SOFTWARE APPS / NEXT GEN TELCO

18th January 2023, Honolulu

0900-1000

PACIFIC TELECOMMUNICATIONS COUNCIL

PTC'23

15-18 JANUARY 2023 | HONOLULU, HAWAII

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Panel description

- One of the key identifications of a "**Next Gen Telco**" is the continuous shift from hardware to software (sometimes referred to as **softwarization**). In this new world, almost everything has become "**as a Service**" and is accessed mostly via an App. **Open source** is supposed to avoid **vendor-lock-in**. Internet has become the universal connectivity. **Is the Internet resilient enough** to deliver and support **evolving WAN services** such as **SD-WAN** and **SASE**? What are the challenges and how can we solve them? Let's discuss.

Wednesday, 18 January 2023
09:00–10:00
MPCC, South Pacific 1

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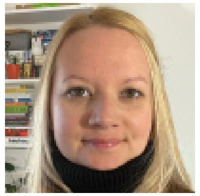
PANELIST
Toru Maruta
Executive Officer, Head of Product Management, KDDI / TELEHOUSE, *Japan*



PANELIST
Marijana Novakovic
Head of Network Architecture, Syntropy, *USA*

MODERATOR AND PANELIST
Anuradha Udunuwara
Senior Engineer, Sri Lanka Telecom PLC, *Sri Lanka*

Avoiding vendor-lock-in in Telco Softwarization

18th January 2023, Honolulu

Anuradha Udunuwara | @AnuradhaU

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- **Avoiding vendor-lock-in in Telco Softwarization**
- Telco Digital Transformation and Telco Softwarization (SDN., NFV, and Cloud) are not new. Although the classical/conventional ideas of SDN and NFV have changed over the years (now we talk about IBN, automation, lean NFV, etc.), the key ideas of openness, modularity, and disaggregation together with virtualization, automation, DevOps (now devsecops/devsecnetops), flexibility and agility have helped Telcos their transformation from CSP to DSPs or Telcos to Techcos.
- The highly disaggregated network environments/platforms with different components and functionalities supplied by different vendors require complex interoperability requirements both at hardware and software levels. These include, but are not limited to, cross-domain SDN controllers (aka Network Orchestrators), Service Orchestrators, open APIs, etc.
- While the cost (capex, opex and TCO) benefits and flexibility/agility for service/product innovation are highly dependent on the openness, modularity, and disaggregation, where the operator has the flexibility of using the best (and cost-effective) components/functionalities from different vendors, due to the operator's lack of required skills, education and knowledge for the required integration work, some vendors try to make use of the opportunity to push vendor-lock-in solutions.
- Operators need to avoid these situations, but it's not easy, especially for the operators in developing economies due to the skills and cost concerns. Different operators follow different strategies to tackle the situation.
- In my talk/presentation (or in a relevant panel), I would like to share our experience so far and how we are addressing some of these challenges

Telco Softwarization (Telco X.0)

CoSP → DSP

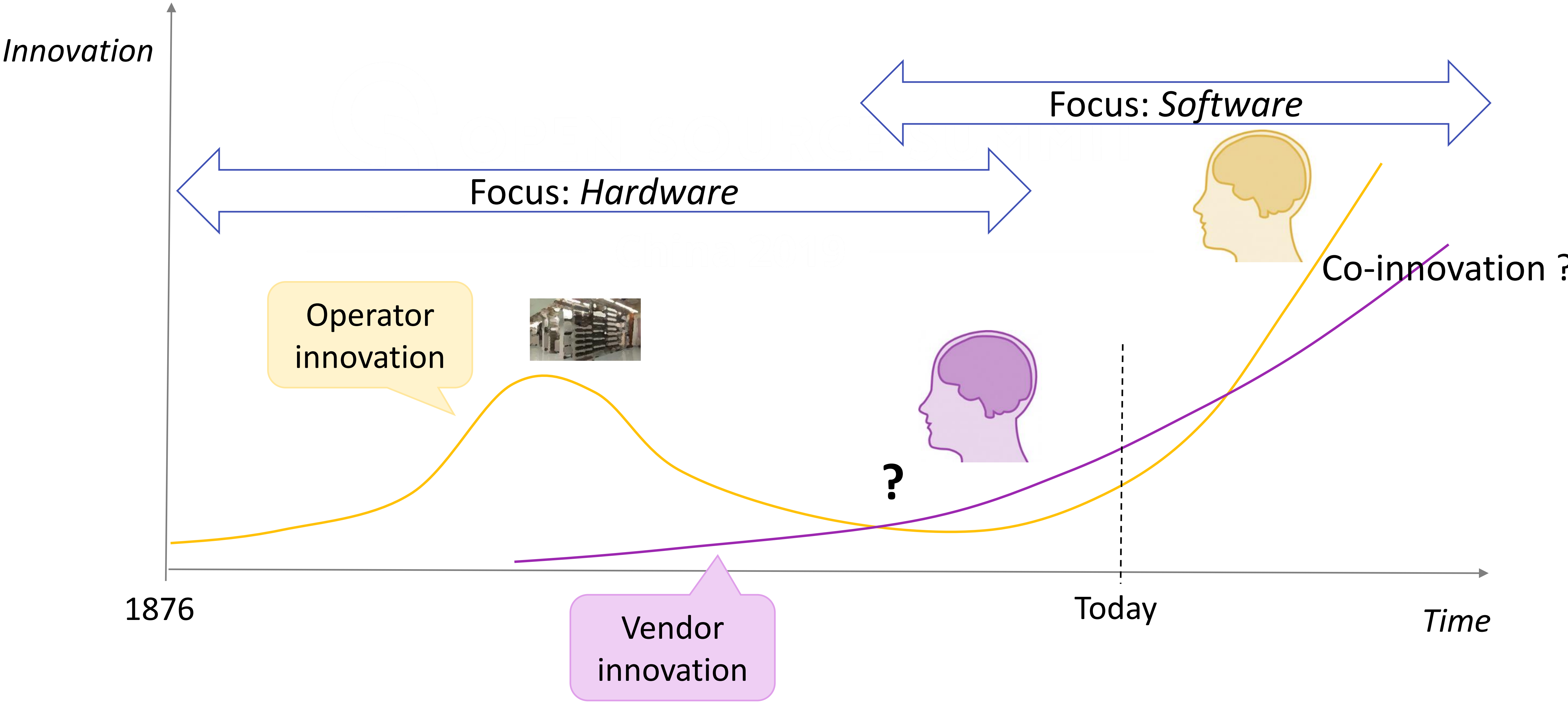
Networks → Platforms

Hardware → Software → Cloud Native

OGN → NGN → SGN / SGN (vNGN) → Telco Cloud

Legacy / TDM → IP / Ethernet → Softwarization → Cloudification

Getting into innovation again



ONF OPEN NETWORKING FOUNDATION

OpenFlow

ON.LAB

IEEE SOFTWARE DEFINED NETWORKS

onos Open Network Operating System

O3project

OKINAWA OPEN LABORATORY

Project Floodlight

IETF SDNRG

nox

POX

ETSI World Class Standards

OPNFV

IETF NFVRG

OPEN DAYLIGHT

OPENCONTRAIL

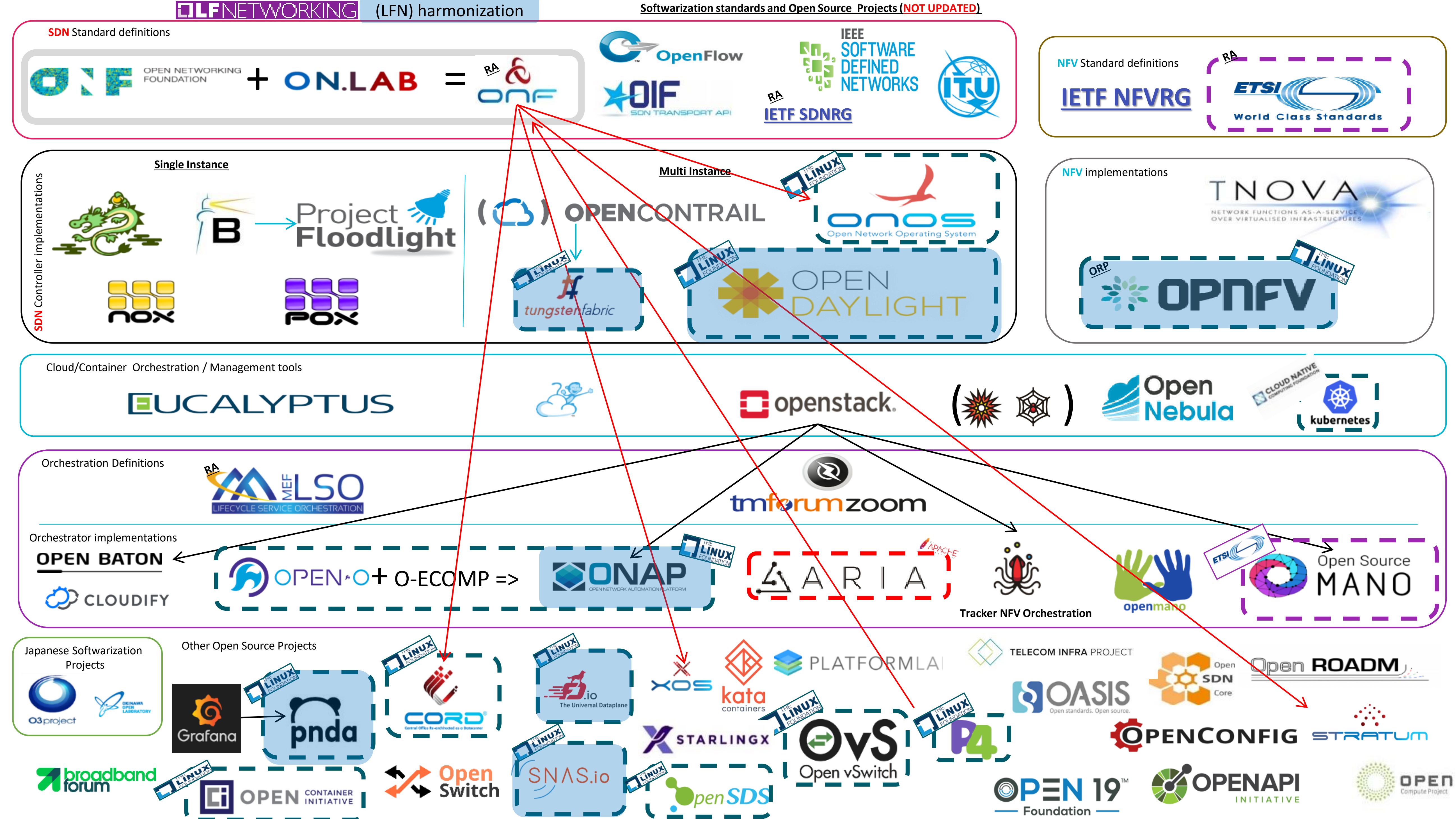
MEF LSO

TheThirdNetwork
Agile, Assured, Orchestrated

openstack

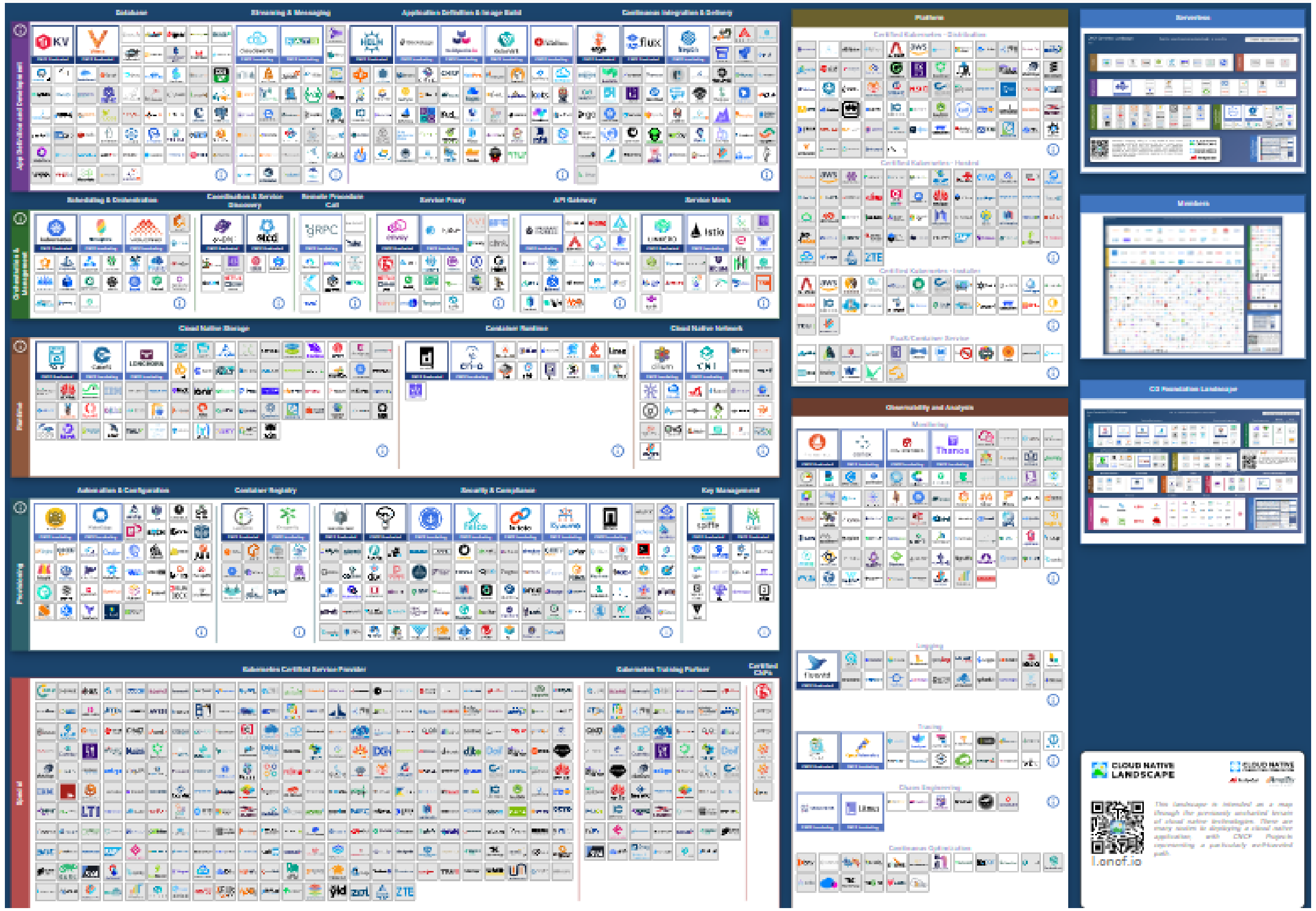
EUCALYPTUS

OpenNebula



LFNETWORKING (LFN) harmonization
Softwarization standards and Open Source Projects (NOT UPDATED)
SDN Standard definitions
ONF OPEN NETWORKING FOUNDATION + ON.LAB = RA ONF
OpenFlow
OIF SDN TRANSPORT API
IEEE SOFTWARE DEFINED NETWORKS
RA IETF SDNRG
ITU
NFV Standard definitions
IETF NFVRG
RA ETSI World Class Standards
SDN Controller implementations
Single Instance
B
Project Floodlight
NOX
POX
Multi Instance
OPENCONTRAIL
THE LINUX FOUNDATION
tungstenfabric
ONOS Open Network Operating System
OPEN DAYLIGHT
NFV implementations
T NOVA
NETWORK FUNCTIONS AS-A-SERVICE OVER VIRTUALISED INFRASTRUCTURES
ORP OPNFV
Cloud/Container Orchestration / Management tools
EUCALYPTUS
openstack.
Open Nebula
CLOUD NATIVE COMPUTING FOUNDATION
kubernetes
Orchestration Definitions
RA MEF LSO LIFECYCLE SERVICE ORCHESTRATION
tmforum zoom
Orchestrator implementations
OPEN BATON
CLOUDIFY
OPEN-O + O-ECOMP =>
ONAP OPEN NETWORK AUTOMATION PLATFORM
APACHE ARIA
Tracker NFV Orchestration
openmano
ETSI Open Source MANO
Japanese Softwarization Projects
O3project
OKINAWA OPEN LABORATORY
Other Open Source Projects
Grafana
pnda
CORD Central Office Re-architected as a Datacenter
FD.io The Universal Dataplane
XOS
kata containers
PLATFORMLAB
TELECOM INFRA PROJECT
OASIS Open standards. Open source.
Open SDN Core
Open ROADM
broadband forum
OPEN CONTAINER INITIATIVE
Open Switch
SNAS.io
STARLINGX
openSDS
OvS Open vSwitch
P4
OPENCONFIG
STRATUM
OPEN 19 Foundation
OPENAPI INITIATIVE
OPEN Compute Project

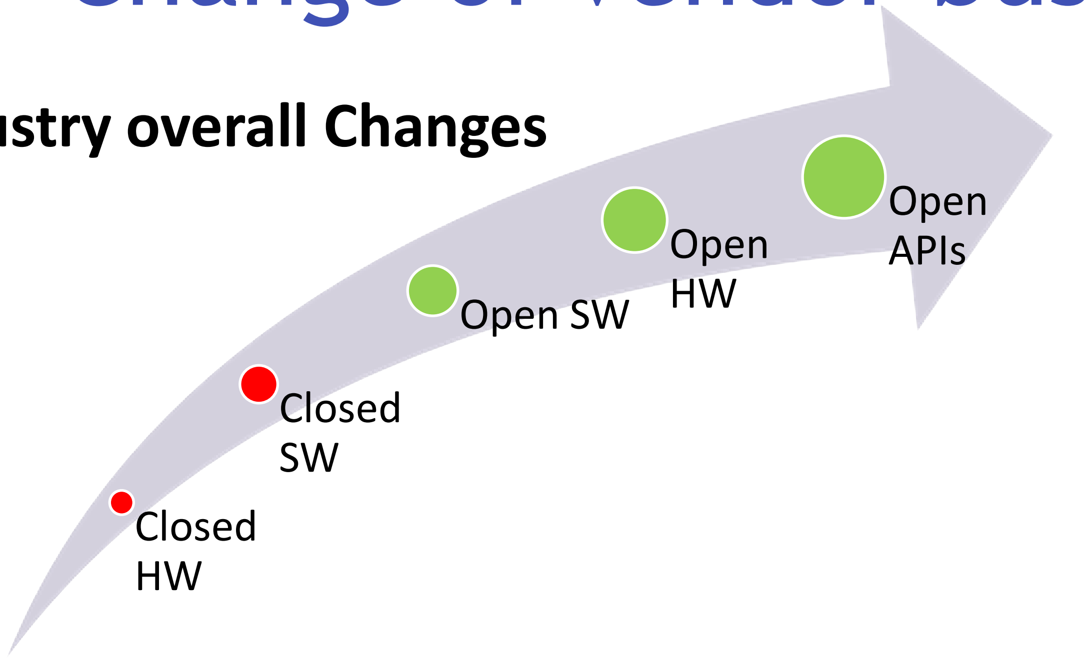
$20.3T market cap & $56.5B funding



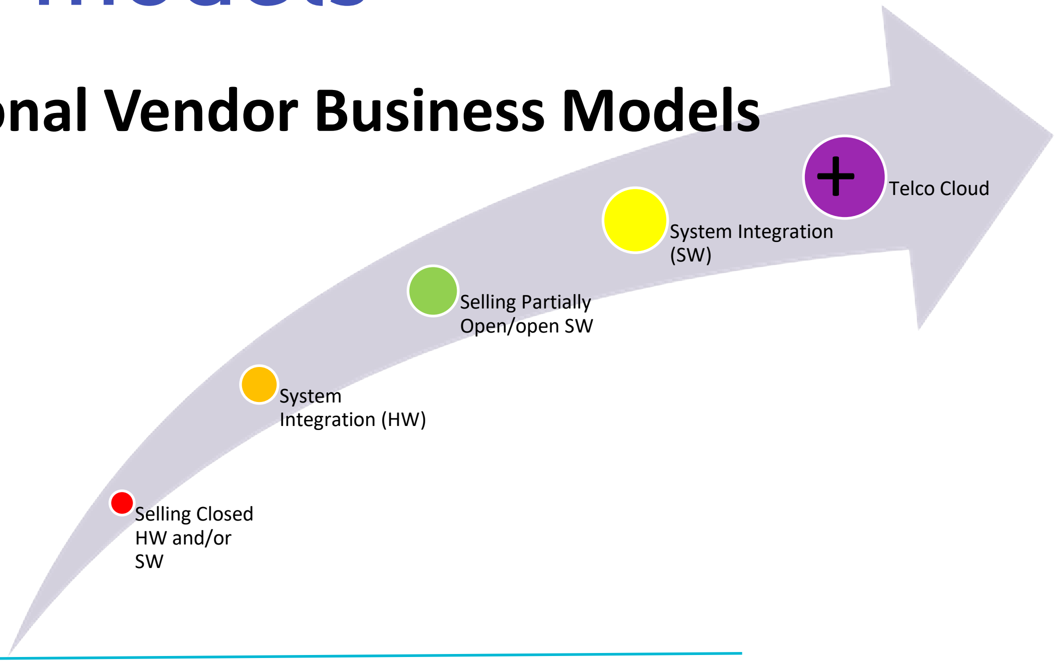
Source: https://landscape.cncf.io/

Change of vendor business models

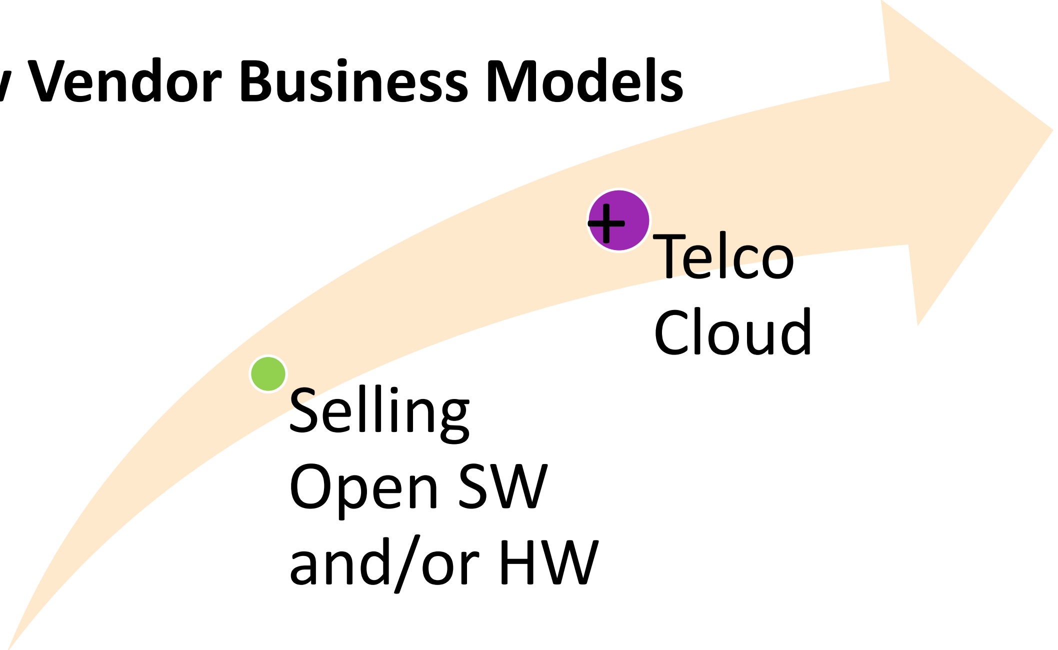
Industry overall Changes



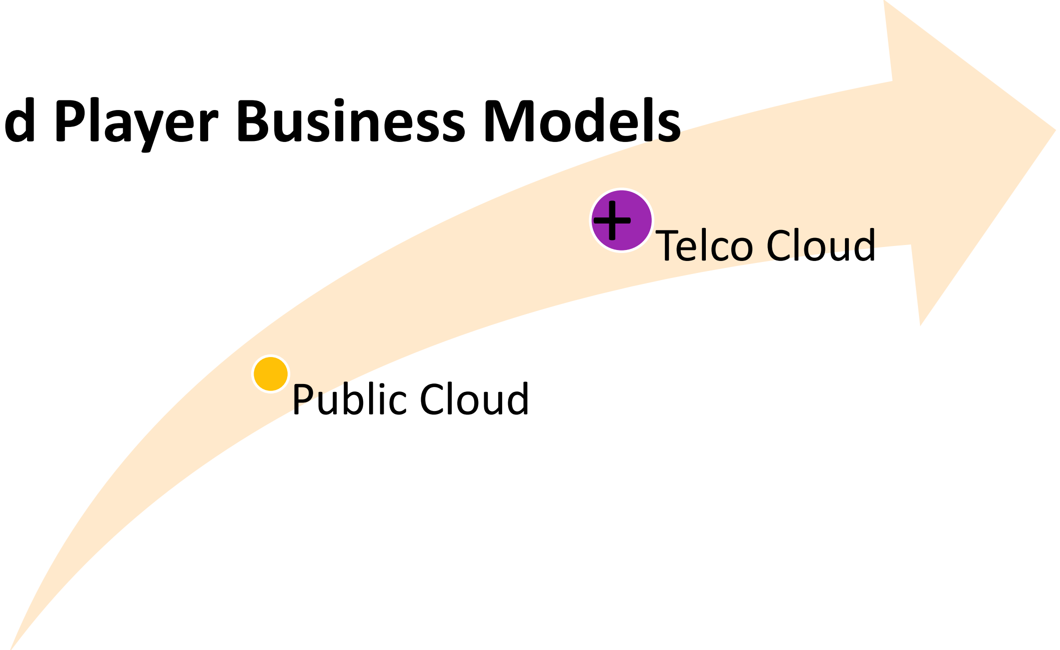
