

# CNF Orchestration in ONAP

- Support Containerized Network Functions

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# 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 and
- Set stage for the Cloud Native scenarios

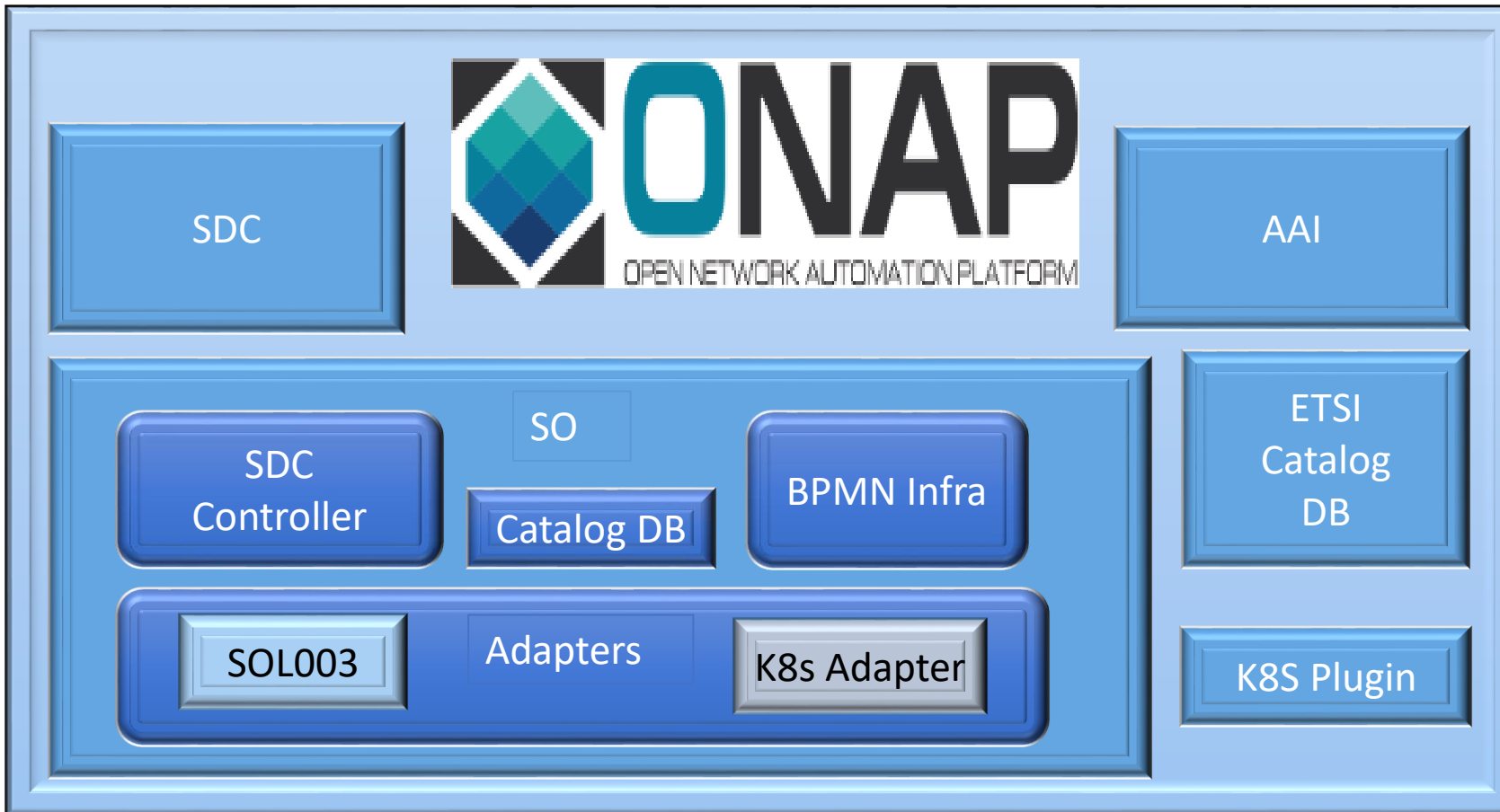
**Business Impact** - Enables operators and service providers to orchestrate CNFs based services along with the VNFs and PNFs

