ONAP Subcommittees F2F
- 1st , 2nd April –
- ONAP Architecture Introduction -

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Note

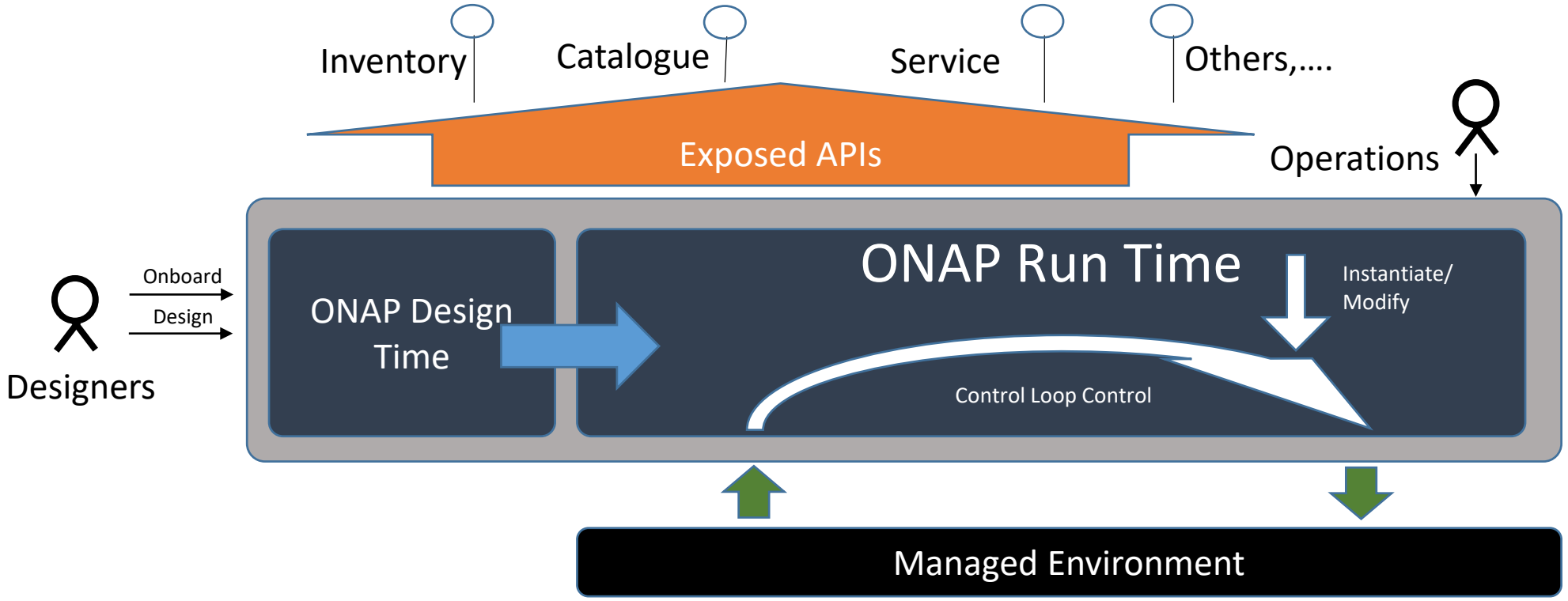
- Not all aspects of the ONAP architecture are covered in this presentation. A selected few capabilities are covered for brevity.

- Note: Onap projects provide a scope of work, this is not necessarily a scope of one ONAP functional component.

Introduction

- ONAP is an automation platform supporting the ability to manage services and resources throughout their entire lifecycle:
  - Ability to dynamically introduce full service lifecycle orchestration (design, provisioning and operation) and service API for new services and technologies without the need for new platform software releases or without affecting operations for the existing services
  - Metadata-driven and policy-driven architecture to ensure flexible and automated ways in which capabilities are used and delivered

Introduction



ONAP provides an automation platform for managing services and resources throughout their entire life cycle.

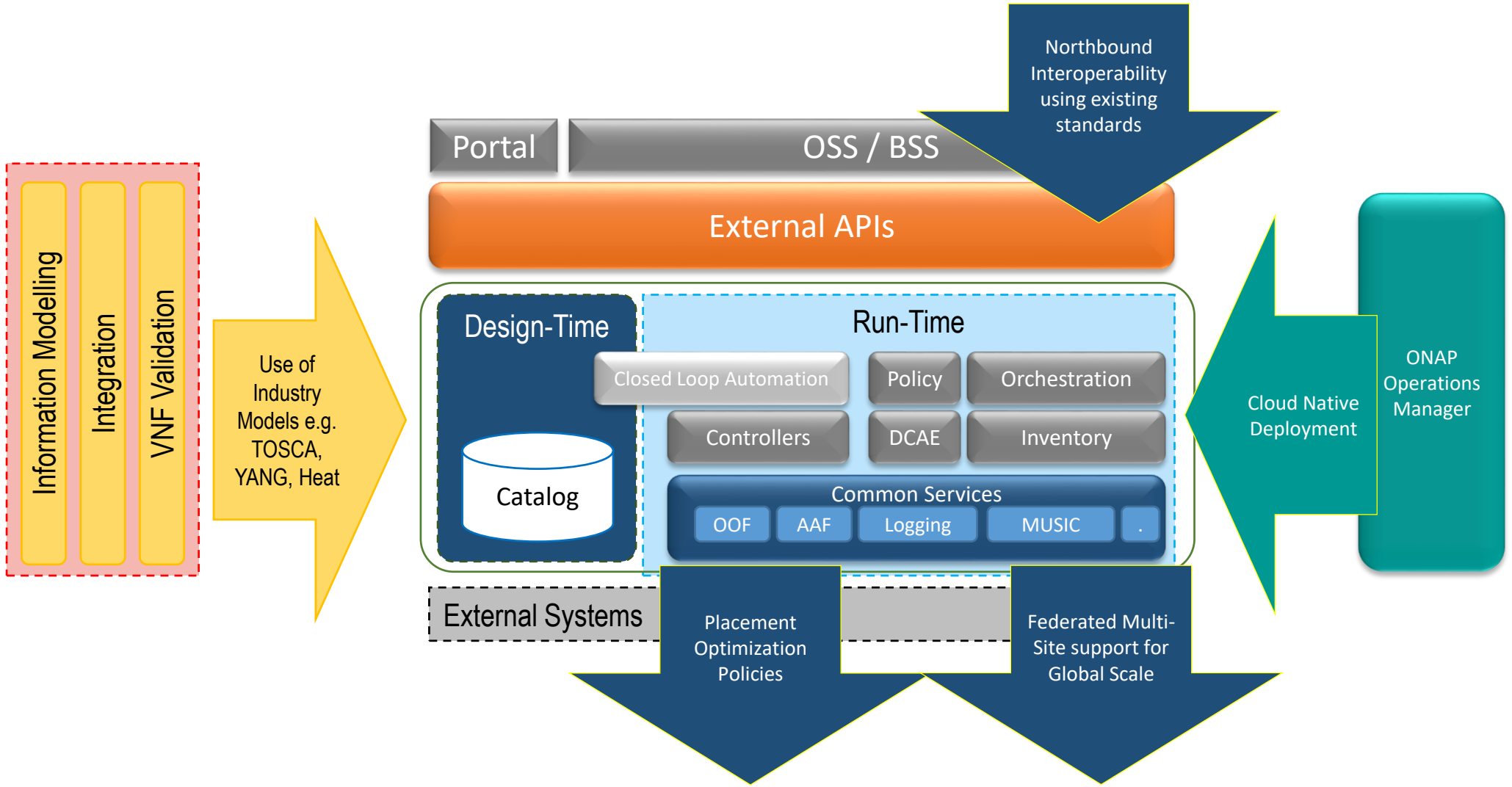
It provides a reference functional architecture

