Welcome to ScopServ

Presentation of the ScopTEL offer

1. ScopServ – The Company

ScopServ is a Canadian firm founded in 2004, specializing in information technology.

It designs high-end corporate applications and holds the intellectual property rights for its products and solutions.

A strong actor in the open source VoIP market

As soon as the first commercial applications for the Open Source Asterisk project were developed, ScopServ ambitiously set out to develop the missing pieces from this IP PBX. We started off by building a complete management interface.

Since that time, ScopServ has invested a very large portion of its revenue in Research & Development, with two major objectives:

☐ To continue integrating all of the many functions that the Asterisk project makes available
☐ To provide constantly evolving, functional interfaces for its clients and increase flexibility

The ScopServ development teams include engineers who belong to the community working on Asterisk programming.

The ScopServ advantage

☐ Today, ScopServ is the sole developer to propose an Asterisk management and supervision interface that covers all of the functional modules proposed by the IP PBX.
☐ A company on a human scale, with teams that are highly experienced in Linux, IP and, above all, Asterisk, ScopServ offers incomparable responsiveness when offering new functions or integrating specific modules.
☐ The economic model proposed by ScopServ in the acquisition of its solutions is also one of its strengths: simple licensing that is financially very aggressive.

The ScopServ offer

The ScopServ offer is simple, yet very complete:

ScopTEL: Complete software distribution that can be installed on any physical server on the market or any VMware virtual machine, available in four versions:

☐ ScopTEL PBX: The most common version, it includes the entire application suite and all functions and is intended for user companies and organizations.

☐ ScopTEL PBX Lite: Intended for microbusinesses and SMEs, this version:
  o Is limited to a finite number of users
  o Does not include the Multi-Tenant option mode
  o Does not include certain functions

☐ ScopTEL ITSP: This is the same as the ScopTEL PBX version, but it can be marketed in SaaS mode, for Cloud-type use. The licensing mode is different than that for the two previous versions.

☐ ScopTEL Gateway: This is also a light version of ScopTEL PBX, in that it does not propose any user licence since it is used as an application gateway to complete a function that is missing from an existing telephone installation (e.g. conference bridge server, fax server, etc.).

2. ScopTEL PBX – Functions

In addition to the basic PBX functions, ScopTEL provides an immense number of features, representing a very vast vocal application ecosystem.

As indicated above, the economic model retained by ScopServ includes all of the functions included in ScopTEL for each user licence purchased. In this way, the models, functions and applications presented below are available for anyone using a ScopTEL PBX solution.

Support for market standards

Most technological standards are inherently supported by ScopTEL, including:

IP communication protocols:

- ☐ SIP (Session Initiation Protocol, Client/Server/Gateway)
- ☐ H.323 (Client/Gateway)
- ☐ MGCP (Media Gateway Control Protocol)
- ☐ SCCP (CISCO Skinny)
- ☐ Google Talk
- ☐ Jingle/XMPP (Collaboration)
- ☐ IAX (Inter Asterisk eXchange)

Codecs:

- ☐ G.711 (alaw and ulaw)
- ☐ G.722
- ☐ G.722.1 (subject to Polycom® licensing)
- ☐ G.722.1 Appendix C (subject to Polycom® licensing)
- ☐ G.723.1 (Pass Through)
- ☐ G.726 (subject to licensing or hardware support)
- ☐ G.729a (subject to licensing or hardware support)
- ☐ ADPCM
- ☐ GSM
- ☐ iLBC
- ☐ LPC10
- ☐ Speex
- ☐ SILK
- ☐ CELT (Pass Through)
- ☐ H.261 video

- ☐ H.263 video
- ☐ H.263+ video
- ☐ H.264 video

TDM interoperability:

- ☐ E&M
- ☐ E&M Wink
- ☐ Feature Group D
- ☐ FXS
- ☐ FXO
- ☐ GR-303
- ☐ Loopstart
- ☐ Groundstart
- ☐ Kewlstart
- ☐ Support MF and DTMF
- ☐ MFC-R2

Digital protocols:

- ☐ AT&T 4ESS
- ☐ EuroISDN PRI & BRI
- ☐ Lucent 5ESS
- ☐ National ISDN 1
- ☐ National ISDN 2
- ☐ NFAS
- ☐ Nortel DMS100
- ☐ Q.SIG

Telephone functions

- ☐ Incoming/outgoing, internal/external calls
- ☐ Restrictions (service classes)
- ☐ Multi-format corporate directories
- ☐ Call by name
- ☐ Call forwarding:
    - o Unconditional
    - o No answer
    - o Busy
    - o DND (Do Not Disturb)
- ☐ Limitation of the number of simultaneous calls per bundle/type of bundle
- ☐ Push2Phone (send information to extensions)
- ☐ Direct access to services (Voice messaging, Conference, Listening, etc.)