**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.*

# ONAP CNF Orchestration – Impacted Components - Guilin



External (S)VNF

## Model to drive the flows

- SDC to denote the flow of which VNF should be used- similar to Orch Type
- Information model – optional
- Need to investigate the best place to have the meta data, we can perhaps use the existing fields

## SDC:

On-board the helm and process it as an artifacts of the CSAR to be distributed

- ✓ On-board Helm Charts
- ✓ Resource model to include type
- ✓ (Design CNFs over helm)
- ✓ Distribute them

## SO:

Wont consume the Helm by itself but parse it and push it forward to other ONAP components

- ✓ Parse the Csar, extract helm
- ✓ SOL003 adapter enhancements
- ✓ New K8s Adapter (Interface to K8s Plugin)
- ✓ (Model driven workflow)

## K8s Plugin :

- ✓ Support new API for the SO interaction

## AAI:

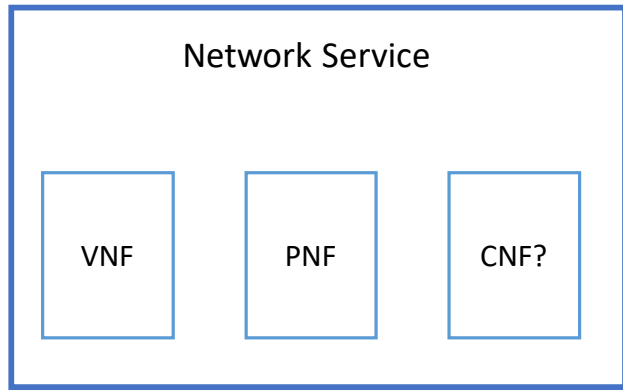
- ✓ Persist the Service instance
- ✓ (Persist CNF as a resource)

