



China Mobile's Cloud Native Progress

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NFV: From Concept to Reality

Since 2012, taken the next generation network transformation as the goal, China Mobile has seized the opportunity of ICT integration and been in continuous innovation and revolution. After ten years of efforts, the NFV/SDN network with super-large scale, full functions been developed, which has become one of the best reference practices for the network transformation of telecom operators.



Concept and PoC

- 2012.10 ETSI NFV Whitepaper
- 2015.9 1st NFV Pilot, continuously guide next 9 years' business realization
- 2016.5 NovoNet Tesing, to verify NFV/SDN



Key Task Focus and large Scale Deployment

- 2018.12 vEPC\NIMS deployment
- 2019.10 Cloud Network 2.0, deployment in 5G
- 2023.8 Cloud Network 3.0, computing force resources pool development kick-off



Continuous Evolution

- 2023.6 Contribute to ETSI <NFV: towards Next Decade >
- Cloud Native Network Development and intelligent evolution

NFV: From Concept to Reality

Server

Over 200,000

5G user

Over 5,800 million

IMS/VoNR user

9,100 million

Service Cloudification

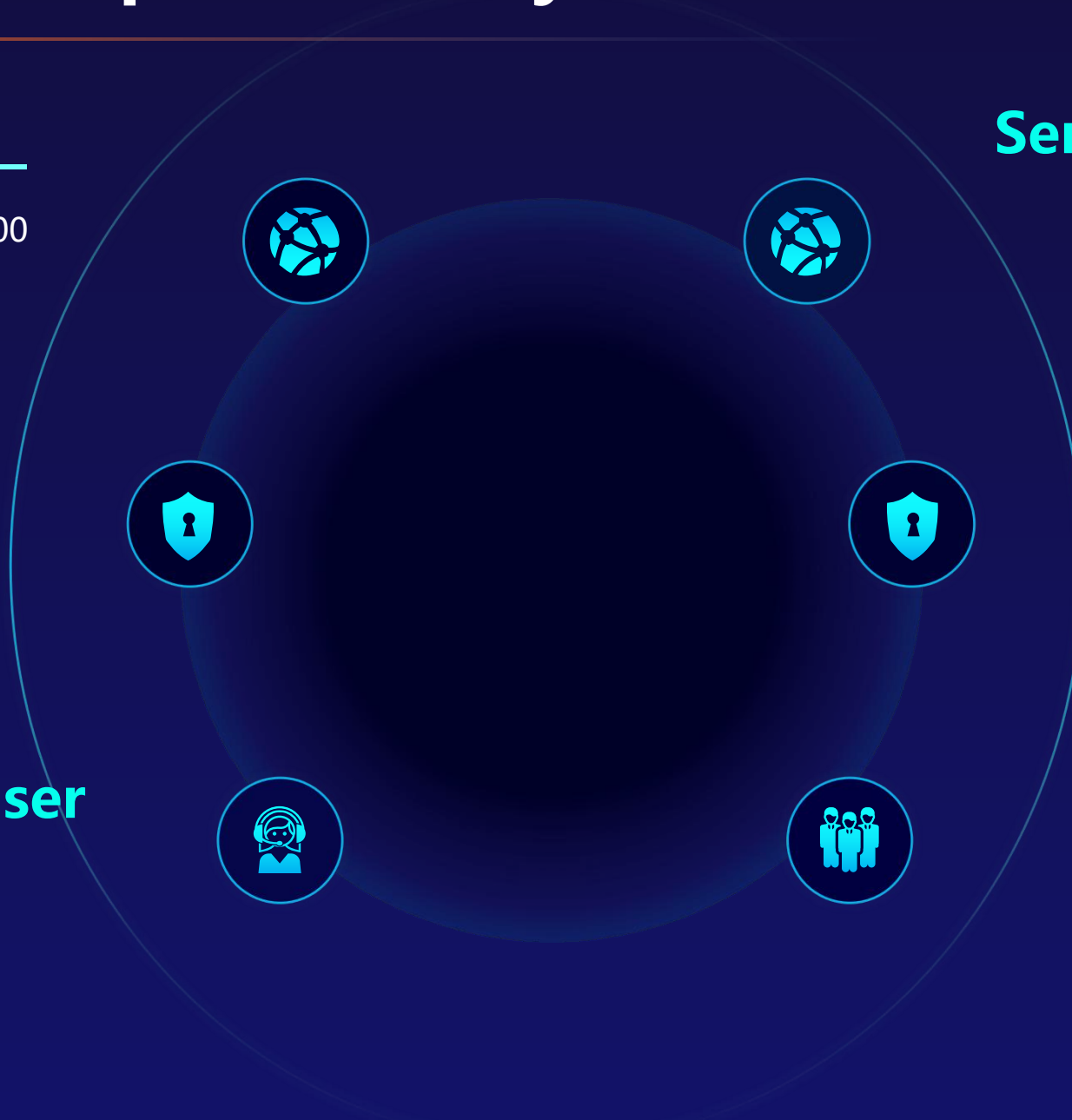
Over 46 Types

5GC Cloudification

100%

Project Delivery

duration shortened 75%



NFV Development and Trending



