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End-to-End Wireless Mobile Networks
Vision

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Goals & Motivations out there

Users chat:

- Service convenience („really plug and play, anytime, anywhere“)
- Service choice, added value („grandma sais: don‘t like technology, but I use the appliance, the service idea is great“)
- Price („you can afford it“)

Operators chat:

- Service differentiation & time to market
- Seamless offer & service continuity
- Low cost of networks ownership, future proof
- High service quality
- Revenues up (new rev. streams) & costs down (new techn.)

Vendors:

- No time to chat since time for UMTS Release 00 is very restricted.

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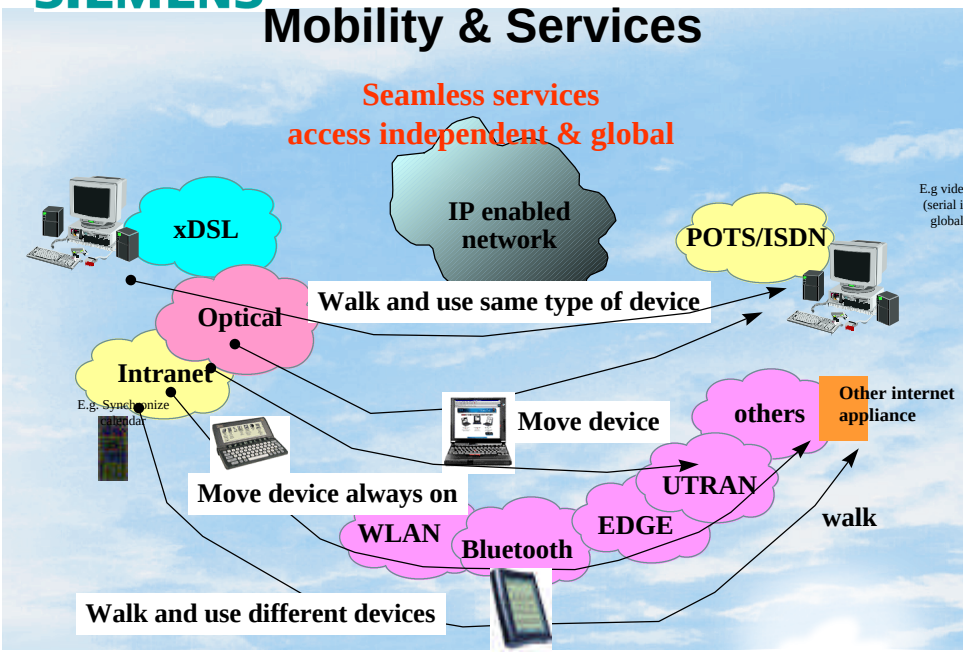
Mobility & Services



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Basic Principles

- MMI adapts to HW/SW environment of a user‘s „point of attachment device“ (mobile phone (WAP), TV, PC (Int. Browser), fridge, ...)
- Service convenience by a simple usage paradigm (cf. the Web)
- Service leverage: The network is not only a flexible bitpipe for Web content. It is talking to the content, leveraging the content (location, parameters of environment: speed, quality,...). Multimedia.
- Open service architecture for fast service creation, differentiation
- For network costs down:
  - Consolidation in core network on IP layer
  - Access independence, still heterogenous access technologies
  - Separation of concerns, independent evolution of planes like transport, network control, mobility, services („horizontal systems“)
- End-to-end QoS architecture for high service quality
- Seamless services: IP to glue together different access types, service content may adapt to the access environment
- Building on evolution paths: „nice to see revolutions driving forward the overall evolution“

