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CNF Orchestration Roadmap

Honolulu, Istanbul and long term plans

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Native CNF Orchestration Path

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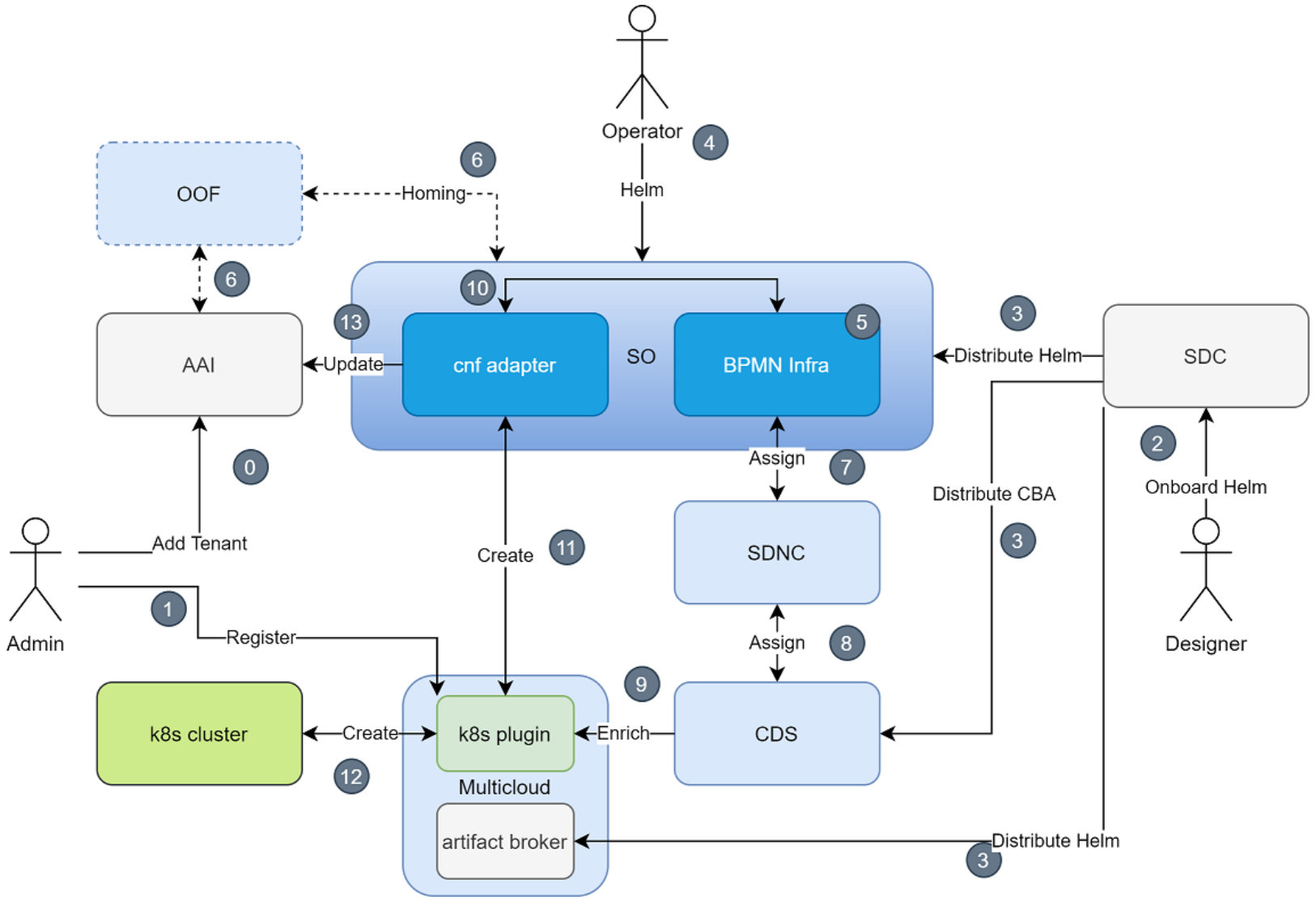

