XGVela Update & Discussion

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XGVela Overview| Brief Introduction

Status

Launch at: April 30, 2020

Currently a LF unfounded project

Plan to join LFN

Name explanation

XG: 4G, 5G, 6G ...... XG

Vela: Sail in Latin to accelerate cloud native transformation and innovation

Project definition

An open source cloud native PaaS for applications and telco network functions, which is to enable new services and help mobile operators to seize the business opportunity from vertical industries in the 5G era

TSC member (In alphabetical order)

More Operators and end users are welcomed!

XGVela Overview| Why need XGVela

✓ With the help of NFV, SDN and orchestration management technology, current operator network is transforming from the traditional hardware and software equipment to the layered and decoupled cloud network.

✓ In the future, thanks to the application of container, microservice and other technologies, it will eventually evolve into the cloud native network.
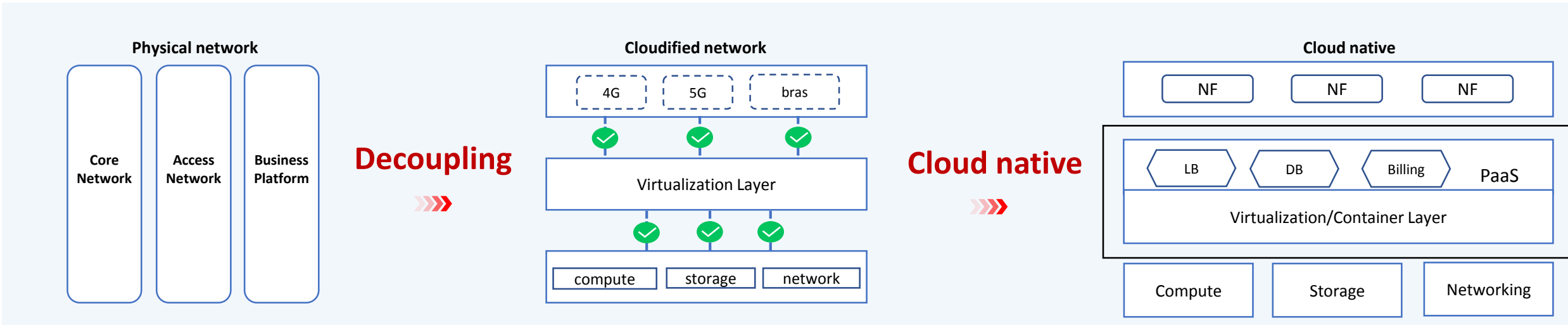
✓ With XGVela, a cloud native telco PaaS platform, the following benefits can be provided.

