

# DT NP – Fixed Mobile Engineering Germany. Convergence of Internet and Telecommunications

Dr. Bangnan Xu, Euroview 2010, Würzburg.

Life's for Sharing



## Agenda.

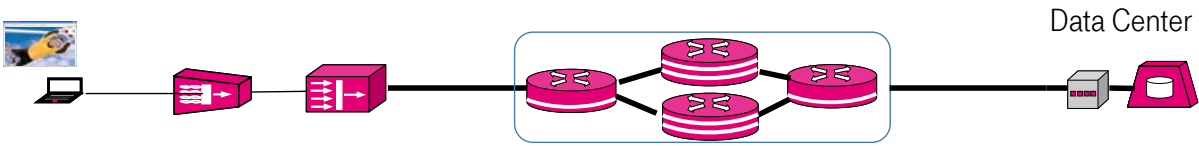
- Introduction - Comparison of Internet and Telecommunications
- Status of All-IP in Telecommunications
- Opportunities and Challenges of All-IP in Telecommunications
- Network solutions to converge Internet and Telecommunications
- Conclusion



# Introduction.

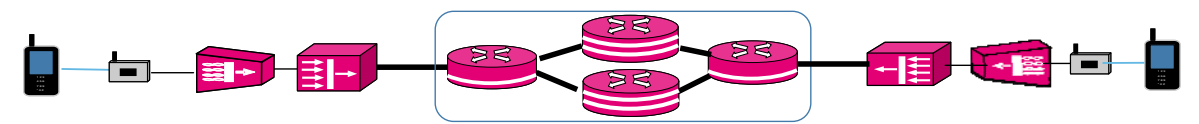
## Comparison of Internet and Telecommunications

**Internet has no business model for service-specific delivery.**



- Internet is more or less a kind of client-server communication between data center and user.
- Network operator does not care about the content and its delivery quality.

**Telecommunications do work with business model for integrated service and service delivery**



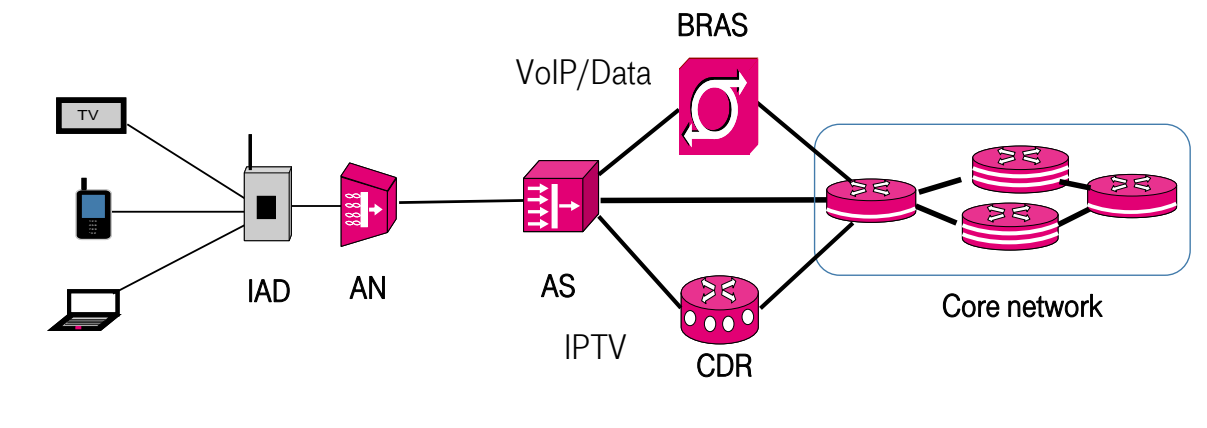
- Telecommunications are services controlled by network operators.
- Network operators ensure delivery quality for communications or contents.