REQ-341
Guilin

REQ-458
Honolulu

Day 0/1/2 for Helm CNF

CNFO – Istanbul

REQ-627

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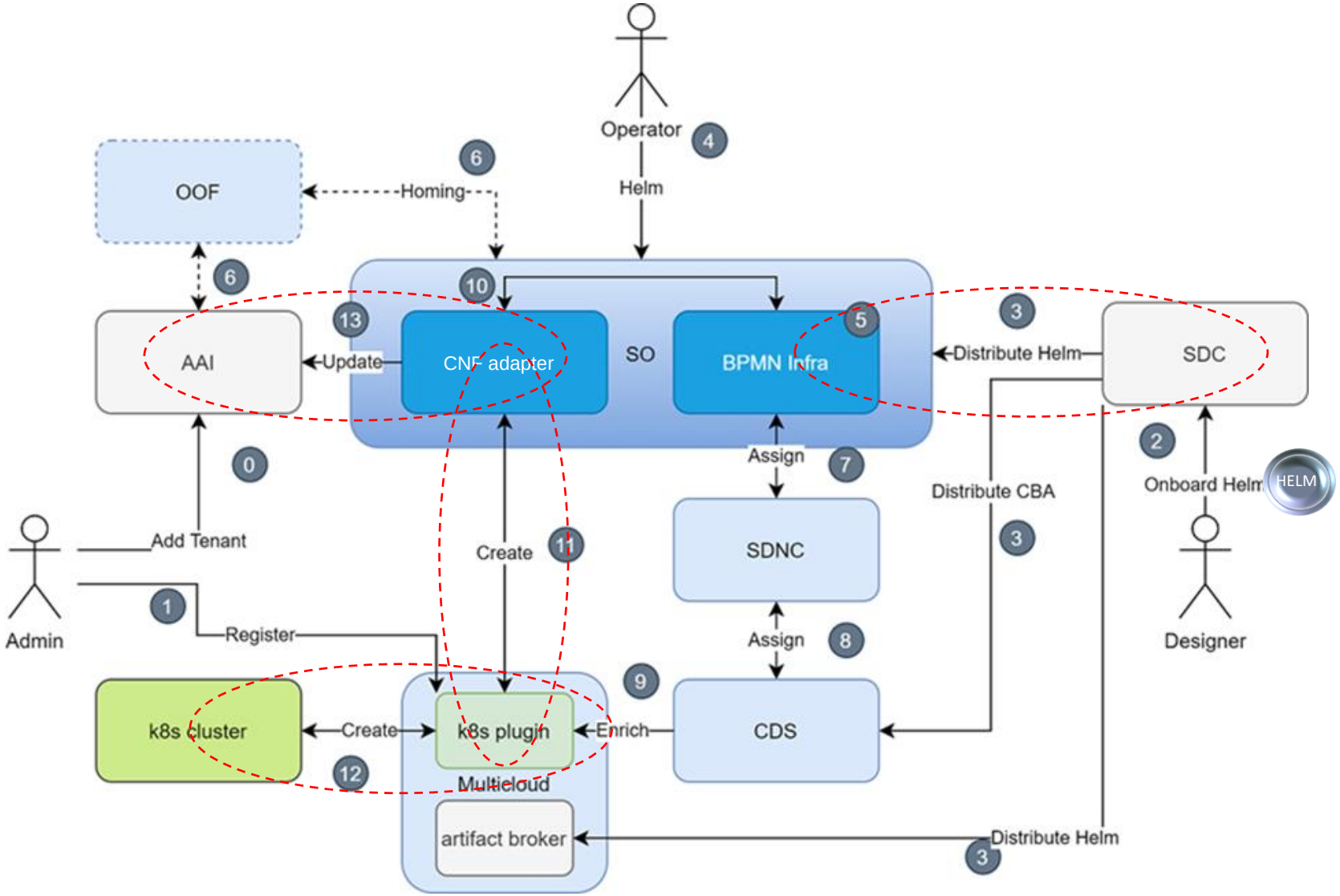


