

Change Management Extensions

Flexible designer and orchestrator

https://docs.onap.org/en/casablanca/submodules/integration.git/docs/docs_CM_flexible_designer_orchestrator.html

Traffic migration

https://docs.onap.org/en/casablanca/submodules/integration.git/docs/docs_vFWDT.html

5G RAN PNF In-place software upgrade

https://git.onap.org/integration/tree/docs/docs_5G_PNF_Software_Upgrade.rst?h=casablanca

[5G - PNF Software Update](#)

[5G - PNF Software Update Test Status](#)

Change schedule optimizer

<https://docs.onap.org/en/casablanca/submodules/optf/cmso.git/docs/index.html>

M4 is GREEN for all Change Management Functionalities.

For Casablanca release, we propose the following functionalities.

	SDC	SO	SDNC	APPC	CCSDK [Ansible playbooks]	OOF	A & AI	Policy	DC AE	Test C
Flexible designer/orchestrator	AT&T	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;">  SO-838 - Workflow Designer Integration CLOSED </div> <div style="border: 1px solid #ccc; padding: 5px;">  SO-829 - Implement Workflow Activites for VnflnPlaceUpdate flow CLOSED </div> <p>Lead: Elena Kuleshov (ek1439@att.com)</p>								vGW upgrade
Traffic management			<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <input checked="" type="checkbox"/> SDNC-424 - Incorporate a new LCM DistributeTraffic in SDNC CLOSED </div> <p>Lead: Ruchira Agarwal (ra1926@att.com)</p>	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <input checked="" type="checkbox"/> APPC-446 - Incorporate a new LCM DistributeTraffic in APPC CLOSED </div> <p>Lead: Lukasz Rajewski (lukasz.rajewski@orange.com)</p>	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <input checked="" type="checkbox"/> CCSDK-449 - Create and push Ansible playbook for migrating traffic on vFW CLOSED </div> <div style="border: 1px solid #ccc; padding: 5px;"> <input checked="" type="checkbox"/> CCSDK-465 - Create and push Ansible playbook for quiesce/resume traffic on vGW/vCPE CLOSED </div> <p>Lead: Eric Multanen (eric.w.multanen@intel.com)</p>					vFW quiesce

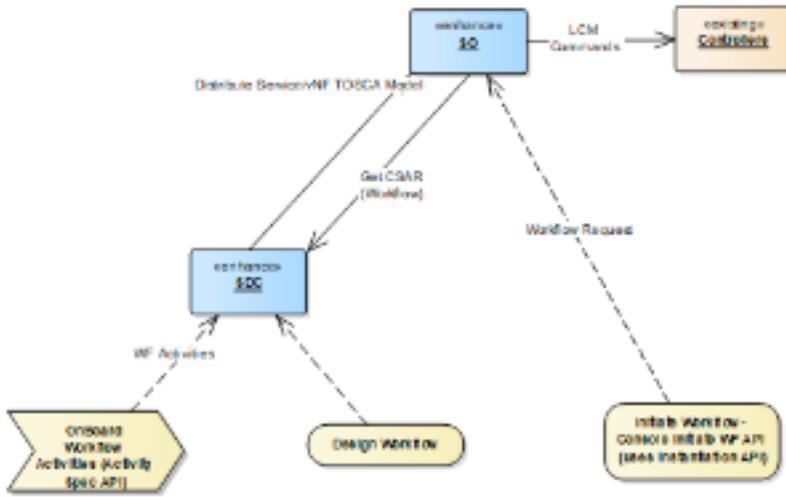
5G PNF in-place software upgrade		<p>AT&T</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> SDNC-424 - Create new directed graph (DG) for 5G PNF pre-check, upgrade and post-check <small>CLOSED</small> <input checked="" type="checkbox"/> SDNC-425 - Create new module on SDNC to talk to EC (External Controller) using Ansible <small>CLOSED</small> <p>Lead: Ruchira Agarwal (ra1926@att.com)</p>		<p>China Mobile, Huawei</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> CCSDK-464 - Create and push Ansible playbooks for 5G RAN PNF pre-check, software upgrade and post check <small>CLOSED</small> <input checked="" type="checkbox"/> SDNC-426 - Define north bound API payload updates for EC/PNF <small>CLOSED</small> <p>Lead: Yaoguang Wang (sunshine.wang@huawei.com)</p>			<p>5G PNF upgra</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> envi and for 5 <input checked="" type="checkbox"/> emu into envi
Change schedule optimization					<p>AT&T</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> OPTFRA-309 - CM Scheduler to Schedule a VNF instance at specific time to execute the change management workflow <small>CLOSED</small> <p>Lead: Jerry Flood (jf9860@att.com)</p>		<p>trigge upgra</p>

