

O-Cloud Registration

Feature Overview

- As part of the O-RAN Alliance Architecture, the Service Management and Orchestrator (SMO) has a component called Federated O-Cloud Cluster Orchestration Management (FOCOM) that interacts with the O-Cloud using the O2 Interface, using the Infrastructure Management Service (IMS).
- This Use Case describes the sequence for registration and initialization of the newly deployed O-Cloud. The SMO queries the O-Cloud for its SW inventory, checks to see if this requires any updates, configures the O-Cloud and queries the O-Cloud for available DMS. Following this sequence, the O-Cloud is available for NF Deployments to be instantiated.
- This use case is standardized as part of [O-RAN Orchestration Use Cases](#).

Stakeholders

- Operators, CaaS providers, SMO providers

Design and architectural considerations

Assumptions

Prerequisites

- SMO and IMS are available
- Network connectivity exists between O-Cloud and SMO and between all nodes of O-Cloud. All O-cloud nodes are preconfigured for the O-Cloud.
- SMO has been configured with O-Cloud ID in its inventory and is ready for O-Cloud registration
- IMS has been pre-configured with FOCOM notification endpoint

Requirements

Step 1 (M)	IMS initiates the O2 O-Cloud Registration Process using (O2ims services) O2ims notification endpoint provided by FOCOM.	
Step 7-9 (M)	SMO queries O-Cloud to discover and Inventory new DMS using O2 Infrastructure Inventory Services [ref] O-Cloud returns list of new O-Cloud Deployment Management Services end points. Note: O-Cloud Inventory Services may provide additional information such as a Cloud Inventory reference.	
Step 10-12 (M)	For each DMS, SMO retrieves DMS capabilities and credentials from the DMS inventory object and registers the corresponding workload cluster in Nephio NFO implementation.	Per stefan.bjurstrom@ericsson.com This has a dependency on cluster registration user story being complete.

"New Step"	SMO (Nephio FOCOM implementation) queries O-Cloud to discover new O-Cloud templates and query for their template information. Kpt package blueprints are generated for each of the retrieved templates.	
Ends when	O-Cloud has registered with SMO and SMO has checked software version, configuration, and available DMS	
Exceptions	O-Cloud ID not found in inventory	
Post Conditions	O-Cloud ready to support new NF Deployments	

Acceptance criteria (Definition of done)

- O-Cloud is initialized and registered with the SMO, ready for cluster creation prior to NF Deployments being instantiated.

Priority

Medium

What's not in scope

Step 2-3 (M)	SMO queries IMS for current SW inventory, and IMS responds with SW inventory data.	Not applicable for the initial Nephio R4 release.
Step 4-5 (ALT)	SMO checks SW inventory. 1) If SW inventory does not match required inventory: a. SMO executes software upgrade (see clause 3.1.6)	Not applicable for the initial Nephio R4 release. What is the ORAN-SC plan around inventory? (Ask Seshu)

	b. IMS installs new software, activates and notifies SMO it is available c. return to Step 2 2) If SW inventory matches the required inventory, continue to next Step	
Step 6 (M)	SMO configures O-Cloud using O2	Not applicable for the initial Nephio R4 release. Consider post R4

References

[O-RAN.WG6.ORCH-USE-CASES-R003-v07.00](https://www.google.com/url?q=https://specifications.o-ran.org/download?id%3D674&sa=D&source=docs&ust=1727878627111456&usq=AOvVaw2M4cjOje1h7Y3jzIEiwbtu)

<https://www.google.com/url?q=https://specifications.o-ran.org/download?id%3D674&sa=D&source=docs&ust=1727878627111456&usq=AOvVaw2M4cjOje1h7Y3jzIEiwbtu>