Network Service Model for Dublin Release

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NS Model History

- Origin
    - Network Service concept comes from ETSI in 2015, IFA 014 has defined as: An NS is a composition of Network Functions (NF) arranged as a set of functions with unspecified connectivity between them or according to one or more forwarding graphs.
    - ETSI SOL has published Network Service TOSCA specification in 2018.12

- Network Service model supported by ONAP
    - Nov. 2017 R1 VoLTE

        We leverage SDC's existing capabilities to realize VoLTE use case, mapping vIMS and vEPC network services into VNF, which are implemented as resources of E2E service.
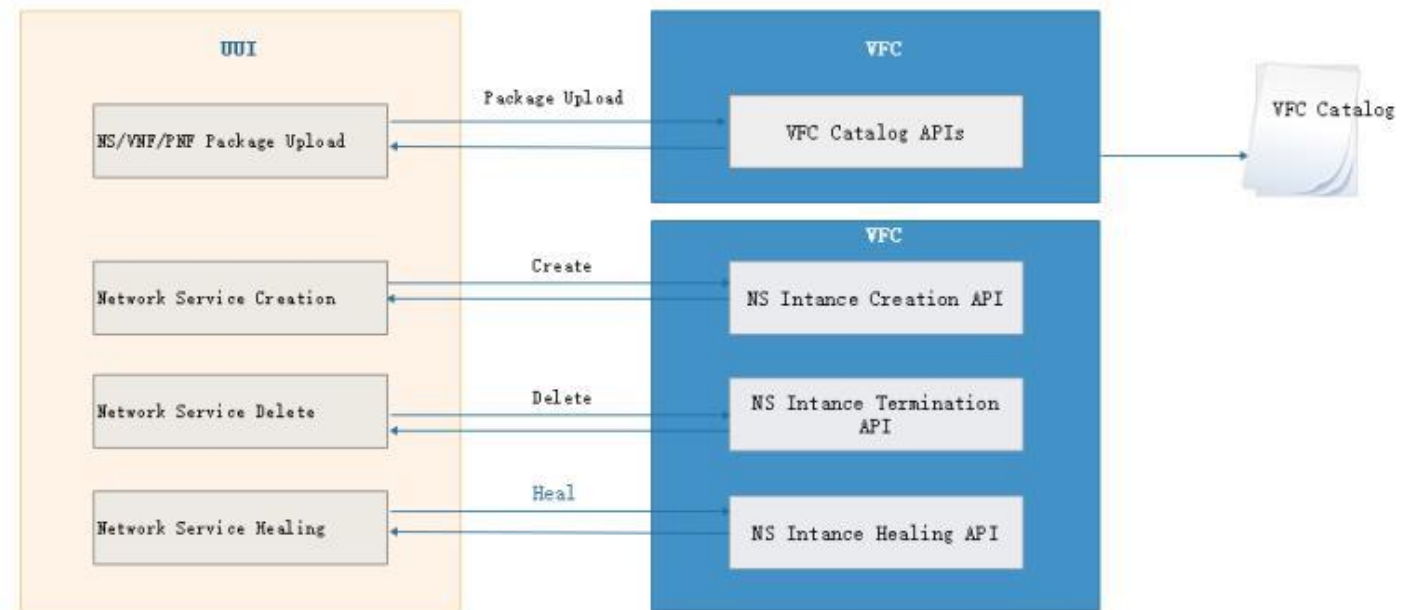   - Jun. 2018 R2

        ONAP has NS information and data model specifications;

        Network Service is regarded as resource separated from service domain.

- # Network Service model supported by ONAP
  - Dec. 2018 R3

    UUI provides NSD onboarding portal;
    Run time supports NS package and lifecycle management through UUI.

  - R3 has documented NSD information model, you can find in the following link:
    https://wiki.onap.org/display/DW/R3+NetworkServiceModel
   NSD is composed of VNFD, PNFD, NSVirtualLink and etc.

