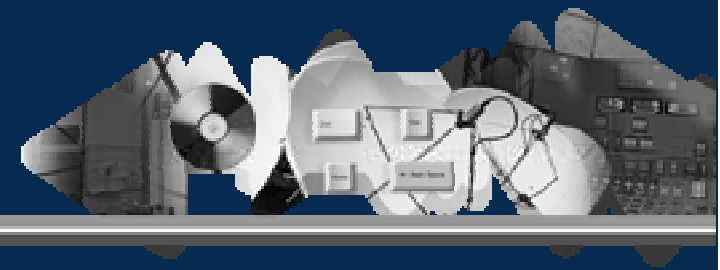


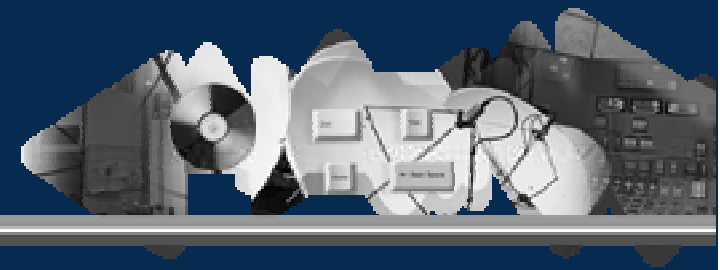
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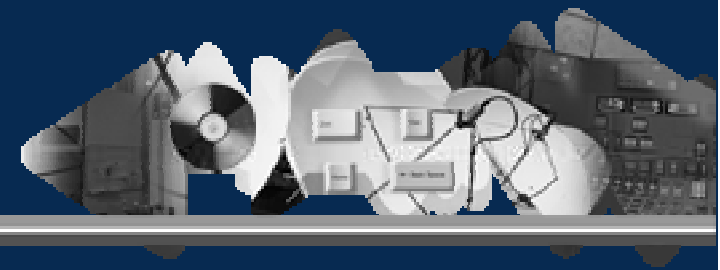
All-IP Networks

Architectures Convergence

Mid term vision



- ◆ Future of Call Control in Fixed Network
 - Market trends for Next Generation Fixed Network
 - Fixed Network Architecture
- ◆ Future of Call Control in Mobile Network
 - Market trends for 3rd Generation UMTS Mobile Network
 - Mobile Network Architecture
- ◆ The areas of convergence
- ◆ Benefits for operators

