

# MIND-M.E.I.P.S

## Solution Overview

**MIND-M.E.I.P.S<sup>®</sup> for Cisco  
Call Manager and Cisco  
GW/Routers**

## Introduction

### The Need for Enterprise Billing and Accounting in an IP Environment

IP telephony is quickly transforming corporate telecommunications. Traditional circuit-switched PBXs are being rapidly replaced by IP PBXs to allow enterprises to cut telecommunications costs by using IP infrastructure.

The IP PBX enables enterprises to transmit calls over an IP network to other branch offices or to remote gateways. By doing this, enterprises can completely bypass the telephone company or benefit from local charges even in long distance calls.

The substantial decrease in telephone rates in recent years, affected by both IP telecommunication and the general decrease in long distance rates, may lead some to question the need for enterprise call accounting in an IP environment. The intention of this document is to point out the significant benefits of call accounting in billing for enterprises operating in an IP world.

These benefits include:

- ⇒ IP Telephony traffic analysis and management
- ⇒ Effective cost allocation
- ⇒ Improved employee productivity
- ⇒ Fraud Detection

### M.E.I.P.S – Enterprise IP Management Solution for IP PBX

In today's communication arena, there is rapid movement towards convergent networks supporting voice, video and integrated data.

Customers are looking for advanced systems to manage multi-service networks. When converging voice and data on one network, M.E.I.P.S<sup>®</sup>, from MIND, is the perfect tool to accompany an IP switch. M.E.I.P.S is a voice and IP services accounting and traffic-analysis solution suitable for any size organization.

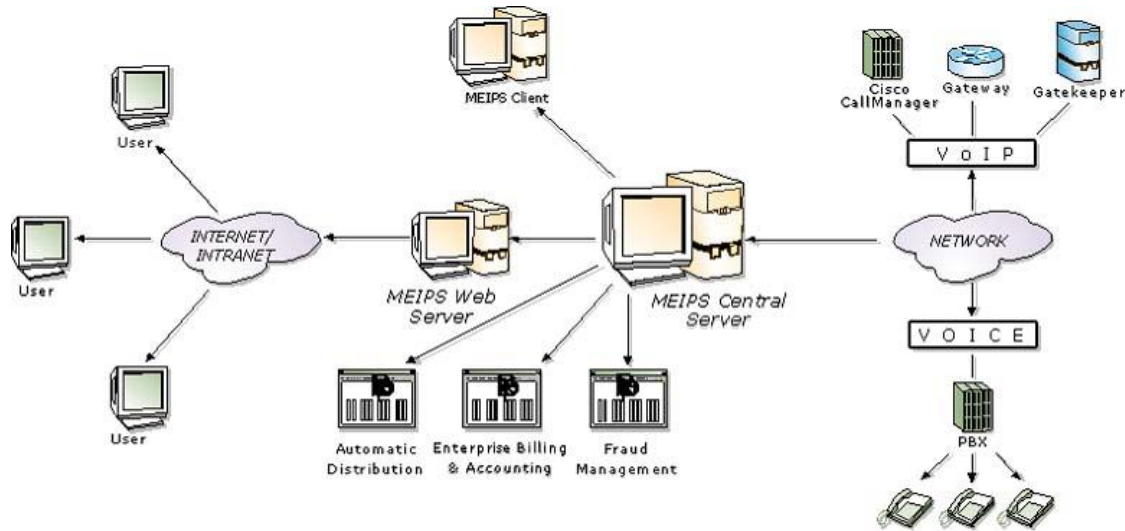
MIND offers customers the M.E.I.P.S-Enterprise IP Management solution for use with an IP PBX. As IP PBX's call processing platform keeps track of all IP generated phone calls, the call detail records are seamlessly integrated in the M.E.I.P.S which collects and tracks the data from combinations of traditional voice circuits and VoIP networks.

M.E.I.P.S collects, records, and stores all call information in a database. Users are able to generate up-to-the-minute reports on their organization's telephone use, allowing them to manage their telecom resources effectively.

From the moment that M.E.IP.S is installed, organizations can reduce telephone expenses, prevent telephone misuse, and ensure that their IP network resources are managed efficiently.

### M.E.IP.S Network Architecture for Cisco AVVID

M.E.IP.S enables converged reporting and billing for voice, VoIP and data. M.E.IP.S collects data from different communication devices including the Cisco CallManager, Cisco NetFlow collector and different GW/Routers.



