



ERICSSON

# CLOUDING THE NETWORKED SOCIETY

# EVERYONE TALKS ABOUT CLOUD



MY DAD SAYS  
THE CLOUD IS  
THE ANSWER TO  
EVERYTHING,  
MISS.



- Drive new business
- Launch innovative services
- Better operating network

# CLOUD DEMYSTIFIED



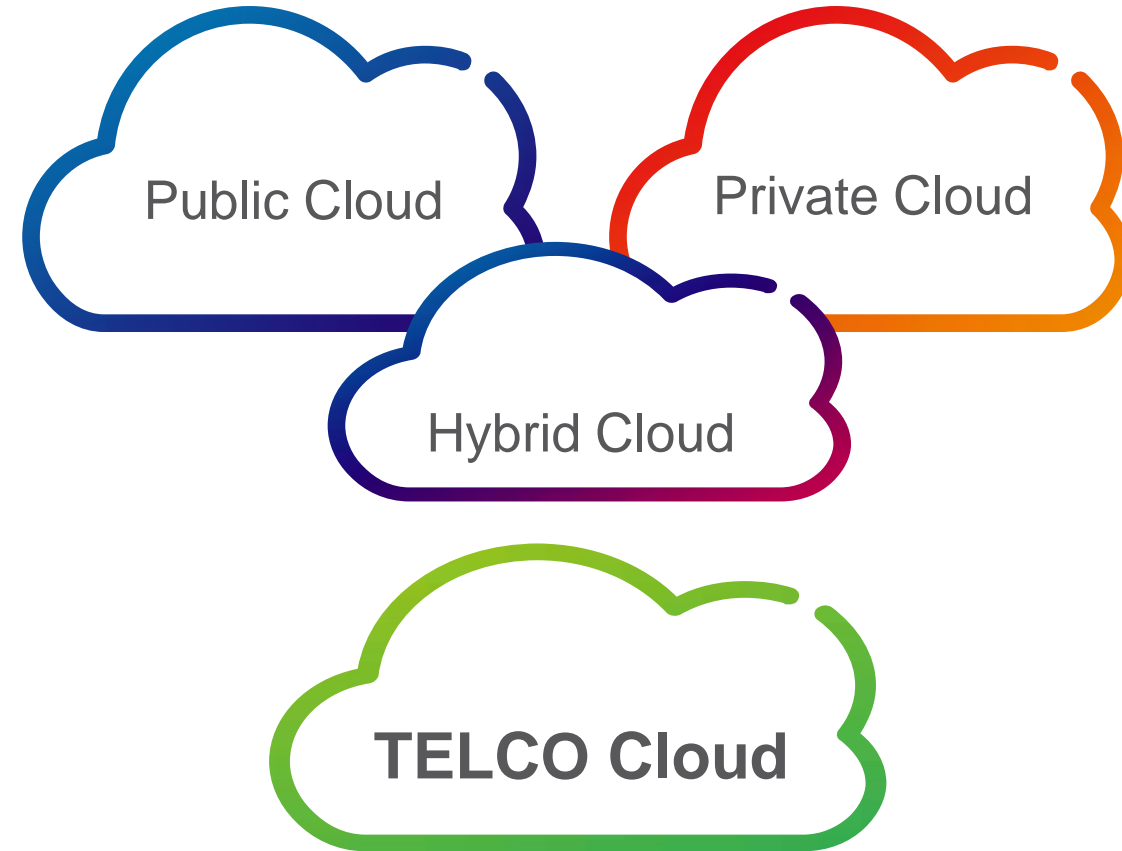
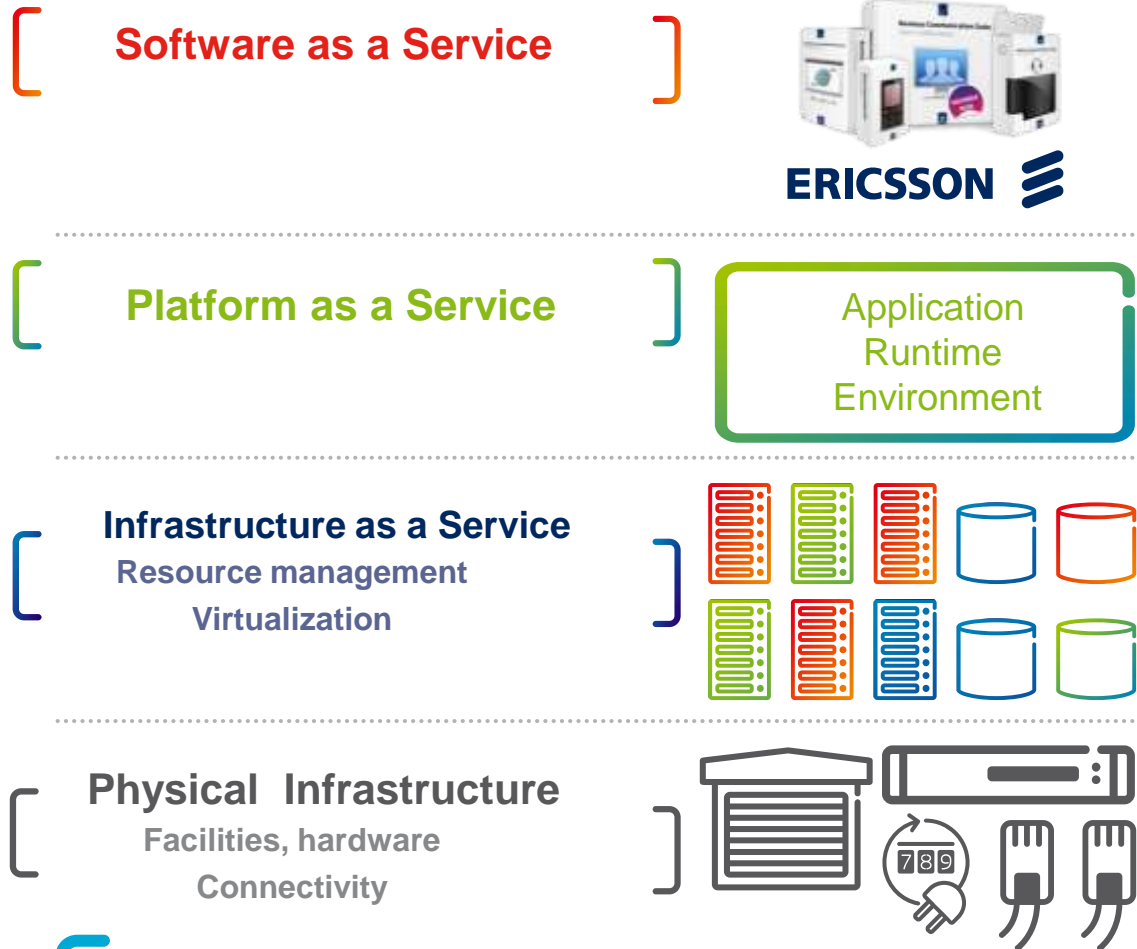
## Cloud everywhere!

