# Architecture Proposal for Deployment Flexibility

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# Three Scenarios from SPs

- Core Network Virtualization Scenario

According to the survey results of  service providers, most SPs' core network virtualization scenarios require ETSI NFV MANO compliant solution  .
SPs who already have MANO products want to integrate with ONAP in a standardized way.
SPs without MANO products hope to incubate their MANO products based on ONAP.
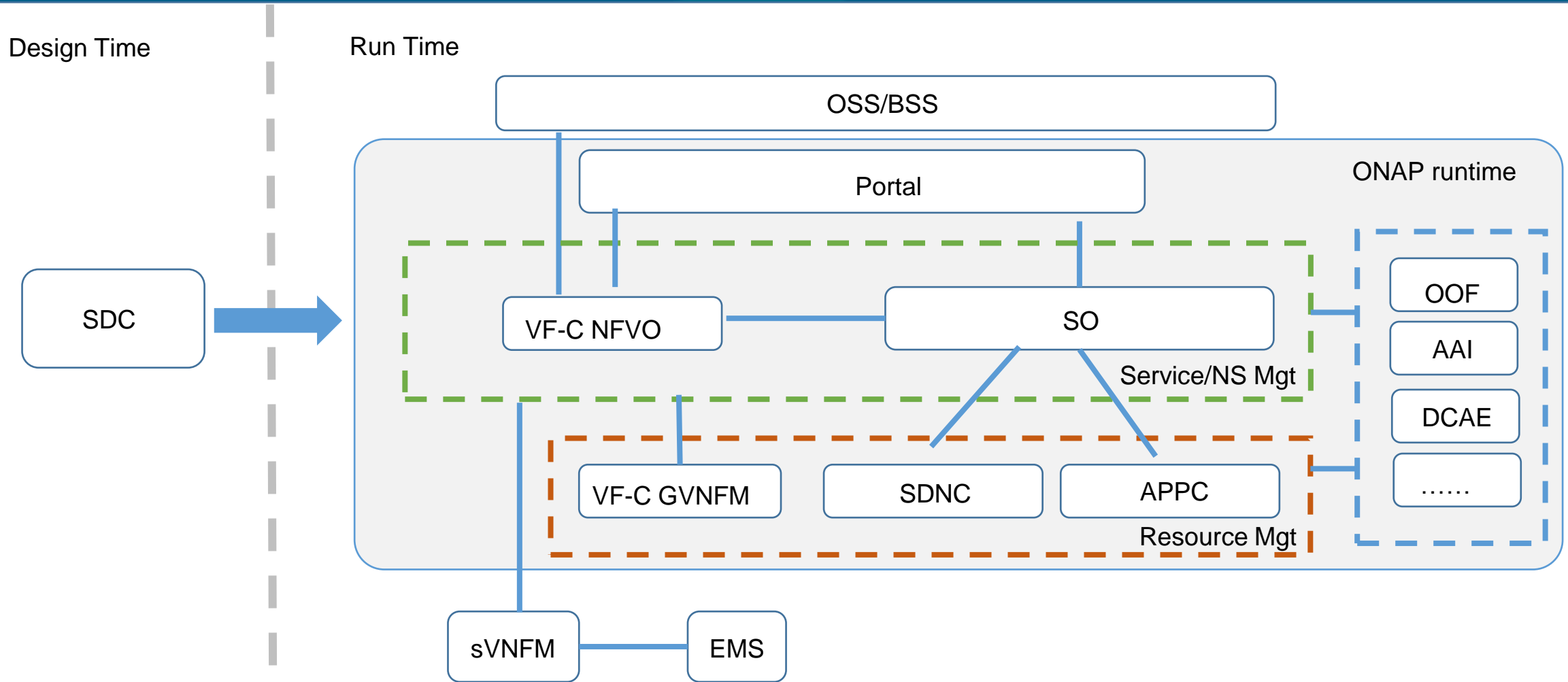
- IT VNF Deployment Scenario

Different SPs need ONAP to support different deployment solution based on the specific t VNF type and requirements.
For example, vFW/vDNS can be deployed using Heat.  If the VNFs are defined by the standard VNFD, ONAP is required to support  standardized VNFD deployment.

