

# MARBEN™ CDR Collection



## THE GATEWAY BETWEEN PHONE SWITCHES AND BILLING SYSTEMS



### About Marben Products

Since the 1980's, Marben Products has been supplying portable software solutions that meet standards from the most established telecommunication standardization bodies. Marben Products is recognized as a leading provider of standards based protocol software for Service Providers, Equipment Manufacturers and Software Development Companies.

Marben Products delivers highly robust and efficient signalling, routing and AAA solutions for the network control plane of Next Generation Networks (NGN) and the service control plane of IP Multimedia Subsystem (IMS).

Telecom players such as: ADC, Adtran, Alcatel-Lucent, Amdocs, Ciena, Cisco, Ericsson, Fujitsu, HP, Motorola, Nortel, Oracle, Siemens Communications, Sprint Nextel, Tellabs, Telesciences have been trusting MARBEN™ Products for its high quality performance products, expertise and industry leading support.

Marben Products is an affiliate of NE Technologies, Inc.

An efficient solution to collect network information needed for billing, fraud detection and other applications.

### PRODUCT TARGET

CDR collection deals with retrieving the Call Detail Record (CDR) from the various switches of a fixed/mobile telephone network and passing them through to the billing system or any other downstream applications of the Telecom Operator (Telco) information system.

CDR collection interfaces the Telco back-office information system with the Telco telephone network.

CDR collection represents a strategic investment, it has to be robust and reliable.

The MARBEN™ CDR collection bridges the gap between the network of heterogeneous telephone switches and the billing system.

It interoperates with the most widely deployed kind of switches and easily adapts to interface with any billing system. Moreover, it is flexible enough to be tailored to communicate with any part of the back-office systems.

The MARBEN™ CDR collection integrates all networking aspects of CDR collection enabling billing system implementers to concentrate on activities with high added value.

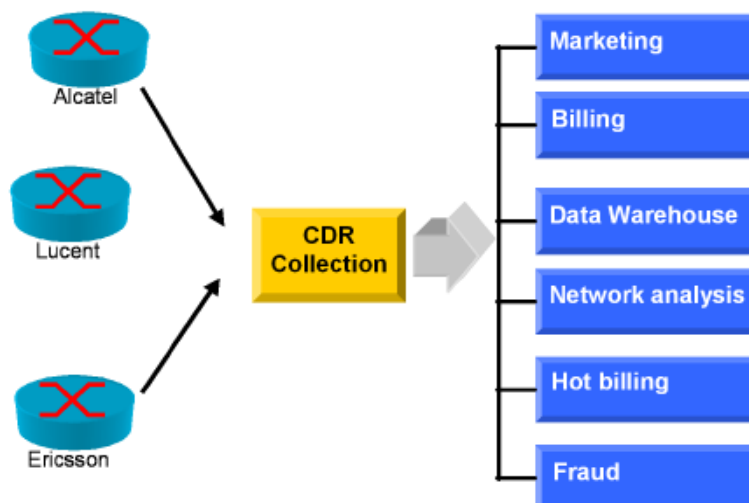


Fig 1: switches and billing

# MARBEN™ CDR Collection

The *MARBEN™* CDR collection addresses the needs of all actors in the area of CDR mediation and billing:

- Telcos and systems integrators that want to build custom mediation or billing systems
- Publishers of CDR mediation or billing software who can integrate the *MARBEN™* CDR collection in their own mediation/billing product in order to expand their connectivity capabilities.
- Telecom equipment manufacturers who can embed it in their own CDR collection/mediation offer.

## PRODUCT OUTLINE

The *MARBEN™* CDR collection is broken down into two main parts:

- The **collection services** which feature all necessary functions to perform CDR collection, namely a protocol stack (OSI Network Services) and two CDR file transfer applications: a client and a server.
- The **development toolkits** that allow building custom CDR collection applications.

## COLLECTION SERVICES

Collection services are a set of ready-to-run binaries that implement the file transfer capability. Installation and configuration of collection services are seamless, allowing collection services to be immediately operational to perform CDR file collection.

Collection services support both file transfer client and server roles. As such, they can work with switches whether the switches are initiators of the transfer (push CDR files towards billing system) or the switches are responders (wait for billing system to retrieve CDR files).