## ETSI Catalog DB:

- ✓ Persist the ETSi VNF data (IFA-29 and IFA-40 )
- ✓ Persist Images

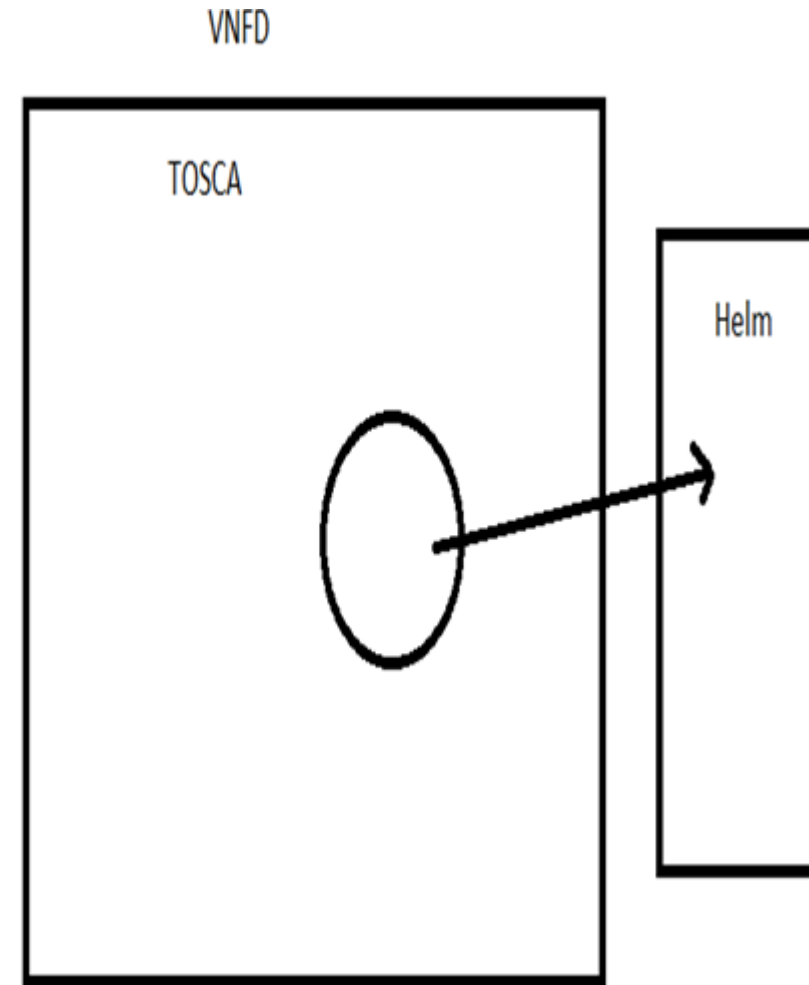
# ONAP - ETSI model Alignment

E2E Service

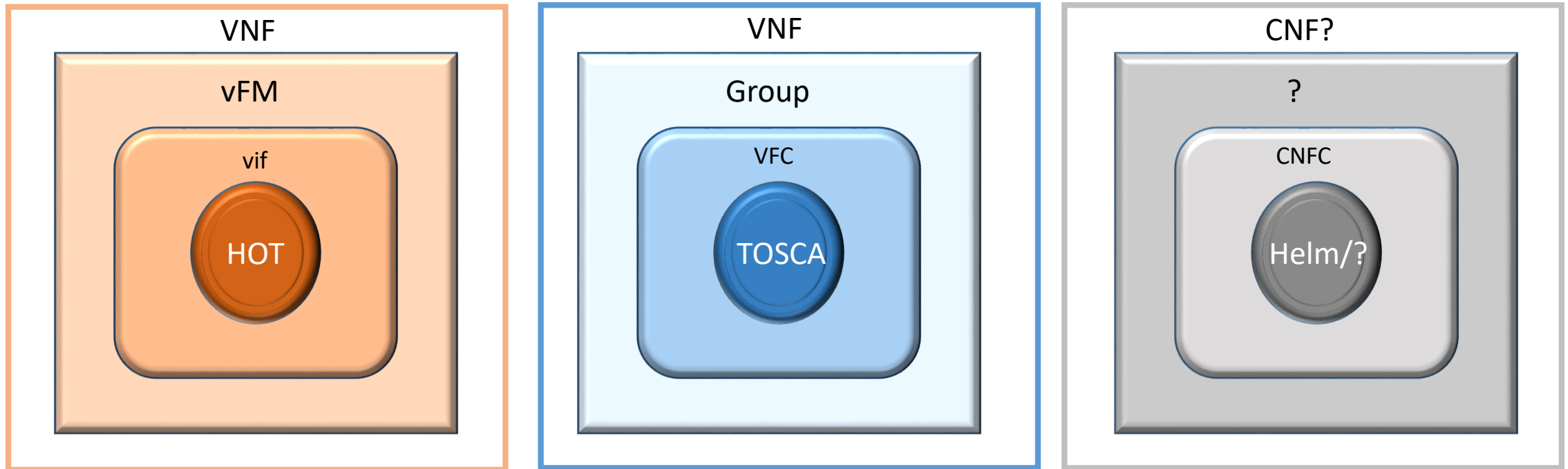


1. AAI representation of the Pods
2. How will the AAI persist it
3. how will the closed loop components deal with this persisted objects

ETSI model to be discussed



# Approach 1



Introduce a new model type into the SDC ,AAI built over the helm charts as an input and would be distributed to the other ONAP components

