Topex
everything connects

Topex SIM Manager

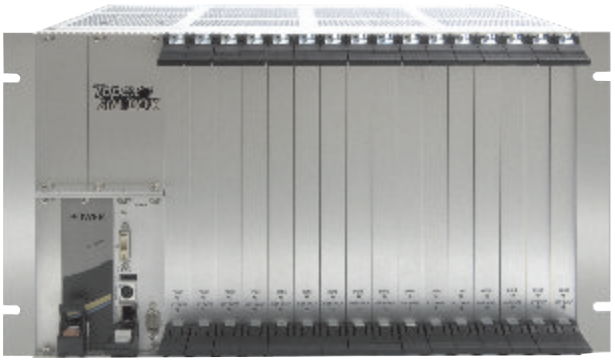
All the SIM cards used are stored and operated in a single central “SIM SERVER”

The SIM server allocates the SIM cards remotely, via an IP connection

The GSM modem has access to the remote SIM via a GSM terminal adapter/SIM emulation

Benefits

- Flexible allocation of any SIM to any Gateway at any time.
- No local SIM cards need to be installed. Still, the gateways may have SIMs for backup purposes
- Flexible SIM timing settings (selectable algorithms, either time of day based or per number of minutes used).
- Versatile space allocation of SIM cards, they can be easily assigned to any GW you want Convenient group-based SIM card management on the SIM-Server.
- Flexible SIM allocation according to tariff schemes (price plans) of the mobile carriers. This way you always get the lowest possible rates for the calls.
- Avoids expensive trips for on-site card replacement. Also, the recharging of pre-paid SIM cards is performed remotely, from the Web interface of the SIM Server.
- The optimum way to allocate any SIM to any GSM channel of any Gateway, anytime you want.
- Generates detailed log files. These files can be sent out by mail.
- Warnings and error messages (about blocked SIMs for instance) may be sent out via E-mail or SMS



SIMBOX

a. Enclosure
- 19 inch Rack, 6U height
- Compact PCI Backplane with one CPU slot and up to 16 slots for Smartcard board.
- Supports Hot swapping of Smartcard boards.
- Power Supply: input 230V/110VAC @ 47-67Hz

b. Smartcard Board
- The board is Compact PCI compliant, 32-bit at 33MHz with full Hot Swap capability.
- Compact PCI circuit board, based upon the Eurocard industry standard 6U (233.53mm X 160mm).
- Each board has holders for 32 smartcards
- Supported GSM SIM Cards (GSM 11.11)

c. Controller
- Intel CPU
- Linux OS
- Ethernet 10/100BaseT
- CompactFlash memory
- VGA, keyboard and USB ports for debugging
- Low power, no active cooling (fan) required for the controller

This CompactPCI equipment supports up to 16 Smartcard boards, and each board has holders for 32 SIM cards, thus a total of 512 Sim cards.

To ensure continuous operation, it is highly recommended that you use uninterruptible supplies (UPS) for powering the SIM Box and the SIM Server.