Latest NS Model Progress in ETSI

- SOL 001 v2.5.1 has published NSD TOSCA specification in 2018.12, which has supported:
    - tosca.nfv.nodes.NS, tosca.nodes.NS.VirtualLink, tosca.nodes.nfv.Sap
    - tosca.datatypes.nfv.ServiceAvailability, tosca.datatypes.nfv.NsVlProfile, tosca.datatypes.nfv.NsVirtualLinkQos

- What is expected to support in next SOL 001 release:
    - Multiple NS deployment flavours
    - NS scaling Aspect
    - Multiple Ns instantiation levels
    - Nested NS design
    - Vnffgd
    - NS Monitoring
    - VnfIndicators
    - Dependencies
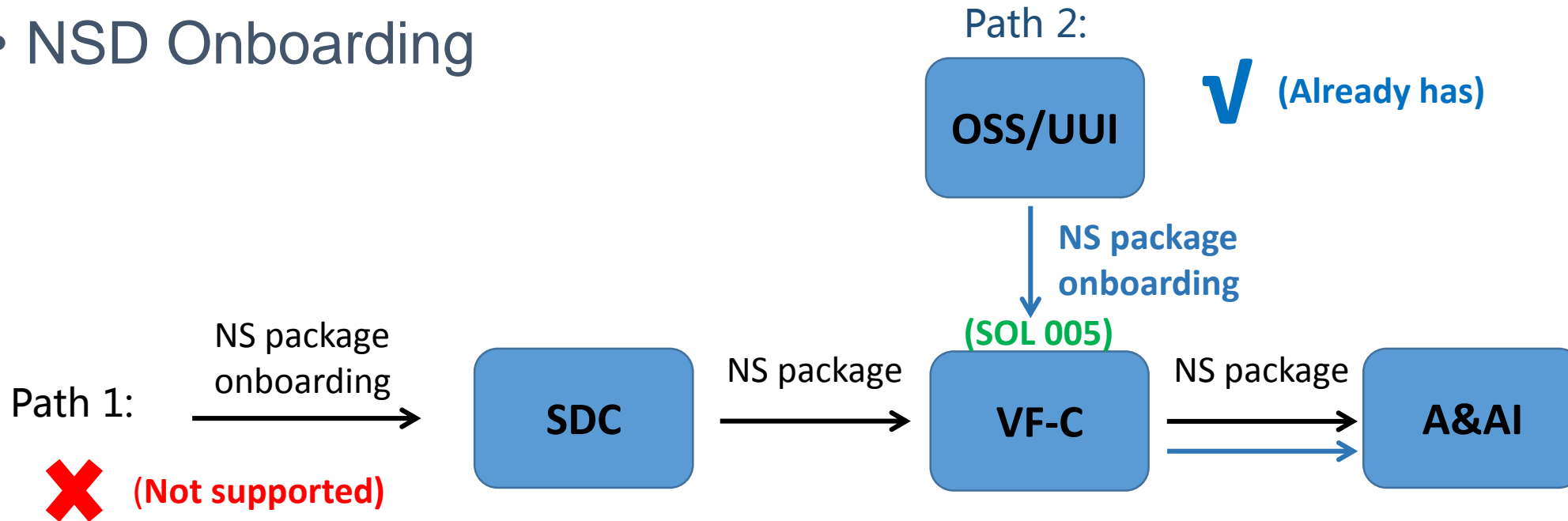
Model Structure and relationships

