



ERICSSON-LG SDN/NFV PRODUCTS AND SOLUTIONS

OPEN NETWORKING KOREA 2016 SPRING

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Ericsson-LG

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- › Ericsson Service Provider SDN portfolio
 - Ericsson Services SDN
 - Ericsson Cloud SDN
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 - OpenDayLight
 - OpenStack



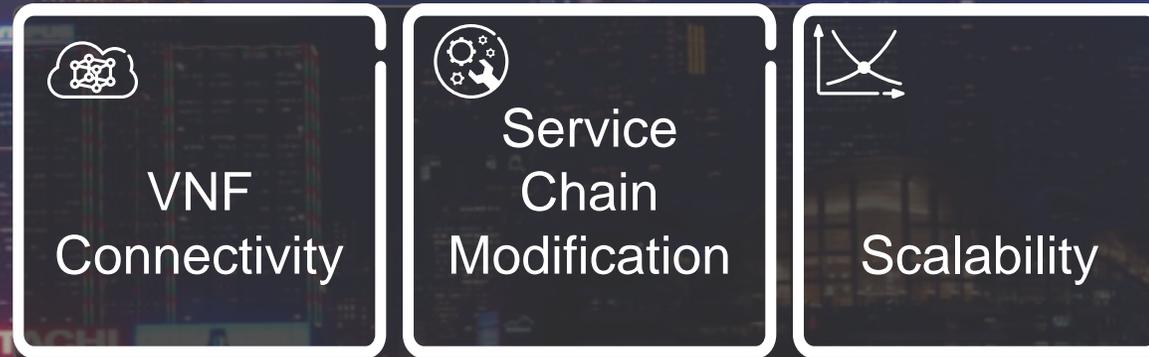
OPEN NETWORKING KOREA
2016 SPRING

SHIFTING MARKET REQUIREMENTS



A unique growth opportunity for agile, customer focused organizations

SDN - A CRITICAL ELEMENT OF NFV

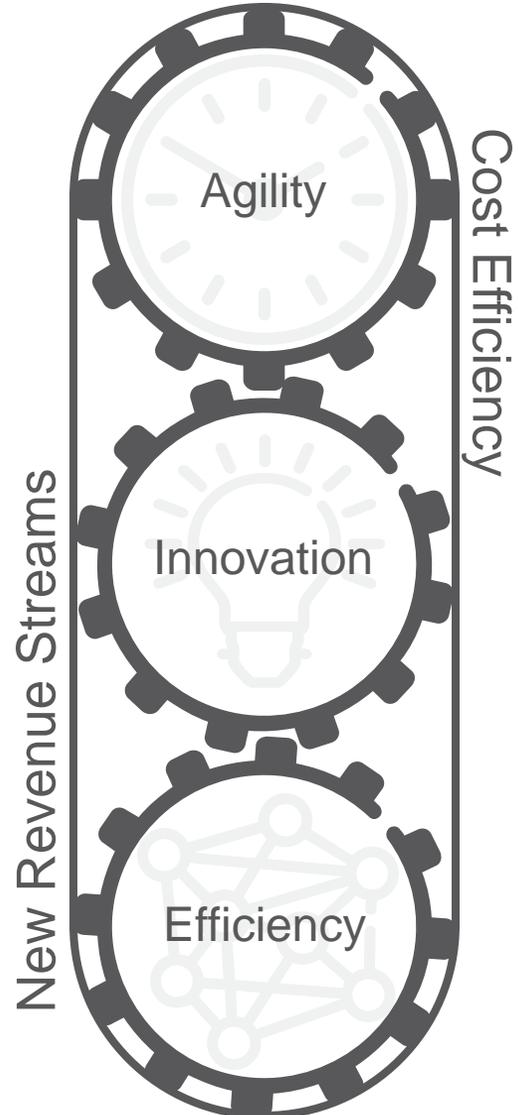


SDN - Agile Networking delivering service performance expectation and flexibility

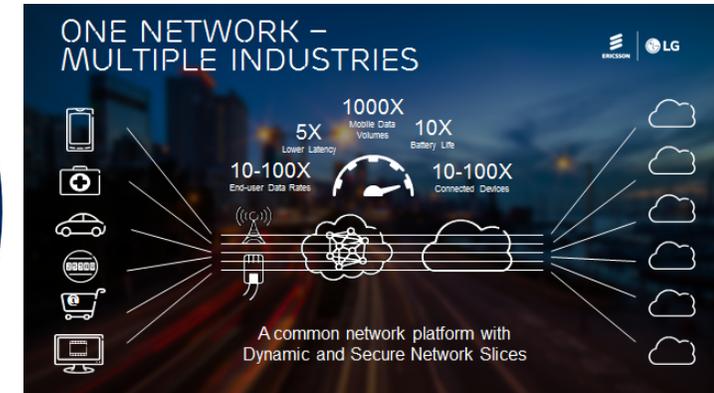
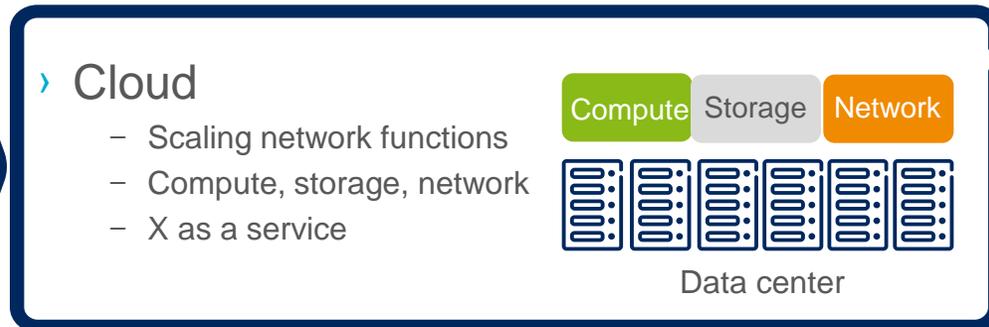
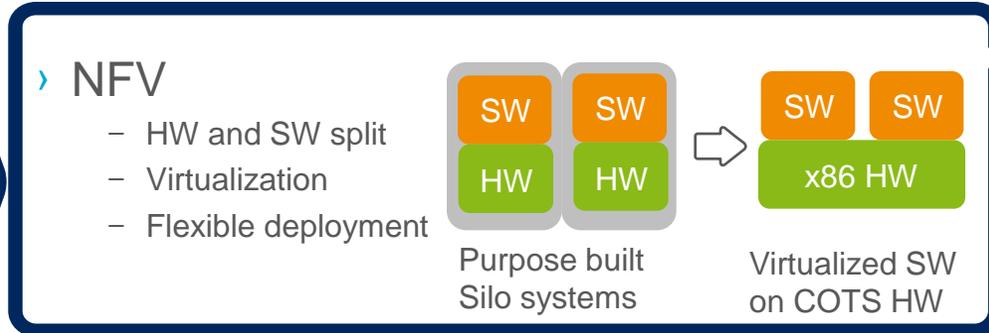
NETWORK TRANSFORMATION



