

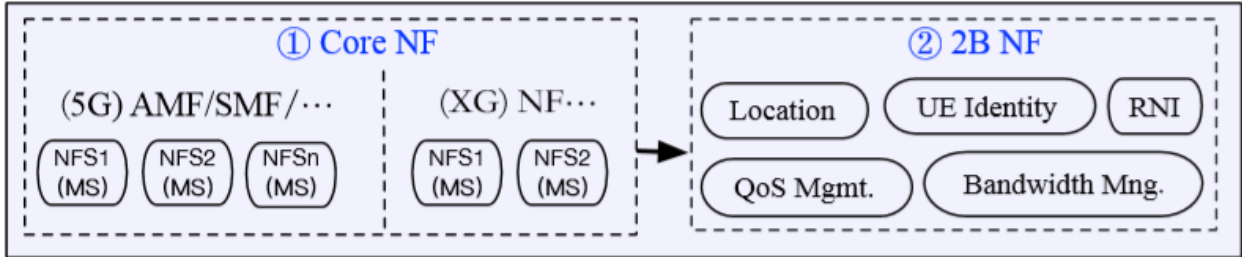
# Meeting Contents

- Time: June 12, 2020 at 13:00~14:00 UTC
- Agenda:
  - How to elect TSC efficiently?
  - Logo
  - Project scope discussion (III)