API Freeze	M3	23-Aug-18
Code Freeze	M4	20-Sep-18
Integration	RC0	11-Oct-18
	RC1	25-Oct-18

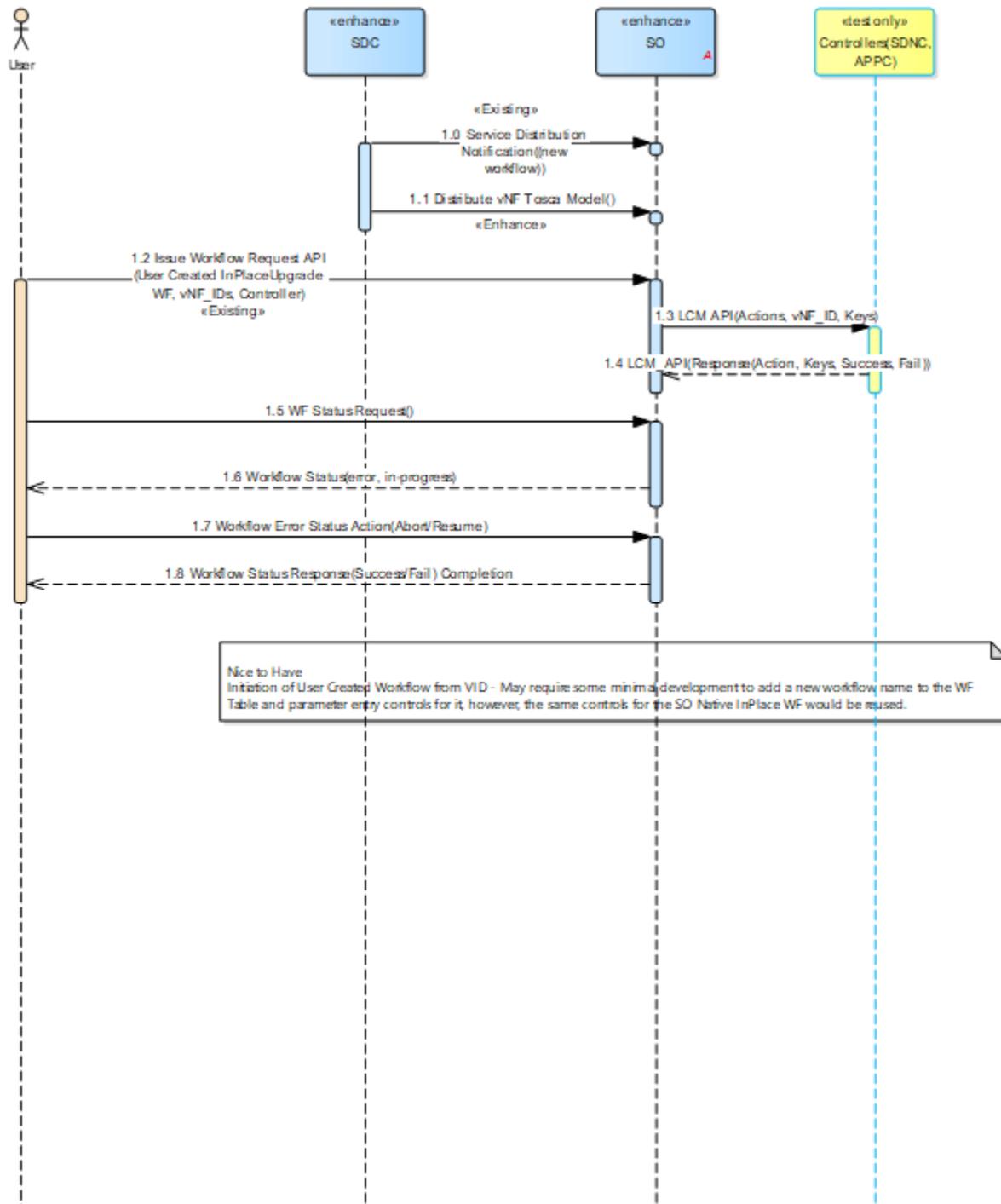
1) Flexible workflow designer and orchestrator COMMITTED M4READY