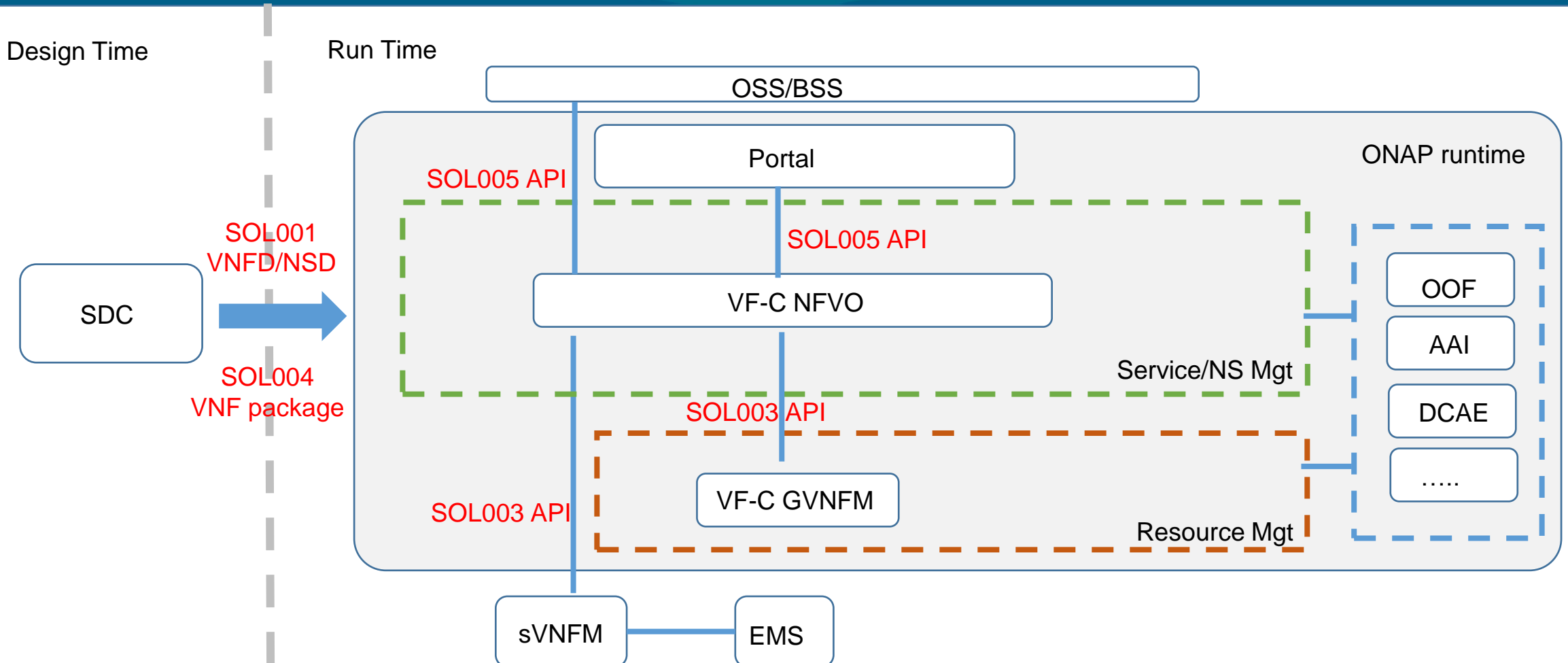- 5G/VoLTE Complex End-to-End Orchestration Scenario

In the face of complex end-to-end orchestration scenarios, such as 5G or VoLTE, ONAP is required to support  ETSI NFV compliant NFVO and VNFM, and  also support cross-domain end-to-end service orchestration.

THE **LINUX** FOUNDATION

**ONAP**
OPEN NETWORK AUTOMATION PLATFORM

# Proposed Architecture



Design Time

Run Time

ONAP runtime

OSS/BSS

Portal

SDC

VF-C NFVO

SO

Service/NS Mgt

OOF

AAI

DCAE

......

