



ONAP Mapping to Domain Orchestrator Concepts: Challenges, Transformation and APIs alignments to Standards

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Summary Slide

The objective of this contribution is to highlight possible challenges for adopting ONAP and how DO/E2ESO concepts could be a way forward to mitigate those challenges.

In the process of defining the DO/E2ESO concepts the contribution also proposes the APIs alignment to standards in the context of DO/E2ESO based ecosystem.

Agenda

- Section 1:
 - Illustration of DO concepts using the context of deployment challenges.
- Section 2:
 - Transformation : How to achieve Multi-Do ecosystem using ONAP
- Section 3:
 - Proposal for ONAP API alignment in the DO-E2ESO ecosystem

Section 1

Illustration of DO-ESO concepts

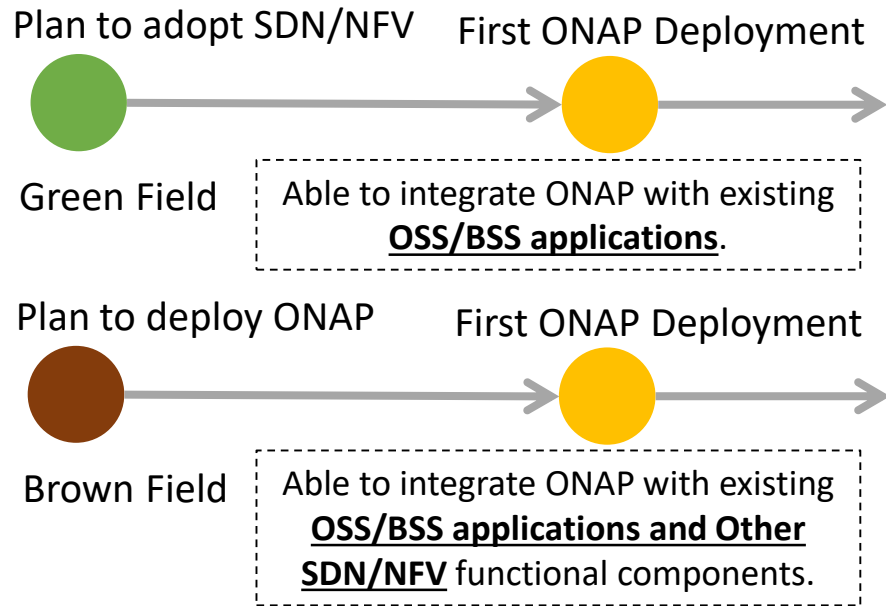
Going on production environment with ONAP : Context Setup

The real challenges of ONAP production deployment is still need to be collected and might vary based on business plans, size etc. This presentation is an attempt to identify what CSPs might expect in a production scenario and how we can address those expectations

ONAP deployment Scenarios (using Green Field and Brown Field terminology):

- *Green Field : No existing virtualization orchestration function, ONAP is deployed for the first time.*
- *Brown Field : There are other orchestrators already deployed and ONAP is added as another components.*

Deployment Stages : ONAP for green/brown field



Driven by Business plans

Flexibility in deployment is required to meet the business demands

- Integrate the new ONAP instance with the OSS/BSS.
- Integrate the new ONAP instance (for new geographical area or business unit) with existing ONAP instance.
- Add/Upgrade a functional component to an ONAP instance , less impacting the overall deployment.
- Add another orchestrator from Vendor or Opensource.
- Remove an ONAP instance without impacting the other ONAP deployment.

Optimized architecture for fully automated processes, continuously available and support agile/DevOps mode of operation

- Architectural Flexibility
- Optimal utilization of resources and reuse
 - Scalable on demand
 - Minimize integration effort
 - ...

