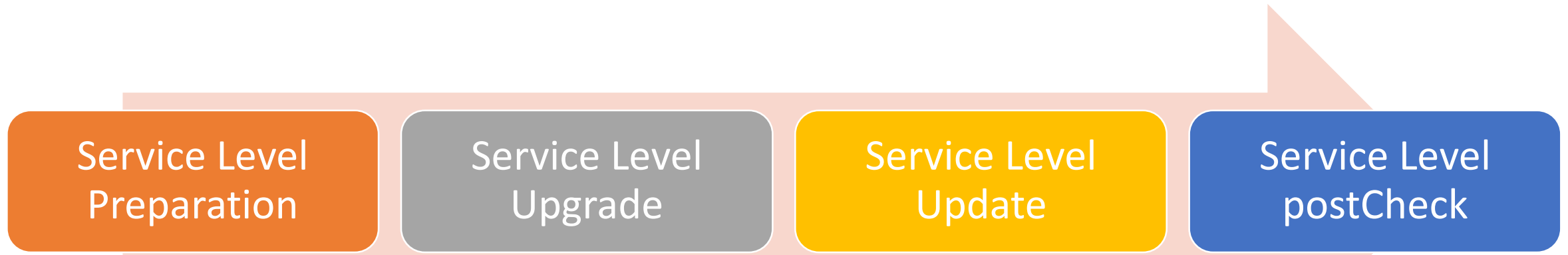
- ❑ PNF Resource Sw upgrade (in-place) scenarios:
  - a) [Using direct Netconf/Yang interface with PNF](#)
  - b) [Using Ansible protocol with EM](#)
  - c) [Using Netconf/Yang interface with EM](#)
  
- ❑ VNF Resource Sw upgrade (in-place) :
  - New VNF in-place software upgrade procedure is planned (CDS based)
  - Existing (APPC based) VNF in-place software upgrade procedure to be discontinued
  
- ❑ CNF software upgrade, under discussion

# xNF Software Upgrade with schema updates in Guilin Release

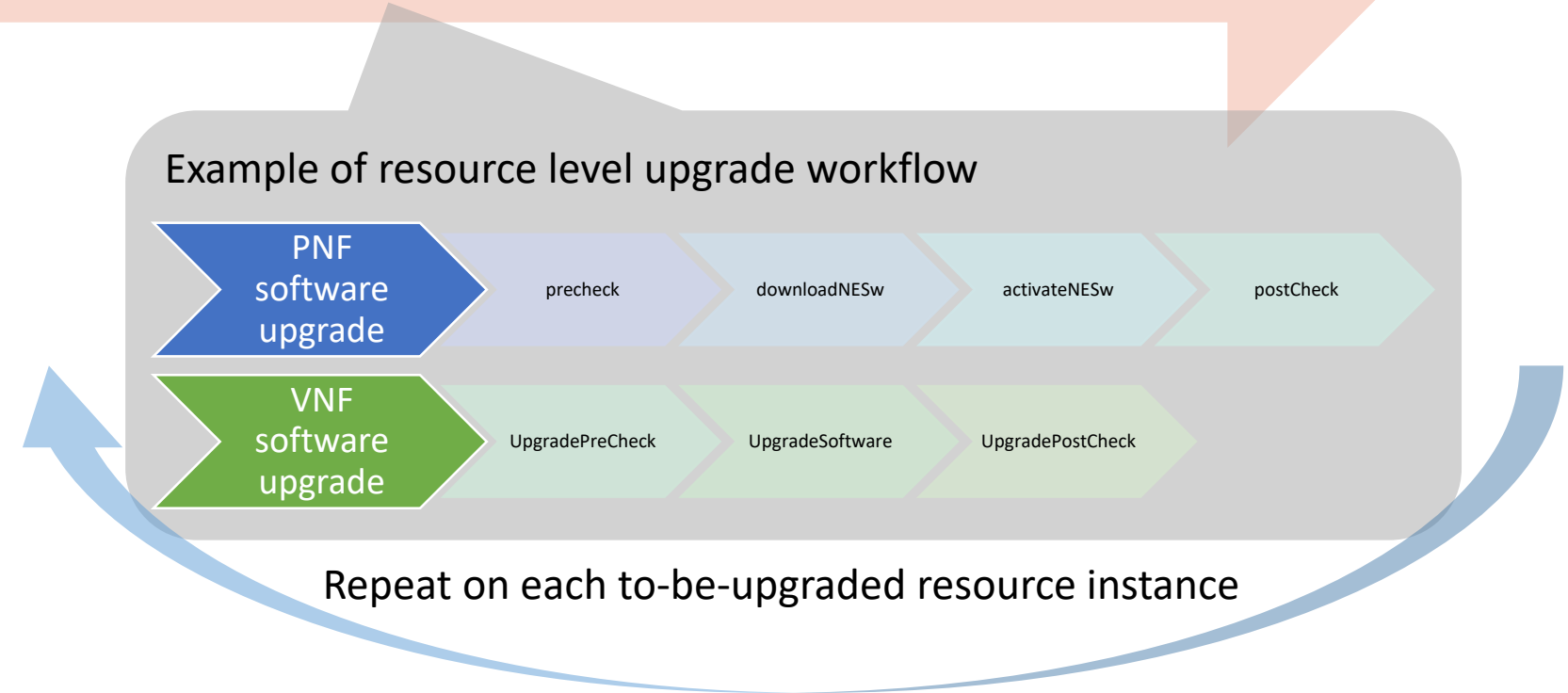
1. A vendor shall provide
  - a new VNF/PNF package with updated artifacts, and
  - the new VNF/ PNF software image to the operator.
2. At receiving of the new package, the operator shall
  - onboard the new package including the new xNF software version and create a new resource template or update the existing resource template (PNF or VNF)
  - update the existing service template with the new or updated resource template
  - distribute the updated service template to run time.
3. At run time, the operator shall, based on the updated service template,
  - upgrade a service instance and its resource instances, and
  - update the AAI entry accordingly



# Service level upgrade building block



Note: the service level workflow is network function type independent. When upgrade one resource instance, the subsequent resource level upgrade workflow is selected based on the network function type.



# PNF Software Upgrade enhancements in Honolulu Release

## Design time

Onboarding package

- PNF Software Versions

SDC Internal Model

- PNF Software Version List
- **Default PNF software version**

Update a Service template with multiple PNF resources

- PNF resource
- **PNF resource**
- ...

## Run time

SO Catalog

- PNF resources
  - **Default PNF software version**

AAI Catalog

- PNF resources
  - PNF software versions

SO PNF software upgrade workflow

Dmaap Notification

AAI-Event

# PNF Software Upgrade enhancements in Honolulu Release

Story (REQ-446)	components	Status
Adding Update Notification to Dmaap AAI-EVENT topic	SO	<a href="#">SO-3302</a>
Adding default PNF software version at SO catalog	SO	<a href="#">SO-3119</a>
Adding default PNF software version at onboarding	SDC	<a href="#">SDC-3228</a>
Support SDC CSAR upgrade with multiple xNFs in a service template	SDC	<a href="#">SDC-3315</a>
PNF software update documentation	Integration	<a href="#">INT-1740</a>
Integration test cases on e2e service level upgrade procedure	Integration	<a href="#">INT-1591</a> , <a href="#">INT-1592</a> , <a href="#">INT-1593</a>





**ONAP**

OPEN NETWORK AUTOMATION PLATFORM

Thank You!