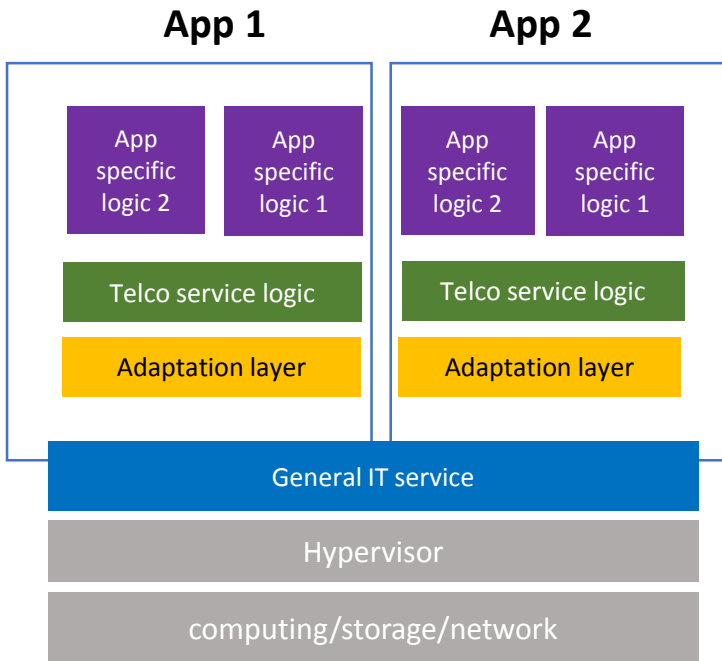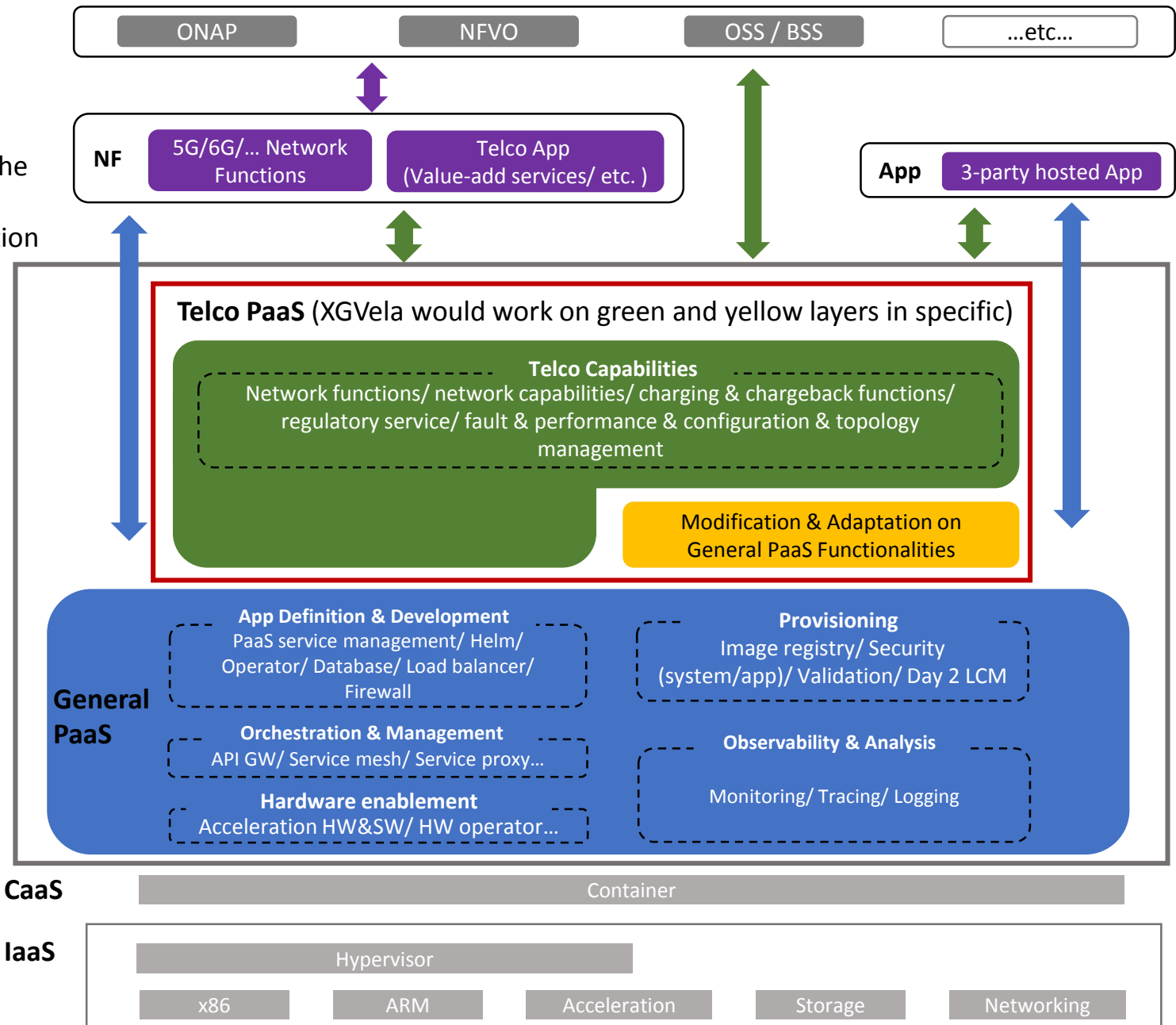| Response to fast-changing requirements in 5G era	Cover the shortage of VM platform	Create open eco-system in telco industry	Autonomous control of XGVela
• High flexibility in 2B scenarios • Quick function upgrade • Agile capabilities release	• VM Guest OS cumbersome • Low deployment density with VM • Slow start and stop of virtual machine	• Reduce barriers to enter the telco-industry • Expand and prosper the ecosystem • Reduce the cost on network construction	• Common PaaS service for NFs • Standard capability APIs • App focus on App specific logics

