WS07: ONAP POCs & Existing Development Work to support CNFs

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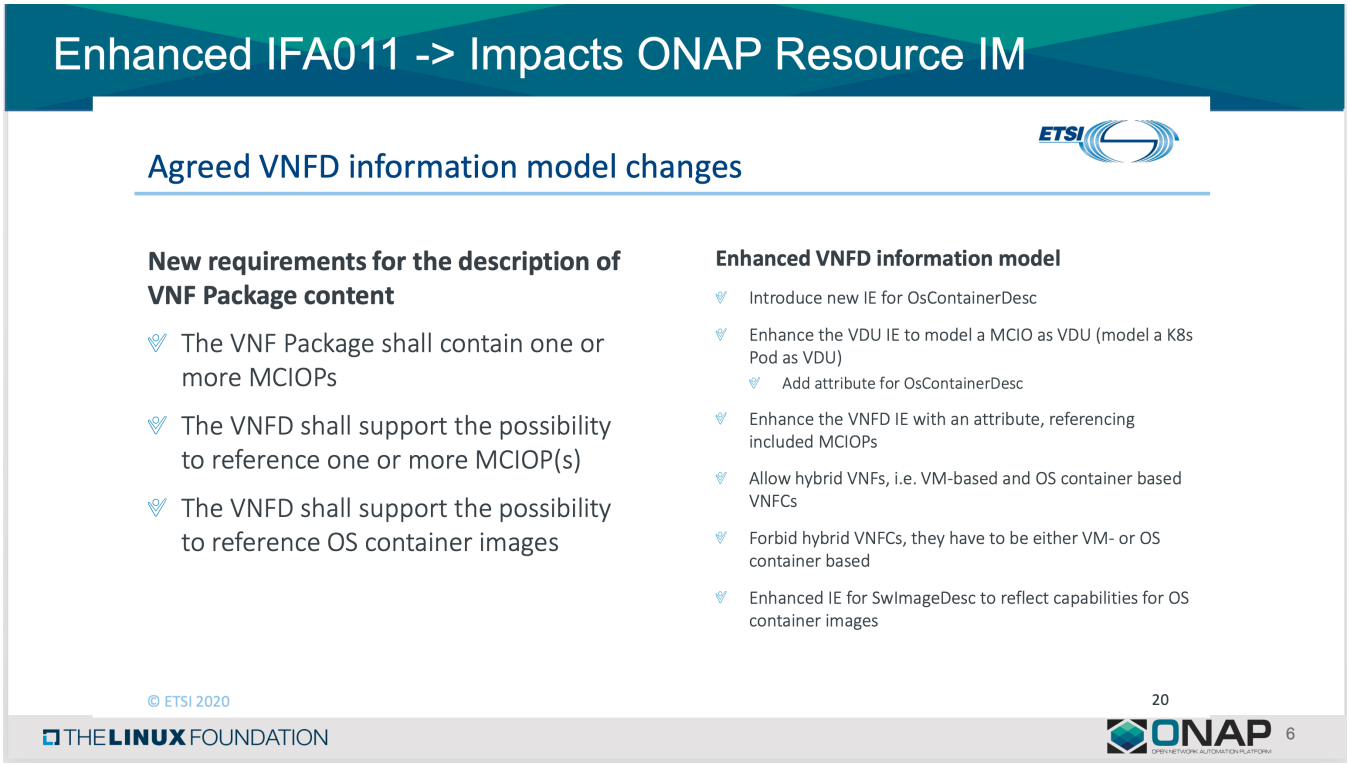
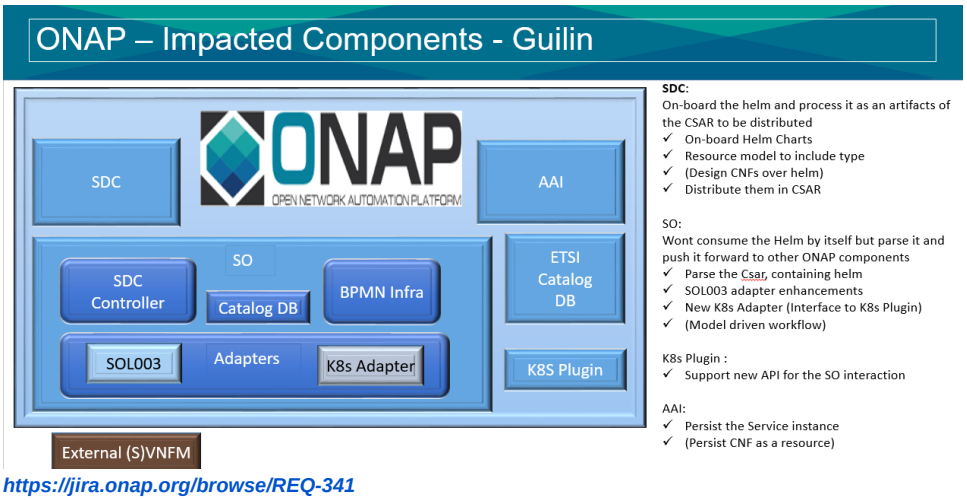
Updates (June 11th, 2020)