VF-C GVNFM

SDNC

APPC

Resource Mgt

sVNFM

EMS

- • Provide flexible architecture to allow SPs to enable different deployment approaches

# Deployment Scenario 1 – vEPC/vIMS



Design Time | Run Time

**OSS/BSS**

**ONAP runtime**

**Portal**

SOL005 API

SOL005 API

SOL001
VNFD/NSD

**SDC**

**VF-C NFVO**

**OOF**

**AAI**

Service/NS Mgt

SOL004
VNF package

**DCAE**

SOL003 API

**…..**

**VF-C GVNFM**

SOL003 API

Resource Mgt

**sVNFM** — **EMS**

ONAP is required to supports standard ETSI NFV MANO architecture, and supports the integration of existing MANO products with standardized models and interfaces. It also facilitates operators to incubate self-developed MANO products. The specific requirements for ONAP in this scenario:
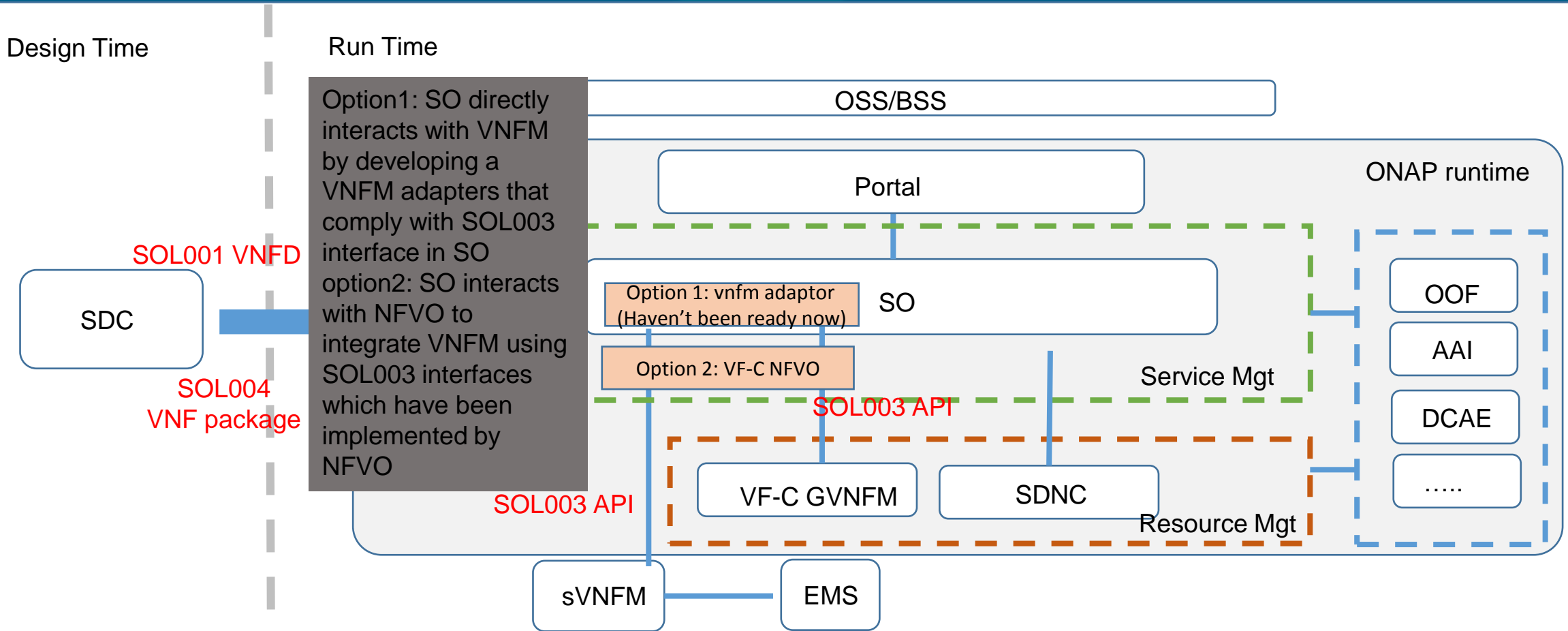- SDC supports the design and output of standard SOL001 VNFD/NSD
- NFVO northbound exposure SOL005 interfaces to OSS/BSS
- NFVO interacts sVNFM or GVNFM via SOL003