1. Impacted components: SDC, SO, and VID (nice-to-have)
2. Contributors: AT&T, Amdocs, Huawei (?)
3. Functionalities
 - a. Catalog in SDC for meta-data about the building blocks – completed by Amdocs
 - b. Designer/editor in SDC for creating workflow – committed to develop by Amdocs
 - c. Convert already existing building blocks/activities to be workflow designer ready
 - d. Move workflow out of service model to independent artifact – priority nice to have
 - e. Distribution of workflow to SO – preferably with workflow as independent artifact
 - f. Deployment of workflow in SO
 - g. User interface (VID) to select workflow and input parameters for execution
 - h. Execute workflow in SO
 - i. Rainy day handling for unsuccessful workflow steps
 - j. Visualize the execution results on VID dashboard
 - k. Ability to cancel workflow execution (VID)

Flow Designer Orchestration High Level Diagram



Run-time support of User Designed Workflows



Name: Sequence Diagram: Run Time Support of User Designed Workflow
 Author: CR2431
 Version: 1
 Created: 6/6/2018 12:40:16 PM
 Updated: 6/27/2018 10:34:54 AM

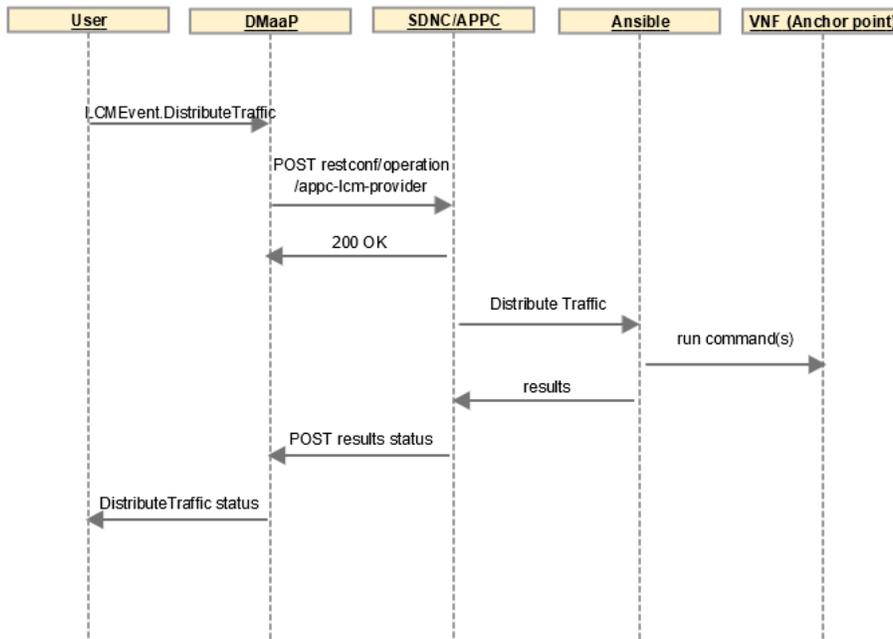
2) Traffic migration building block COMMITTED M4READY