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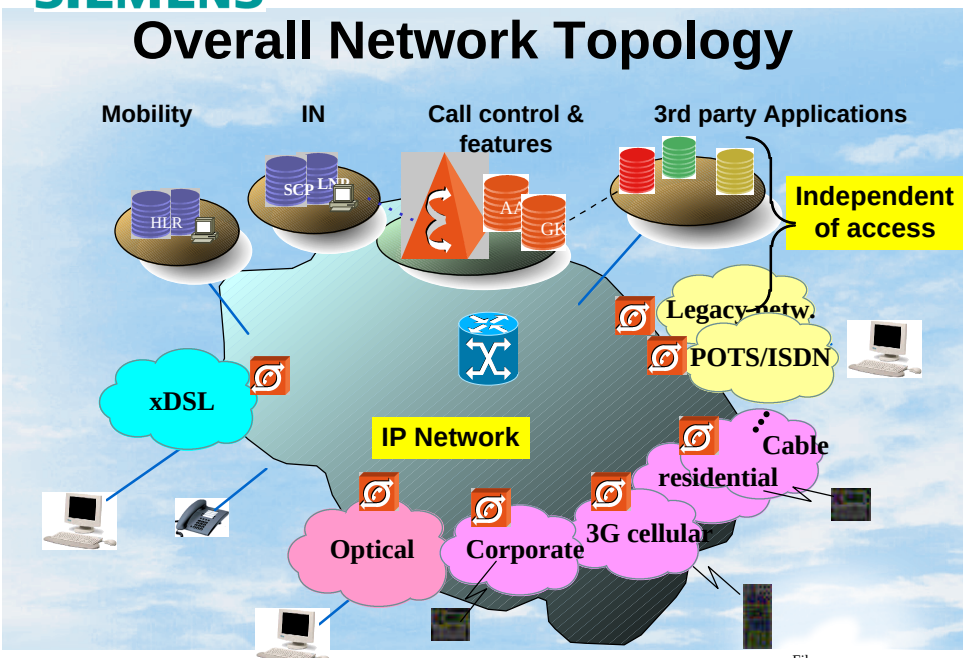
Overall Network Topology



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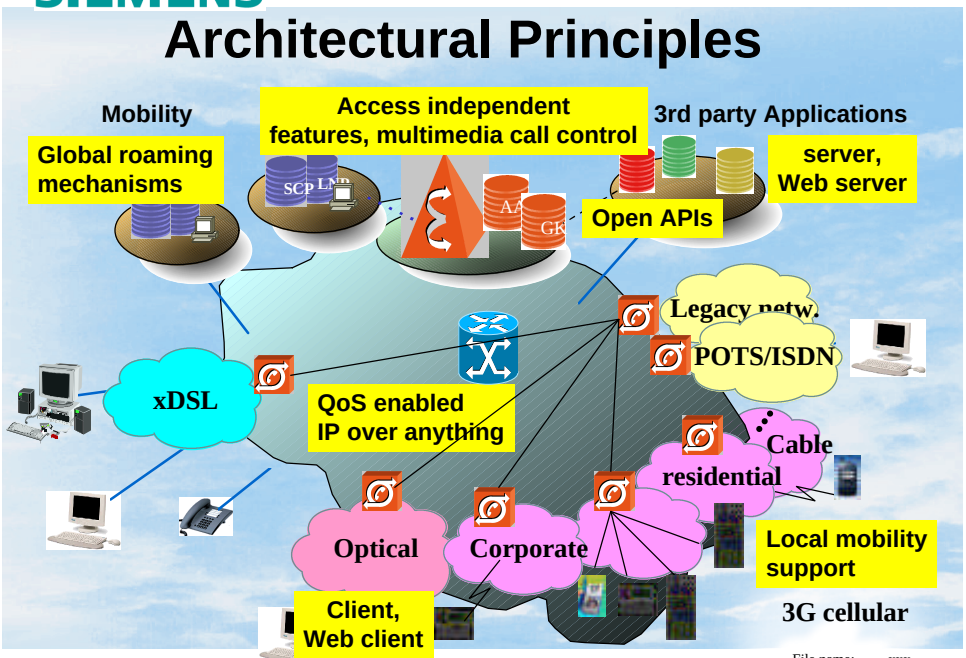
Architectural Principles



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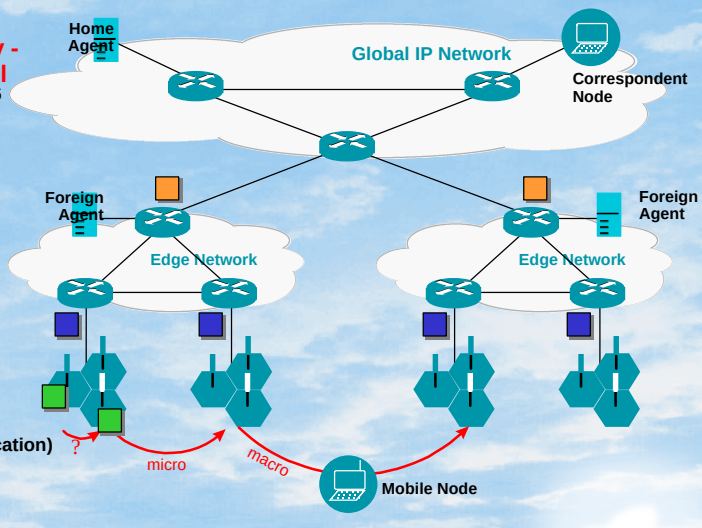
Mobility Approach

Hierarchical structure

Global Mobility - Network Level
- Mobile IP, IPv6
- H.323 roaming

Micro Mobility Access Level
- Cellular IP
- GPRS
- ...

?-Mobility Level
- Radio network specific (e.g. relocation)



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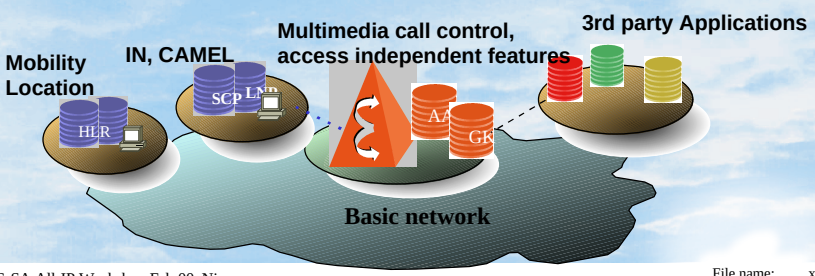
Service Vision

- Global services & applications (compare Web to Supplem. Service)
- Seamless services, access independent, maybe access aware
- Open, secure APIs:
  - more choice, more service offerings, 3rd party call control
  - vendor independence
- Standard multimedia call mechanisms: extensible for new services
- Possibility for end user choice with respect to QoS / price



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Market Requirements in this Direction

- The fixed network migrates already in parts to IP network consolidation
- Seamless services are required between fixed/IP and 3G wireless
- Today a variety of transport networks have to be maintained:
  IP over xyz, native ATM, Frame Relay, TDM/PCM,...
  Network consolidation on IP/ATM promises to lower costs
- End-to-end compressed/coded speech, no transcoding only due to change in transport technology
- Different access technologies need to be integrated by common core network mechanisms. What history tells us: the world is not homogeneous.
  IP mechanisms are a worldwide common denominator.
- Opening of interfaces
- Reduction of variants of same interfaces by adoption of globally standardized or de facto industry standard interfaces -> eases interworking
- Better means to manage subscriber data / profiles / services.
- BUT: provide smooth evolution where there is already a valuable basis.

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Conclusions

- Our long-term vision encompasses more then wireless
- We assume that the industry landscape will change as well (e.g. content meets infrastructure) -> new requirements
- The bearers of new business roles will add requirements
- We see this vision today. The vision should get renewed to the extent, that we approach it by real networks.
- The more common the vision is, the better it can focus all of us to approach it with vigour.
- UMTS R00 is a starting point. Its current reference architecture fits into a path towards this vision.