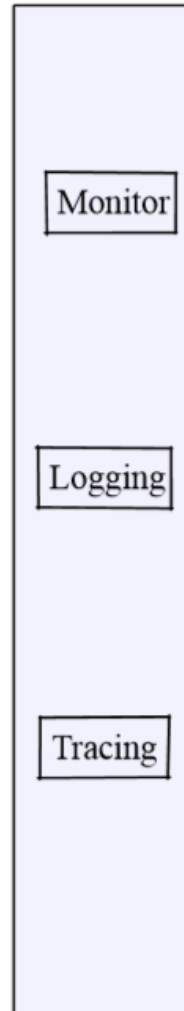
## Orchestration & Automation



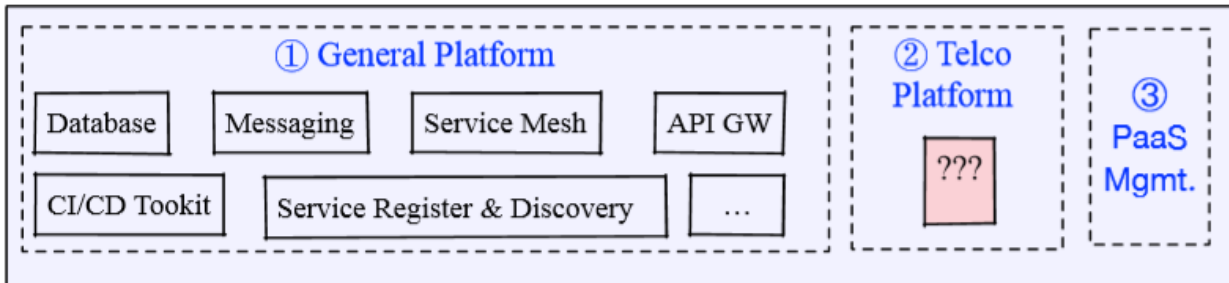
## Cloud Native NF



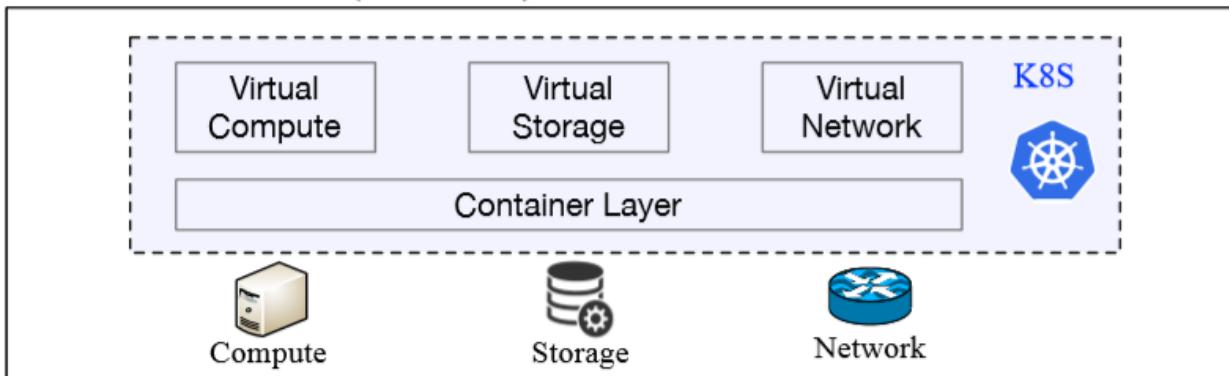
## Operation



## Telco Platform



## Cloud Infrastructures (Containers)



1. Which block should be included in XGVela?

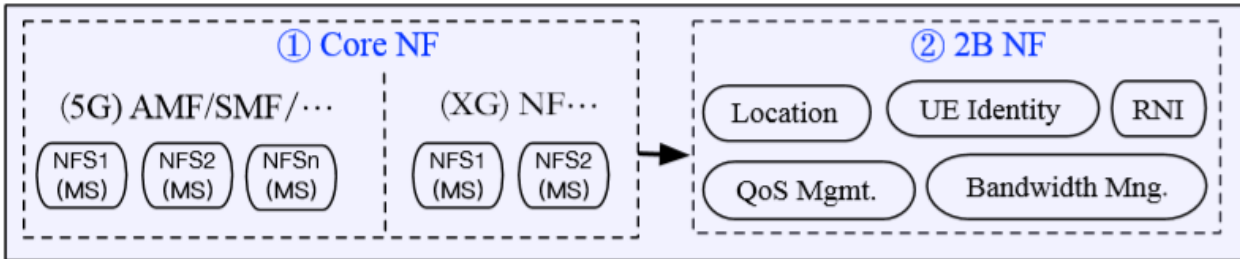
- Infrastructure layer
- Platform layer
- Network ability layer
- Orchestration layer
- Operation & maintenance

Within XGVela Scope (for discussion)

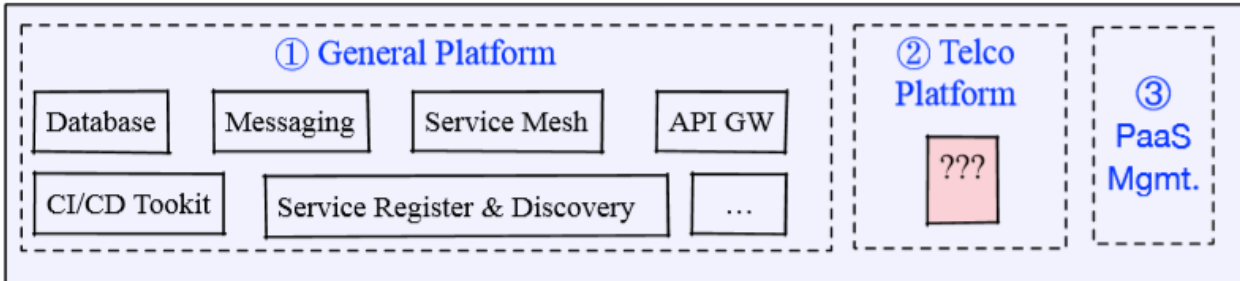
## Orchestration & Automation



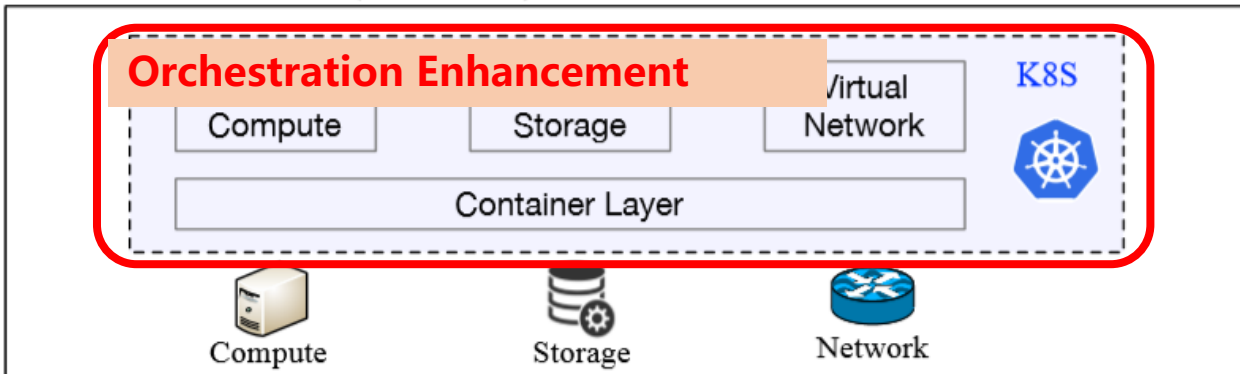
## Cloud Native NF



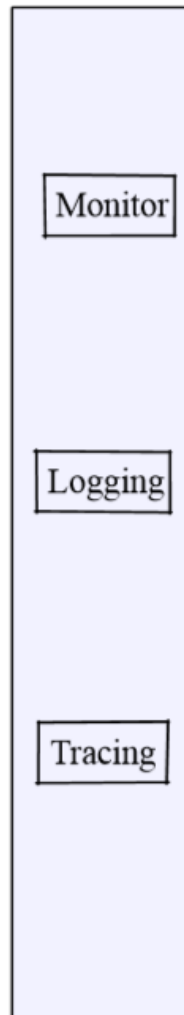
## Telco Platform



## Cloud Infrastructures (Containers)



## Operation



## 2. Scope for infrastructure layer?

- ❑ Determine the components that support running environment and infrastructure orchestration of network elements;
- ❑ Gap analysis: shortage of K8S, K8S plugins and infrastructures, identify telco enhancement point, and develop enhancement software (e.g. plugins) in a loose-coupling way;
- ❑ Fork a telco-specific K8S repository? (consist with the new version of K8S)