XGVela Update| Overview

1. Application tailoring:

- The NFs / applications are further decomposed according to the microservices architecture
- Strip away the parts that have nothing to do with the application itself

App 1

App specific logic 2	App specific logic 1
Telco service logic	
Adaptation layer	

App 2

App specific logic 2	App specific logic 1
Telco service logic	
Adaptation layer	

General IT service

Hypervisor

computing/storage/network

2. Platform addition:

- Support the coexistence of multiple resource forms
- Based on network element software architecture, the implementation of the general service rely on the platform
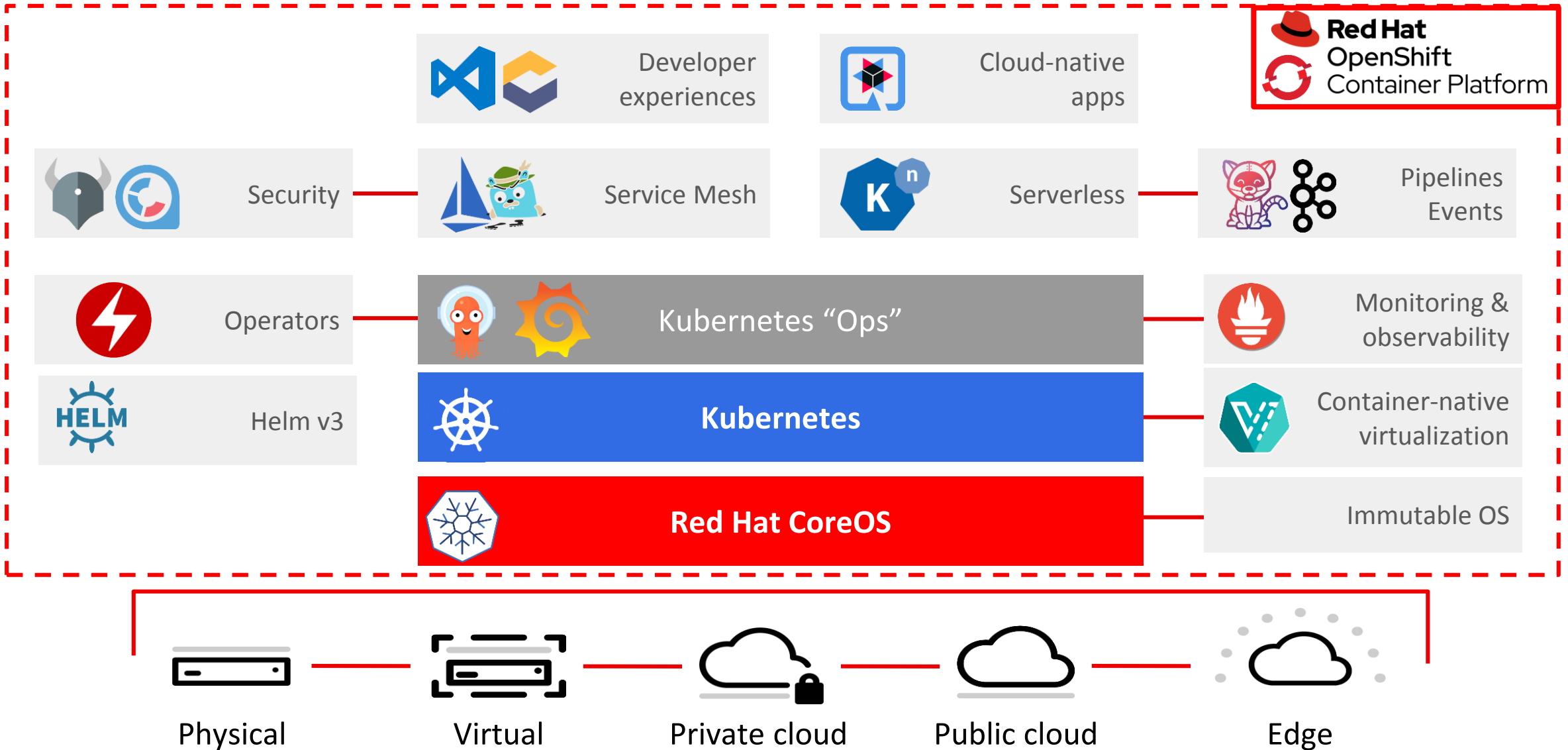- Provides unified capabilities through API

ONAP | NFVO | OSS / BSS | ...etc...