It provides a reference Component Definition & Interfaces

It provides reference source code

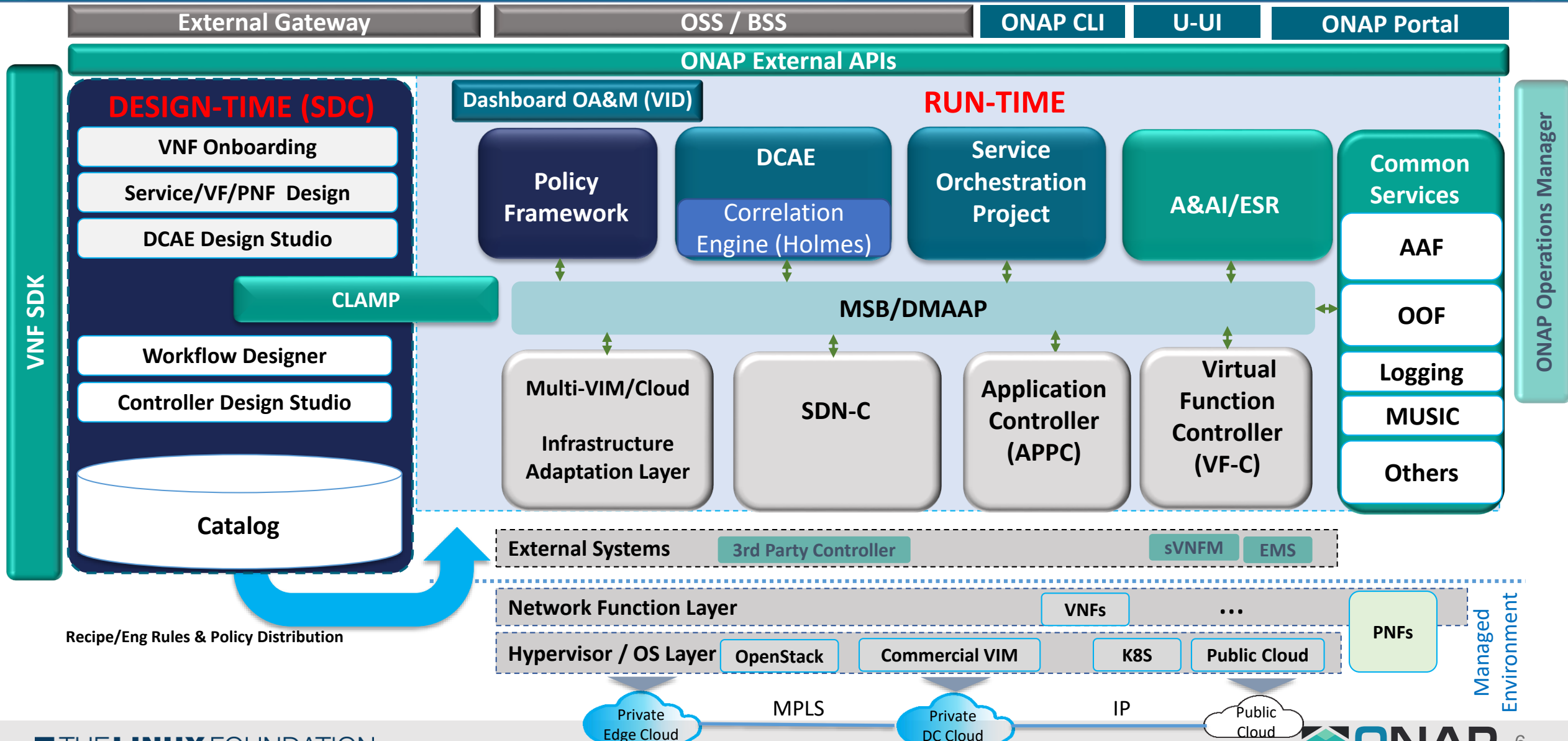
It provides requirements on the managed V/P NFs