# ALL-IP in Telecommunications.

## Voice, video and data – Triple Play in one IP platform.

**Principle architecture of triple play in telecommunications**

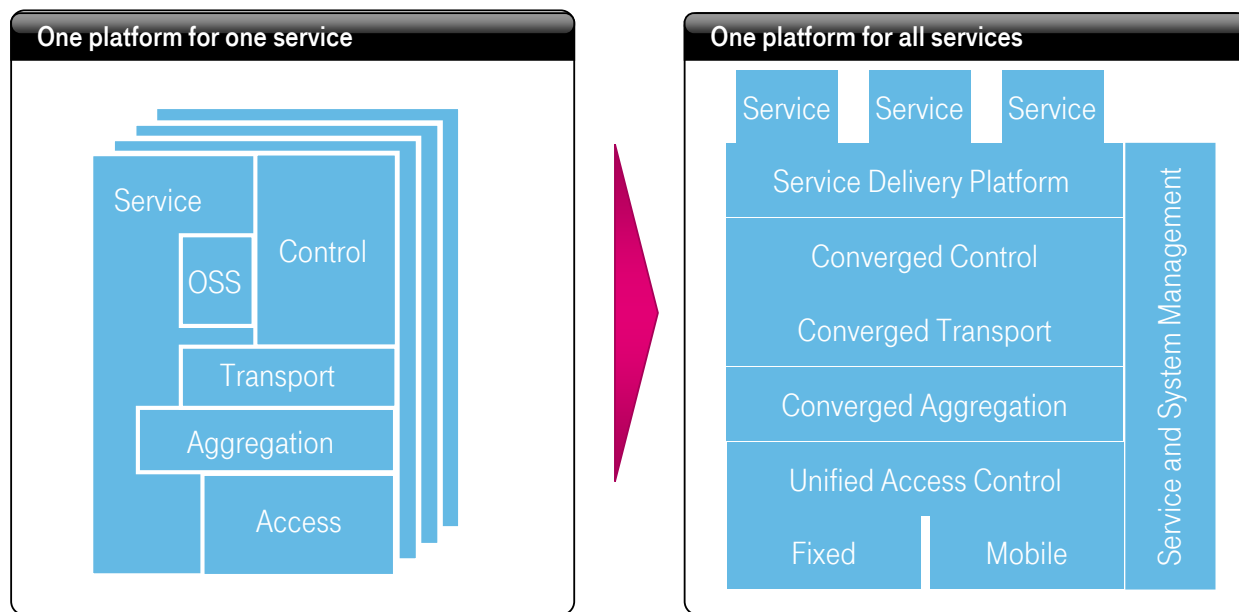


- All IP is becoming a reality in telecommunications.
- BRAS and CDR are service creation network elements to realize business model.
- Business model for Internet without involvement of BRAS and CDR could increase network efficiency.

IAD: Integrated Access Device, AN: Access Node, AS: Aggregation switch, BRAS: Broadband remote access server, CDR: Content distribution router



# Opportunity of All-IP unified platform. All services in one platform.



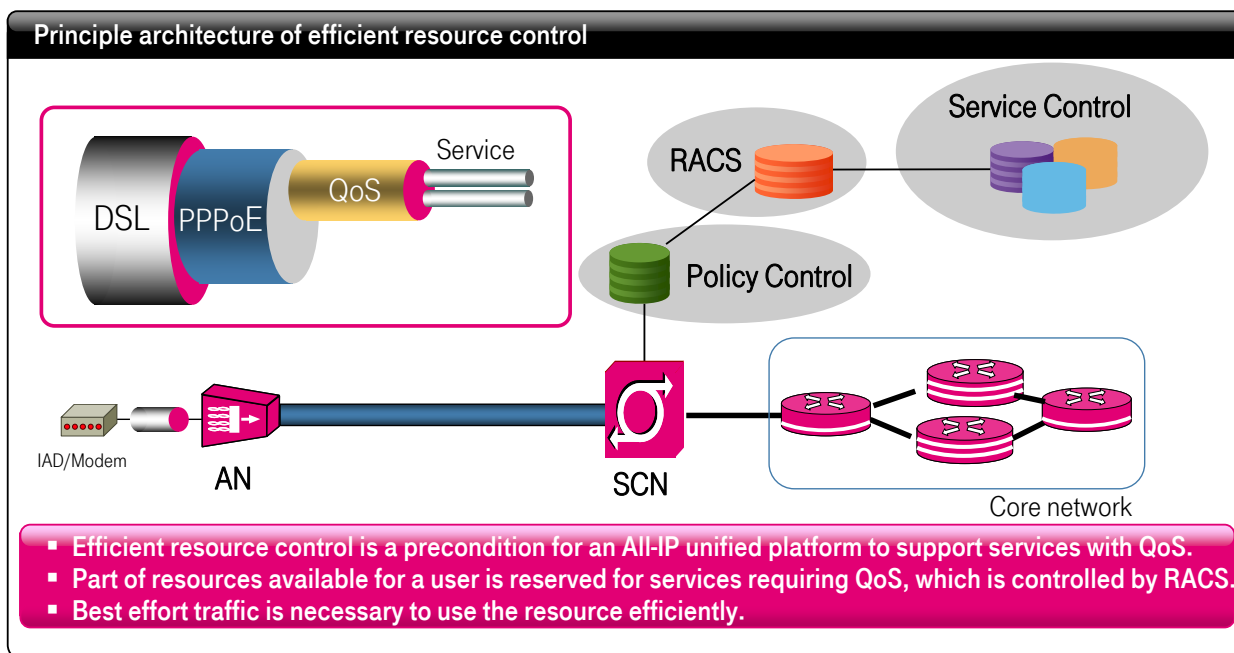
# Challenges of All-IP unified platform. Service creation, service differentiation and service quality.

**Service provisioning is a challenging issue**

	Service classes	Service examples	Service quality	Service provisioning
In-elastic service classes	Interactive	<ul style="list-style-type: none"> <li>Telephony</li> <li>Conferencing</li> <li>...</li> </ul>	<ul style="list-style-type: none"> <li>Lowest delay</li> <li>Lowest Jitter</li> <li>Moderate Packet loss</li> </ul>	<ul style="list-style-type: none"> <li>Highest priority</li> <li>Over provisioning</li> <li>Lowest transport delay</li> </ul>
	Multimedia	<ul style="list-style-type: none"> <li>Broadcast TV</li> <li>Video On Demand</li> <li>...</li> </ul>	<ul style="list-style-type: none"> <li>Low delay</li> <li>Low Jitter</li> <li>Low Packet loss</li> </ul>	<ul style="list-style-type: none"> <li>High priority</li> <li>Efficient content distribution</li> <li>Effective service control</li> </ul>
Elastic service classes	Critical	<ul style="list-style-type: none"> <li>Business Applications e.g. SAP</li> <li>...</li> </ul>	<ul style="list-style-type: none"> <li>lowest Packet loss</li> </ul>	<ul style="list-style-type: none"> <li>High priority than best effort</li> <li>Long queuing</li> </ul>
	Best Effort	<ul style="list-style-type: none"> <li>E-Mail, WWW, P2P,</li> <li>...</li> </ul>	<ul style="list-style-type: none"> <li>Bandwidth efficiency</li> </ul>	<ul style="list-style-type: none"> <li>Fair traffic engineering</li> </ul>



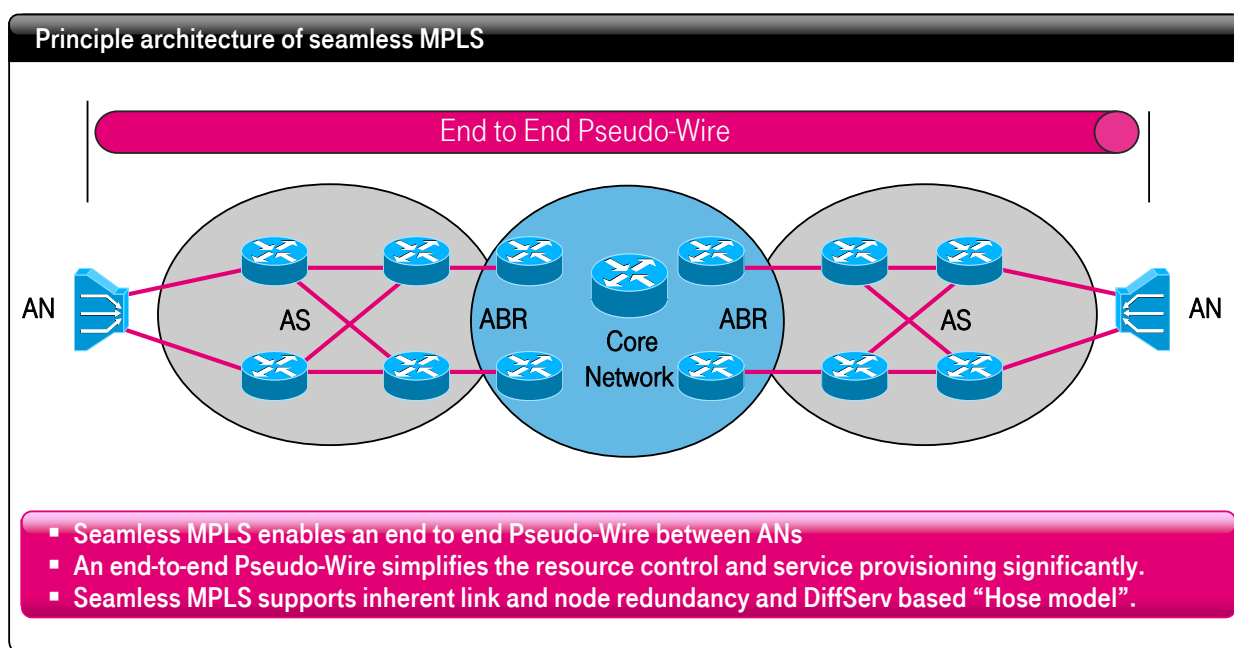
# Challenges of All-IP unified platform. Efficient Resource Control