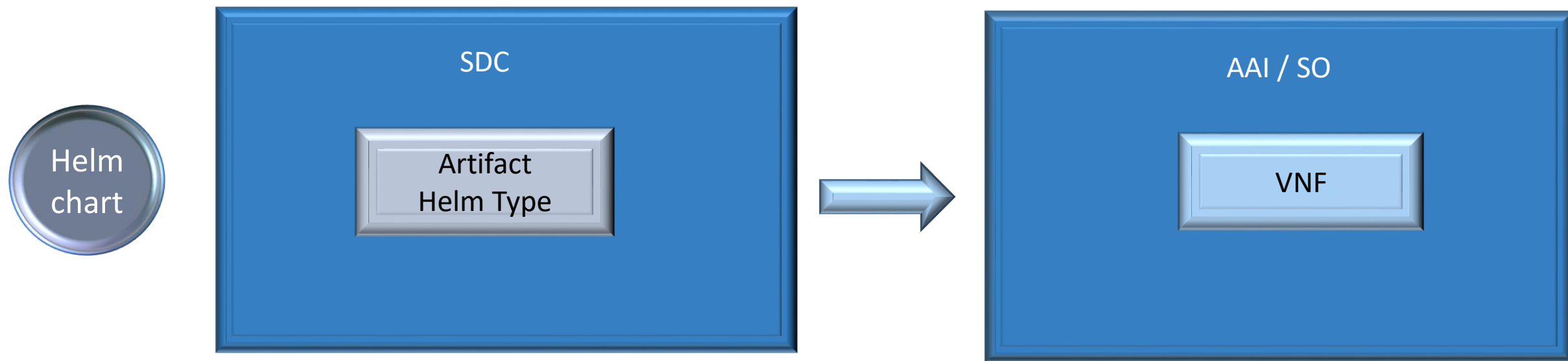
## Pros

- ✓ Onboard a design template to the SDC and create a new resource from that
- ✓ Requires a new model to be introduced
- ✓ Will be inline to the existing models of the heat and TOSCA based VNFs
- ✓ Can also be extended to other formats for CNF modeling

## Cons

- ✓ Initial analysis for understanding the standard model
- ✓ Requires more effort and may span across multiple ONAP releases
- ✓ The grouping model currently used in ONAP may pose a one-one mapping to the other standard formats

# Approach 2



Helm Chart on-boarded as an artifact type to the SDC and distributed to ONAP, AAI would persist it as existing VNF  
Helm chart would be stored as flat file and add it to the CSAR package to be distributed.

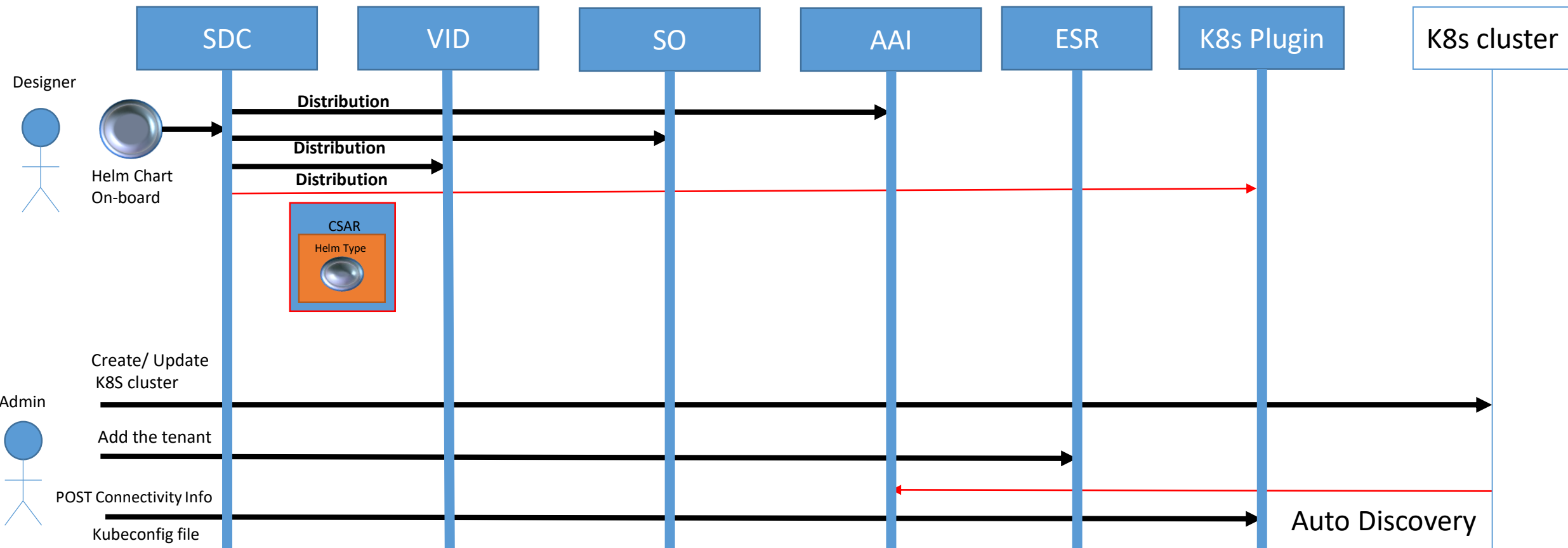
## Pros

- ✓ Easy to develop than approach 1
- ✓ Better reuse of the existing functional code

