# **PNF PnP workflow migration to Building Blocks**

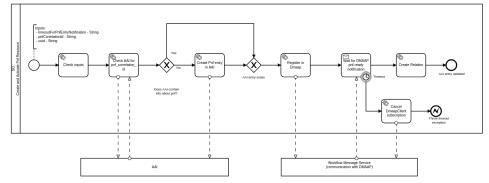
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  - WaitForPnfReadyBB
  - Support for config assign (ControllerExecutionBB, action: configAssign)
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- ٠ Sequence in Service-Macro-Create flow
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        - GeneralBuildingBlock initialization (BB Input Setup)
        - Generic controller BB working with PNFs
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## Goal

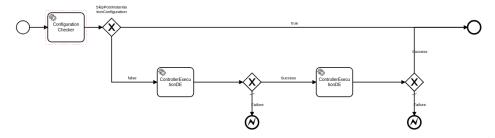
- Migrate PNF PNP workflow to Building Blocks (BBs/GR\_API).
- Include newly created BBs in Service-Macro-Create flow. ٠
- Leave legacy implementation using VNF\_API intact.

By PNF PNP workflow we understand 2 BPMNs:

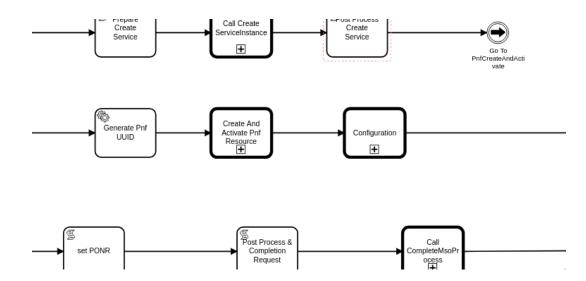
CreateAndActivatePnfResource



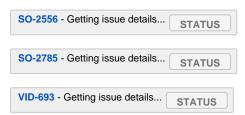
٠ ConfigurePnfResource



Both included in CreateVcpeResCustService\_simplified BPMN



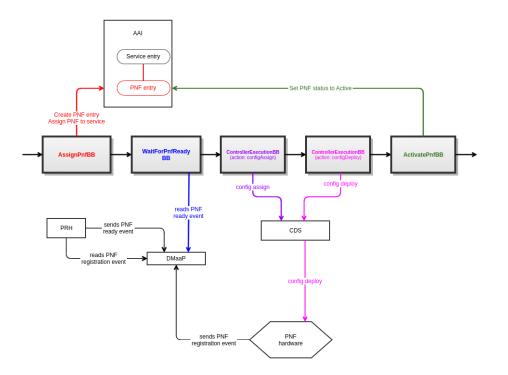
# JIRA



# Involved parties

- Lukasz Grech, Damian Nowak PNF PNP workflow migration to BBs
- Oskar Malm ConfigurePnfResource.bpmn (previous, non-BB implementation)
- Henry Xie SO-CDS integration, new API for calling CDS from SO
- Yuriy Malakov CDS, SO-CDS integration
- Rahul Tyagi PNF SW upgrade, SO-CDS integration

# Proposed building blocks



## AssignPnfBB

- Responsibility:
  - Creates PNF entry in AAI (with PNF name chosen by user)
  - Additionally stores PNF model-related parameters in AAI ( SO-2640 Getting issue details...
    - model-customization-id
    - model-invariant-id
    - model-version-id
  - ° Makes a link in AAI between Service entry and PNF entry
  - Sets PNF orchestration status in AAI to Assigned
- Currently implemented in CreateAndActivatePnfResource.bpmn

### WaitForPnfReadyBB

- Responsibility:
  - · Waits for "PNF ready" event sent from PRH to DMaaP
  - pnfCorrelationId from the event must match PNF instance name provided by the user during service instantiation

):

STATUS

- ° Sets PNF orchestration status in AAI to:
  - Register when starting to wait for PNF ready event
  - Registered when PNF ready event is successfully received
- Currently implemented in CreateAndActivatePnfResource.bpmn