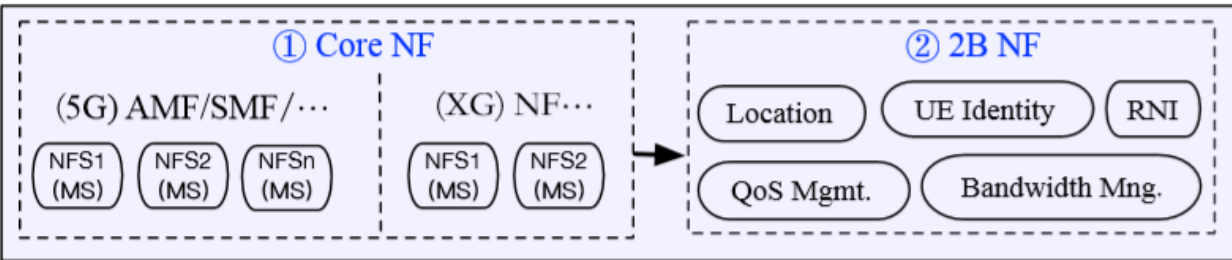
### Challenge of current orchestration:

- Multi-network connectivity (Multus)
- Service function chaining
- Specific scheduling policies
- Deterministic performances
- Accelerated data plane

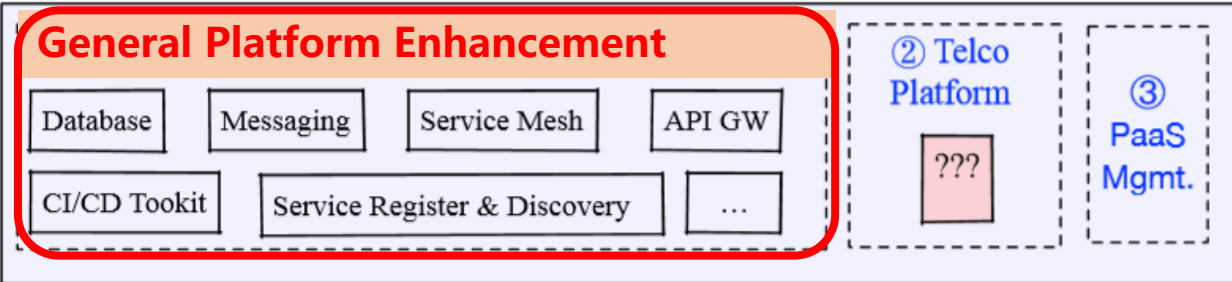
## Orchestration & Automation



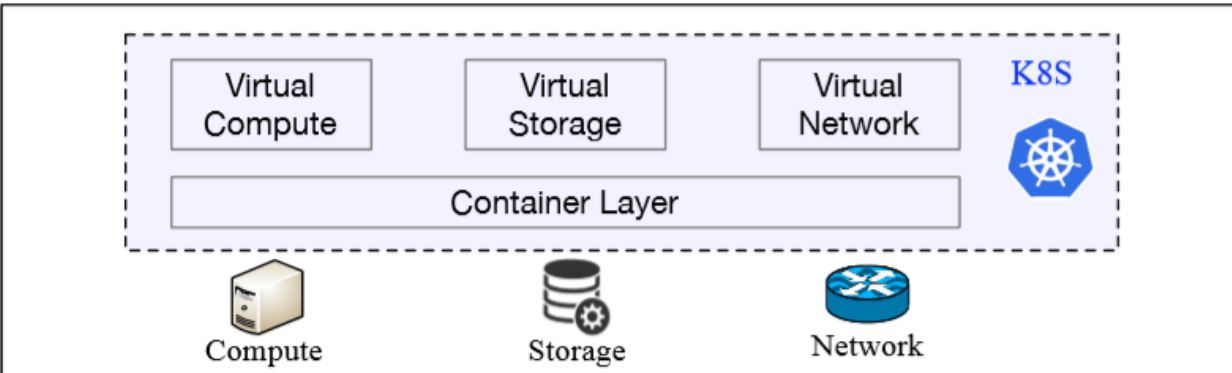
## Cloud Native NF



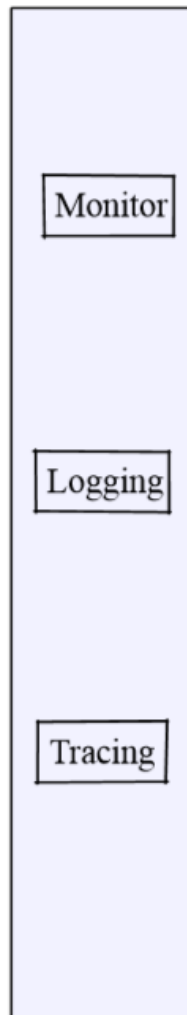
## Telco Platform



## Cloud Infrastructures (Containers)



## Operation



## 3. Scope for platform layer (General platform)?

- ❑ General platform definition & scope:
  - ❑ What could be counted as GP;
  - ❑ necessary components;
- ❑ Gap analysis between telco requirements and existing GP components, enhancement feature discovery & implementation;
- ❑ New GP component exploration & creation:
- ❑ Others?

### General Platform Challenges:

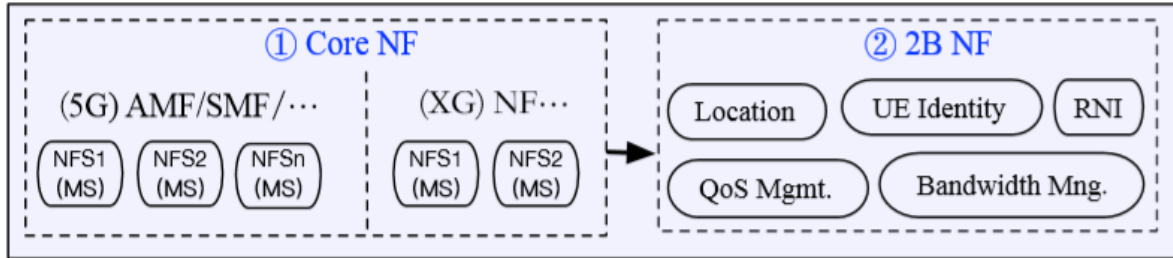
Tools provided by open sourced projects are driven by IT industry, not designed to **address the requirements of telco industry**:

- **Service Mesh**
  - performance bottleneck: iptables
  - do not support multi-network interface
- **Load Balance**
  - IT (TCP/HTTP, hundreds millisecond delay jitter)
  - CT (TCP/HTTP/UDP/SCTP/GTP, millisecond delay jitter)