Traditional Vendor Business Models



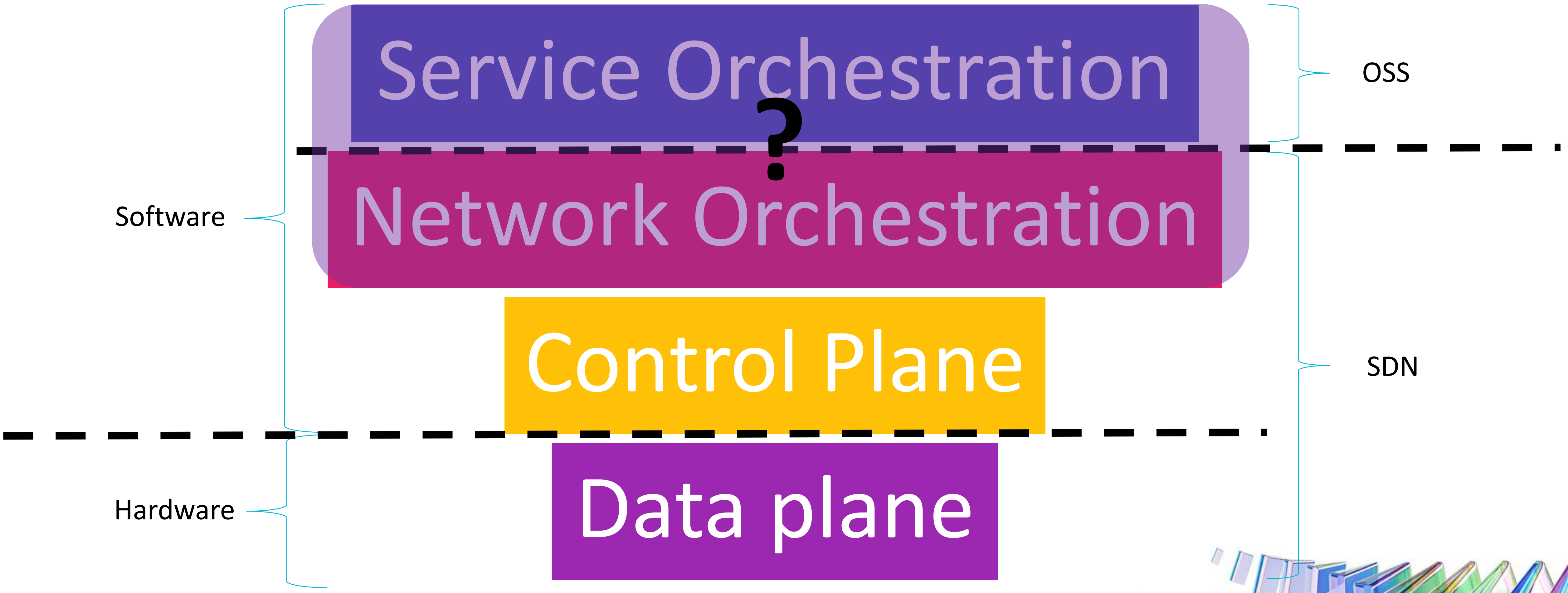
New Vendor Business Models



Cloud Player Business Models

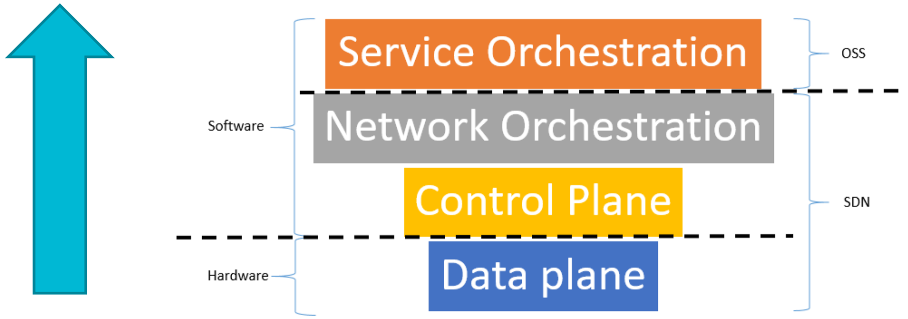


The full stack (Hardware: software split)



An approach for financially constrained economies and for uncertain times

- Bottom up
  - Build the forwarding plane (i.e Network infrastructure : capacity and foot print) with essential control
  - Follow open architecture, open APIs
  - Add capabilities (additional control, orchestration, automation, AI/ML,…) as and when required



Thank you.

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