- › Your organization has it !
- › My organization has it !
- › Our kids use it !



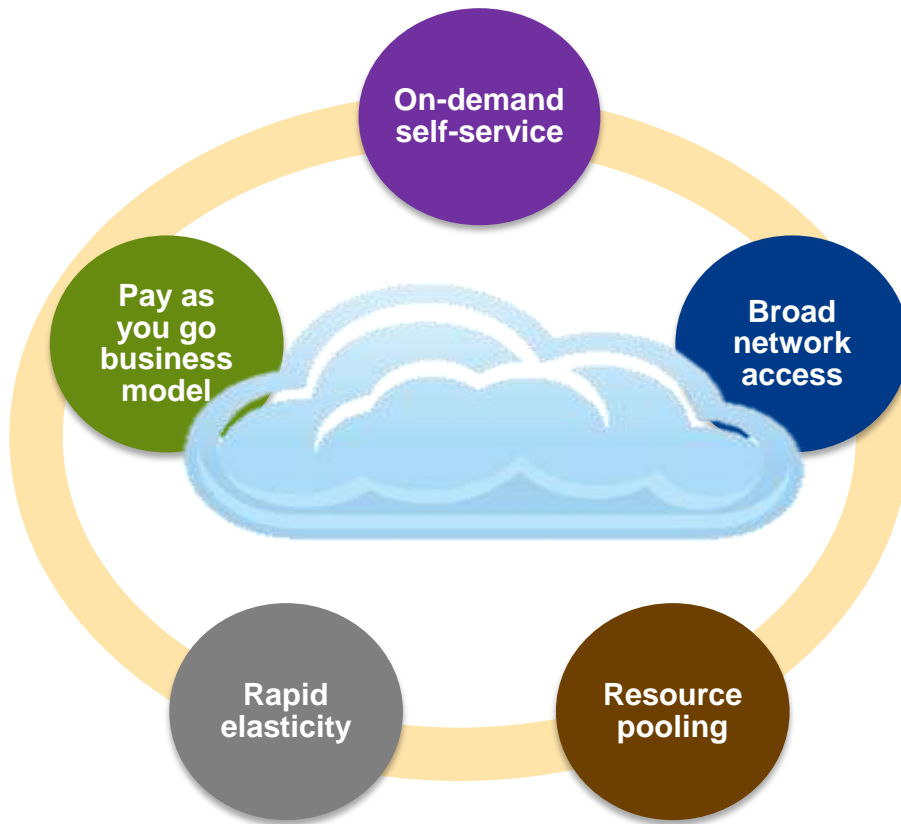
So, the Cloud is not NEW!  
Is it just TRENDY and GROOVY?

# HOW WE USE CLOUD SERVICES



LEVEL OF ABSTRACTION AND OPENNESS DEFINE THE CLOUD TYPE

# CLOUD CHARACTERISTICS



## A disruptive concept

• Globally transforming the business & IT environments of Enterprises (inc Operators) & consumers.

## Causing Industry wide Change

• Service Delivery, GTM, Business Models, Cost & Internal Efficiency.

## Reducing the Barrier to Innovation

• Creating a rich and growing service ecosystem

## A Rapidly Evolving Competitive Landscape

• New challengers are entering the Operator & vendor (IT and Telecom) market bringing alternative product and business models

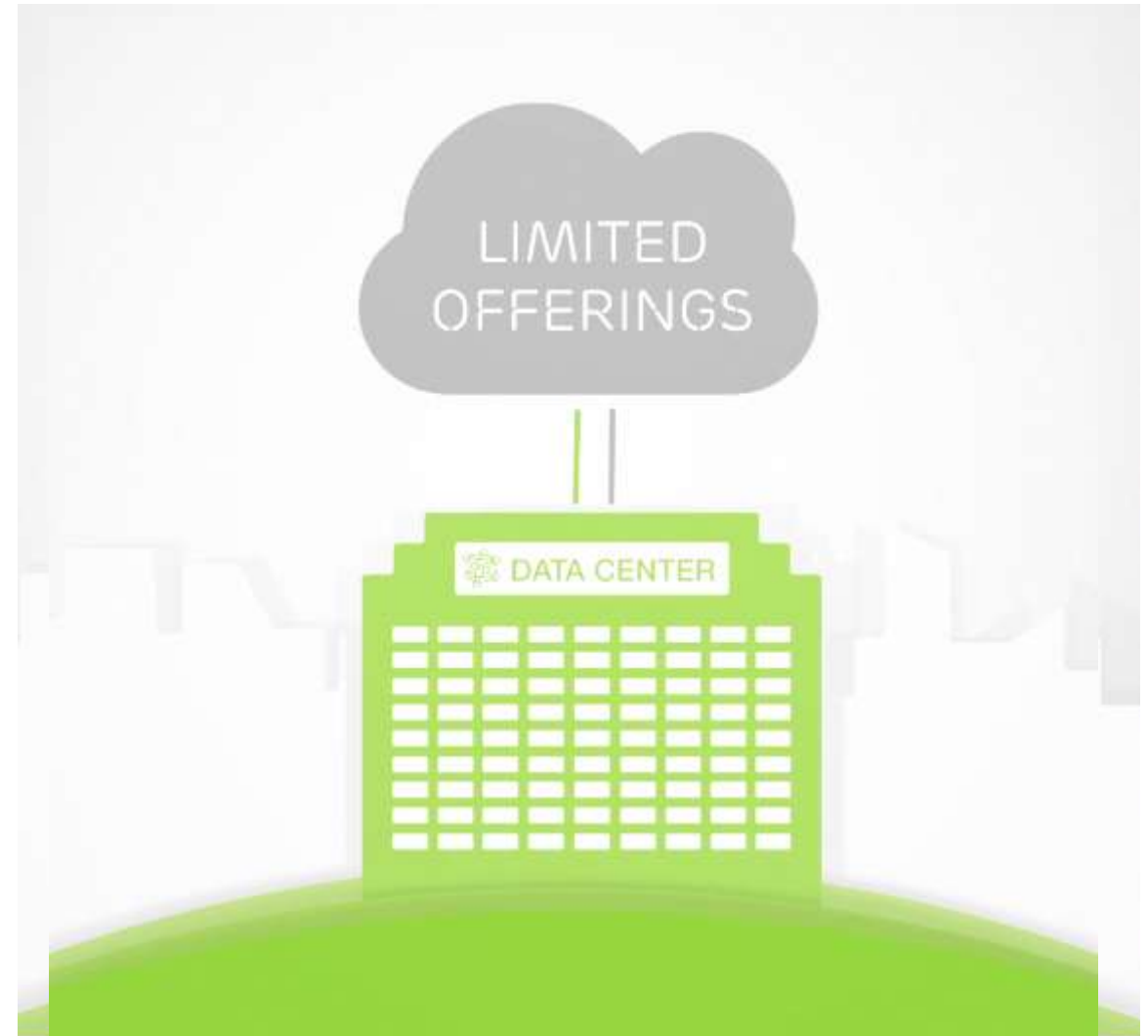
# TRADITIONAL CLOUD SOLUTIONS



Traditional cloud solutions does NOT have **Network** capabilities factored in

- Do not provide a consistent service experience
- Reliability & performance are not guaranteed.

Cloud is typically limited to what a physical Data Center can offer



# CLOUD OPPORTUNITY



# WHAT IS A NETWORK ENABLED CLOUD ?

Cloud that provides elastic responsive allocation of resources for networking services in real time

REAL TIME

NFV

SP - SDN

TELCO CLOUD

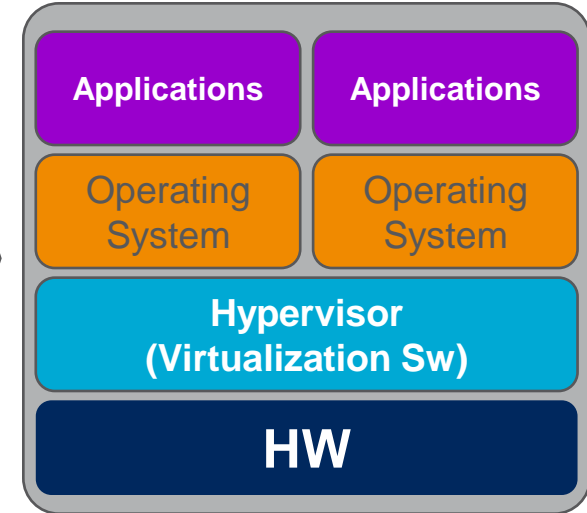
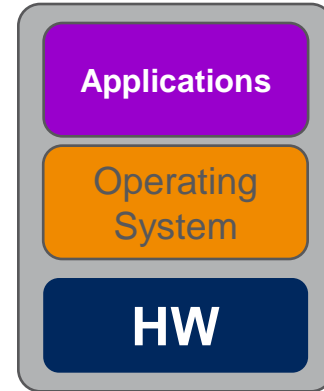


# VIRTUALIZATION



Virtualization

*Virtualization* is a technology to partition processing resources (CPU, memory, storage and IO) to execute different OS and applications on the same HW



*Virtualization* is typically used to build **Cloud Infrastructure**

# NETWORK FUNCTION VIRTUALIZATION



- › Initiated December 2012
  - 1<sup>st</sup> meeting January 2013
  - Hosted by 
- › Objective
  - Virtualization as part of operators network transformation
  - CAPEX/OPEX reductions
- › Currently 172 members in total
  - 28 operators; 144 vendors, integrators, etc
  - Broad participation from the ICT industry
- › Target completion date: Q1 2015
  - Will deliver requirements to standards bodies.



# SERVICE PROVIDER SOFTWARE DEFINED NETWORKS



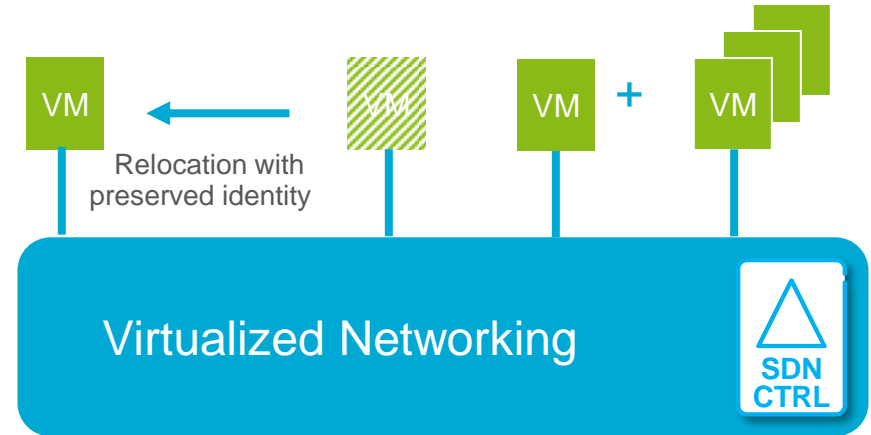
Automated cloud and network orchestration



Location agnostic network identities  
Seamless application elasticity



Separation of data plane and network control  
Network services on demand

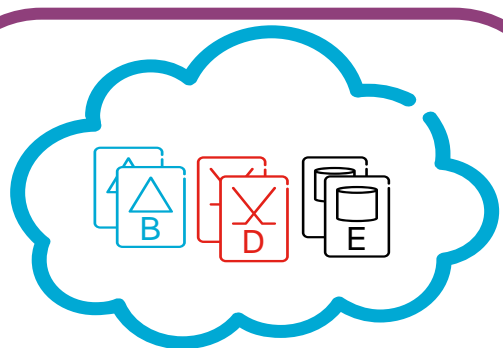


Datacenter

# TELCO CLOUD



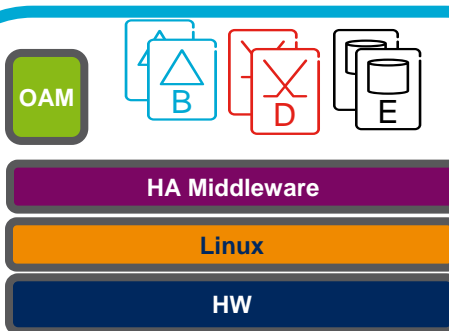
## Traditional Cloud



- › Virtualization
- › Elasticity
- › Multi-tenancy
- › Flexibility
- › Self-provisioning

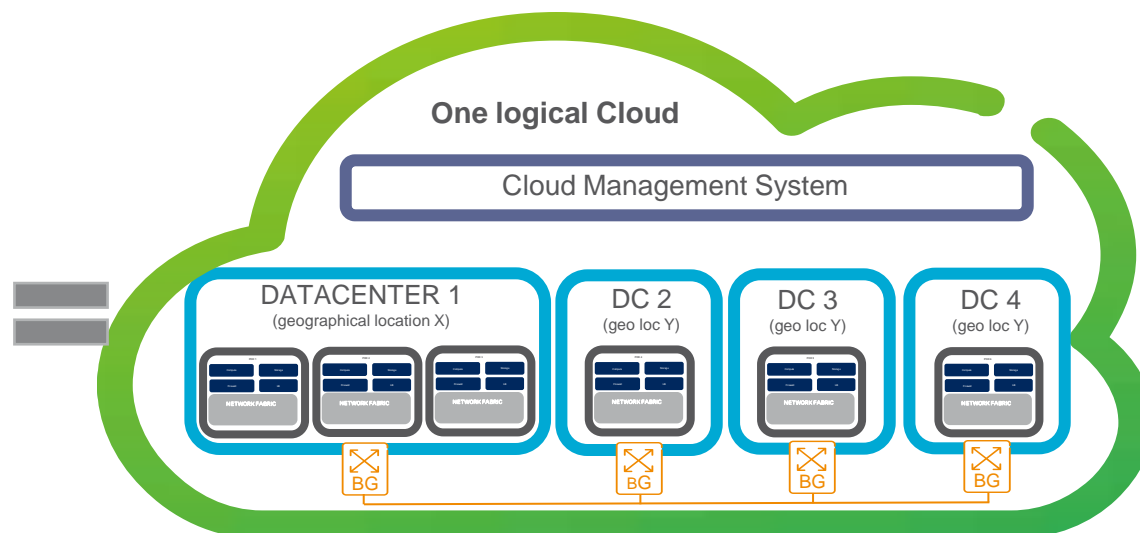


## The Telco Grade



- › High Reliability
- › High Availability
- › High Security
- › In service upgrade
- › Software redundancy
- › No single point of failure

## Telco Cloud



## Carrier Grade Cloud Services

- › Benefits from Cloud systems
- › Benefits from Telco systems

# INDUSTRY ACTIVITIES SDN AND VIRTUALIZATION

## › OpenStack

Open source cloud orchestration environment for telecom and enterprise. Ericsson active Gold member and contribute on Neutron Project.

## › OpenDayLight

Open source SDN controller environment as a complement to existing control mechanisms in a service provider environment. Ericsson Platinum member and driving the OpenFlow work.

## › DMTF (Distributed Management Task Force)

OVF extensions required for telecom cloud. Ericsson is driving OVF requirement for Telco environment

## › IETF

Specifying various proposals on enhancing traditional equipment to support the migration to NFV, such as I2RS, Service Chaining, ABNO

## › ONF (Open Networking Function)

SDN framework and OpenFlow. Ericsson is actively involved in OpenFlow activities



# NETWORK ENABLED CLOUD TECHNOLOGIES



Cross Domain Control, Orchestration & Management

NFV

CLOUD

SP-SDN



Virtualized Network Functions (VNFs)  
Rapid e2e full service deployment  
Relocate VNFs for network efficiency

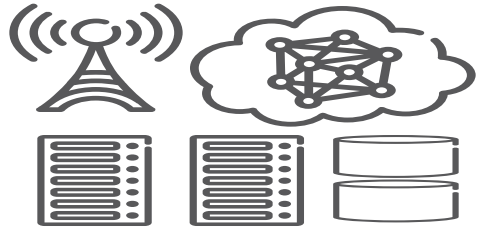
Flexible deployments  
Easy expand you network elements  
Real-time performance orchestration