# Deployment Scenario 2 – CCVPN  Case  A

Design Time | Run Time
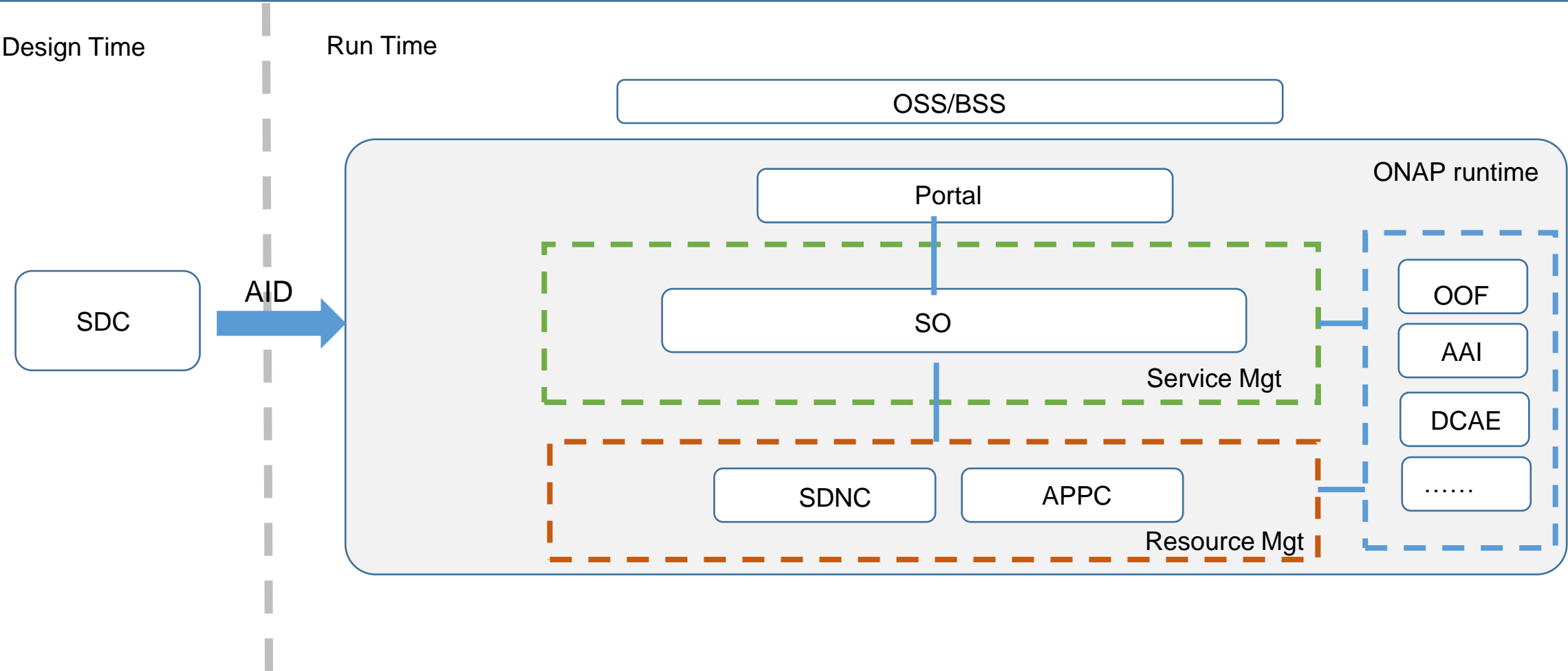


Take the vCPE deployment in CCVPN as an example. Currently, there are two types of vCPEs provided by vendors: Heat-based vCPE and standard VNFD-based vCPE.
In ONAP solution, the Heat-based vCPE can be deployed through SO+SDNC+APPC which is also a way that ONAP currently supports.

# Deployment Scenario 3 – CCVPN  Case B

Design Time

Run Time

Option1: SO directly interacts with VNFM by developing a VNFM adapters that comply with SOL003 interface in SO option2: SO interacts with NFVO to integrate VNFM using SOL003 interfaces which have been implemented by NFVO

OSS/BSS

ONAP runtime

Portal

SOL001 VNFD

SDC

Option 1: vnfm adaptor (Haven't been ready now)

SO

OOF

AAI

SOL004
VNF package

Option 2: VF-C NFVO

Service Mgt

DCAE

SOL003 API

…..