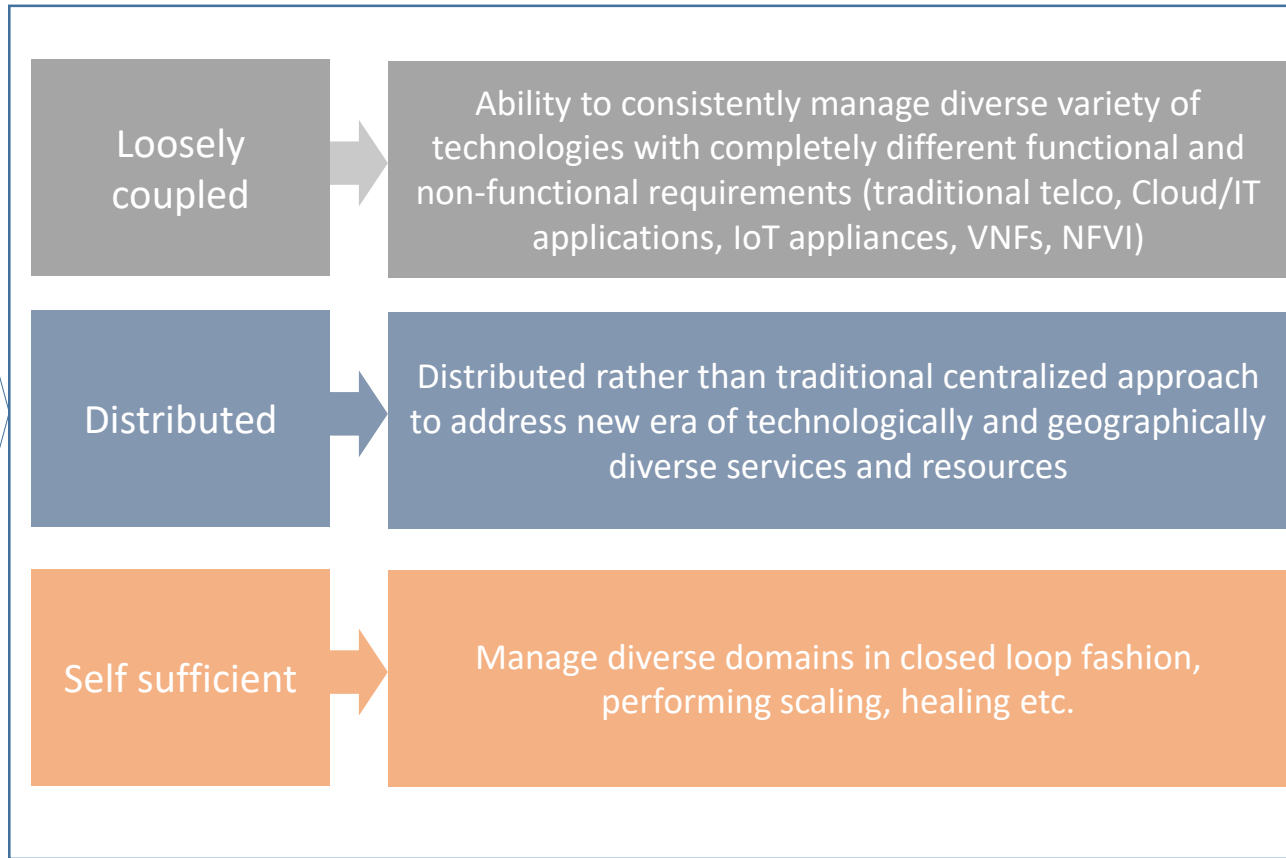
Challenge and Approach

Deployment Approach

One time Vs
Continuous activity

ONAP as a box Vs
ONAP
components/applications

Support various
Deployment options



Deployment Challenges

Integration with existing applications

Adopt to SPs business plans

Technology and Vendor agnostic

Maintaining the business continuity

Minimizing migration

Continuously meeting the performance requirements

