



Navigating the Path Towards 3G

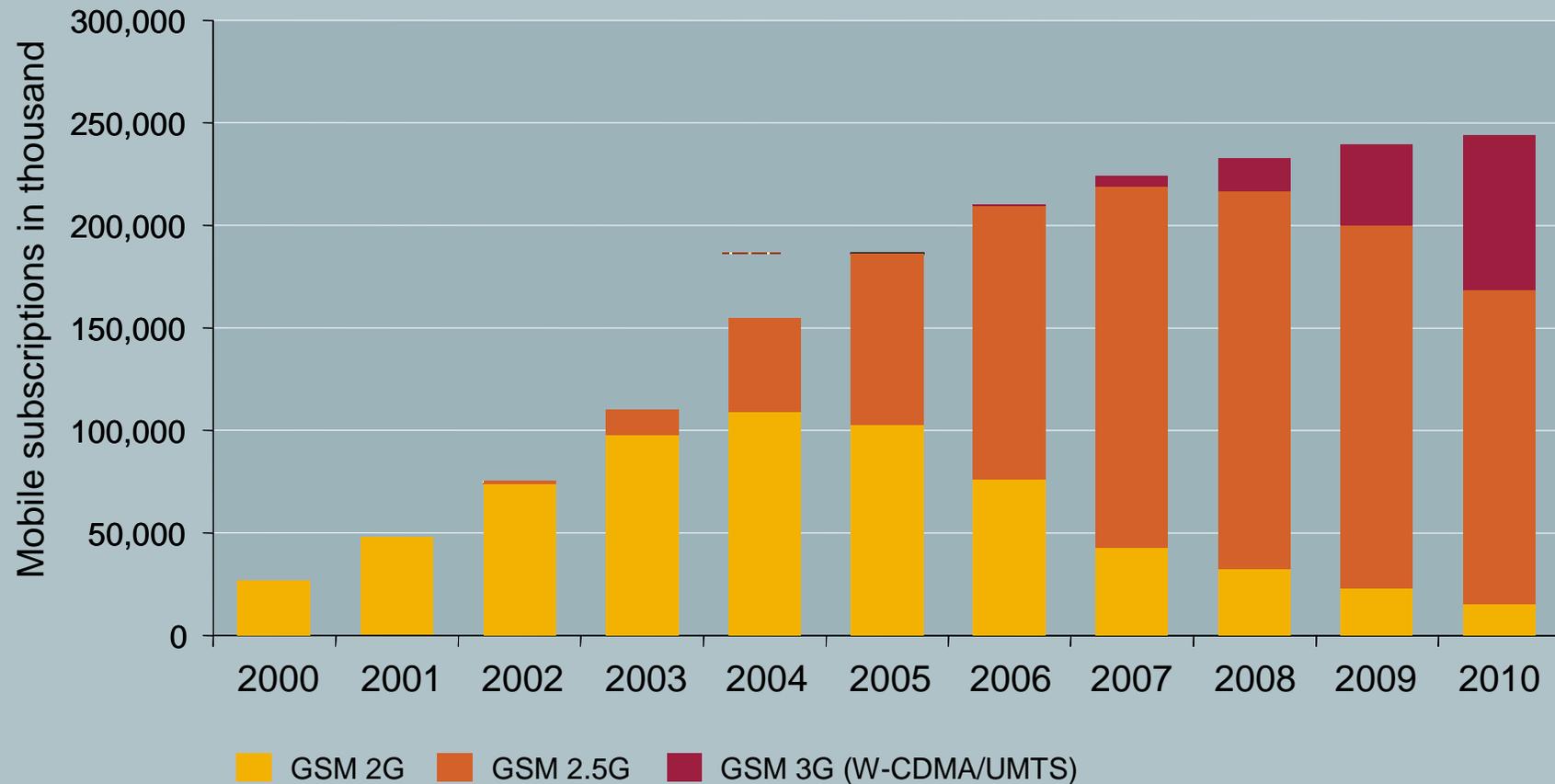
Martin Sanne

Siemens mobile networks
Moscow, September 2004

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In Eastern Europe the navigation towards 3G has already started with GPRS and EDGE

GSM Family by Generations

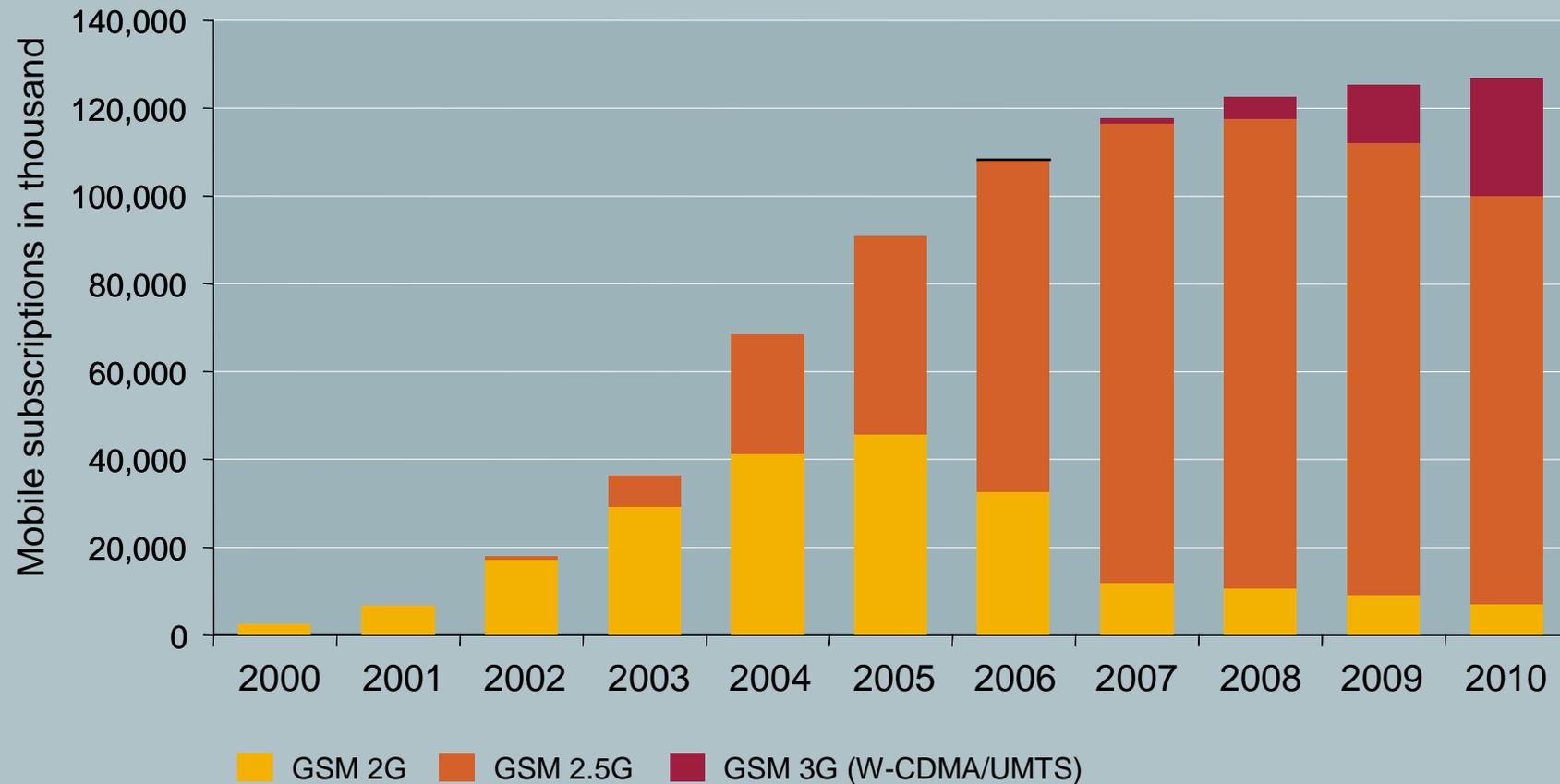


Source: ICM N SM Market Assessment Status: August 2004

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Russia has also stepped on the path towards 3G and started with the GPRS / EDGE roll-out in 2002 / 2003

GSM Family by Generations

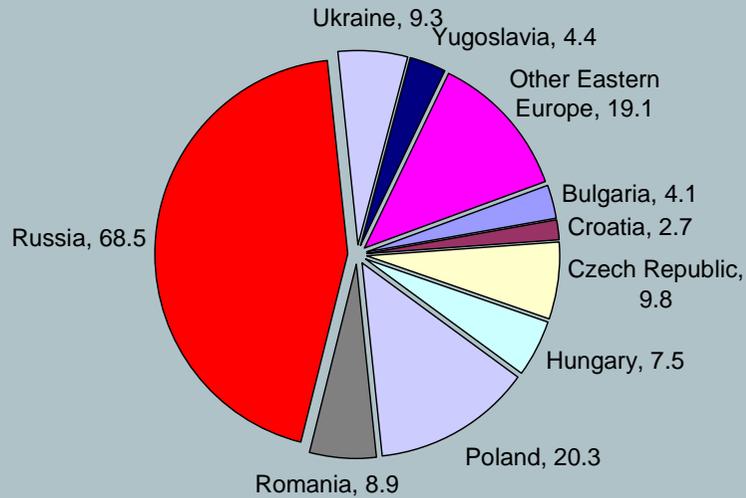


Source: ICM N SM Market Assessment Status: August 2004

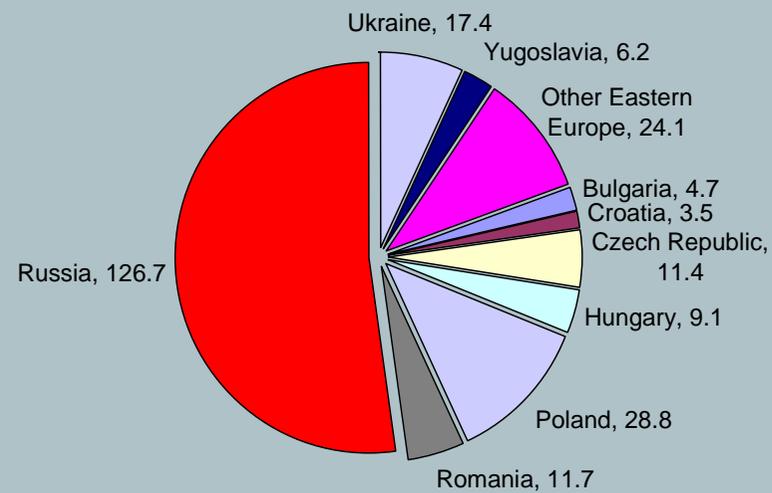
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In Russia and Eastern Europe GSM is by far the dominating technological standard

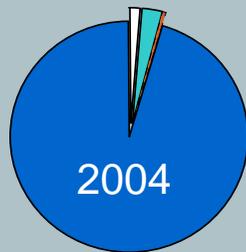
Subscriptions Russia & Eastern Europe 2004



Subscriptions Russia & Eastern Europe 2010

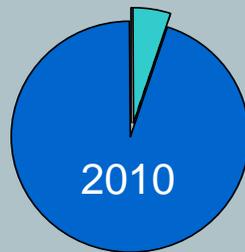


Russia Split by Technology



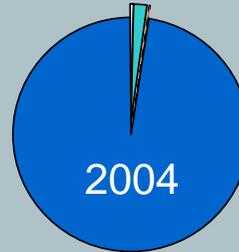
68,5' subscribers

2010



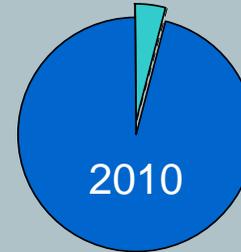
126,7' subscribers

Eastern Europe Split by Technology



150' subscriptions

2010



236' subscribers

- GSM Family
- TDMA
- CDMA Family
- analog

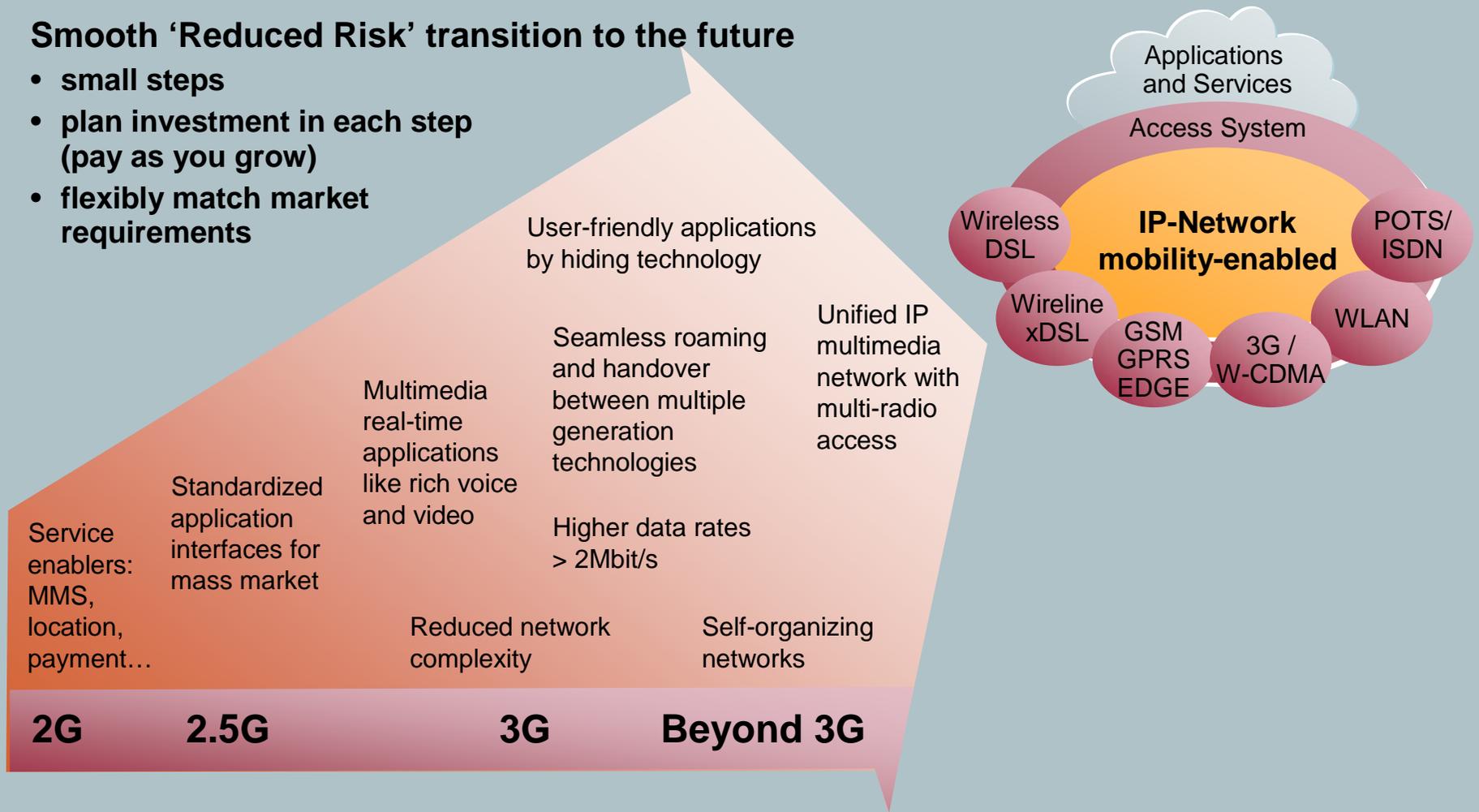
Source: ICM N SM Market Assessment

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From 2G, 2.5G to 3G and even beyond there is a smooth evolution

Smooth 'Reduced Risk' transition to the future

- small steps
- plan investment in each step (pay as you grow)
- flexibly match market requirements



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Different devices – different interfaces



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Increase data revenues by offering end users new and seamless services

- Increased willingness to use by unifying the user experience with converged services
- Increased number of communication partners / new customer segments by offering converged multimedia communication

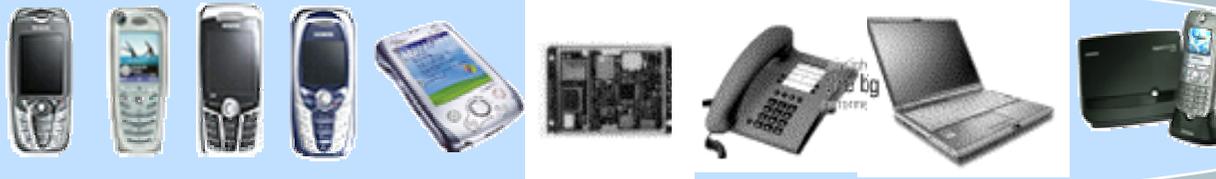


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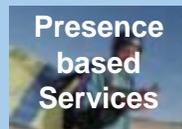
IMS guarantees seamless mobile, internet and fixed-line communication over all existing access technologies

Siemens offers all kinds of devices, the common service control and a unified multimedia domain which are connecting the existing networks.

Multimedia mobile and fixed devices



Content and applications



Enabling Services to enrich and charge services

Payment	Charging	Messaging e.g.	Streaming m.traction	Location	Presence	IN
pay@once	charge@once	m.traction MMS	Media Streaming	Siemens LDS	Siemens Presence Manager	IN@advantage

Service Control

IP-based Multimedia Subsystem (IMS)

Mobile Networks

Internet

Fixed Networks

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The main characteristics of IMS are...

IMS enables the operator to build up new IP-based mobile services and applications under his control (e.g. Push-and-Talk)

IMS provides the capability to offer any mixture of peer to peer real-time and non-real-time services (Rich Voice, Data, Video,...) to increase ARPU and reduce churn rate

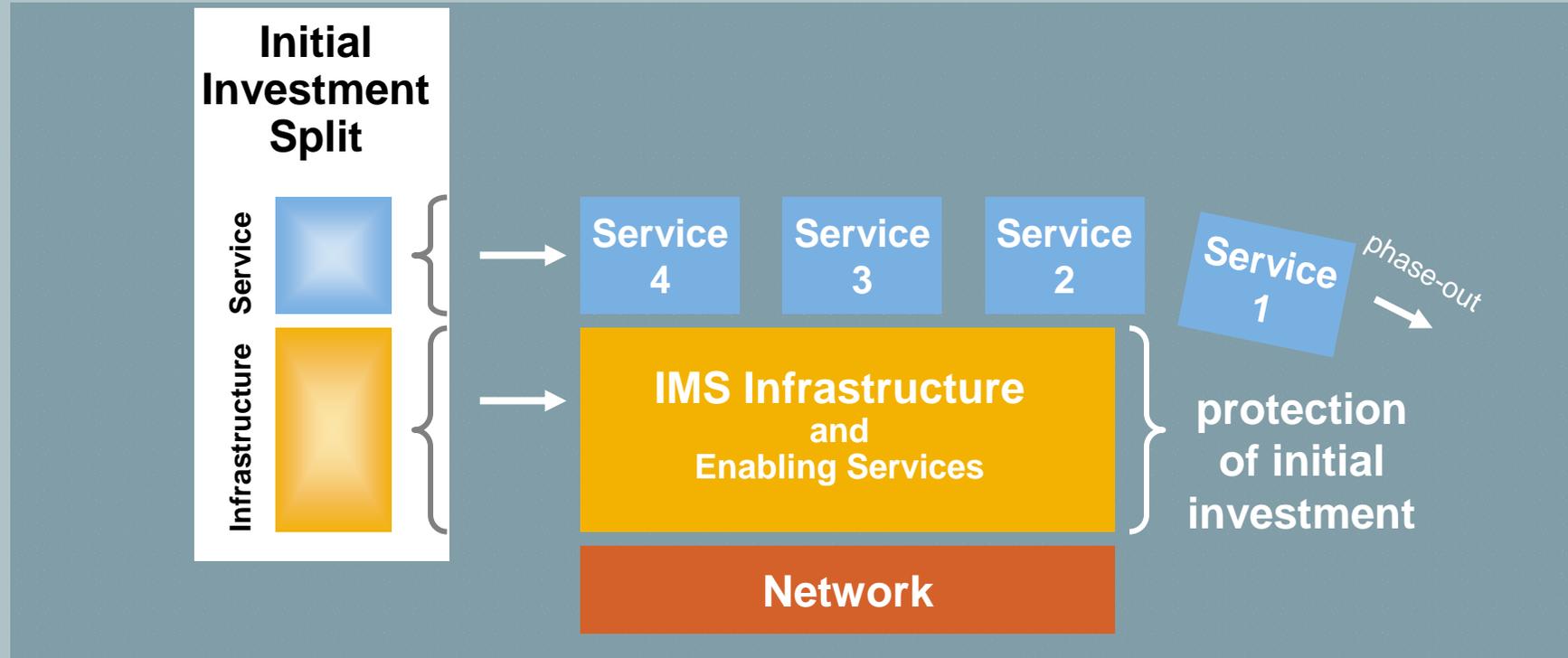
The IMS based highly scalable common service control infrastructure helps the operator to keep OPEX low while deploying new services rapidly (central user admin, standardized interfaces, ...)

Using an IP-transport network supports the fix/mobile convergence of those services by enabling access over any network (GPRS, W-CDMA, WLAN, wired network)

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IMS is also about reducing CAPEX & OPEX

IMS protects initial investment

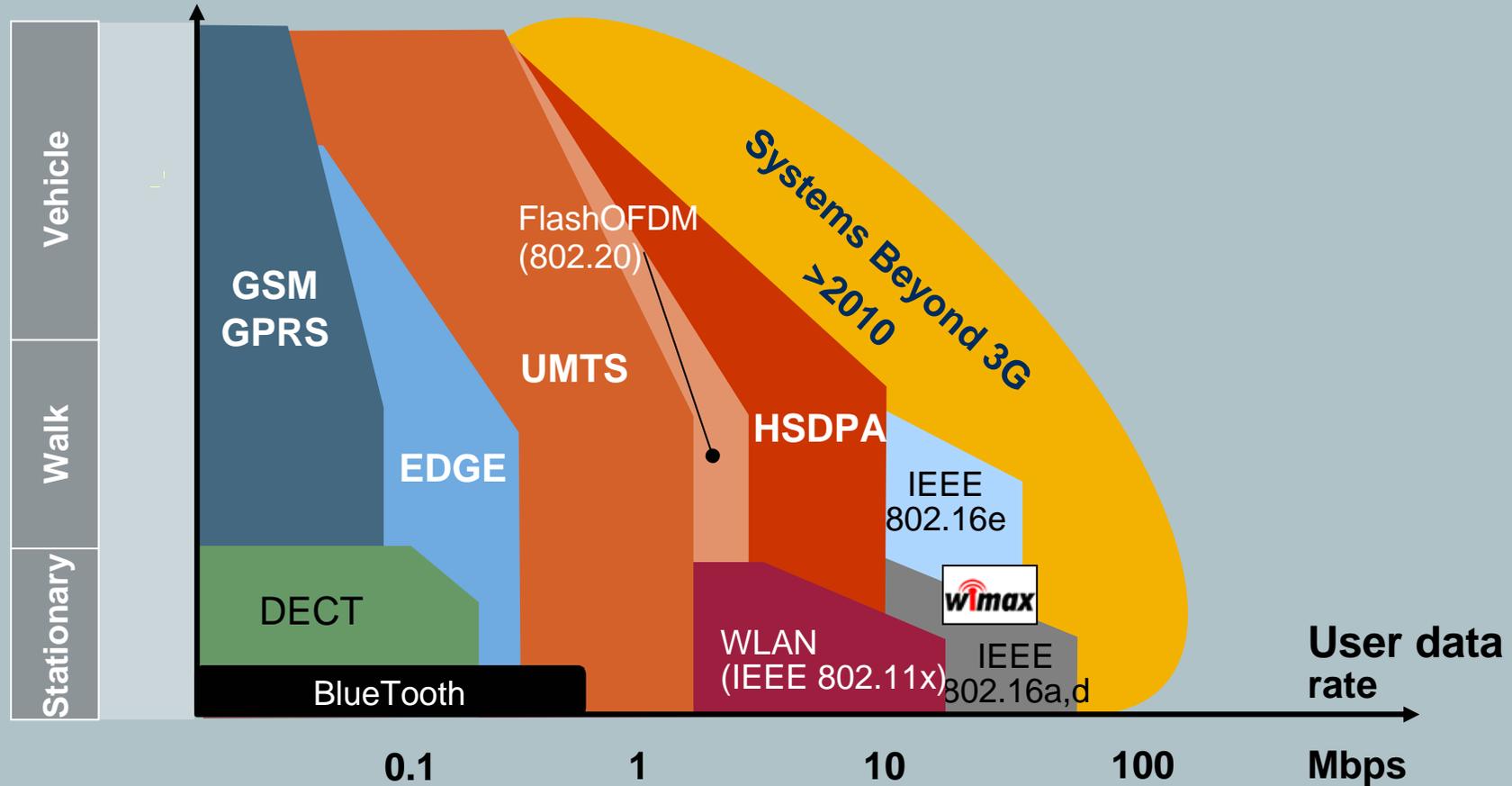


- The IMS carries major portion of value after first service installation
- IMS facilitates the introduction, testing and scaling up of new services
- IMS then protects infrastructure investment when phasing out services
- As a result many new services can be tried out at very low cost

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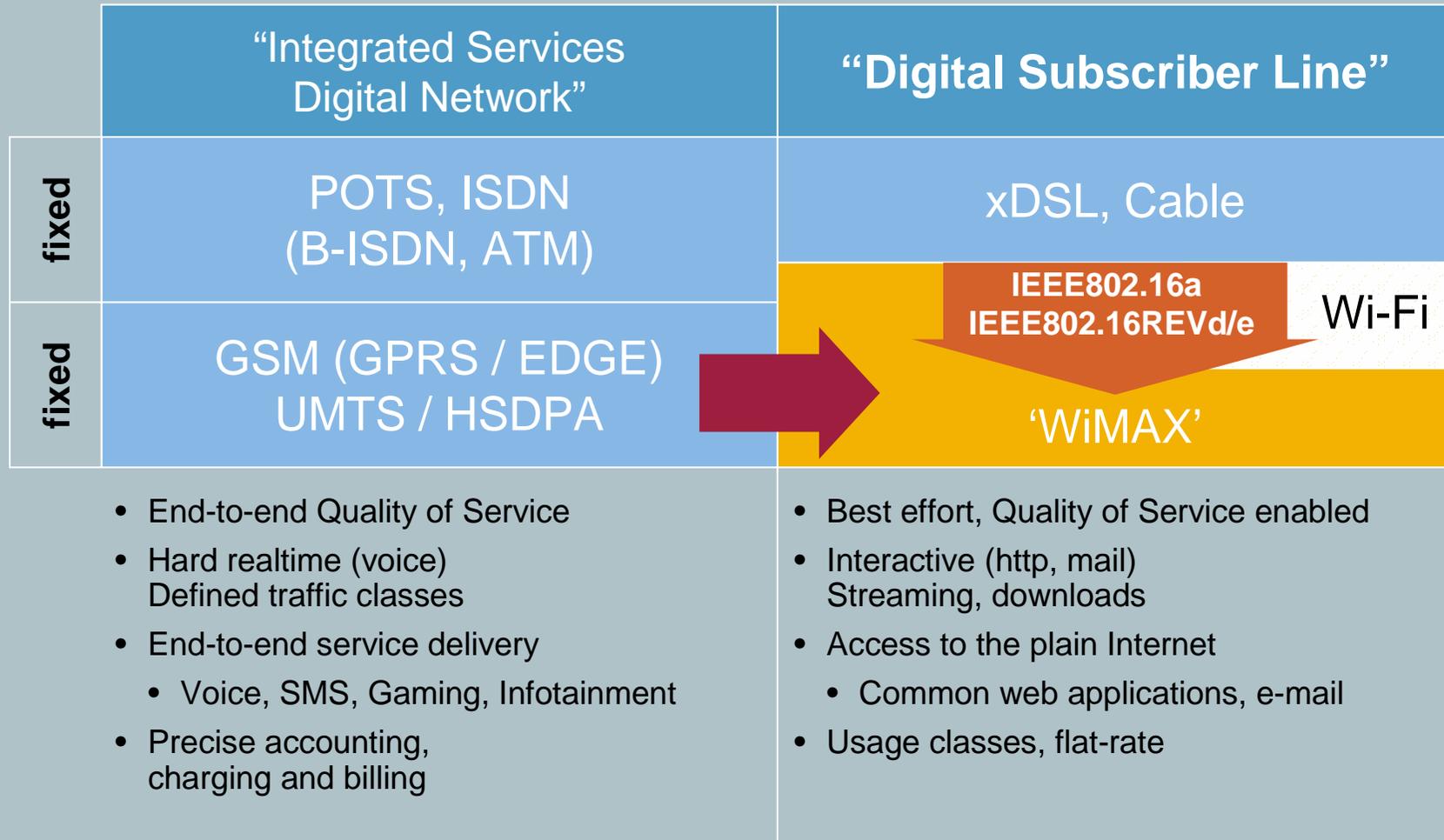
The existing technologies are complementary and do not compensate each other

Degree of Mobility



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The various access technologies are addressing different telecommunication markets



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Quality based “Broadband” W-CDMA is addressing the End user experience

With W-CDMA / HSDPA the mobile phone subscriber shall experience an improvement of Quality of Service in terms of:

- higher peak data rate,
- average data rate (i.e. packet call throughput)
- lower latency for interactive and background services and
- higher availability of high data rate services

e-mail Delivery
File Download
MMS



Background

Web browsing
Data base retrieval
Server access



Interactive

Streaming:
Voice
Video



Streaming

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The W-CDMA Enhancement HSDPA offers high speed plus mobility for download

HSDPA – high speed data engine

- Audio
 - Video
 - Gaming
 - Browsing
 - Download
- HSDPA brings
 - higher capacity (50% per NodeB)
 - higher throughput (14.4 Mbps peak per user)
 - and enables new services and applications
 - at the same time HSDPA reduces the cost / MByte
 - HSDPA exploit the full potential of W-CDMA

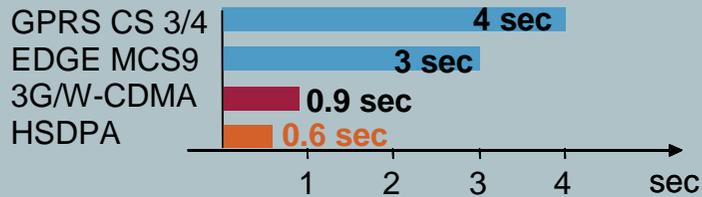


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Benefits for end-users

- Up to 81% download time saving with HSDPA!

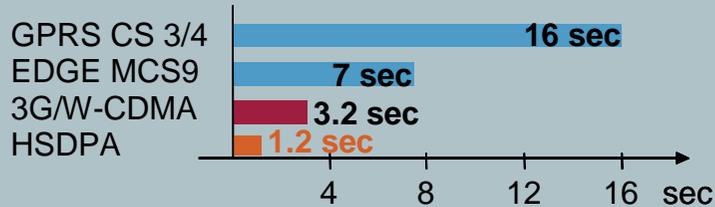
Profile 1: Low Resolution Image



**UMTS - HSDPA Saving:
0.3 sec (33%)**

**Application
Data Size:
20 kBytes**

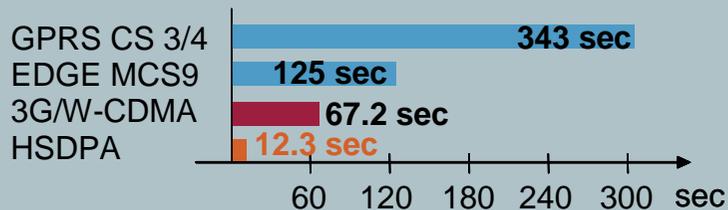
Profile 2: High Resolution Image



**UMTS - HSDPA Saving:
2 sec (62%)**

125 kBytes

Profile 3: Power Point Presentation / Video Clip Download



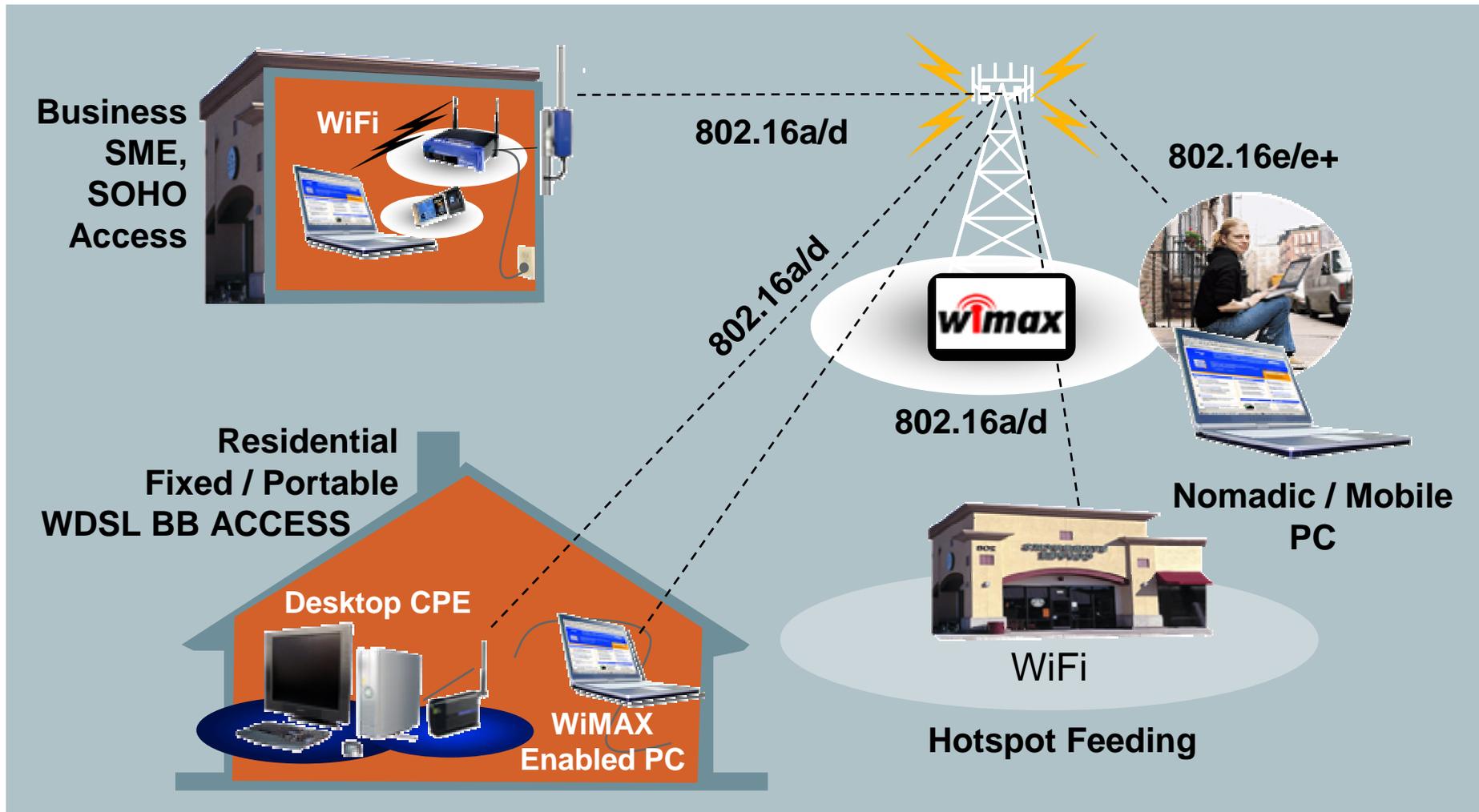
**UMTS - HSDPA Saving:
54.9 sec (81%)**

3 MBytes

Assumption: Typical data rates – W-CDMA 384 kilobit/sec, HSDPA 2 Megabit/sec

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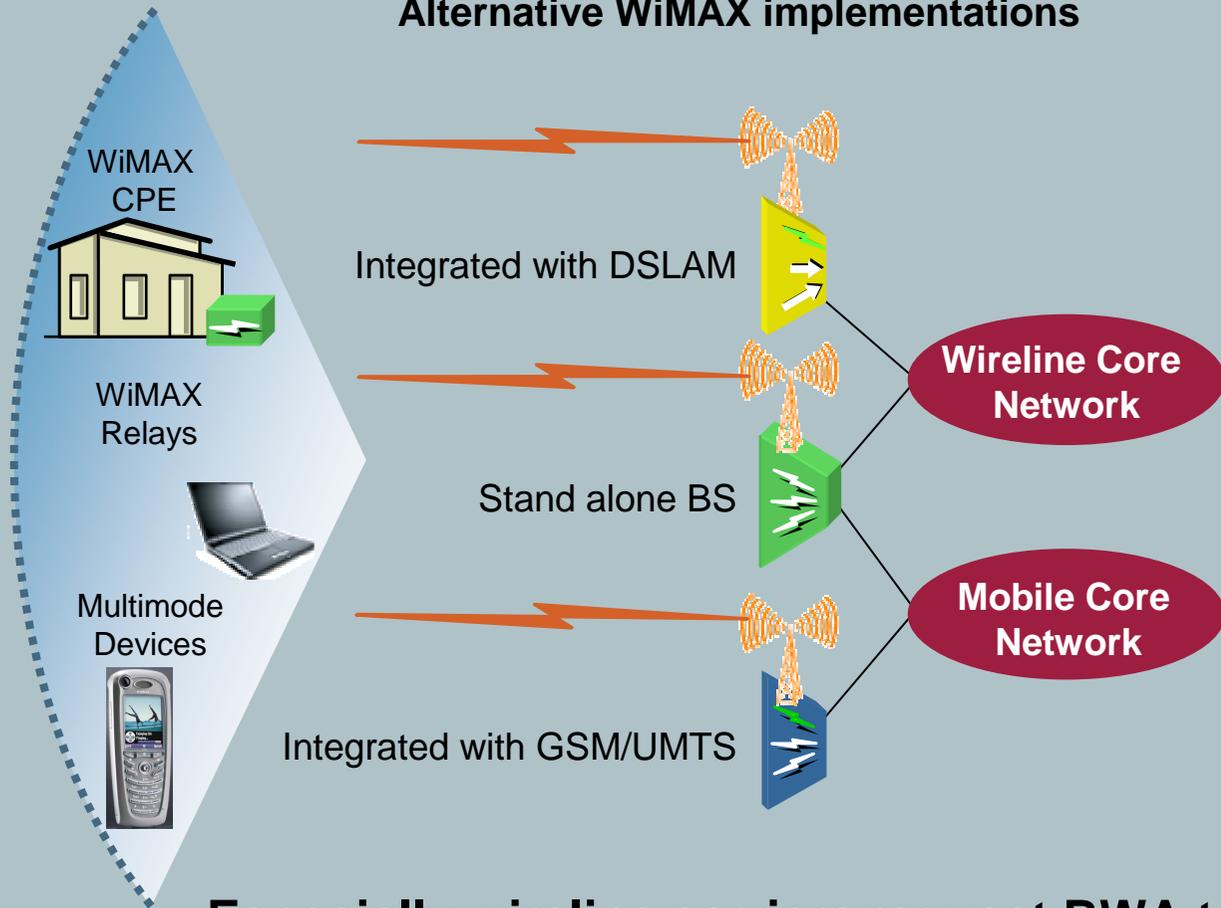
WiMAX is addressing nomadic services with comparable capacity as xDSL



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Operators will deploy WiMAX both stand-alone and integrated