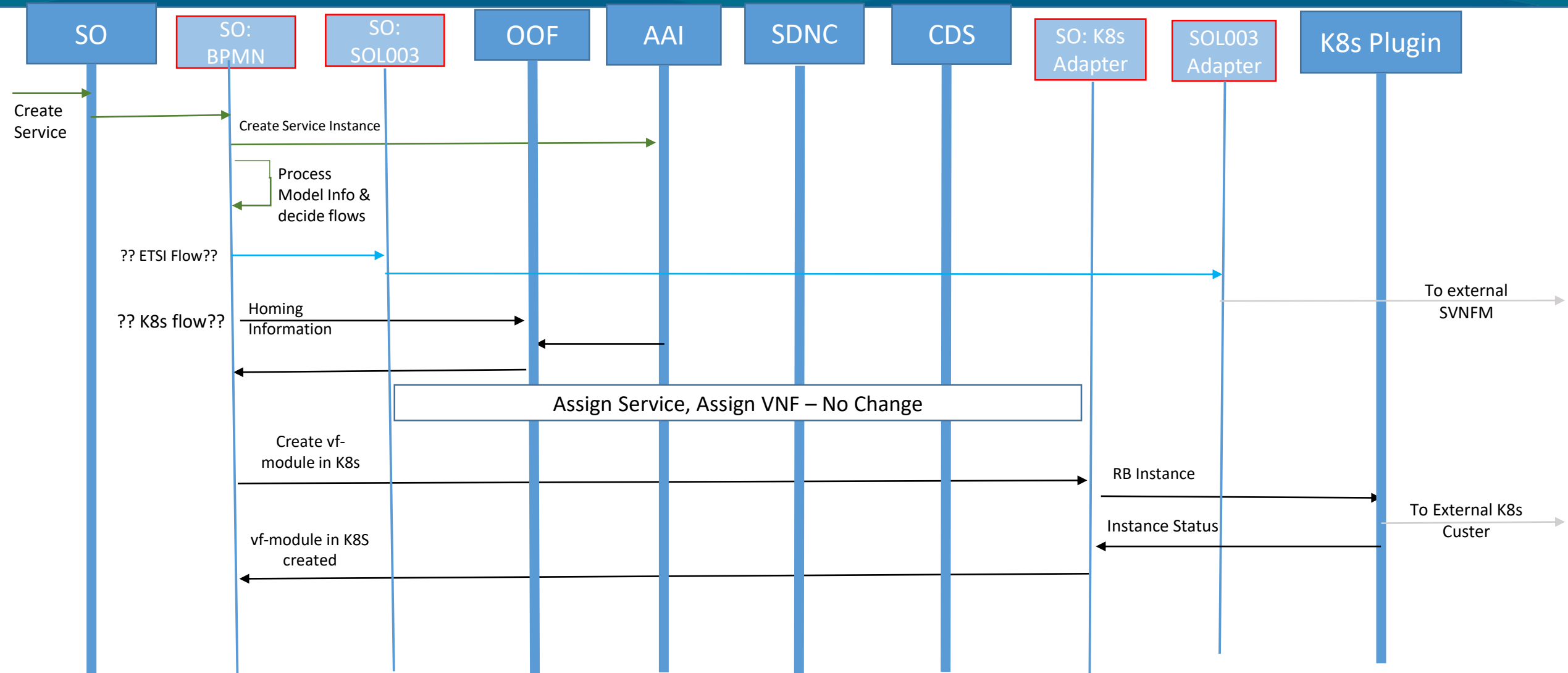
## Cons

- ✓ Initial analysis for AAI persisting the CNF instance – Extend the VNF
- ✓ Very specific implementation and non extendable (non-helm)