1. Domain Orchestration (DO)
2. Componentize ONAP for future transformation

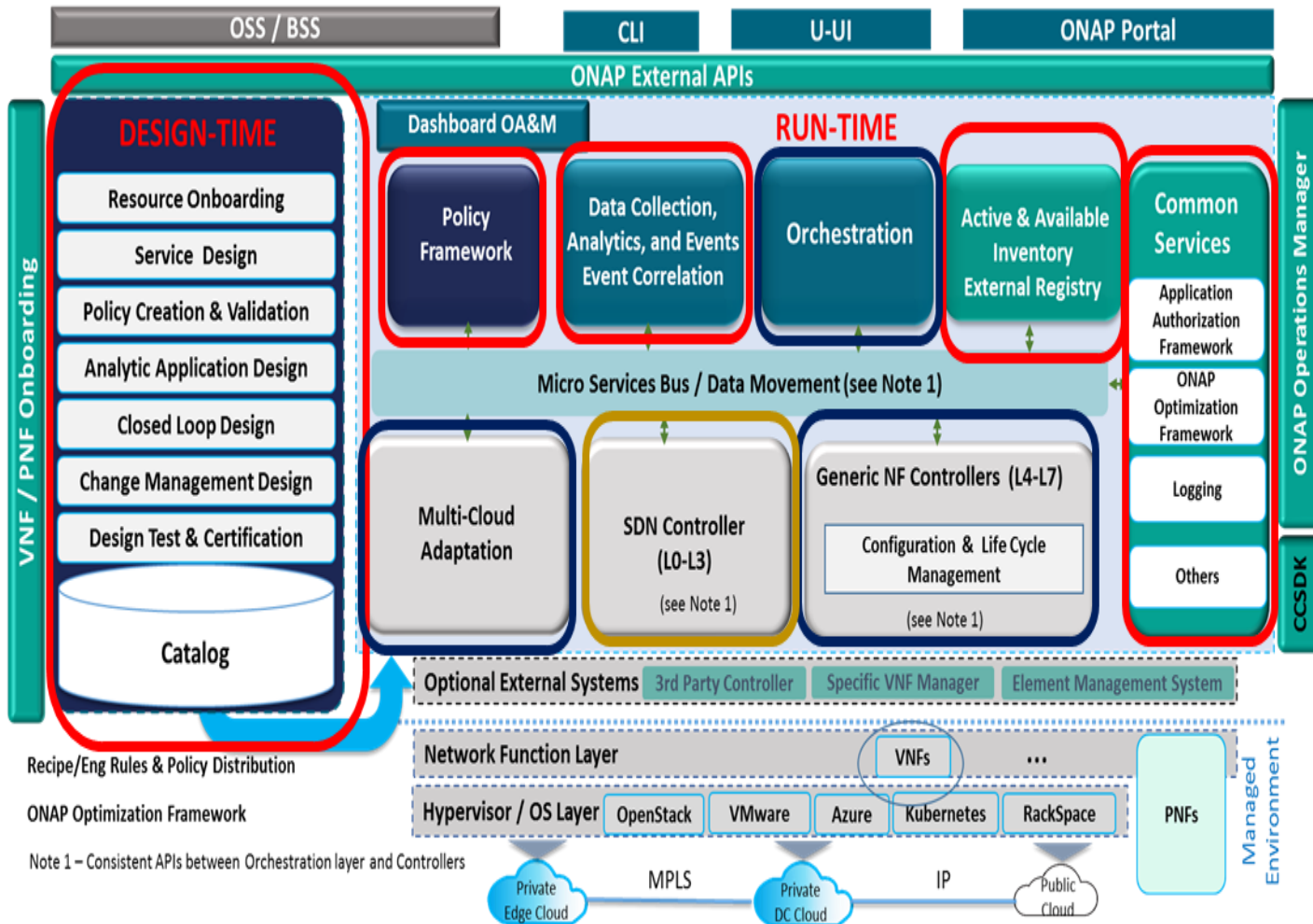
Summary

- Every SP have their own business plans, ONAP architecture should provides the flexibility to accommodate unique business plans of each SP.
- DO provides the required flexibility for achieving specific deployment needs.
- ONAP can be considered as one DO. But it is not be feasible to deploy complete ONAP for each DO.