NF
- 5G/6G/... Network Functions
- Telco App (Value-add services/ etc.)

App
- 3-party hosted App

PaaS

Telco PaaS (XGVela would work on green and yellow layers in specific)

Telco Capabilities
Network functions/ network capabilities/ charging & chargeback functions/ regulatory service/ fault & performance & configuration & topology management

Modification & Adaptation on General PaaS Functionalities

General PaaS

App Definition & Development
PaaS service management/ Helm/ Operator/ Database/ Load balancer/ Firewall

Provisioning
Image registry/ Security (system/app)/ Validation/ Day 2 LCM

Orchestration & Management
API GW/ Service mesh/ Service proxy...

Observability & Analysis
Monitoring/ Tracing/ Logging

Hardware enablement
Acceleration HW&SW/ HW operator...

CaaS
Container

IaaS
Hypervisor

x86 | ARM | Acceleration | Storage | Networking

XGVela Update| Architecture Document

Architecture Outline

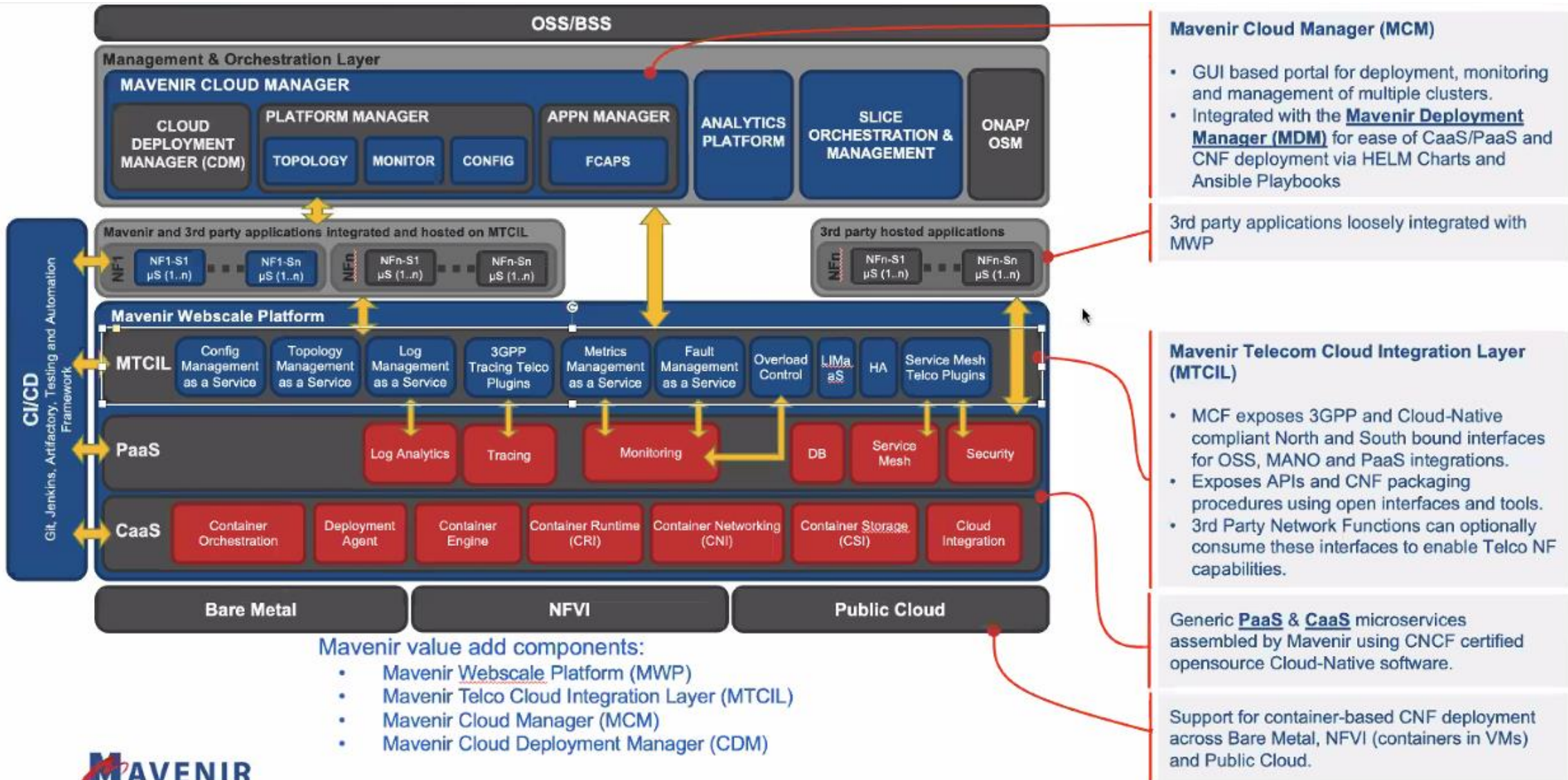GOAL: Create an architecture outline identifying key areas that need work

