

ONAP ETSI-Alignment for Honolulu+

October 10th, 2020

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Participating Companies

- Ericsson
- Verizon
- AT&T
- CMCC/ZTE
- Huawei
- Nokia
- Others

Orchestration Scenarios (a.k.a. ETSI-Alignment) Task Force weekly meeting,
Weekly meeting: Mondays at 12PM UTC, 5AM PT, 8AM ET, 2PM CET, 5:30PM India, 8PM
China.
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ONAP ETSI-Alignment for Honolulu+

CNF Mission Statement

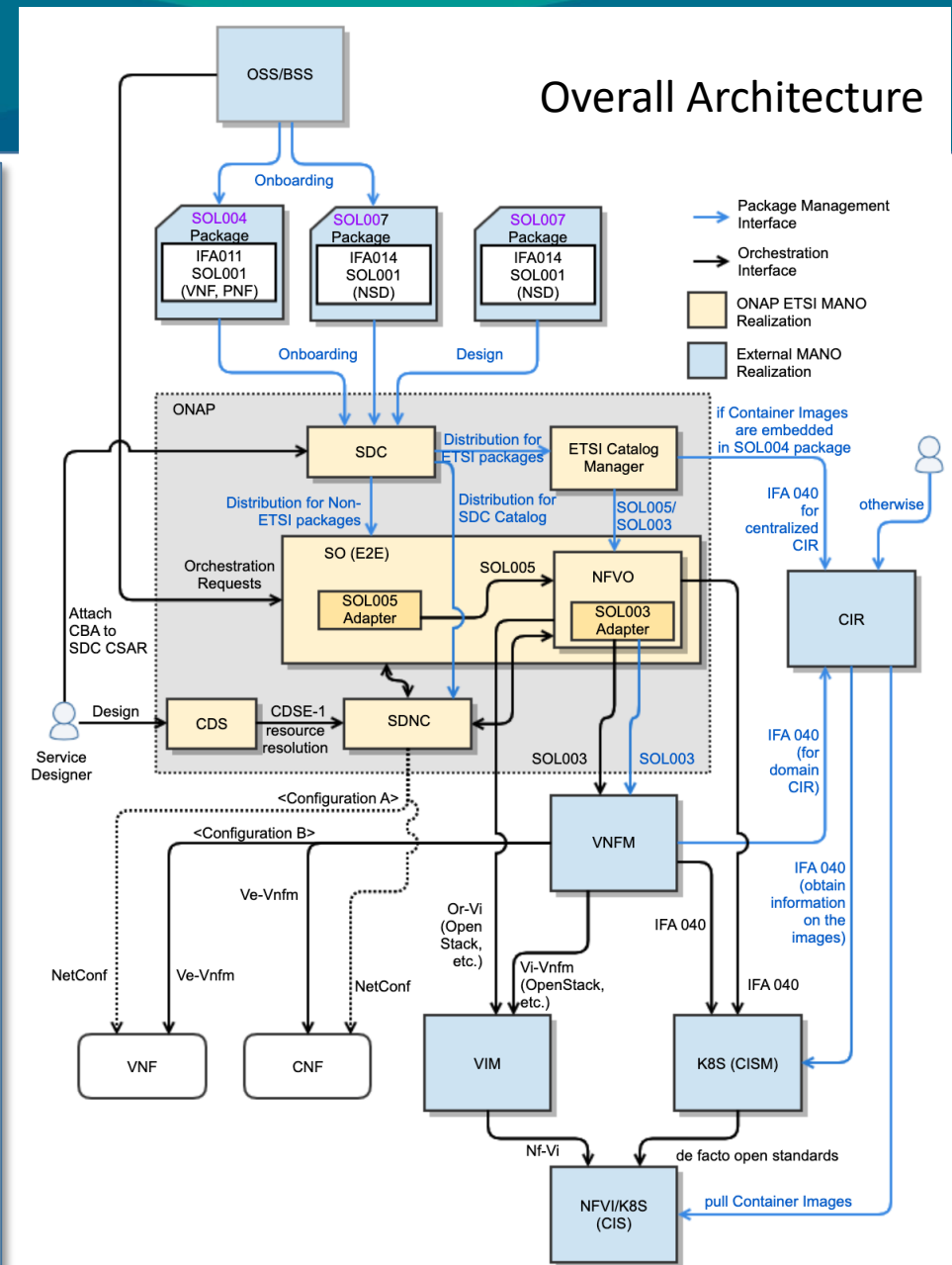
- CNF Support is one of the highest priority work items for ONAP and operators
 - Define a fast path to CNF support, and accomplish it across multiple releases (Honolulu+)
 - For now, leverage currently available ETSI Stage 2 specifications, without waiting for ETSI Stage 3 (SOL)
- Collaborate between ONAP and ETSI NFV to complete CNF Stage 3 specifications promptly