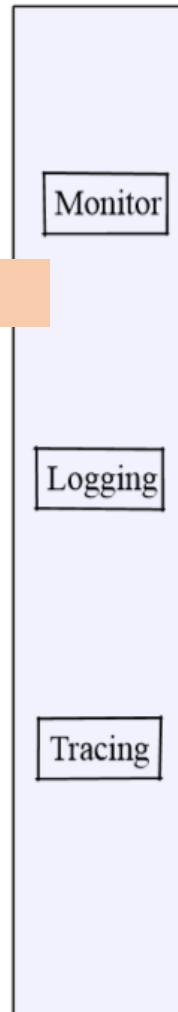
## Orchestration & Automation



## Cloud Native NF

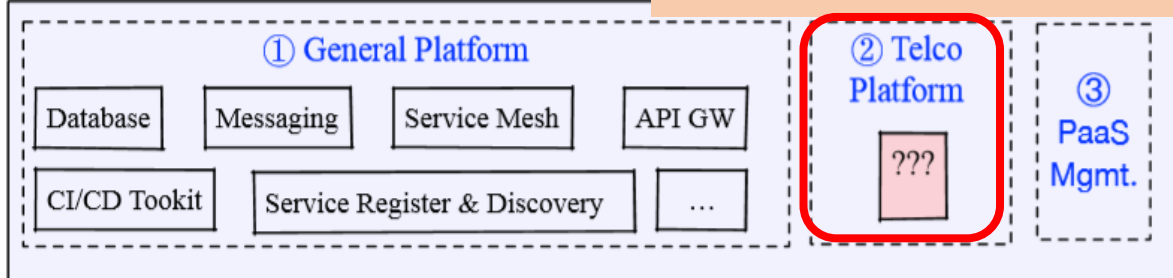


## Operation

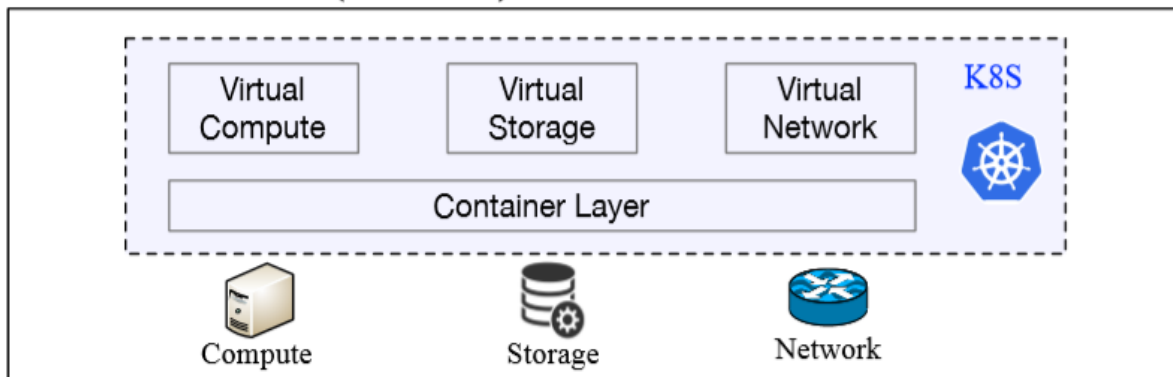


## Telco Platform

## Telco Platform Definition



## Cloud Infrastructures (Containers)



## 3. Scope for platform layer (Telco platform)?

- ❑ Make clear definition of TP and its scope:
  - ❑ What kind of components can be included as TP;
  - ❑ Difference with GP;
- ❑ Use case exploration;
- ❑ Functional components implementation;

### CMCC's ideas on TP for discussion:

- ❑ Target user: operators & vendors
- ❑ Definition: a platform for operators and vendors to build (develop) new network service & better provide those service to users;

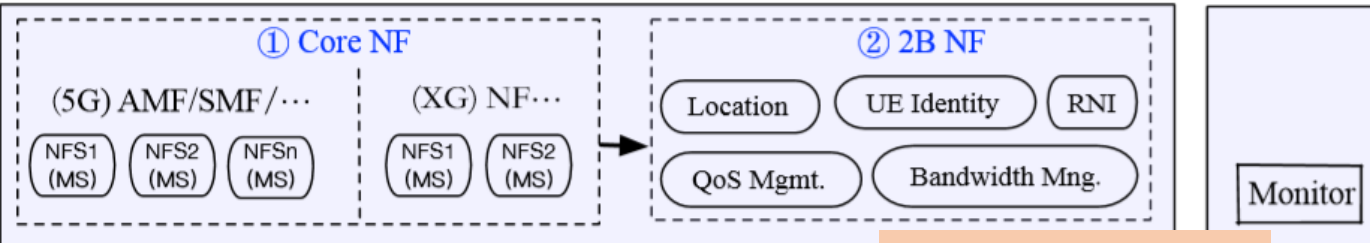
### Telco Platform Challenges:

1. What kind of component can be defined as a telco platform function?—telco specific (99.999% LB? HA? OMU?)
2. For 5GC, is there already any telco components can be abstracted from core network function?
3. Enhanced general platform is enough or not to support core network?