Design Time   **Run Time**

Onboarding Model   Internal Model   Instance Model
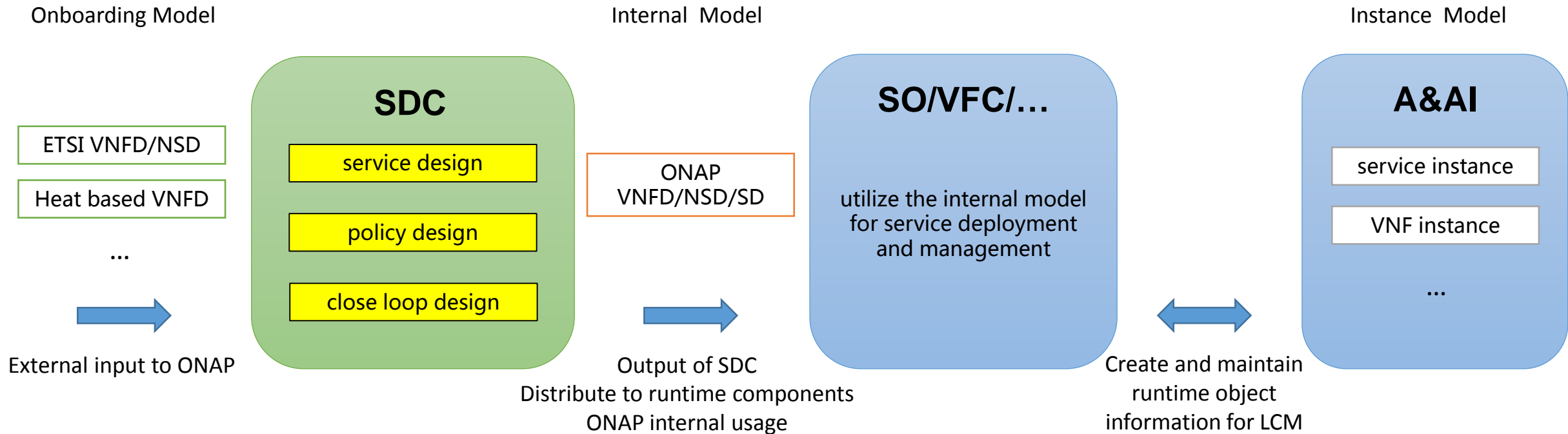
- Has agreed to have standard NS package onboarding in SDC, and consensus on the merge of the instance model in A&AI;
- Still not settled: Doesn't have independent NS internal model.
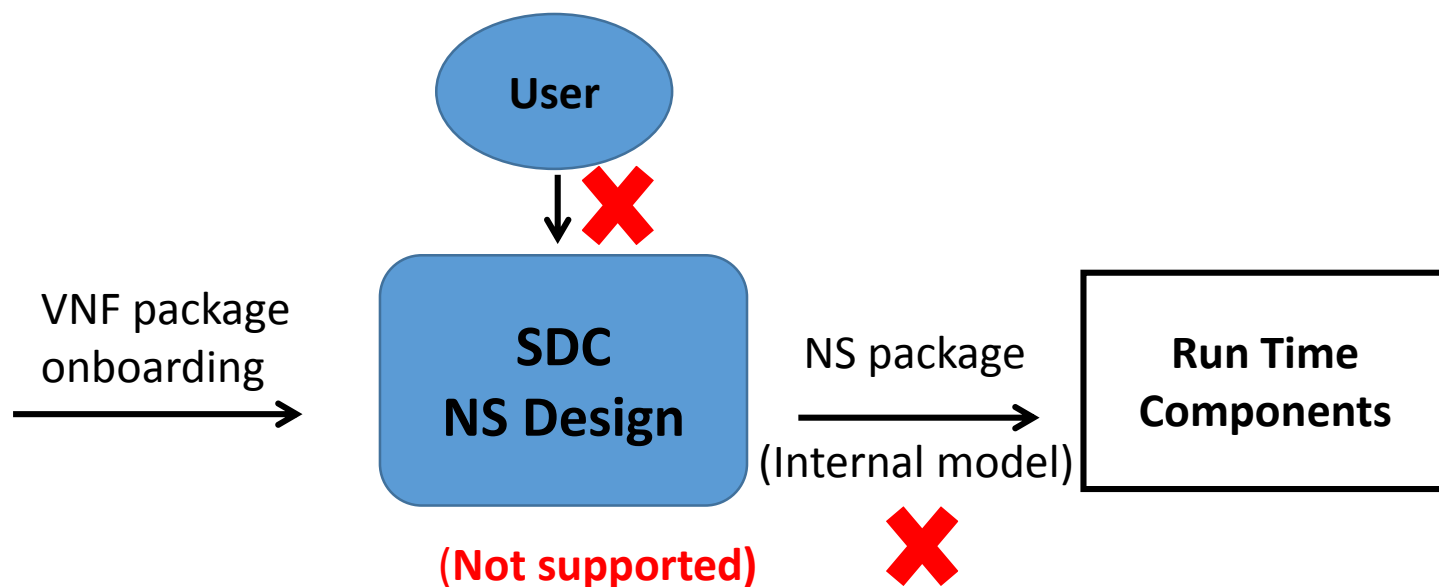
R3+ Status

- ## NSD Onboarding

Status:
- - SDC hasn't supported NSD package onboarding, NSD is imported manually through UUI in run time
- - VFC has supported standard NSD package onboarding

Suggestion:
- - SDC provides NSD onboarding upload interface and distribution mechanism.