- ☐ Consultation of calls on hold
- ☐ Leaving voice messages on transferred extension
- ☐ Distinctive tones/rings based on the nature of a call (internal, external, intercom, ACD, Hotdesk, etc.)
- ☐ Internal/external double call
- ☐ Extension grouping
- ☐ Monitoring/interception
- ☐ General/targeted call interception
- ☐ Listening/intervention
- ☐ Multiple call-back list
- ☐ List of unanswered calls (internal/external)
- ☐ Camp-on for busy extension/line
- ☐ Call hold
- ☐ DND (Do Not Disturb)
- ☐ Speed Dials
- ☐ Protection against multiple calls
- ☐ Appointment reminder
- ☐ Last call return
- ☐ Multiple forwarding destinations (extension, external number, group, operator, voice messaging, personal IVR, etc.)
- ☐ Substitution
- ☐ Supernumbering
- ☐ Blind transfer to voice messaging
- ☐ Transfer during a conversation, free/busy extension
- ☐ Hotdesking
- ☐ Personal/supervision MWI (Message Waiting Indicator)
- ☐ Multi-level Follow-Me
- ☐ Personal (user-based) IVR
- ☐ Fax detection
- ☐ Unified voice messaging
- ☐ Off-site notification of voice messages
- ☐ Multi-language voice guides
- ☐ CallerID hide/display
- ☐ Calendar matching (Exchange, iCal, CalDAV)
- ☐ Instant messaging (presence management, chat, office sharing, etc.)
- ☐ Video calls
- ☐ …

Extended telephone functions / applications / administration

☐ Multi-Tenant

ScopTEL offers a Multi-Tenant mode on a single server. The number of companies is not limited. This mode serves specifically to share operator resources for several clients, while preserving a significant degree of segmentation.
It is possible for each declared tenant to define:

- The maximum number of simultaneous incoming calls
- The maximum number of simultaneous outgoing calls
- A maximum number of simultaneous incoming/outgoing calls
- A maximum number of extensions (users)
- A maximum number of incoming lines
- A language, which will define the default vocal guides: French, English and Spanish)
- Codes for the functions specific to each tenant

This feature is specifically suitable for large businesses with branch organizations, or for Cloud use, for telephone service operators.

☐ Schedule management

Schedule management allows for the differential treatment of calls based on dates and times. Since the number of calendar elements is unlimited, it is possible to develop a finely tuned call handling policy.

☐ Class of Service

Class of Services objects serve to assign access rights to:

- Telephone functions (forwarding, interception, transfers, recording, listening, etc.)
- Applications (conference rooms, IVR, personalized scripts, etc.)
- Local extensions
- Outgoing lines (bundles)

A Class Of Service assigned to each object limits the range of use based on the access policies defined by the administrator.

Class Of Service objects are based on a heritage principle, thereby simplifying the writing of access rules.

☐ Supervision of resources

The ScopTEL server proposes supervisory services with event trigger notifications for various resources.

The supervision covers:

- VoIP trunks
- Extensions
- ACD queue

The following actions are possible:

- Save the event in an SQL table
- Send a notification email
- Send a notification SMS
- Send an SNMP trap
- Execute an external script

For extensions and VoIP trunks, the triggers can be applied to:

- State (up or down)
- Qualification time (threshold definition)

For the ACD queues, the triggers can be applied to:

- Wait times (threshold defined per queue or per caller)
- Number of callers waiting (quantity)

☐ LDAP synchronization

ScopTEL can be used to implement extension synchronization with an LDAP database (Active Directory, for example). This serves to reduce redundancies and preserve a single internal directory.

The following types of information can be synchronized:

- Extension number (internal extension number)
- Complete name
- Extension model
- Service class
- User name
- Password

- Voice messaging PIN
- Password for accessing the ScopSTATS interface

This synchronization can be triggered automatically or manually. It is, however, one-way (from the LDAP directory to ScopTEL).