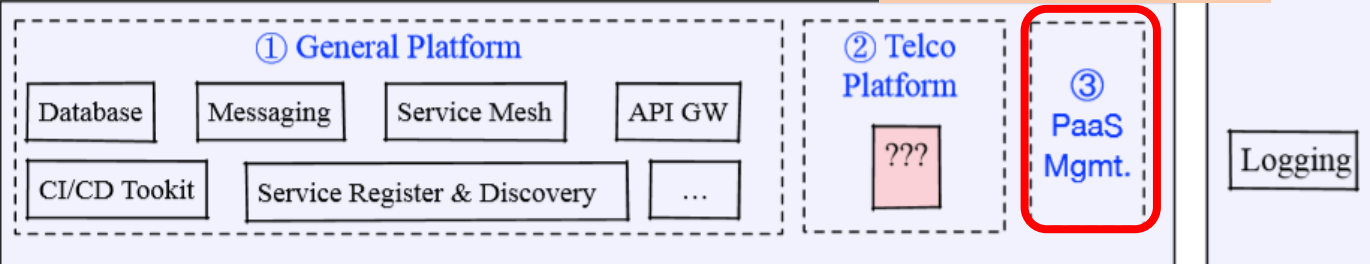
## Orchestration & Automation



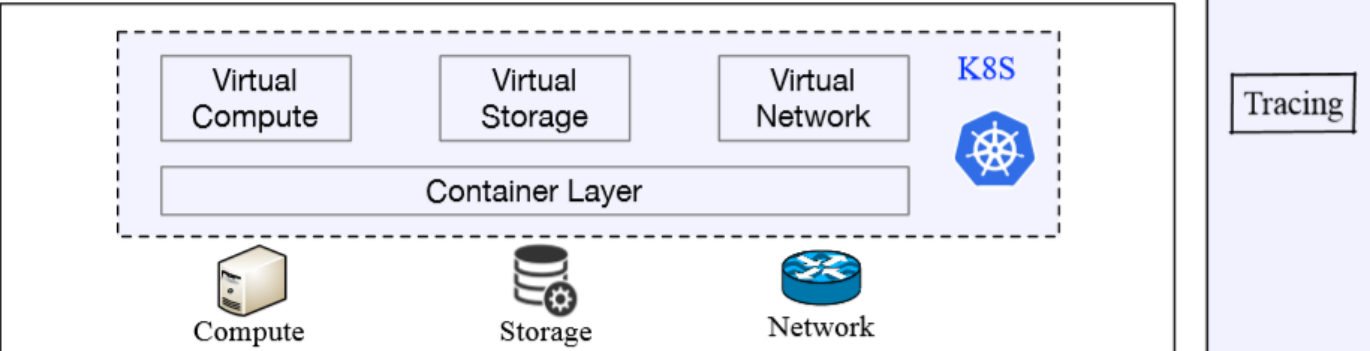
## Cloud Native NF



## Telco Platform



## Cloud Infrastructures (Containers)



## 3. Scope for platform layer (PaaS Manager)?

- ❑ Do we need a new PaaS manager?
- ❑ Definition and function:
  - ❑ What's the gap between this new PaaS manager and existing PaaS manager? What's the telco enhancement?
  - ❑ A PaaS ability orchestrator to support operators and vendors to manage existing PaaS abilities (GP & TP) to create new PaaS abilities.



## Orchestration & Automation

Centralized  
Orchestration

Network Slice  
Manager

Centralized  
Operation

Centralized  
Analytics

## Cloud Native NF

### Core NFs

(5G) AMF/SMF/...

(XG) NF...

NFS1 (MS) NFS2 (MS) NFSn (MS)

NFS1 (MS) NFS2 (MS)

② 2B NF

Location

UE Identity

RNI

QoS Mgmt.

Bandwidth Mng.

## Operation

Monitor

Logging

Tracing

## Telco Platform

① General Platform

Database

Messaging

Service Mesh

API GW

CI/CD Toolkit

Service Register & Discovery

...

② Telco  
Platform

???

③  
PaaS  
Mgmt.

## Cloud Infrastructures (Containers)

Virtual  
Compute

Virtual  
Storage

Virtual  
Network

K8S



Container Layer



Compute



Storage



Network

## 4. Scope for network ability layer (telco core)?

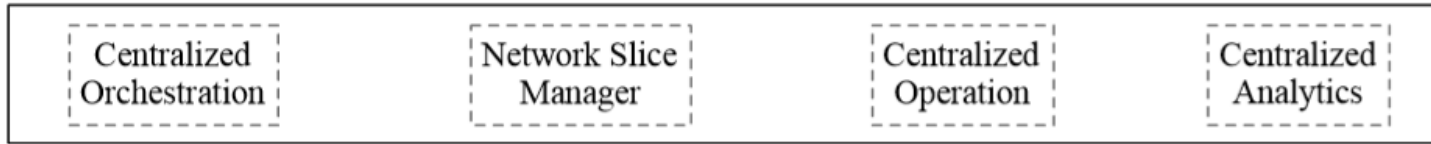
□ ?

### Core network functions challenges:

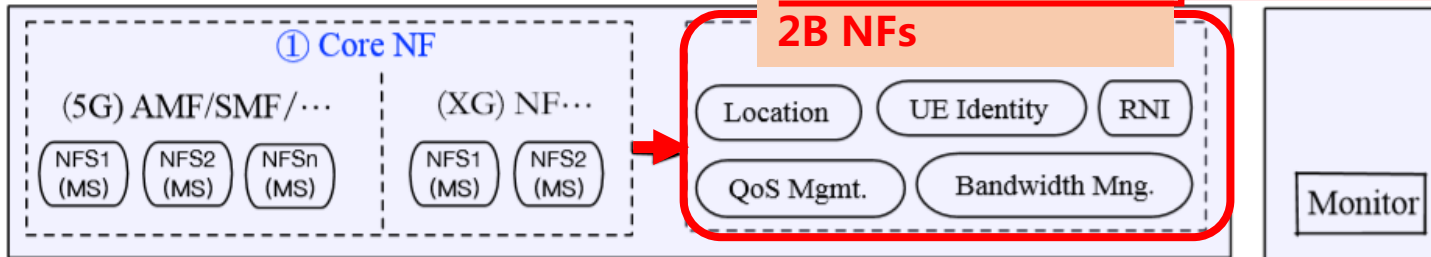
More vendors establish the 5GC by microservices, components and abilities can be provided through standard APIs for assembling.