CNF Support Scope for ONAP Honolulu

- CNF modeling, onboarding and distribution support
- Software Image (for VNF) and Container Image (for CNF) Handling via NFVO, ETSI Catalog Manager and CIR
- CNF LCM through SO, SO NFVO (or VFC) and VNFM via standard APIs (covering instantiation and Day 0 configuration based on Helm Charts)
 - Create / Instantiate / Terminate / Delete CNF
 - Note: CNF support level from VNFM is vendor-specific
 - Note: Assuming the interfaces between VNFM and CISM are based on Kubernetes APIs (it is under discussion with ETSI NFV team)
- OOF-based Granting support by SO NFVO only for both VNF/CNF Instantiation and Termination, not for VNF/CNF Healing or Scaling
- Collaboration with non-ETSI-based CNF support in SO; SO launches the proper CNF LCM path based on models (i.e., model-driven)

Configuration Support (Stretch Goal)

- Leverage CBA design and SDC distribution (CBA + CSAR) for model-driven configuration
- Leverage the existing CDS, SDNC / MultiCloud path, or ETSI-based configuration support thru Ve-Vnfm (SOL002)
 - For Honolulu, leverage the ONAP existing path



ONAP ETSI-Alignment Honolulu+ Priorities

- Use Cases / Requirements (<https://jira.onap.org/browse/REQ-334>)

- Onboard ETSI SOL004 3.3.1 compliant packages with 4.1.1 extensions (ETSI Package Management)
 - Support for extended VNFD, Helm Charts, Software or Container Images/references, based on IFA 011 v4.1.1
 - SOL 001 VNF/CNF mapping to SDC AID DM (including ETSI VNF/CNF-ONAP VNF/CNF, ETSI Policy Aspect-ONAP VF Modules, ETSI VDU-ONAP VFC)
 - Enhance AAI Schema for CNF topologies for Granting
 - Onboarding VNFD with configuration properties
- Onboard ETSI SOL007 3.3.1 compliant Network Service Descriptor packages (ETSI Package Management) – stretch goal
 - SOL001 NS mapping to SDC AID DM
 - Preserve the original vendor NS package to the “ETSI_PACKAGE” directory
- Design ETSI SOL007 3.3.1 compliant Network Service Descriptor packages (ETSI Package Management)
 - SOL001 NS mapping to SDC AID DM
 - Generate SOL007 NS package to the “ETSI_PACKAGE” directory
- Support for Nested/Hierarchical ETSI SOL001 3.3.1 Network Service Descriptor - stretch goal
- Support for ETSI SOL003 Or-Vnfm Interface from ONAP to external VNF Manager(s)
 - Enhance the SOL003 Adapter to support VNFM VNF/CNF orchestration
 - For CNF, leverage the stage 2 Or-Vnfm until SOL003 CNF is available