☐ Trunk watchdog

In order to ensure a flawless outgoing call service, ScopTEL continually monitors the operator trunks so as to check availability. If one of them becomes unable to satisfy the expected quality criteria, it is temporarily de-activated, allowing another trunk (with a lower priority) to manage the outgoing calls.

Combined with the resource supervisor function, this allows the administrator to perform maintenance tasks so as to re-establish nominal service as quickly as possible, in a manner that is completely transparent for the users.

☐ Automatic Provisioning System and deployment of firmware

The deployment of extensions can be one of the most time-consuming phases in the implementation of a VoIP solution.

In order to optimize extension deployment, ScopTEL includes a multi-vendor and multi-model Automatic Provisioning System.

At the time of writing this document, no fewer than 97 different SIP extension models (fixed telephone lines, conference, DECT and Wi-Fi) can be provisioned through the ScopTEL management interface. These models are provided by the following manufacturers:

- Aastra
- AudioCodes
- Cisco
- Digium
- Counterpath
- Grandstream
- Linksys/Sipura
- Panasonic
- Polycom
- ScopServ
- Snom
- V-Tech
- Yealink

ScopTEL adapts to the manufacturers' definitions in their auto-provisioning modes and develops the expected configuration templates for the terminals.

Each extension can be configured to cover:

- Network configuration (fixed DHCP/IP, DNS, NTP, VLAN, integrated switch, etc.)
- SIP configuration (accounts, codecs)
- Directories
- Programmable keys
- …

ScopTEL can also be used to manage the deployment of new firmware developed by the manufacturers.

The list of manufacturers and terminal models supported by the ScopTEL Automatic Provisioning System continues to grow, as major projects are completed.

☐ Directories

ScopTEL can handle multiple directories with varied technologies:

- Internal: including, for example, the list of IP PBX users
- External: they can be used, for example, to query the company's information system in order to call up the names of the calling clients on each user's terminal.
  The formats supported include:
  - ○ Flat files
  - ○ MySQL databases
  - ○ LDAP directories
  - ○ XAPI Web Services (ScopServ API)

These directories can be consulted by calling the "Company Directory" service. By calling an IVR path, the caller can then enter the first three letters of the name to search the directory and proceed with a vocal reading of the entries that correspond to the criteria entered.

It is also possible to consolidate the various directories by establishing a meta-directory that includes all of the entries in the single directories.

☐ Music On Hold

The hold music is presented in various formats:

- mp3 files
- wav files
- Streaming (shoutcast/slimserver)

Once declared, these formats can be used for:

- Hold music (call hold/ACD queue)
- Prior to answer
- Application
- IVR

They can be read:

- In a synchronous or asynchronous manner
- At random or in an orderly manner, if several files are present in a single directory

The number is limited only by the disk space they occupy on the server assigned to ScopTEL.

☐ Unified voice messaging

Each user declared on a ScopTEL server can have a voice mail system. The user can configure the following parameters in their voice mail system:

- Password (right subject to the administrator's authorization)
- Vocal recording of name
- Unavailability notification
- Busy notification
- Temporary notification

Using the web interface or his telephone keypad, the user can configure the forwarding of calls to their voice mail system as follows:

- Immediate and unconditional
- By busy status or state
- No answer
- By unavailable status or state
- By transfer
- By DND (Do Not Disturb) status or state

The parameters for the forwarding rules can be different for internal and external calls.

The administrator can also set the parameters for the following general options:

- Force the recording of the name
- Force the recording of notifications
- Maximum number of messages per voice mail system
- Automatic purge of messages exceeding a configurable limit
- Voice message format (uncompressed wav, compressed wav, gsm)
- Maximum message length
- Minimum message length
- Temporary greeting length

- IMAP coupling parameters for the synchronization of voice mail systems `<->` Messaging server

As well as parameters which are specific to each extension:

- Password locking
- Off-site notification by:
    - External call
    - Pager
    - Email
    - SMS
- Ability to leave messages in several voice mail boxes
- Notification of the arrival of a message by email, with or without the message as an attachment (wav format)
- Activation of the message waiting indicator (MWI) on the extension
- Monitoring of other voice mail boxes, local or remote (ScopTEL remote server)
- Destination when the caller presses ***** when entering the voice mail system:
    - Voice messaging manager
    - Busy tone
    - Application
    - Extension(s)
    - IVR
    - Personal IVR for the extension
- Activate personal target attendant if the caller dials "**0**" during a voicemail greeting
- Authorize the caller to listen to or re-record a message before saving it
- Activate the reading of the caller's number prior to the message
- Reading of the message envelope before the message
- Reading of the length of the message before the message
- Authorize numbering from the voice mail system
- Authorize the recording of new messages
- Authorize call back from the voice mail system

☐ HotDesking

The principle of HotDesking allows a user to assimilate a telephone terminal simply by logging into it. The terminal will then receive the calls intended for the user who is logged. Moreover, the calls made by that user will be presented with the logged user's identity and Class of Service privileges.