Next-Gen Network

Fully Cloudification

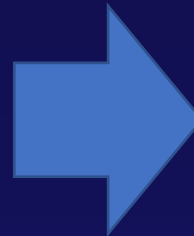
SaaS/PaaS of Network Functions promote even fully cloudification of Network, to realize integrated and collaborated architecture

Higher Quality

More refined Network design under cloud native concept. Higher management efficiency, quicker innovation and more openness

Better Integration

More technology integration to support more diversified services



NFV Trends

Multi-layer+super-distributed cloud network

Network Cloudification:

from center—>Center +Edge—> Center + Edge + Access 3layer architecture

cloud network Practice

- atomized , fully decoupled network service needs lighter Container infrastructure and micro-service design
- Quick development and flexible deployment through PaaS
- continuous optimization of CI-CT-CD workflow

Cloud Native Evolution(1/4)

Cloud native is not a single technology, but a full set of concepts on technology architecture, organization and workflow ,etc.

1 Cloud native of Infrastructure(Container)

Cloud Native development paradigm



enable Business agnosty/neutrality

2 Cloud native of NF(Micro-service,VNF upgrades)

Agility Assurance



Quality Assurance



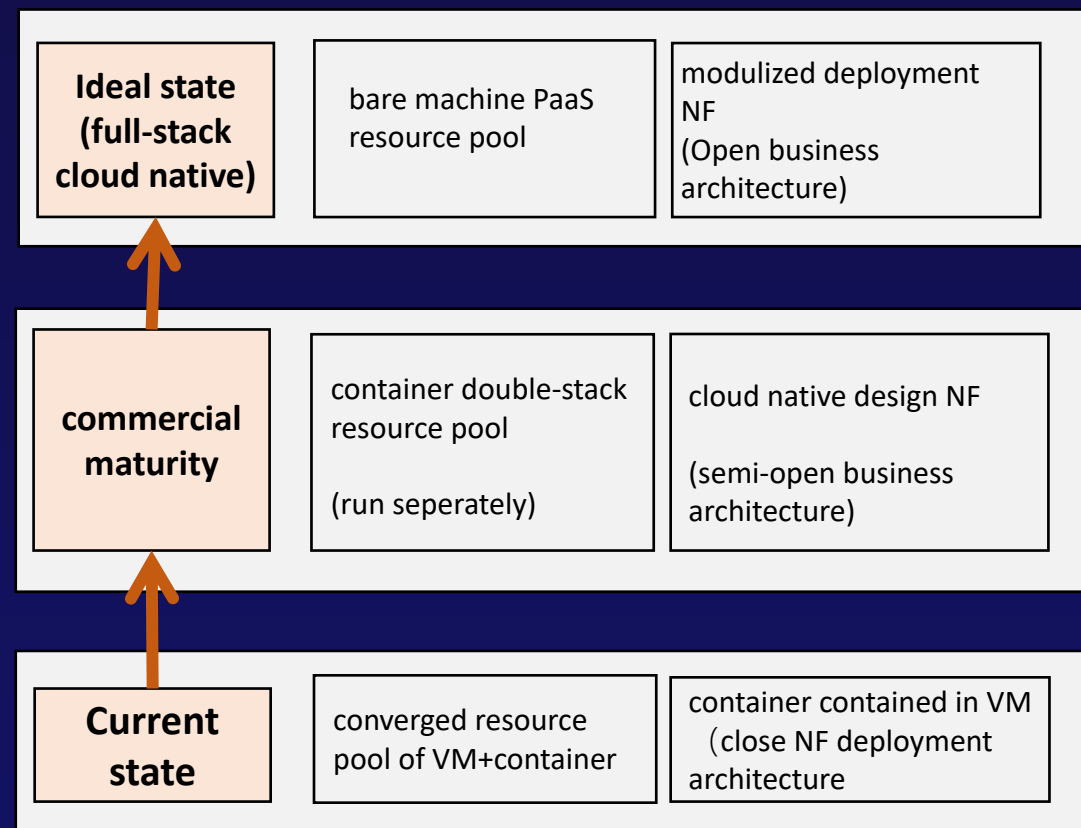
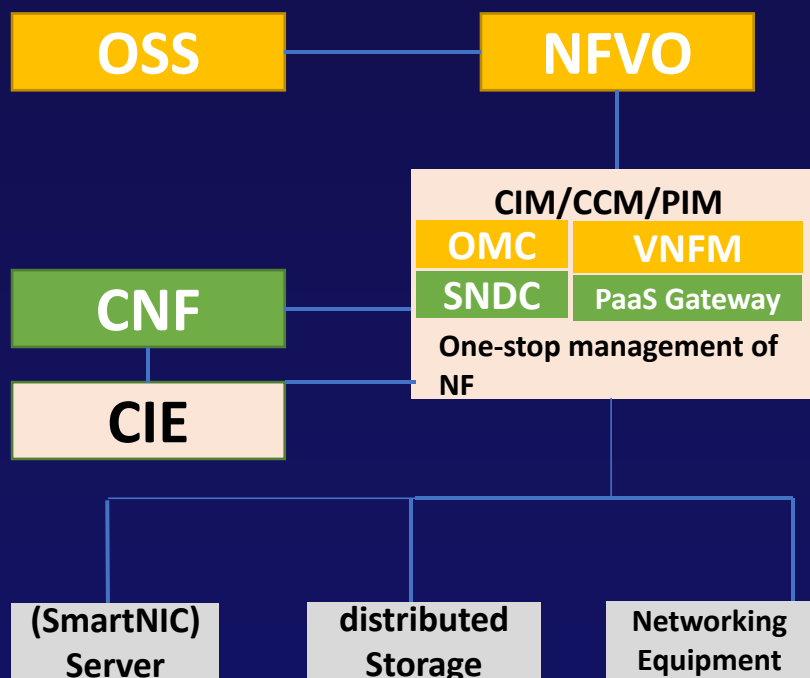
3+4 Cloud native of OAM(DevOps+CI/CT/CD)



