

Regional Networks in Finland and Convergence

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Overview of the Presentation

- The Definition of Convergence
- The Evolution of Regional Networks in Finland
- Changes in Value Chains in Telecommunication – the Horizontality of the Services will come, but how?
- Standards and directions in the R&D activities
- Convergence in Telecommunication Networks – finally from words into actions?
- Generating Services into the Networks – ARPU vs open access – is it impossible task to join these two?
- (Co)-operation Issues in Regional Networks
- Conclusion

The Definition of Convergence

- **Convergence** means throughout this presentation that various network technologies – wired and wireless – are constructing an Unified System. This Unified System enables the utilization of all of the Network Services in a seamless fashion as being observed by the End-user, independently of time or location. The Network Services in question are technology-independent, and they are for example such as triple-play etc.

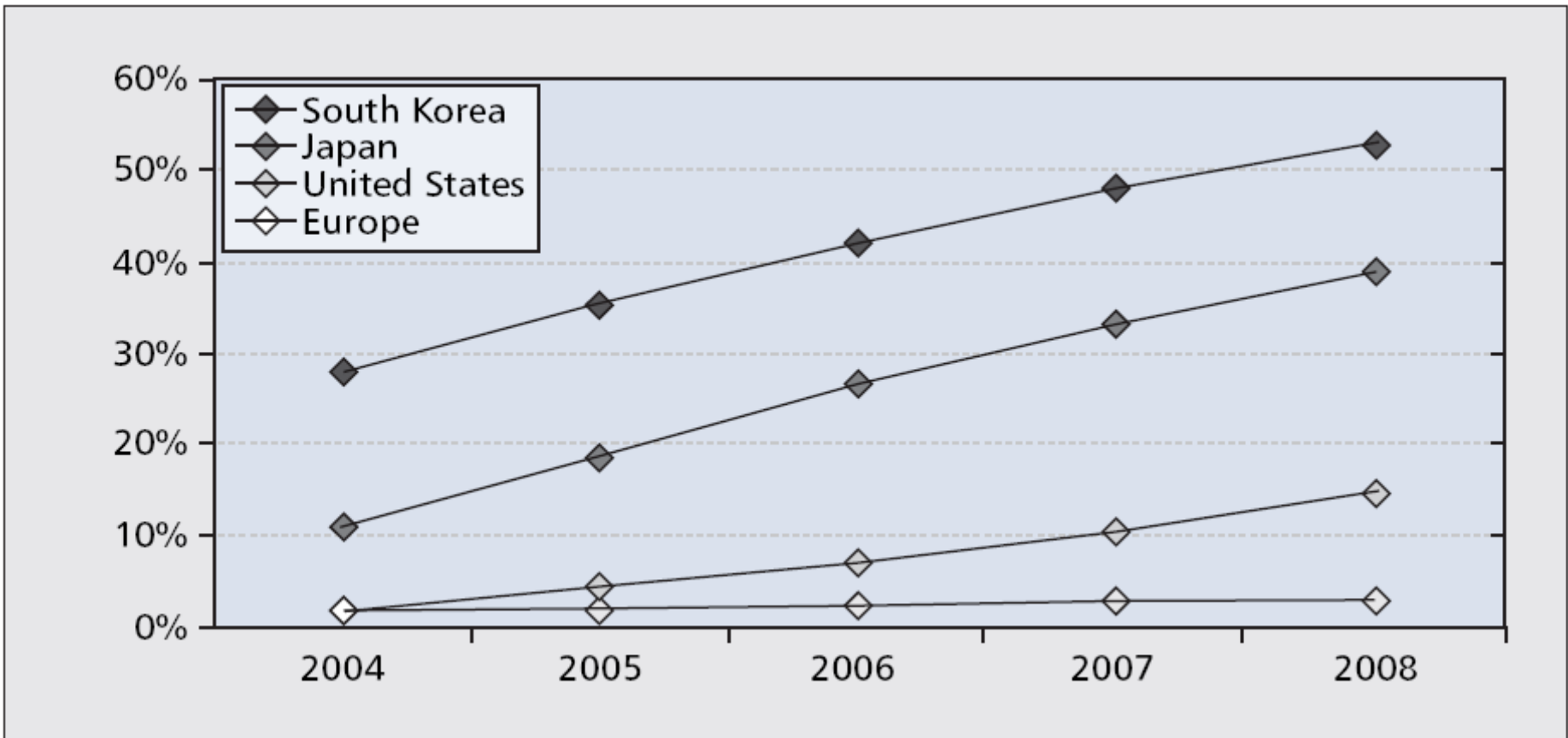
The Evolution of Regional Networks in Finland, why and how have we come to where we are today?