## OSI Network Services

The OSI Network Services (ONS) are the core of the collection services. They implement the FTAM and CMIP protocols over both WAN (i.e. X.25) and LAN (i.e. Ethernet and TCP/IP) networks. ONS are built from the well-known and leading *MARBEN™* OSIAM technology.

OSI Network Services act as a communication server. They allow several client applications (e.g. customer specific file transfer applications – client or server – developed with the development toolkits) to access FTAM and CMISE services at the same time.

## Key Benefits

- ✓ Encapsulation of networking complexity
- ✓ LAN (Ethernet and TCP/IP) and WAN (X.25) connectivity
- ✓ Easy GUI configuration
- ✓ Transfer scheduler for automatic file transfer
- ✓ Qualified against all the most widely used telephone switch
- ✓ FTAM implementations
- ✓ Run on low cost hardware
- ✓ Ready-to-use end-user application for retrieving CDR files
- ✓ Ready-to-use daemon for receiving CDR files
- ✓ Real-time (hot) billing capabilities
- ✓ Support of both FTAM and CMIP to permit various CDR collection policies
- ✓ High performance FTAM and CMIP implementation
- ✓ High level flexible file transfer API with tutorial for quick development of custom CDR collection applications

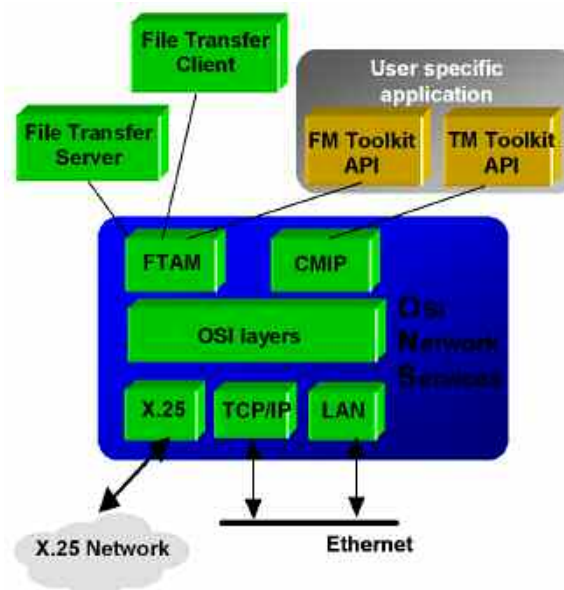


Fig 2: *MARBEN™* CDR Collection architecture

# MARBEN™ CDR Collection

The FTAM implementation has been adapted and qualified to work with most widely used telephone switches.

It supports the full set of FTAM protocol features, in particular transfer interrupt and recovery.

The CMISE implementation embedded in the communication server supports both Agent and Manager roles. The CMISE service allows implementing fine grain CDR file transfer control when used in conjunction with FTAM. CMISE can also be used for real-time billing when switches have such ability.

## File Transfer Client

The file transfer client (*FTclient*) is the end-user application of OSI Network Services that provides an FTP-like interface to users wishing to interact with FTAM file transfer servers. The *FTclient* offers the following services:

### File transfer

The file transfer service enables a user to open/close a connection to a server, and transfer files to/from the server. The services are invoked through the same commands as in FTP.

### File management

The file management service enables a user to create, delete or rename remote files as well as read remote file attributes.

### Transfer recovery

*FTclient* allows the end-user to fully benefit from FTAM protocol ability to recover interrupted transfers. This is particularly useful for dealing with communication failure that may occur during the transfer of big CDR files.

### Host database

This feature completely hides the complexity of OSI addressing. The host database associates OSI addressing information with logical names. Remote servers are declared once in the database and subsequently designated with their logical names.

## File Transfer Server

The file transfer server (*FTserver*) is an OSI Network Services application, which serves FTAM requests coming from remote hosts. The *FTserver* suits configurations where switches push the CDR files downward to billing systems.

*FTserver* requires very little setup. *FTserver* is an autonomous ready-to-run daemon, capable of handling multiple FTAM incoming connections.