- No standards for microservice redesign?
- How to achieve this on an open source PaaS platform while still reserve operators' and vendors' core value?
- Components of telco core network can be extracted as telco platform? (used to support 5GC development & XG NF creation)

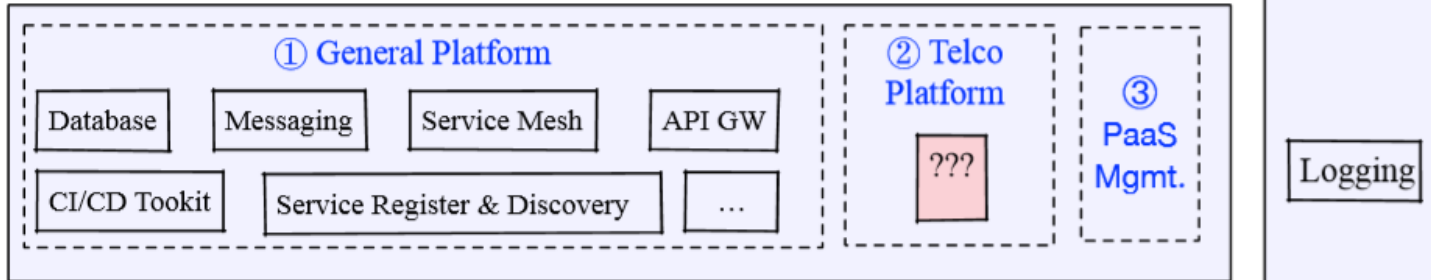
## Orchestration & Automation



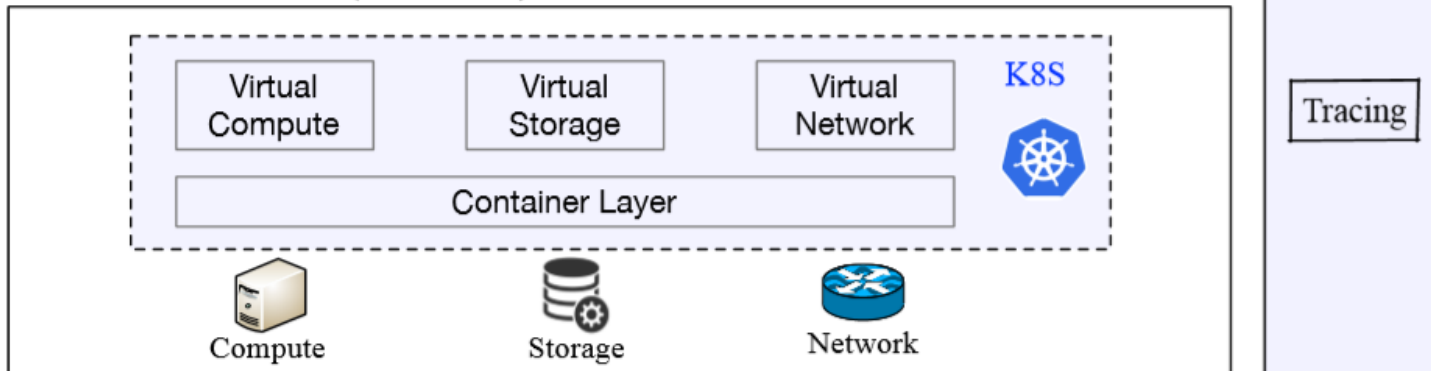
## Cloud Native NF



## Telco Platform



## Cloud Infrastructures (Containers)

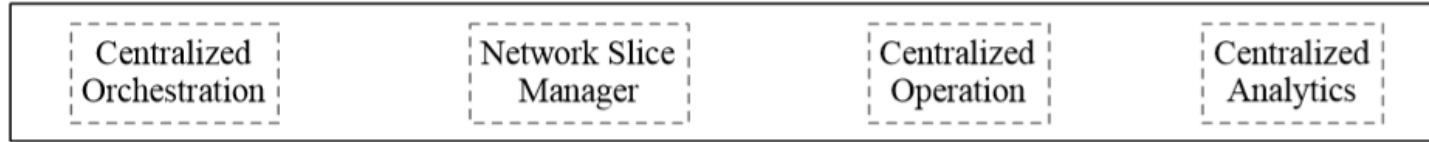


## 4. Scope for network ability layer (2B NFs)?

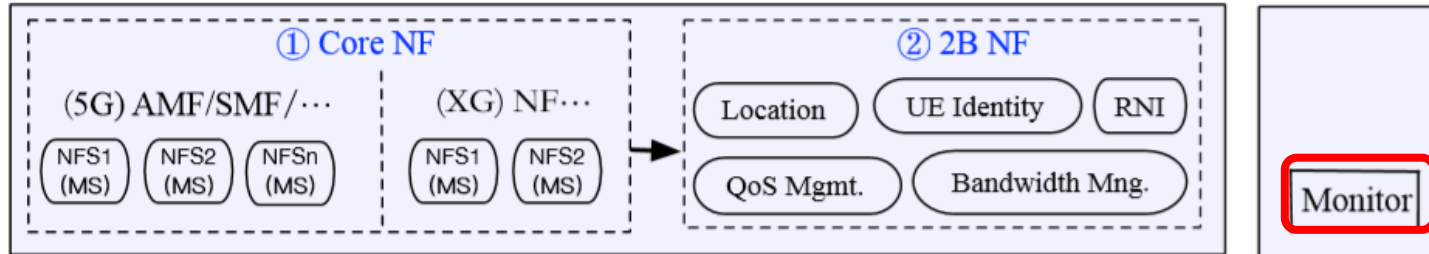
- ❑ Encapsulate core network ability as 2B NFs and expose them (Location, UE Identity, QoS Mgmt., etc.) to industrial users and enterprise users through standard APIs;
- ❑ Explore use cases and requirements on network abilities, discover the combination of different network abilities;
- ❑ Integrate with telco platform to provide service to 2B users;
- ❑ ? How to create a mechanism support flexible and self-assemble 2B NFs?