### Support for config assign (ControllerExecutionBB, action: configAssign)

SO-2646 - Getting issue details... STATUS

- Responsibility:
  - Runs config assign via CDS
- Currently implemented in ConfigurePnfResource.bpmn
- We will reuse generic BPMN for calling CDS (ControllerExecutionBB)
- Things to consider:
  - ° SkipPostInstantiationConfiguration should be taken into account

## Support for config deploy (ControllerExecutionBB, action: configDeploy)

SO-2647 - Getting issue details... STATUS

- Responsibility: ٠
- Runs config deploy via CDS
- Currently implemented in ConfigurePnfResource.bpmn
- We will reuse generic BPMN for calling CDS (ControllerExecutionBB)
- Things to consider:
  - ° SkipPostInstantiationConfiguration should be taken into account

## **ActivatePnfBB**

Responsibility:

Sets PNF orchestration status in AAI as Active

# Sequence in Service-Macro-Create flow

- AssignServiceInstanceBB
   CreateNetworkCollectionBB
- 3. AssignNetworkBB
- 4. AssignVnfBB 5. AssignVolumeGroupBB
- 6. AssignVfModuleBB
- 7. AssignPnfBB
- 8. WaitForPnfReadyBB
- 9. ControllerExecutionBB (action: configAssign, scope: pnf) 10. ControllerExecutionBB (action: configDeploy, scope: pnf)
- 11. ActivatePnfBB
- 12. ConfigAssignVnfBB
- 13. CreateNetworkBB
- 14. ActivateNetworkBB
- 15. CreateVolumeGroupBB
- 16. ActivateVolumeGroupBB
- 17. CreateVfModuleBB
- 18. ActivateVfModuleBB
- 19. ConfigDeployVnfBB
- 20. ActivateVnfBB
- 21. ActivateNetworkCollectionBB
- 22. ActivateServiceInstanceBB

# SO - required changes

### API handler

#### **GR API**

SO API currently doesn't allow to send PNF information in user data section.

Here's the proposed request which includes PNFs:

```
"requestDetails":{
    "modelInfo":{
        "modelInvariantId":service_model_invariant_uuid,
        "modelVersionId":service_model_uuid,
         "modelName":service_model_name,
         "modelType":"service",
         "modelVersion":"1.0"
    },
     "owningEntity":{
         "owningEntityId":"3fa3e96c-dd51-4c77-818d-f130b613f1f8",
         "owningEntityName":"OE-Demonstration"
    },
    "subscriberInfo":{
        "globalSubscriberId":"Demonstration"
    },
     "requestInfo":{
        "instanceName":service_instance_name,
         "productFamilyId": "ff9262e1-5e31-48dc-aa71-e3f0a7ba1b8c",
         "source":"VID",
         "suppressRollback": False,
         "requestorId":"demo"
    },
     "requestParameters":{
         "subscriptionServiceType":"vFW",
         "aLaCarte": False,
         "userParams":[
            {
                 "service":{
                     "modelInfo":{
                         "modelVersionId":service_model_uuid,
                         "modelName":service_model_name,
                         "modelType":"service"
                     },
                     "instanceName":service_instance_name,
                     "instanceParams":[],
                     "resources":{
                         "pnfs":[
                             {
                                  "modelInfo":{
                                     "modelCustomizationName":nf_resource_name,
                                     "modelCustomizationId":nf_resource_uuid,
                                     "modelInvariantId":nf_model_invariant_uuid,
                                     "modelVersionId":nf_model_uuid,
                                     "modelName":nf_model_name,
                                     "modelType":"pnf",
                                     "modelVersion":"1.0"
                                 },
                                 "platform":{
                                     "platformName": "Platform-Demonstration"
                                 },
                                  "lineOfBusiness":{
                                     "lineOfBusinessName": "LOB-Demonstration"
                                 },
                                 "productFamilyId": "ff9262e1-5e31-48dc-aa71-e3f0a7ba1b8c",
                                 "instanceParams":[],
                                 "instanceName":nf_instance_name
                             }
                        ]
                     }
                 }
             },
             {
                 "Homing_Solution": "none"
             }
        ]
   }
}
```

{

}

### **Building Block framework**

### Service decomposition (Retrieve BB Execution List)

• PNFs should be recognized in service model and proper BBs should be assigned for execution.