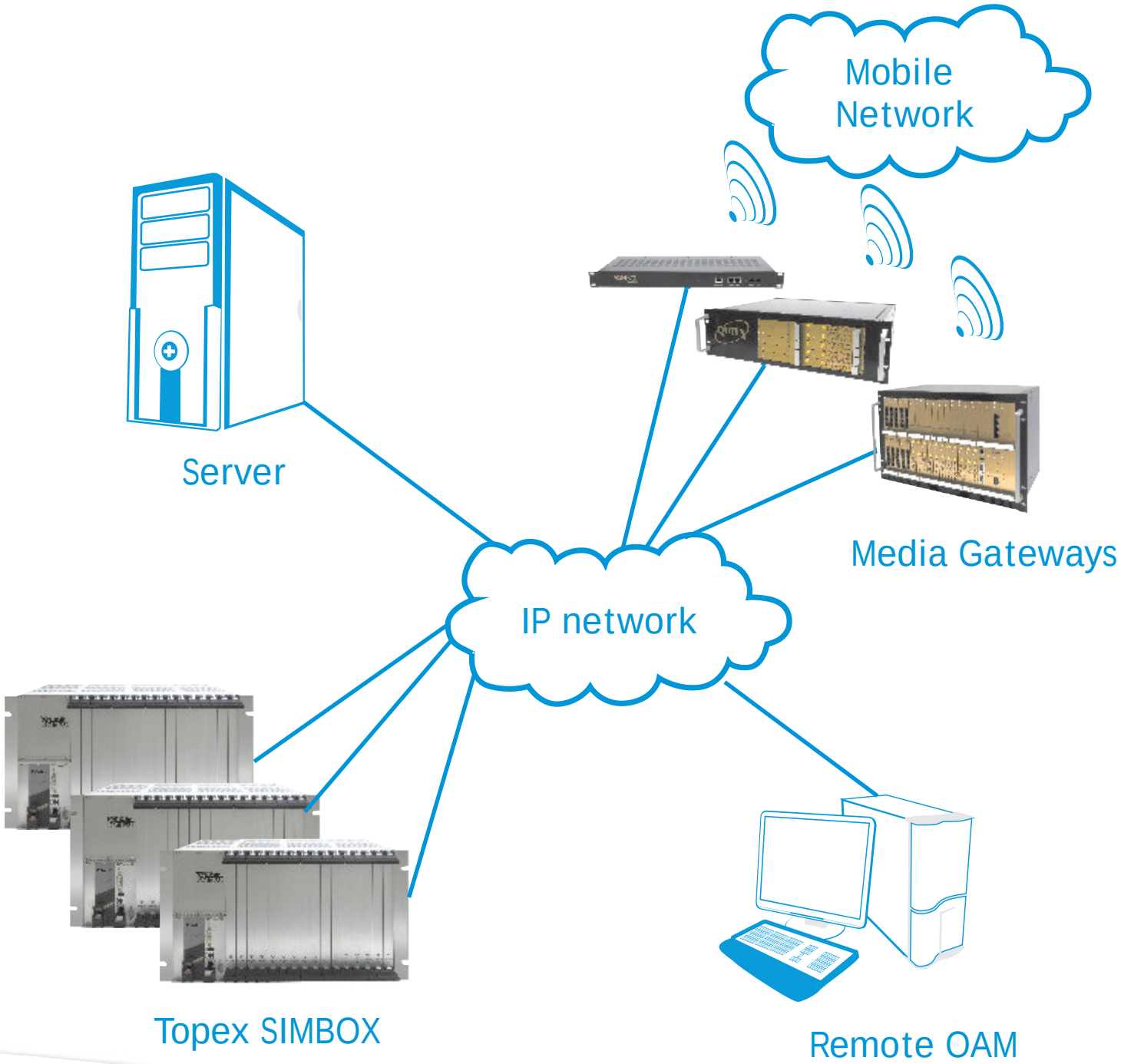
TOPEX
SIMCARD
BOARD

Structure

The Topex SIM Manager system consists of:

- one or several SIM Boxes, each with several SIM boards
- a central SIM Server, that manages all the SIM Boxes and the Gateways
- the remote gateways (multi-Access or QUTEX)

All these elements are connected via IP (the big Internet).



SIM SERVER

Linux PC

SIM card management via IP from one central location.

SIM-Server Database.

Advanced least cost routing (LCR) functions.

Management software and remote administration console via TCP/IP.

User shell for SIM-card management (selection of SIM assignment algorithm, registering and deregistering of SIM cards, monitor function, history, automatic substitution of blocked SIMs or SIMs without charge contingent, simulation of card movement, cost-balancing).

The physical movement of SIM cards is simulated by different algorithms that assigns for a specified GSM modules various SIMs, located in different places.

The SIM Server is a Linux PC that manages every SIM Box and gateway, no matter where they are located in the world. Any SIM form any SIM Box may be assigned to any GSM channel of any Topex gateway that features a SIM emulator.

For reliability purposes, the SIM Server makes use of a RAID system that always performs backups of the SIM data bases, log files and software application.

The number of SIM Boxes and GWs managed is limited only by the processing power of the PC and the bandwidth of the Internet connection (you need a thick pipe).

GATEWAYS

Each mobile module of the GW has attached a SIM emulator (hardware+software).

This way every GSM channel can be dynamically configured to use the best available tariff, at any moment of time.

The new GSM boards have the emulators embedded into them. For previous GSM subscriber cards, upgrading to SIM Server capabilities is simple enough: the processor is replaced with a small piggy-back emulation board.

The content of a SIM is sent to the emulator of the GSM module from the corresponding GW. The SIM Server uploads the file to the GW, later on the GSM modem talks to the emulator instead of a real SIM.

Features

Virtual allocation of SIMs means very high versatility and avoids expensive and time-consuming trips for on site SIM card replacement and recharging.

Central store & management

The info from all the SIM cards of all the SIM Boxes is stored and managed centrally, on the PC running the Server application. Later, the relevant info (for a group of modules, valuable for a specified time interval) may be sent to the respective gateway:

- Simultaneous remote access to the SIM cards

- Flexible SIM allocation, according to tariff plans of the mobile carriers (advanced LCR)

- Detailed billing (CDR)

- Different algorithms for SIM selection; flexible SIM timer settings (minute, hour, day)

- A very flexible allocation: at any given moment of time, any SIM may be assigned to any GW, no matter where they are in the world

- Group based SIM card management the user can define a group of mobile modules that will be assigned a group of SIM cards (a base). Any client can have one or several bases of SIM cards.

Remote administration via IP

Real time alarming system the alarms concerning blocked SIMs or other problems can be sent out via e-mail, SMS or phone. Also, when the user enters the Web based management interface, he will see warning messages.

Additional local SIM cards can be used for backup. The remote GWs currently use virtual SIMs from the server, but they are also fitted with real (local) SIM cards. In case of IP link failure, the GW carries on by using the local SIMs, until the IP connection is restored.

Remote dynamic allocation of SIM cards

Automatic SIM insertion/removal detection the boards with SIM cards are hot swappable, the program scans the SIM Box to detect the changes (insertion, removal, replacement of SIMs) and updates accordingly the data base

Flexible integration into existing GSM GW. New cards for the multiACCESS gateways include the SIM emulators. Older cards require a simple replacement: the processor is pulled out of its socket and in its place a piggy-back card is inserted. This small PCB includes not only a new processor, but also the required emulation circuits.