

# 3G/UMTS-An evolutionary path to Next Generation Networks

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**UMTS Forum**

ITU/ITC Moscow 27-30/4 / 2004

# Today ...



**... there are more than 400 million computers connected to the Internet!**

**... there are more than 1 billion mobiles inter-connected worldwide!**

**What about bringing computers and mobiles together for universal wireless connectivity?**



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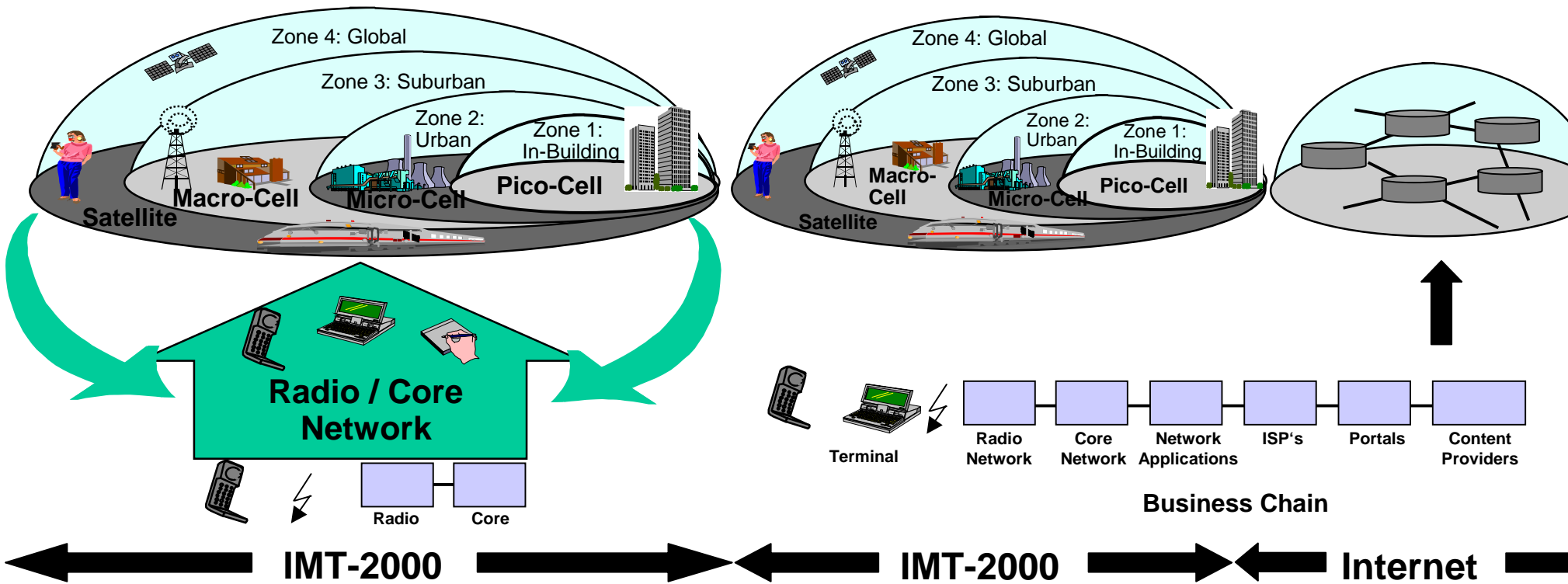
# Paradigm: a change to IP networking



**1996** Integration of Radio Zones



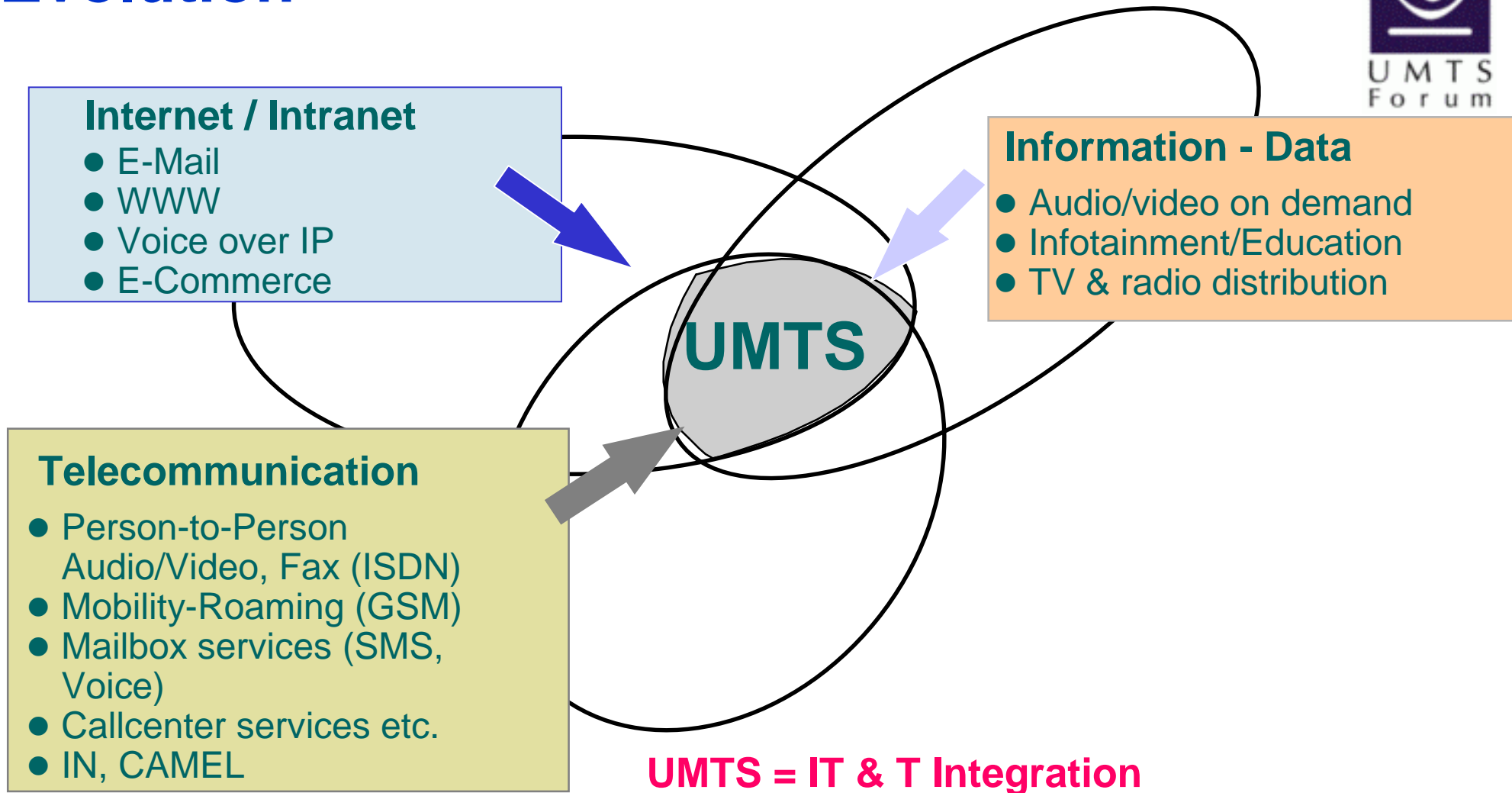
**2000:** UMTS = Mobile Internet



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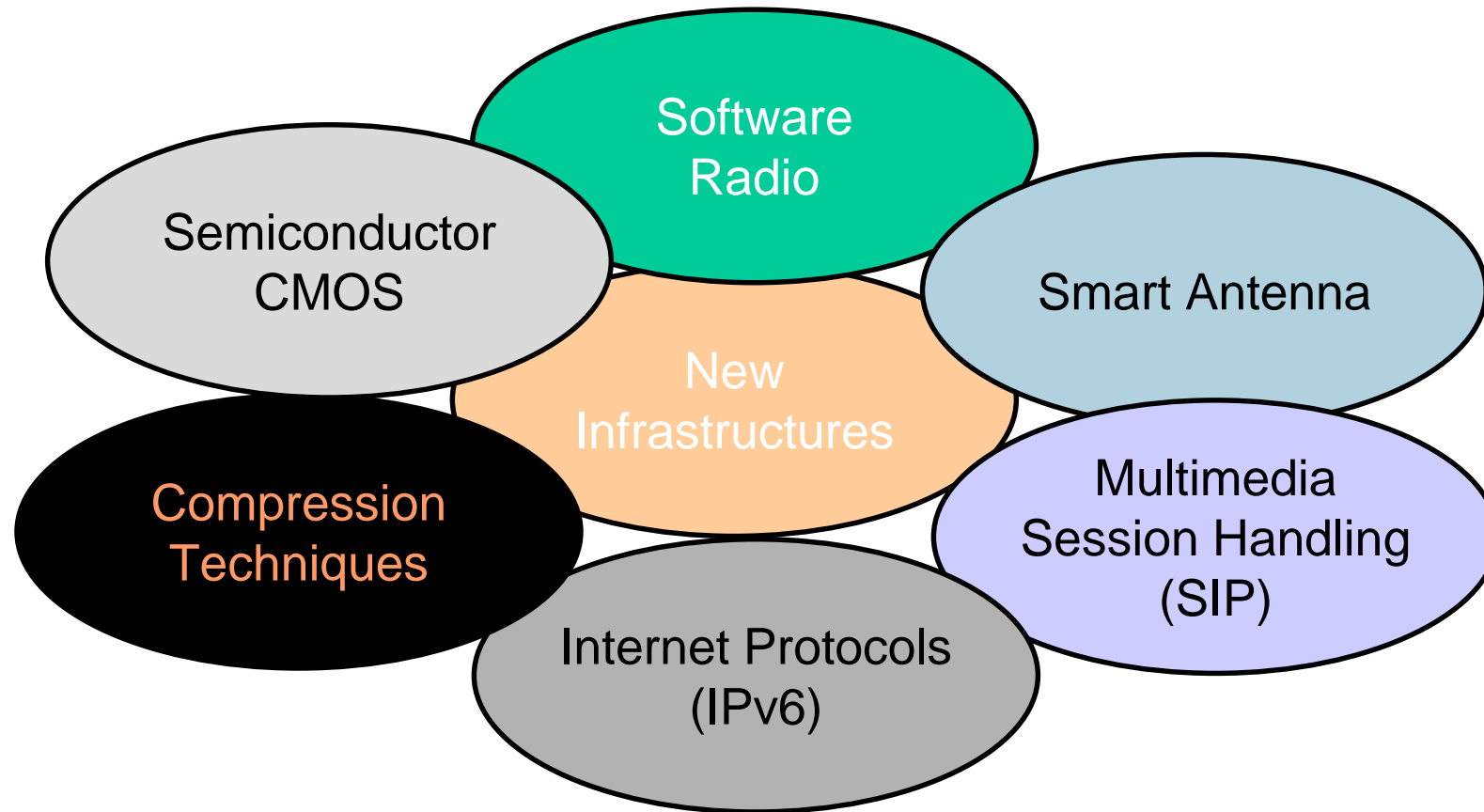
# Mobile NGN's = 3G Cellular Networks Evolution



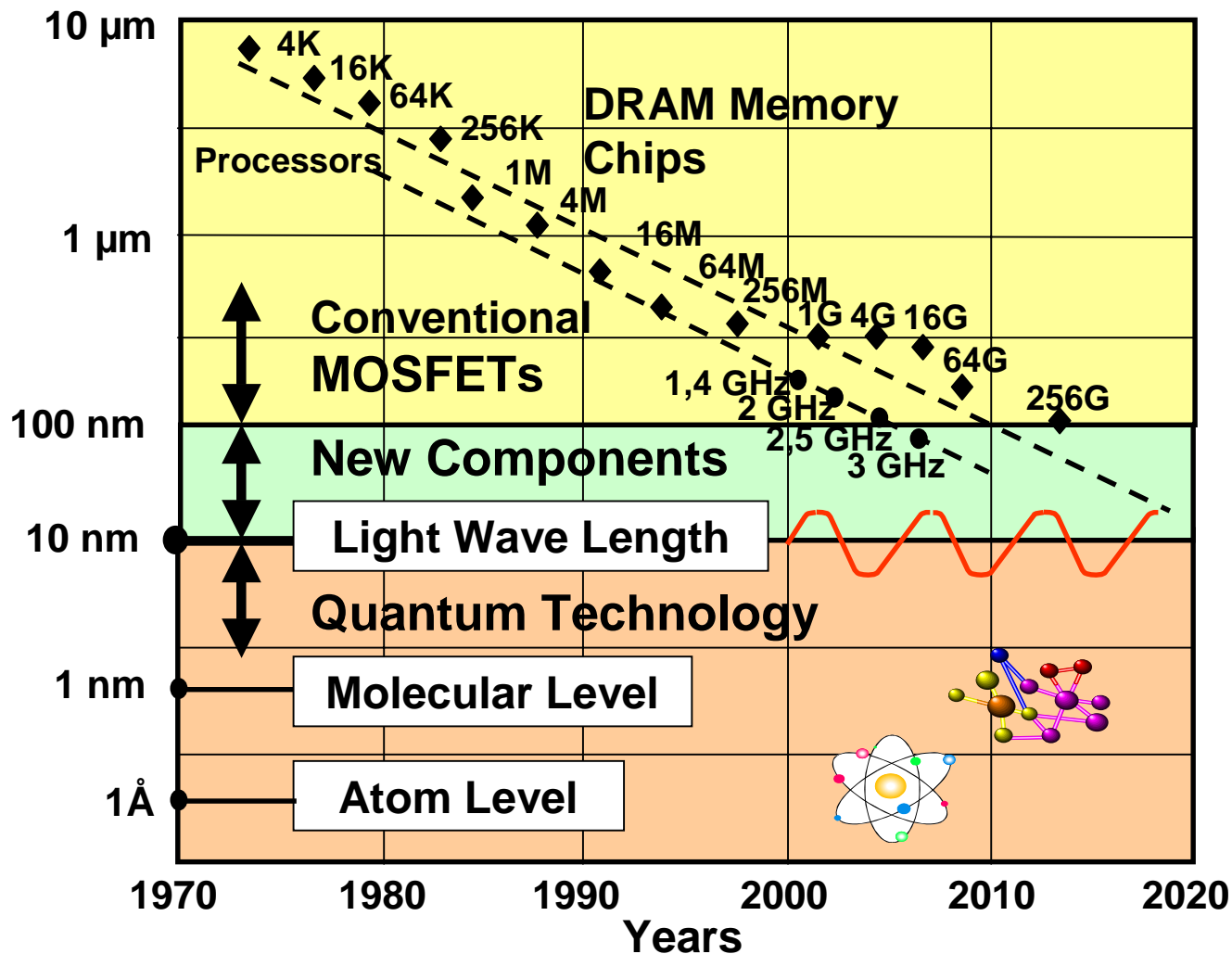
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# Enabling Technologies



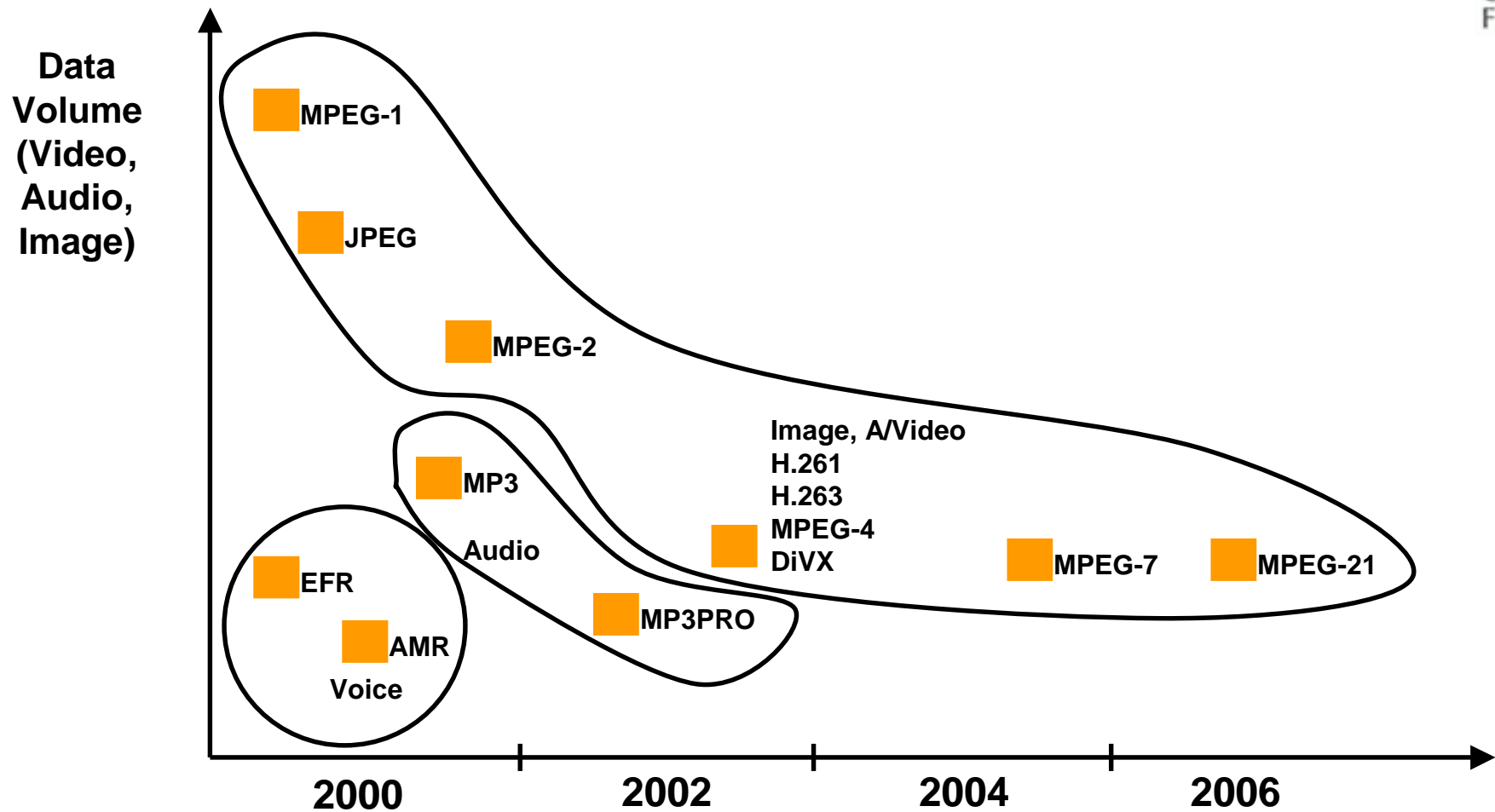
# Higher Density in Microelectronics allows Moore's Law to continue



Semiconductor Technologies Evolution



# Progress in Compression Techniques



# Software-defined Radio



**Digital Radio  
Technology**

**Software  
Technology**

A/D performance  
Digital signal processing DSP  
Increased processing power,  
Increased memory capacity  
Low power base band controller  
Field programmable Gate Arrays (FPGA)



Realtime SW download  
Realtime kernel  
Virtual machine  
Frequency management  
Driver

**Dynamic radio equipment re-configuration by  
downloadable software, at any protocol layer**

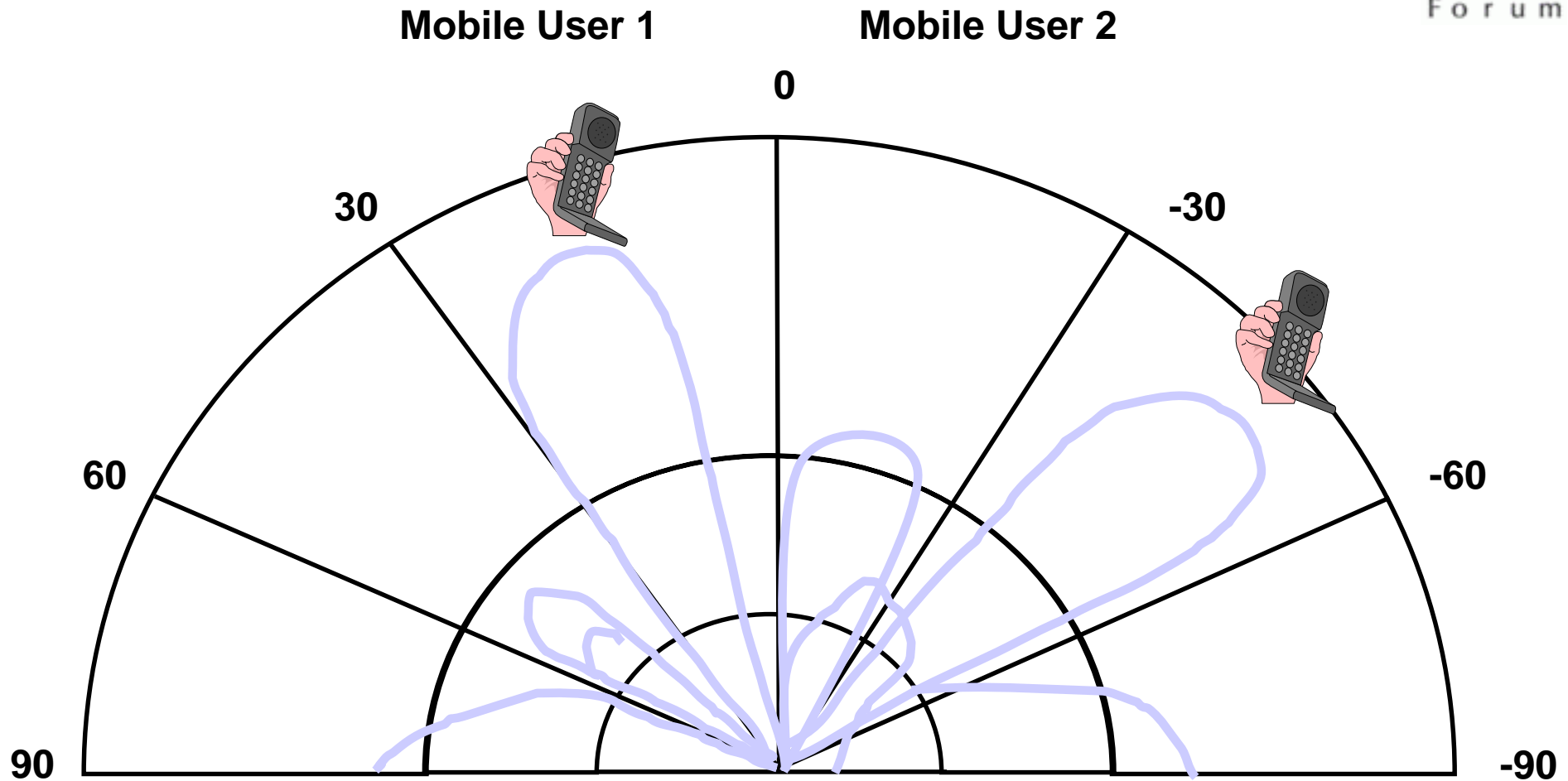


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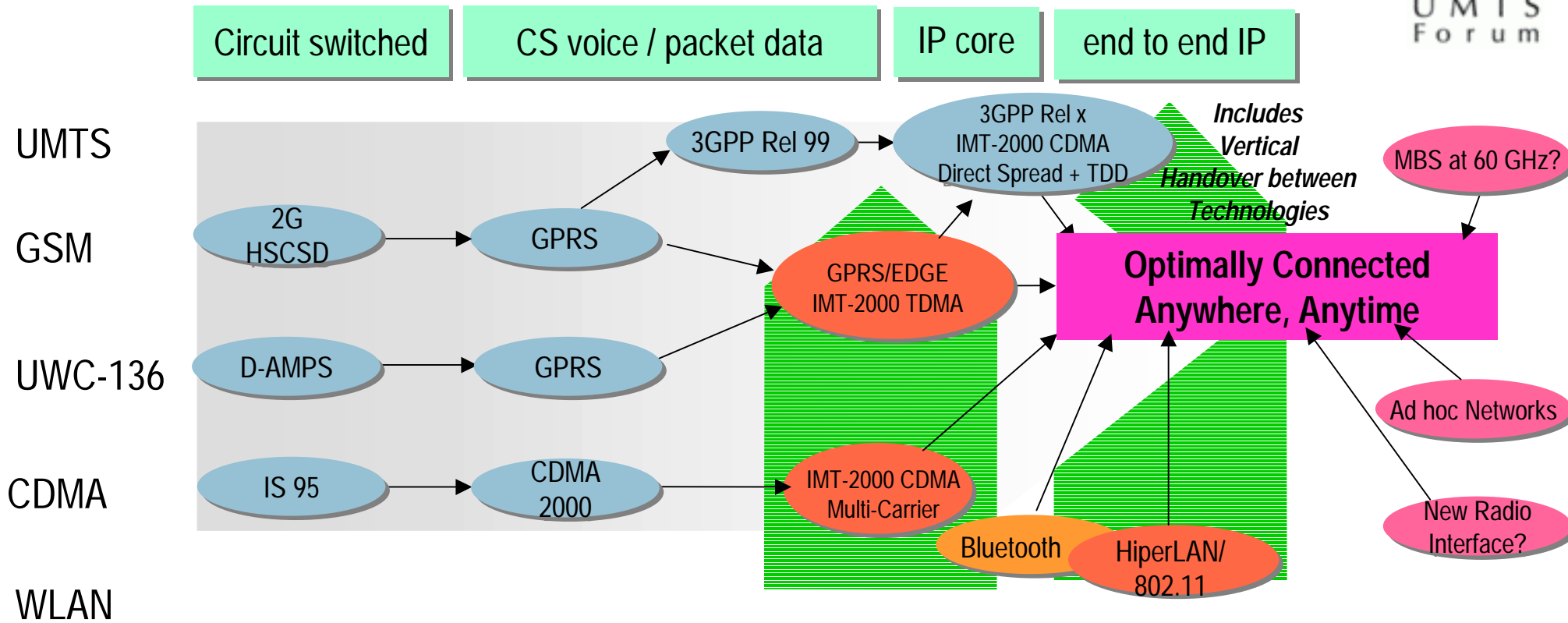
# Smart Antenna Characteristics



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# Migration of Mobile Networks



2G	evolved 2G	3G	and	beyond
9.6-14.4 kbps	20-120 kbps	20 - 384 kbps	- 2 Mbps	-10/54 Mbps

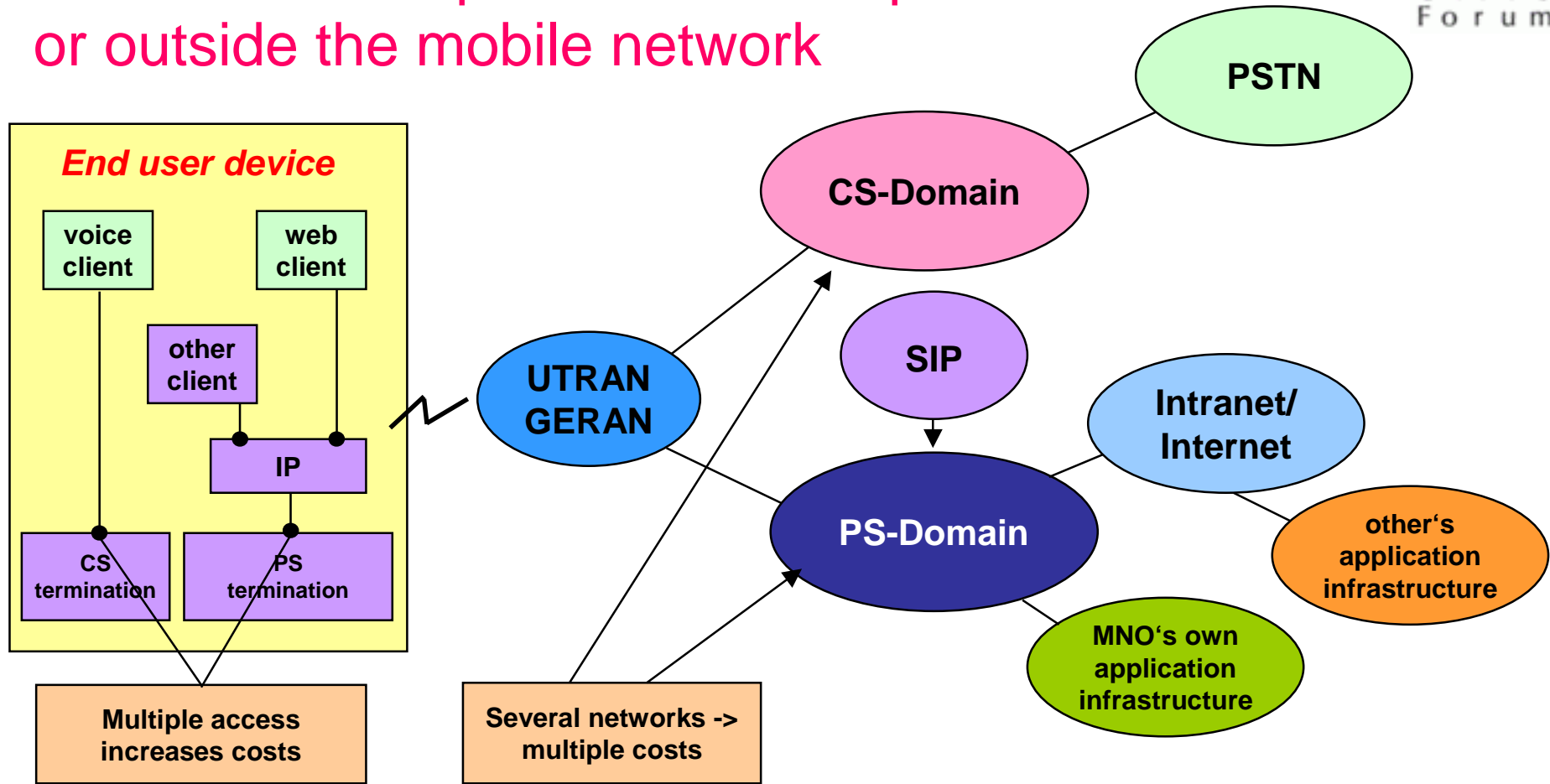


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# GSM - UMTS today:

