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Updates from ETSI NFV and ONAP container work

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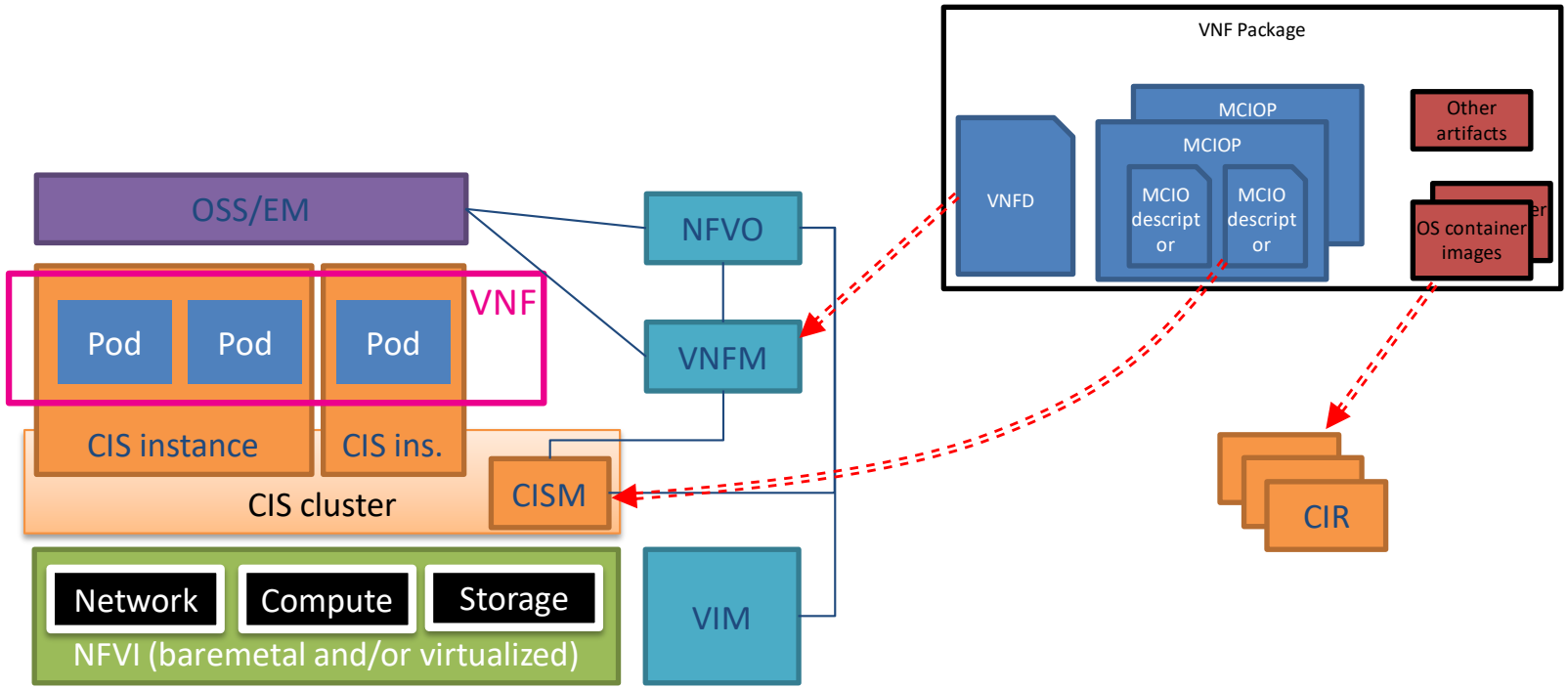
Outline