Digging one step deeper



The Architecture

Casablanca Architecture

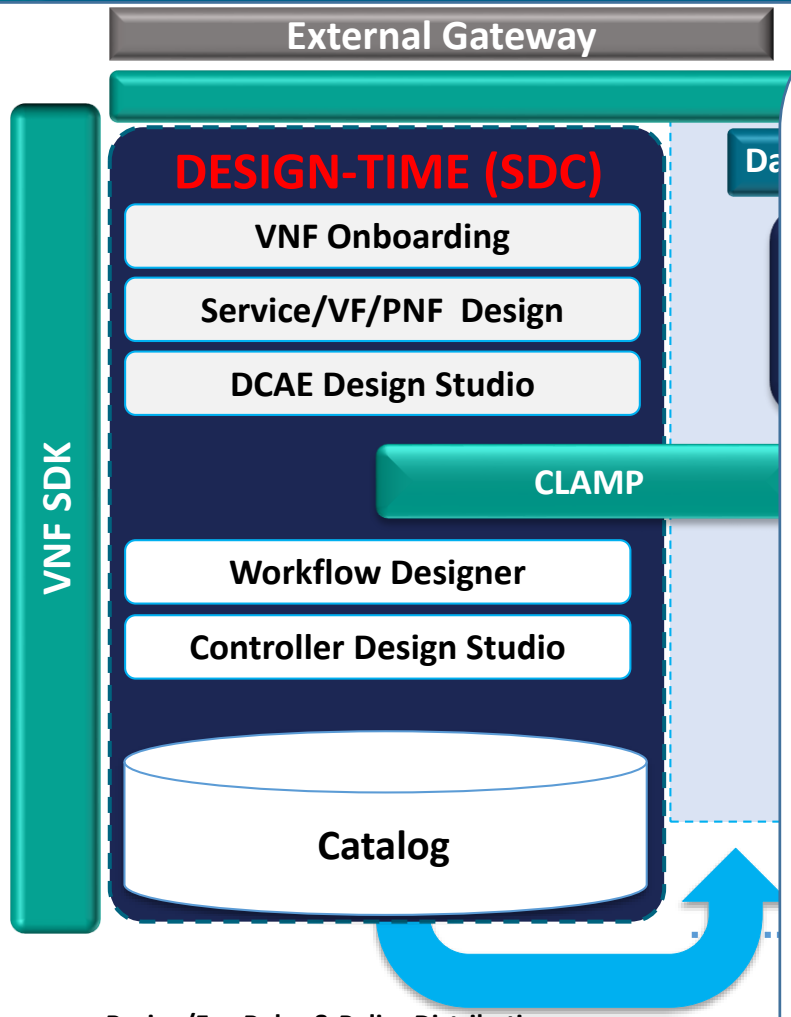


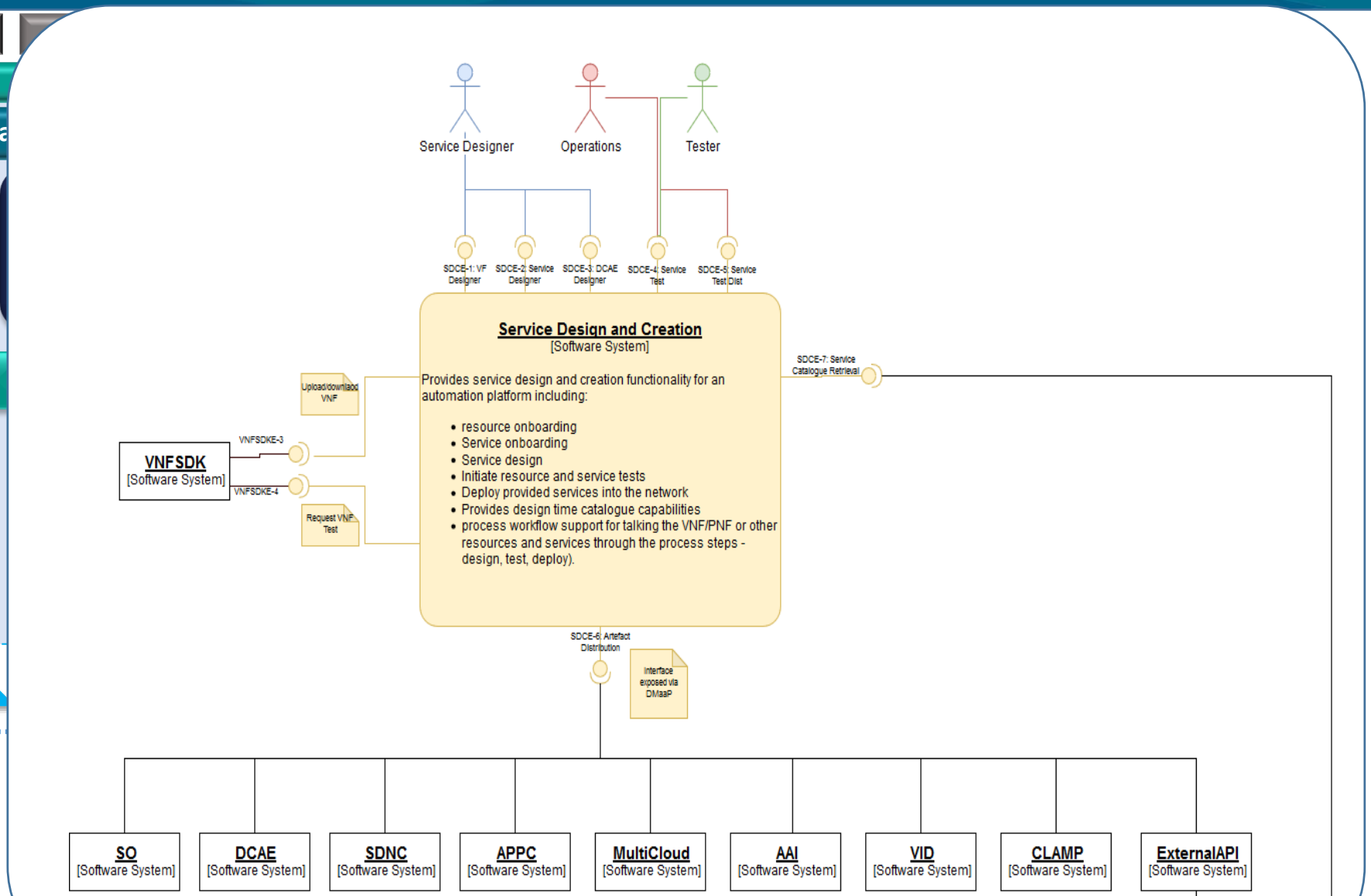
Architecture Principles

Undergoing Update

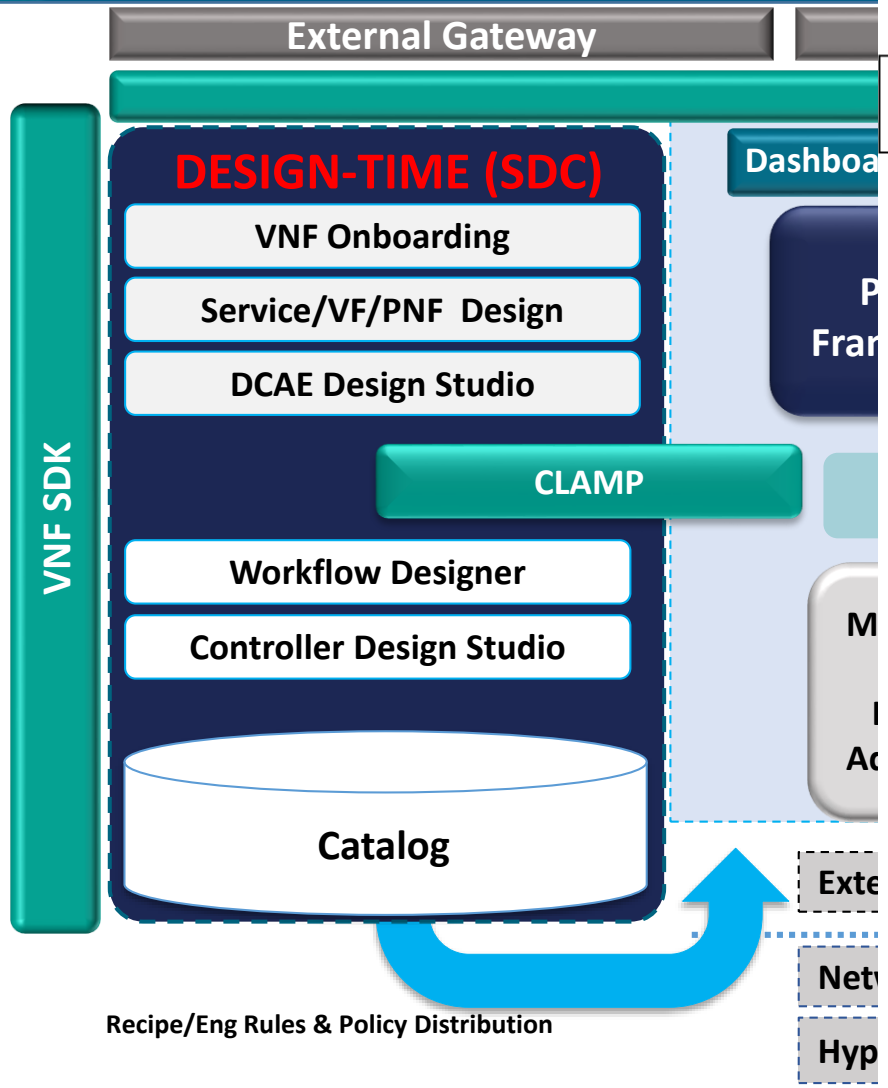
- Complete Lifecyle of services & Resources
- Resource and service agnostic
- Common approach to NFs
- Integrated and centralized design studio
- Metadata and policy driven automation
- Self service and user focused
- Integration friendly
- Backwards compatible
- Microservice, share service, CI/CD support
- Scalable, available, resilient
- Designed for security
- Modular