Virtual Network  
Service chaining  
Automatic connectivity

# CLOUD TRANSFORMATION TRACKS

## Operator Telecom Private Cloud

CTO



Telco Network

## Operator IT Private Cloud

CIO



Operator Business Support Systems

## Operator Public Cloud

CMO



Communication & Messaging



Enterprise & OTT Services

Technology Driven

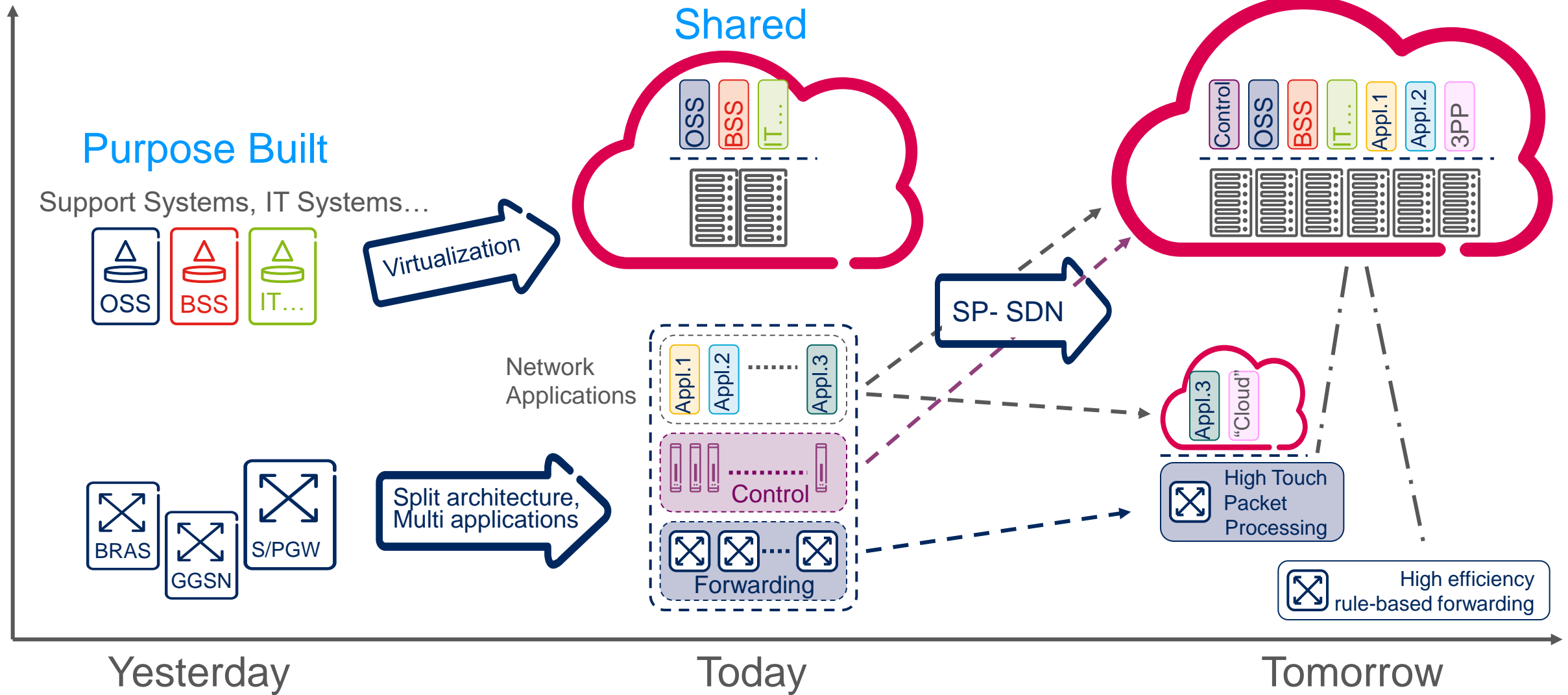
Business Driven

Transforming existing networks to enable Cloud services

Evolving internal OSS/BSS environments to leverage Cloud

Revenues through new services  
Leverage on operator strengths, relation & networking

# TELECOM INDUSTRY TRENDS





# SUMMARY



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- › The Network Enabled Cloud will enhance the ability of ‘network applications’ to elastically scale to meet changing demand patterns in the networked society.
  
- › NFV and SDN also create new value propositions
  - **Slicing** to create individual, deterministic, automated and optimized DC and WAN networks
  - **Simplification of operations** (provisioning, management, on-boarding)
  - **Flexibility** to roll out innovative applications quickly and with low risk (new revenue opportunities)
  
- › The Cloud Solution should provide a seamless and stepwise migration with maximum reuse of the current installed hardware and software

# JOIN THE CONVERSATION



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