SOL003 API

VF-C GVNFM

SDNC

Resource Mgt

sVNFM

EMS

For vCPE deployment based on standard VNFD, ONAP needs to support the standard VNFD and cross-domain orchestration and doesn't need to support standard NS. The specific requirements for ONAP in this scenario:
- SDC supports the design and output of the standard SOL001 VNFD
- SO interacts SDNC for cross-domain orchestration
- ONAP interacts sVNFM or GVNFM with standard SOL003 interface. Two implementation options as shown in slide,
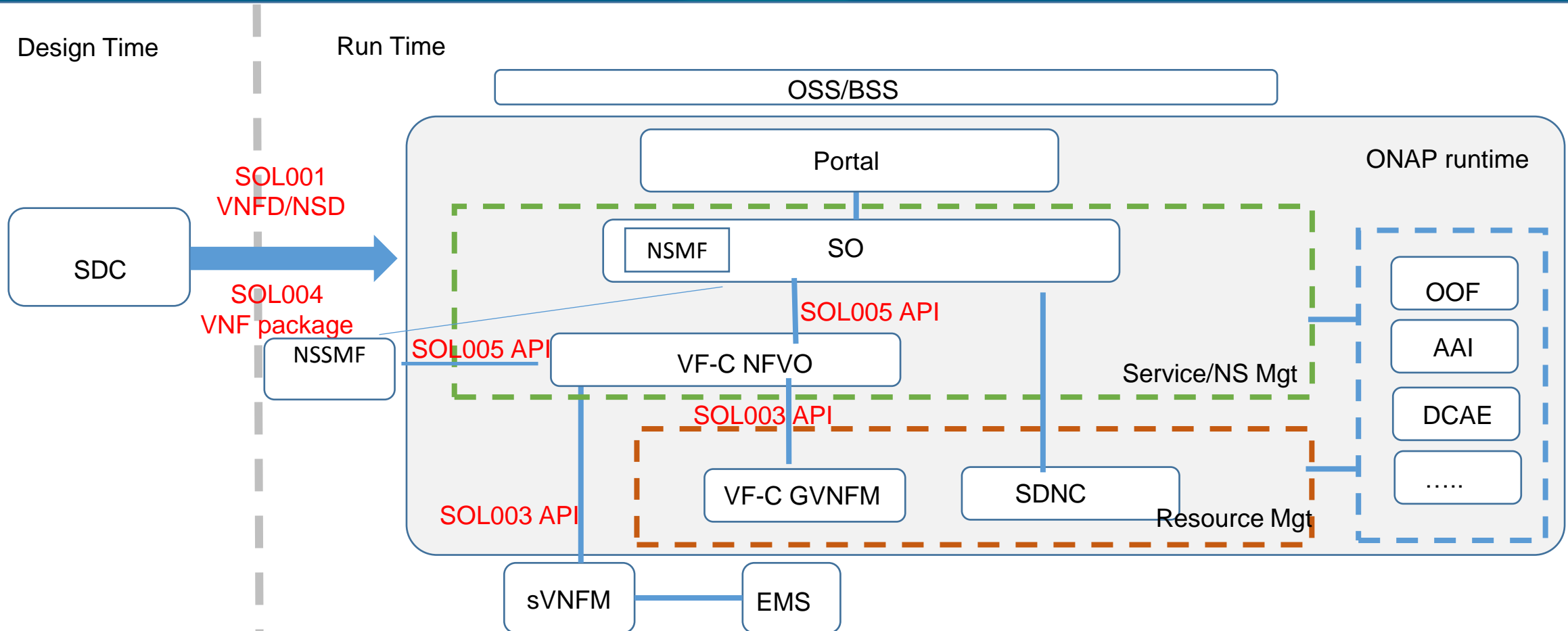
ONAP
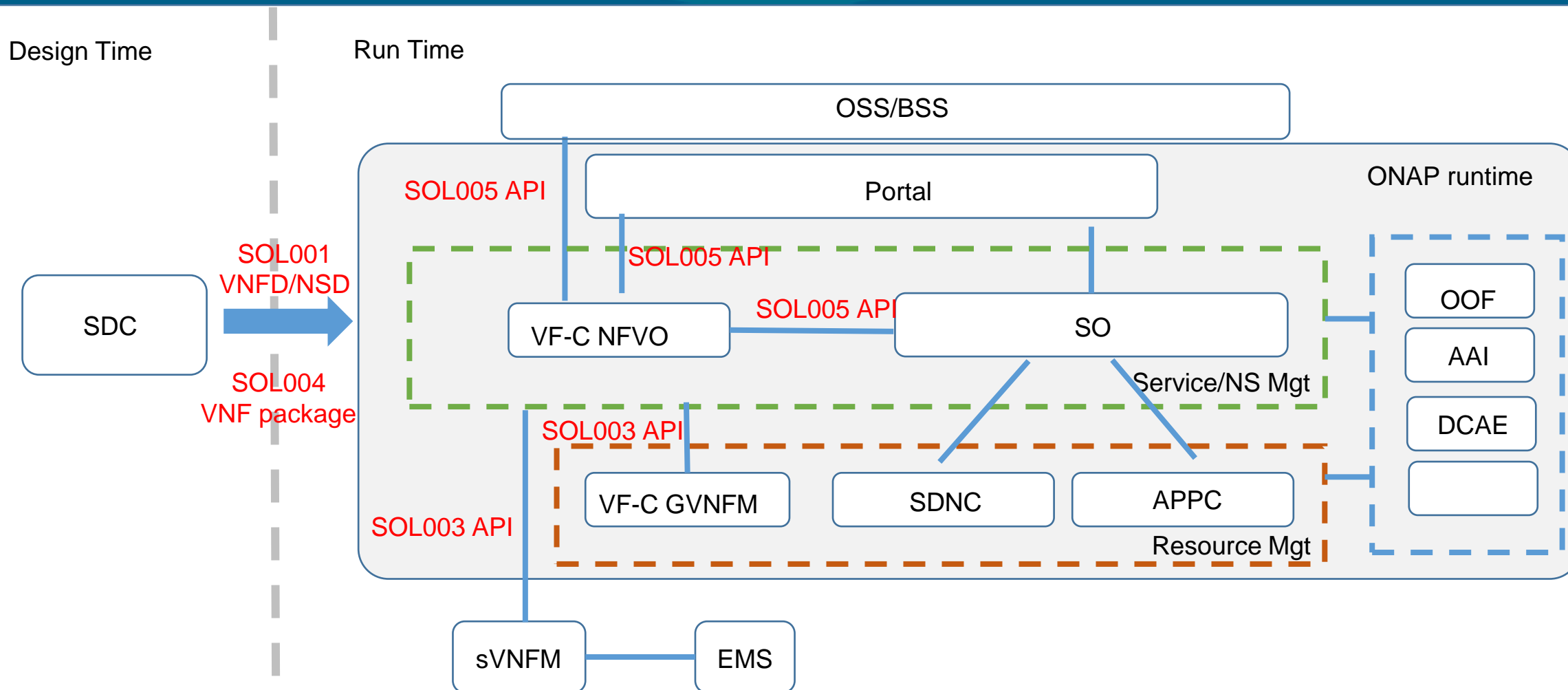OPEN NETWORK AUTOMATION PLATFORM