- #1 ETSI CNF Path - Investigation phase, working jointly with ONAP Modeling Subcommittee, waiting for ETSI specs (draft version, expected to be released during the Guilin timeframe)
  Fernando Oliveira , Byung-Woo Jun
  https://jira.onap.org/browse/REQ-334



- #2 CNF Orchestration (Guilin Release Candidate) - ONAP Architecture Review completed, waiting TSC prioritization decision and dev/test commitments < *Seshu Kumar Mudiganti* >
- 

- ***https://jira.onap.org/browse/REQ-341***
  - *This is the part of the initial steps towards CNF orchestration efforts of ONAP through K8s Integration*

        - *The requirements deals with the design and instantiation of the CNFs modeled through the helm chart and on-boarded to the ONAP.*
    - Next updates (June 29th) will be dedicated to the new ONAP CNF task force focusing on Modeling/Inventory
        - ***https://jira.onap.org/browse/REQ-394***
        - *The task force intends on finding a generic model that could leverage the ONAP to support CNFs models and storage in inventory,*
            - *Meeting Details :*
            - *On **Friday at UTC 12:30 pm** on **zoom bridge 98408415989***
        - *its objectives are :*
            - 1. Describe the Information Element in words

              2.Define the properties (e.g., attributes, known relationships, etc.)

              3.Where does this information come from? (i.e. originator)

              4.Who uses this information inside & outside of ONAP? (i.e. consumers) and how do they use it?

              5.Who updates this information inside & outside of ONAP? (i.e. producers)

              6.Where will this information stored and maintained in ONAP? (i.e. steward)

              7.Perform UML Modeling (including mapping to existing concepts)

              8.Prioritization for ONAP Releases

              9.Identify impacted ONAP schemas & APIs, Are there existing schemas be used or extended?

              10.Develop implementation schema (identify component impacts on schema changes)
- #3 Cloud Native Security <*Ranny to investigate*>

Previous Updates (April 20th, 2020) - Initial POC/Guilin Requirements (excluding ONAP Tooling i.e. VVP/VNFSDK/VTP tracked under WS03-Labs and Tooling)

#1 Initial experimentations with basic CNF(s) in order to validate onboarding, instantiation, monitoring processes **Bin Yang, Srinivasa Addepalli , Lukasz Rajewski, Seshu Kumar Mudiganti**

Presentation during LFN Event - Day 2 April 22nd, 2020 - 2.30pm UTC: CNF Task Force - CNF Orchestration based on CNTT Requirements

cFW POC (in progress)

In Dublin (4th ONAP Release), we showcased deploying CNFs & VNFs (firewall use case) and normal applications on the same cluster from ONAP. Also, Akraino ICN project is bundling ONAP4K8s.

In Frankfurt (6th ONAP Release), the vFW CNF CDS use case shows how to instantiate multiple CNF instances similar way as VNFs bringing CNFs closer to first class citizens in ONAP.

In Guilin (7th ONAP Release), Service Orchetrator is submitting a proposal to enhance their application to support CNFs.