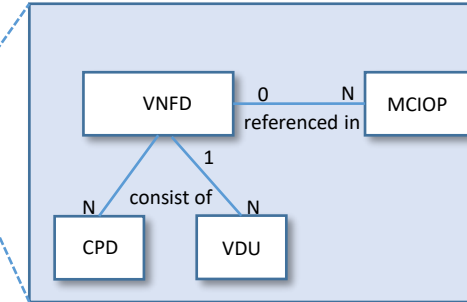
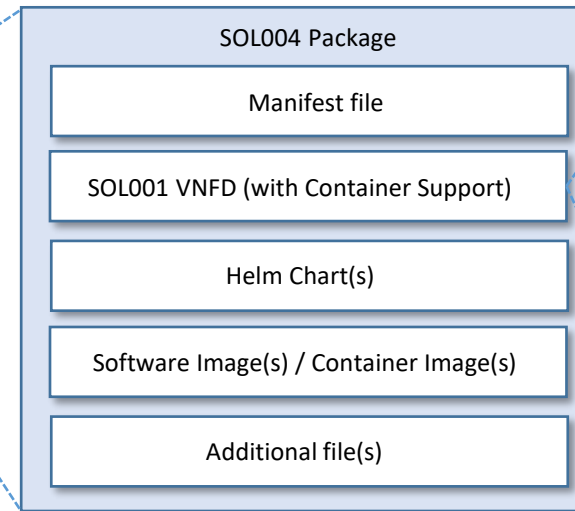
- Support for ETSI Package distribution including Software and Container Images
 - Enhance ETSI Catalog Manager to push Container Images to CIR
 - Distribute CNF packages to ONAP runtime components, including SO and AAI
 - Support Or-Vi for software images management
- Support for ETSI SOL005 Os-Ma-nfvo Interface between ONAP and NFVO
 - Support invocation of NFVO (SO NFVO, VFC, External NFVO) for NS/VNF/CNF thru SOL005 APIs
 - Enhance SO E2E Workflows for collecting parameters for NS requests
- Support for ETSI NFV NFVO Orchestrator in ONAP SO
 - Support ETSI 3.3.1 SOL005 and SOL003 APIs including subscription and notification
 - Create / Instantiate / Terminate / Delete NS/VNF/CNF
 - Support Dynamic BPMN Workflows (ability to deploy custom NFVO BPMN workflows and logic while SO is running) - stretch goal
 - OOF-based resource Granting for VNF/CNF Instantiation and Termination
- Support for ETSI-based Application Configuration (for VNF) – stretch goal
 - Design CBA and attach it to SDC CSAR for CDS-based configuration
 - Enhance SO NFVO to leverage CDS and SDNC, support VNF application configuration
 - Onboarding VNFD with configuration properties
 - Support the Modify Configuration APIs from SOL005/SOL003 Adapters
 - Note: expect VNFM supports the Modify Configuration APIs