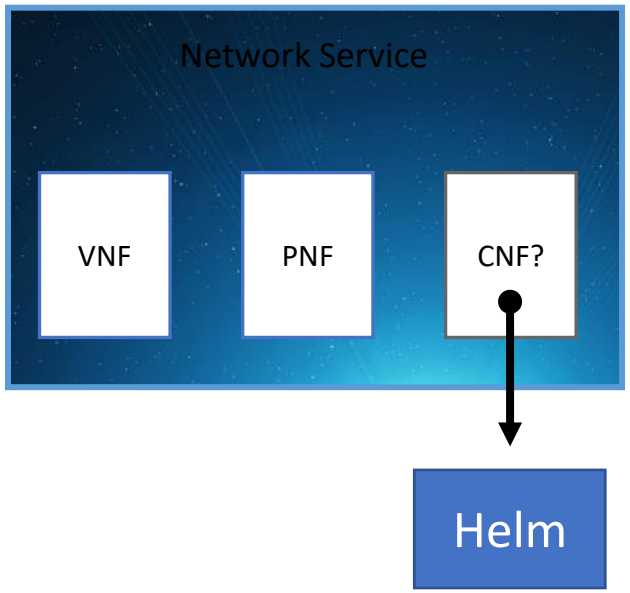
Deployment Maturation and Day2

- Improvement of Helm Distribution (SDC/SO)
- Helm Deployment Maturity
  - Helm package validation
  - Helm 3.5
  - Helm pre-/post-installation/deletion hooks
- Simple CNF Healthcheck
- Basic AAI CNF Changes

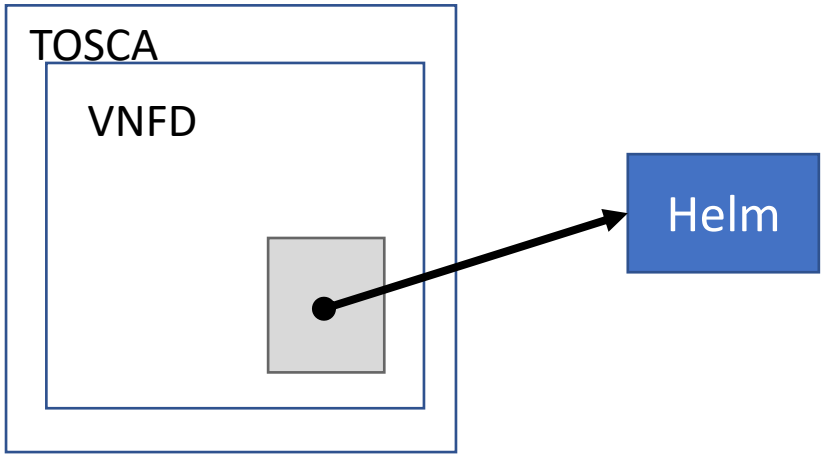
ONAP - ETSI CNF model Alignment

ONAP

E2E Service



ETSI



Integration of Native (CNF Adapter) with ETSi (SOL003 Adapter) paths in SO

Design/AAI CNF Model

How the ETSI CNF AAI model will look?

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

Proposed Simple AAI CNF Model

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- **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]
- **Self-link allows API consumer to specify query toward SO CNF Adapter to get full object data**
- **This object would be a child resource of tenant**
  - /cloud-infrastructure/cloud-regions/cloud-region/{cloud-owner}/{cloud-region-id}/tenants/tenant/{tenant-id}
    - /k8s-resources?name=vfw&namespace=vfirewall
    - /k8s-resources/k8s-resource/{k8s-resource-id}
- **Relationship matrix**
  - TO tenant (PARENT of k8s-resource, k8s-resource HostedOn tenant, MANY2ONE)
  - TO cloud-region (k8s-resource HostedOn cloud-region, ONE2MANY)
  - FROM generic-vnf (generic-vnf ComposedOf k8s-resource, ONE2MANY)
  - FROM vf-module (vf-module ComposedOf k8s-resource, ONE2MANY)

Refined CNF Deployment

- **Major Changes in K8s Plugin**
  - Helm 3.5 Support
  - Instantiation and Deletion Hooks Support
    - Pre/Post Hooks – mimic helm implementation
    - Hooks execution in weighted order
    - Supported hook deletion policy
- **Enhancements for Status/Query API functionalities**
  - Implementation of Query API on root level
  - Improvements in status recognition for instantiated k8s resources
  - [Stretch] Implementation of subscription-based Status/Query API
- **CNF Adapter waits for Instantiation result**
  - Always when hooks are present in the helm package
  - on demand - without helm hooks in the helm package