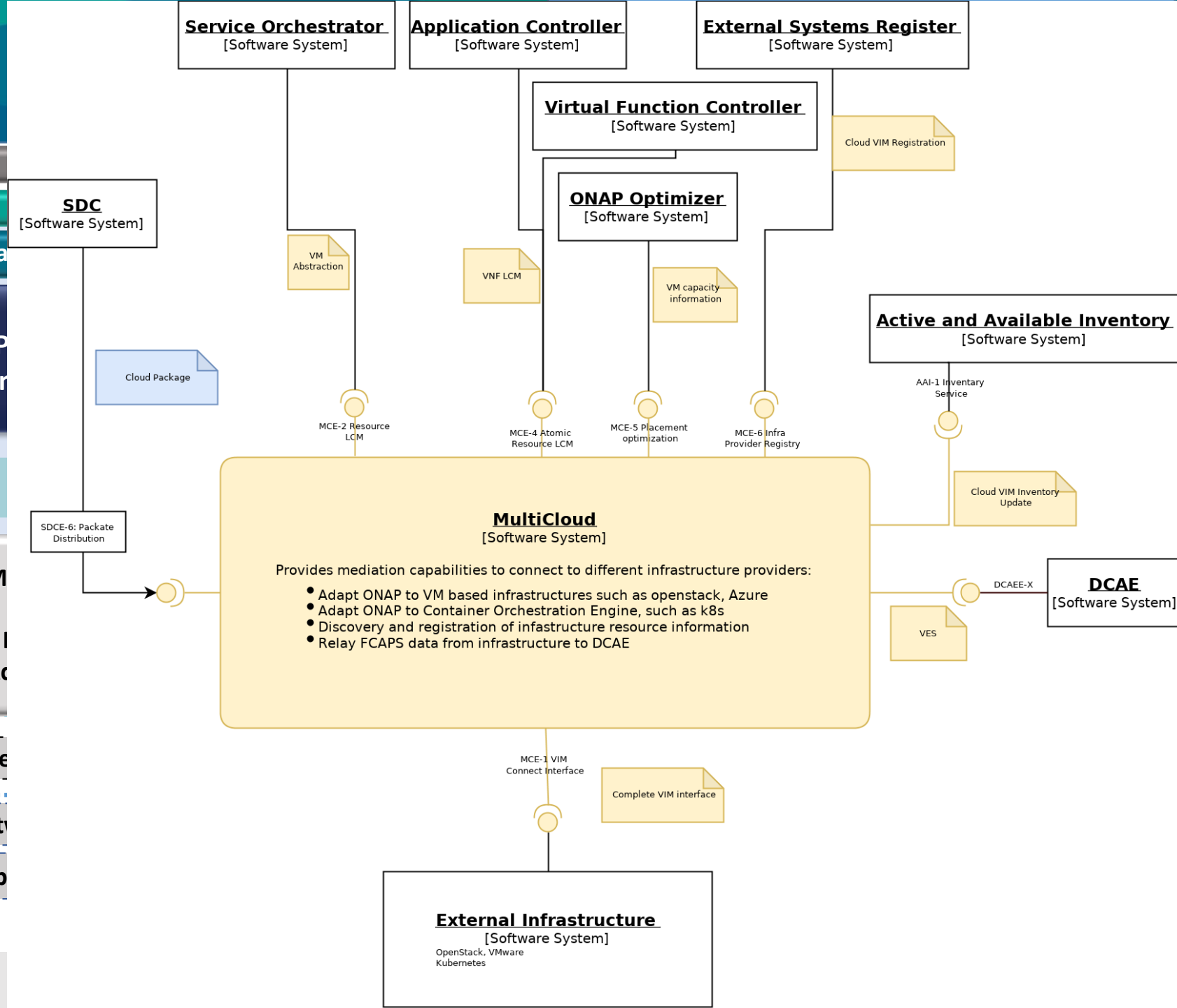
The Architecture





The Architecture





Architecture

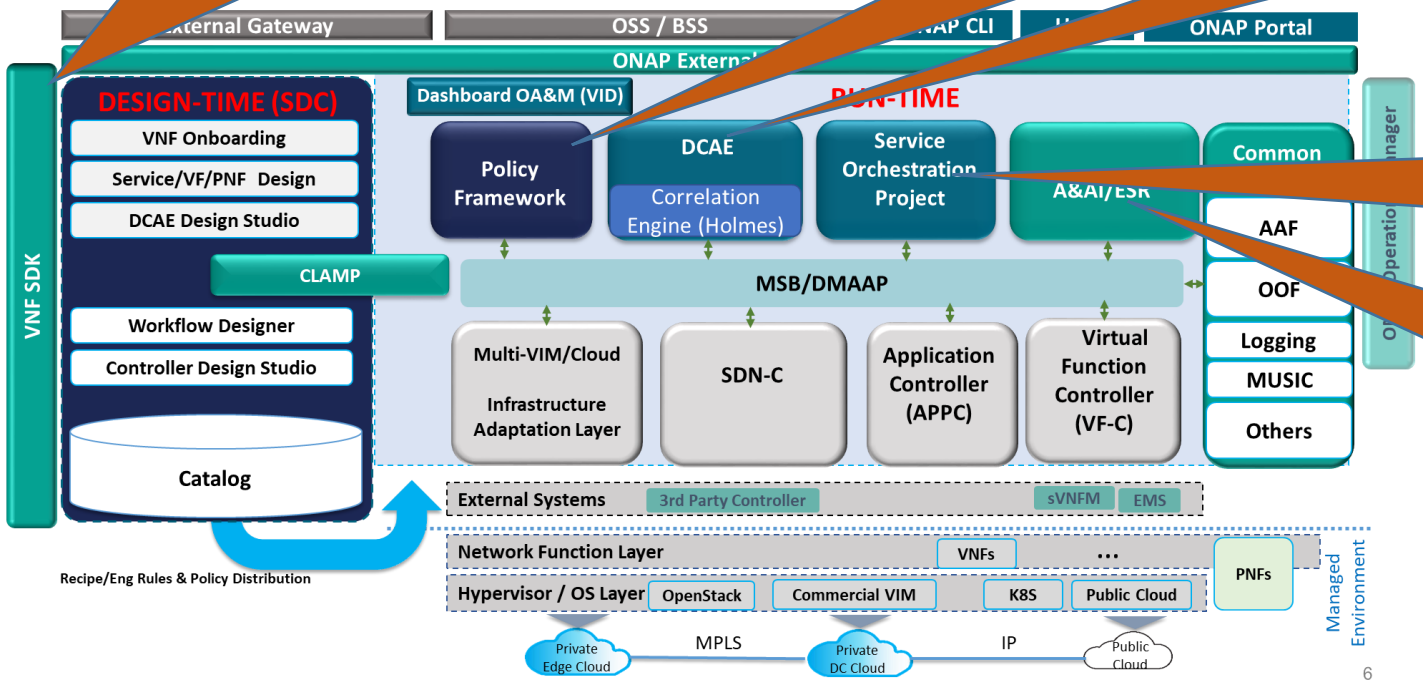
VNF SDK provides the functionality to create VNF/PNF packages, test VNF packages and VNF ONAP compliance and store VNF, PNF packages and upload to/from a market place

Policy Framework provides the ability for the creation and management of policies.

DCAE (Data Collection Analytics and Events) provides the capability to collect events, and host analytics applications (DCAE Services).

SO (Service Orchestrator) provides the highest level of service orchestration in the ONAP architecture, as well as hierarchal orchestration to lower levels.

AAI (Active and Available Inventory) provides real-time views of Resources and Services and their relationships.
ESR (External Service Register) provides services to register externally used services



Architecture

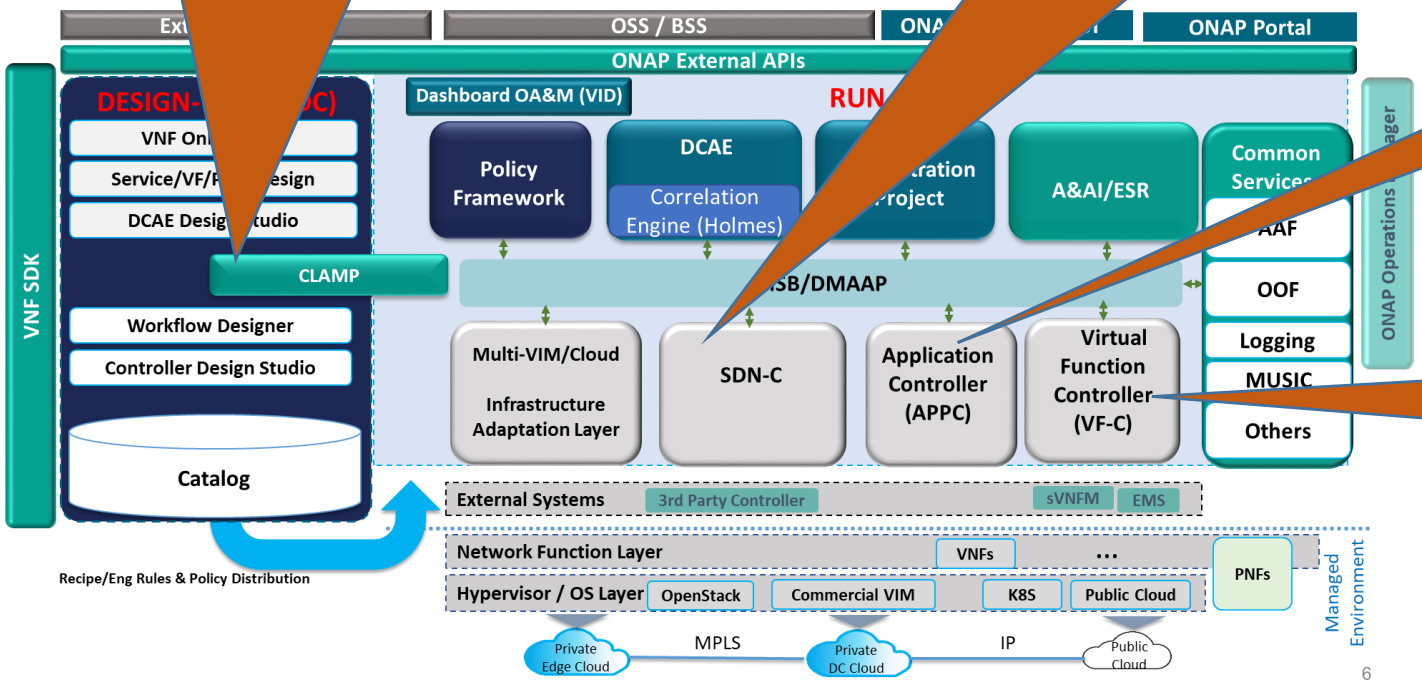
CLAMP (Closed Loop Automation Management Platform) provides capabilities to manage the run-time control loop.

SDN-C provides a network controller capability for establishing network connections and configuring VNFs. It is based on CCSDK.