Note: Scaling and Healing support is NOT part of Honolulu

ONAP ETSI-Alignment Honolulu+ ETSI-Conformance VNF/CNF Modeling and Onboarding

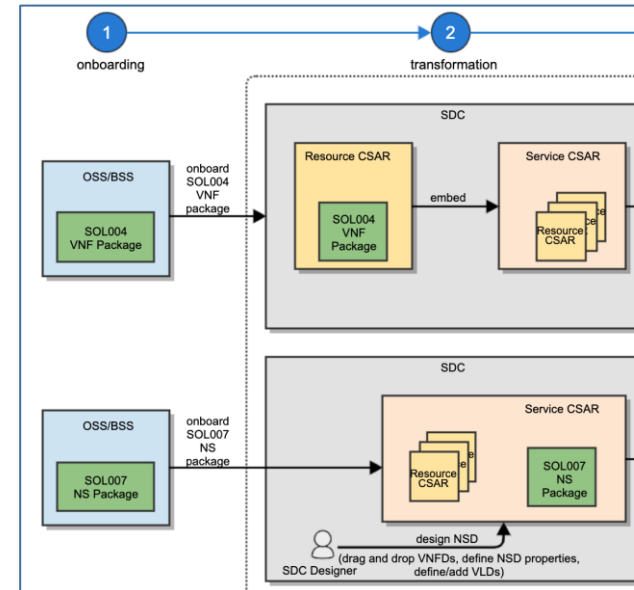
Modeling

- ONAP NS package conforms to ETSI SOL007/IFA 011
- ONAP VNF/CNF package conforms to ETSI SOL004/IFA 011
 - Including extended VNFD for CNF, Helm Charts, Container Images/references
- A NS references one or more CNFs/VNFs/nestedNS and describes NS VirtualLinks
- A VNF could consist of VM-based or container-based components – not both
 - A MCIO package (helm chart) is an NFV object for OS Container management and Orchestration
- AAI CNF model will be enhanced to represent CNF topologies and resource usage



Onboarding

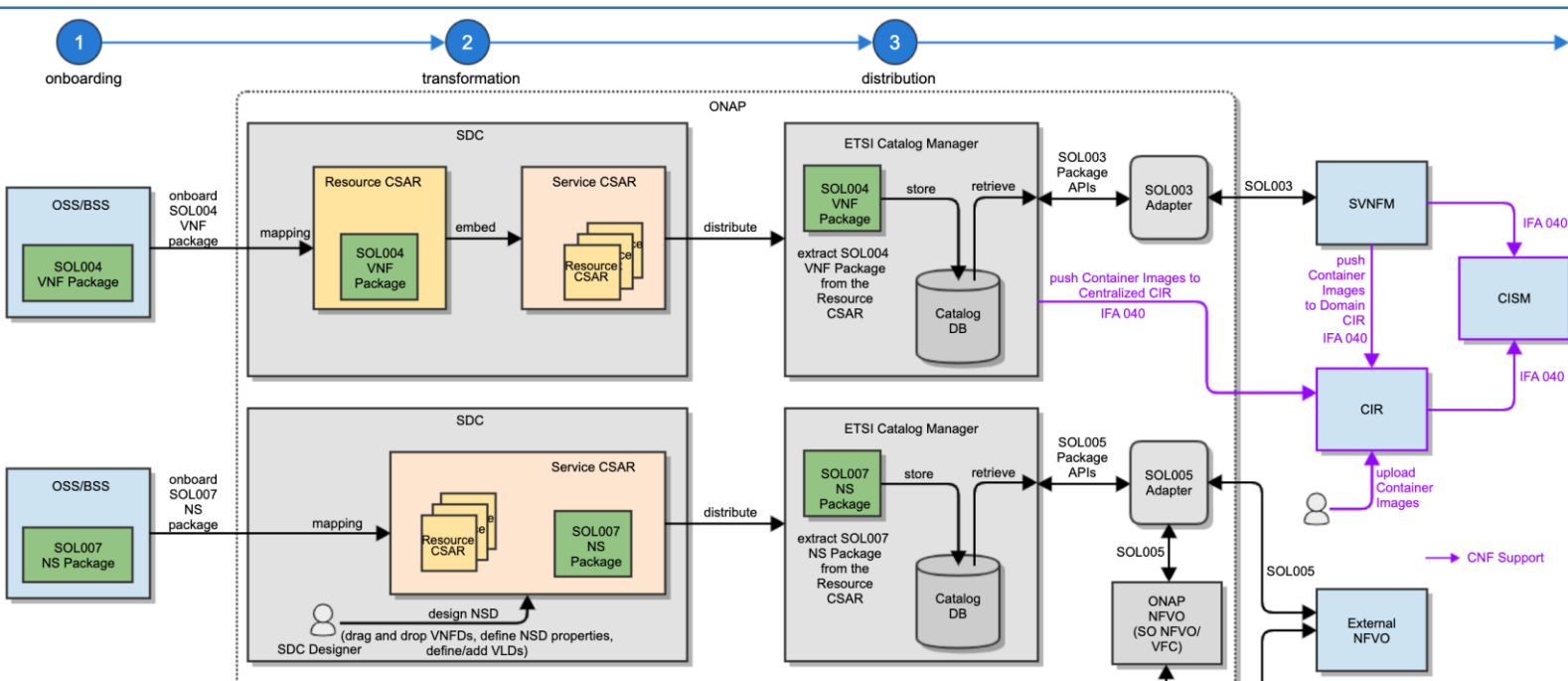
- ONAP supports SOL007-compliant NS package onboarding/design to SDC
- ONAP supports SOL004-compliant VNF/CNF package onboarding to SDC
- During onboarding process, SDC 1) preserves the original vendor SOL004/SOL007 packages and 2) creates the corresponding ONAP-specific (SDC AID DM) packages
 - The original vendor SOL004/SOL007 packages will be stored in the “ETSI_PACKAGE” directory of SDC Resource CSAR
 - Support SOL001 NSD/VNFD mapping to SDC AID DM in SDC Resource CSAR
- An SDC Service CSAR can reference an ETSI NS CSAR and/or one or more SDC Resource CSARs
- SDC Model will be enhanced to handle CNF onboarding and transformation