Drivers



Network Evolution



A common network platform with dynamic and secure Network Slices

ERICSSON SERVICE PROVIDER SDN



Portfolio

Products



Service Exposure

Management and Orchestration

Transport SDN

Cloud SDN

Services SDN



Ericsson SDN Controller

Network and Datacenter Infrastructure

Solutions

Dynamic Service Chaining

Virtual Home Gateway

Virtual Enterprise Gateway

Services

Plan

Transform

Life Cycle Management



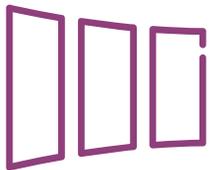
ERICSSON SERVICES SDN: DYNAMIC SERVICE CHAINING

ERICSSON SERVICES SDN

DRIVING PERSONALIZATION IN NETWORK CONNECTIVITY



Personalization based on Destination, Subscriber, Performance, Applications



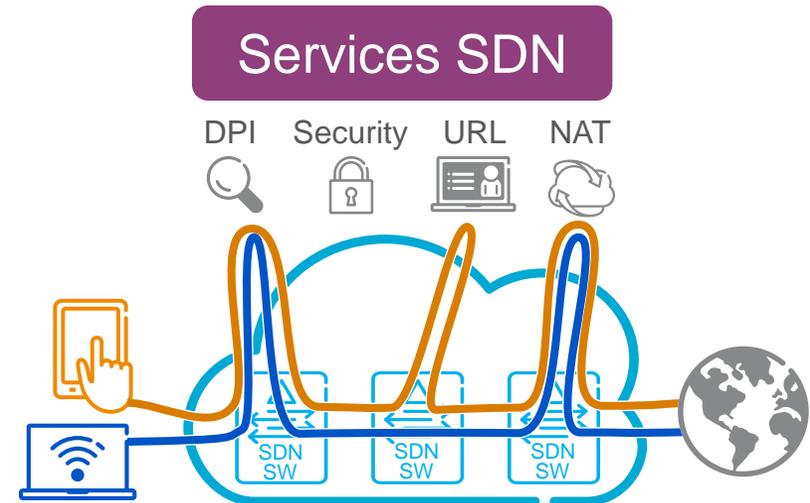
Overlay model: Least disruptive introduction to SDN



Adjust service dimensioning to the actual service demand, reducing wasted service capacity



On demand service insertion drives agility in service creation



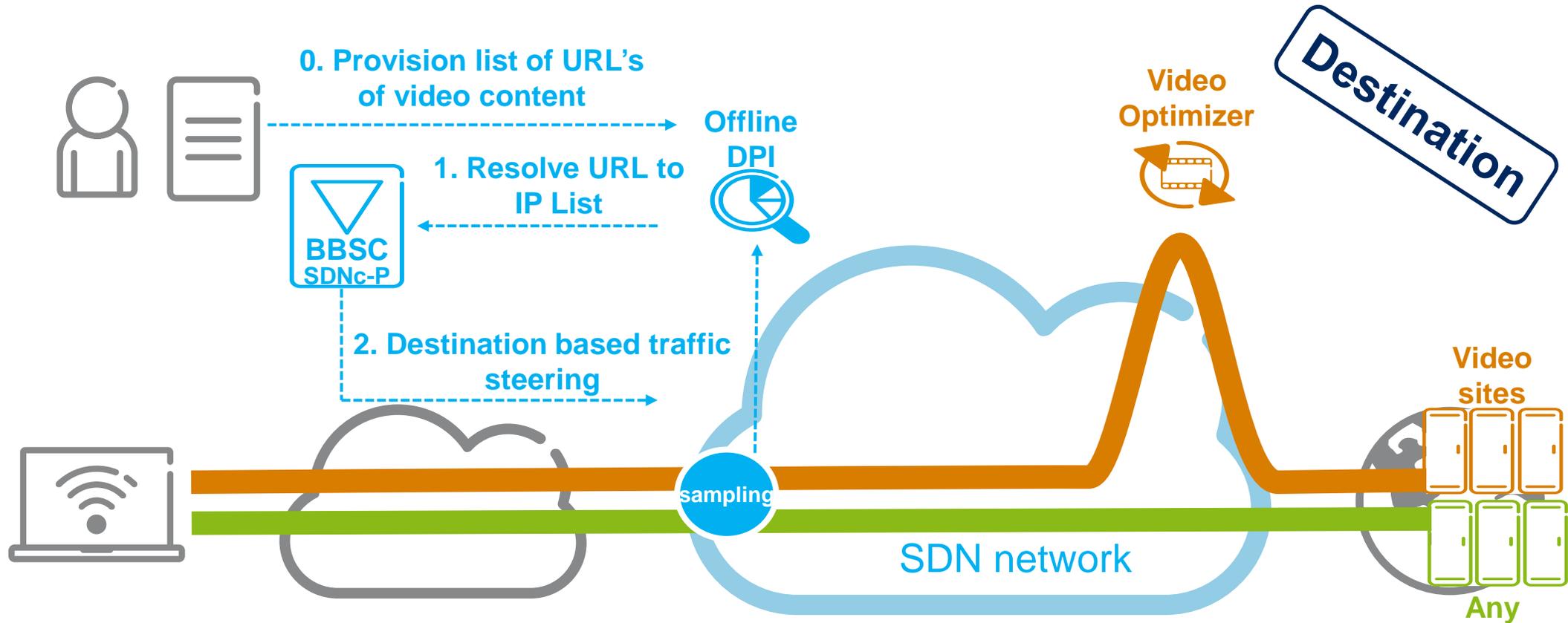
Personalization based on subscriber and applications allows operators to segment the market, to optimize prices and to maximize revenues

Policy Integration with Service Chains

Non-disruptive approach to implementation

SERVICE CHAINING USE CASE

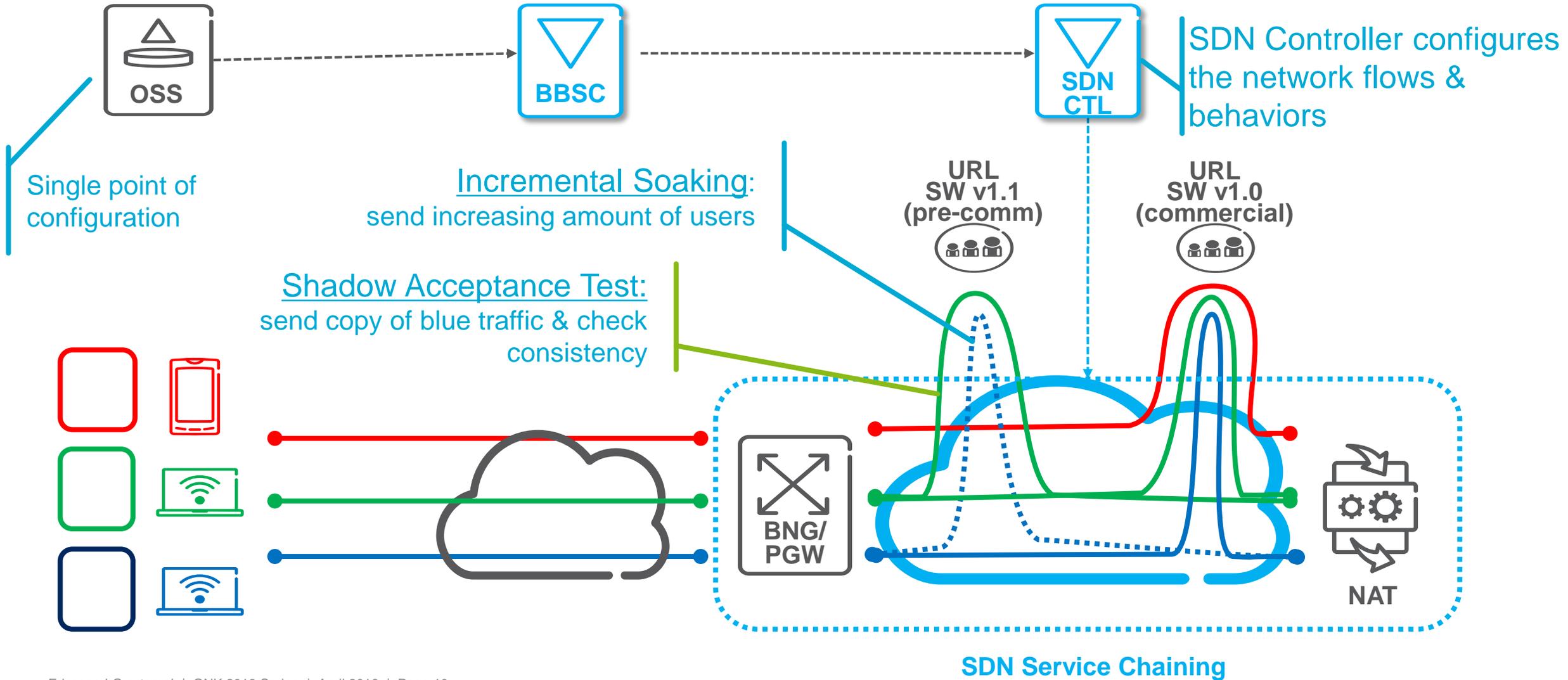
NEW CAPABILITY - VIDEO OPTIMIZATION



- › Only the video sites go through the video optimization
- › Supporting subscriber based and destination based Video Optimization

SERVICE CHAINING USE CASE

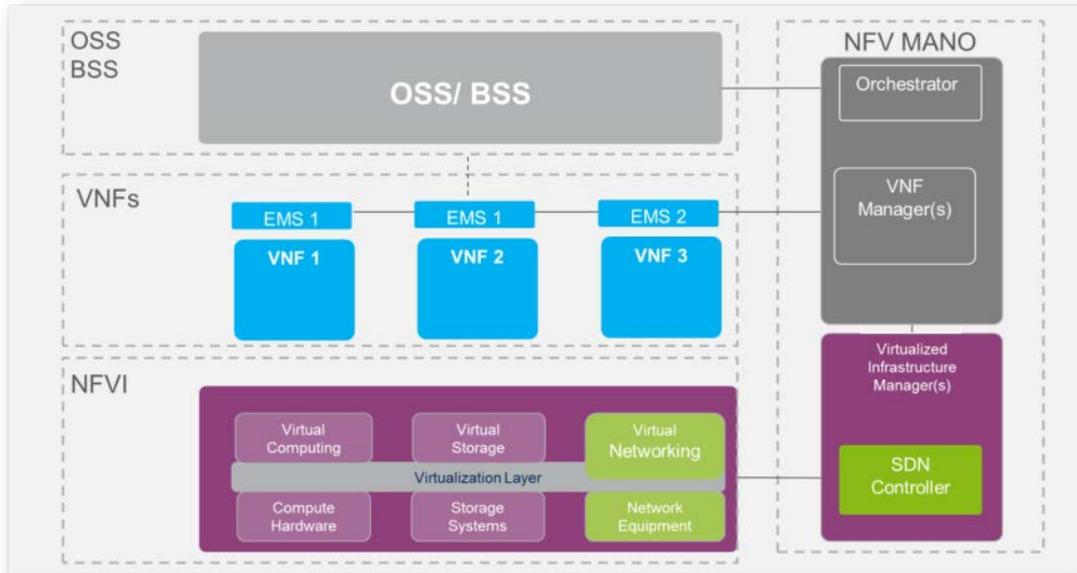
OPERATION TOOL – SOFTWARE UPDATES BY SDN



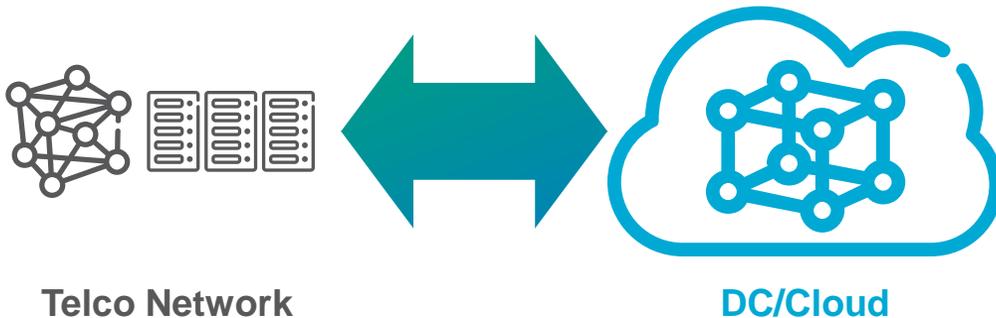


ERICSSON CLOUD SDN: ENABLING THE PROMISE OF NFV

TELCO NFV KEY NETWORKING NEEDS



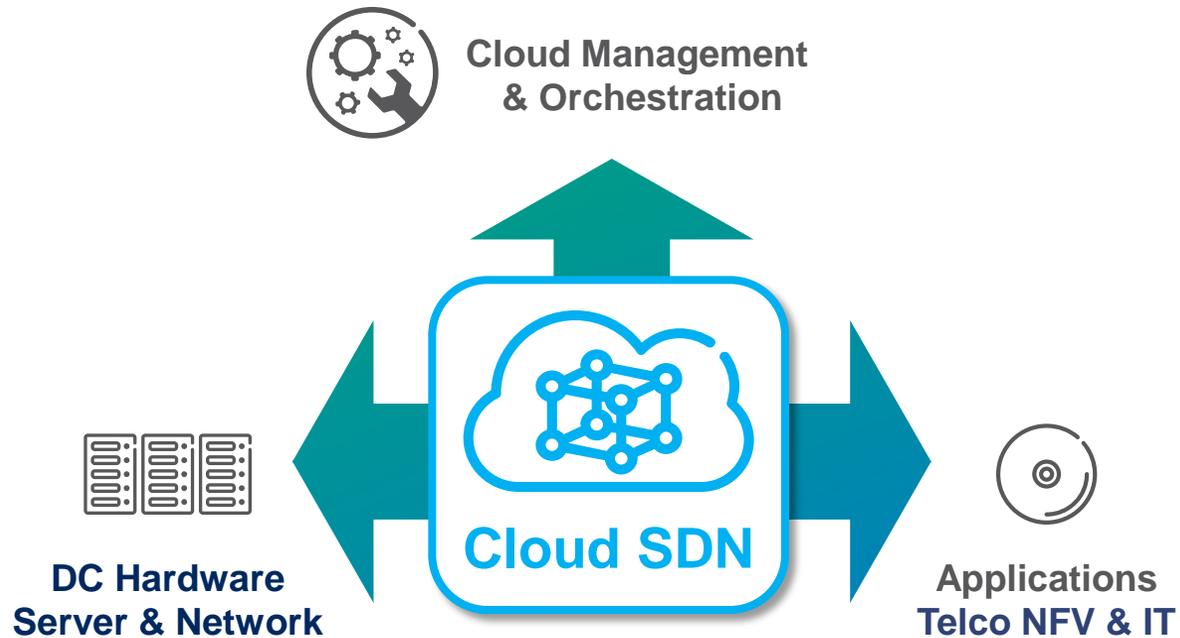
- **Flexible Deployment Model**
 - Full hardware independence
- **Advanced networking capabilities**
 - VXLAN, Load balancing, Inter-DC connectivity, BGP/MPN interworking, Service Chaining
- **High Performance Data Plane**
 - Ability to deliver extreme performance



THE ROLE OF ERICSSON CLOUD SDN



Ericsson Cloud SDN is the network platform for every Cloud



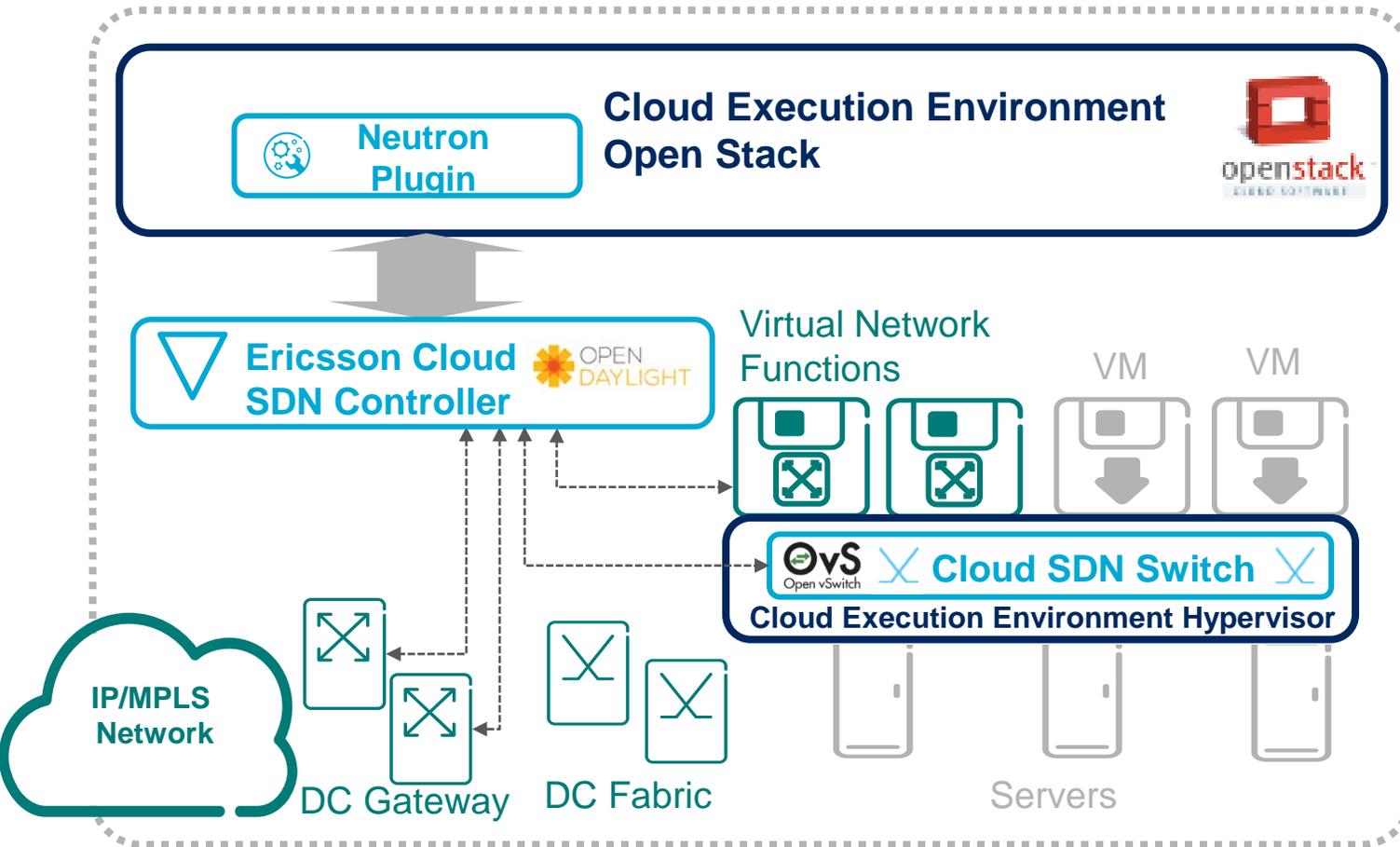
Every **Virtual Machine** connects to the rest of the Network via SDN

SDN **abstracts and automates** connection in virtual environment

SDN enables the **evolution towards Container Technologies**

Ericsson Cloud Hardware, Applications and Orchestration rely on Cloud SDN

CLOUD SDN AND CLOUD EXECUTION ENVIRONMENT OVERVIEW

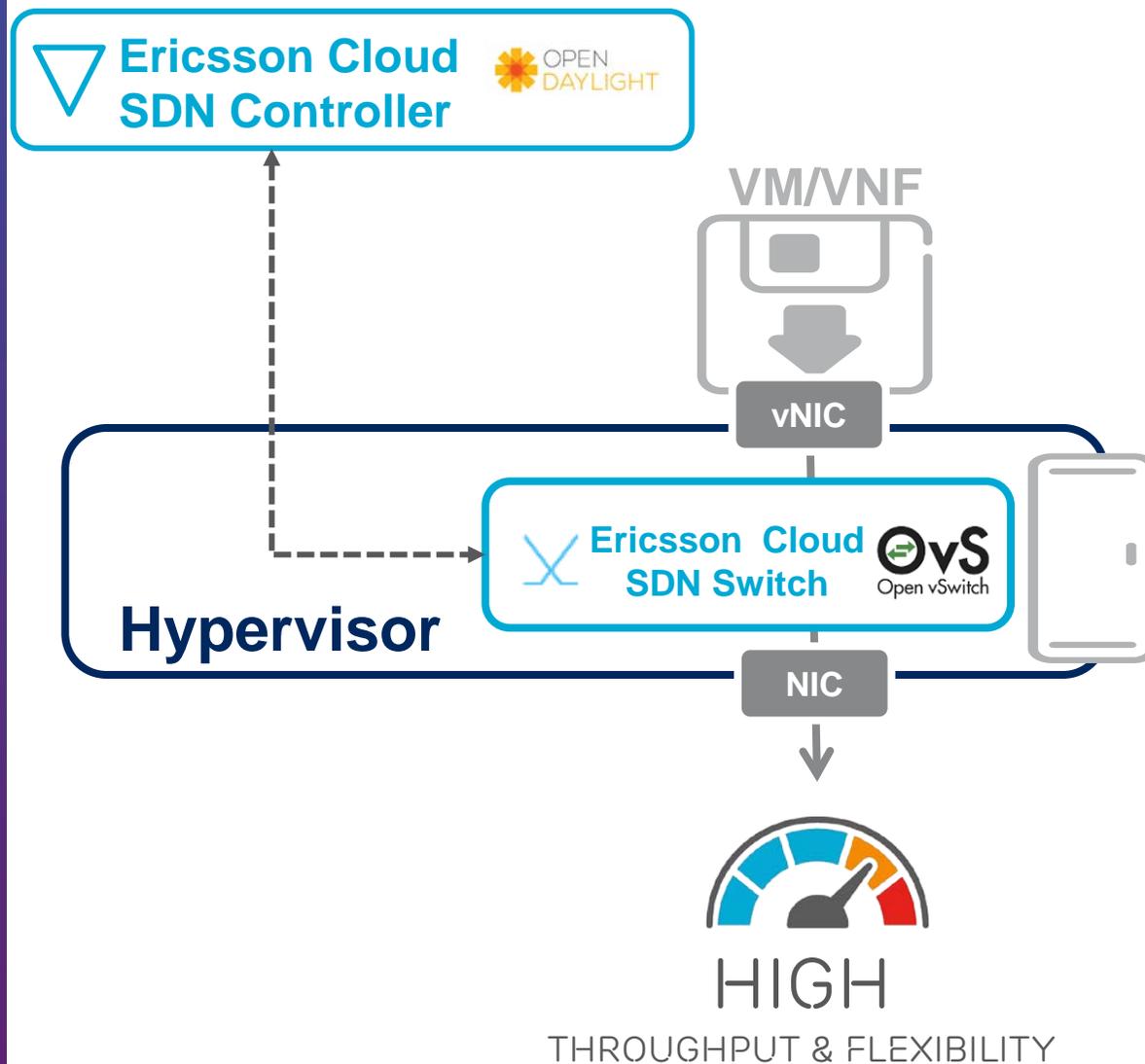


- › Ericsson Cloud Execution Environment is comprised:
 - Telco-grade OpenStack
 - Guest OS/Hypervisor

- › Ericsson Cloud SDN offering is made of 3 Components:
 - Cloud SDN Controller (CSC)
 - Cloud SDN Switch (CSS)
 - Cloud SDN Plugins & Extensions

ERICSSON CSS CLOUD SDN SWITCH

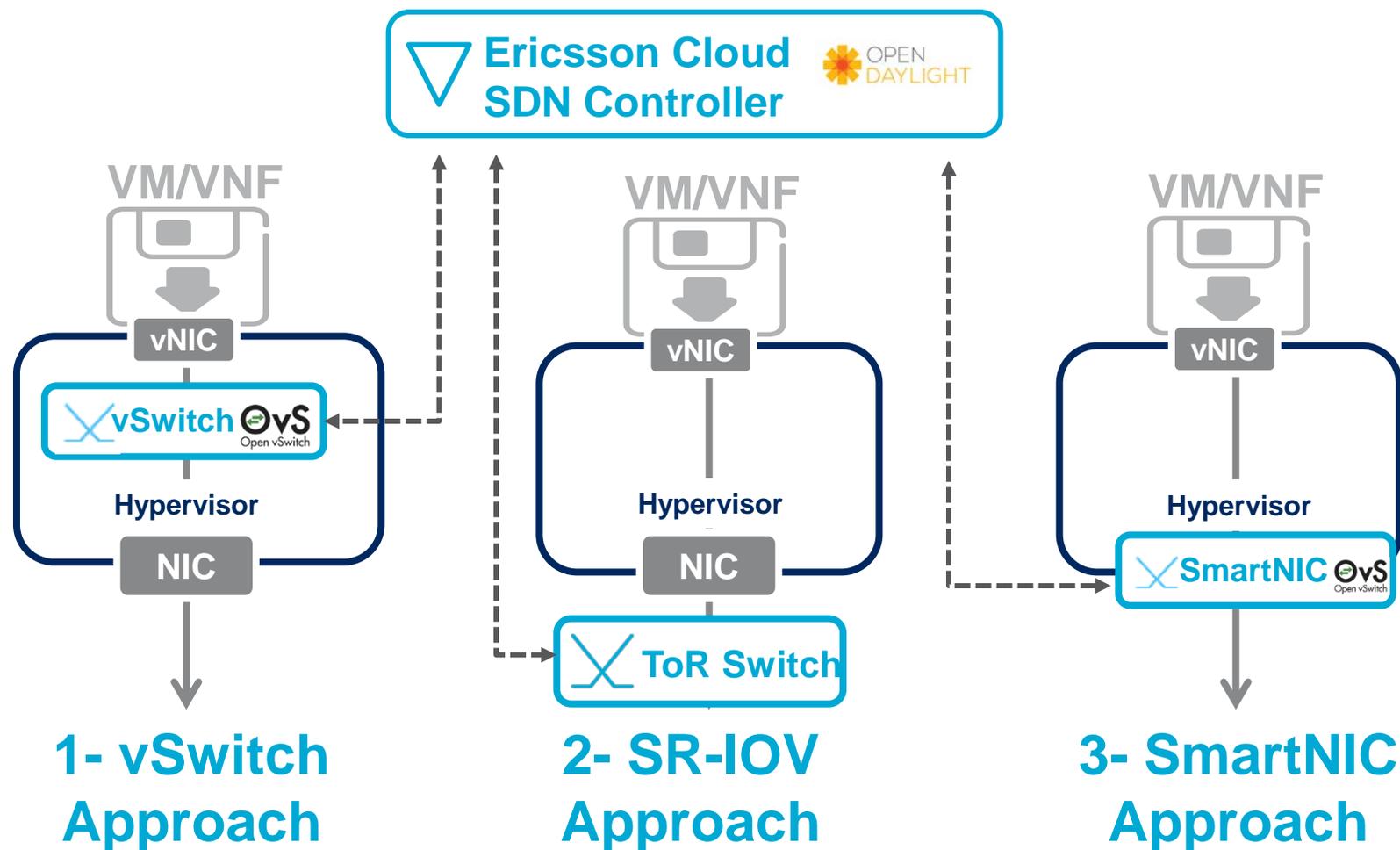
- › Enabler for flexible, extensible NW infrastructure services in a distributed and scalable way
- › High performance flow switch with Intel DPDK acceleration for host packet I/O
- › Based on latest Open vSwitch (OvS) Release
- › Fully OpenFlow 1.3 compliant pipeline designed from scratch for performance
- › Virtual Networking (VLAN, VxLAN, MPLSoGRE) – 100% tenant separation
- › Scales up to millions of flow entries, almost linear with number of cores
- › Maintained VM hot migration support



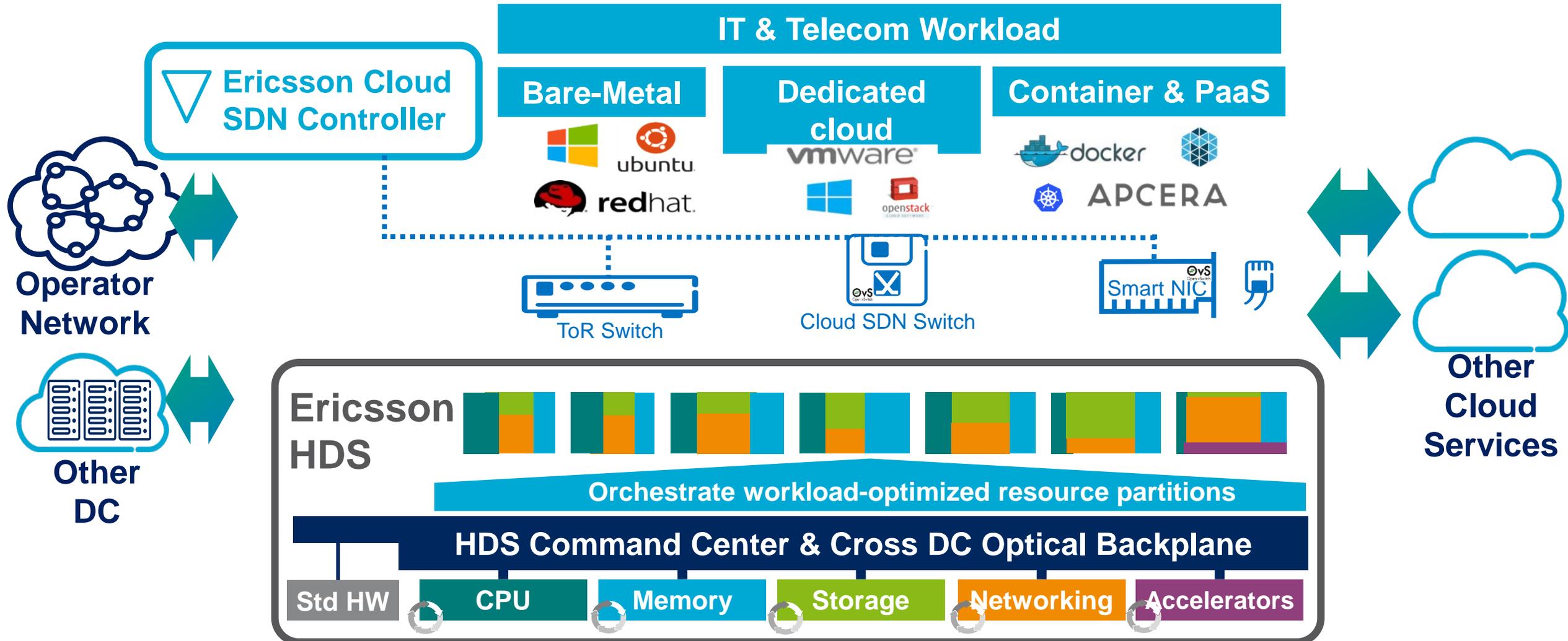
CHOICE OF DATAPATH FOR NFV



- › Ericsson support different datapaths approach addressing different needs
- › Ericsson has Industry leading expertise for Telco NFV Datapath
- › Fast technology evolution



ERICSSON HDS & CLOUD SDN





KEY INGREDIENT TECHNOLOGIES

OPENDAYLIGHT SERVICES FOR OPENSTACK INTEROPERABILITY



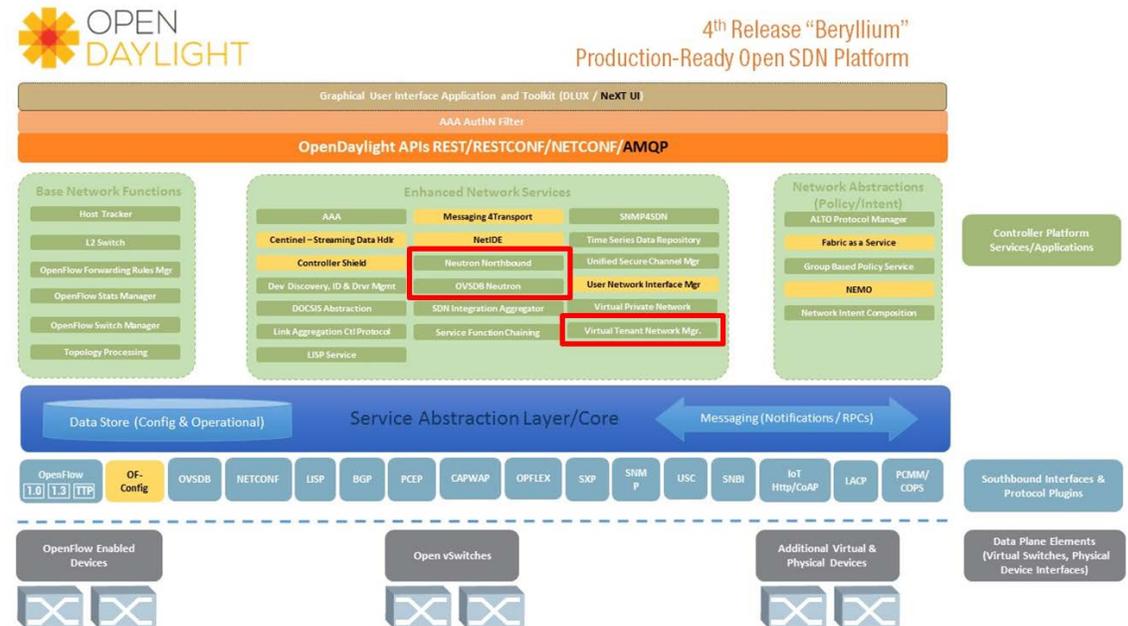
› Neutron Northbound

- Provide REST APIs for managing corresponding resources.
- Such as listNetworks, showNetwork, createNetworks, updateNetwork, deleteNetwork.

› OVSDB Neutron

- OVSDB (Open vSwitch Database) is a management protocol used to manipulate the configuration of Open vSwitches.