It is possible to link a schedule to each Hotdesk extension so as to limit the period during which the telephone service is used.

A HotDesk User can login to an extension with their HotDesk credentials:

- By dialling the function code configured by the administrator on the telephone keypad (e.g. *22)
- From the ScopSTATS web interface

NB: Two ScopTEL licences are required for each extension that uses Hotdesking.

☐ Follow-Me

Follow-Me is a function that allows each user to configure the parameters for a series of actions (up to 10) for each incoming call, so that the callers will receive the desired response. The most common use involves programming a series of successive call forwarding actions until one of them results in a pick-up.

Once the series of actions has been configured, the user uses their ScopSTATS interface to declare their "Follow-Me" scenario as the forwarding destination (immediate, no answer, busy tone, DND, etc.). The procedure will continue until one of the actions is completed.

The configurable actions include:

- Application
- IVR
- Busy tone
- Request for call back
- Extension(s) and/or External number
- Voice messaging
- Queue
- Hang up

☐ Personal IVR

It is possible to give each user declared in ScopTEL access to a personal Interactive Voice Response (1 level), which can be configured by the user. This personal IVR can then be used as a call forwarding destination programmed by the user.

With this function, the user can set the parameters for:

- Their notification message (password protected)
- 13 destinations corresponding to the keys entered by the caller:
  - Keys 0 to 9
  - Keys # and *
  - Timeout

The destinations that can be assigned to the keys include:

- Application
- Voice messaging

- Request for call back
- Call to Extension(s) and/or External number
- Call parking and Notification
- Queue
- Repeat the notification
- Company directory

☐ Personal ACD

In a manner similar to the Personal IVR, each user can also have a Personal ACD on their extension.

In this case, the idea is not to manage a queue for the "intelligent" distribution of calls. In fact, the only "agent" of this personal ACD is the extension itself. It is a matter of proposing statistics associated with the extension.

Two principal parameters can be used to configure the Personal ACD, namely:

→ Wait time (in seconds)
→ The fallback destination (after the wait time). The possible destinations are:
   o Application
   o IVR
   o Busy tone
   o Request for call-back
   o Personalized script
   o Extension(s) and/or External number
   o Personal ACD (operating as a loop)
   o Play one or more messages
   o ACD queue
   o Voice messaging

☐ Camp-On

The Camp-On function provides intelligent management of the time a caller waits on a busy user extension or without a response.

 The following scenario illustrates this function:

→ Peter calls Paul (internal user).
→ Paul does not answer or is unavailable. He has programmed call forwarding on his Camp-On. He has configured this call forwarding as follows:
   o He uses the notification service to record this message: "Hello. I am temporarily unavailable. You can leave a message in my voice mail system to have me call you back by pressing one; otherwise, please hold for a short while."

- o He configured the action "Press 1" with "Voice messaging" as the destination and "nothing entered" with "Retry call" as the destination, with a maximum of three attempts.
  - o He also selected hold music from the selections proposed.
- → Paul's voice notification is played for Peter.
- → Peter decides to wait and listen to Music On Hold. At the end of the wait period configured by Paul, a new attempt is made to place the call to Paul's extension. If Paul still cannot be reached, two new waiting periods and call attempts will be made.

Note:

- The proposed actions can be assigned to the following keys: 0 to 9, # and *
- Possible actions include:
  - Retry call (number of attempts can be configured)
  - o Voice messaging
  - o Return to sender (based on the hypothesis that the call has been transferred)
  - o Hang up

☐ FMC (Fixed/Mobile Convergence) transfer

FMC transfer is a function that is offered to each user, enabling transfers, while on the line, to preprogrammed numbers, including cell phone numbers.