ONAP ETSI-Alignment Honolulu+ NS/VNF/CNF Package Distribution

NS/VNF/CNF Package Distribution

- Once NS/VNF/CNF packages are onboarded to SDC, SDC sends notifications to ONAP runtime components such as ETSI Catalog Manager, SO, AAI, MultiCloud, etc.
- For ETSI-based packages, ETSI Catalog Manager 1) receives the SDC package notification, 2) gets the SDC package, 3) extracts the original vendor package, 4) stores the package in its database and 5) sends notifications to the subscribed ONAP components such as SO NFVO, SOL005/SOL003 Adapters
- If the onboarded ETSI-based package embeds container image(s), the ETSI Catalog Manager pushes the images into the CIR, based on IFA040/IFA010
 - Otherwise, Admin needs to onboard container image(s) to CIR separately
- If the onboarded ETSI-based package embeds Software Image(s) for VNF, the ETSI Adapter pushes the images into VIM, based on Or-Vi (it is under discussion)



The **purple** lines in the diagram are new for the CNF package Container image(s) distribution in ONAP Honolulu release

- It is based on IFA040/IFA010
- When ETSI Stage 3 specifications are available, ONAP will conform to those specifications

Note: the ETSI-based PNF onboarding is under discussion; once it is done, it would be like the SOL004 VNF onboarding process

ONAP ETSI-Alignment Honolulu+ NS/VNF/CNF Lifecycle Management

Model-driven CNF LCM Orchestration

- Based on models (e.g., ETSI-based or Non-ETSI-based), SO chooses a proper CNF LCM orchestration
- For ETSI-based CNF models, SO launches NFVO thru SOL005 Adapter
 - Otherwise, SO goes thru the K8s adapter – K8s plugin – K8s cluster path
 - Enhance SO E2E Workflows for the launching selection