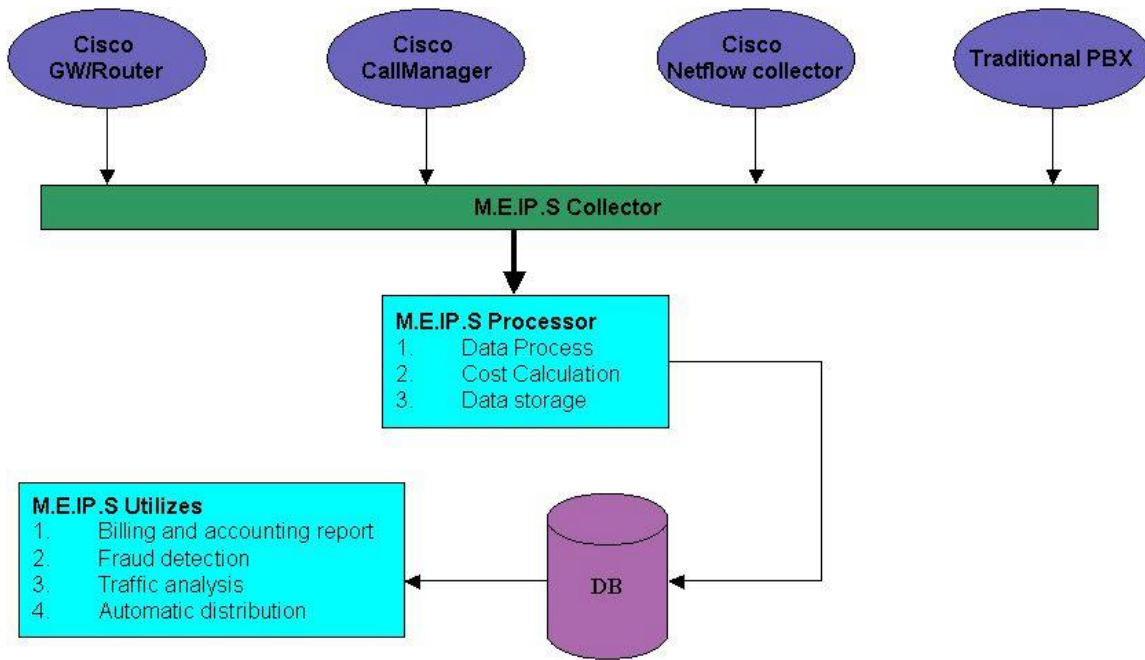
**M.E.IP.S Network Architecture for Cisco AVVID**

### Integration and Data Collection

M.E.IP.S is easily integrated with the Cisco CallManager ICS and MCS platforms, Cisco NetFlow collector, Cisco GW/Routers with syslog messages using UDP protocol, and traditional PBXs. The exclusive system architecture allows for fast and easy installation.

The following flow chart illustrates M.E.IP.S' data collection and processing:

- ⇒ The data is collected from various sources.
- ⇒ The data is processed, and a cost is assigned to each event.
- ⇒ The cost and the data are stored in the Database.
- ⇒ The information in the database is used to generate accounting and billing reports and/or graphs, analyze the traffic, detect fraud usage and automatically distribute the report in several formats



**M.E.IP.S Data Collection Flow**

### M.E.IP.S and Cisco CallManager Integration

The M.E.IP.S application reads CDRs directly from the CallDetailRecord and CallDetailRecordDiagnostic tables. At first database connection M.E.IP.S gives an option to read all current database records, or to delete all records and to import only new ones.

**Note: Importing all Call Records can take long time and affect system's resources.**

M.E.IP.S uses the "dateTimeOrigination" field as a database index and imports records from the minimum time index up to a predefined time interval record as one chunk – after import is successful the imported records are deleted from CallDetailRecord and CallDetailRecordDiagnostic tables and the minimum time index is updated. The "dateTimeOrigination" field is being used as a "record number" field to each entry for bookkeeping, enabling the M.E.IP.S application to avoid duplicate record collection.