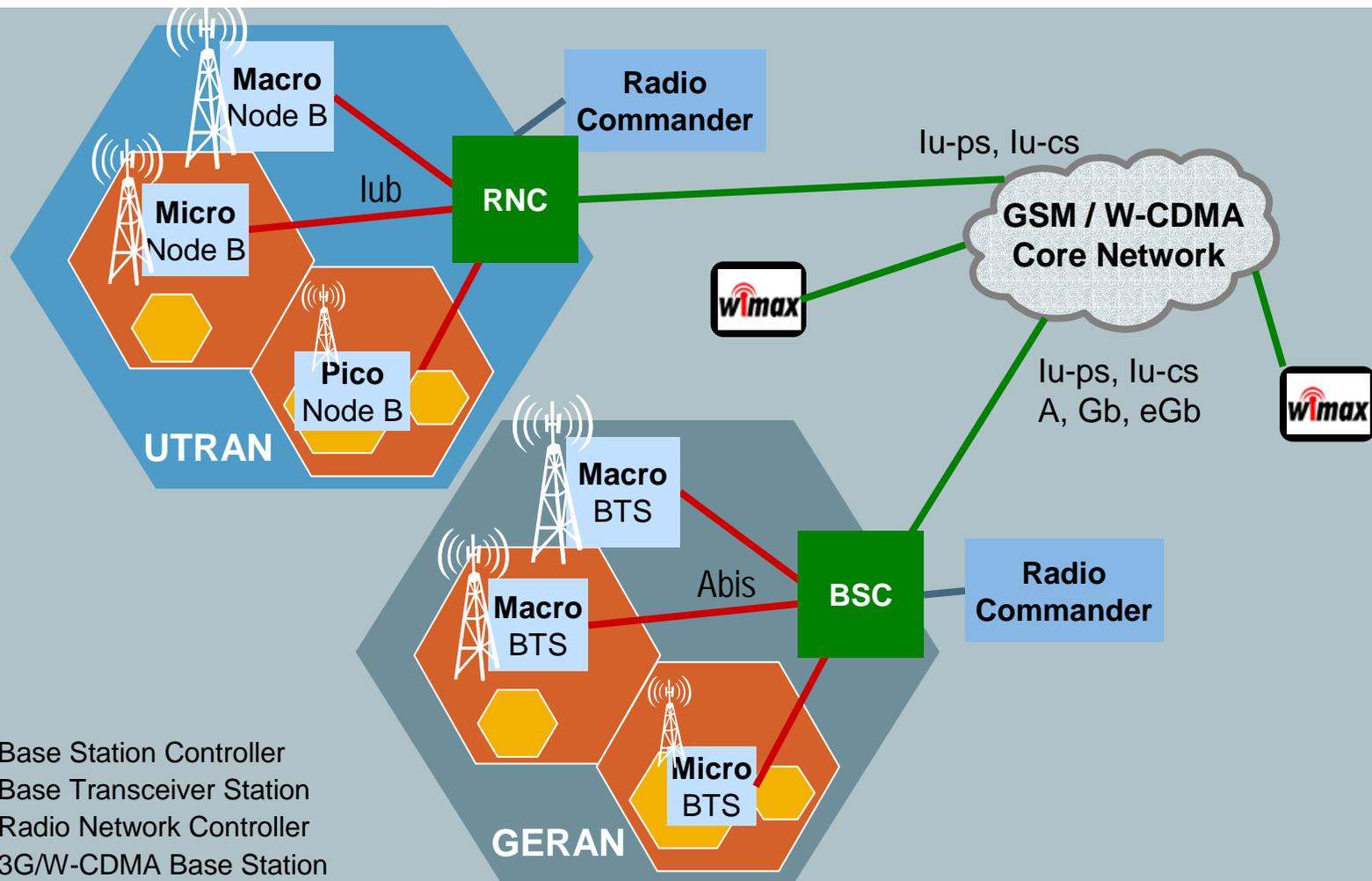
Alternative WiMAX implementations



Especially wireline carriers request BWA trials for late 2004

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Siemens provides network technologies that enable operators to offer seamless communication over all networks



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Operators from all over the world follow a clear radio access positioning strategy

GSM / GPRS in all areas providing basic service coverage

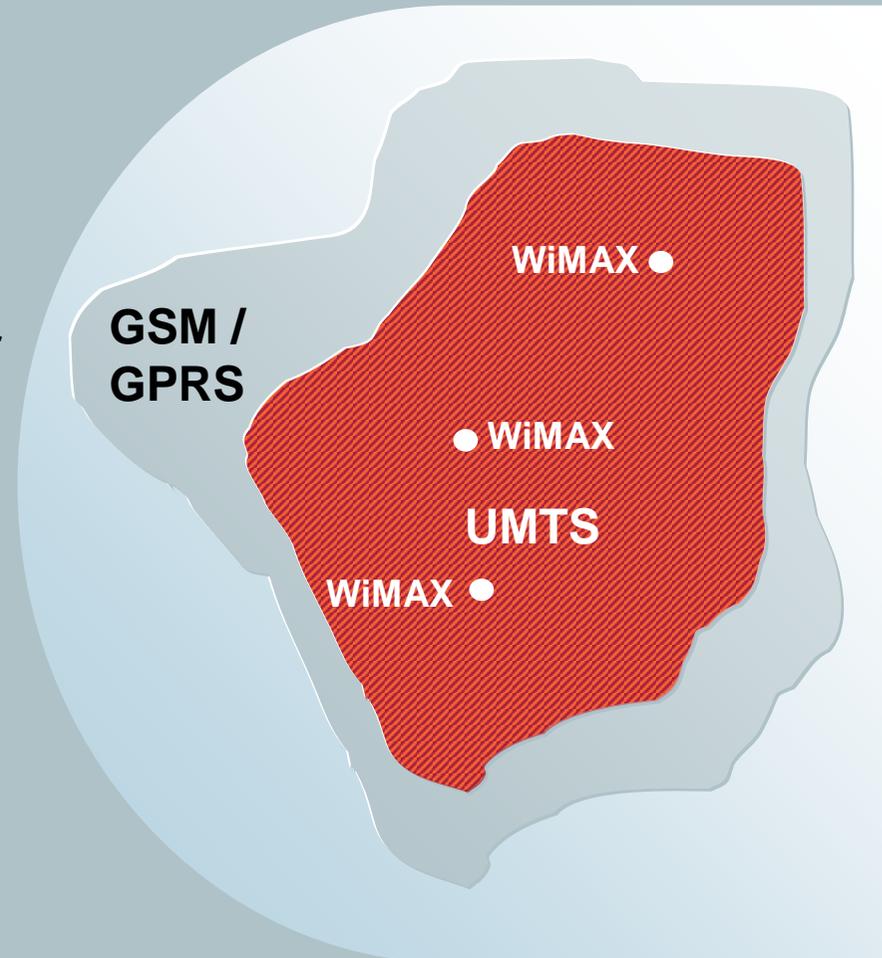
Additional enhancements e.g. AMR , HO due to BSS resource man., EDGE

EDGE coverage as a first step towards higher data rates providing “rich mobile data” e.g. for multimedia messages

Next comes WLAN for distinct hot-spots providing “fast intranet / internet” access and “Soft“ coupling for authentication & billing

Next comes the EDGE expansion providing “high data” access to rural areas

EDGE is followed by 3G/W-CDMA to provide high density coverage and WiMAX for DSL type services



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Conclusion

- **Navigating towards 3G is all about continually enhancing the end user experience**
- **IMS is the basis for convergence**
 - between mobile, fixed-line and internet communication
 - and will drive access agnostic service provision
- **Different technologies will complement each other**
- **WLAN / WiMAX and GSM / UMTS peacefully coexist**
- **The user will automatically be always best connected**
- **Network and terminal ensure seamless interoperability**

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Thank you for your Attention

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