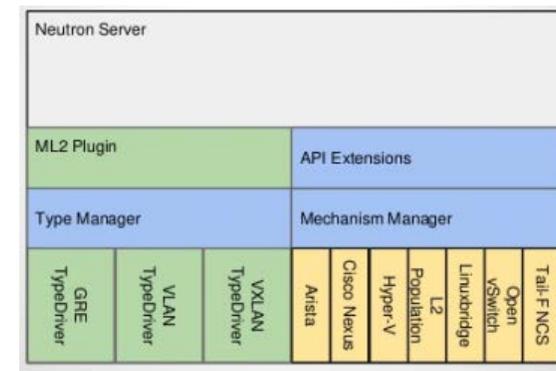
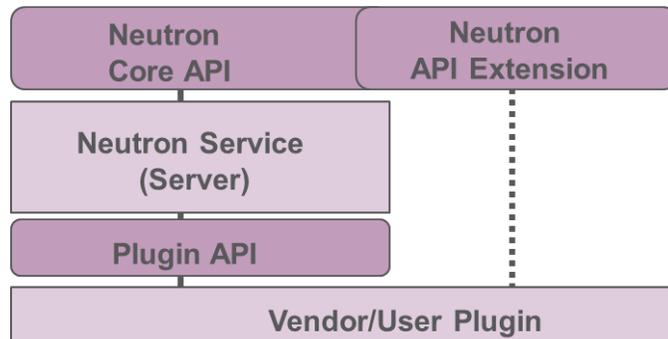
› VTN Manager



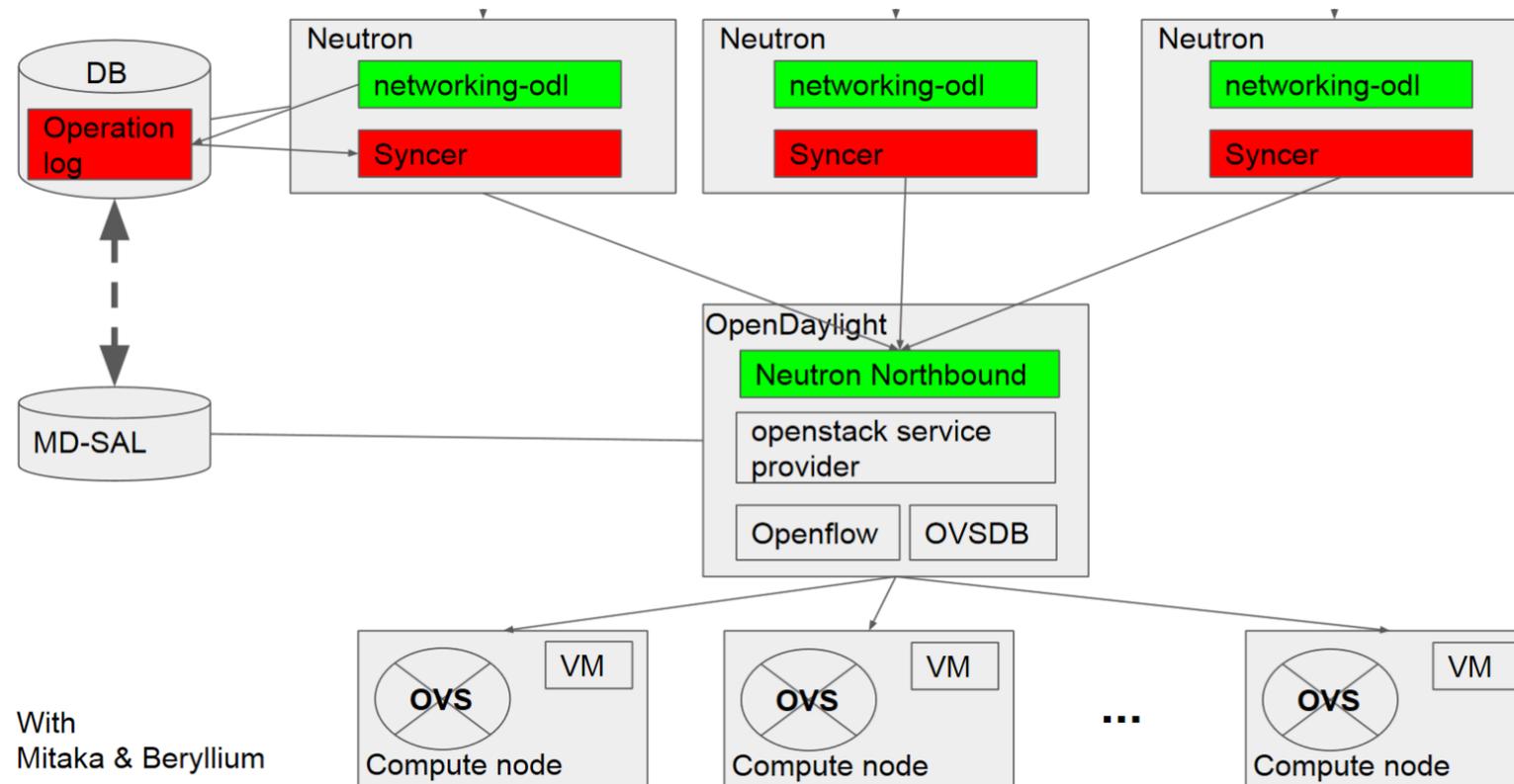
OPENSTACK NEUTRON

- › Network service (Neutron): manage virtual networks
 - Create/delete private network
 - Attach VM to network resource
 - Maintain compatibility with Nova networking model
 - Work with different networking environments
- › Neutron currently supports a number of Plugin/Drivers
 - Total of 37 Plugins/Driver most of them are vendor specific (Ciscox6, Arista, Brocadex2, Juniper...)
 - Implementation differs between distribution
 - New services: L3, LB, FW, VPN

- › Neutron Modular Layer 2 (ML2) Plugin
 - Making use of common type across several vendors easier
 - Several Vendor ML2 Drivers available
- › Type Drivers
 - Maintain type-specific state
 - Provide tenant network allocation
 - local, flat, vlan, gre and vxlan network types
- › Mechanism Drivers
 - Agent based (Hyper-V, LinuxBridge, and OVS)
 - Controller based (Tail-F NCS and OpenDaylight)
 - ToR switch (Arista and Cisco Nexus)



OPENSTACK AND OPENDAYLIGHT ARCHITECTURE OVERVIEW



A CONNECTED WORLD IS JUST THE BEGINNING



When one person connects,
their world changes

With everything connected,
our world changes



NETWORKED
SOCIETY