IAD: Integrated Access Device, AN: Access Node, SCN: Service creation node, RACS: Resource and admission control subsystem



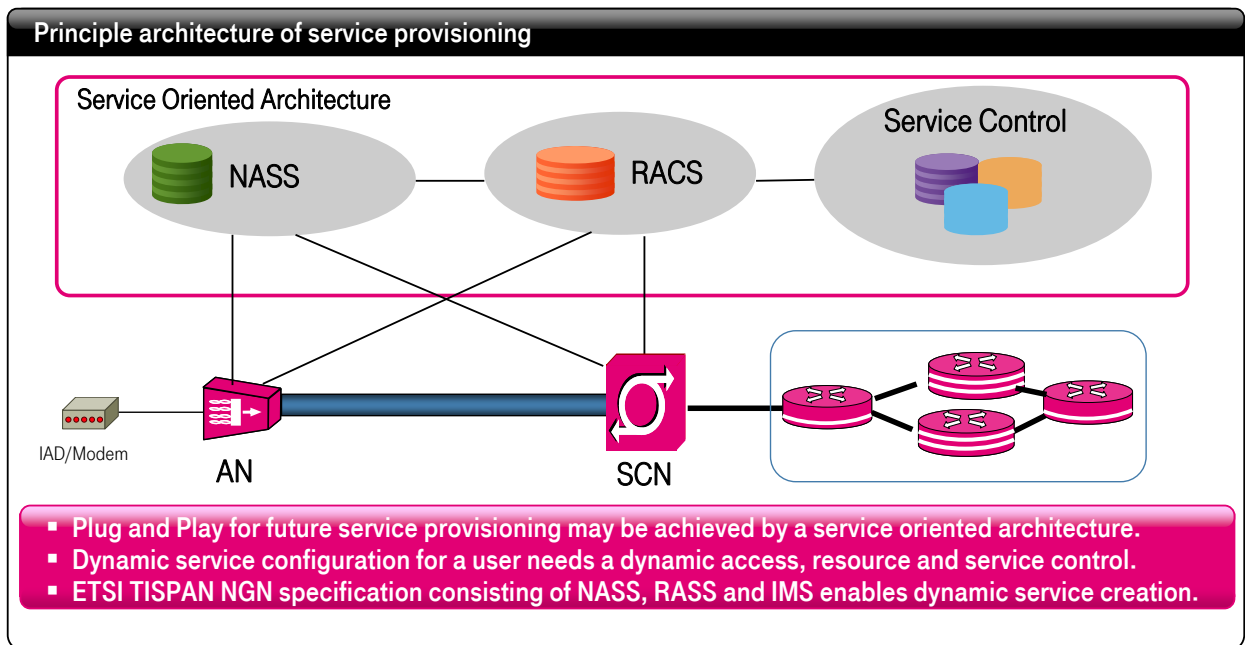
# Next Generation Network Solution. Seamless MPLS