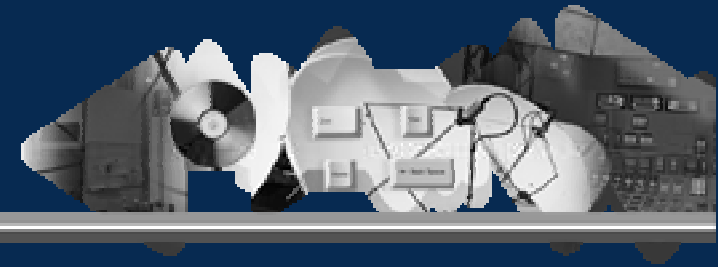


Future of Call Control in Fixed Network



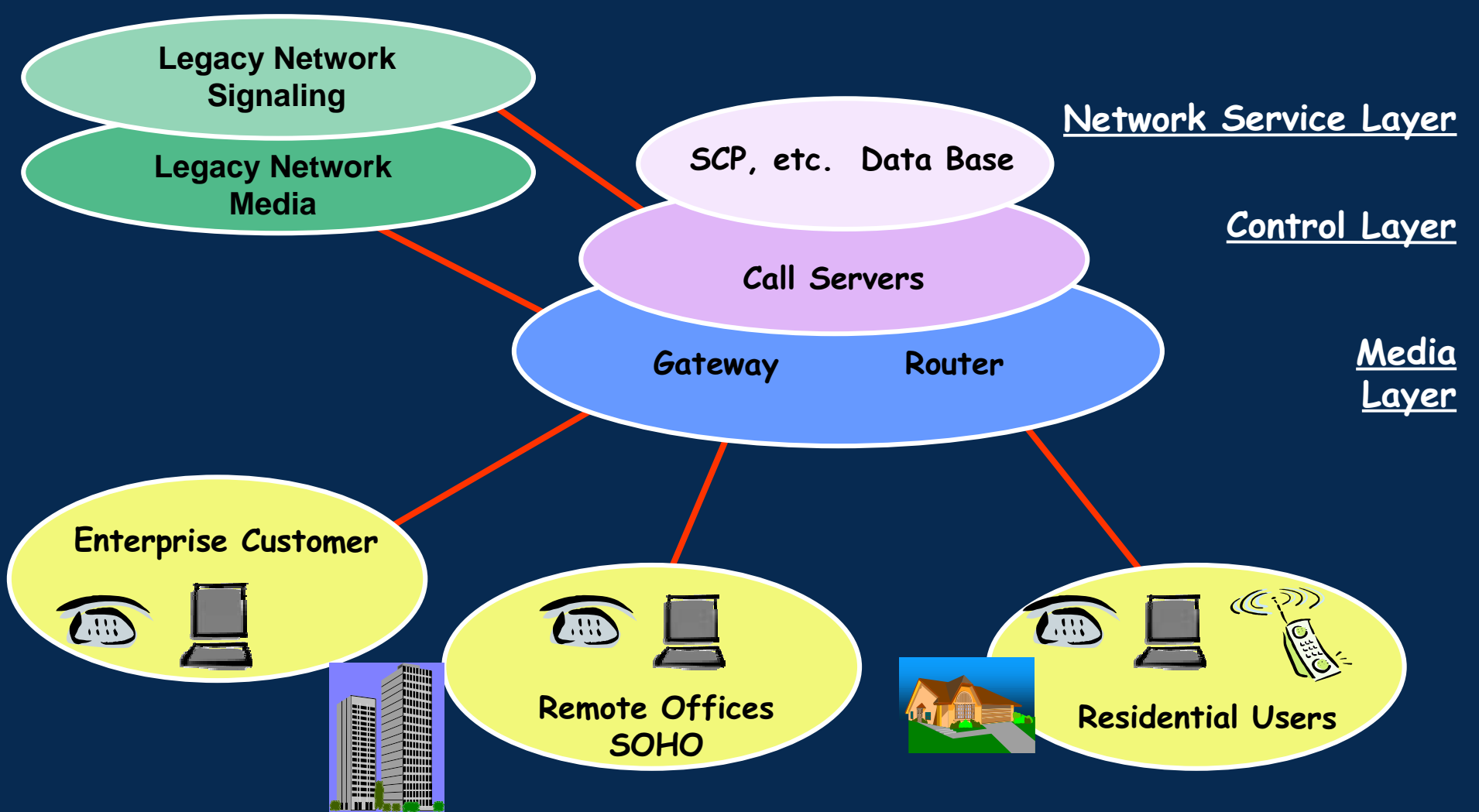
◆ Why a Distributed and Layered Architecture ?

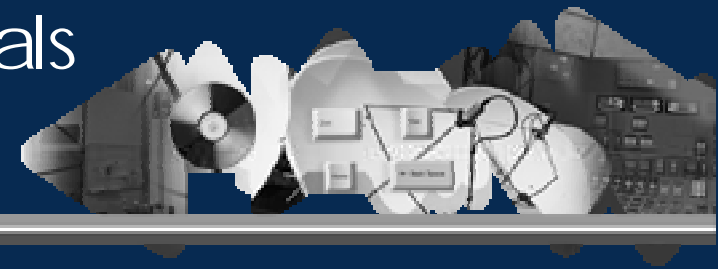
- ▶ Provide better flexibility and decoupling. This facilitates vendor's, carrier's, or third party's development of Application Software
- ▶ Reduce time to market for new Technologies and Services
- ▶ Allow competitive procurement of modular Subsystems, thanks to standard Interfaces and Protocols



- ◆ Distributed and layered architecture characterized by **separation in several layers**
 - ▶ **Service**
 - ▶ **Control**
 - ▶ **Transport**
- ◆ Two terminal families for two service families :
 - ▶ Circuit-based terminal (e.g. POTS , ISDN) for Telephony & Fax
 - ▶ IP Native terminal (e.g. PC, PDA) for multimedia services (i.e. H.323 and SIP)

Service/Control/Transport Separation





Terminals

Services

Signalling

Circuit based



(Circuit)

Telephony & Fax
- PSTN & ISDN
Supplementary Services
- IN services

DTMF
Q931

IP Native

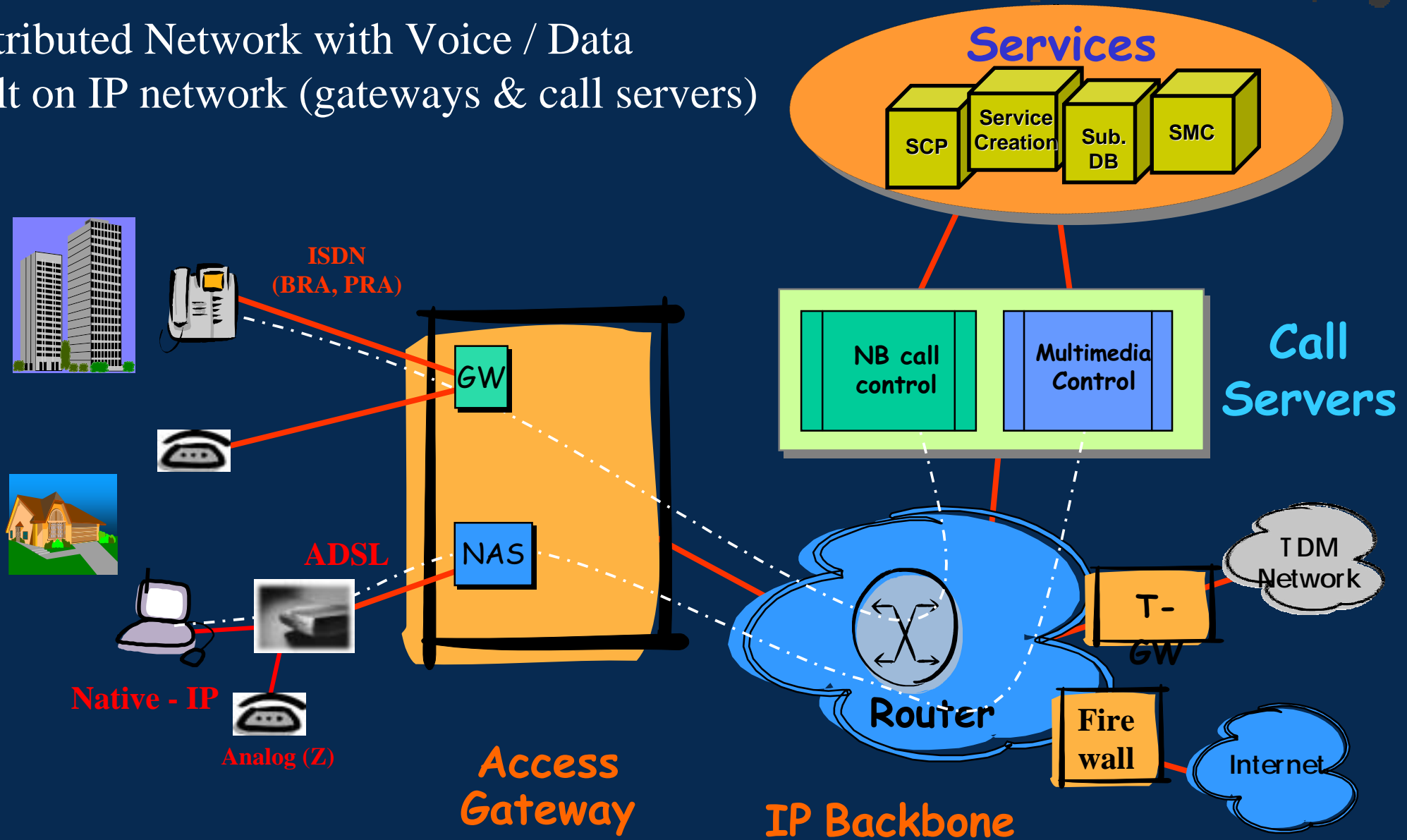


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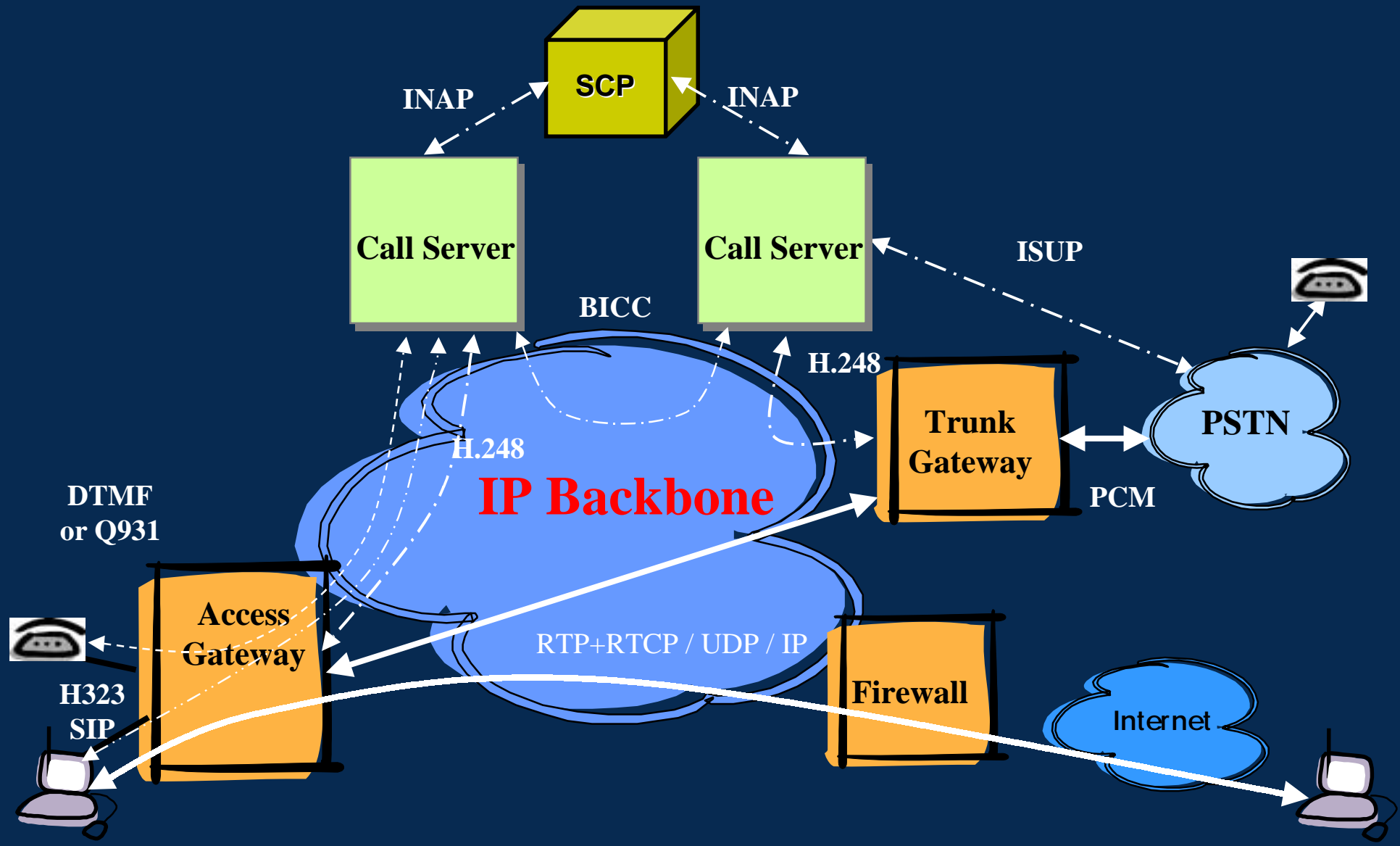
Multimedia services
- IN services

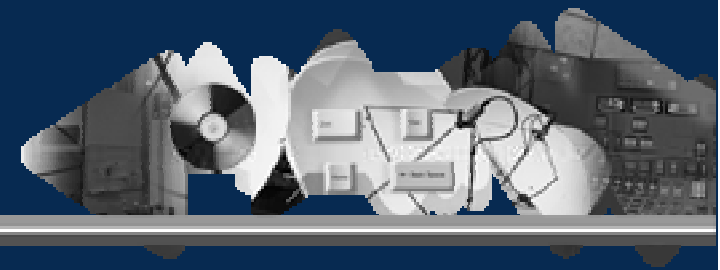
H323
SIP

Distributed Network with Voice / Data
 Built on IP network (gateways & call servers)



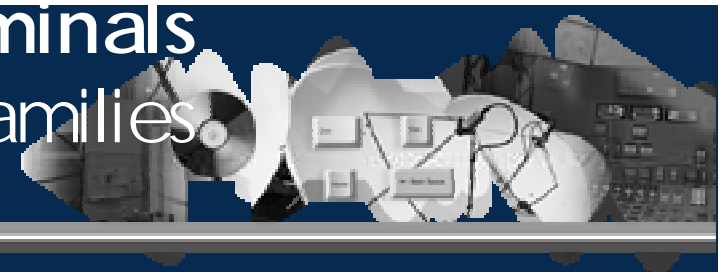
Needed Protocols in Fixed Distributed Architecture





Future of Call Control in Mobile Network

Two Families of Mobile Terminals for two Service families



UMTS Terminals

Services

Signalling

Circuit based

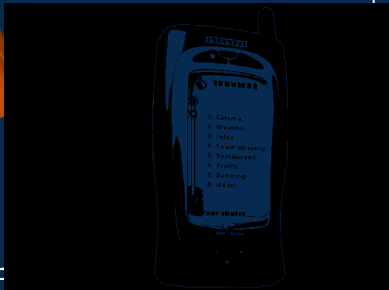


(Circuit)

**Mobile
Telephony & Fax**
Supplementary Services
VHE services
(CAMEL, WAP, MExE)

24.008 CC

IP Native

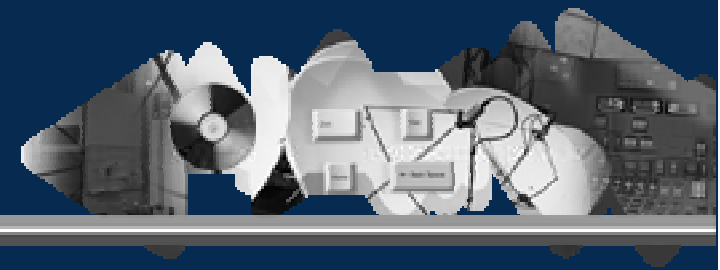


(Packet)

**Mobile Multimedia
services**
VHE services
(CAMEL, WAP, MExE)

H323
SIP

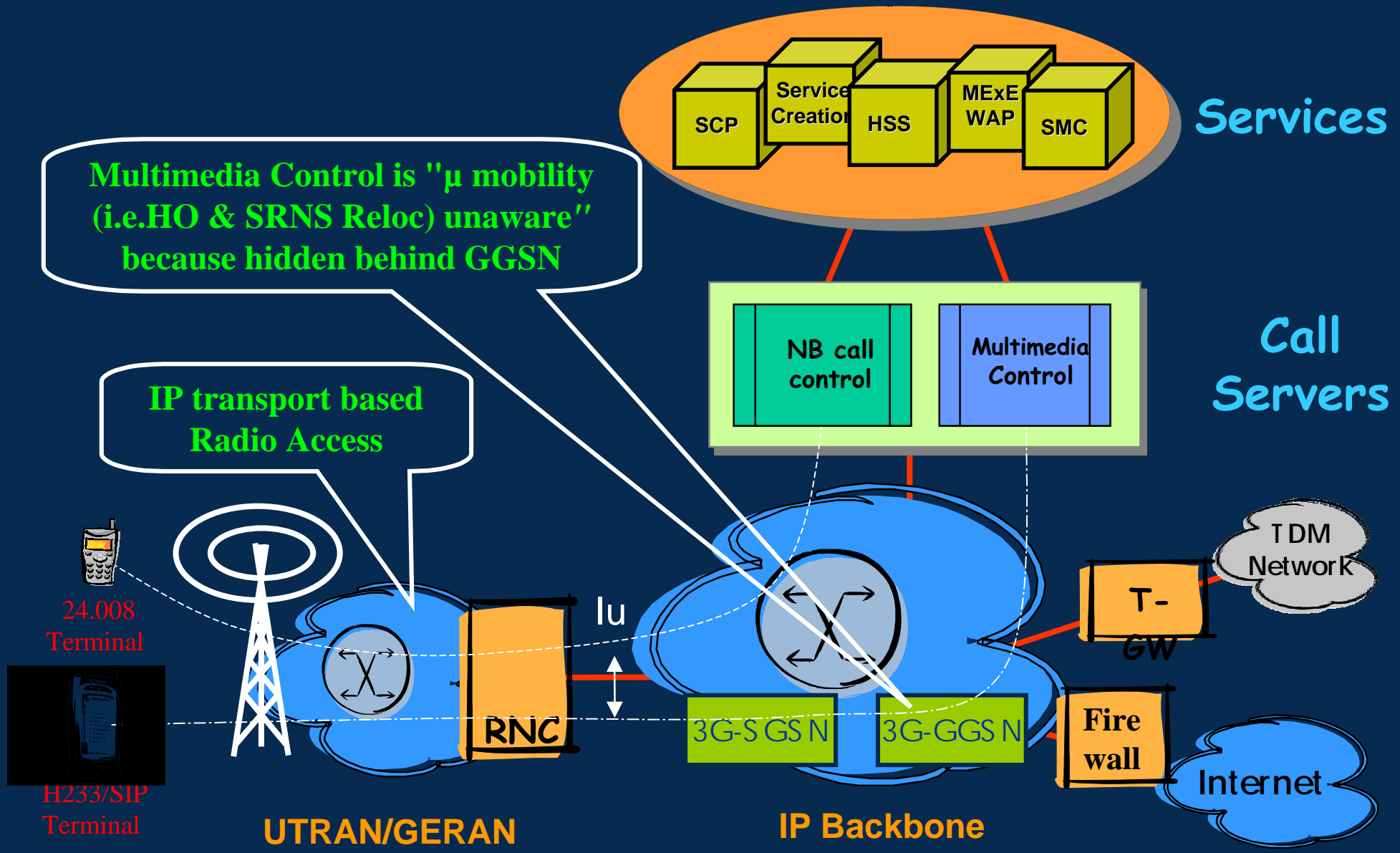
Note that some IP Native Terminals will support both Signalings

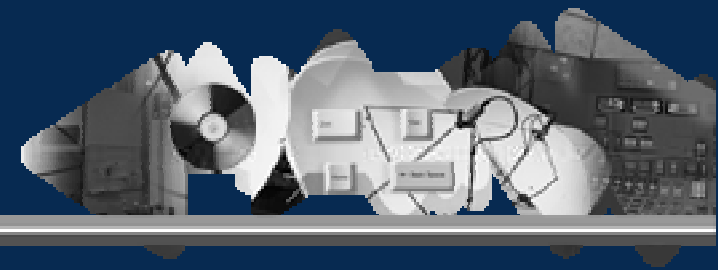


- ◆ Same type of equipment as for fixed architecture
- ◆ Mobility Management :
 - ▶ Hand-over : fully hidden within Radio Access
 - ▶ S R N S relocation : hidden behind S G S N / G G S N for multimedia services
- ◆ Location management : within H S S (H L R + U M S)
- ◆ Transport in R A N and at I u R e f e r e n c e P o i n t will be fully IP based thus avoiding heavy interworking

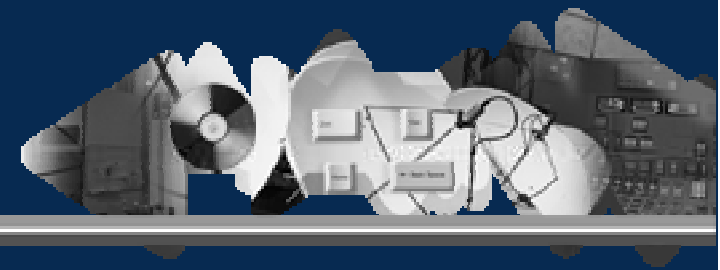
UMTS "All IP" Network Architecture

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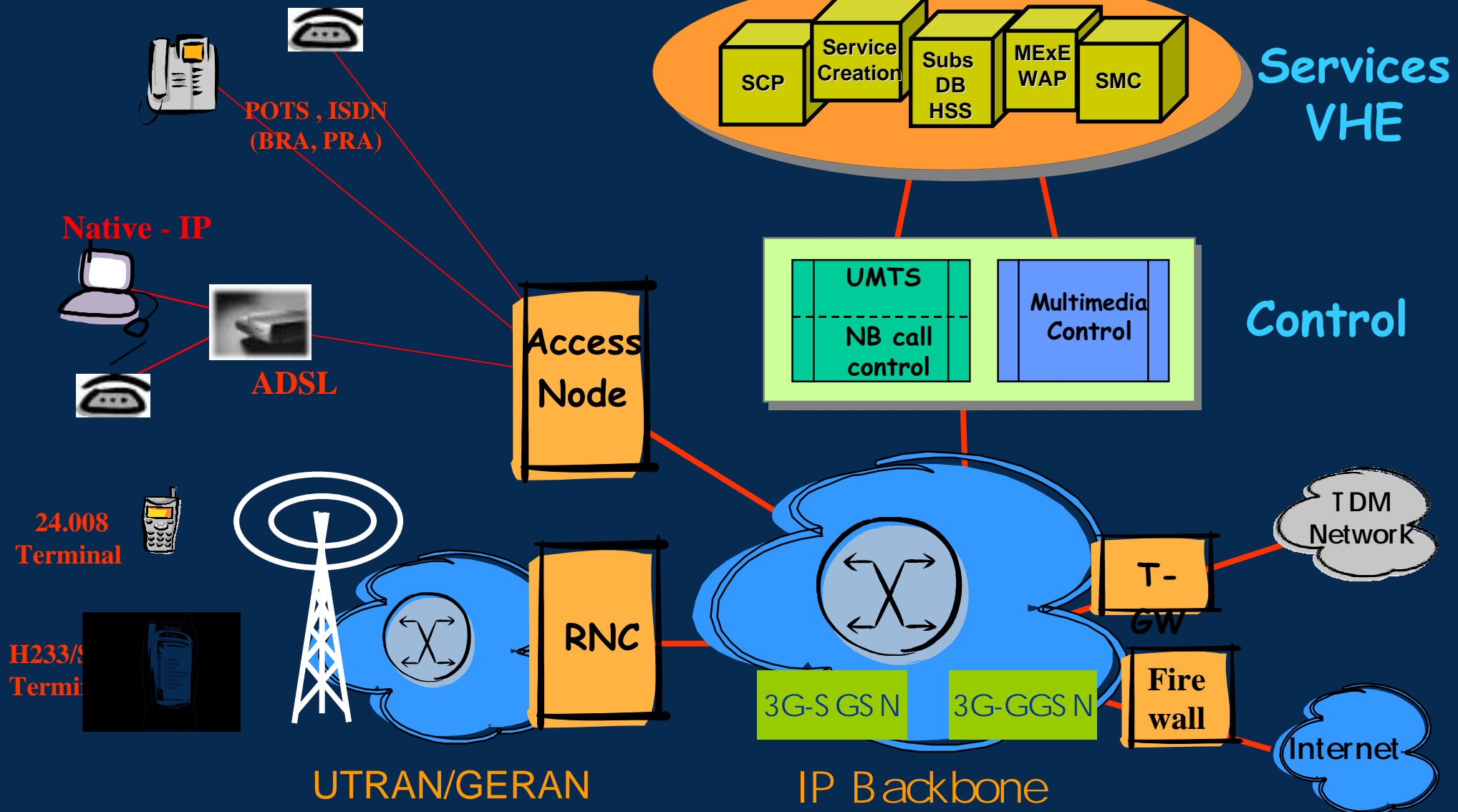


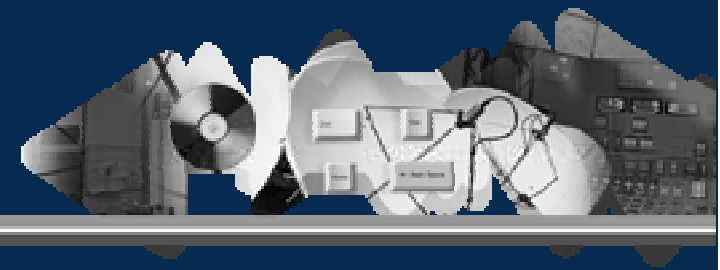
The areas
of
Synergy & Convergence



As soon as Mobility is hidden
a mobile terminal
is no more than
a fixed terminal

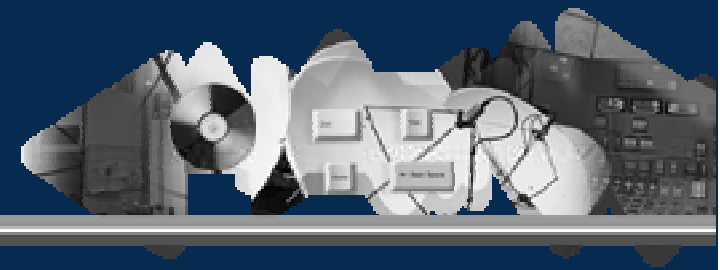
Where we are heading for ? Fixed & Mobile integration over IP





Benefits for operators

Optimization through Convergence

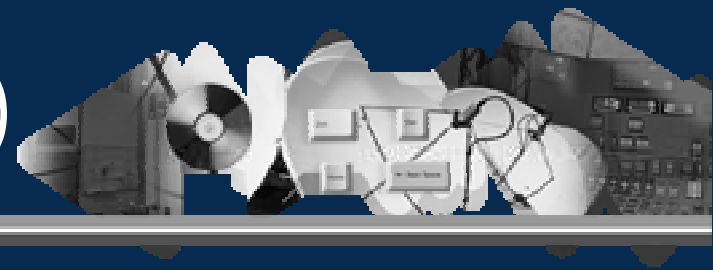


Next Generation Networks allows for fixed/mobile convergence at several levels

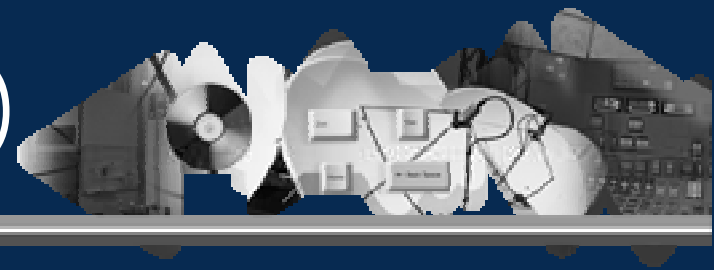
- ▶ Service level : same VHE relying on
 - same IN services & service creation environment
 - same MM Subscriber Data base, and SMC
- ▶ Control level : same Multimedia Call Server
- ▶ Transport level : same routers, MGWs, MGCs, Firewalls, etc.



- ◆ Acquisition cost optimization through Voice/Data Fixed/Mobile & CN/RAN convergence
 - ▶ Scale effect :
 - dimensioning (pool effect)
 - purchasing
 - ▶ Cheaper equipment (Router vs. Switch)
 - ▶ Open interfaces
 - Choose the best quality/price ratio

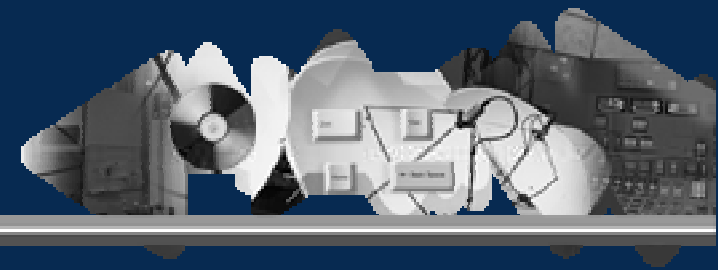


- ◆ Operational cost optimization
 - ▶ Single technology
 - ▶ Single service and user management
 - ▶ Simple routing management
 - ▶ Reduced staff training
 - ▶ Reduced spares stock



◆ Differentiation

- ▶ Develop once common (fixed/mobile & circuit/multimedia) services through the same creation environment
- ▶ New innovative multi-media services (like IP call ergonomics)
- ▶ Quick Service Roll-out of services
- ▶ Open interfaces : choose freely your providers !!!



- ◆ Layered and distributed architecture is future proof
- ◆ IP transport brings global homogeneity (CN & RAN)
- ◆ A single fixed+mobile core network architecture is possible as soon as mobility is hidden
- ◆ Convergence & synergies exist at several levels :
 - ▶ fixed/mobile
 - ▶ voice/data
 - ▶ circuit/multimedia
 - ▶ CN/RAN



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