Section 2

Transformation : ONAP to Multi-DO ecosystem

ONAP as configurable Domain with its components

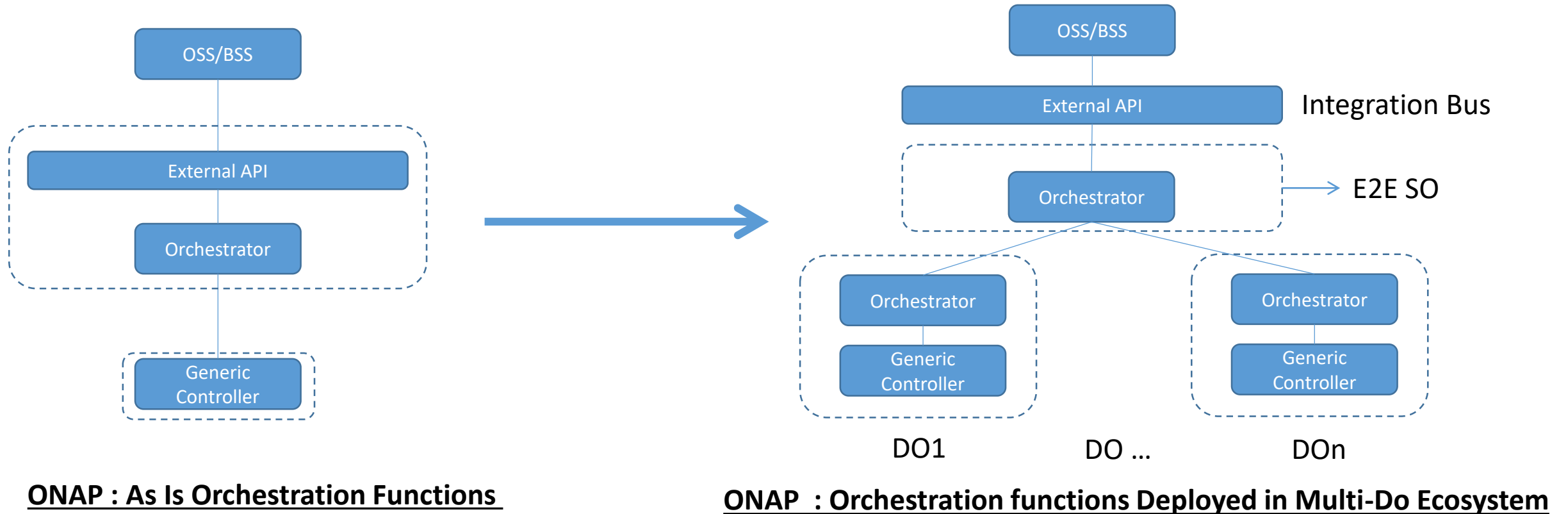


- Can be considered as Operational Management Support applications. Provides or collects information from other functional components of ONAP.
- Can support more than one instance of ONAP.
- Runtime Orchestration function.
- The functional component can serve more than one services too.
- Reusing functional components for more than one service is deployment choice
- Technology dependent.
- Can directly be managed by Service level DOs.

Orchestration Layers mapped to ONAP based on TMF HIP concepts

Orchestration Layer	Description
End to End Service Orchestration	<ul style="list-style-type: none">• Handles Service Order Decomposition. Extracts Customer facing Service from Service Order Item and maps it to Resource Facing Service based on Service Specification• Manage customer specific service inventory, Customer specific closed loop control to manage SLA etc.• Maintains End to End Service Catalog• On board Service Specification in Service Catalog
Domain Orchestration	<ul style="list-style-type: none">• Receives Resource/Network Facing Service Activation and Configuration in a technology neutral manner and decomposes to technology specific resource activation and configuration requests towards• Manages closed loop control and Service KQIs for specific domain• May Manage Domain specific inventory and Domain specific Network Service /RFS Catalog• Onboard Network Service Specification at domain level
Technology Specific Resource Orchestration	<ul style="list-style-type: none">• Receives technology specific activation and configuration requests from Domain Orchestrator• Primarily focus on vendor or technology specific resource configuration