1. Impacted components: SDNC, APPC
2. Contributors: AT&T, Orange, Intel
3. Functionalities

- a. Traffic to one or multiple (V)NFs is distributed by a Traffic Distribution/Balancing Entity
 - b. For Casablanca, we will focus on the LCM action necessary for traffic migration. For Dublin and beyond, we will create a workflow within SO for traffic migration
 - c. New LCM action to control traffic distribution (to achieve traffic migration) - will also have to update CDT Design tool
 - d. DistributeTraffic LCM action (Alternative is ConfigModify LCM action if PTLs recommend to push DistributeTraffic LCM to Dublin)
 - i. Anchor point ID (VNF ID in action identifier)
 - ii. Traffic distribution weights for all nodes covered by the anchor point that require changes - this will be in the payload section in the form of "ConfigFileName" The config file (json) would be stored in the Ansible docker.
 - iii. The playbook would read a Traffic Distribution Configuration file associated with the DistribConfigName value sent by the Controller
 - iv. If we want to test/try various traffic distributions (many tests), we could have many Traffic Distribution Configuration files, each with its own DistribConfigName.
 - v. The Playbook could also include a step to take a backup of the Traffic Distribution/Balancing Entity current traffic distribution/configuration and save it locally at some dir path. If the new traffic distribution action is rejected/failed then the playbook can restore previous traffic distribution/config. The Playbook can offer lots of flexibility and it is up to the entity SME to decide what he/she wants to do upon a DistributeTraffic action request.
 - e. Mechanisms for traffic migration - implemented by controller
 - i. Assessment report on commonalities/differences across VNF types – e.g., IP based redirection, DNS based or load balancer
4. Integration/testing
- a. For Casablanca, we will demonstrate traffic migration across 2 vFWs using traffic source as the anchor point
 - b. Ansible playbook for adjusting the traffic weight on the traffic source (anchor point)
 - c. Traffic weight before migration: 100,0 and traffic weight after migration: to 0,100
 - d. Second test case would be traffic migration (quiesce / resume) on vGW/vCPE

Execution flow:

Sequence Diagram



User DMAAP SDNC/APPC Ansible VNF(s)

Design flow:

User uploads Ansible playbook into CCSDK



traffic migration.pdf



ONAP Controller...new LCM API.pdf

For the LCM action :

If the payload contains pnf-flag and it is set to true then that indicates request for PNF.

If it is set to false, then the request is for VNF, and we will use vnf-id in input and nf-naming-code in payload.

nf-naming-code = vgw for example.

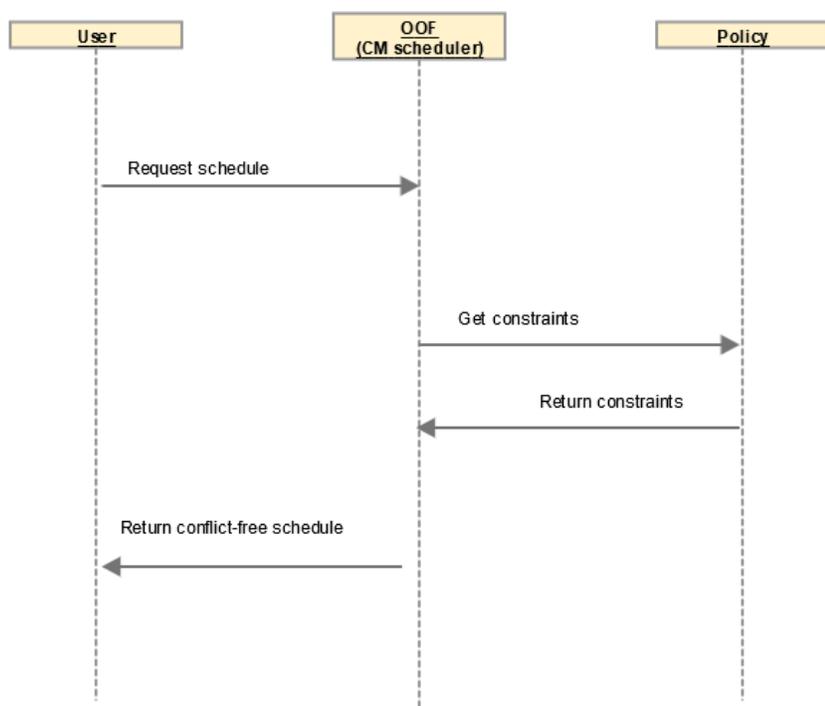
SDNC will look up nf-naming-code in AAI if not passed in payload.