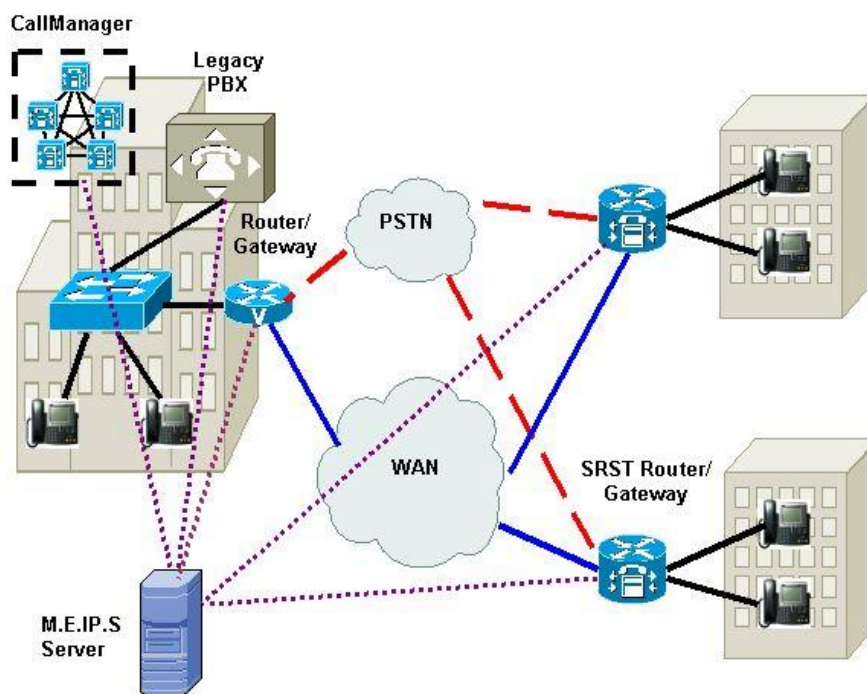
The ImportDB application arises every X second(s) as defined in its configuration. The application retrieves every Y number of minutes as the delta time for the "dateTimeOrigination" field and imports records in this time frame from the CallDetailRecord and CallDetailRecordDiagnostic tables, appends it to the Data.dat file of M.E.IP.S and deletes all imported records.

The cycle frequency X is defined in the configuration of the ImportDB, according to the number of seconds that occur between two sessions. The Y parameter is defined in the configuration as well (for example, 10 minutes in one session).

## Cisco GW/Routers Data Collection

As enterprises network growth with other network elements the need for billing / accounting of these elements also grows together with the need to provide statistics to the network traffic.

MIND's M.E.IP.S provides the ability of CDRs collection from Cisco CallManager and all Cisco SRST GW/Routers using syslog messages, using one centralized multi-site environment. The MIND - M.E.IP.S Network Receiver provides online CDR collection and aggregation of IP traffic from different network elements, utilizing different protocols such as TCP/IP and UDP. For other oriented collections, the MIND- M.E.IP.S uses the File Transfer Protocol .



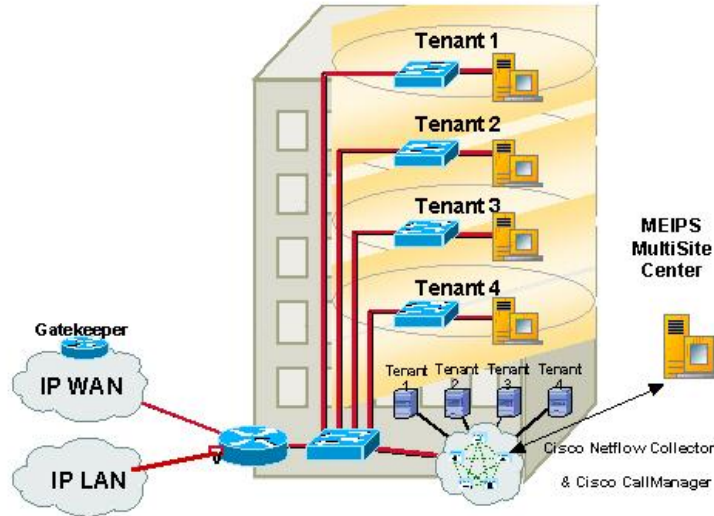
**M.E.IP.S Server Data Collection**

## Data Collection

A communication infrastructure is comprised of several network elements such as traditional PBXs, Cisco CallManager, and Cisco GW/routers. These network elements create information in different formats that is either kept locally or sent via different protocols to external systems. MIND - M.E.IP.S utilizes the syslog messages protocol to collect voice data from Cisco GW/Routers, ODBC connection to collect voice data from the Cisco CallManager and serial RS232 Cable to collect data from traditional PBXs. MIND-M.E.IP.S enables voice data collection using TCP/IP, FTP and modem connection to collect the data a from remote PBXs / buffers that support these methods.