APP-C provides the capability to configure and manage the application lifecycle of VNFs/PNFs. It is based on CCSDK

CCSDK is a baseline set of components for building controller personas

VFC (Virtual Function Controller) provides the capability to manage the lifecyle of network services and VNFs



Architecture

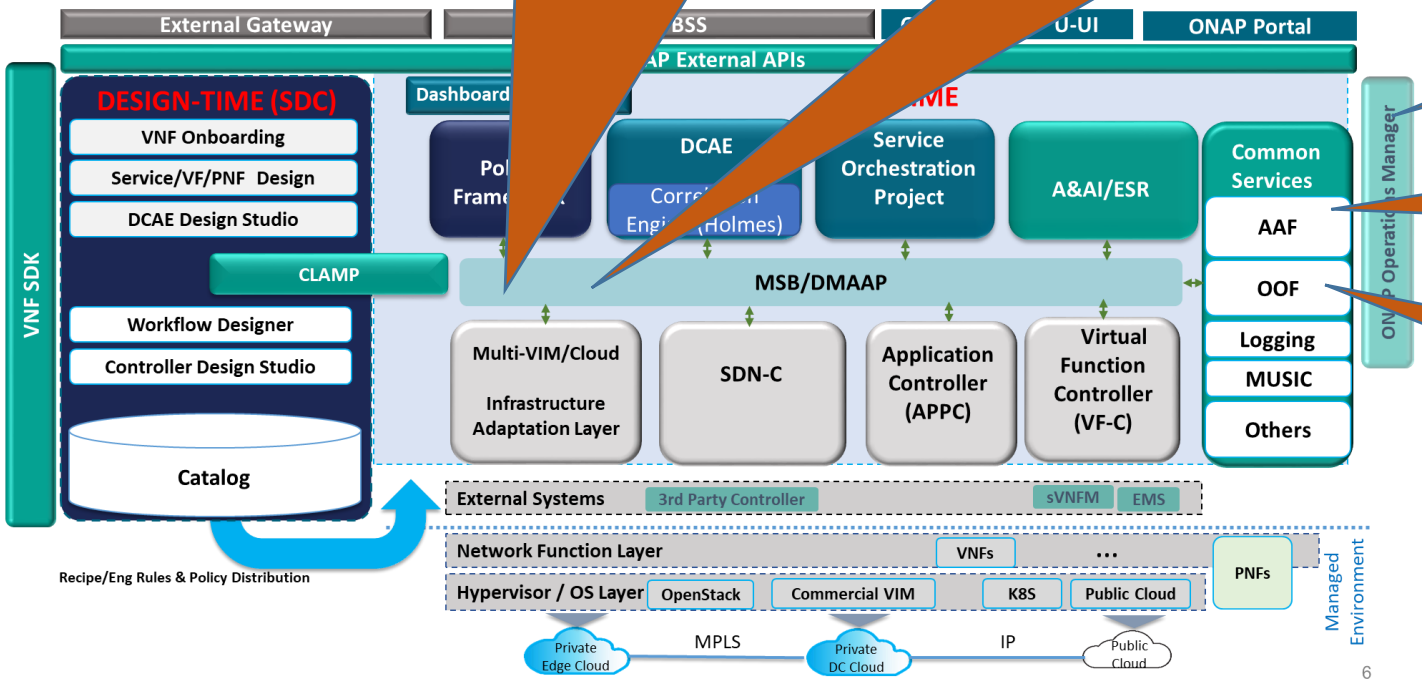
MSB (microservice Bus) provides microsevice communication through service registration and discovary

DMaaP (Data Movement as a Platform) provides data movement services such as message routing and data routing.

OOM (ONAP Operations Manager) provides the capability to instantiate and manage ONAP components on containers

AAF (Authentication and Authorization Function) provides authentication and authorization services to the ONAP components

OOF (ONAP Optimization Framework) provides services for the optimization of the managed services via e.g. optimal location of VNFs



Architecture

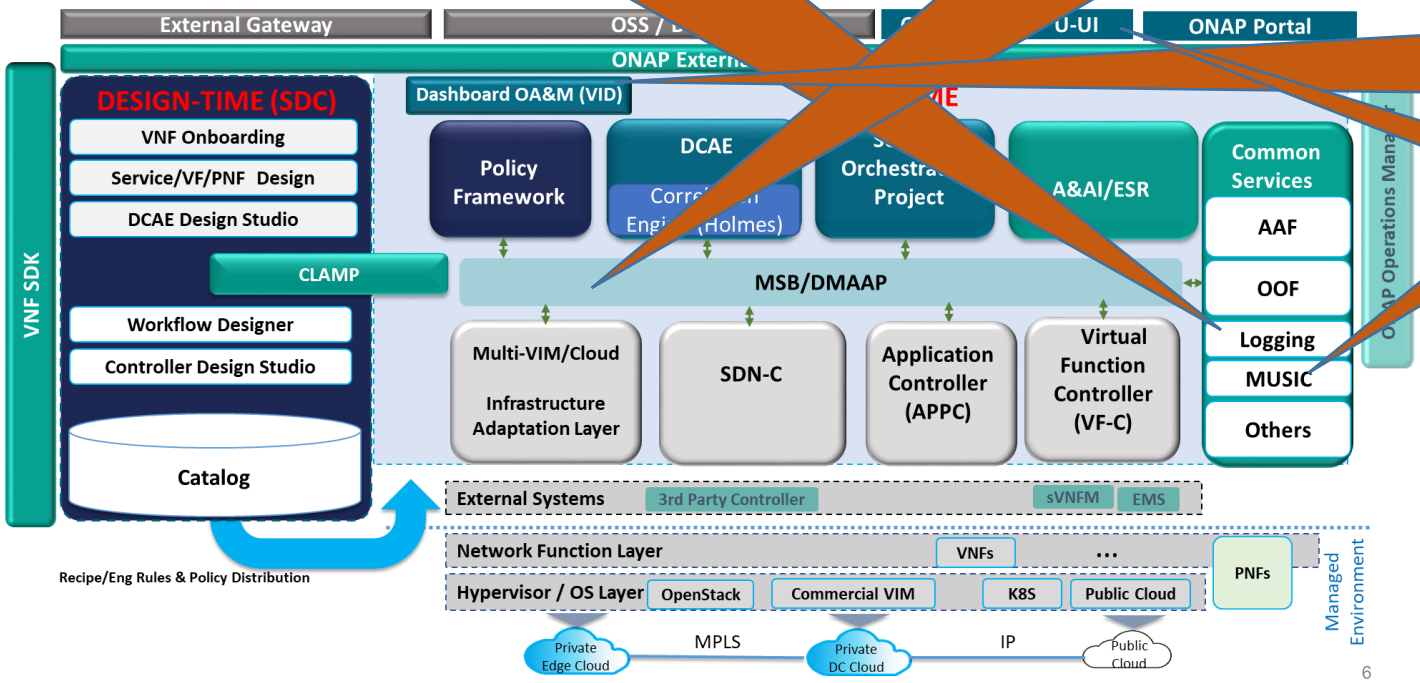
Logging provides services for the centralized collection and analysis of logs from the ONAP components

POMBA (Post Orchestration Model Based Audit) (provided by the logging project) provides post orchestration analysis.

MUSIC (Multi Site State Coordinator) provides services geographic replication of state.

VID (Virtual Infrastructure Deployer) provides the capability for operations to instantiate services and provide changes to the services

UUI (Use Case UI) provides the capability to instantiate the blueprint Ucs and visualize the state.