For PNF, we will use the following in payload: pnf-name and ipaddress-v4-oam

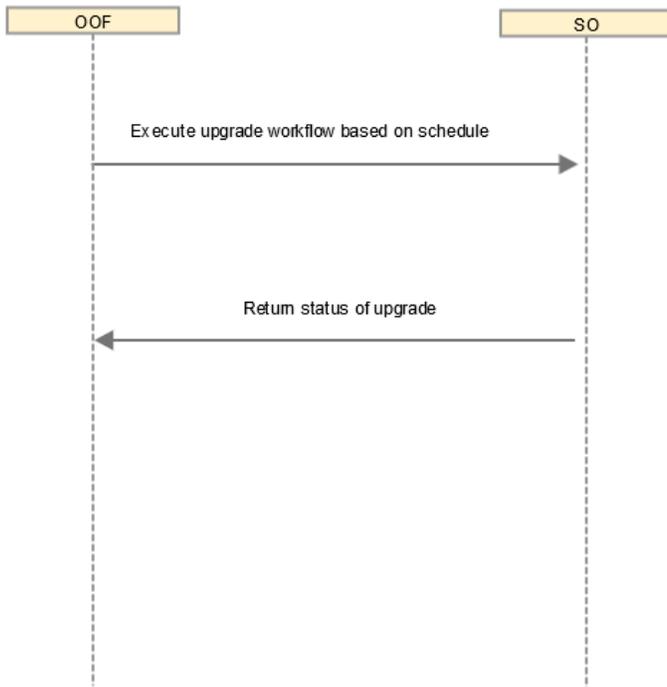
- 3) 5G RAN PNF Software upgrade COMMITTED M4READY
1. Impacted components: SDNC, Ansible (CCSDK)
 2. Contributors: AT&T, China Mobile, Huawei
 3. Functionalities
 - a. Leverage in-place software upgrade Beijing use case (minor changes) to demonstrate application to 5G RAN PNFs
 - b. Complete generic building blocks for flexible upgrade workflow design
 - c. Enhance precheck and postcheck steps with vendor specific rules
 - d. External controller would receive instructions from Ansible SDNC
 - e. PNF ID, Expected Software Version, Controller Type, EC type, Rule Name and corresponding parameters can be specified at run time
 - f. Update A&AI entry with new PNF software version, as 'active version'
 - g. Support Batch software upgrade operations (stretch goal)
 4. More details: [5G - PNF Software Update](#)
- 4) Change Management Scheduler COMMITTED M4READY
1. Impacted components: OOF
 2. Contributors: AT&T

3. Functionalities
 - a. Discover schedule based on the change management constraints
 - b. Constraints
 - i. Time-based - e.g., execute the change activity during the maintenance window and weekdays
 - ii. Concurrency of how many NF instances to change at a time - this is concurrency within a single user request
 - iii. NF conflicts (if time permits) - avoid work scheduled at the same time on the same NF instance
 - c. Input
 - i. List of NF instances - request details as depicted in the Beijing script
 - ii. Start/end times
 - iii. Expected duration
 - iv. Constraint/policy
 - v. Type of change (workflow name)
 - vi. Concurrency value
 - d. Output
 - i. Schedule - time and instance at which the workflow would be executed
4. Integration/Testing plan
 - a. Use Beijing vGW in-place software upgrade to demo execution based on the schedule output by OOF

Change management scheduling



Change management execution based on conflict-free schedule



ONAP_CM_Casabl...4June2018.pptx



ONAP Casablanc...811 DRAFT.docx



Upgrade Process.pptx