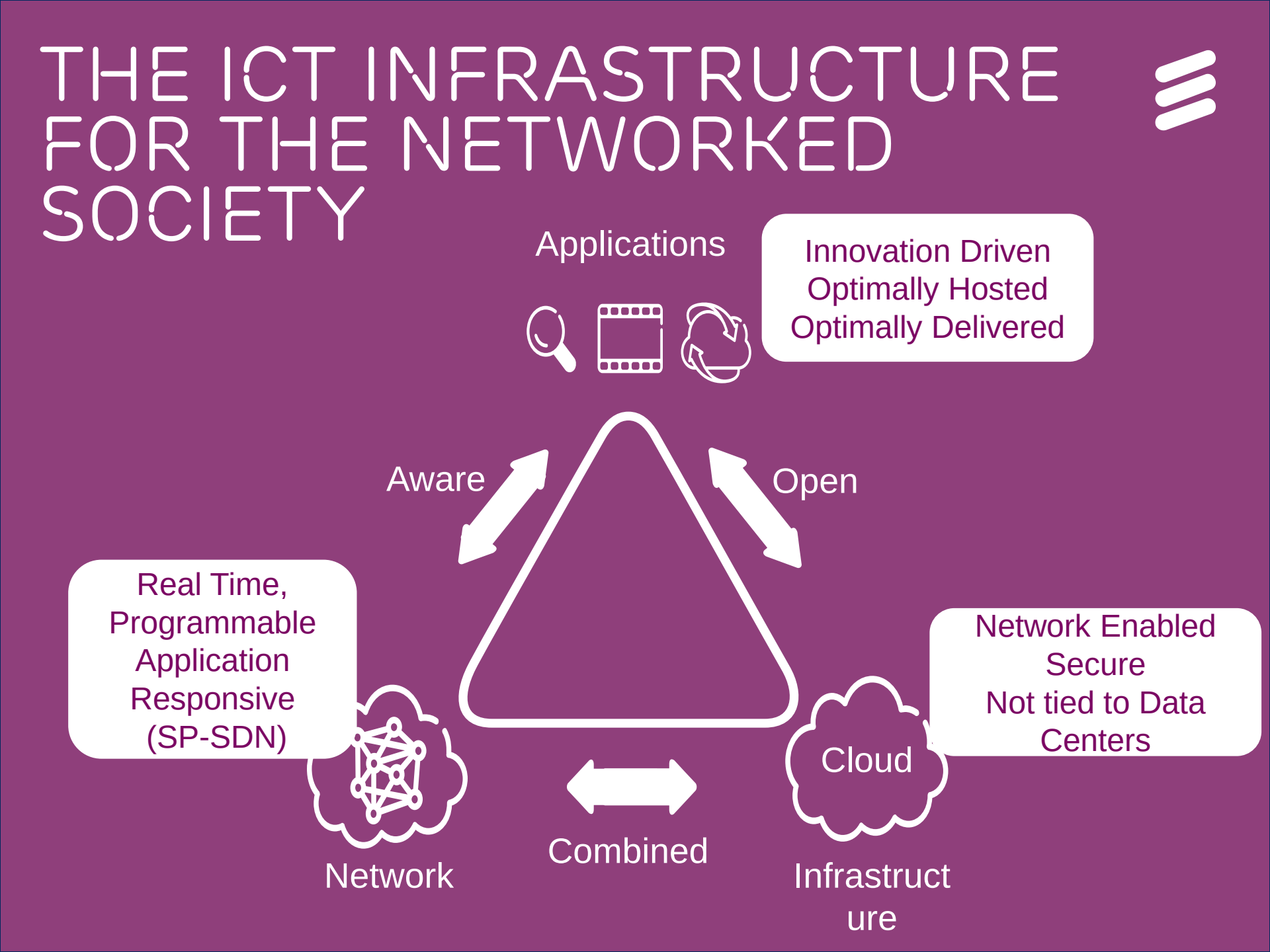
ERICSSON

ERICSSON SERVICE PROVIDER SDN

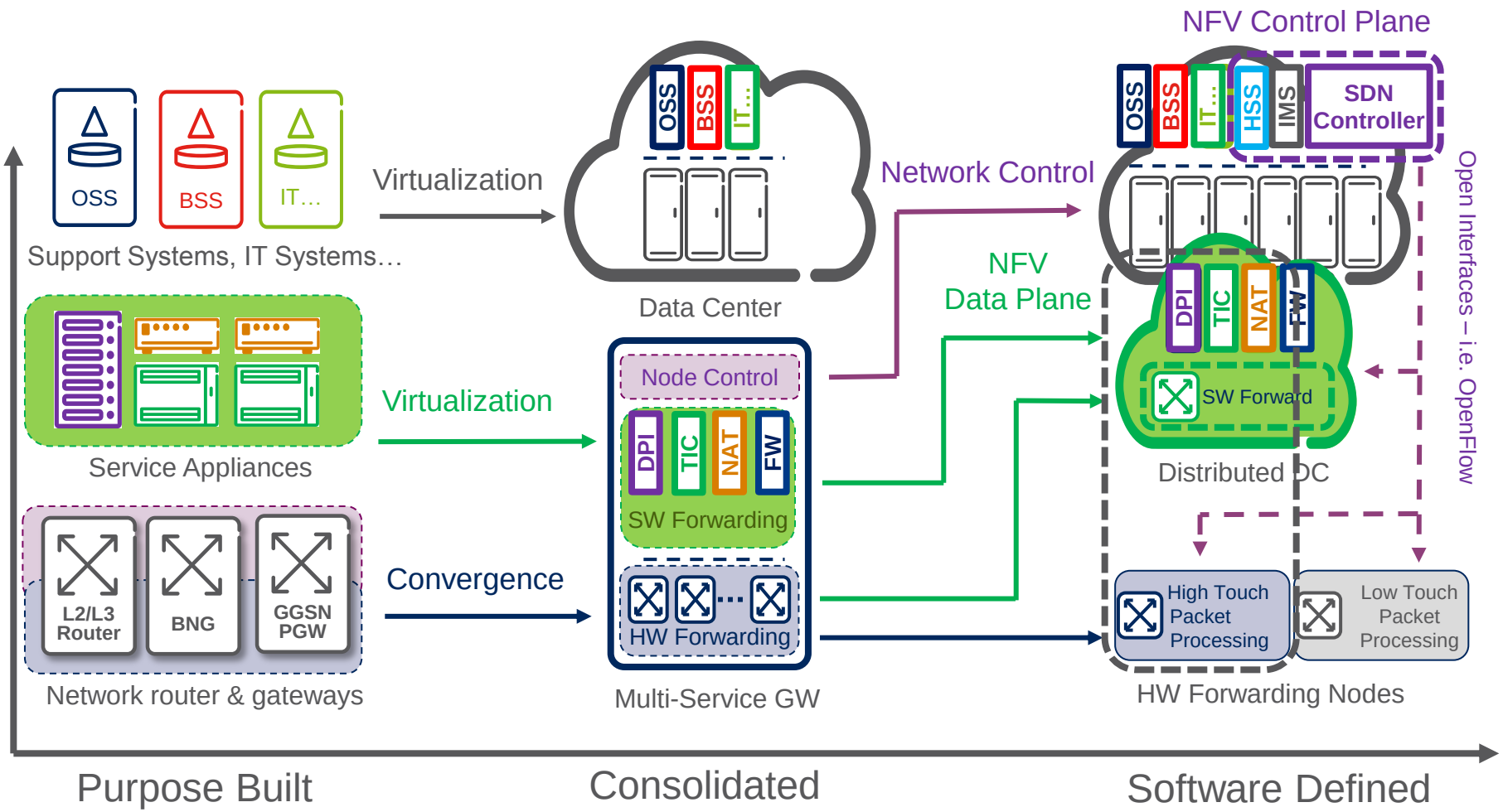
– SDN INNOVATION FOR SERVICE PROVIDERS

RAUL CALDEIRA
FBC CUSTOMER SOLUTIONS
ERICSSON

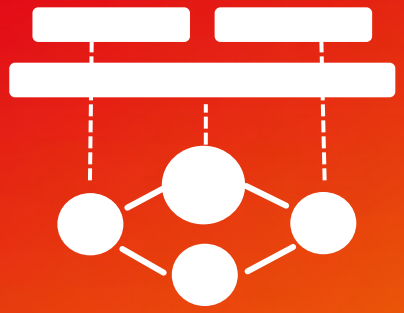
THE ICT INFRASTRUCTURE FOR THE NETWORKED SOCIETY



TELECOM INDUSTRY TRENDS

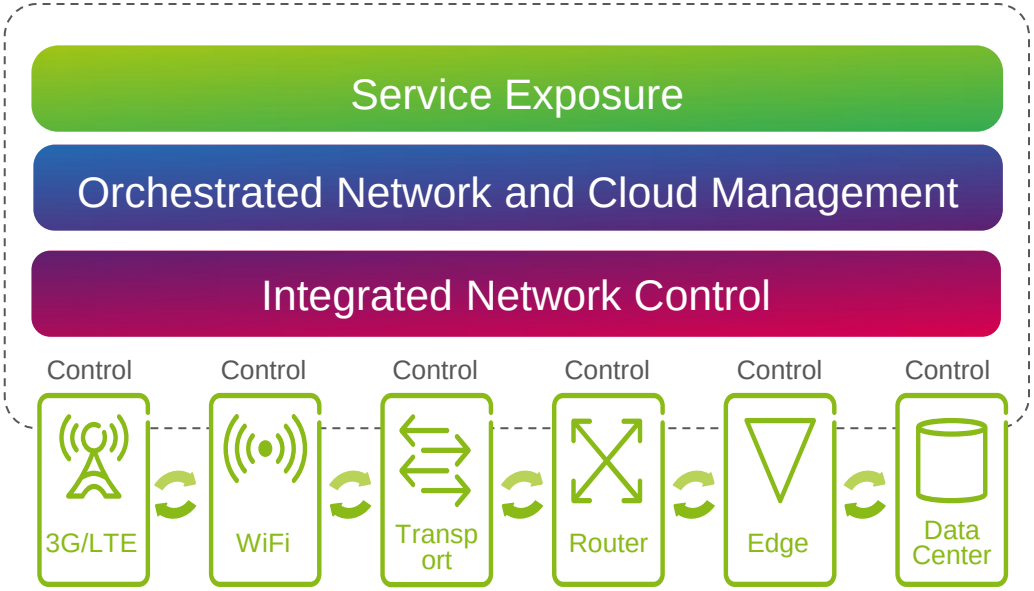


SERVICE PROVIDER SDN
MOVING SDN FROM A NICHE TO THE NETWORK



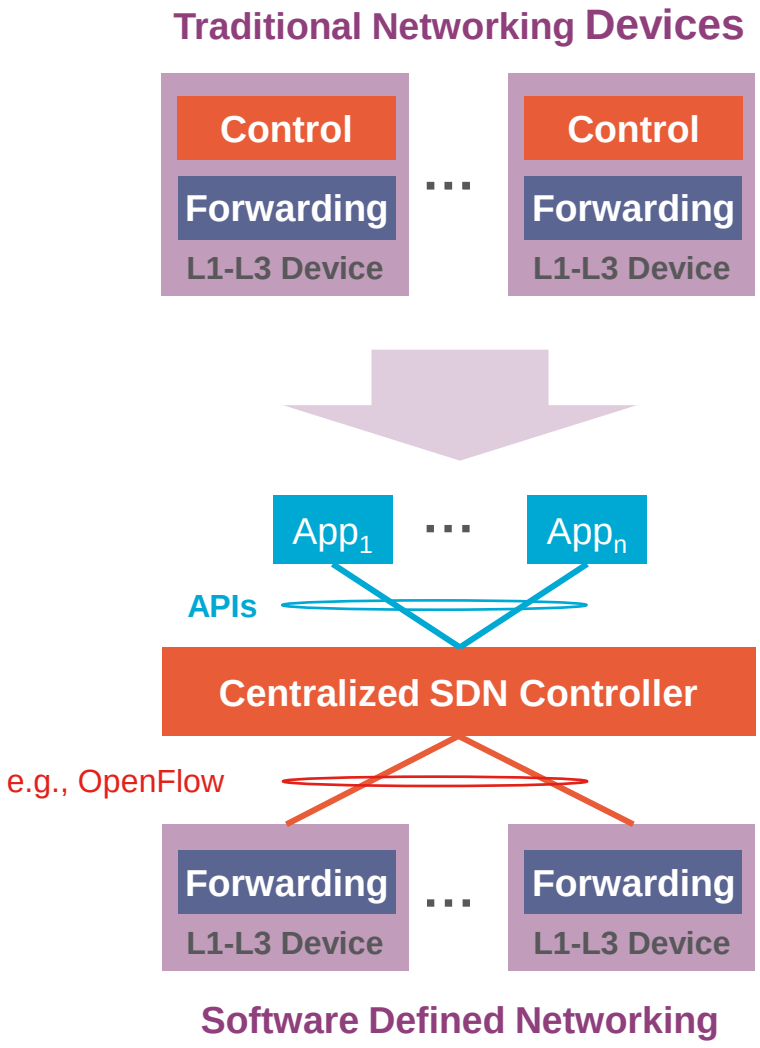
Expanded definition

OpenFlow/SDN:

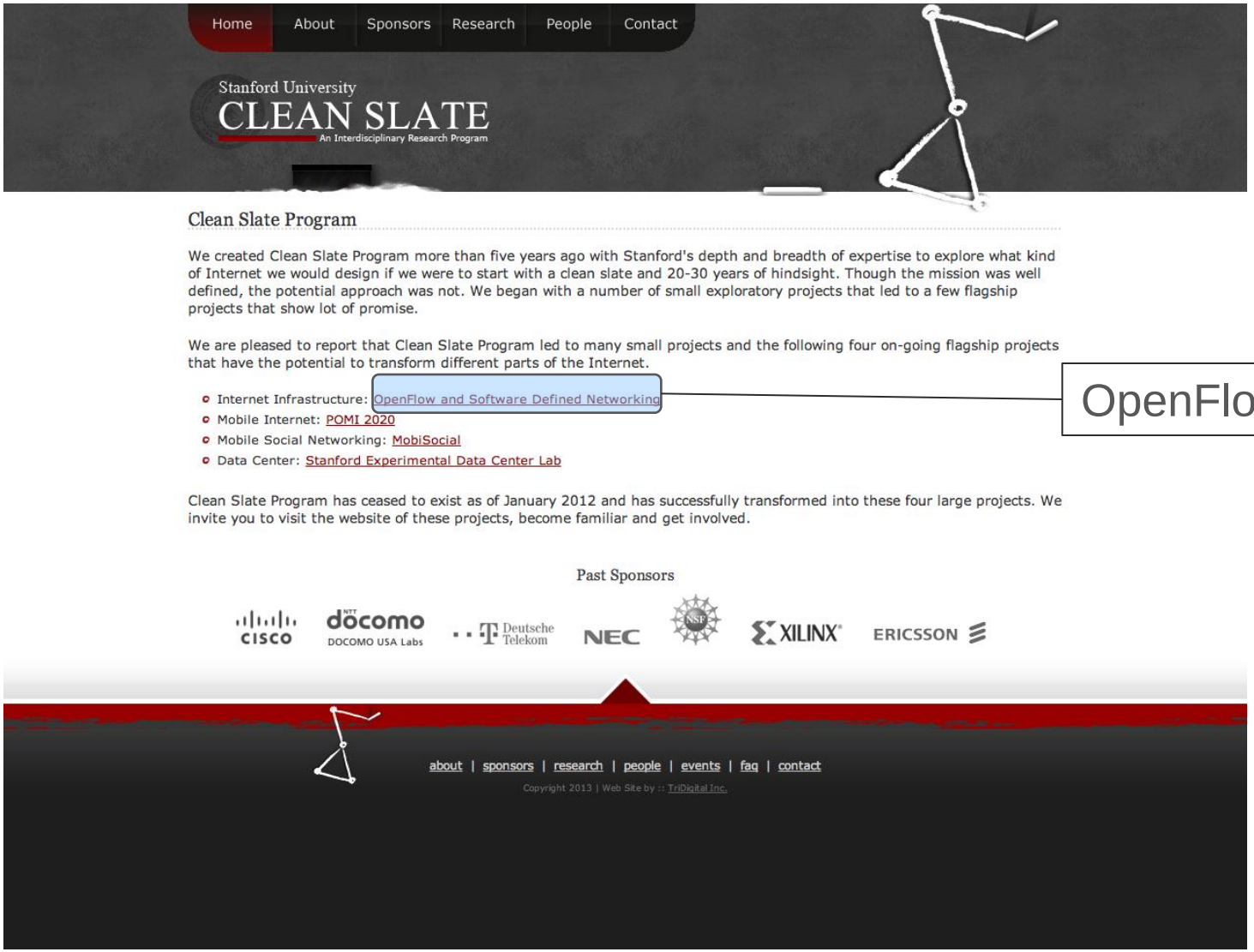


Transforming service provider networks into programmable and dynamically application responsive entities

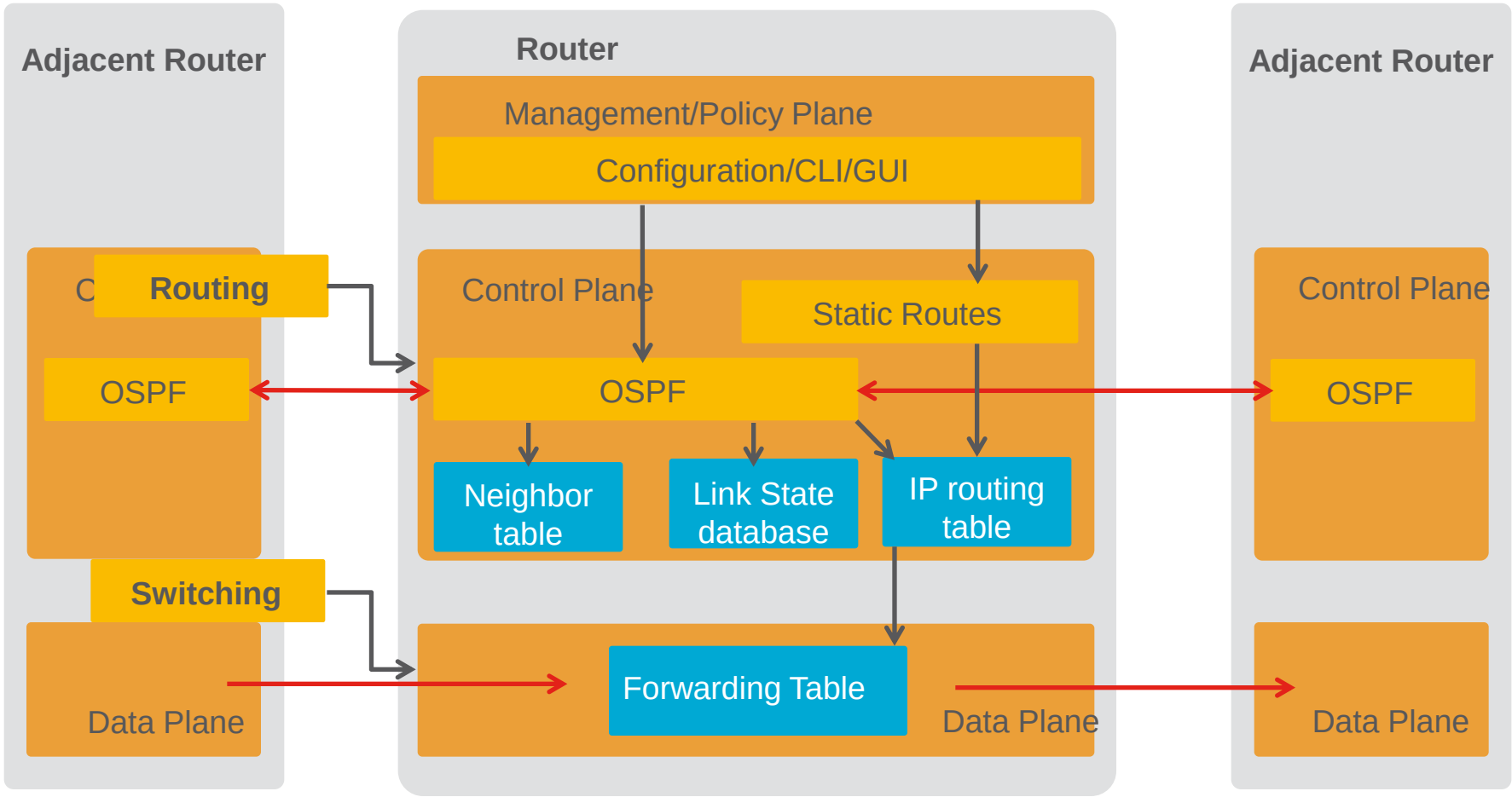
WHAT IS SDN?

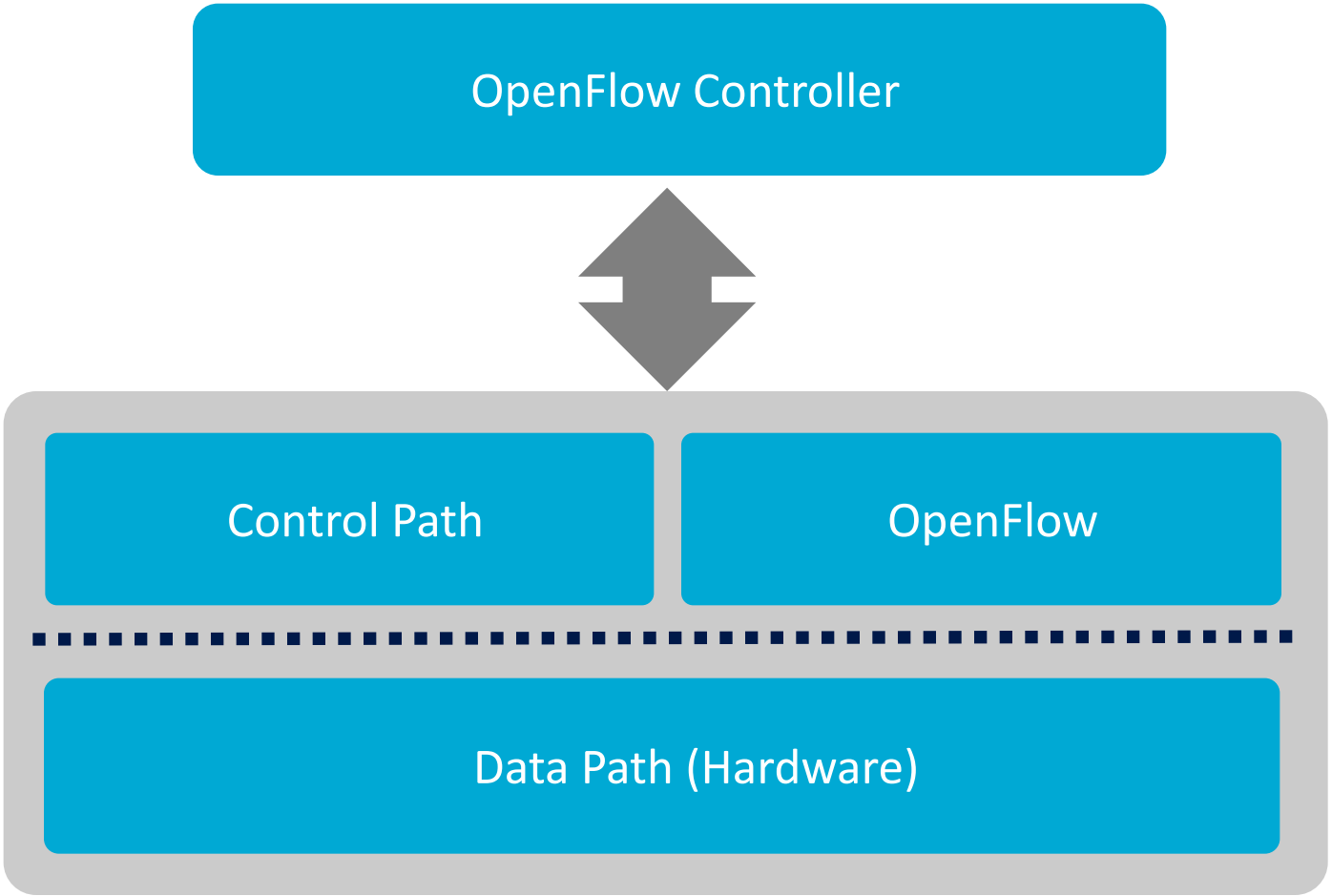


- SDN
  - Decouples control & data planes (CP & DP)
  - Centralizes CP
  - Provides network programmability via APIs
- SDN ≠ OpenFlow (OF)
  - OF is just one option for decoupling CP & DP
- DP under SDN control may span L1-3
  - e.g., optical, Ethernet, MPLS, IP routing
- SDN & Cloud are complementary
  - Cloud may cost-reduce controller & apps
  - SDN simplifies & helps automate cloud orchestration

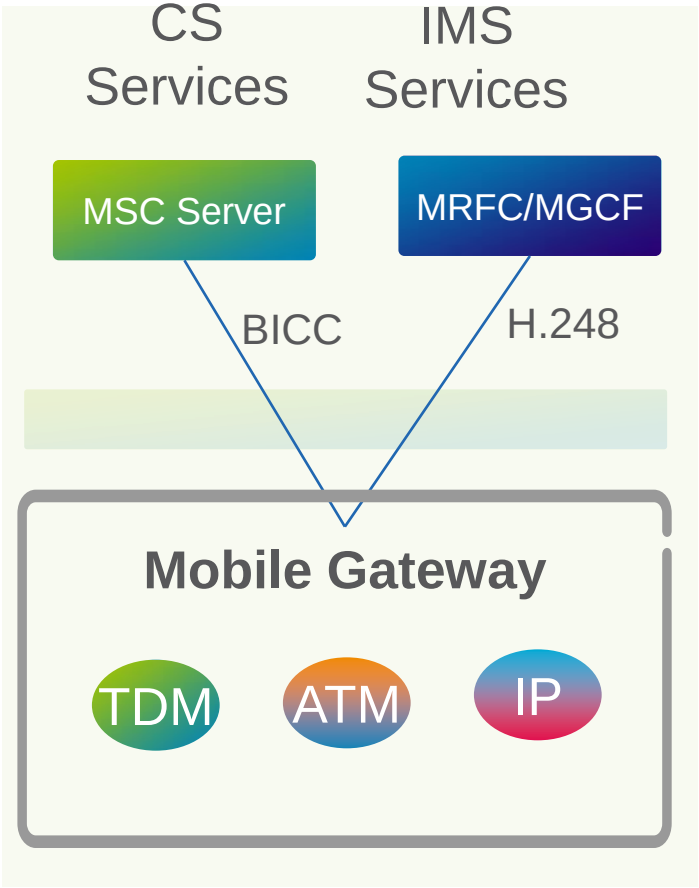


OpenFlow and SDN

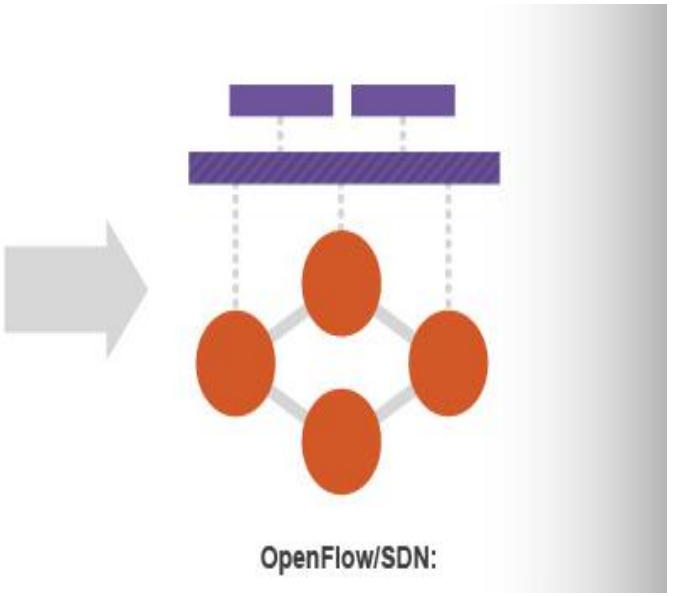

Adjacent Router
Router
Adjacent Router
Management/Policy Plane
Configuration/CLI/GUI
Routing
Control Plane
Static Routes
Control Plane
OSPF
OSPF
OSPF
Neighbor table
Link State database
IP routing table
Switching
Forwarding Table
Data Plane
Data Plane
Data Plane


OpenFlow Controller
Control Path
OpenFlow
Data Path (Hardware)

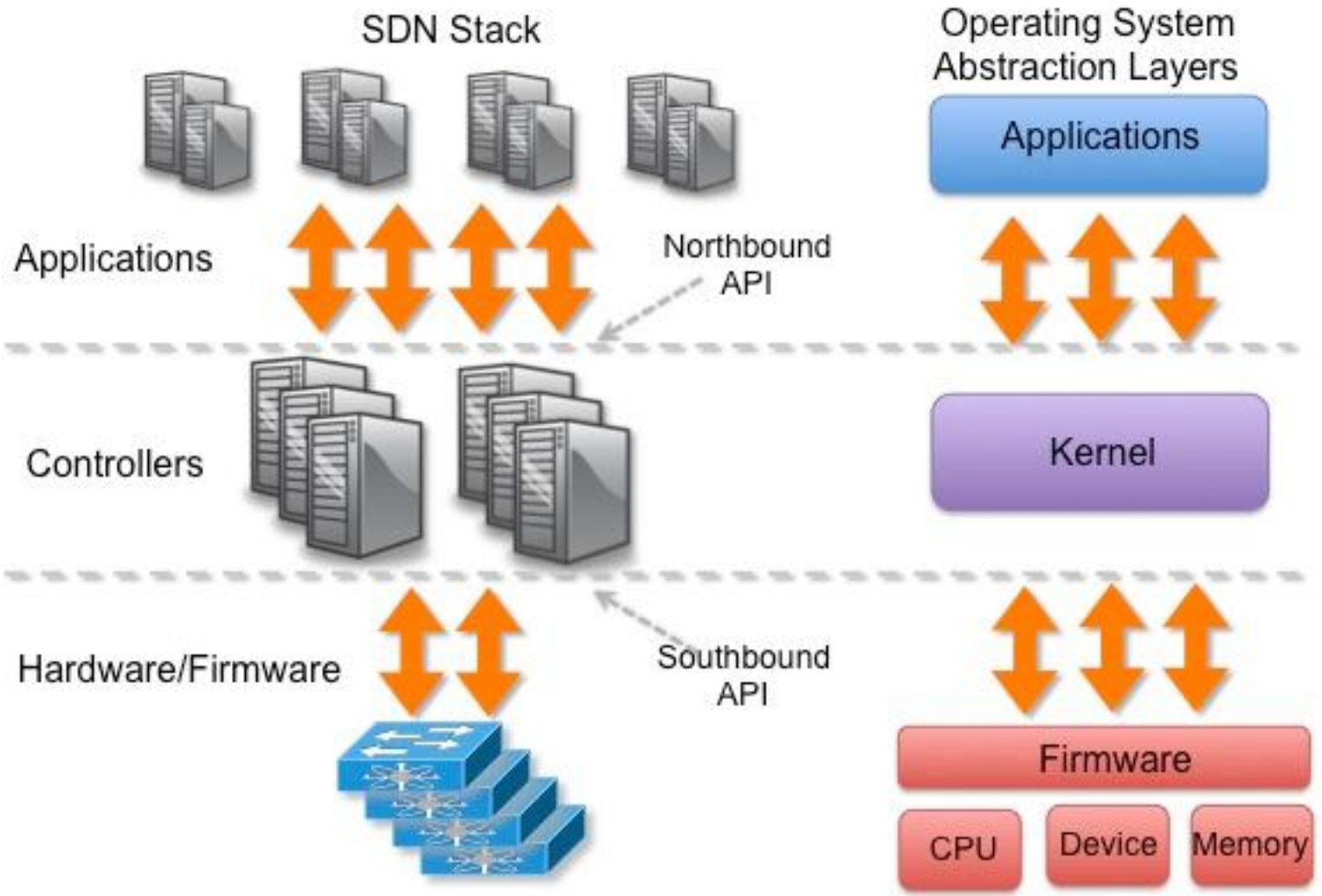
SPLIT ARCHITECTURE IN THE MOBILE NETWORK



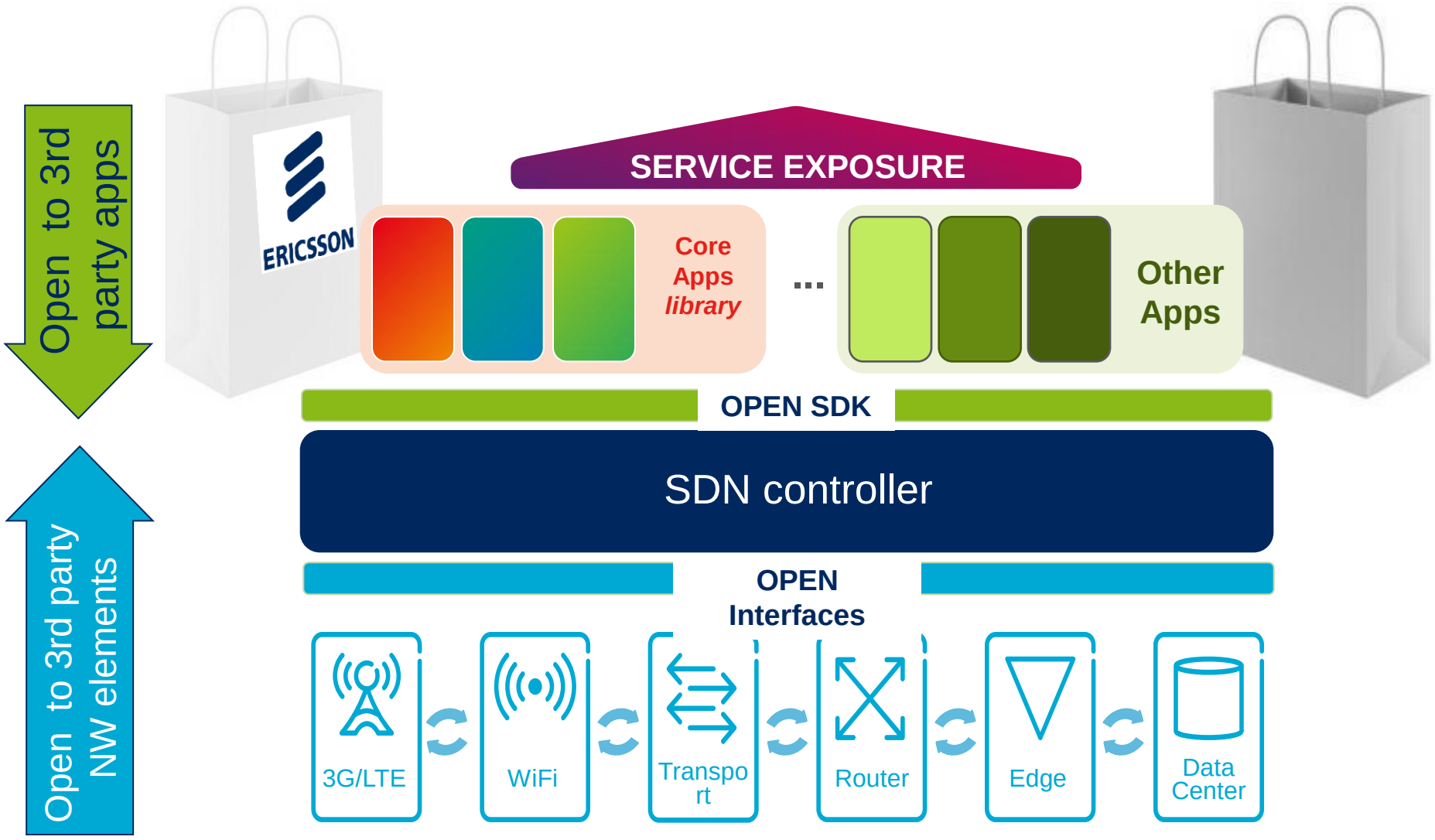
New: Programmability and Virtualization



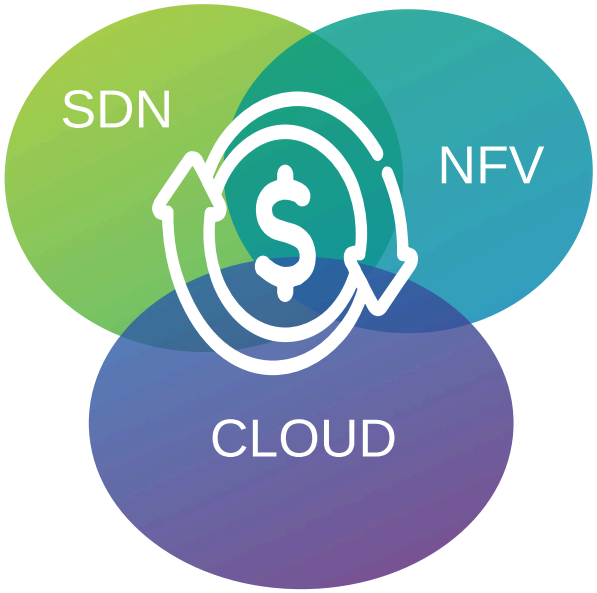
déjà vu: Scale, Service Velocity

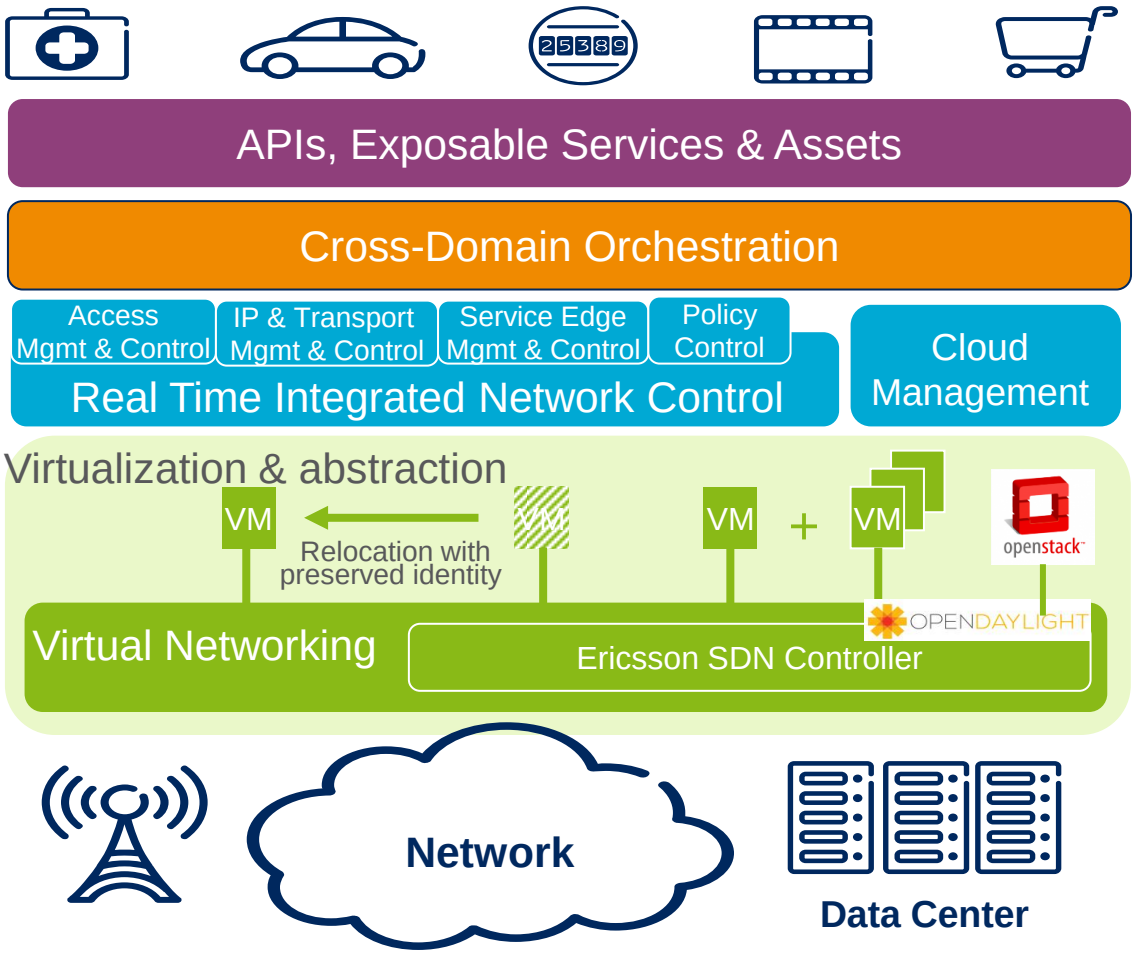

SDN Stack
Operating System
Abstraction Layers
Applications
Applications
Northbound
API
Controllers
Kernel
Hardware/Firmware
Southbound
API
Firmware
CPU
Device
Memory

SERVICE PROVIDER SDN



SP-SDN, NFV & CLOUD
THE KEYS TO UNLOCKING VALUE



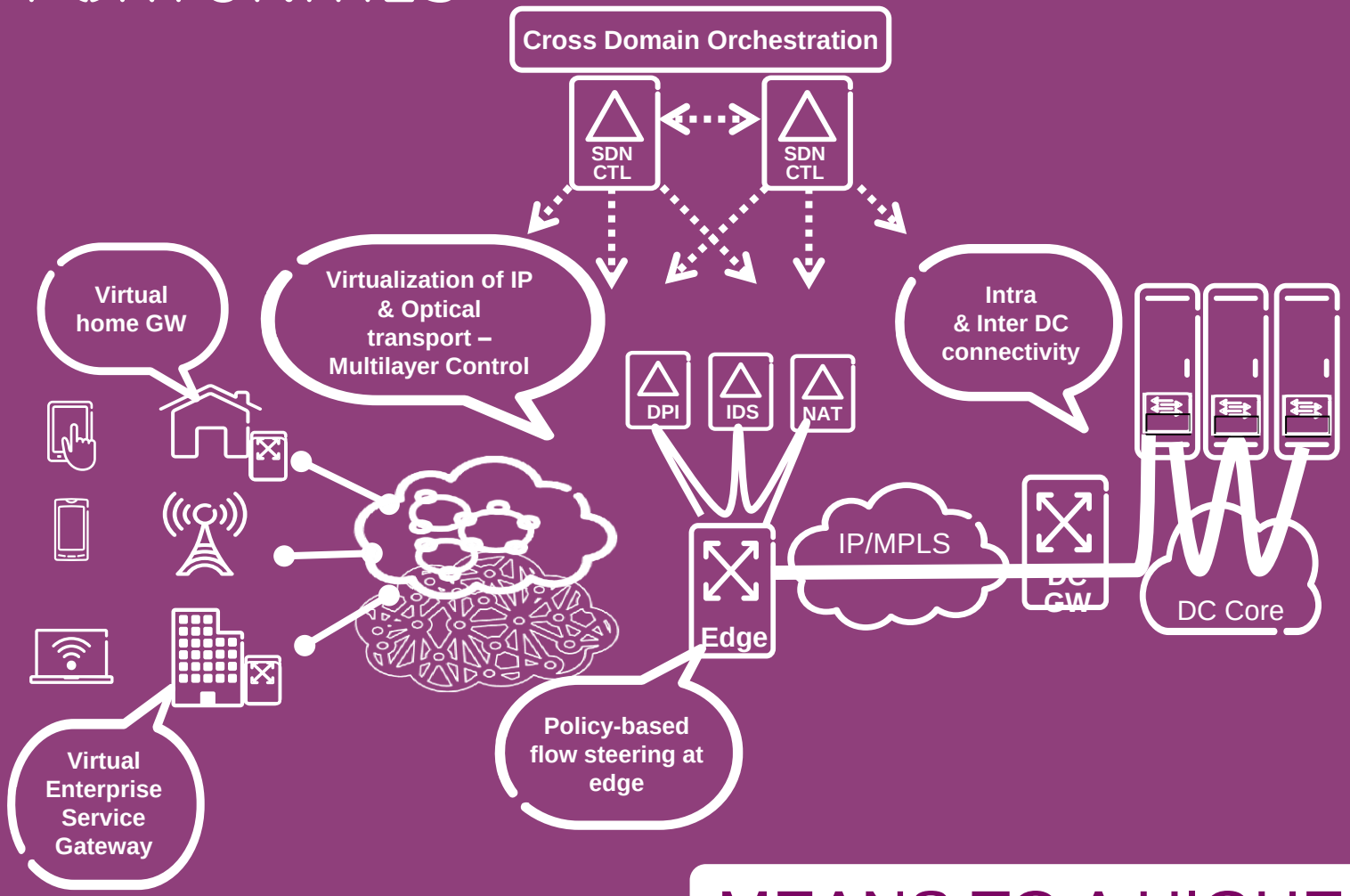


ERICSSON JOINS OPEN DAYLIGHT

- Open source project for SDN
- Secures a strong ecosystem for SDN
- Ericsson member of Board and Technical Steering Committee
- Ericsson to drive requirements & code for operator needs

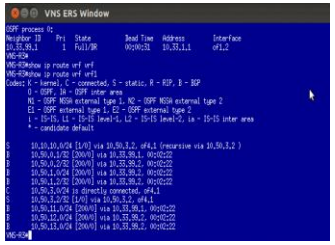
SERVICE PROVIDER SDN APPLICATIONS

NETWORK WIDE TRANSFORMATION OPPORTUNITIES



MEANS TO A HIGHER END

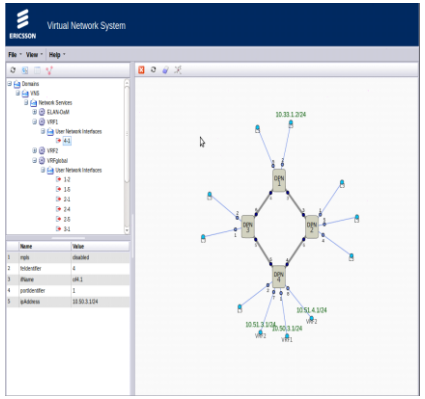
SERVICE PROVIDER SDN:
VIRTUAL NETWORK SYSTEM



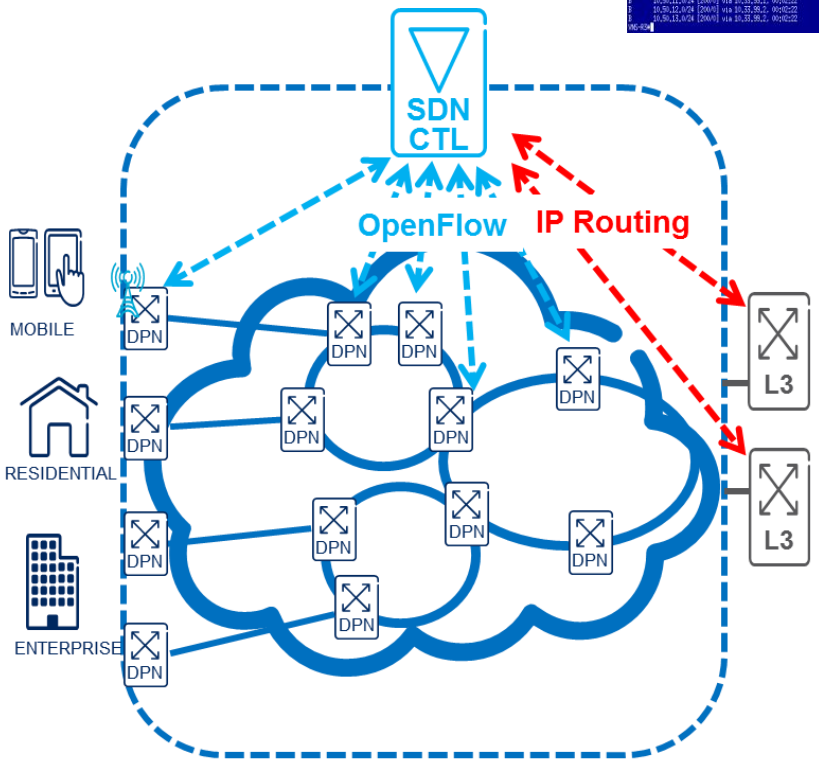
ERS CLI
external
ports

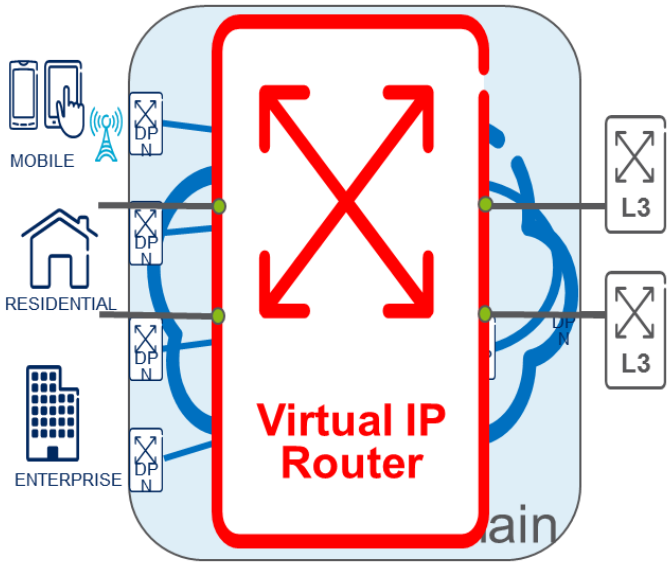
TCN

GUI
internal
topology



VIRTUAL NETWORK SYSTEM

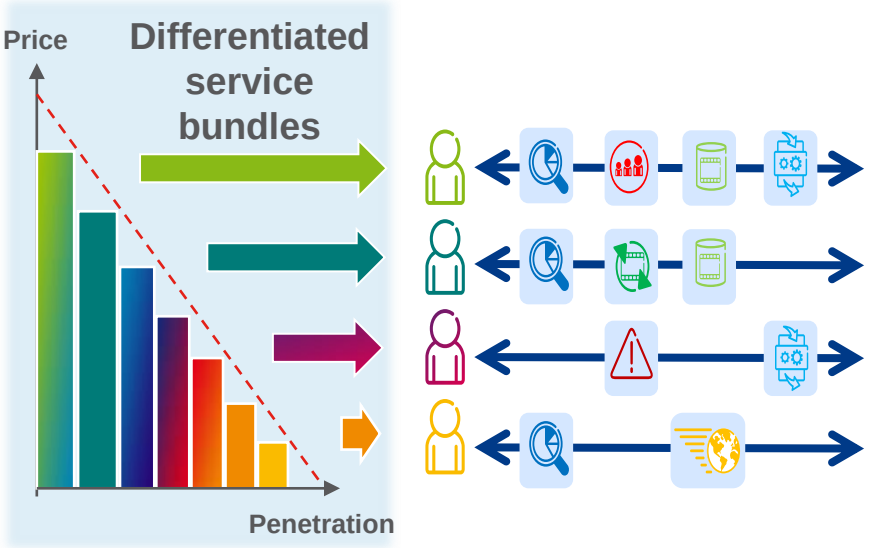


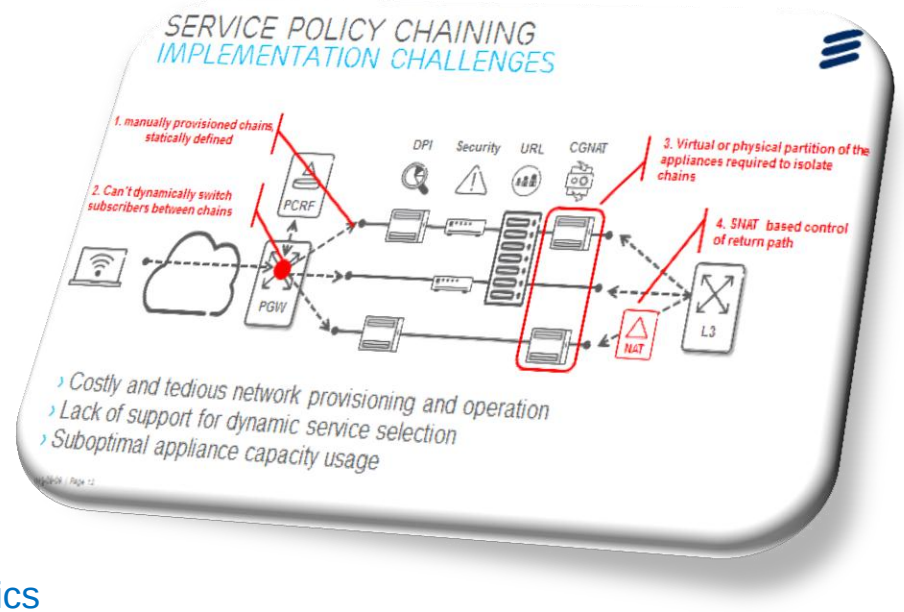


VNS Domain: Internal view

VNS Domain: External view

SERVICE CHAINING FOR DIFFERENTIATION





Firewall/AV

Parental Control

TCP/HTTP Web optimization

CDN & TIC

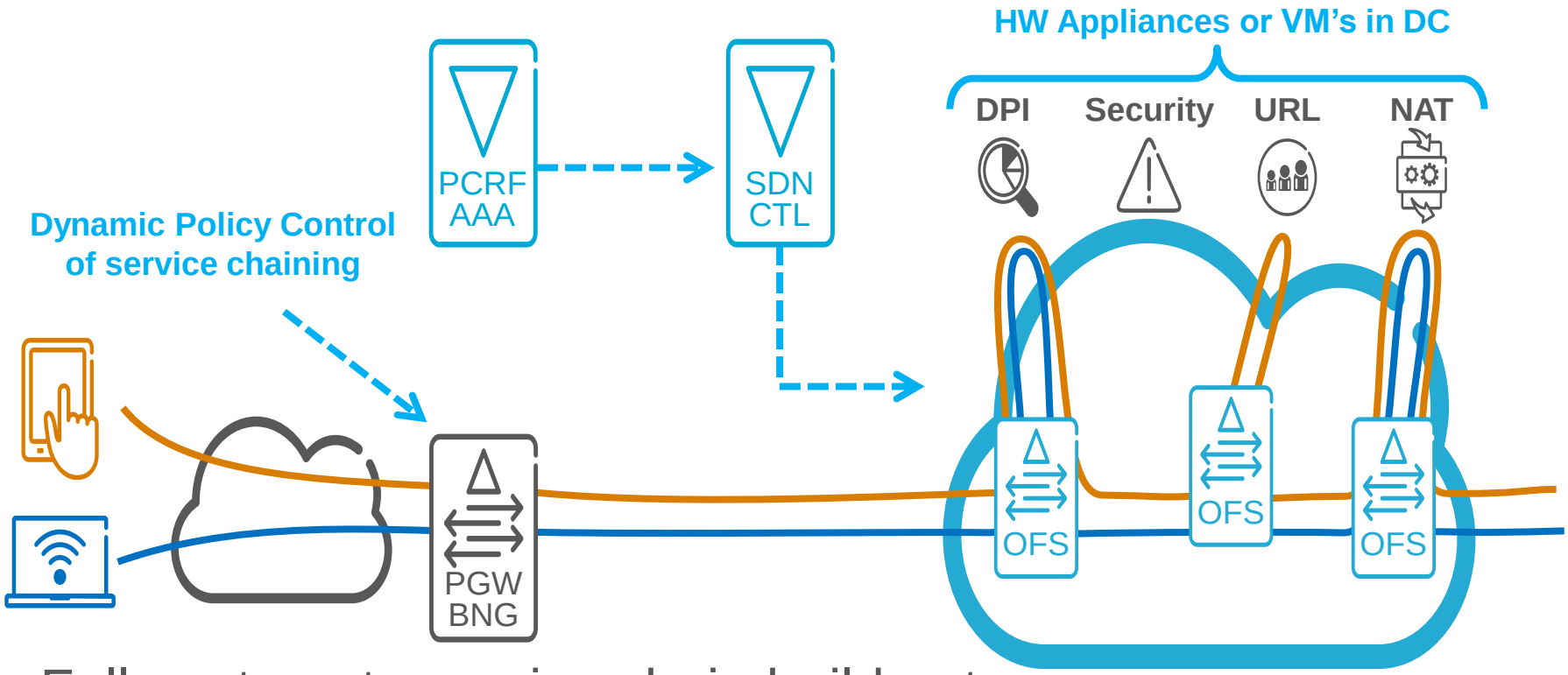
Media live compression

IPv6 transition/NAT

DPI, Charging and analytics

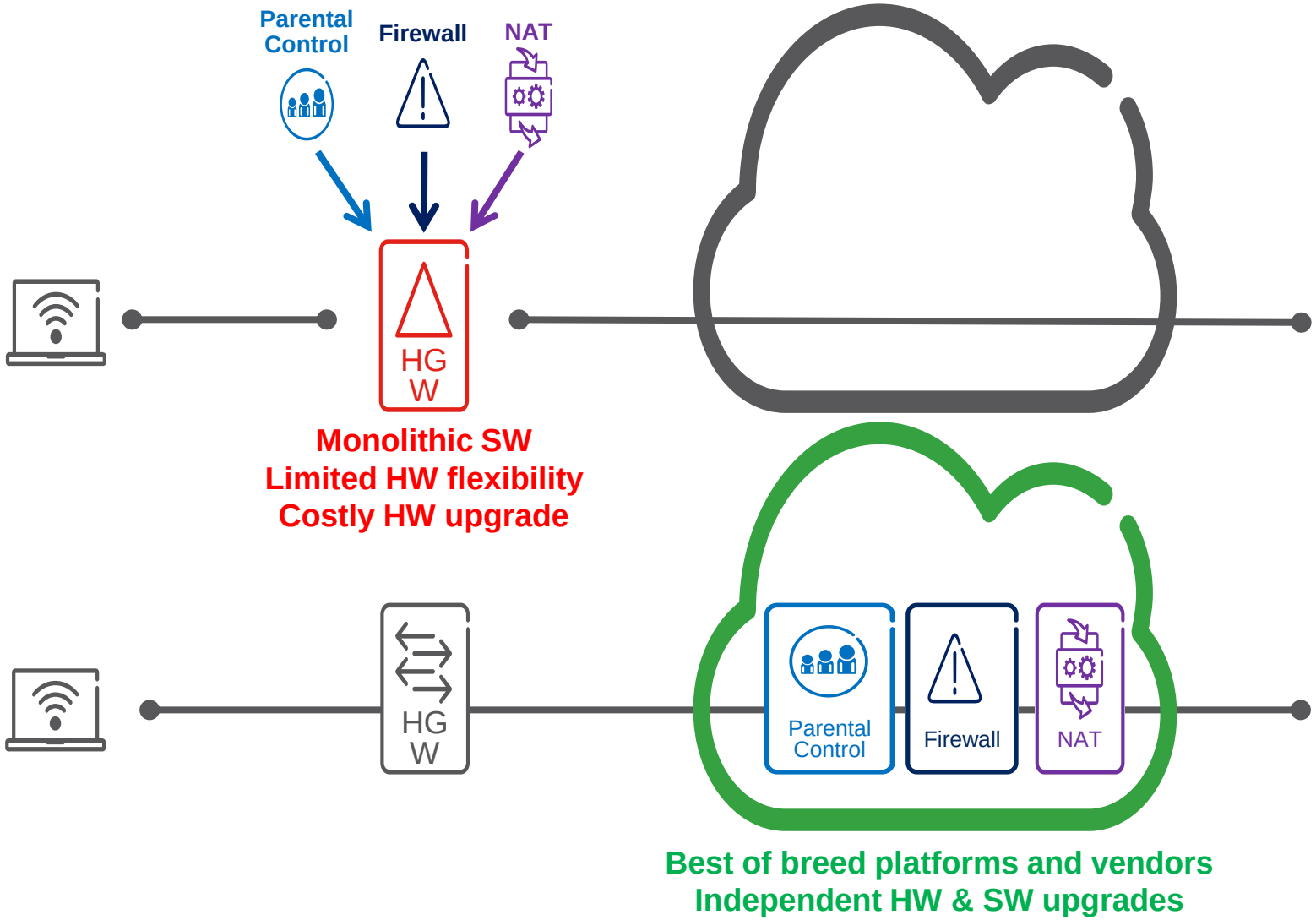
Advertising, profiling, enrichment

SUBSCRIBER AWARE CHAINS
SERVICE CHAINING & AUTOMATION

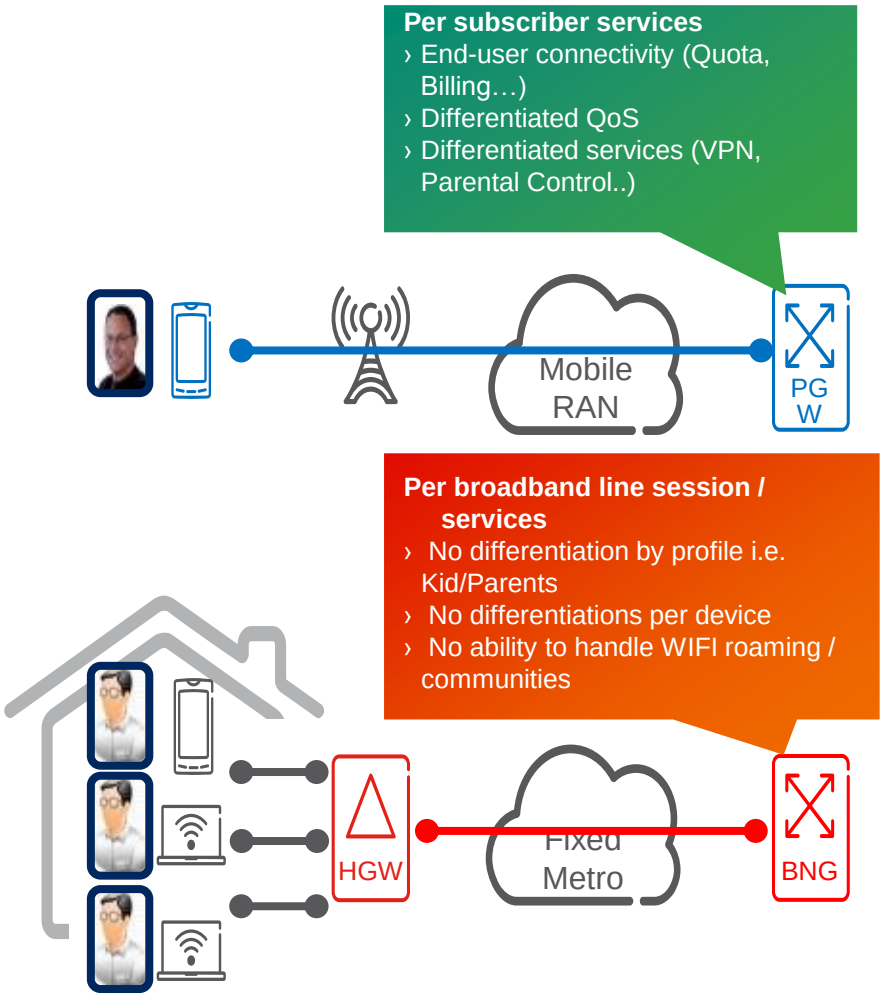


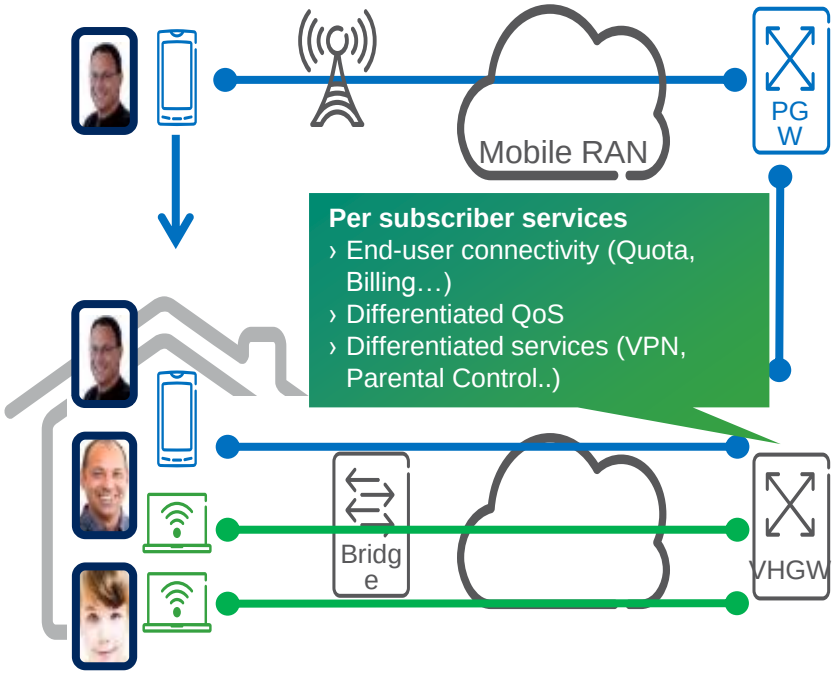
- Fully automate service chain build out
- Per subscriber to allow service change on the fly
- Dynamically built at subscriber connection time