Vision : ONAP deployment in Multi-DO ecosystem



Summary of the section

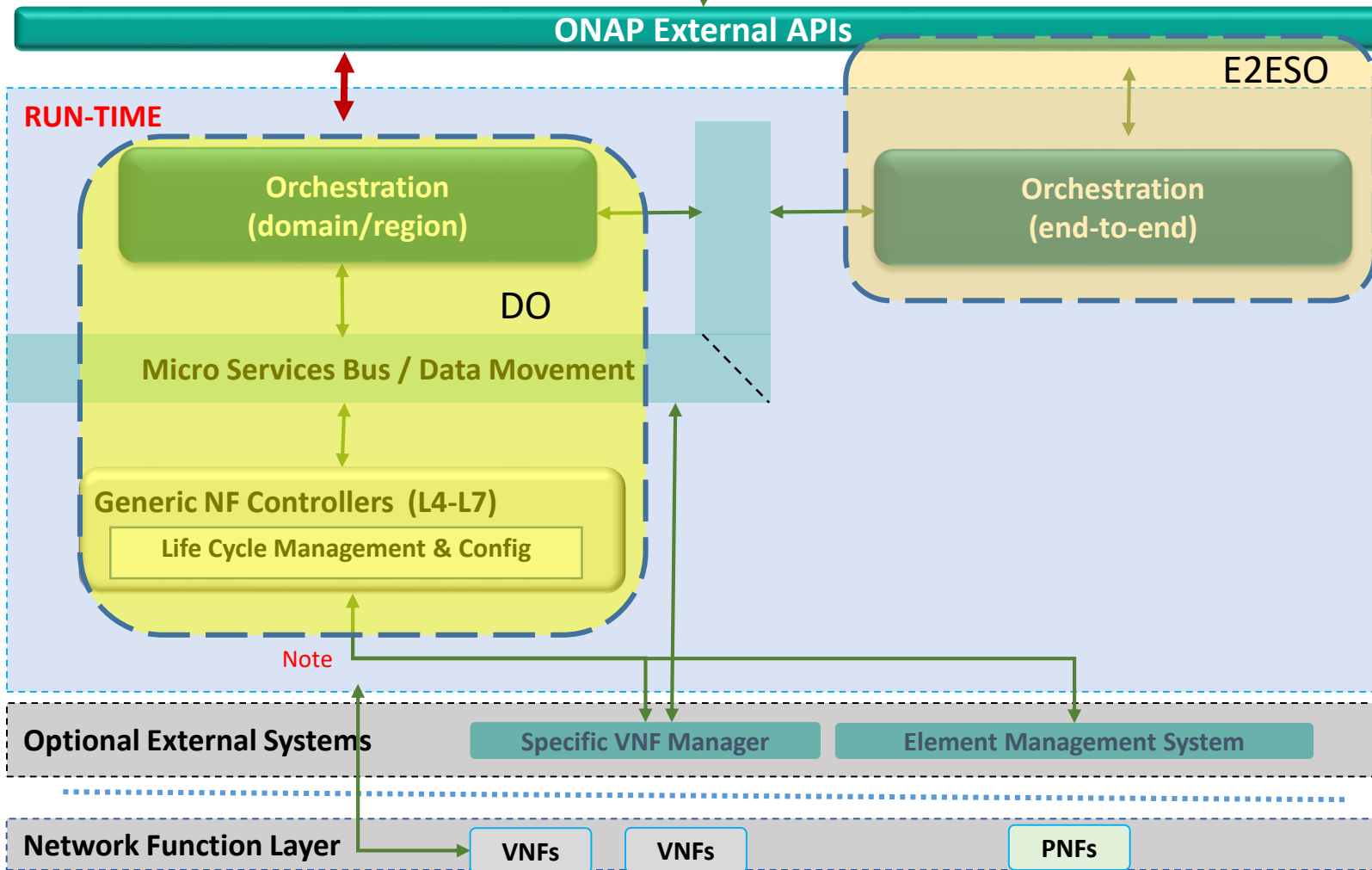
- ONAP functional block can be divided into Operational management support functions and Orchestration functions.
- Single instance of Operational management support applications can support one or more than one Orchestration functions.
- Such componentization of ONAP functional block helps in achieving DO based architecture.
- E2ESO can be considered as specialized implementation of DO.