## DEVELOPMENT TOOLKITS

The File Management toolkit (FM toolkit) contains two APIs: the File transfer API to develop client side applications, and the File transfer server API to build server side applications.

## File Transfer API

The File transfer API (FT API) is aimed at building specific CDR file retrieval applications. It allows for custom integration of CDR collection into the back office system.

The *MARBEN™* CDR collection FT API is a high level API that completely hides the complexity of the FTAM and requires a minimum knowledge of the FTAM protocol. The FT API makes accessible the development of application relying on FTAM to a wide range of developers and considerably reduces development time.

The API gives access to all FTAM services required to build a complete FTAM initiator:

- Connect/disconnect to a remote FTAM server,
- Send or retrieve a file by specifying the local and remote file names,
- Interrupt the current file transfer,
- Recover an interrupted file transfer,
- Create, delete, rename or read the attributes of a file,
- Get a directory listing.

## Conformance

- ISO 8571  
FTAM Protocol
- ISO 9595, 9596  
CMIP protocol
- ISO 8823  
Presentation protocol
- ISO 8650  
Association Control Service Element (ACSE)
- ISO 9072  
Remote Operation Service Element (ROSE)
- ISO 8327  
Session protocol
- ISO 8073  
Transport protocol over CONS RFC 1006  
Transport protocol over TCP/IP
- ISO 8602  
Transport protocol over CLNS
- ISO 8878  
Connection Oriented Network Protocol (CONP)
- ISO 8473  
Connectionless Network Protocol (CLNP)
- ISO 8473 add1  
SND CF X.25/CLNP
- ISO 9542  
ES to IS Protocol

## System Requirements

- Operating systems  
Windows XP and 2003 server,  
RedHat Linux EL 4.0, HP-UX 11i
- Network interface  
S9x series Eicon X.25 cards,  
built-in Ethernet
- Telephone switches  
Alcatel E10, Ericsson AXE 10,  
Lucent PRXA & 5ESS, Siemens  
EWSD

The FT API is fully reentrant and synchronous, which simplifies the architecture and the development of multi-threaded applications.

## File Transfer server API

The file transfer server API is aimed at customizing the behavior of FTAM file transfer server. This is a callback API that gives control over:

- The policies for acceptance or rejection of specific FTAM events such as new incoming connection, file creation, file deletion and transfer recovery.
- Collection of detailed file transfers statistics.

Just like the FT API, this API is lightweight and requires very little FTAM knowledge.

## TM Toolkit

The Telecom Management toolkit (TM toolkit) exposes the CMISE service as it is described in the OSI standard with an extension that ease the implementation of CMISE applications: automatic association management.

The automatic association management feature relieves the applications using CMISE service from the burden of association establishment, monitoring and release for sending or receiving CMISE events or operations. Associations are opened and released when needed.

The CMISE interface requires a good knowledge of OSI and ASN.1.

## Transfer Task Scheduler

In addition to the toolkits, a transfer task scheduler is provided. With this transfer task scheduler it is possible to run the transfer tasks developed with the toolkits automatically for collecting

CDR from the various switches of the telephone network. The transfer task scheduler allows:

- Defining and storing the addressing parameters for the switches from which data has to be collected.
- Scheduling CDR collection tasks on a per switch basis.
- Starting and stopping transfer tasks.

- Performing any type of CDR collection task as developed with the toolkits.
- Having detailed log of all transfers that took place.

The transfer scheduler has a graphical user interface that makes switch and transfer task configuration and management very easy.

## PRODUCT REFERENCES

- **Alcatel**, switch manufacturer
- **Amdocs**, CDR mediation and billing products
- **Comptel**, CDR mediation software editor
- **KPN**, Dutch national telecom operator
- **EppixComm**, CDR mediation and billing products
- **Siemens Communication Network Ltd Beijing**, switch manufacturer
- **Sprint**, US telecom operator
- **T-Mobile Hungary**, Telecom operator

## CONTACTS

Marben Products  
176, rue Jean Jaures  
92800 Puteaux  
France  
Phone: +33 1 79 62 10 18  
Fax: +33 1 79 62 10 01

Sales information :  
sales@marben-products.com  
www.marben-products.com