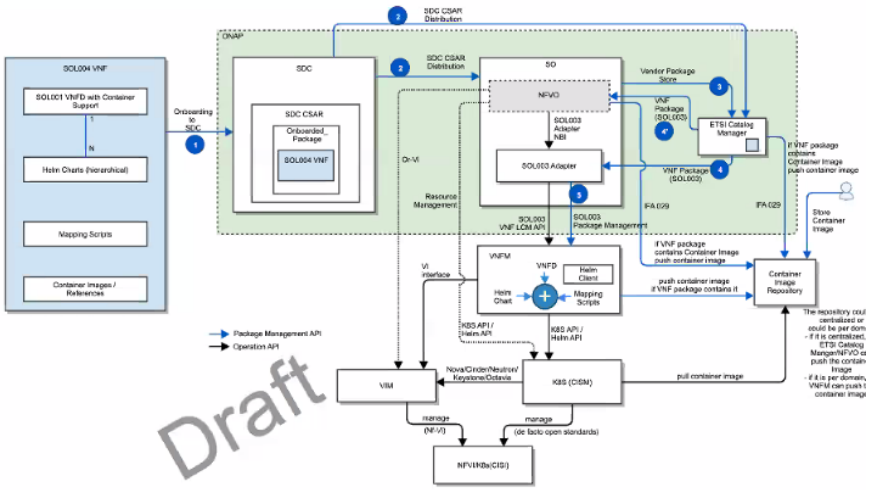
Additional links:

- ONAP4K8s, Multi Cluster Application Scheduler, vFW CNF CDS, SO enhancements.

#2 ETSI CNF path Fernando Oliveira , Byung-Woo Jun

ETSI Alignment Support – CNF Support

- Hybrid orchestration templates – TOSCA VNFD and Helm Charts (MCIO)
  - TOSCA VNFD drives the interaction between NFVO and VNFM and NS/VNF LCMs
  - Helm Charts are included as a binary archive in the VNF package, and are consumed by VNFM
- Container images are either included in the VNF package or referenced in the descriptors (URL to CIR)
  - If the VNF package includes Container images, NFVO/ETSI Catalog Manager uploads them to the CIR
  - Otherwise, operators store Container images to the CIR
- Parameter mapping from Or-Vnfm (SOL003) incoming information to Helm input parameters
- Resource Mapping between resources in TOSCA VNFD and K8S resources described in Helm chart (for granting between VNFM and NFVO)
- Mapping the LCM operations to HELM commands (VNFM behavior triggered on Or-Vnfm), etc.
- VNFM-K8S communication prefers Helm APIs to lower level K8S APIs
- K8S-VIM communication uses de facto open source standards (Nova/Cinder/Neutron/Keystone/Octavia)
- CISM-CIS communication uses de facto open source standards



- The above diagram is a draft, based on a CNF PoC and IFA 029. It will be refined by conforming to the coming ETSI CNF standards.
- If the vendor VNFM has CNF capabilities, SO will leverage it through the SOL003 Adapter. Otherwise, SO/NFVO could invoke K8S API/Helm API towards K8S (TBD)

#3 ONAP Cloud Native Security Krzysztof Opasiak , Sylvain Desbureaux

Additional presentation during LFN Event - Day 2 April 22nd, 2020 - 1.30pm UTC: Service Mesh analysis as alternative for part of ONAP AAF (policy enforcement)

Decoupling the needs

Do one thing and do it well[1]

- We actually wants different components:
  - [Mandatory] One for serving certificates, used for HTTPs (out of cluster communication)
  - [Mandatory] One for having a centralised “IAM” (Identy Access Management)
  - [Optional] One for securing internal communication
- The two first components may be provided by the production system (most service providers have their own IAM and CA chain) and so we must be sure to choose components:
  - Using open and standard protocols
  - Which will be provided for tests but easily depluggable for the one of the production environment
- What’s are the best in class solution for each need?
  - Certificates: https://github.com/jetstack/cert-manager/:
    - 5.4K stars on github
    - ~4000 commits
  - IAM: https://github.com/keycloak/keycloak (https://www.openhub.net/p/keycloak)
    - 5.7K starts
    - ~12000 commits
  - Securing internal communication: https://github.com/istio/istio/ (and later be less specific on this) (https://www.openhub.net/p/istio)
    - 22.4k stars on github
    - ~12000 commits