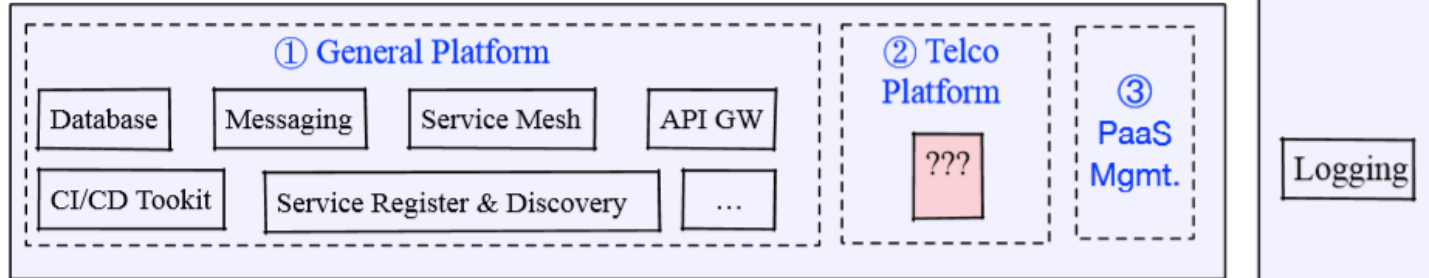
## Orchestration & Automation



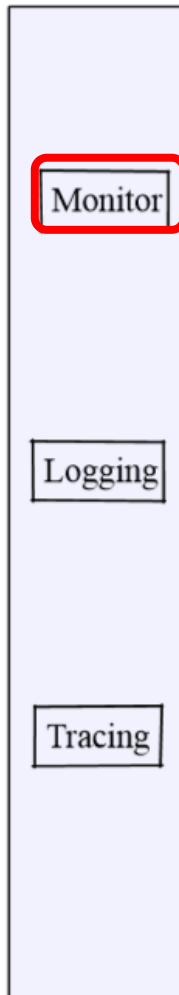
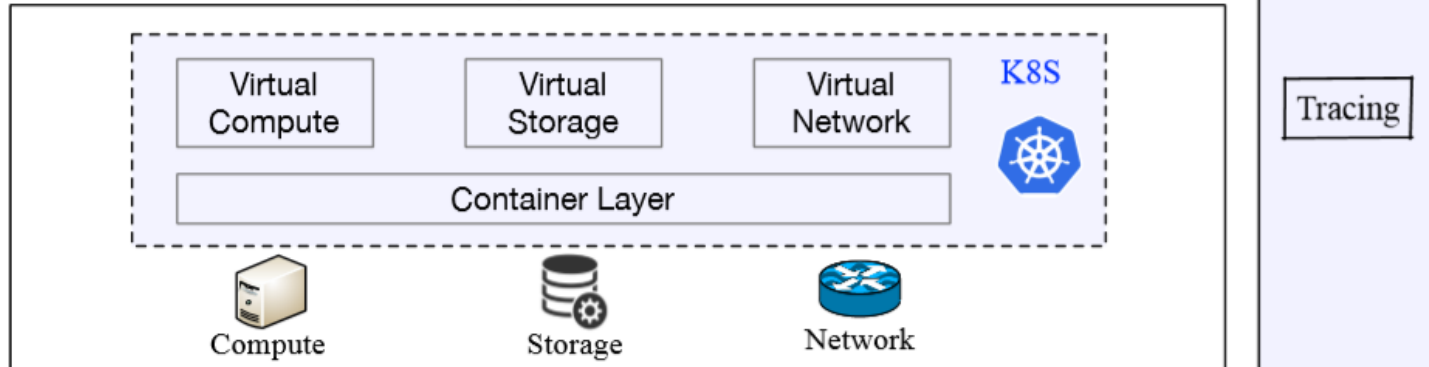
## Cloud Native NF



## Telco Platform



## Cloud Infrastructures (Containers)



## 5. Scope for operation and maintenance?

- ❑ Enhancement of existing O&M software;
- ❑ Define monitoring metrics of network functions;
- ❑ Others?

### O&M Challenges:

- Some excellent observation and analyzation software are designed for IT industry.
- **Prometheus** has become the de-facto standard for monitoring in Kubernetes environments, **how to use Prometheus at scale?**
- Different kinds of VNFs (vswitch, vFW, vDNS, etc.) need metrics from different dimensions?

Notes: