Convergent Media & Networks
- New Business Chances and Economic Opportunities -

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FMC and Triple Play as Drivers for Uniform Service Delivery Platforms

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Agenda

Telcos' legacy business model and the paradigm shift

- Disintegration of transport and service layers decouples cash flows

- Diverse service delivery models

The role of service delivery platforms NGN/IMS

- System and service architectures

- Strategic approaches of market competitors

Service and content offers

- Carriers' QoS-services: The federated walled garden model

- Next step services: FMC and Triple Play

Telcos' business on new terra firma

- Integrated service offers based on uniform NGN/IMS SD-platform

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Telco - Competition Started 1997 in Germany..
with Arcor as voice and data "carrier"

- Number 1 of alternative carriers in German fixed network market (2006: >2 Bn. € turnover)

- Broad spectrum of phone, data and also Internet services for private and business customers

- Nationwide telco network in Germany with >22.000 km fibre cables, 10 Gbps IP-backbone, MPLS network and voice net with 475 POIs

- Headquarters in Eschborn near Frankfurt, 9 regional branches, 3.700 employees
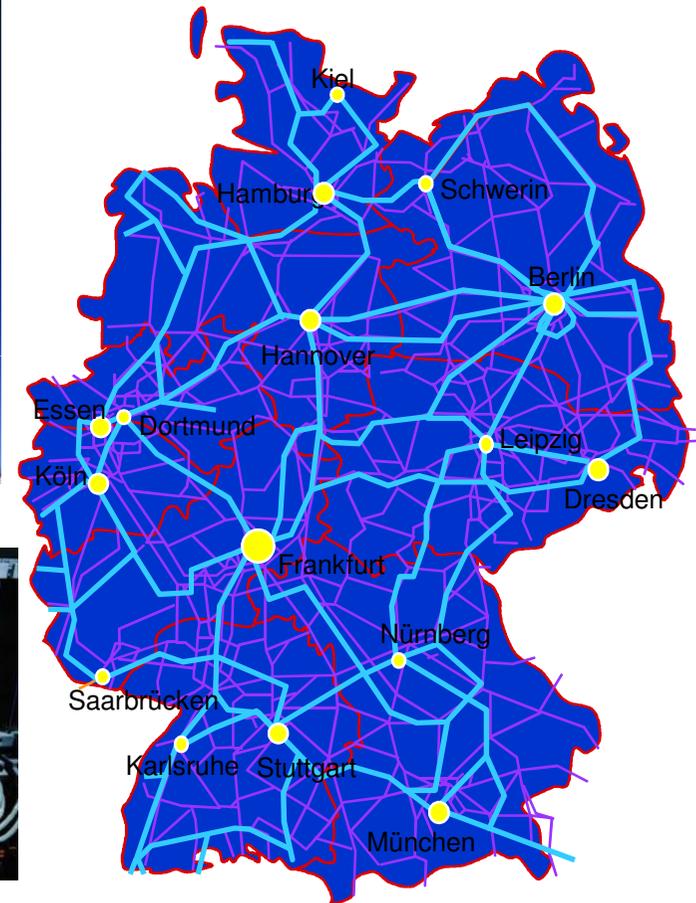
In the Good Old Days…

… the world was quite plain

but boring

But slap-bang,
the Internet arrived

… starting out to be a hybrid

… but soon it turned out to be

...a real paradigme shift

And nothing remained as it used to be

W. Bauerfeld

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Telco's Legacy Business Model Facing Paradigm Shift

Paradigm shift from an integrated carrier-based PSTN-system to an All-IP transport platform for anybody and any service

- Separation of transport and service layers

- IP-packets as transport-"Esperanto" for any content,
  be it voice, multimedia or whatever

- Worldwide carrier-service for IP-packets of any kind
  to any destination in the Internet-cosmos

➢ This is the sole reason for the radical shift in all digital industries, starting from telcos and ranging to content industries

Question: Is this the end of a centralized and network-integrated service delivery model for voice and multimedia?

- Will the telco business model be superseded by two independent transport and service businesses (with over-the-top-services)?

- Or will NGN-based IMS-VoIP (VoNGN) be the heir to legacy POTS? And will other IMS-based services (UMS, presence) incl. IPTV be able to sustain a solid business for carriers and telcos?

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Disintegration of transport and service: System Architecture

Layers

- Applications and Services
- IMS: The service platform

- Carriers' homeland: the IP-backbone

- Carriers' money source: Access layer DSL, GSM & Co
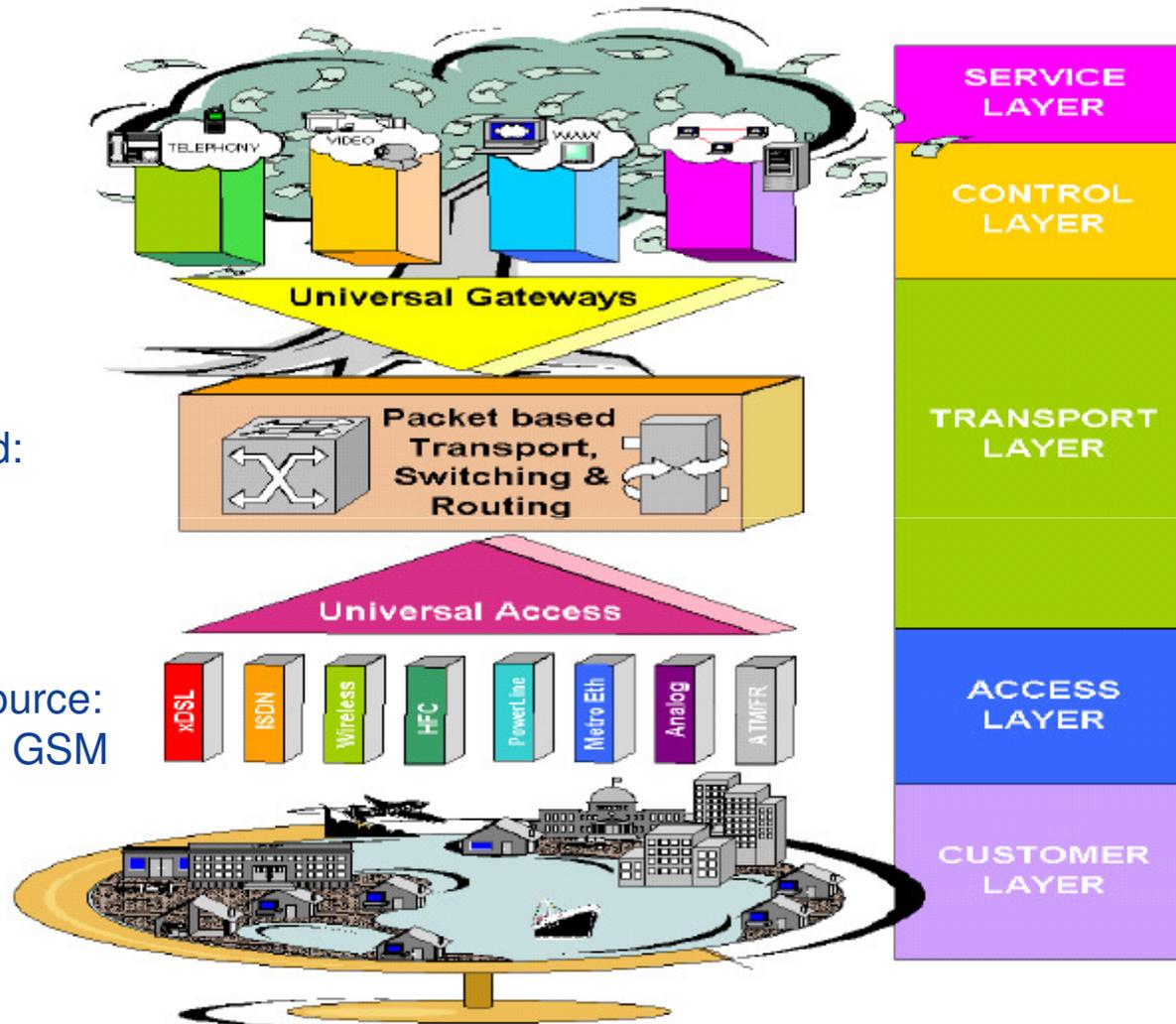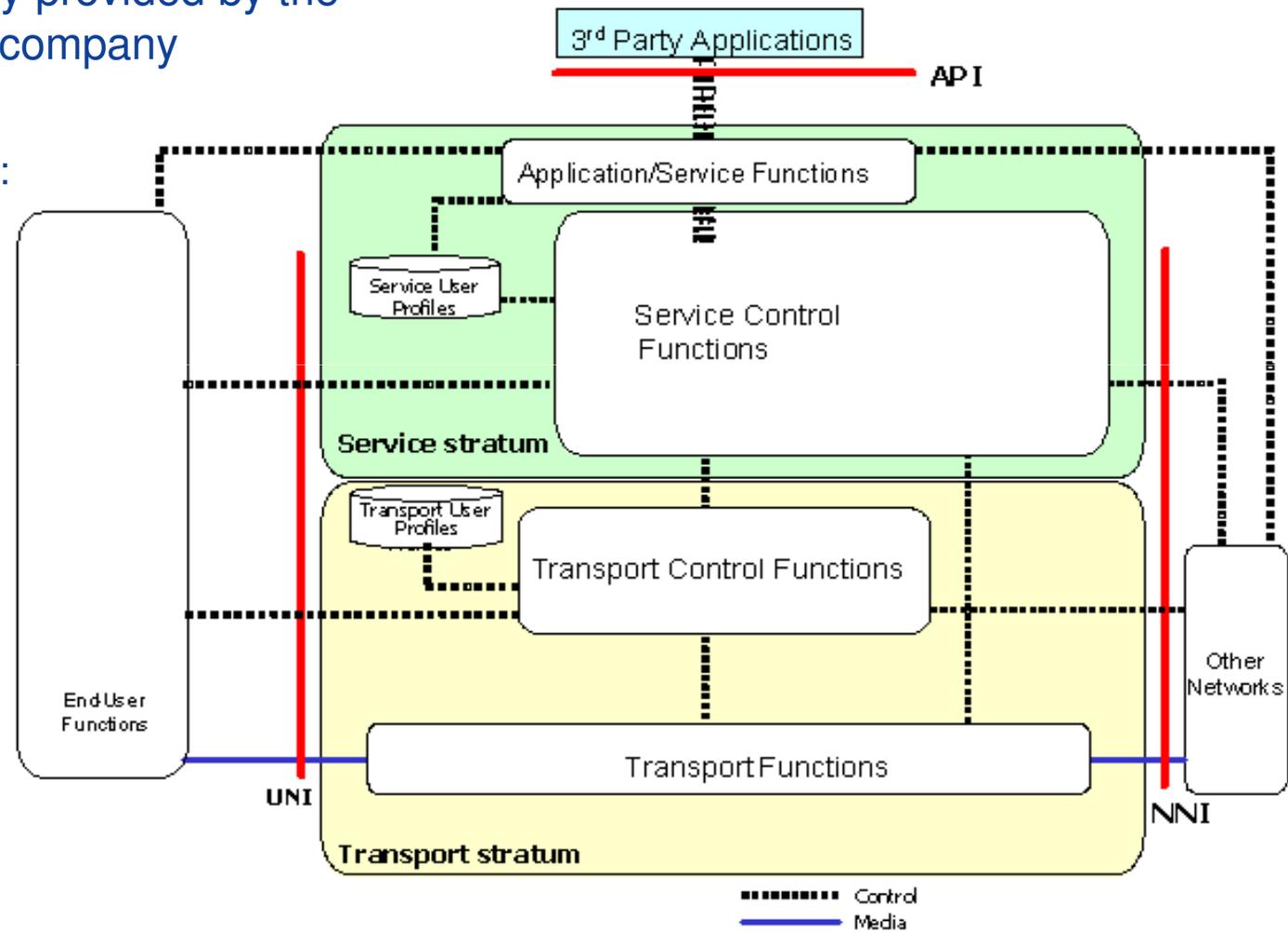

Hackbarth/Kulenkampff

wik

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Disintegration of transport and service: User Interaction

ITU-Model for NGN networks (ITU-T SG 13)

Layers not necessarily provided by the
  same telco/carrier company

Separate user functions:

- Service users

- Acces and transport
  users

Development of new FMC/Triple Play Services:
Chain of argumentation

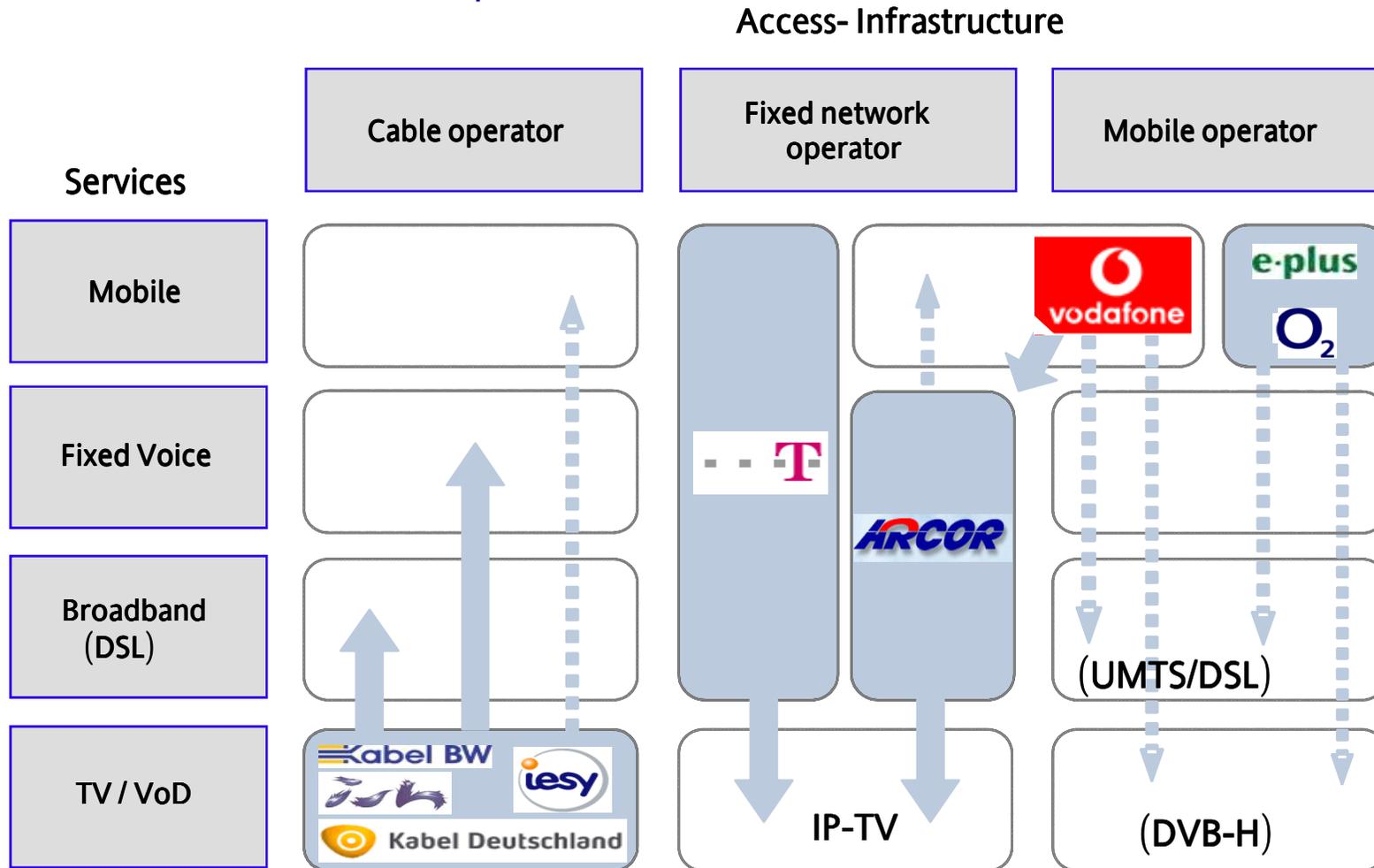Innovation trigger: Paradigm shift in IT and telecoms to all-IP packet transport

➢ Consequence 1: All kinds of applications possible "over-the-top" (incl. voice), in principle independent of access provider

➢ Consequence 2: Voice minutes become a dying breed, urgent search for new revenue sources needed

➢ Consequence 3: Users looking for services independent of access

So, Telcos/ISPs need enablers to provide new services functionalities

• Different approaches to FMC like UMA not really successful;
neutral open service plattform needed instead: <u>IMS over all-IP NGN</u>

    ➢ VoIP with QoS now possible: VoNGN as an IP-substitute for PSTN-voice

    ➢ FMC now possible, however revenue potential still questionable

    ➢ Many other services like UMS, presence, IM to be included into the IMS-service offer; however, most of them free of charge as well

• Adding a TV- and video-service to the voice and data service, <u>IPTV and VoD over DSL, a Triple Play</u> offer with a realistic revenue potential is released, using the IMS service delivery platform as well

➢ Customers get an all-embracing telco-service on a one-stop-shopping basis

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Access Infrastructure and Services: Increasing Competition

Service bundling and delivering instead of disintegration;
the German market example

Access- Infrastructure

Cable operator — Fixed network operator — Mobile operator

Services: Mobile, Fixed Voice, Broadband (DSL), TV / VoD

Kabel BW, iesy, Kabel Deutschland

vodafone, e-plus, O₂, T, ARCOR

IP-TV, (UMTS/DSL), (DVB-H)

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The Role of Service Delivery Platforms for Telcos

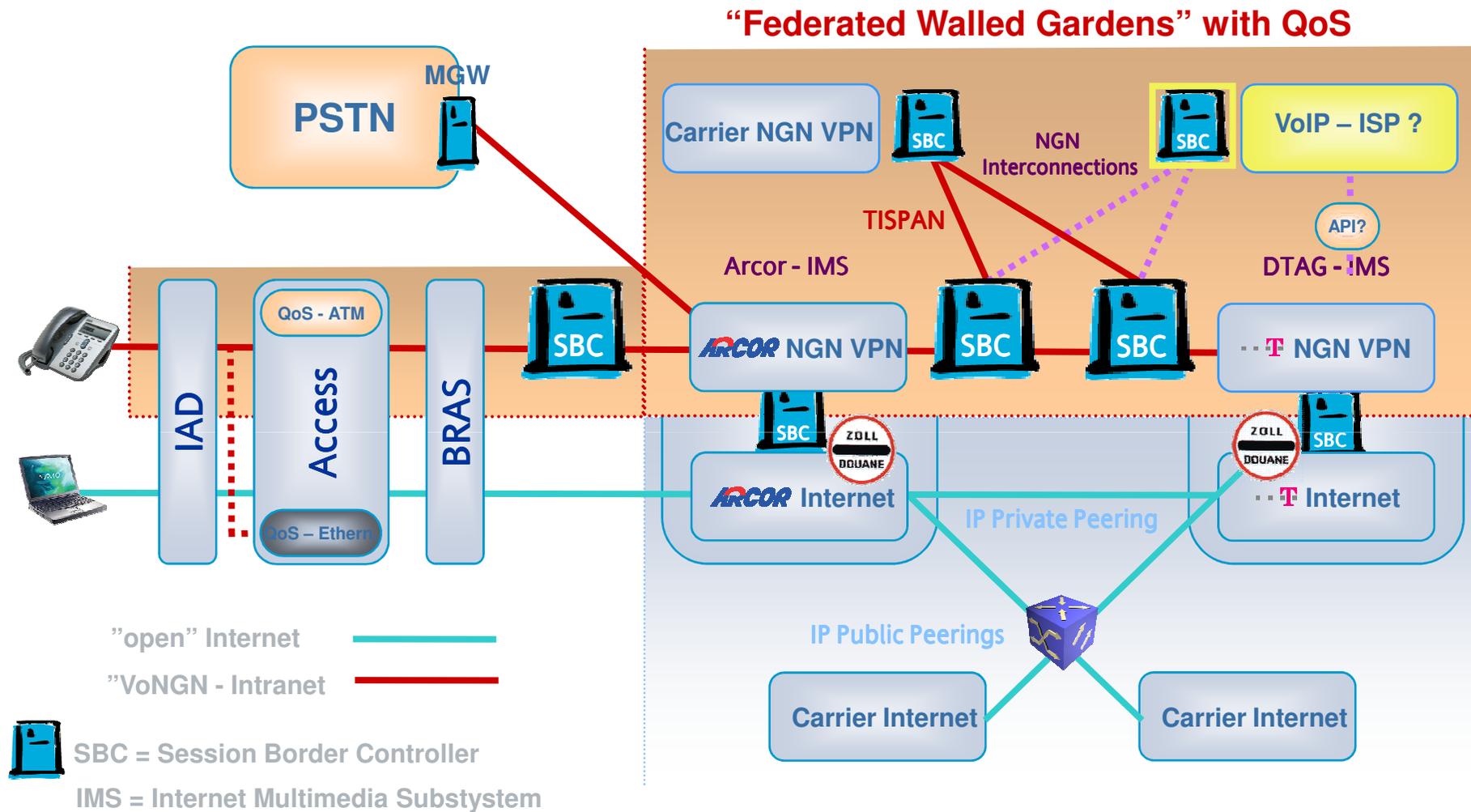Strategic question on IMS-based service delivery platforms:

❖ In the all-IP era, are there still technical reasons for an level-integrating service product like PSTN-voice, realized by a well assorted carrier-provider?

1. Precondition for delivering all multimedia services to the customer:

   • All-IP transport and access platform - with QoS – operated by fixed/mobile carriers

2. Advantage of carrier-based IMS-service delivery platforms

   • QoS for (federated) voice services, open for all other applications (e.g. banking)

   • Fixed-mobile convergence services (FMC) feasible, single customer relationship

   • Bandwidth and QoS for triple play IPTV services can be allocated

➢ So, FMC and triple play services are drivers for future-proof business concepts for telcos

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# NGN/IMS – Federated Architecture for VoNGN and More

"Federated Walled Gardens" with QoS

PSTN — MGW

Carrier NGN VPN — SBC — NGN Interconnections — SBC — VoIP – ISP ?

TISPAN

API?

Arcor - IMS — DTAG - IMS

QoS - ATM

IAD — Access — BRAS — SBC — **ARCOR** NGN VPN — SBC — SBC — **T** NGN VPN

QoS – Ethern

SBC — **ARCOR** Internet — ZOLL DOUANE — ZOLL DOUANE — SBC — **T** Internet

IP Private Peering

IP Public Peerings

"open" Internet

"VoNGN - Intranet"

Carrier Internet — Carrier Internet

SBC = Session Border Controller

IMS = Internet Multimedia Substystem

An NGN-interconnect-regime, i.e. peering of SBCs (separate trunk possible,) guarantees network-overlapping Q^{oS}: "Federated walled gardens"

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Fixed Line: All-IP Network-Architecture with QoS over DSL

Next generation access: xDSL only

➢ all services over one IP-Infrastructure: Triple Play
- Voice (VoNGN)
- Data (Internet)
- TV (IPTV)
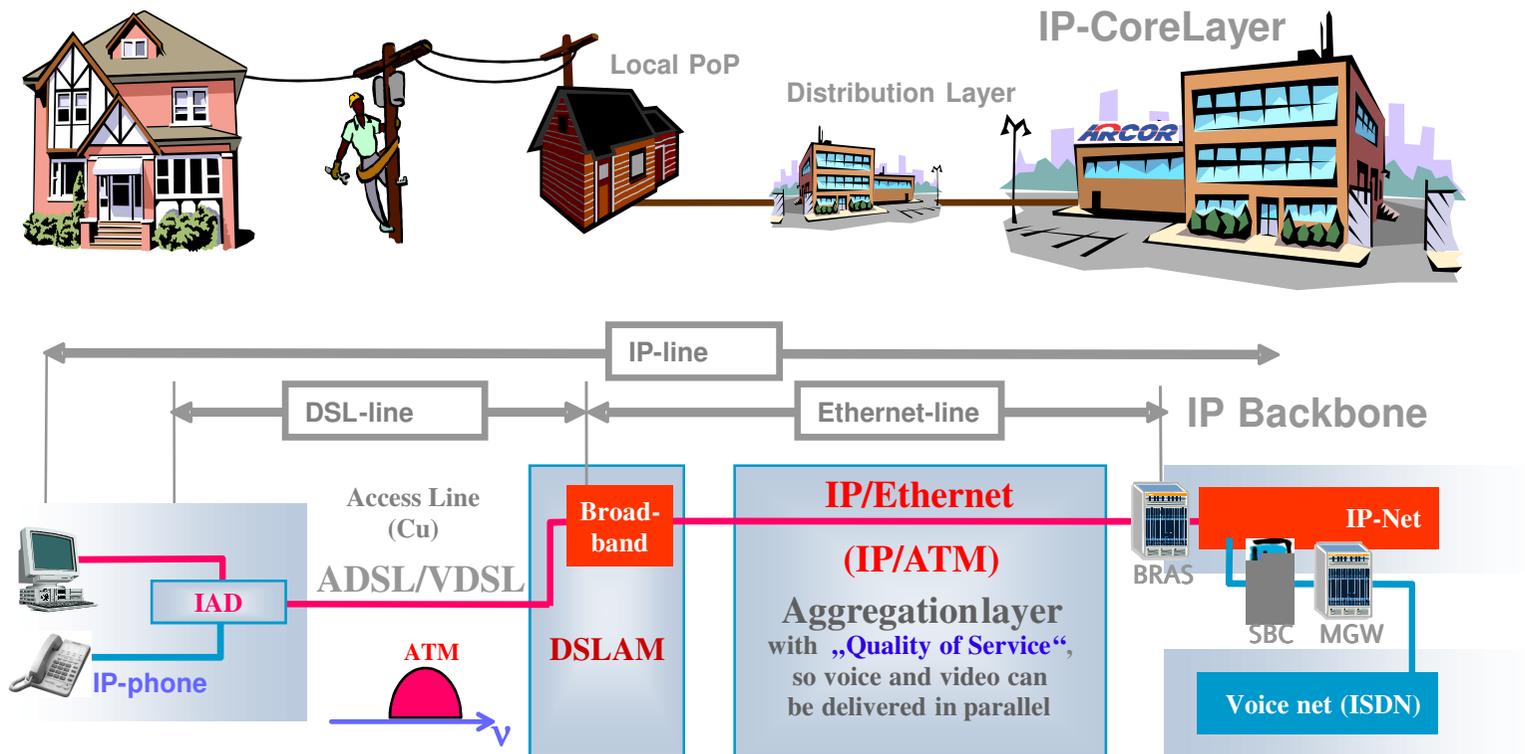
One first FMC-step: Dual mode mobile phone

STARTSEITE | DIENSTE ▾ | PRODUKTE ▾ | KUNDENSERVICE ▾ | UNTERNEHMEN ▾

Herzlich Willkommen, Herr Josef Schäfer! → Logout

Übersicht
Bearbeitungsstand
Produkte & Tarife
Rechnung
Kundendaten
Arcor Spezial
▼ Hilfe & Kontakt
• Bestellungen
• Rechnungen
• Arcor-Anschluss
• Endgeräte und Software
└─ Arcor Online-Butler
└─ Hardware Arcor-Internet
└─ Hardware Arcor-Sprache
└─ **Dual-Mode**
└─ Arcor-Sicherheitspaket
└─ ArcorSpeedCheck
• Kunden- und Zugangsdaten
• Online - Dienste
• Fragen und Antworten
• AGB und Downloads

Suche im Kundenservice:
[   ] → Go

Dual-Mode: Arcor-Twintel Übersichtsseite

Ein Telefon für Festnetz und Mobilfunk

Arcor
Vodafone.de
Allgemein
12:06
28.07.2006 (Fr)
Kamera Menü Namen

Arcor-Twintel bietet Ihnen:

• WLAN- und GSM-Telefon in einem Gerät
• Hochauflösendes Farbdisplay
• Bis zu 5 WLAN-Profile speicherbar
• WLAN-Verschlüsselung (WEP, WPA, WPA2)
• VGA-Kamera (640 x 480 Pixel)
• GSM-Triband-Telefon
• Sprechzeit bis ca. 240 Minuten
• SMS, MMS, E-Mail
• WAP-Browser 2.0
• Zentrales Telefon- und Adressbuch (500 Kontakte, Sync. mit Outlook)
• Tischladestation inkl.

TOP FAQ zum Thema: Dual-Mode

→ Was benötige ich, um das Dual Mode Telefon nutzen zu können?

→ Wie verteilen sich die Kosten, wenn das Dual Mode in ein anderes WLAN eingebucht ist?

→ Brauche ich zwingend ein WLAN-Modem zu Hause für den Betrieb des Dual Modes?

→ Wo kann ich eine Rufumleitung einrichten?

→ Muss ich vor jedem Gespräch das gewünschte Netz (Arcor-Sprache, Mobilfunk) einstellen?
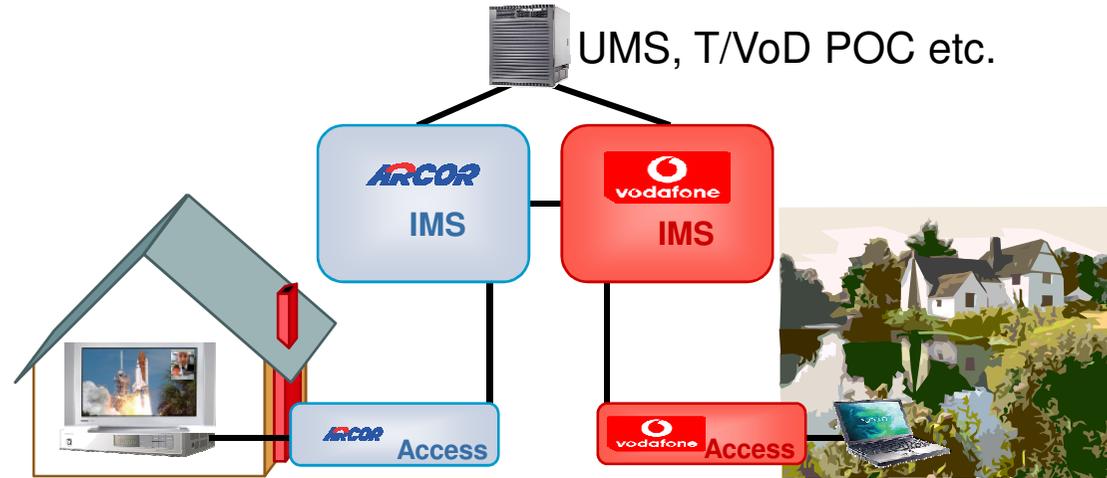
Gesamte FAQ anzeigen

Kontakt zum Thema Dual-Mode

→ Schreiben Sie uns

(Loginpflichtiger Bereich)
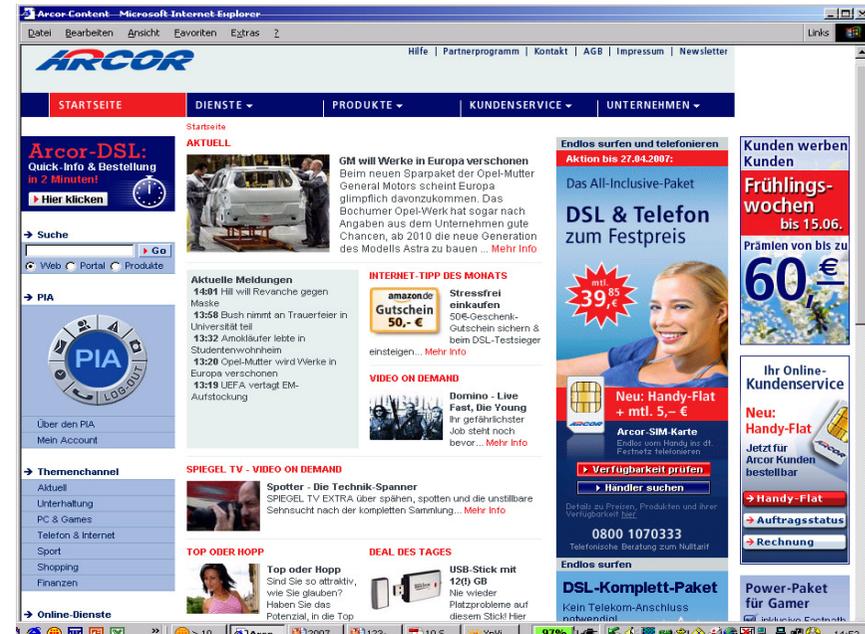
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Next FMC-steps: Convergent products

Access-independent services:

❖ Mail, UMS, presence…

❖ IPTV, TVoD and VoD

❖ Seamless handover needed?

UMS, T/VoD POC etc.

IPTV: Big Effort for Telcos

IPTV System

Reception
Direct/Satellite/
Cable/Terrestial

Head End
(Live TV Encoding)

Content Protection
(CAS/DRM)

Video on Demand
Content Distribution

Master VoD Content Server

Live TV IP Multicast

VoD Server

Arcor MPLS Backbone
IP Multicast enabled

VoD Server

VoD Server

VoD Server

Video on Demand Content Management

Conten Provider Frontend

Content Provider

A

B

C

D

PC with Web Browser for Video on Demand

PC with Software Set Top Box

Set Top Box Management

IPTV Applications

Subscriber Management

IPTV Middleware

Billing (CCB)

TV + Set Top Box

VoD: An Established Open Content Offer
## Service on Arcor's PIA-platform since 2001, over-the top, MS MCE-based

Telco's Business model: Terra Firma by Integrated Services

All inclusive product offer:
Access <u>and</u> services delivered through an integrated NGN/IMS-based service delivery platform

- All-in-one product with fixed line DSL- and mobile access <u>and</u>
  services like VoNGN, FMC and Triple Play for private and business customers

- Uniform service delivery platforms as precondition for customer satisfaction through QoS, best service, one-stop-shopping and simplicity.

  ➢ "All inclusive" services for private customers @home and mobile:
     from single phone number, conferencing and personalized online services (UMS, presence, organizer, personal store etc..) up to content offers (3ple Play, VoD) and the digital home infrastructure like IAD (incl. DSL-modem, router, firewall, WiFi) and SetTopBox/PVR

  ➢ For business customers: Overall solution with VPN/VLAN, IP-Centrex, etc.

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A Dozen Functions Realized on a NGN / IMS SD-Platform

- Packet network for all services: Data, voice, multimedia

- Separation of transport and service layers and of session control and payload data

- Simplicity in implementing new services

- Quality of Service for IP-connectivity and services

- Support of mobility, location-independent accessibility

- Integrated safety functions, e.g. network attached spam filter, verified A-numbers

- Integration of all existing telco networks incl. access nets. Open access to all networks and service providers (Standards: ITU, 3GPP, ETSI/TISPAN)

- Unified network management for all network layers up to IAD

- Availability of sufficiently broad bandwidth for video and TV-services

- Integration of a all kinds of application servers, e.g. presence service, asynchronous communication (Mail, SMS..), multimedia services (audio, pix, video, conference,,)

- Take into account regulatory issues (legal interception, emergency call) (ITU)

- Service accountability and scalability (ITG)

- More dozens of functions to come…
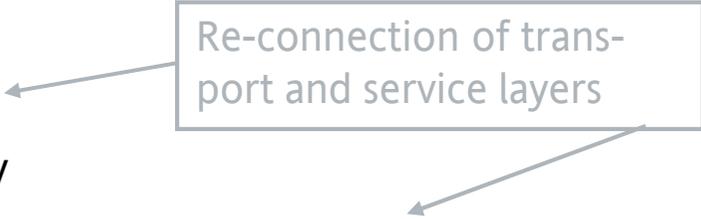
Re-connection of transport and service layers

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A Dozen Services Realized on a NGN / IMS SD-Platform

- Voice communication over NGN (synchronous communication, SC)   SC

- Video communication over NGN, teleconferencing   SC

- Presence - Online-status of other users, "buddies"   AC

- UMS: Email, multimedia-mail, fax, voice to text   AC

- Instant messaging, chat: text communication   AC

- File transfer on any SC/AC-session   AC

- Collaboration: Remote-support, shared applications   SC

- Encrypted communication (voice, data, file transfer)   AC

- Gaming, distributed multiplayer online games   SC

- Mobility support (personal and session mobility)

- A bunch of ISDN-supplementary services : Call forking (parallel or sequential), hold, waiting, forwarding, deflection, answering, conference, CLIP, etc…

- Asynchronous services (application server) like voice/message translation (vision: translating phone), personal photo-/video services, VoD

- More dozens of all kinds of SIP-services to come

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NGN and IMS and FMC: Many **New** Services to Come

FMC at it's best

Convergence everywhere:

Any kind of services, applications, content offers…

…independent of access technique, end user devices and locations

		You are	@home:	susanne@arcor.de
Whatever you use		always		
Whatever you do		the	@work:	mueller@arcor.net
		same	@sports:	susi@frankfurt-lions.de
Wherever you are		person!	@public:	mueller.susi@sos.com

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Services Drive Bandwidth: ...Carrier's Relief

FTTH ?

VDSL

50.000 kbit/s

ADSL2+

20.000 kbit/s

ADSL

3000 kbit/s

512 kbit/s

128 kbit/s

24 kbit/s

Bandwidth

		Broadcast and multicast of media streams (audio, Video, data)	**Virtual conferencing**
	Video high quality		**Virtual reality**
Streaming:	**Complex graphics and animation**	**High Definition TV Video**	
Video low quality	Audio		
Modem	Video Files	**PC/network-based home office**	

1990 2000 2002 2004 2006 2008 2010
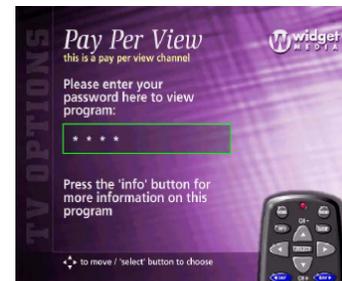
TV: choice of multi channels

Interactive TV

(Near) VoD & Pay-per-view

Pers. video rec. on the net

Conferencing, virtual reality

Source: W. Haffner, Arcor

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Danke !