Cloud Technologies in Mobile Core Networks

Mobile Cloud Networking workshop
2014.06.19, Rui Gomes, Vodafone Portugal
What is “Cloud”

Wikipedia #1
“a model of network computing where [an] application runs on connected servers”

Wikipedia #2
“cloud term came from the cloud symbol that network engineers used on network diagrams”

Both are long used in telecommunications
There are many clouds

User Cloud

IT Cloud

Core Netw Cloud
My experience: Telecommunications evolved

- Core Network architect since 1998
- Several telecom. industry BIG changes:
  - Mobile and roaming explosion
  - VoIP End-to-End - international
  - Mobile Data - GPRS
  - All-IP Core Network
  - 3G/UMTS – two networks
  - Split Architecture - control plane on different nodes as user plane
  - Mobile Data explosion
  - IMS – Fixed-Mobile convergence
  - Pooling - dynamic capacity sharing across several nodes
  - Cloud solution for a small service
  - LTE/4G
  - VoLTE is coming

And now... “Cloud in core”
Why cloud in the core

- Core = hardware independency and elasticity
- Cost reduction
- Hosting, less sites
- All-Services platform
- Everything is compatible with everything
- “No-limit” Elasticity / Agility
- Reliability / Redundancy
- Maintenance made easy
• Goal made total sense:
  – Before: one node doing everything
  – Few nodes focused on control plane
  – More dedicated nodes with high capacity for user plane

• But vendors are on the other side:
  – Vendors also need its revenue stream
  – They adapt the business model to the new reality

Besides technology, we have to understand the dynamics of the market
Who are the actors in the market for Core in the Cloud

- Greenfield Operator
- Established Operator

- Challenger Vendor
- Established Vendor

... All with different goals
Cloud in core for **greenfield** “Telco” Operator

- **Infrastructure can grow when service grow:**
  Access to “unlimited” (aka scalable) resources, “dedicated” network infrastructure per service

- **Hosted deployment**
  No site/data centre, just rent
  Cheap and pay as you grow

- “**real life**” redundancy is not that critical
  New service, few customers

- **Vendors already have turn key solutions**

**Ideal for new service provider**
Cloud in the core for **established** Telco operator

- **A not-so-simple cloud**
  - work with existing legacy non-cloud systems and interfaces
  - Will not replace (all) old systems - (business case)
  - Replace existing service means “too many” users to start with
  - Risky: “prefer” proven/legacy vendors

- **A private cloud**
  - Sites are already there
  - Control is key:
    - Security,
    - Service assurance
Vendor business model is today HW intensive and have to be protected
Telco Operator vs challenger Vendor Cloud Solution

More flexible on hardware requirements
Why Cloud in the Core - summary

- New contracts (€€€) and projects
- Easier full network swaps
- Easy trials and faster deployments
- Lower cost HW solution, reusable
- Focus on SW, the differentiator

Good for software telco vendors, newcomers

Not so good for HW based vendor models
(but they are changing)
The question is not if cloud in core will happen... but when

- Some Services/platforms will take longer
- Some Operators will be slower
- Some Vendors will take slightly longer to deploy

To speed up:

A clear win-win for Operator And Vendor
The FUTURE of cloud in the core

Near future:
• Operators and vendors will mature the cloud in the core idea
• New benefits “not really ready” at beginning will happen (vCPUs, orchestration, etc)

It will have a bigger role for sure... will it replace everything?

in 2 Years: NO, some new services or node swaps
in 10 Years: MAYBE, but probably not

Things are really starting this year...
...so I can bring a better forecast next year
Questions?

Thank you.

http://cloudappreciationsociety.org/