1. Status and next steps of the Container Work in ETSI NFV
2. Status of the Container Work in ONAP

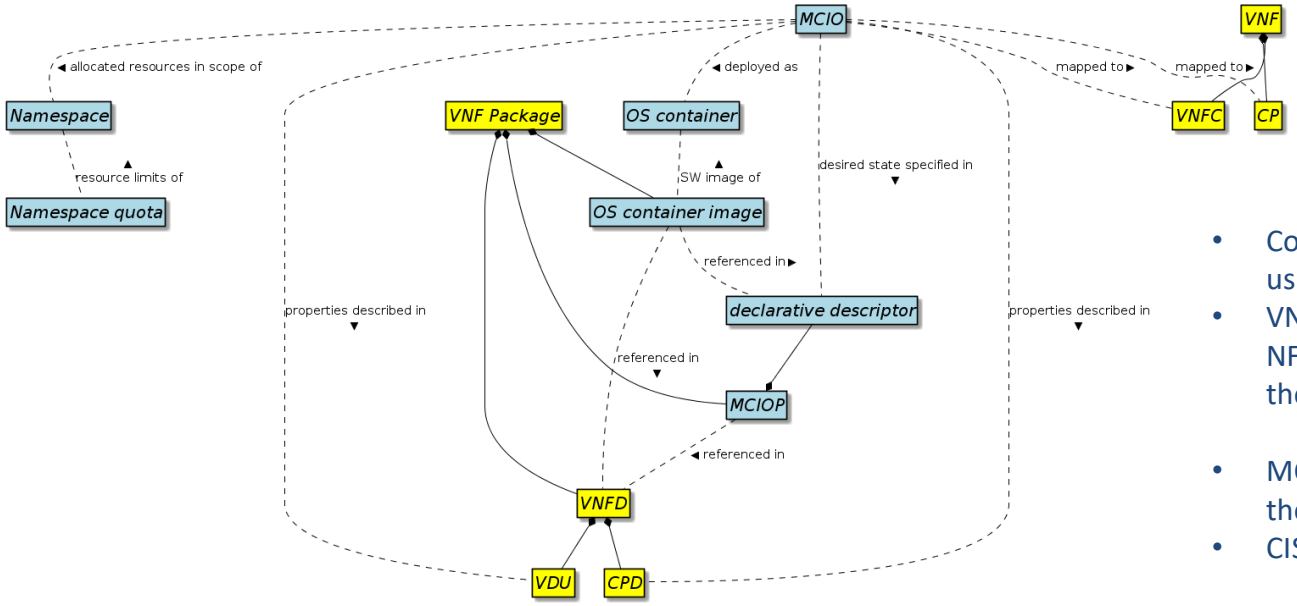
Status of FEAT17 Cloud Native VNFs and Container Infrastructure Management

- Stage 2 specification on Container Infrastructure Service Management (CISM) published
  - IFA040 introduces services and modelling for the workload management
- Stage 3 work for workload management started
  - Specify impacts on NFV-MANO reference points, modelling and package format
  - Profiling of CISM functionality:
    - Mapping of NFV requirements and APIs to K8S and Helm
    - Identify gaps
- Stage 2 work on CIS cluster management ongoing
  - Still several aspects in discussion
- Study on networking also ongoing

Introduce CISM and CIR



Modelling and principles



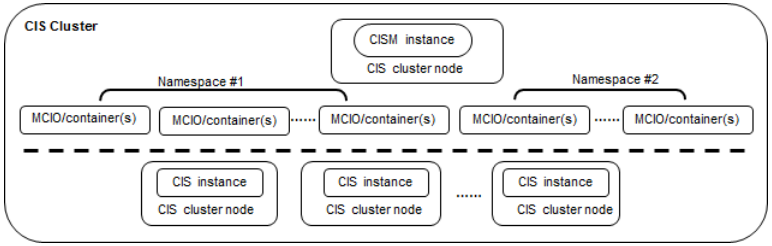
- Containerized workloads are described using MCIOs/MCIOPs
- VNFD references MCIOs/MCIOPs allowing NFV-MANO to consume CISM services for the management of the workloads

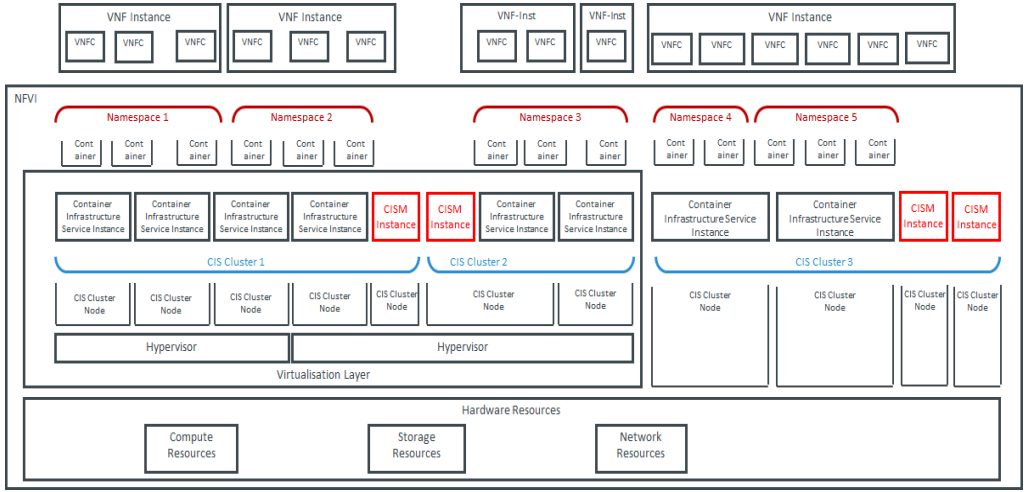
- MCIOs/MCIOPs can directly be used in the CISM
- CISM can be implemented as K8S