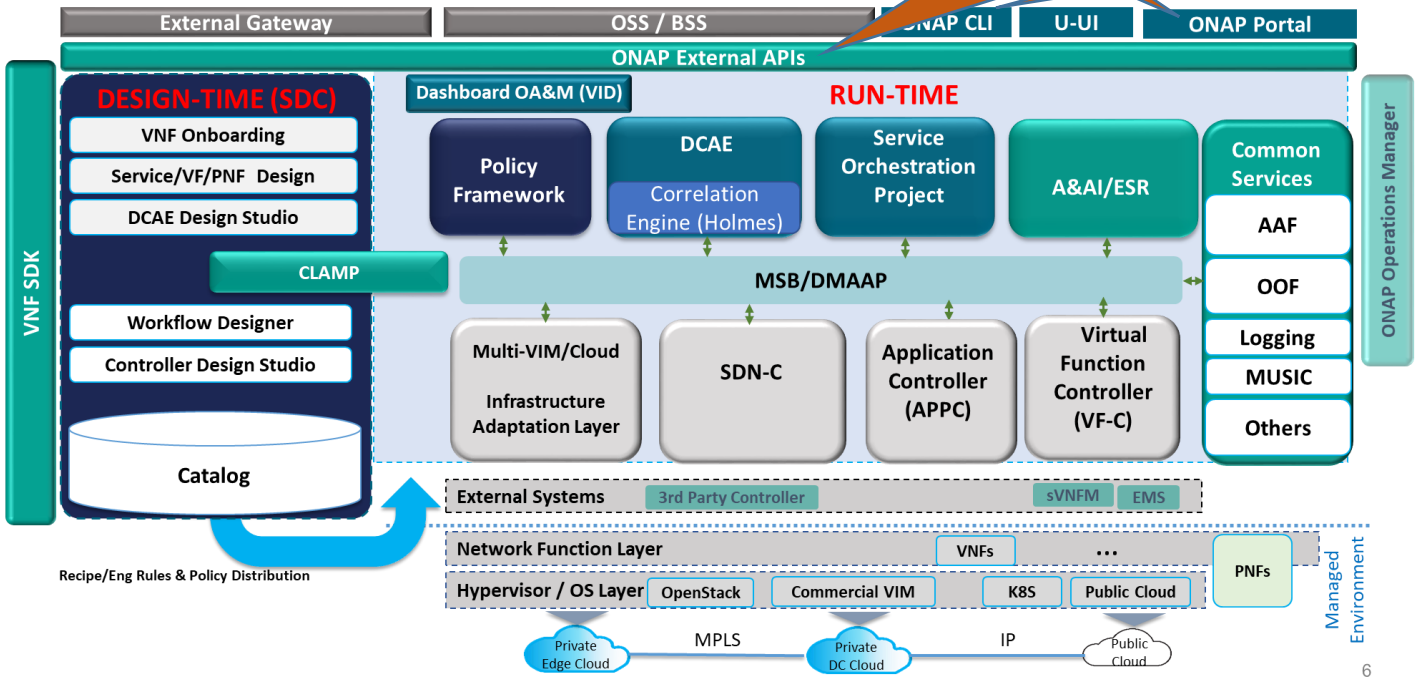


Architecture

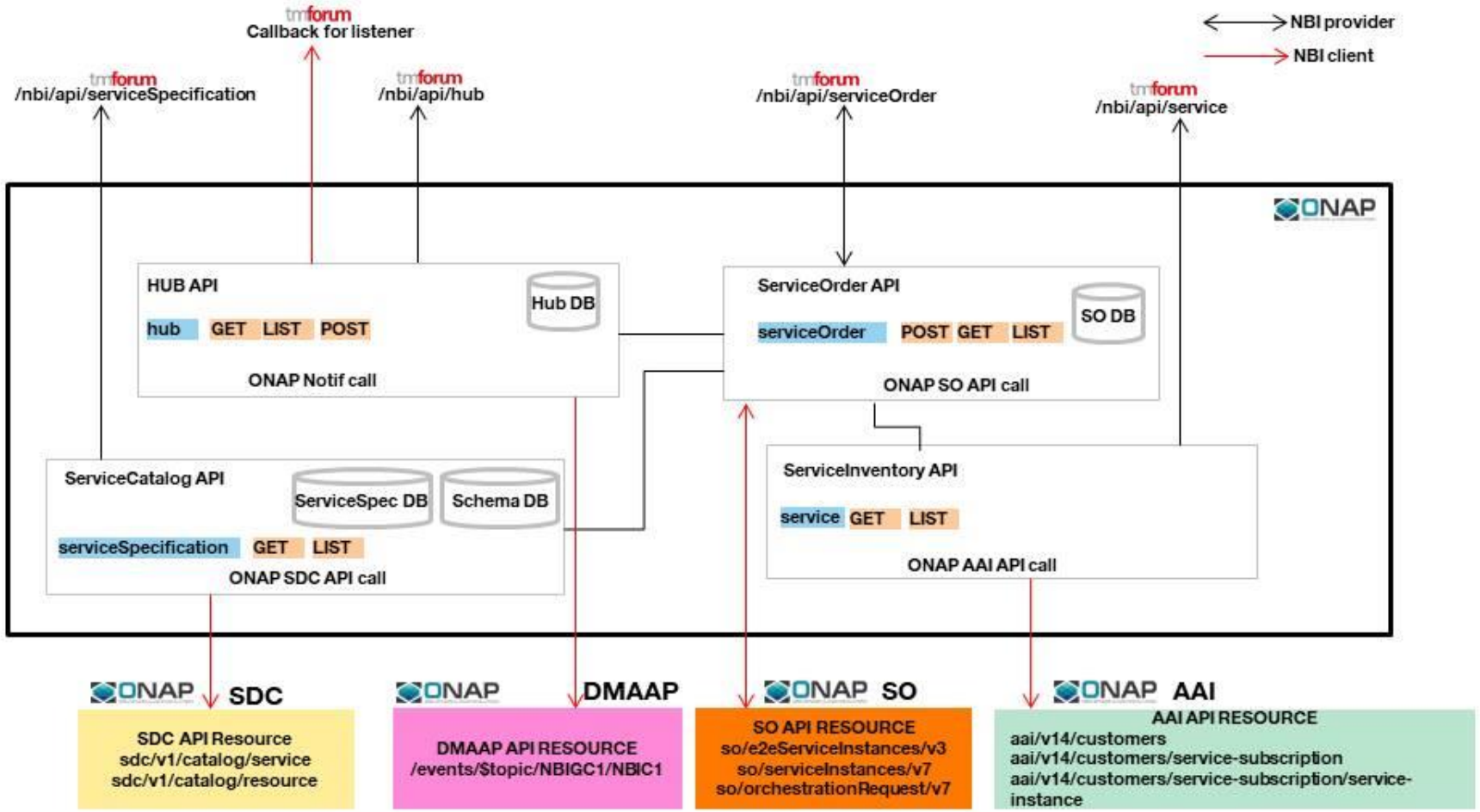
ONAP portal provides portal platform services.

External APIs provides services to expose the capability of ONAP

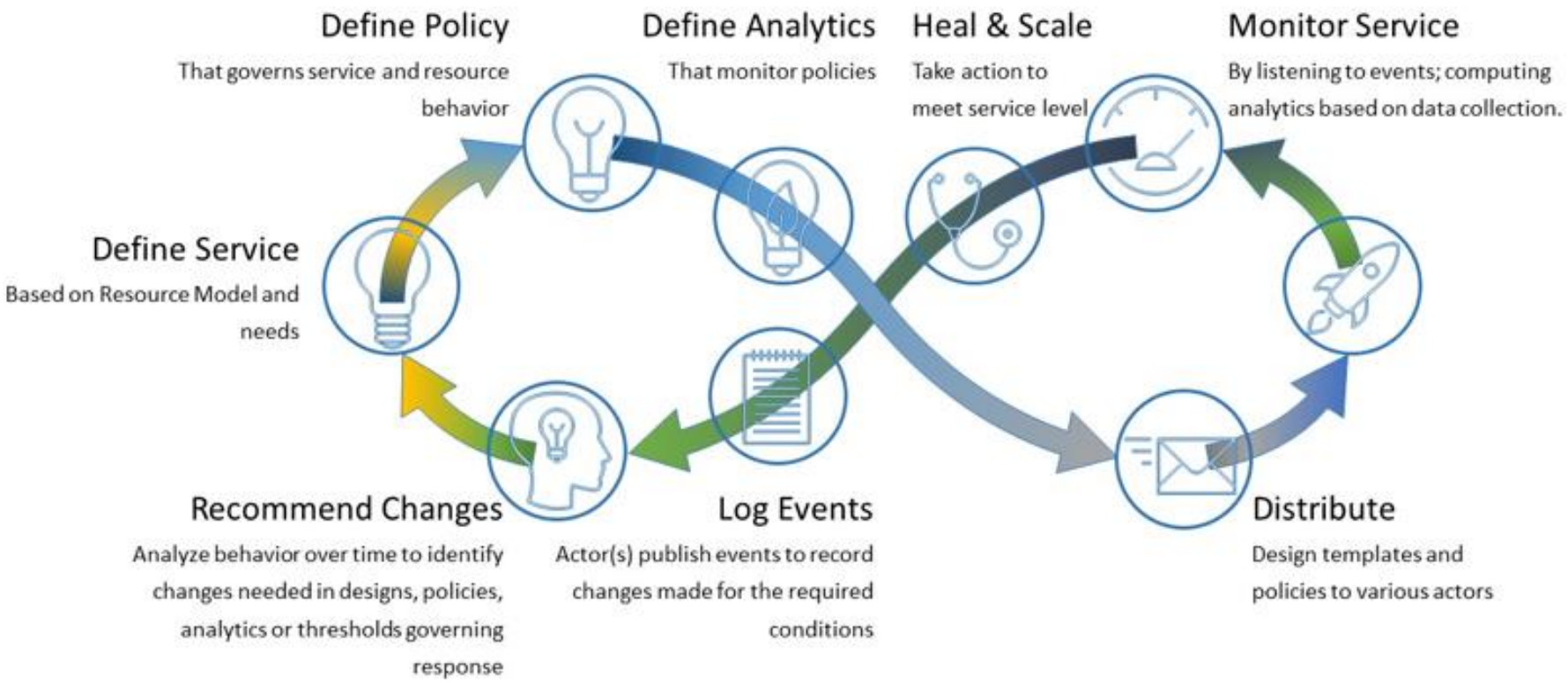
ONAP CLI provides a command line interface for access to ONAP