SIP could be implemented on top of PS-Domain or outside the mobile network

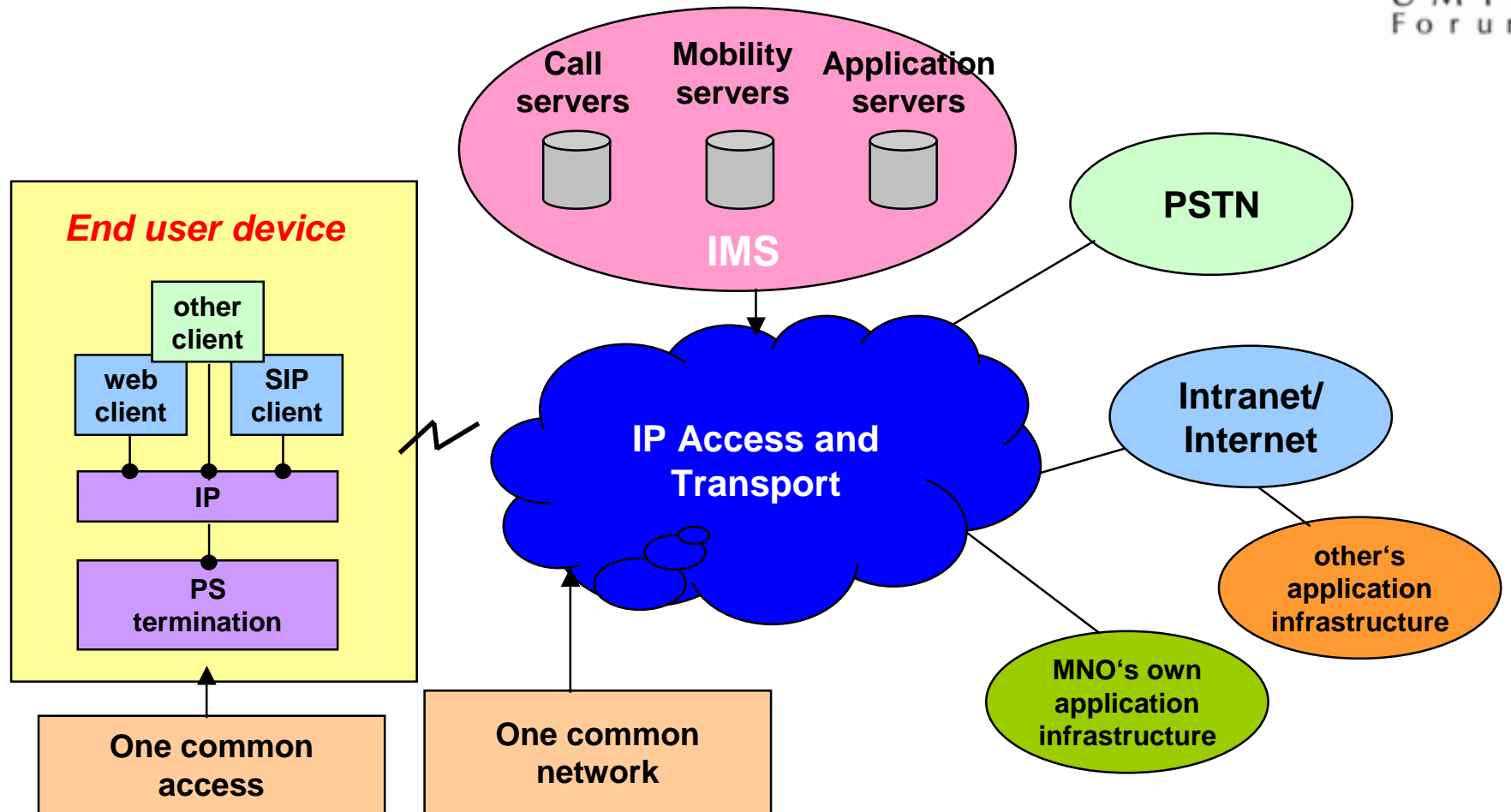


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# Tomorrow's UMTS Rel. 5:

SIP is implemented inside the mobile network



# From a User Perspective, IMS has Unique Advantages

- **IMS is the best platform to realize **multiparty** services:**

**Presence texting: from one-to-many to many-to-many (chatting)**

**Voice: from one-to-many voice messaging to Push-to-talk (real time) to  
Voice conferencing**

- **IMS is the best platform to realise **converged** services:  
Collaborative working / multiple sessions**

**Multiparty gaming**

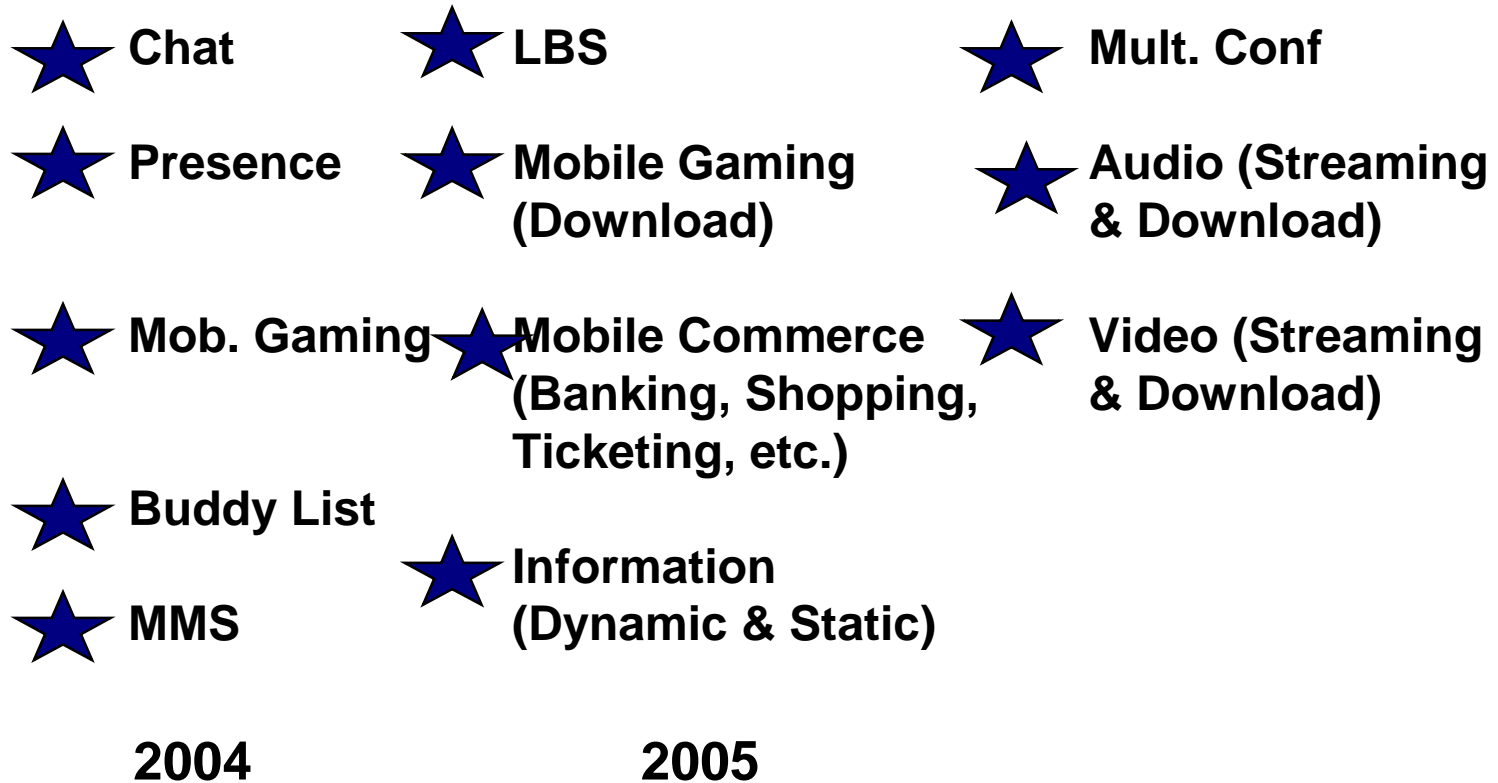
**Rich voice: Voice with picture/video streams, Video Call combined with  
data services.**



# IMS User Services Evolution Example



Services can easily be configured and personalised.



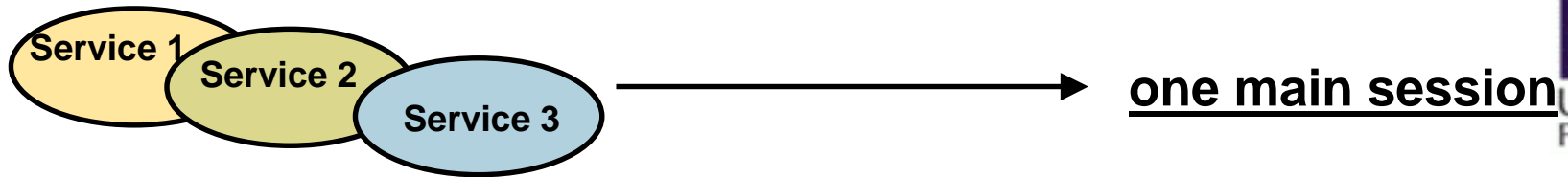
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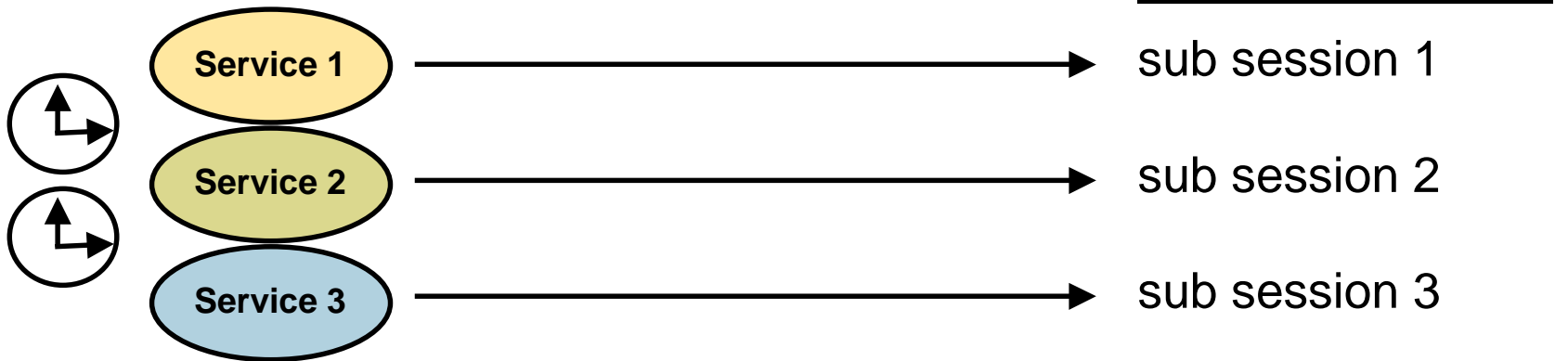
# IMS: Session Arrangement Examples



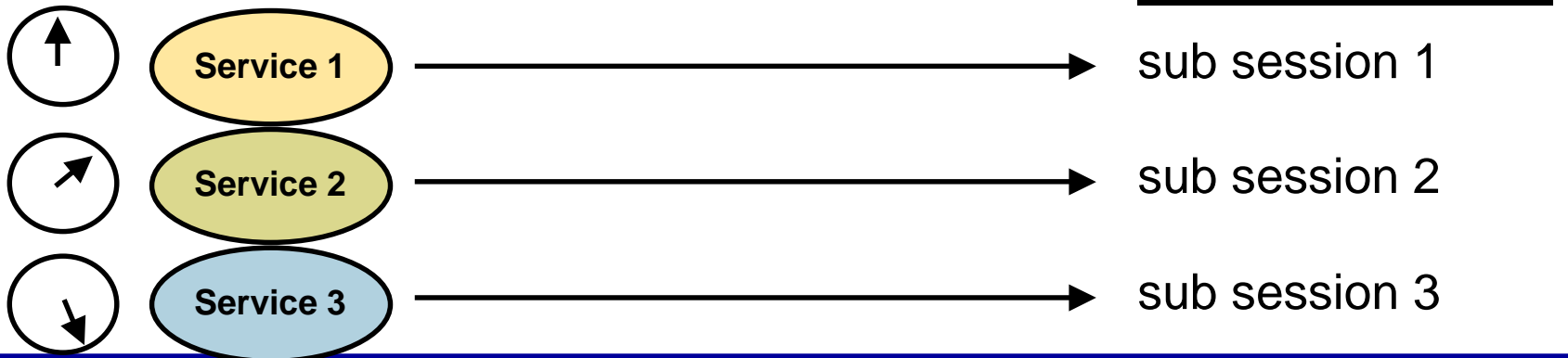
## Combined



## Synchronised



## Unrelated



# Thank you for your attention



- For more information please see [www.umts-forum.org](http://www.umts-forum.org)



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