Day 1 Changes Summary

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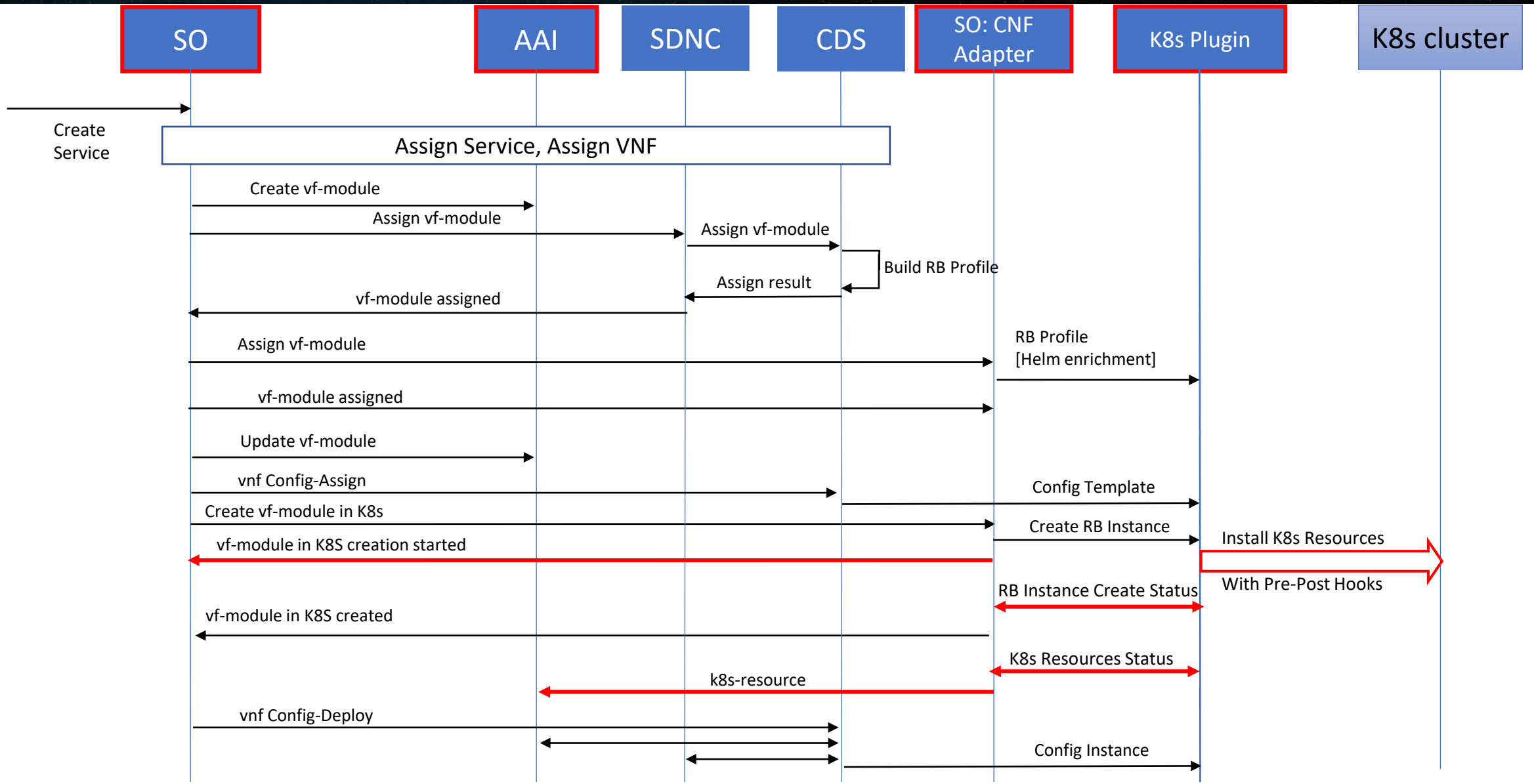