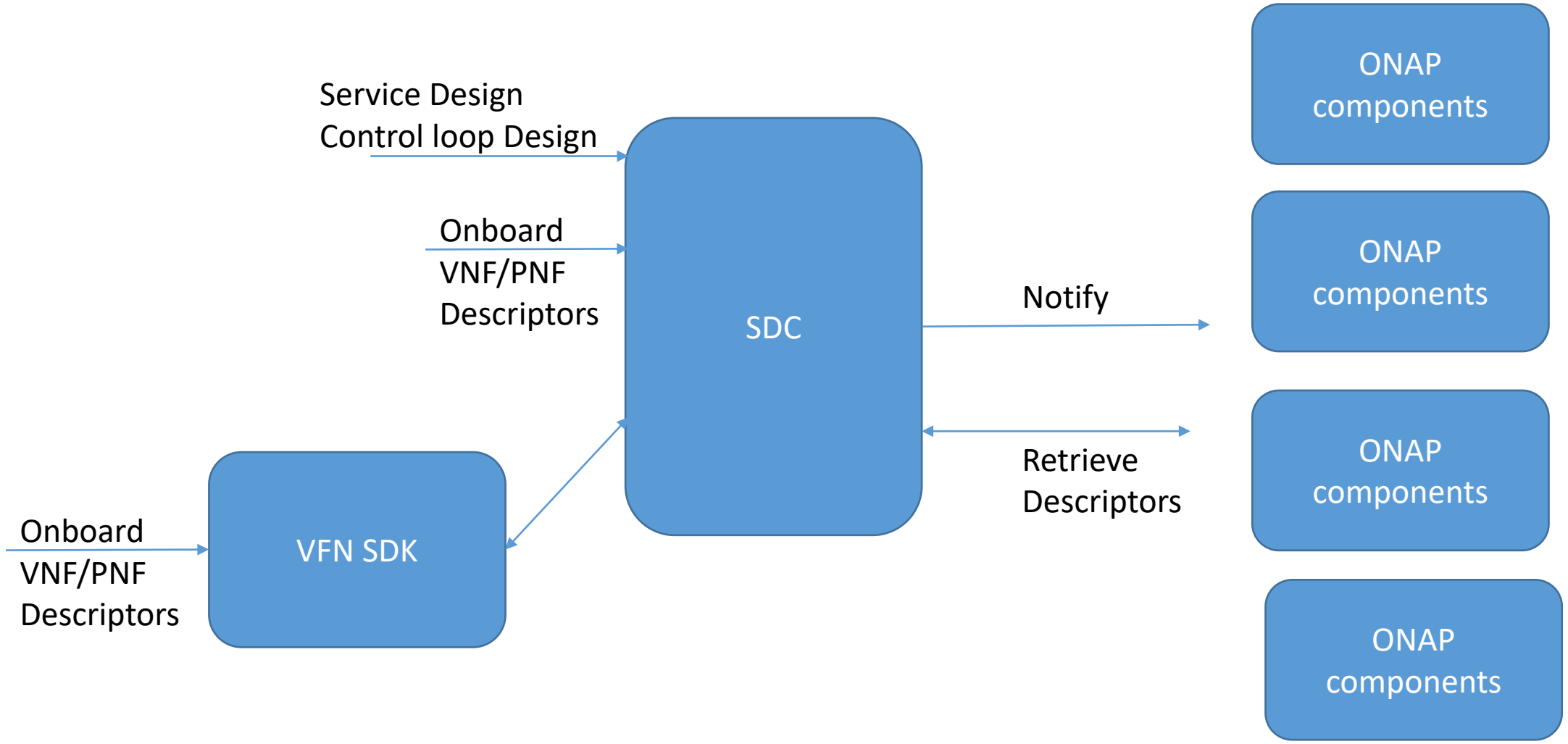
External API



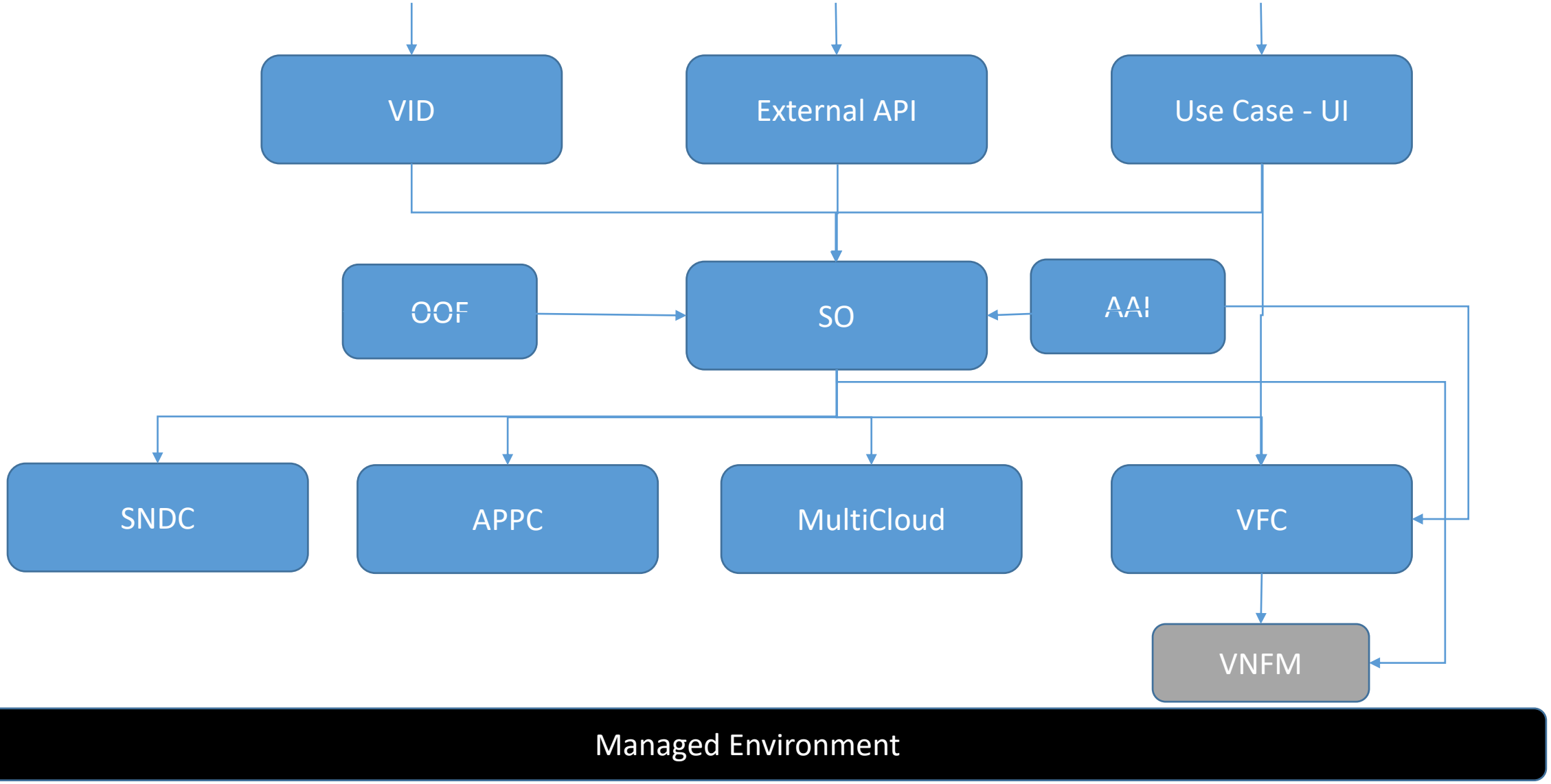
CLAMP


Define Policy
That governs service and resource behavior
Define Analytics
That monitor policies
Heal & Scale
Take action to meet service level
Monitor Service
By listening to events; computing analytics based on data collection.
Define Service
Based on Resource Model and needs
Recommend Changes
Analyze behavior over time to identify changes needed in designs, policies, analytics or thresholds governing response
Log Events
Actor(s) publish events to record changes made for the required conditions
Distribute
Design templates and policies to various actors

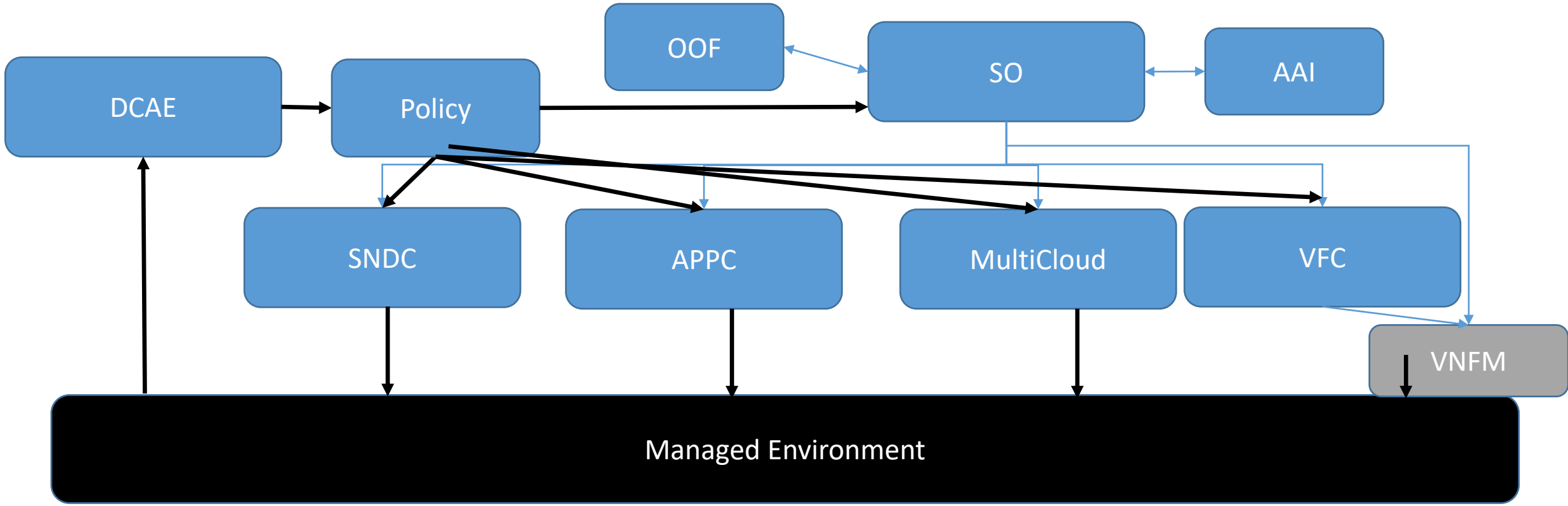
How it works – Onboarding & Design, Distribute



How it works - Instantiate



How it works – Closed loop



API compatibility

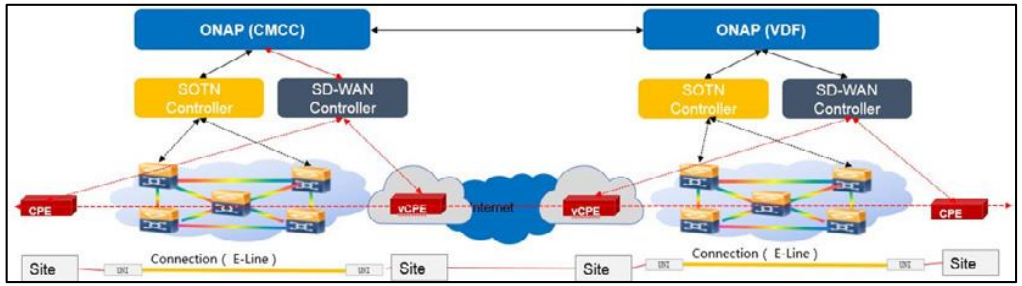
- Implement semantic versioning (MAJOR.MINOR.PATCH) for APIs