▸ Key areas identified so far

  · Networking

  · Telemetry and Management

  · Common Data and Information models

  · Regulatory Services

  · Platform and Workload policy

  · API Management

  · Etc... 16-17 such sub topics

▸ Assigned subsections to volunteers/owners

▸ Reviewed contributions in weekly meetings

▸ Seed code expected to kick start the work

▸ Plenty of good ideas and operationalizing it slowly

Participation and technical contributions welcome!!!

Telco PaaS - Much more than Kubernetes

XGVela

Developer experiences

Cloud-native apps

Red Hat OpenShift Container Platform

Security

Service Mesh

Serverless

Pipelines Events

Operators

Kubernetes "Ops"

Monitoring & observability

Helm v3

Kubernetes

Container-native virtualization

Red Hat CoreOS

Immutable OS

Physical Virtual Private cloud Public cloud Edge

XGVela Update| MTCIL as Seed code

XGVela Update| Community Scope

Document
- XGVela architecture, requirements, use cases, etc.
- XGVela platform User Guide

Development
- Telco specific PaaS capabilities (Functionalities, APIs, etc.)
- Modification, adaptation and enhancement on General PaaS functionalities (drivers, plug-ins, etc.)

Integration
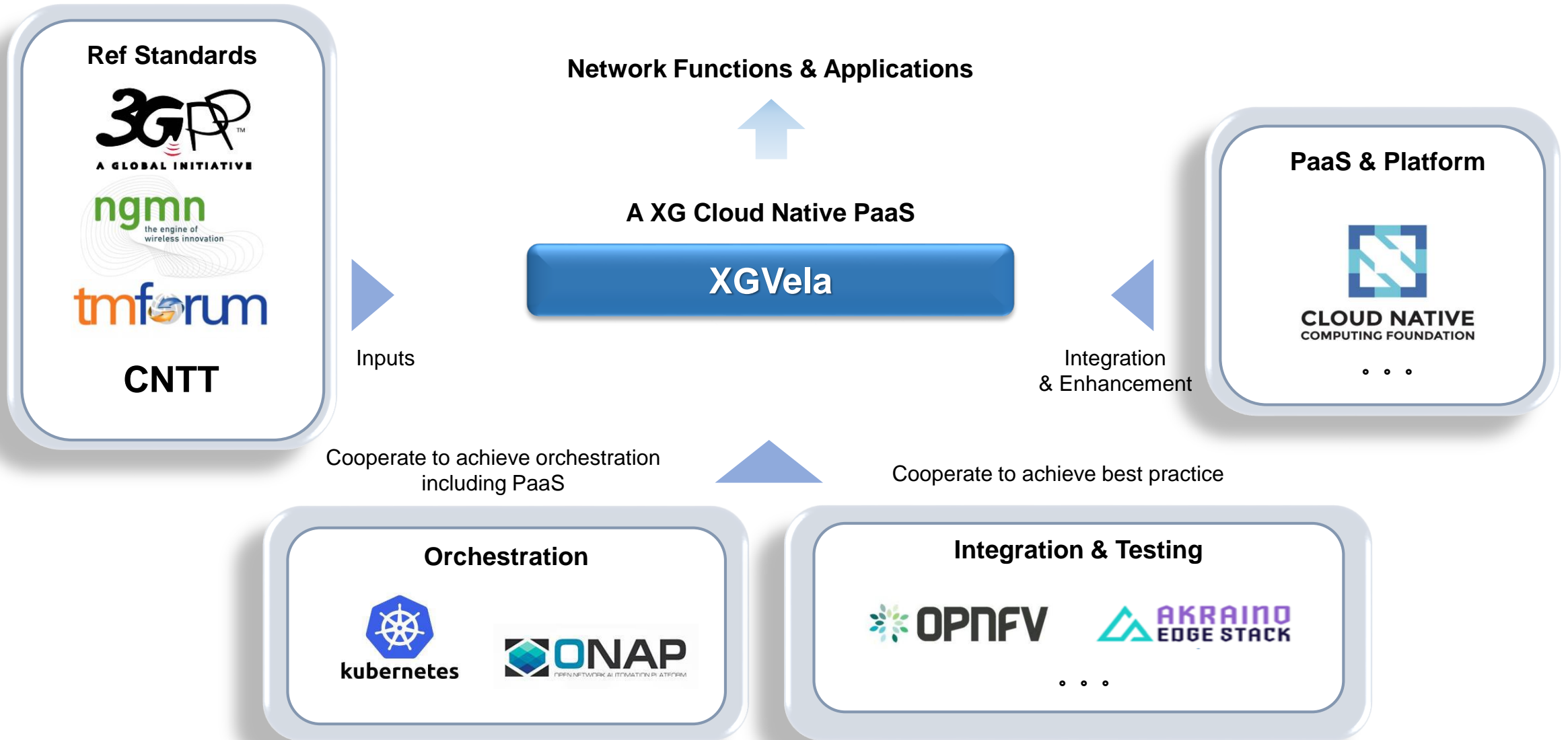- General-PaaS & Telco-PaaS

Testing & POC
- XGVela with cloud native NF/applications
- XGVela with related orchestration and management systems, etc.

Certification
- Commercial product certification (long-term scope)

XGVela Update| Cross-Community Collaboration

Network Functions & Applications

Ref Standards

3GPP
A GLOBAL INITIATIVE

ngmn
the engine of wireless innovation

tmforum

CNTT

A XG Cloud Native PaaS

XGVela

Inputs

PaaS & Platform

CLOUD NATIVE
COMPUTING FOUNDATION

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Integration & Enhancement

