REQ-627 – CNFO – Istanbul Extensions

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CNFO - Summary for the requirement subcommittee

Executive Summary - Provide CNF orchestration support through integration of K8s adapter in ONAP SO

- Support for provisioning CNFs using an external K8s Manager

- Support the Helm based orchestration

- leverage the existing functionality of Multi cloud in SO

- Bring in the advantages of the K8s orchestrator

- Set stage for the Cloud Native scenarios

Owners: Lukasz Rajewski (Orange), Seshu Kumar M (Huawei)

Business Impact - Enables operators and service providers to orchestrate CNFs based services along with the VNFs and PNFs

Business Markets - All operators and service providers that are intended to use the CNFs along with PNFs / VNFs

**Funding/Financial Impacts -** Reduction in the footprint of the ONAP for CNF support.

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.*

REQ-341 Guilin
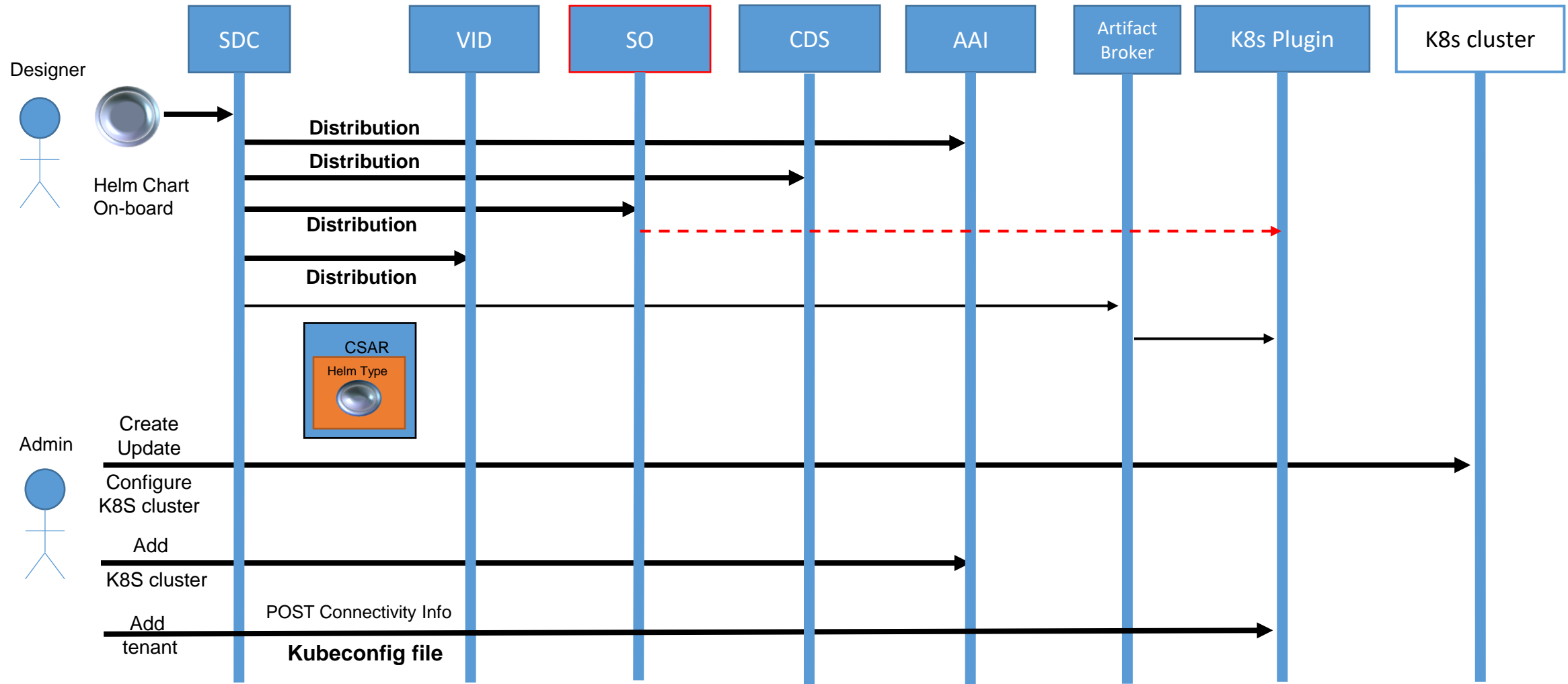
REQ-458 Honolulu

REQ-627 Istanbul+

THE **LINUX** FOUNDATION

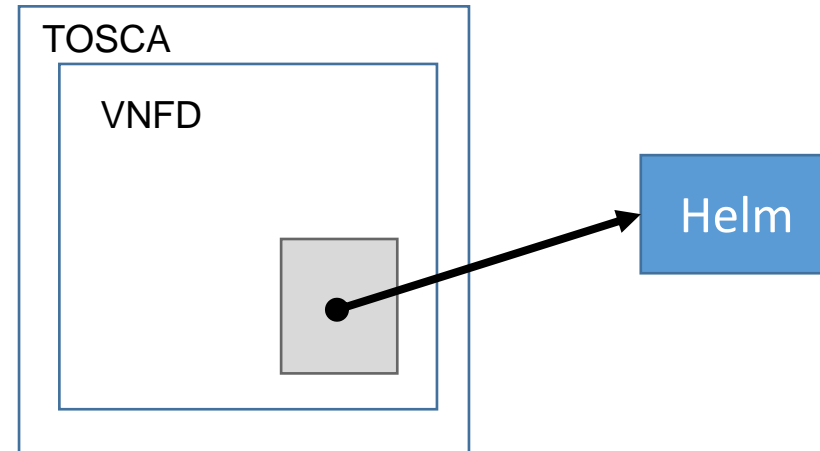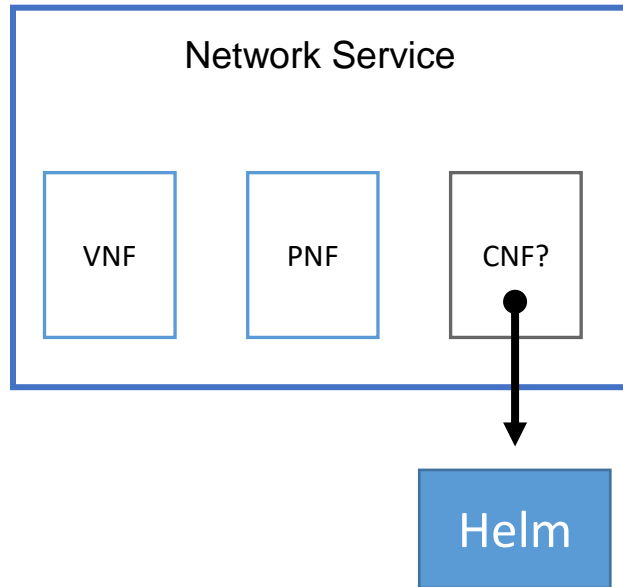ONAP OPEN NETWORK AUTOMATION PLATFORM
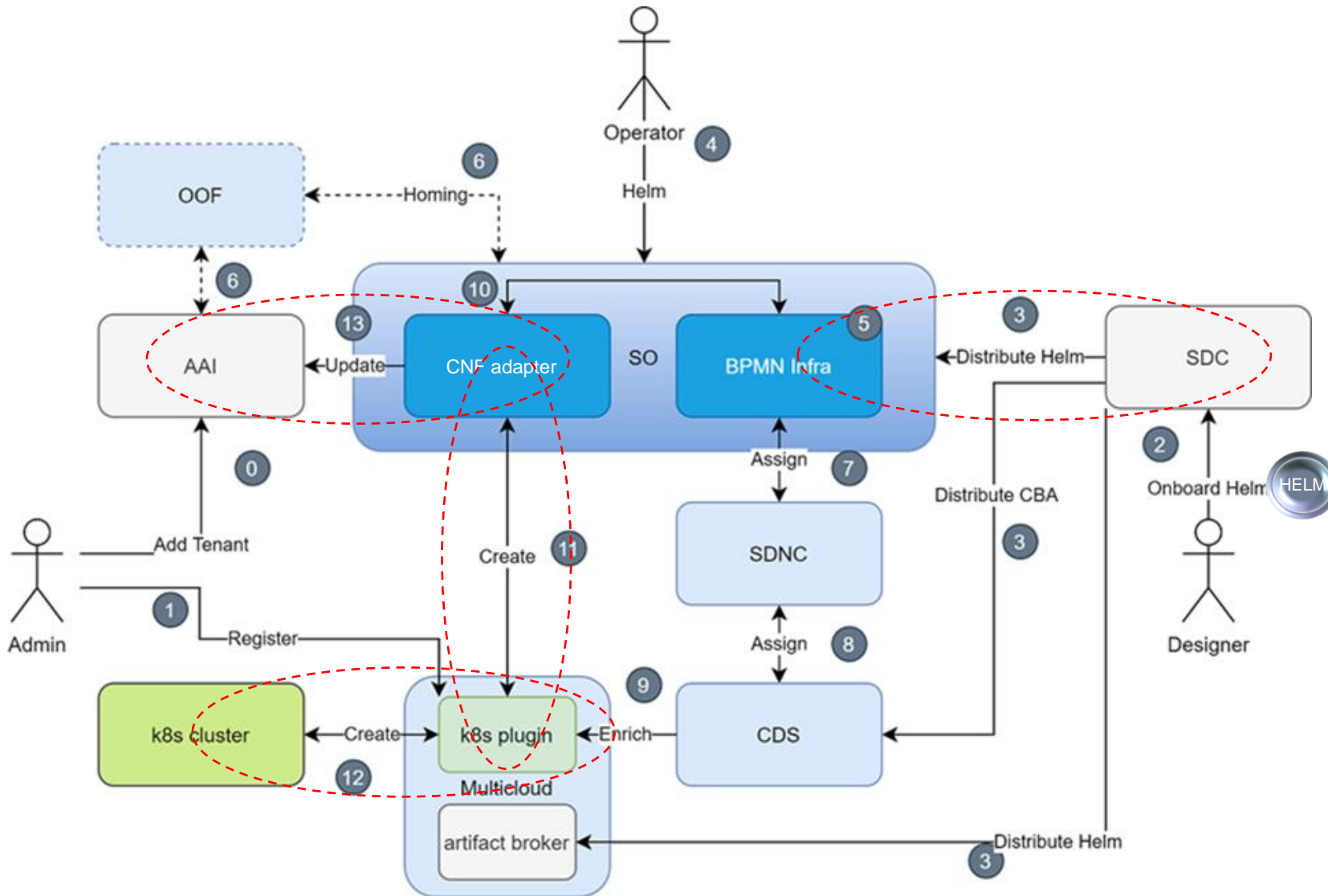
Deployment Maturation and Day2

- Improvement of Helm Distribution (SDC/SO)

- Helm Deployment Maturity
  - Helm package validation
  - Helm 3.5
  - Helm pre-/post-installation/deletion hooks

- Simple CNF Healthcheck

- AAI Basic CNF Changes
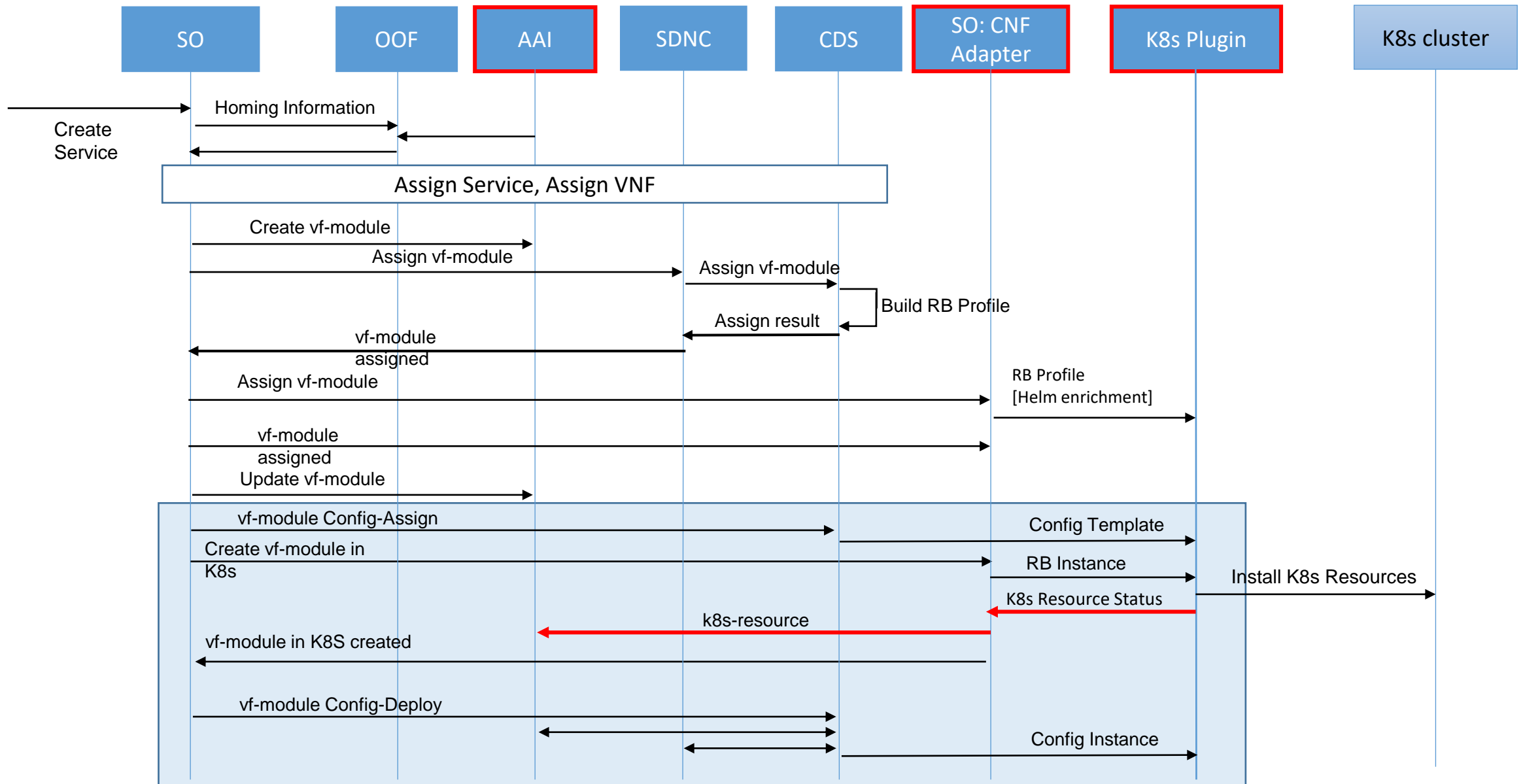
ONAP - ETSI CNF model Alignment

AAI CNF Model – Overview

- Currently no CNF Resources information is visible in ONAP AAI
- Some interfaces are already implemented (Multicloud-k8s Status/Query API) that allow retrieval of detailed resources information
- Initial implementation of CNF Model in AAI (**Istanbul**) be simple and allow user to know about resources available and where to get their exact status from
- Long-Term solution (Jakarta+) should design appropriate CNF Resources in AAI, providing only the most important data and relationships about them.
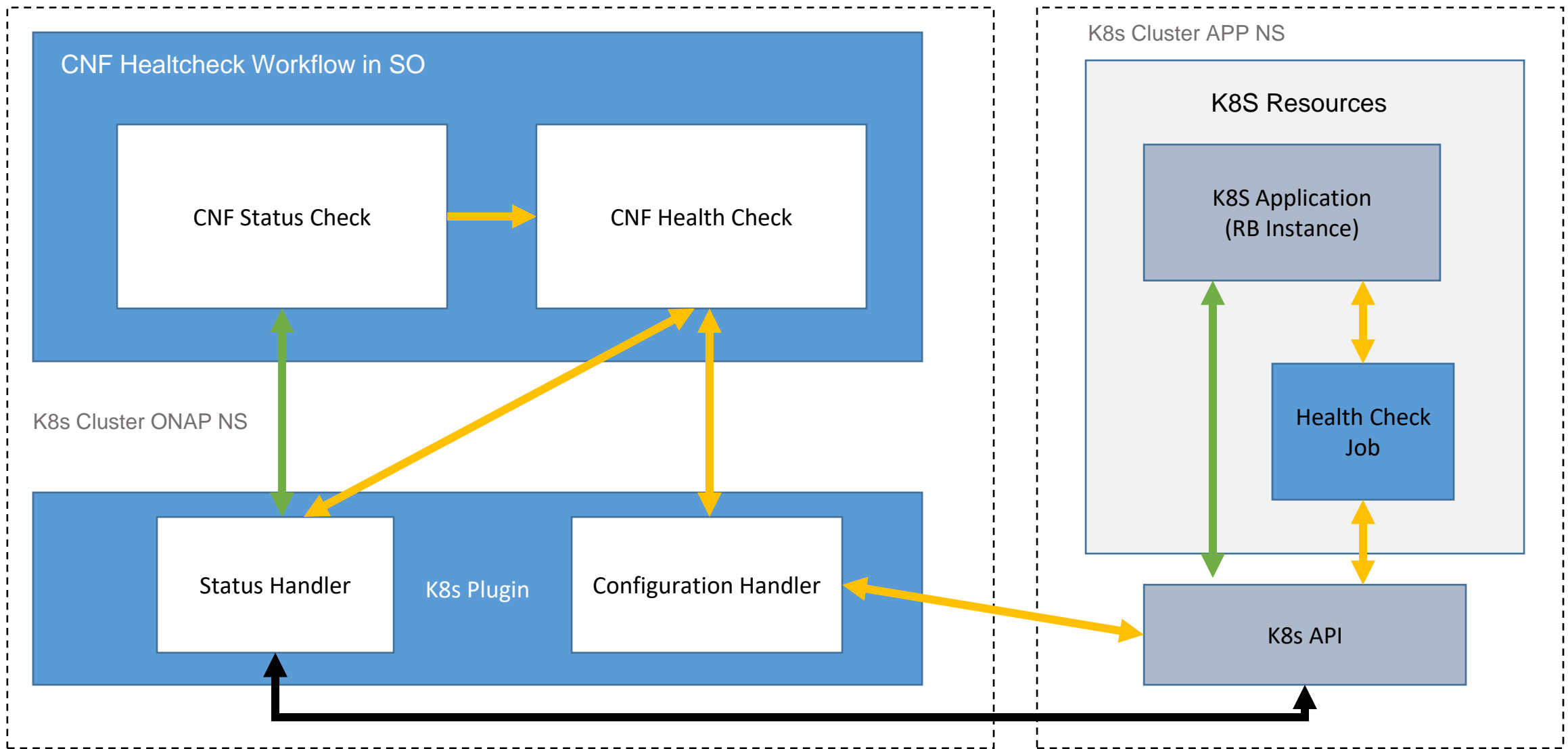 - To be aligned with ETSi CNF deployment

Simple AAI CNF Model – Istanbul

- Create additional AAI Object (k8s-resource) storing information about **ANY** Resource in K8s

- Data stored within this AAI object:
  - **`id`**   [guid;   **Primary Key**]
  - `name`   [string; **Alternate Key**]
  - **`group, version, kind`**   [string; **Alternate Key**]
  - `namespace`   [string; **Alternate Key**; Empty-allowed]
  - **`labels`**   [list<string>]
  - **`k8s-resource-selflink`**   [string]

- Role and positioning like vserver object

- Selflink leads to SO/CNF-Adapter – it allows to read full and latest status information of k8s resource

Instantiation of the Helm Chart – Day 0/1

On-Demand CNF Health Check SO WorkFlow

CNF Healtcheck Workflow in SO

- CNF Status Check
- CNF Health Check

K8s Cluster ONAP NS

- Status Handler
- K8s Plugin
- Configuration Handler

K8s Cluster APP NS

K8S Resources

- K8S Application (RB Instance)
- Health Check Job

K8s API

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Summary of API Changes

- [Multicloud/K8s] Query API endpoint also on root API level - not related with any Instance.

- [Multicloud/K8s] API endpoints for Status/Query Subscription mechanism

- [Multicloud/K8s] Istance API has new params to control execution of Helm Hooks

- [Multicloud/K8s] Information about Hooks on Instance and Status results but only when additional query param specified

- [AAI] API – k8s-resource object in cloud-infrastructure sub-tree

- [SO] CNF Adapter – API endpoints for Status/Query API to read status of k8s-resources

- [SO] Northbound API endpoint for execution of healtcheck workflow

Scope for REQ-627 – Istanbul

REQ-627

- **SDC Enhancements**

  - Validation of Helm 3 package

  - Improvements in Helm distribution (stretch)

- **AAI model changes (stretch)**

  - K8s-Resource (name, version, kind, labels, annotations, namespace)

  - Similar role to vserver object for VNF

- **K8sPlugin Helm Deployment Improvements**

  - Query API for cluster resources

  - Helm 3 support

  - Pre-/Post Installation/Deletion Hooks

  - Query/Status API notifications (stretch)

Scope for REQ-627 – Istanbul

- ## SO Enhancements

  - Status/Query API Integration in CNF Adapter

  - HealthCheck API Integration

  - Dedicated CNF Health Check Workflow in SO

    - Status Check

    - Test Jobs Execution

  - AAI synchronization after changes (stretch)

    - + Based on publish/subscribe

  - CNF Creation with status verification

  - CNF Tenant recognition (stretch)

  - Distribution of Helm package by CNF Adapter (stretch)

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