- If necessary, refactor APIs to support the concept of MINOR releases; versioning scope and use cases provided
- Adopt a BWC policy for APIs that is current MAJOR release minus 1 year (to be re-visited post-Casablanca)

ONAP Blue Prints

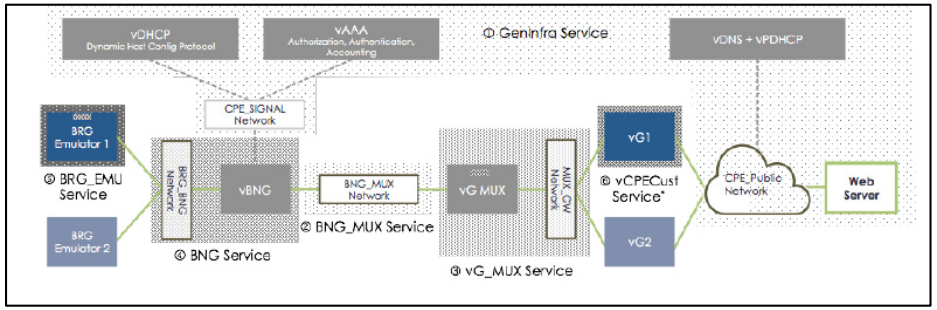
- There are several Blue Prints (aka Use cases)
  - Drive the requirements on the platform
  - Tested in Integration

5G blue print
- PNF, 5G RAN, Slicing -

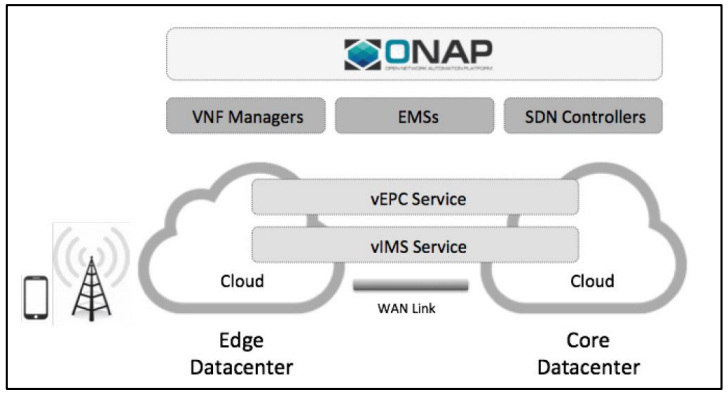
CCVPN



vCPE



vVoLTE



Platform Maturity - S3P

- Requirements on:
  - Performance
  - Stability
  - Resiliency
  - Security
  - Scalability
  - Manageability
  - Usability

- In addition:
  - Security sub-committee is working on further security requirements for the ONAP platform

VNF Requirements

- Requirements on the VNFs

VNF Requirements Documentation

Also used in the LFN ONAP Compliance Program


ONAP
OPEN NETWORK AUTOMATION PLATFORM