Section 2

Proposal for ONAP API alignment in DO-E2ESO ecosystem

ONAP Target Architecture for Orchestration layer and NF controller

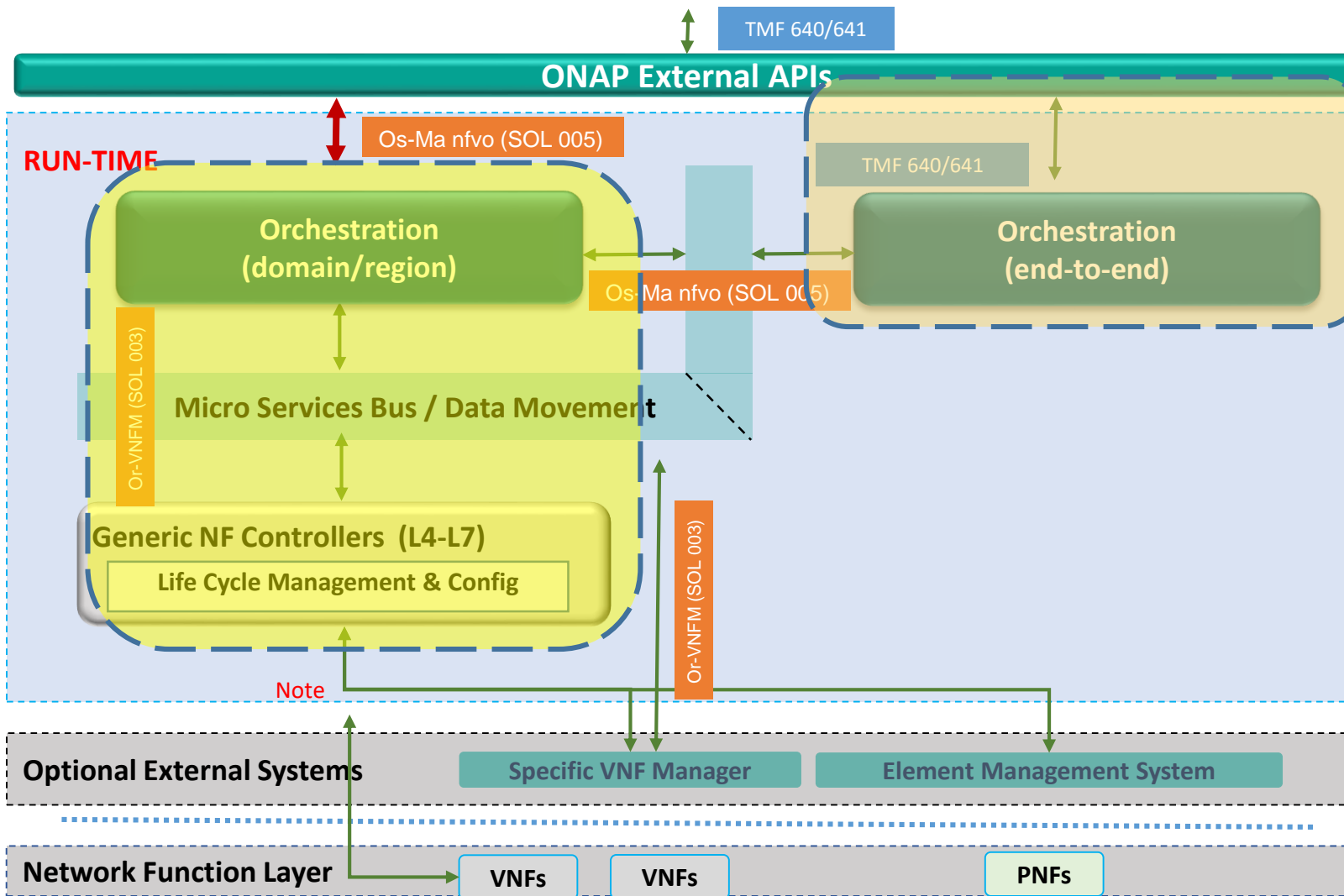
Only Orchestration functions are illustrated in this diagram



- Domain/region versus end-to-end orchestration are depicted here for the sake of examples to depict interfaces. Expectation is to have a model driven orchestration functionality and there is possibility of having hierarchy of Orchestrators based on requirement.
- DO is flexible implementation, it will be consists of functions based on requirements as defined by SP deployment plans.

Note: E2E Orchestration is optional and implementation specific. In some cases DO integrates directly with OSS/BSS The integration function of ExtAPI need not be part of E2ESO.

API Mapped to Orchestration layer and NF controller



- TMF640/641 are generic APIs for Service Order and Service Activation and Configuration. Any DO which handles Service related request should expose this APIs.
- DO having NFVO as highest level Orchestration should expose the SOL005 (Os-Ma-nfvo).
- Generic NF Controller is part of DO internal implementation but it is suggested to standardize this interface by implementing the SOL003 APIs.

Summary of Section

- TMF 640/641 APIs are generic enough to support the interface for Service Order and Activation and Configuration.
- ETSI SOL005 and SOL003 can be adopted for standardizing the ONAP interfaces which aligns to MANO Os-ma-nfvo and Or-vnfm interface reference points.
- The proposal for APIs standardization will require further detailed study.

Vision of the next steps

- General acceptance for need of domain orchestration.
- Working with External APIs to identify the relevant scenarios.
- The proposal for APIs standardization will require further detailed study.
- Study on flexibility in ONAP deployment to accommodate domain concepts need to be performed.
- Runtime domain and Operational Management Support functions of ONAP should be logically separated to enable various deployment scenarios.