VIRTUAL HOME GATEWAY
SP-SDN FOR FIXED NETWORKS



SERVICE PERSONALIZATION
MOVING TO A NEW MODEL





SERVICE PERSONALIZATION

On-Net

Off-Net

OTT-Specific

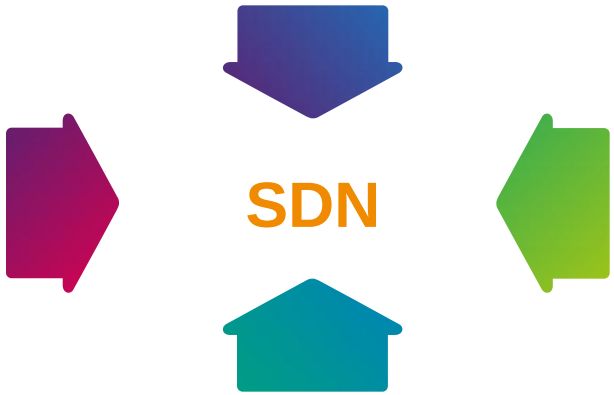
Per Destination

Residential, SMB, Enterprise

Package

Fixed / mobile

Per Subscriber



Video

Interactive Multimedia

Business Service

E-commerce

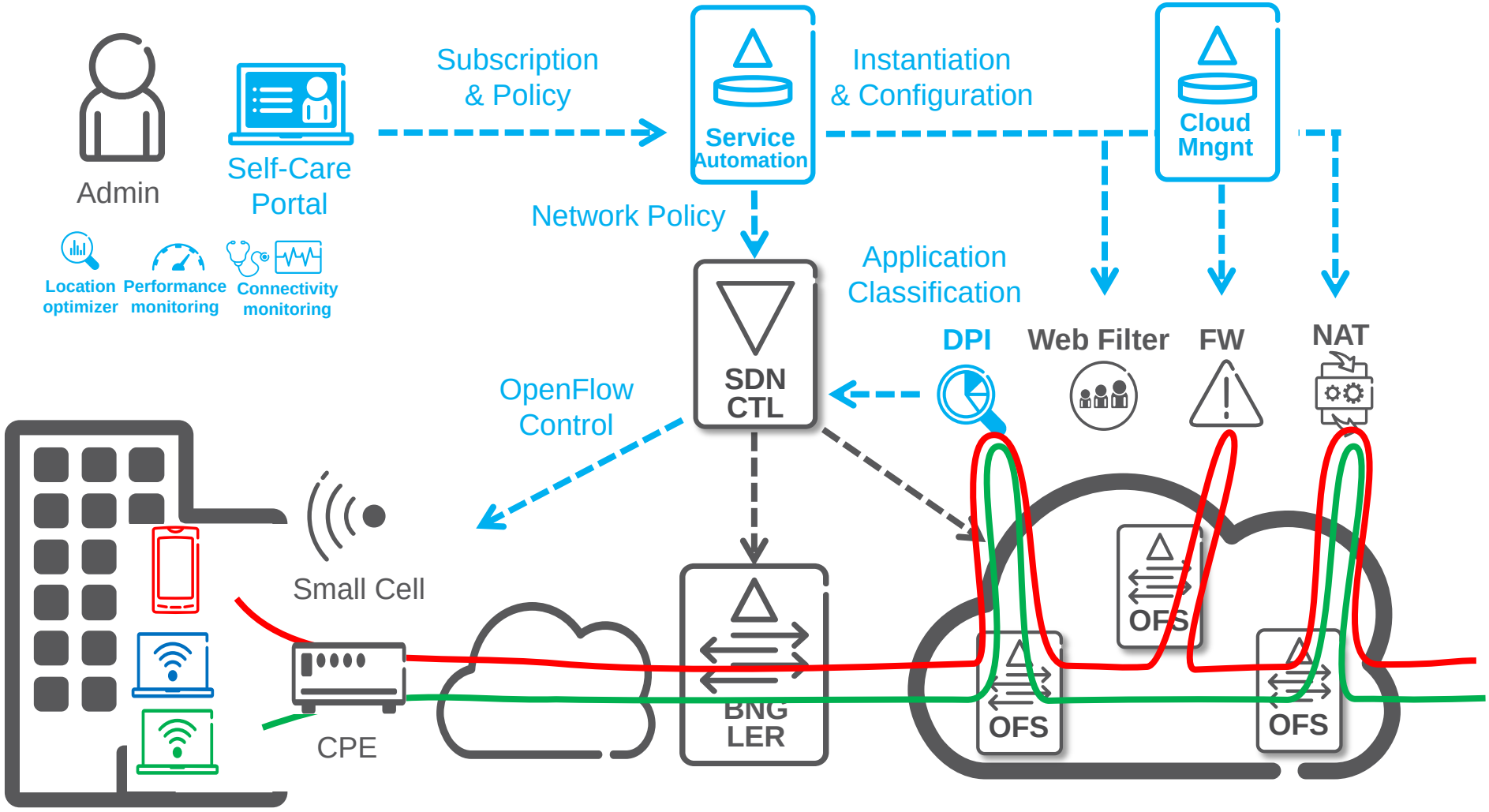
Per Application

Health

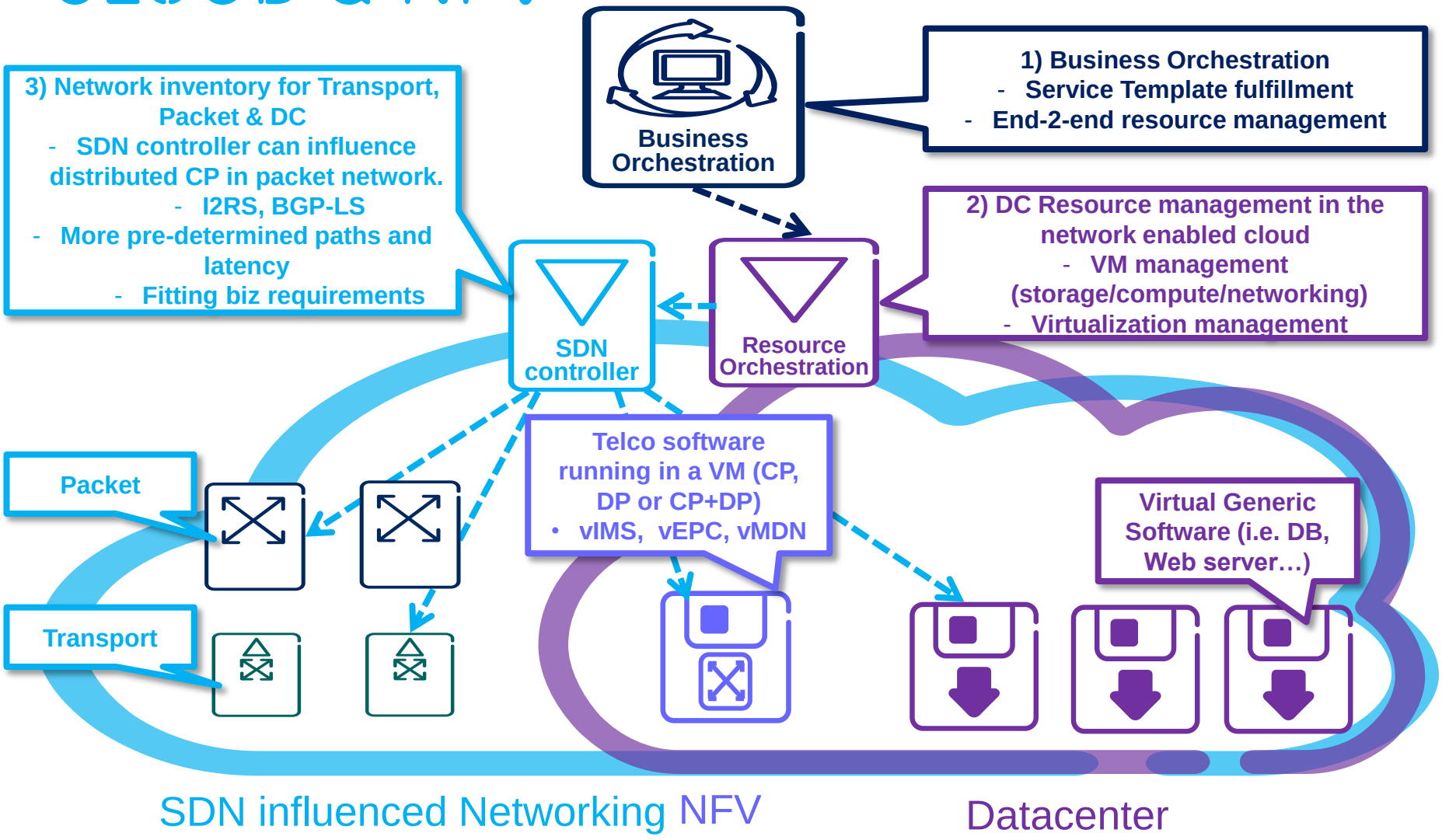
QoS KPI

Performance

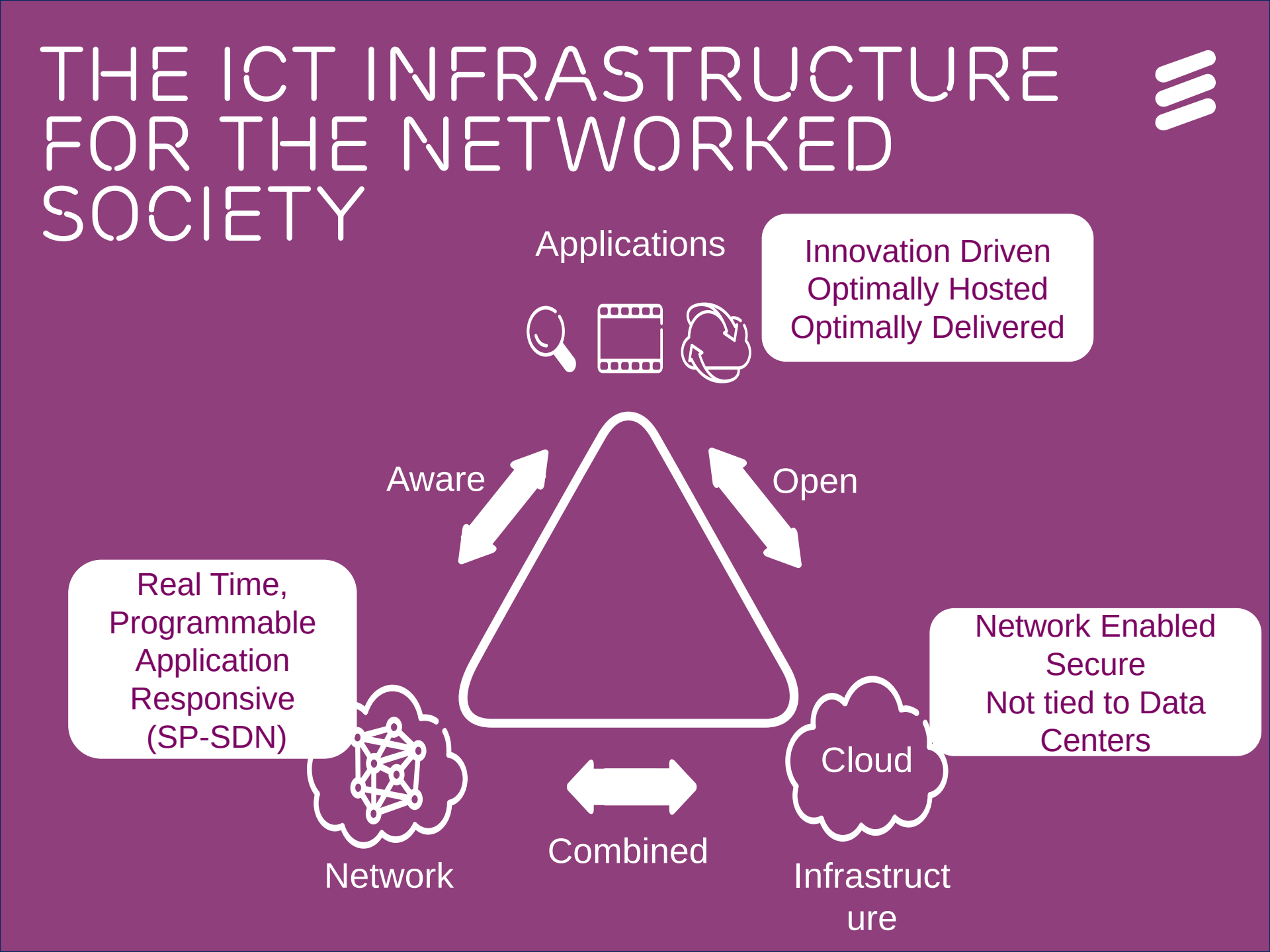
VIRTUAL ENTERPRISE GW
VHGW FOR ENTERPRISE SITES



ALL COMES TOGETHER
TRANSPORT, PACKET, SDN, CLOUD & NFV



THE ICT INFRASTRUCTURE FOR THE NETWORKED SOCIETY



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