# Deployment Scenario 4 – 5G



For 5G scenario, ONAP needs to support the standard ETSI MANO architecture and cross-domain end-to-end orchestration. The specific requirements for ONAP in this scenario :
- SDC supports the design and output of the standard SOL001 VNFD/NSD
- SO implements end-to-end slice management and NSSMF interacts with VF-C to implement subnet-slice management via SOL005
- SO interacts SDNC for cross-domain orchestration
- VF-C interacts sVNFM or GVNFM via SOL003

# Requirements Summary



- SDC supports the design and output of SOL001 VNFD/NSD
- NFVO directly exposes SOL005 interface to OSS/BSS
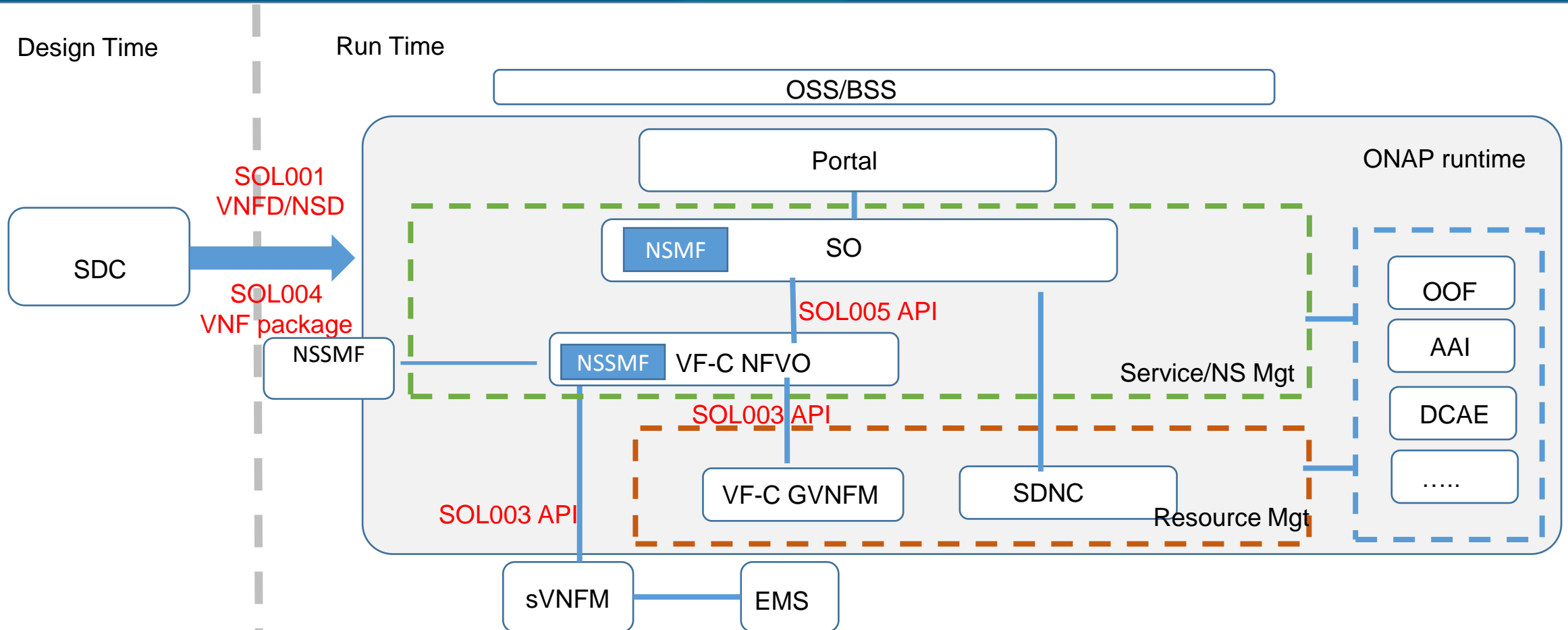- NFVO or SO is connected to SVNFM or GVNFM through SOL003 interface.

Welcome to join the offline discussion

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# Thank you

# Deployment Scenario 4 – 5G

Design Time | Run Time



OSS/BSS

ONAP runtime

Portal

SOL001
VNFD/NSD

SDC

NSMF    SO

SOL004
VNF package

SOL005 API

NSSMF

NSSMF    VF-C NFVO

Service/NS Mgt

SOL003 API

SOL003 API

VF-C GVNFM    SDNC

Resource Mgt

OOF

AAI

DCAE

.....

sVNFM    EMS

For 5G scenario, ONAP needs to support the standard ETSI MANO architecture and cross-domain end-to-end orchestration. The specific requirements for ONAP in this scenario :
- SDC supports the design and output of the standard SOL001 VNFD/NSD
- SO interacts with VF-C to implement end-to-end slice management through SOL005, where VFC is used as subnet-slice manager
- SO interacts SDNC for cross-domain orchestration
- VF-C interacts sVNFM or GVNFM via SOL003