CIS Cluster Management

Main goals:

- Provide automatic lifecycle management for clusters
- Allow usage of clusters for isolation of containerized workloads by VNFs and NSs





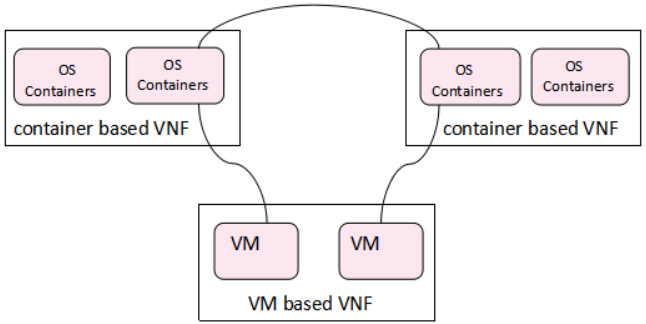
Main tasks of CCM

- Create and delete clusters
  - Use virtual or physical resources for cluster nodes
- Scaling of clusters
- Support NFV-MANO select appropriate clusters to fulfill VNF placement constraints
  (affinity, geographic, hardware dependencies)

Study on network connectivity for container based VNF

Main challenges:

- Manage multiple networks used within a container based VNF
- Manage connectivity between container based VNFs
- Manage connectivity between container based VNFs, VM based VNFs and PNFs



ONAP CNF work Overview

- ONAP founded a Cloud Native taskforce to promote container support in ONAP
  - Providing analysis and guide development on architecture/modeling and related areas
- Several activities are ongoing to support container in ONAP
  - ETSI alignment on CNF support
  - ONAP Multicloud K8S plugin
  - CNF close loop

ETSI Alignment on CNF Support

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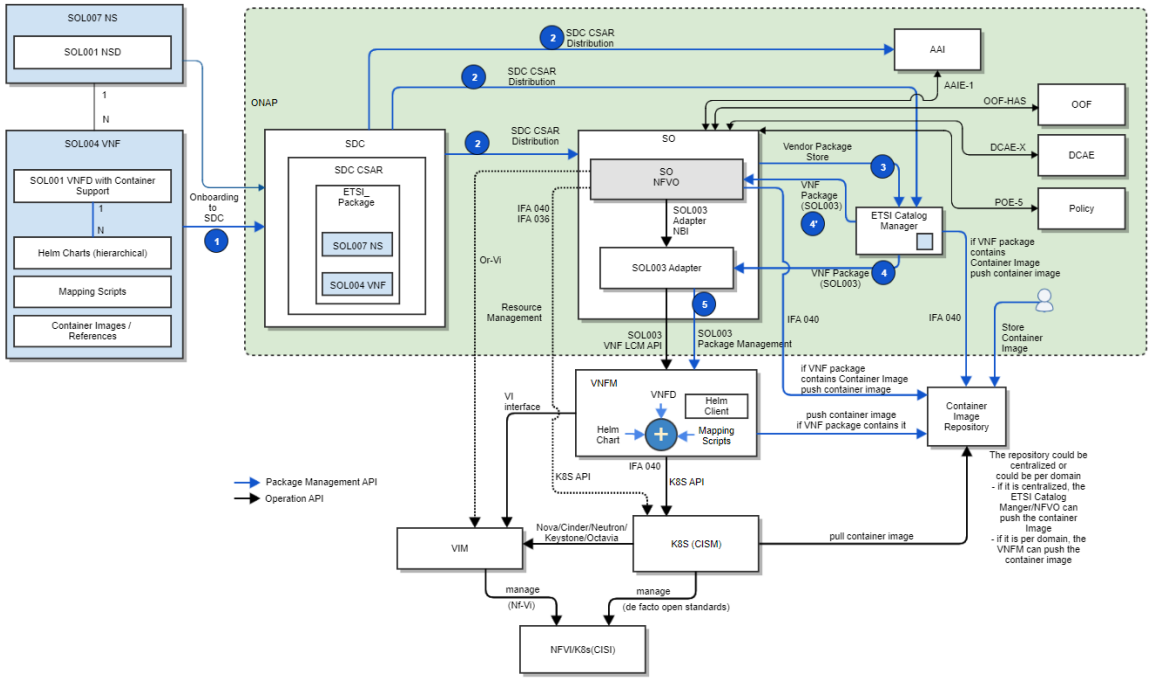
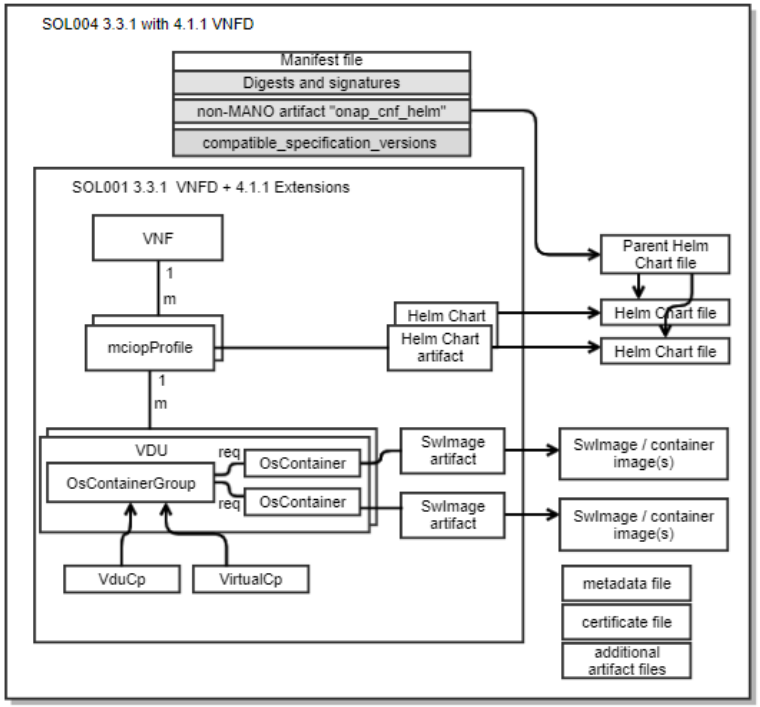
- Integrate ETSI NFV arch with ONAP
- Adding support of ETSI NFV latest spec's CNF support