AN: Access Node, AS: Aggregation switch, ABR: Area border router



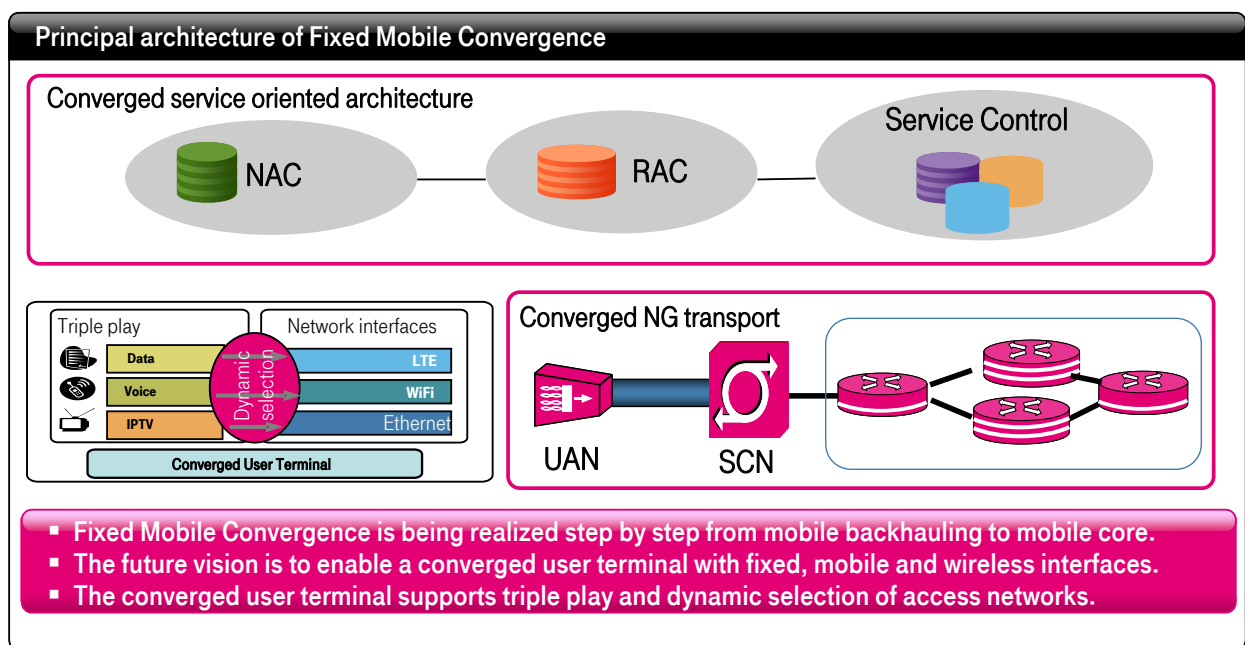
# Next Generation Network Solution. Service Oriented Architecture



IAD: Integrated Access Device, AN: Access Node, SCN: Service creation node, NASS: Network attachment subsystem, RACS: Resource and admission control subsystem



# Next Generation Network Solution. Fixed Mobile Convergence (FMC)

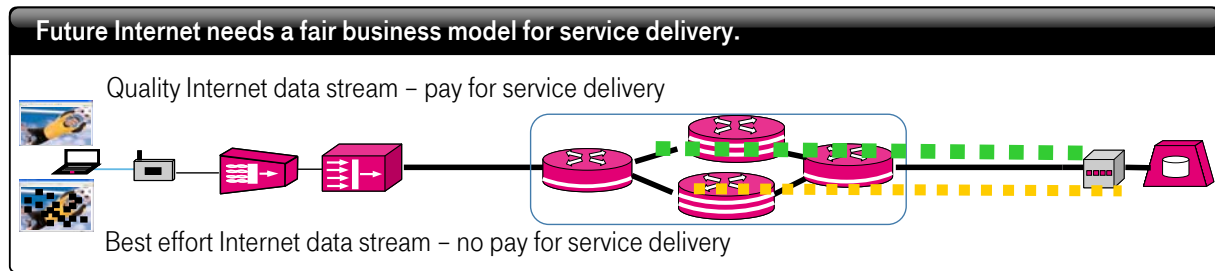


UAN: Unified Access Node, SCN: Service Creation Node, NAC: Network Access Control, RAC: Resource and Admission Control



# Conclusion.

## Convergence of Internet and Telecommunications



Convergence of Internet and Telecommunications means to support QoS for Internet service delivery. A fair business model is necessary for this purpose.

Service creation node realizes business model for Telecommunications, but is a bottleneck of Internet. Internet bypassing SCN could increase network efficiency.

To find a new solution for a fair business model bypassing SCN!



Thanks for your attention!