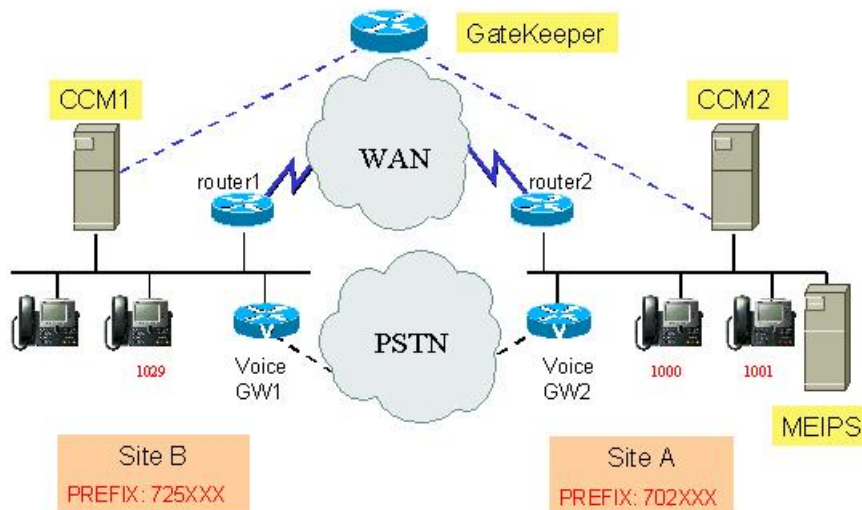
### M.E.I.P.S for Cisco's Multi-Tenant-Unit Business Model

Together with the Cisco CallManager, the M.E.I.P.S solution allows a service provider to perform billing and accounting for all voice traffic of the various tenants in a single-site multi-tenant building/campus complex.



Single Site Multi-Tenant Deployment with Billing Application

### M.E.I.P.S & Cisco CallManager Multi-Site Network Architecture



M.E.I.P.S & Cisco CallManager Multi-Site Network Architecture

### **ODBC Description:**

The ODBC defines the connection to the MS-SQL server of the Cisco CallManager. The ODBC connection should use the User Name and Password of the CallManager rights as described on the M.E.IP.S Installation Guide and on the CallManager notes.

### **DB Size Consideration:**

The DB size from MIND should not be considered for general operations. In the first loading of M.E.IP.S, the DB should have enough free space for supplication of CallDetailRecord.

### **Consideration in the System Configuration**

Systems with a lot of traffic (20 or more calls per second) should use a short time interval – less than ½ minute. Systems with medium traffic (3~20 calls per second) should have a time interval of 1-2 minute(s). Systems with very low traffic (0~3 calls per second) could have a time interval of 5-10 minutes.

Considering in a system installation with a huge DB as CDR table, according to our previous experience, 4 Million Records take about 5 minutes to retrieve.

### **High Level Description**

PimportDB.exe – the M.E.IP.S Import database application, which retrieves the CDR from the CCM MS-SQL, database to the M.E.IP.S file.

MEIPS.exe – M.E.IP.S Manager execution – An application, which manages M.E.IP.S reports, queries, tariff explorer, etc.

MipAdmin.exe – M.E.IP.S ADMIN execution – An application, which manages the setup information of M.E.IP.S such as PBX information, users, trunks, extensions, etc.

Traffic.exe – M.E.IP.S ADMIN execution – An application, which manages the setup information of M.E.IP.S such as PBX information, users, trunks, extensions, etc.

NetworkReceiver.exe – M.E.IP.S CDR collector using TCP/IP and UDP protocols, which listens to the specific port and knows to split the CDRs to the right site according to the originating IP address.

Processor.exe – M.E.IP.S Processor execution – An application, which parses the originated CDR into the SQL database, and rates the call.

## Hardware Overview

The Server is the heart of the system. The Server's contributions to the system are:

- ⇒ Communications to and from the IP CallManager
- ⇒ Storage device for data
- ⇒ Processing unit for the collected data
- ⇒ Report generator
- ⇒ Displays results

**The minimum configuration is:**

### Operating Systems

M.E.I.P.S. works under the following operating systems:

- ⇒ Windows 98/ME/XP.
- ⇒ Windows NT Server/WS.
- ⇒ Windows 2K Professional/Server.

### Minimum Requirements

#### Multi-user Configuration

##### Server Hardware

- ⇒ Pentium III processor or higher.
- ⇒ Network connection with Microsoft or Novell network with TCP/IP protocol.
- ⇒ RAM: 128 MB.
- ⇒ Parallel port.
- ⇒ 1Gb of disk space.
- ⇒ Additional disk space for call records database (each call record is about 600 bytes).

MIND has a proven record in Call Accounting solutions since 1995 and was one of the first providers of IP telephony billing and call accounting solutions. MIND is recognized as a world leader in this field. To address customers' changing needs, MIND develops and delivers advanced solutions that enable enterprises to manage, control, track, and analyze raw data from a variety of communication sources.

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