- Enhance the VNF package with Helm Charts
- Enhance the VNFD with container support (reference IFA011)
- Adding support for CIR
- VNFM/CISM will handle LCM of CNF

ETSI Alignment on CNF Support

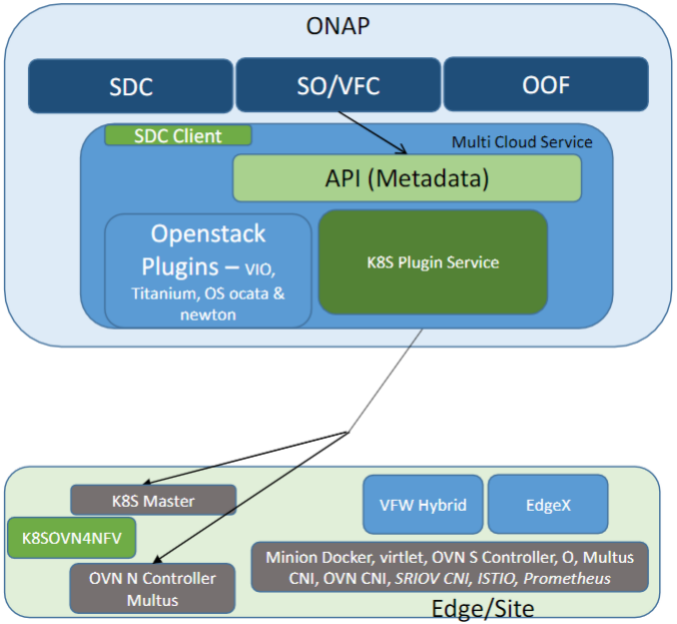
- Model enhancement



- Reference IFA011 v4.1.1 for the information model
- Propose data model changes on top of SOL001 v3.3.1 based on the information model
- Adding objects representing individual container (OsContainer), pod (OsContainerGroup) and helm charts (mciopProfile)
- Discussing collaboratively with ETSI NFV

ONAP Multicloud K8S Support

- Back in R4/R5 of ONAP, a K8S plugin is introduced in Multi-cloud Component to support K8S deployment
- Latest work focus on multi-site support, SO integration, etc.