- NS Design

User

**SDC
NS Design**

VNF package
onboarding

(Not supported)

NS package

(Internal model)
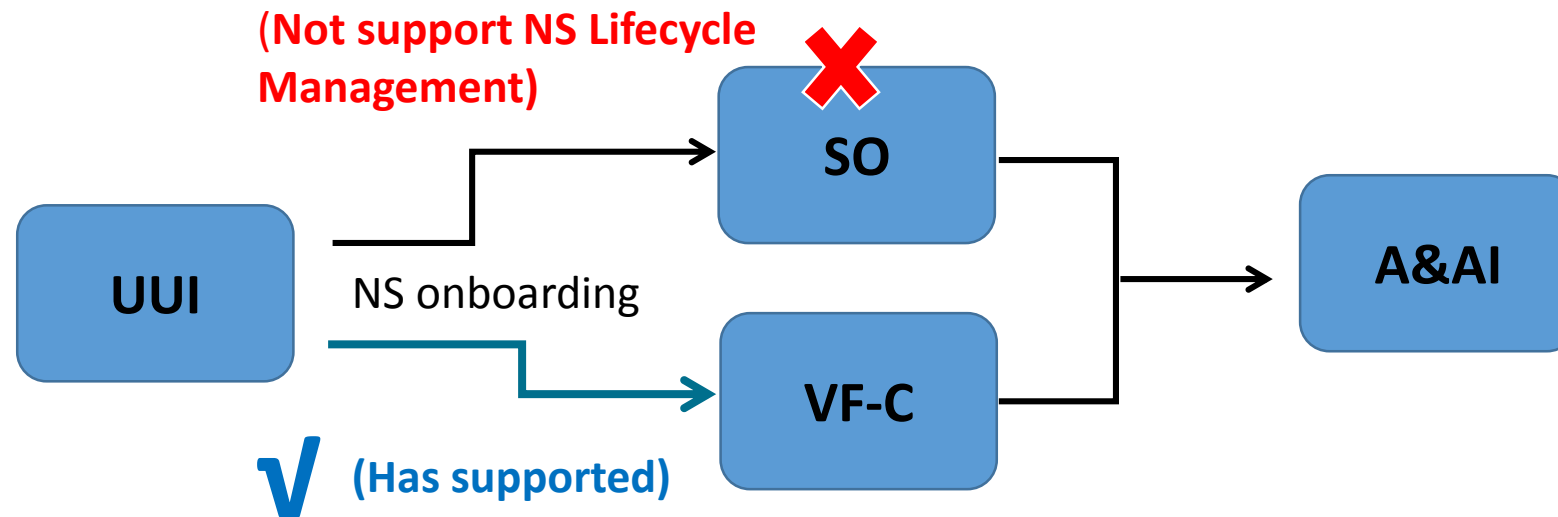
**Run Time
Components**

Status:

- SDC doesn't support NS design, which cannot support future complex scene deployment, like 5G slice, CCVPN.
- SDC hasn't supported independent NS internal model, the functionality is mixed up with service model

Suggestion: SDC supports NS design interface and distribution.

R3+ Status

- NS Lifecycle Management

(Not support NS Lifecycle Management)


```
         UUI ──────── NS onboarding ────▶ SO ──┐
          │                                     ├──▶ A&AI
          └──────────────────────────────▶ VF-C ┘
```

√ **(Has supported)**

Status:

- SO hasn't support SOL005 interfaces and doesn't consume NS.
- VFC partially aligned with SOL005 interface for NS LCM
- A&AI has merged network service instance model into service instance model, which brings difficulty for the third-party NFVO to integrate directly with ONAP

Suggestion:

- SO provides SOL005 interface for NS lifecycle management and state maintenance
- Legacy NFVO or VNFM refers to VFC's best practices, mapping their instance models to A&AI

VF-C Inventory Best Practices

1. Now VF-C has its own inventory and the related instance will synch up to A&AI Inventory
2. For legacy NFVO or VNFM , they can refer to VF-C implementation to synch their instance to A&AI, so that they can leverage ONAP to enable Close loop

VF-C Inventory	A&AI Inventory
NS	Service
VNF	Generic-VNF
Vm	vServer
Network	L3-netwok
……	………
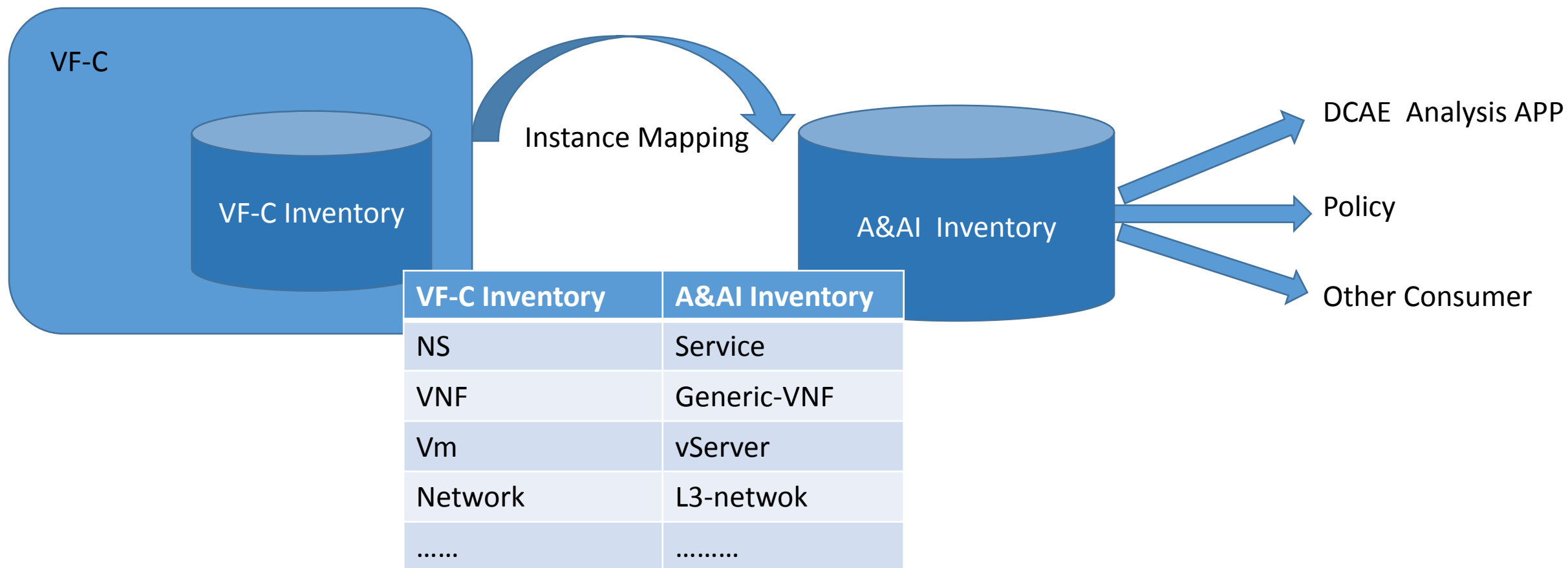
Summary for Dublin Release Implementation Suggestions

- ## NS Design
  - SDC/UUI support NS design interface and distribution
    SDC incorporates existing seed code, or UUI supports independently.

- ## NSD Onboarding
  - SDC/UUI provide NSD onboarding upload interface and distribution mechanism
    Run time UUI has supported, suggest SDC to support in design time

- ## NS LCM
  - SO/VFC provides SOL005 interface for NS life cycle management and state maintenance
  - VFC already has, suggest SO to expose SOL005 interface to external system

- ## NS Instance Model Alignment
  - Legacy NFVO or VNFM can refer VF-C current implementation, mapping their own instance model to A&AI inventory when integrate with ONAP