- EU Politicians defined year 2000 the Lisbon Strategy : EU the most competitive and dynamic knowledge-based economy in year 2010
- In the action plans aiming to fulfill the above mentioned goal: eEurope 2002, eEurope 2005 ja i2010 the competition has been considered as the best approach to improve QoS, reduce prices and promote innovative services creation in the Telecommunication Networks
- Incumbent Networks were opened to competition, this is the situation in Copper Networks, and not (yet) within Fiber Networks. Some problems have arisen in the establishment practicalities in the Copper Networks in Finland, though.

What have other Countries done?

- In 2003 the US was in a technological standstill of broadband technologies, and an action plan was established to come out of the evil loop. Several measures were used, one of which is postpone the Unbundling of local (fiber) loop till 2010.
- In South-Koreassa and Japan strong support from the governments, operators and regulators to stimulate competence and invest in infrastructure, especially in FTTH and also in wireless technologies and in convergence

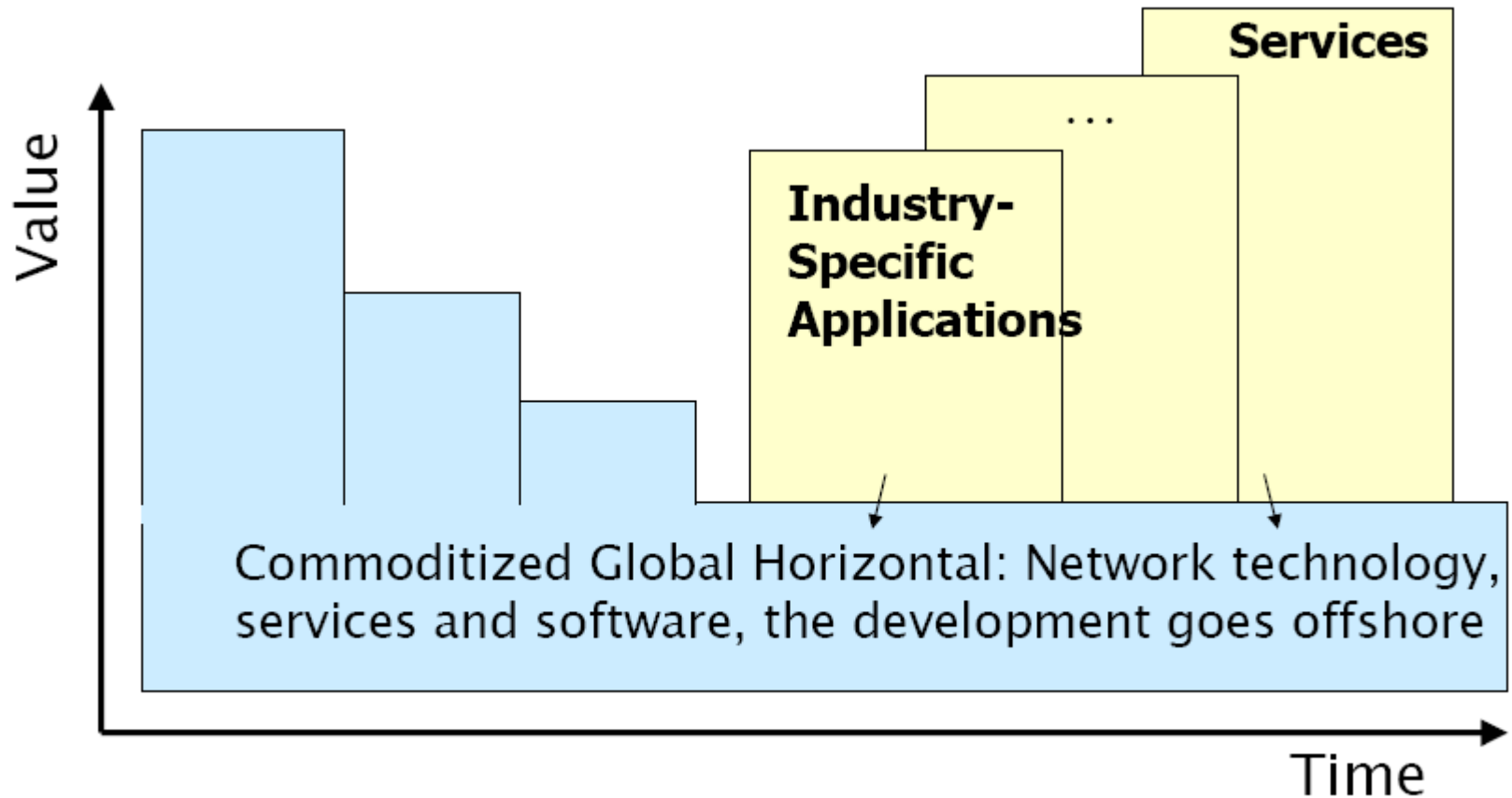
What has this ment in Practice - FTTH percentage over broadband connections



Source: IDATE

- Other factors that have influenced the creation of Regional Networks:
 - The proportion of data traffic has grown in telecommunication, in this the usage of internet has been an important factor. This development will continue to increase also in the future.
 - Despite of great expectations, the competition has not been able to ensure the previously mentioned characteristics in telecommunication networks, nor the needed increase in the bandwidth.
 - Especially the densely populated areas have practically no possibilities to gain distance/bandwidth-unlimited accesses without being active themselves.
 - Synergies with water supply/drain projects, one more duct in the ditch. Possible savings in Communal services production, regional competitiveness etc.
 - Regional Networks enable open access in practice, and in a way this is one possibility to reduce the damage caused by the political/economical situation explained in previous slides.
 - Without public support the regional networks will in general not become reality.
 - The incumbents have in the copper networks a self-playing piano, which they under no circumstances want to lose, where are the Innovations, what is the situation with Convergence? Has the quarterly capitalism and staring at ARPU eliminated all future visionability in the longer term?
 - The biggest hinder is in the minds of the people. Access to Telecommunication services is considered as normal business, not infrastructure like roads, water lines etc. (Note that in this context the services are separated from the access network) Even the Ancient Greeks/Romans had public roads...

Changes of Value Chains in Telecommunication Networks – the Horizontality of the Services will come, but how?



Source: Professor Olli Martikainen

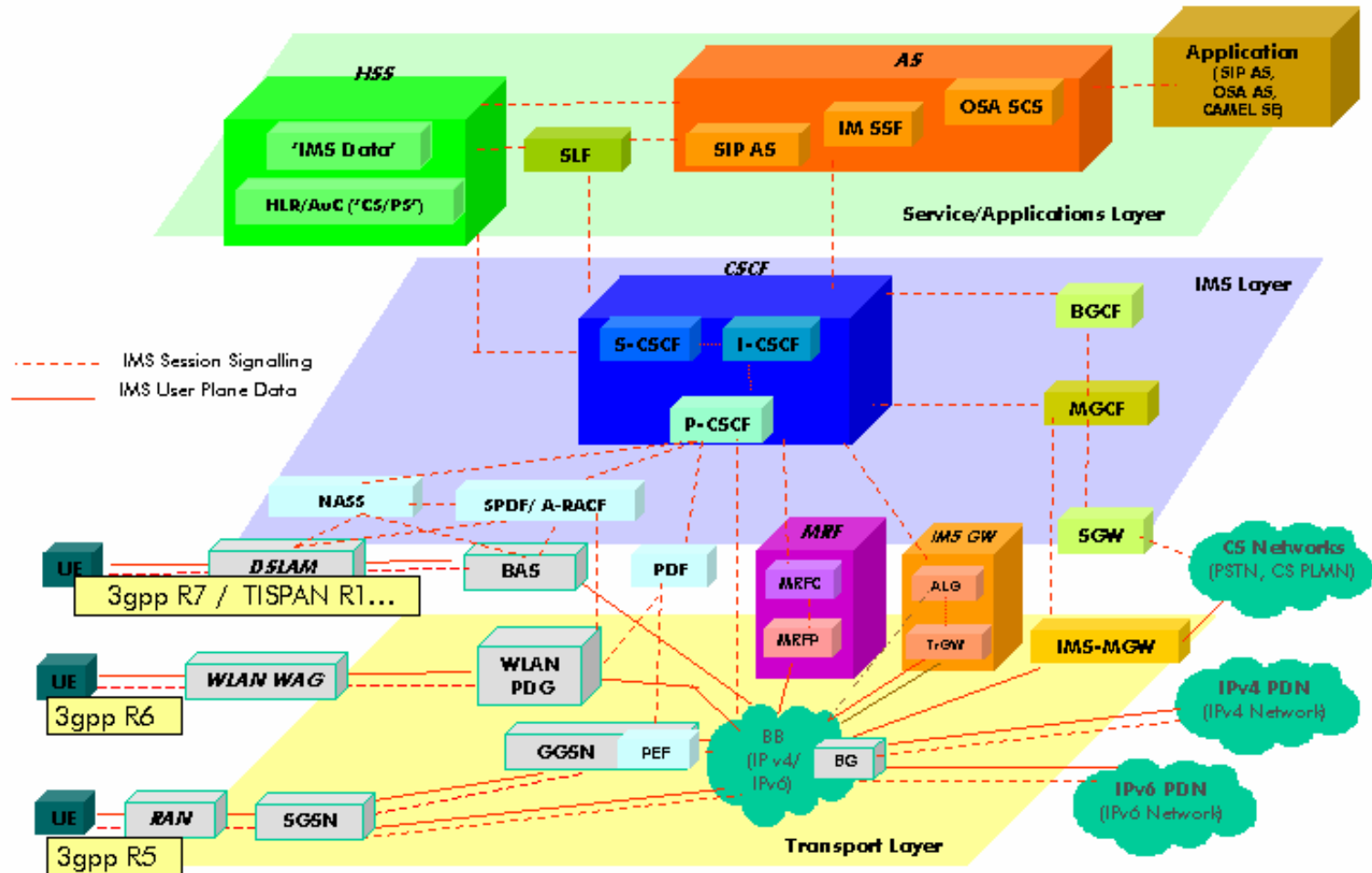
Standards and directions in the R&D activities

- The following is a short introduction on standards and development trends – the aim is to give basic knowledge on Convergence issues in the development of the Telecommunication Systems.
- Essential SDO:s for Regional Networks are:
 - ITU, a Global organization within the UN, having a broad portfolio of standards, radio/television/telephony networks, and also one part called ETSI, in which the 2G/3G cellular networks are being standardized
 - IETF, Standardizes the mechanisms for the internet, OSI layers 3 and above
 - IEEE 802, LAN/MAN standardization organization, OSI layers 1-2

Some main factors of the standardization organizations

- ITU/ETSI is pushing for operator driven, closed internet exchange traffic basing future vision, in which there is such elements like cellular networks, cellphones, IMS, UMA, FMC, services controlled by the operators, charging based on usage of the services, systems extremely massive – see IMS picture in the next slide.
- IETF/IEEE 802 is pushing for application driven, open internet exchange traffic basing future vision, in which there is such elements like broadband networks (wired and wireless), computers/laptops and PDA:s, open protocols like SIP, open supply of services, flat rate charging, systems substantially simpler than in the previous case.
- The latter approach is most likely more attractive for Regional Networks. Time will show whether these two will find each other (hopefully), or has the time for real Convergence not come yet.

