Media Gateway

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Outline

- Background
- New network architecture
- Media gateway
- Standardization
- Summary
The New Telecoms World
- a global marketplace
- a challenge, a possibility

Background
Liberalization

Competition
Price pressure

Global customers
IP & Internet

Fixed <> Mobile
Technologies
Wireless Internet Services

- News, weather, sports
- Traffic information
- Directory services
- Time tables
- Location-dependant information services, like “find a nearby restaurant”
GSM/UMTS Network (Phase 1)

- Access to people and information
- GSM/UMTS core network
- PSTN/ISDN
- Internet/intranet
- GSM radio access
- UMTS radio access
- GSM
- GSM/UMTS
- UMTS
  - Narrow band
  - Wide band
UMTS/GSM Reference Model

User equipment
- SIM
- MT

GSM BSS
- BTS
- BSC

Core network
- SCP
- MSC
- EIR
- SGSN

External network
- SMS-GMSC
- GMSC
- HLR
- AUC
- GGSN

Interconnects:
- Um
- Abis
- A
- Gb
- lu
- lub
- lur

Networks:
- UTRAN
- External network
UMTS Standardization

GSM BTS

GSM BSC

Abis

A

Iub

Lu

UMTS BTS

UMTS RNC

Core network
GSM based evolution to UMTS
-circuit switched evolution
-packet switched (GPRS) evolution

Revolution Evolution
Migration Roadmap

Core network
- MSC
- HSCSD
- GGSN
- GPRS
- Packet switched

Radio network
- GSM
- EDGE
- UTRAN
- WCDMA
- Circuit switched

1998 1999 2000 2001

Bandwidth
Service Production

Functionality

- SIM toolkit
- WAP
- Value Added Services
- Service enabling technology
- IT based services
- Applications
- Voice Mail
- IN
- GSN
- MSC
- BSS
- Server

Time
Next-generation Network Structure

Today
Single-service networks

Services

Cellular/PLMN
PSTN/ISDN
Data/IP Networks
CATV

Access Transport & Switching Networks

Future
Multi-service networks/client-server

Servers

Content
Communication applications
Control

Backbone Network

Wireless Access
Wireline Access
Cable Access

Clients/Applications

Media Gateways
Ericsson Network Architecture

Application

Connectivity backbone (STM, ATM, IP, …)

Control

Connectivity

Wireless AN

Wireline AN

MSC Server

GSN Server

HLR

SCP

SCS

Appl Servers

MGW

MGW

MGW

MGW

Internet Intranets

PSTN/ISDN/PLMN

Media Gateway, handling User Plane

Server, handling Control Plane & Applications
Features of New Architecture:

- Separation of call control and connectivity/bearer control
- Flexible architecture that is possible to use for any connectivity (ATM, IP, STM)
- Keep the N-ISDN/GSM service paradigm. Use MAP, ISUP, etc.
- All devices needed for user plane manipulation are moved to the Media Gateway (echo cancellers, codecs, etc.)
- Possible to place infrequently used equipment in centralized resource nodes
- Transmission efficient to have coded speech all the way to the rim of the PLMN
- UTRAN and the Iu interface is ATM based. A good way to bring in ATM in the core network is needed
- Allows stable and mature introduction of UMTS networks since building on GSM products
- New protocol to control media gateway remotely
- Services/applications outside core network enables service convergence
- In line with standardization trends
Backbone Network
Services/Applications Outside Core Network

Application 1  Application 2  Application n

Open I/F

Service Capability Servers

PLMN Gen 2

UMTS PLMN Gen 3

PSTN/ISDN

Other members IMT-2000 Family
UMTS Standardization Bodies for New Architecture

Connectivity Backbone NW
ATM, IP...

3GPP R00

Architecture

SS7 over IP

Sigtran

PSTN/ISDN PLMN
Internet/Intranet

ITU-T SG16

ITU-T SG11

GMSC/Transit Server

MSC Server

Control

HLR

MAP

BICC

RANAP

UTRAN

BTS

RNC

MEGACO

GCP

Media GW

Media GW

ITU-T

3GPP R00

Sigtran

Media Gateway  15

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Reference Architecture for an All IP Network

Source:
3GPP TR 23.922
V1.0.0 (1999-10)
Summary

- Ericsson offers via the layered architecture an evolutionary approach to the multi-service network
- Ericsson offers deployment of ATM & IP-based transport technologies for both UMTS and GSM/GPRS based on open standards.
- A Media Gateway product is introduced handling all user plane data in an integrated way and that connects to ATM & IP backbones
- New network architecture will be included in release 00 of 3GPP