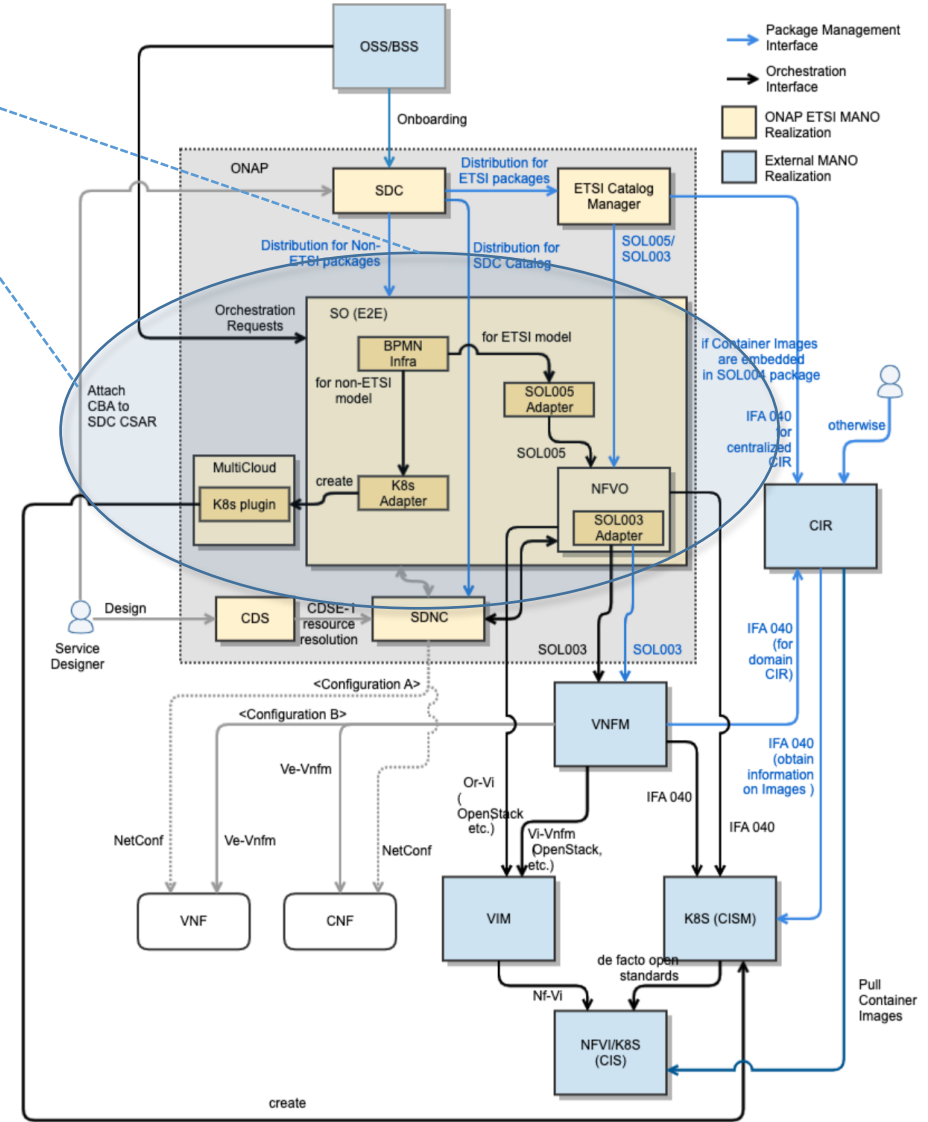
Note: for CNF, leverage the stage 2 Or-Vnfm until SOL003 CNF is available

ETSI-Conformant LCM

- Support invocation of NFVO (SO NFVO, VFC, External NFVO) from SOL005 Adapter thru SOL005 APIs
 - Enhance SOL005 Adapter to support subscription and notification of SOL005/SOL003 Package Management
- Enhance SO NFVO for NS/VNF/CNF LCM, supporting SOL005 NBI, SOL003 SBI and Or-Vi
 - Support OOF-based resource Granting for instantiation and termination of CNF
 - Leverage enhanced AAI models for CNF and OOF (MultiCloud, Policy, AAI)
- Enhance SOL003 Adapter for collecting CNF-related parameters on top of VNF instantiation requests
 - Launch VNFM through enhanced Or-Vnfm (SOL003) LCM APIs
 - Provide CNF package management APIs to VNFM
- Support SOL005 and SOL003 Security based on SEC022 (OAuth2)

Model-Driven Application Configuration (CDS, SDC, SDNC / MultiCloud) – stretch goal

- Define CBA and attach CBA to SDC CSAR
- Distribute SDC CSAR (CBA + CSAR) to ETSI Catalog Manager, SDNC / MultiCloud
- SO / SO NFVO interfaces with CDS and lets CDS invoke SDNC for VNF/CNF Configuration





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OPEN NETWORK AUTOMATION PLATFORM

Thank you!

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