SO - CNF Health Check

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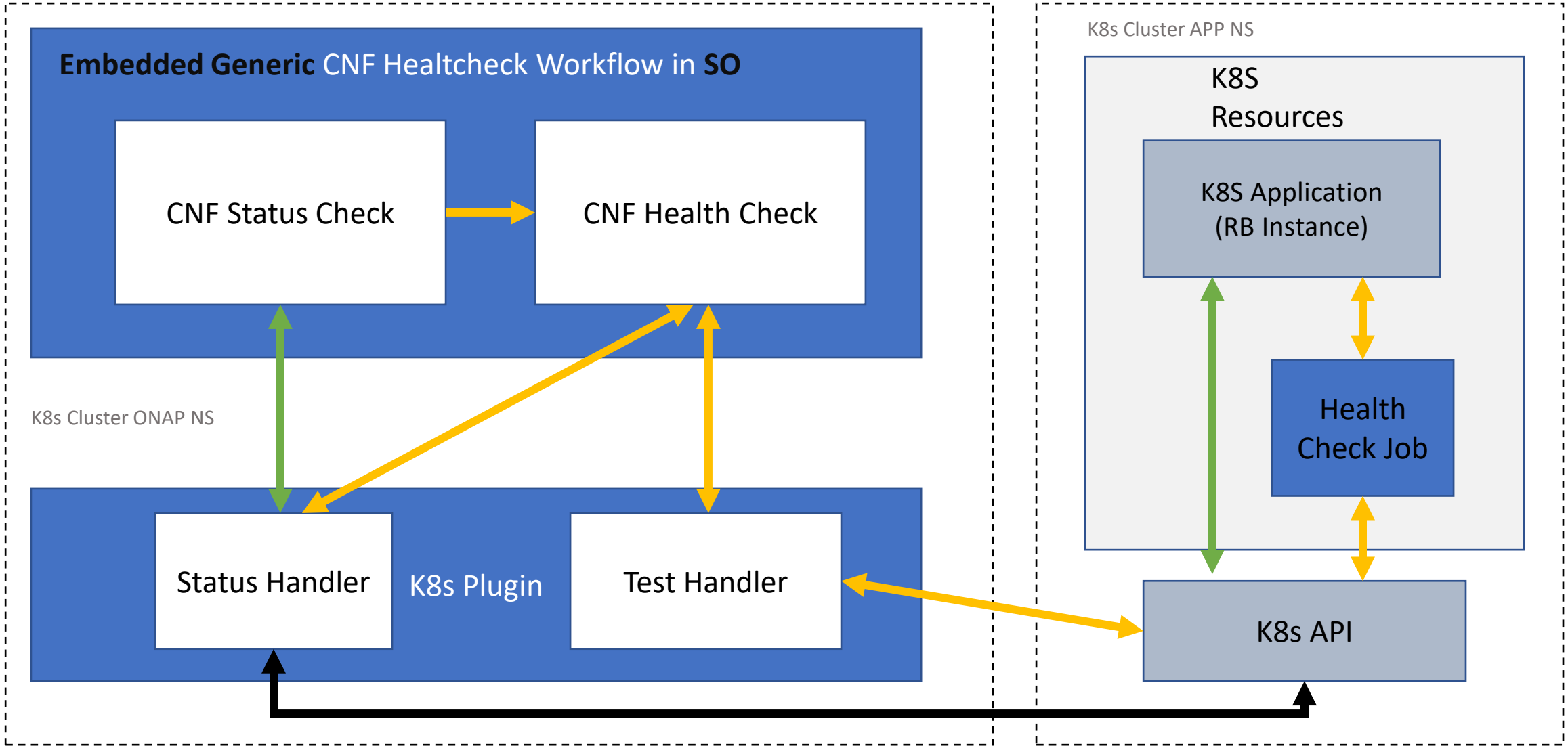

