

# Ericsson Media Gateway for Mobile Networks

M-MGw R4

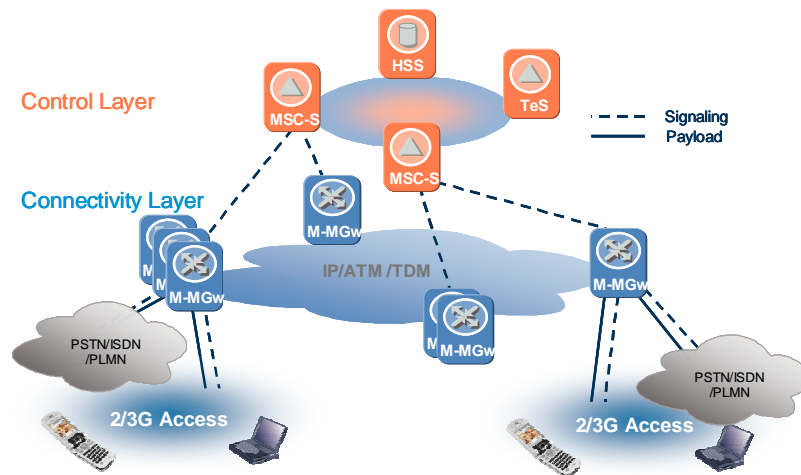


The capability to handle traffic on IP, ATM and TDM bearers makes the *Ericsson Media Gateway for Mobile Networks* a cornerstone in the Mobile Softswitch Solutions for 2G and 3G.

## Introduction

The Ericsson Media Gateway for Mobile Networks (M-MGw) is a component in the Connectivity Layer of 2G (GSM) and 3G (WCDMA) Core Networks utilizing Layered Architecture. The node makes it possible to connect the ATM/TDM/IP -based Core Network to 2G and 3G radio access networks, PSTN, and other PLMNs or external networks. The MSC Server in the Control Layer uses the H.248 -based Gateway Control Protocol (GCP) to control traffic handling in M-MGw.

The R4 release of M-MGw contains devices for media stream handling. Furthermore the node supports physical connections (e.g. optical STM-1/OC-3, electrical E1/T1 and 10BaseT/100BaseT/Gigabit Ethernet interfaces) towards ATM, TDM and IP -based networks.



## Applications

The **Media Gateway Application** provides bearer conversion, media stream handling (e.g. speech coding, echo cancellation) and circuit switched data functions. Communication with the MSC server is carried out utilizing the GCP protocol.

The **Signaling Gateway Application** contains protocol stacks for routing of SS7 messages and conversion of message bearer between different physical media.

The **ATM Cross Connect** and **AAL2 Switch** contain versatile and powerful ATM traffic handling functionality, which can be used for grooming site internal and external traffic.

The **IP Host** functionality of the node supports IP payload handling.

## Benefits

**Dual Access support:** M-MGw R4 supports simultaneous 2G and 3G radio access.

**Multiple transport technology support:** M-MGw R4 supports TDM, ATM and IP transport for payload and for signaling.

**Efficient use of resources:** M-MGw R4 resources are pooled on both node and network level. The location of M-MGw can flexibly be chosen in the core network to optimize transmission.

**Optimized Local Switching:** Location of M-MGw R4 can be selected so that transmission cost for local traffic is minimized.

**Support for transport efficiency:** M-MGw R4 supports efficient utilization of transmission in the ATM and IP backbone with the help of AAL2 switching and new speech compression features.

**Many-to-many node relation:** M-MGw R4 supports connection of up to 32 MSC servers at the same time. This makes introduction of network level redundancy simple and cost efficient.

## Hardware Platform

The Ericsson Media Gateway for Mobile Networks is based on the Ericsson Connectivity Packet Platform (CPP). The CPP architecture provides a robust platform with multiprocessor architecture and full availability. The modularity of the platform provides easy extension with new subracks.

## Element Management

The Ericsson Media Gateway for Mobile Networks Element Manager is based on standard web-based technology, and can therefore be run from a standard web browser.

The functionality is embedded in the M-MGw and the following applications are supported:

- Fault Management
- Software Management
- Equipment Management
- Configuration Management
- Performance Management

## Key Features

- Tandem Free Operation (TFO)
- Transcoder Free Operation (TrFO)
- Fax Service
- GCP Control by the MSC Server (ITU-T H.248)
- Media Stream Functionality
  - Echo Cancellation
  - Multiparty Connections
  - Tone Sending/Detection
  - Continuity Check
  - Announcement Handling
  - DTMF Sending/Detection
  - AMR2 Speech Coding for WCDMA
  - Global Text Telephony (GTT)
  - Circuit Switched Data (Modem Services and Digital Data Access)
  - High Speed Circuit Switched Data (HSCSD)
- Lawful Interception
- SS7 Signaling Gateway
  - SS7/MTP3b/NNI-SAAL/ATM
  - SS7/M3UA/SCTP/IP
  - SS7/MTP3/MTP2
  - SCCP
  - ITU-T, ANSI, TTC, MPT(China) support
- ATM Switch
  - ATM AAL2 Connection Switching
  - ATM AAL5 for O&M
  - ATM Virtual Channel Cross-Connect
- TDM/ATM/IP transport
- Element Manager

## Technical Specifications

### Cabinet dimensions (WxHxD):

Width*height*depth:	60x180x80 cm
Maximum weight:	360 kg
Building practice:	BYB501

### Power requirements:

Subrack:	-48V DC, max.800W
----------	-------------------

### Interfaces:

T1 (ATM, TDM)	1.5 Mbps
E1 (ATM, TDM)	2 Mbps
STM-1/OC-3 (ATM)	155 Mbps
STM-1/OC-3 (ATM, TDM)	155 Mbps
Ethernet	10/100 Mbit/s, Gigabit

### Redundancy principles:

Switch:	Duplicated
CPU:	Pooled
Power feed:	Duplicated
Links:	1+1 (TDM, IP) n+1 (ATM)
Synchronization:	Duplicated

### Capacity:

GCP controlled call handling:	18.000 Erlang*
Switched AAL2 traffic:	700 calls/sec
Signaling:	30.000 150-byte MSU/sec

### Environment:

#### Climate:

Meets the requirement ETSI EN 300 019-2-3 class T3.1 and T3.1E (normal/exceptional)

Temperature (normal): +5 to +40°C

Relative humidity (normal): 5 to 85 %

#### Dust:

IEC 529 IP class 20

#### Noise:

ETS 300 753 Table 1 Telecommunication equipment room (attended) class 3.1

#### Electromagnetic Compatibility (EMC):

Conforms with EU EMC directives 89/336/EEC EN 300386-2000 (2001-09 (Class B))

Telcordia GR-1089-Core Issue 3, Oct 2002

CISPR 22, 24

#### Safety:

Conforms with EU Low Voltage directives 73/23/EEC

EN/IEC 60950

ANSI/UL 1950

#### Earthquake protection:

GR-63-Core Earthquake Risk Zone 4

ETSI EN 300 019-2-3 class 3.1

IEC 60068-3-57

\*Based on Ericsson default traffic model

