CLOUDING THE NETWORKED SOCIETY
EVERYONE TALKS ABOUT CLOUD

- Drive new business
- Launch innovative services
- Better operating network
Cloud everywhere!

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

So, the Cloud is not NEW!
Is it just TRENDSY and GROOVY?
HOW WE USE CLOUD SERVICES

- Software as a Service
- Platform as a Service
- Infrastructure as a Service
- Physical Infrastructure

Level of abstraction and openness define the cloud type:

- Public Cloud
- Private Cloud
- Hybrid Cloud
- TELCO Cloud
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 do **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
Clouding the Networked Society

Cloud Opportunity

Innovation
“Providing cloud services to enterprise”
Kris Rinne, Senior VP of Technology, AT&T

Speed
“Bring products to market much quicker”
Mike Wright, Executive Director, Telstra

Efficiency
“Radically simplified network”
Bruno Jacobfeuerborn, CTO DT

Superior Performance
“The largest differentiation is performance”
Hideyuki Tsukuda, Senior VP, Softbank
WHAT IS A NETWORK ENABLED CLOUD?

Cloud that provides elastic responsive allocation of resources for networking services in real time.
Virtualization is a technology to partition processing resources (CPU, memory, storage and IO) to execute different OS and applications on the same HW.
NETWORK FUNCTION VIRTUALIZATION

- Initiated December 2012
  - 1st meeting January 2013
  - Hosted by ETSI

- 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

Diagram:
- Distributed Elastic
- Virtualized Networking
  - Relocation with preserved identity
  - SDN CTRL
  - Network
  - Datacenter
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

- One logical Cloud
  - Cloud Management System

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

Virtualize

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

CLOUD

Scale

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

SP-SDN

Control

Virtual Network Service chaining
Automatic connectivity
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

Purpose Built
Support Systems, IT Systems…
OSS BSS IT...

Yesterday

BRAS GGSN S/PGW

Virtualization
Split architecture, Multi applications

Today

OSS BSS IT...

Shared
Network Applications

Control
Forwarding

Tomorrow

Integrated
Control OSS BSS IT... Appl.1 Appl.2 3PP

SP- SDN

High Touch Packet Processing

High efficiency rule-based forwarding

GGSN
Support Systems, IT Systems…
SUMMARY

› 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
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