CNFO in 5G Super Blueprint

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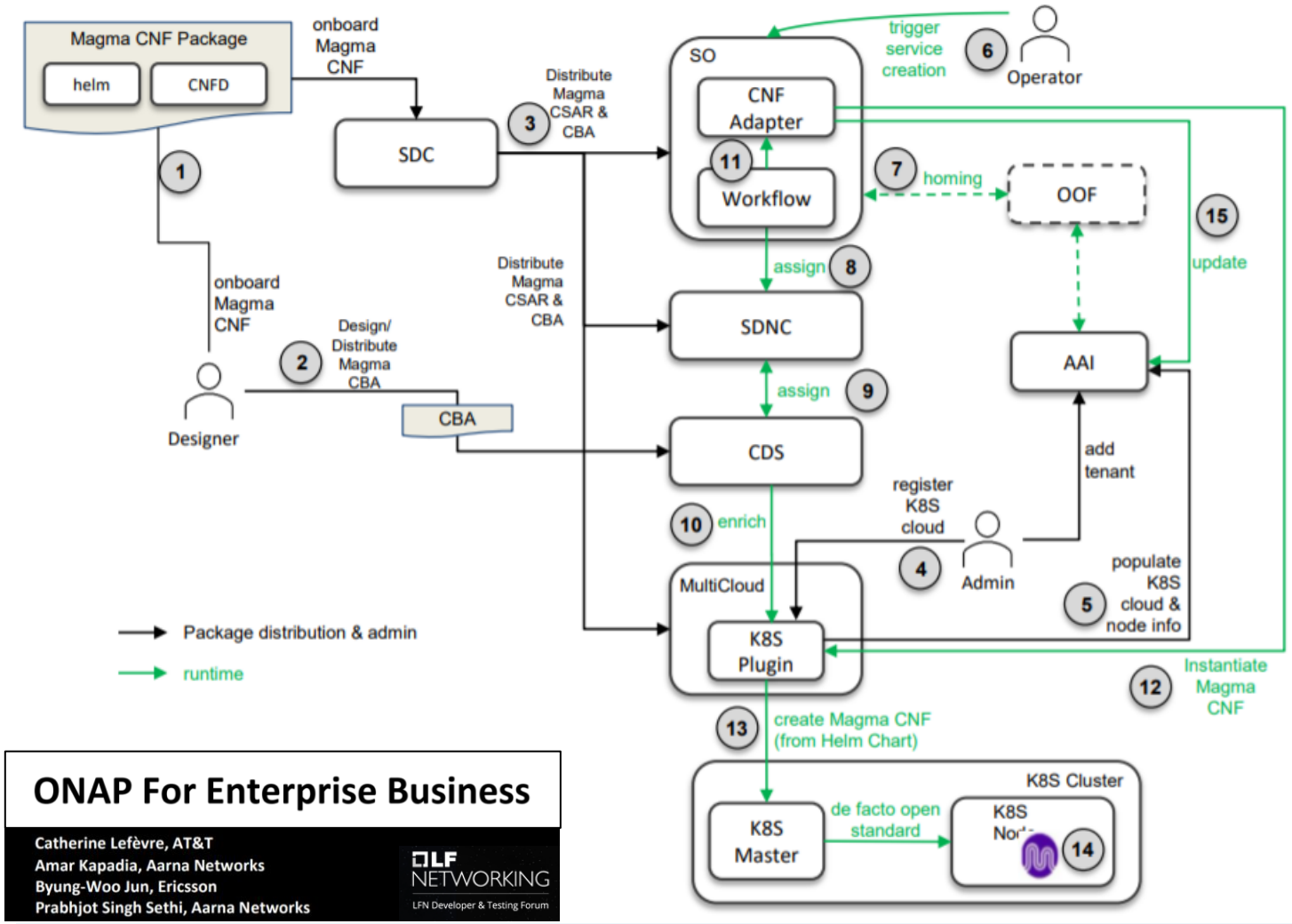

ONAP Magma Deployment Process Sequence (Magma is CNF):

#	Actor	Action
1	designer	onboards Magma CNF package to SDC
2	designer	designs/distribute Magma CBA to CDS
3	SDC	distributes Magma CSAR to ONAP runtime components such as SO, SDNC, MultiCloud
4	admin	registers target K8S cloud to K8S plugin and adds tenant
5	K8S plugin	populates K8S cloud & node info to AAI
6	operator	starts Magma CNF service creation by calling SO
7	SO	askes OOF for homing for Magma CNF
8	SO	assigns Magma CNF to SDNC
9	SDNC	assigns Magma CNF / generates Magma CNF configuration from template to CDS
10	CDS	enriches Magma CNF configuration to K8S plugin
11	SO	calles CNF Adapter to instantiate CNF
12	cnf adapter	calls K8S plugin Instantiate API
13	K8S plugin	deploys Magma CNF from helm chart to the target K8S
14	K8S master	deploys Magma CNF to K8S node
15	cnf adapter	updates Magma CNF instance

ONAP For Enterprise Business

Catherine Lefèvre, AT&T
Amar Kapadia, Aarna Networks
Byung-Woo Jun, Ericsson
Prabhjot Singh Sethi, Aarna Networks

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Future Steps – Jakarta++

- Support for 5G Super Blueprint & Magma CNF orchestrations requirements
- New joint onboarding package to design the NS with CNFs
- Merging the paths of the Native Helm & ETSi flows
- Enhance the CNF resource orchestration functionalities further
  - Multi-cluster deployment with inter-cluster connectivity setup
  - CNF Upgrade
  - Coordinated CNF components deployment
- Runtime model evolution based upon the standard
- AAI persistence of the CNF resources
- Control loop enhancements for CNFs
- Cluster management and CNF observability (integration with XGVela)
- Prometheus based monitoring in DCAE


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