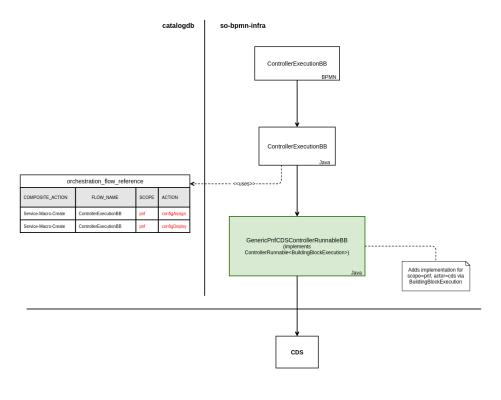
### GeneralBuildingBlock initialization (BB Input Setup)

• PNF resources should be properly initialized in GeneralBuildingBlockServiceInstance

#### Generic controller BB working with PNFs

- Update will be needed for BBInputSetup and WorkflowAction to support BBs which do not contain PNF in its name. Similarly as it was done for VNFs:
  - https://gerrit.onap.org/r/c/so/+/106108
  - https://gerrit.onap.org/r/c/so/+/106637

### PNF PNP workflow integration with CDS



# VID - required changes

VID-693 - Getting issue details... STATUS

Updates for service macro instantiation:

- "unlock" modern UI when for PNFs
- allow to assign PNF instance name (will be used instead of pnfCorrelationId)
- ensure that proper request is sent to SO

# Other considerations

- Are all required PNF parameters included in GeneralBuildingBlock->ServiceInstancePnf?
   ° Currently those are:
  - pnf-id
  - pnf-name

- role
- orchestration-status
- cloud-region
- Currently AAI schema (aai\_schema\_v19.xsd) for PNF contains:
  - Fields: pnf-name, pnf-name2, selflink, pnf-name2-source, pnf-id, equip-type, equip-vendor, equip-model, management-option, orchestration-status, ipaddress-v4-oam, sw-version, in-maint, frame-id, serial-number, ipaddress-v4-loopback-0, ipaddress-v6-loopback-0, ipaddress-v4-aim, ipaddress-v6-oam, inv-status, resource-version, prov-status, nf-role, admin-status, operational-status, model-customization-id, model-invariant-id, model-version-id (from SO cataloge), pnf-ipv4-address, pnf-ipv6-address
  - Sub-structures: software-versions, relationship-list, p-interfaces, lag-interfaces, vrfs
- A BBInputSetup implementation does not mention PNF at all is it even initialized in GeneralBuildingBlock?
- PNF ip is resolved by CDS by PNF ID (it should be in AAI) it's populated by PRH
- How to include new BBs in Service-Macro-Create flow?
  - Service decomposition in WorkflowActionBB may not unserstand PNFs (Retrieve BB Execution List)
  - Service decomposition should handle SkipPostInstantiationConfiguration
- PNF orchestration status changes in AAI which states should be assigned in which steps of the workflow
- PNF SW upgrade (Oskar Malm)
  - PNF should be active PNP is finished
  - new Upgrade flow will be created (BBs vs traditional considered)
- 5G NRM Configuration plan for new BB which invokes configuration via CDS of NRM resource(?) (Yaoguang Wang, see https://wiki.onap.org /display/DW/SO+Weekly+Meeting+2019-12-4)
- Make new BBs generic enough that they could be reused in other flows (request from Seshu)
- Service-Macro-Delete
  - Should we delete PNF resource from AAI on service deletion?
    - We plan to leave it. What orchestration status should it get? Inactive?