IMS, IP Multimedia Subsystem



Source: Wikipedia (note: heavily simplified picture)

IEEE 802 ja IETF standardization

- IEEE 802 success stories:
 - Ethernet (1973, still strongly developing and widely used)
 - WLAN (1997, as above)
- Interesting activities from Regional Networks viewpoint are:
 - 802.1 AVB (home 'gadgets' connected to network with QoS support)
 - 802.16 (WiMax, especially mobile .16e ja .16g and 2,6/3,5 GHz frequency bands)
 - 802.21 (enabler of the Convergence, the mechanisms for handovers are done here, interworking between ethernet/WLAN/WiMax/3G?)
- Many activities ongoing within IETF, and very much is existing already today
 - SIP, HIP, MIPSHOP, MIP, EAP, NSIS...
- These are not Rocket Science/Quantum Physics! With reasonably small efforts the Convergence is reality even today or in the near future, the builders of Regional Networks are in an important position in this development.

Convergence in Telecommunication

Networks – finally from words into actions?

- Practically in every speech and/or future visionings in the field of telecommunication, has for years been talking about all-IP and the convergence of services and the networks, in reality there has not been much evidence of this as actions.
- The fear of losing control on the value chains due to possible introduction of open access philosophy (if the customers can not be bolted on the services provided by the operators networks) have made the incumbent operators reluctant/uninterested on Convergence.
- New actors – Skype, Fring, Google talk, Joost, MSN messenger, Phonet jne jne proceed very rapidly, new are being born instantaneously and globally

Convergence in Telecommunication Networks – finally from words into actions?

- Very broad range of R&D activities outside Europe on this topic, and practical pilot projects are being built to combine disparate networks (eg. South-Korea: 3G/WiBro by using IEEE 802.21 mechanisms)
- In Finland the research activities on the Value Chains and their changes is based on 'active monitoring', and possibly acting reactively afterwards 'if needed'...
- Since the future visions of both mobile and (copper)broadband businesses are incapable to see open access and convergence as the way forward, it is the task of the Regional Networks to proceed in this issue in a positive way as seen from the end-users standpoint.

Generating Services into the Networks – ARPU vs open access – is it impossible task to join these two?

- 'ARPU' means that the end-user is bolted on the network operators' service ecosystem - as for example on the IMS - and is being charged with it on the usage of the services. The operator ensures 'competition' among the service providers.
- Open Access enables for the operators and service providers a fair possibility to offer their products to the end-users for their selection. The end-users ensure competition among the above mentioned parties.
- Open Access does not mean the same as free!
- Charging can be implemented even without the network operators influence, examples of this are Skypein/out, numerous www-based services like sales of tickets, betting, banking etc.
- There is hardly any technical limitations for service provisioning in an open access based environment.

(Co)-operation Issues in Regional Networks

- Finnish Regional Networks Association is a very positive enhancement for Finnish Telecommunication Sector.
- There would still be need for technical cooperation/coordination activities:
 - Specification of a model network
 - Centralized purchase of hw/sw and other services
 - Radio frequency issues, especially 3,5 GHz an acute question
 - Regulatory requirements and their handling
 - Name-, SIP- etc servers, authentication questions
 - Coordination of core network connections
 - Best Practice issues
 - Centralized presentation of Regional Networks Association in discussions with Ficora, Ministry of Trade and Communication etc.

Conclusion

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