Cooperate to achieve orchestration including PaaS

Cooperate to achieve best practice

Orchestration

kubernetes

ONAP
OPEN NETWORK AUTOMATION PLATFORM

Integration & Testing

OPNFV

AKRAINO
EDGE STACK

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XGVela Update| References

Project links

- *Github Wiki: https://github.com/XGVela/XGVela/wiki*

- *Meetings :*

  - *TSC meeting: every Tuesday, 13:00-14:00 UTC,*

    https://zoom.us/j/95282670859?pwd=Y2tZSGJGTVp3NGYwZHljMEhraG81UT09

  - *Global meeting: every other Friday, 13:00-14:00 UTC,*

    https://zoom.us/j/95137785359?pwd=eDhXSmJXdVVKOUpUcnNaS0N4d3FUdz09

- *Mailing list: https://lists.xgvela.org/g/xgvela-tsc*

- *Domain: https://xgvela.org/*

- *Slack: https://join.slack.com/t/xgvela/shared_invite/zt-i0jerfw6-MTzStY34B5rFGHxLkwns4w*

- *Architecture outline:*

  - *https://docs.google.com/document/d/15_JnwoSxl0-MAy3u_y6WSvyFVkrNCnuqJ0kWkK7Z6bk/edit*

Thank you

OpenShift Container Platform

Advanced Cluster Management

Multi-cluster Management
Discovery · Policy · Compliance · Configuration · Workloads

OpenShift Container Platform

Manage Workloads | Build Cloud-Native Apps | Developer Productivity

Platform Services
Service Mesh · Serverless
Builds · CI/CD Pipelines
Full Stack Logging
Chargeback

Application Services
Databases · Languages
Runtimes · Integration
Business Automation
100+ ISV Services

Developer Services
Developer CLI · VS Code extensions
· IDE Plugins
Code Ready Workspaces CodeReady
Containers

OpenShift Kubernetes Engine

Cluster Services
Automated Ops · Over-The-Air Updates · Monitoring · Registry · Networking · Router · KubeVirt · OLM · Helm

Kubernetes

Red Hat Enterprise Linux & RHEL CoreOS

Physical

Virtual

Private cloud

Public cloud

Managed cloud
(Azure, AWS, IBM, Red Hat)

Red Hat