Cloud Native Evolution(2/4)

Optimization based on Container and micro-service, promote more standardized infrastructure, more opened service architecture.

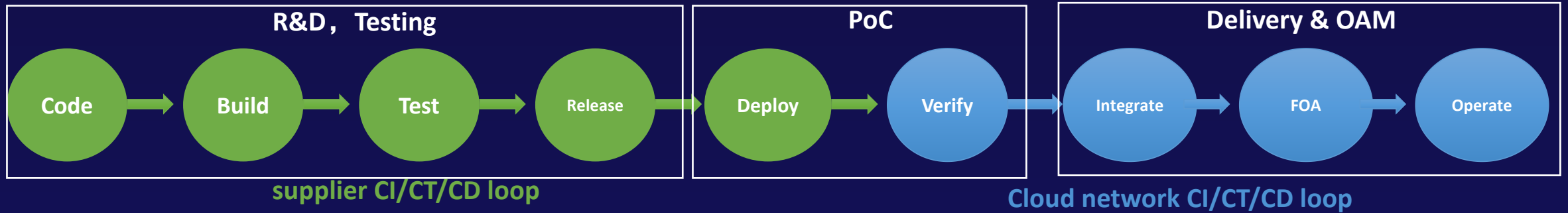
Cloud native technology architecture (suggested)



CIM:container infrastructure manager(like k8s)
 CCM :Container Cluster manager
 PIM: physical infrastructure manager(already adopted in current NFV)
 CIE: container Infrastructure engine(like docker, containerd)
 CNF: contained network functions (like VNF)

Cloud Native Evolution(3/4)

CI-CT-CD optimization



improvement of testing efficiency /R&D workflow/FOA

Cloud Native Evolution(4/4)

China Mobile's Cloud Native Evolution reference plan:

- From OSS to NF
- From Core to RAN
- Business side: From 2B to 2C

Phase III

Commercial Deployment+Evolution

- commercial deployment of cloud network 2B cloud native resource pool
- promotion of cloud network 2C cloud native resource pool according to need
- 6G NF cloud native realization
- kick-off of container RAN business deployment

Phase II

PoC

- container solution of RAN pilot application
- micro-service+PaaS 5G NF pilot application

Commercial deployment pilot

- 2B pilot application

Phase I

PoC

- Cloud Native capabilities development based on existing virtualization technology
- Cloud native solution exploration towards Telecom NF

Commercial deployment pilot

- Container+DPU telecom cloud native solution pilot in OSS resource pool

THANKS

谢谢!