# Guilin - Design and Distribution of the Helm Chart - Day 0



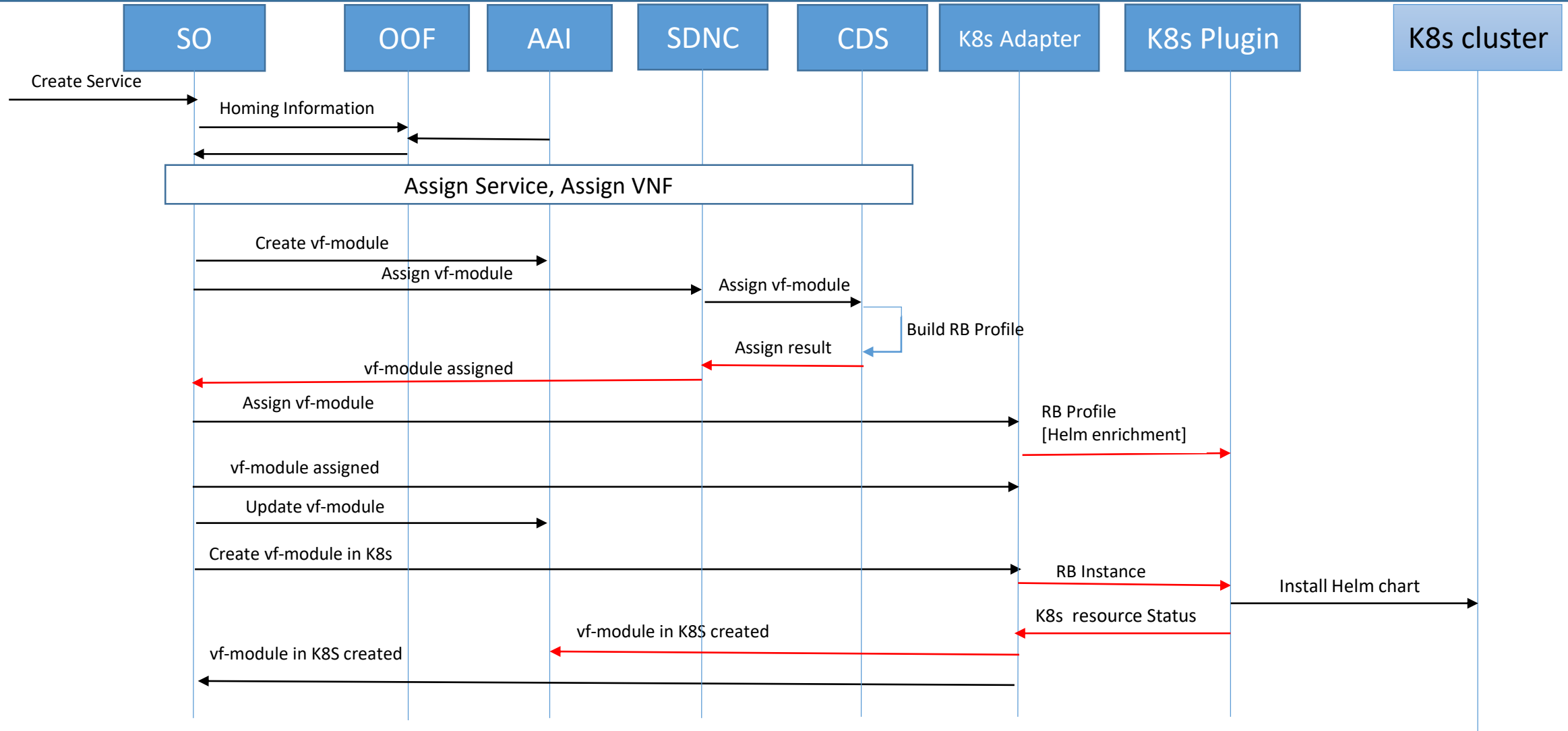
# Guilin – Instantiation of the Helm Chart (Simplified - Intended) - Day 1





# Guilin – Instantiation of the Helm Chart (Simplified- k8s plugin)

## - Day 1



# Thanks