1. Uniform API across cloud technologies (HEAT, K8S, Azure etc..)
2. K8S Multi-Cloud Service plugin
   - Support for deployment and services.
   - K8S yaml artifacts
   - Networking – OVN, flannel and Multus
   - Mongo DB for storing config/RBs, etcd for Day 2 configuration
3. Kubernetes Deployment (KuD)
   - Installation of software & configuration to make K8S based sites.
   - Additional of virtlet, Multus, OVN and flannel.
4. OVN-for-K8s-NFV (OPNFV project, visualized as part of ONAP work)
   - Support for multiple virtual networks
   - Support for dynamic creation/deletion of virtual networks
5. ONAP Integration
   - SDC for onboarding VNF/App with Helm artifacts
   - Distribution of Helm artifacts to MC.
   - SO based instantiation
   - Two modes - Self contained and with rest of ONAP

CNF Close Loop

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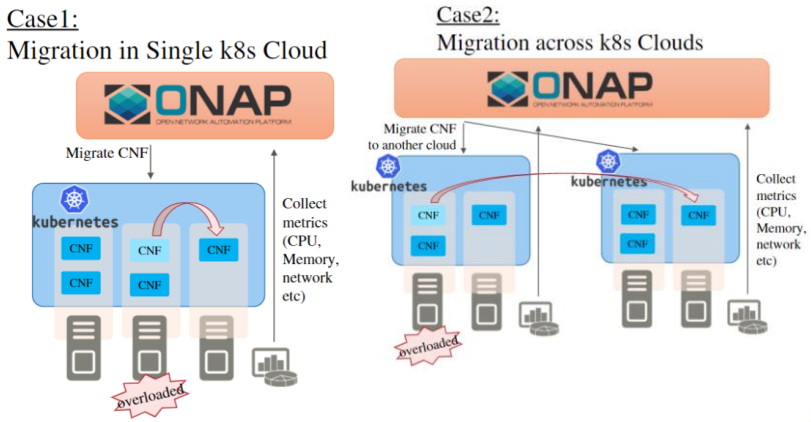
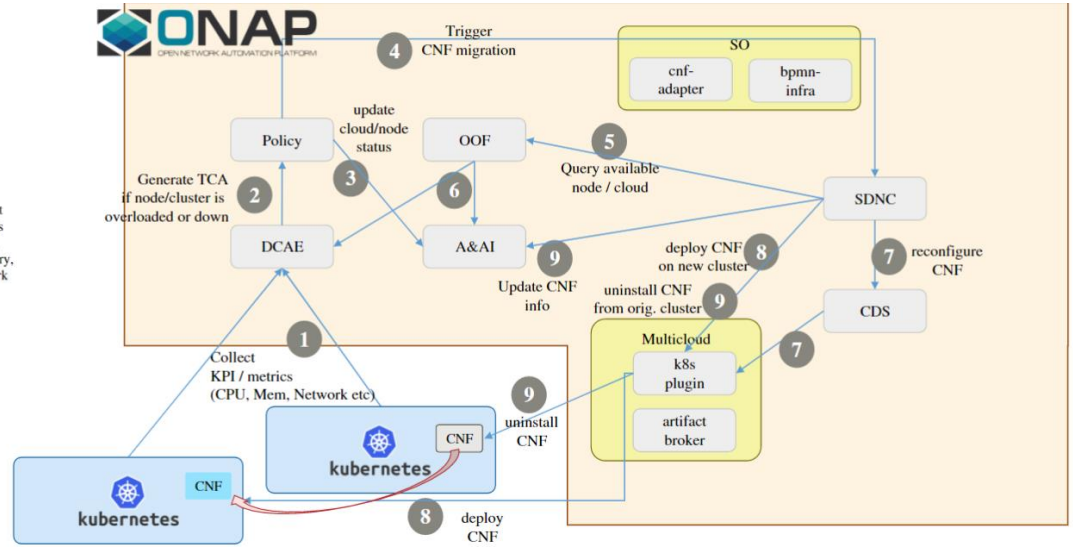
- A recent use case proposal, utilizing the control loop of ONAP to migrate CNFs within one or between k8s clusters





Links

ETSI NFV Container related work

- **IFA029**: Report on the Enhancements of the NFV architecture towards "Cloud-native" and "PaaS"
- **IFA040**: Requirements for service interfaces and object model for OS container management and orchestration specification
- **IFA036**: Requirements for the management and orchestration of container cluster nodes (in progress)
- **IFA038:** Report on network connectivity for container based VNF (in progress)
- **SOL018**: Profiling specification of protocol and data model solutions for OS Container management and orchestration (in progress)
- https://**nfvwiki**.etsi.org/index.php?title=Feature_Tracking#FEAT17:_Cloud-Native_VNFs_and_Container_Infrastructure_management

ONAP ETSI alignment on CNF support

- Release H plan: https://wiki.onap.org/display/DW/ETSI-Aligned+CNF+Support+-+Honolulu
- Information model: https://wiki.onap.org/pages/viewpage.action?pageId=84664990
- Data model: https://wiki.onap.org/pages/viewpage.action?pageId=93003033

Feel free to send questions

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