This function works as follows:

- The user receives a call
- During the conversation the user must leave their workstation, but wants to remain connected with the caller.
- The user enters the function code corresponding to the FMC transfer (*5 for example) on the keypad, then selects one of 5 destinations that have been assigned to keys 0 to 4 (it is also possible to associate the Speed Dial sequence "*5,0" to a programmable key on the telephone terminal so as to accelerate the operation).
  ScopTEL then conference bridges the pre-programmed destination to the active call
- If communication is established with the cell phone (for example), the user can dial"**", telling the server to complete the transfer and tear down the unused bridge.
  If communication cannot be established with the cell phone, the user dials "*#" to tear down the conference bridge while leaving the caller connected.

☐ Instant messaging

Since ScopTEL comes with the OpenFire instant messaging server, it is possible to give each user an IM account linked to their telephone extension.

The user can then, after having installed an XMPP-compatible client IM on his computer or a mobile peripheral (Smartphone, tablet), such as Spark, chat with other users in the directory.

Moreover, it is possible to associate external IM accounts (personal or professional) to each instant messaging user. The OpenFire server serves as an IM communication bridge. The following interconnections are possible:

- AOL IM
- Gadu-Gadu
- ICQ
- MSN Messenger
- Yahoo Messenger

☐ Calendar linking

Based on the user, it is possible to link the ScopTEL extension and the user's calendar. The following calendar formats are supported:

- iCal
- CalDAV
- Exchange Server 2003
- Exchange Server 2007

The following parameters must be configured:

- URL for the calendar server
- User name
- Password
- Refresh frequency (in minutes)
- The number of minutes to be extracted from the calendar for each consultation

The point of linking is to be able to automatically activate the call forwarding programmed by the user when their calendar is busy.

In this way, for each incoming call to an extension for which Calendar linking is activated, ScopTEL determines whether or not the calendar is full before transmitting the call to the extension (at the workstation). If the calendar is marked "busy" for the time when a call arrives,

and the user has programmed call forwarding, the call will automatically be forwarded by the server, even if the extension is free.

☐ Incoming CallerID Search

Data sources, internal or external to ScopTEL, for any user's extension can be uploaded to the server and then consulted before incoming call processing.

The following data sources can be consulted:

- Text files
- Local SQL table (MySQL integrated in ScopTEL)
- Remote SQL table:
    - MySQL
    - Microsoft SQL Server
    - Sybase
- LDAP directory
- Internal ScopTEL directory
- Internal abridged number directory

The principle is simple: On an incoming line, the "CallerID Search" option is activated by selecting the data source to be consulted from among those that have been defined.

For example, in order to consult a remote SQL table, simply enter:

- IP address or the host name of the server hosting the DBMS
- Potentially, a communication port, if the DBMS is used in a non-standard manner
- User name
- Password
- Name of the database
- Request to be executed, in the form:

SELECT tel_client AS cidnum, CONCAT(nom_client,'-',statut_client) as cidname FROM clients WHERE tel_client LIKE '%[number]%'

where:

- *[number]* is the number of the caller on the line
- *cidnum* is the number that will be displayed on the telephone terminal
- *cidname* is the name that will be displayed on the telephone terminal. In our example, the name displayed on the telephone terminal will be the combination of the client's name followed by his status

☐ Ringing Services

"Ringing Services" is a function that uses a function code to modify the destination of an incoming line on the fly. This function can be linked to Pre-programmed button on the user's phone extension.

Imagine an incoming line with DNIS (SDA) 01-40-50-60-75 for which the main destination is the "service_client" queue. The user company does not want to use the scheduling system to manage the opening/closing of customer service. They prefer to use a "manual" toggle system, triggered by the last agent leaving the company in the evening and by the first agent arriving in the morning.

To do this, the administrator configures the parameters of a new ringing service, for which the destination is the telephone switchboard and assigns a ringing service identifier to the incoming line in question.

Before leaving for the day the last agent dials the Ringing Service code to activate the desired service mode to enable call forwarding. When the agent arrives the next day the agent dials the Ring Service code to disable the call forwarding.

Note:

- It is possible to configure as many ring services as you want, with each ring service corresponding to a different destination.
- It is possible to assign the same line identifier to several incoming lines, thereby forwarding several lines simultaneously to a destination other than its normal route.
- This toggle operation can be protected by a PIN so as to limit access to an authorized group.

☐ Interactive Voice Response (IVR)

As a standard feature, ScopTEL includes multi-level interactive voice response applications (with no depth limit) that can be used to declare an infinite number of scenarios.

The Phrase Manager included in ScopTEL makes it possible to quickly upload or record an entire series of Voice prompts from a telephone terminal, These prompts can then be used in any IVR, ACD Queue, or supported Application.

Each IVR path used is stored in the ScopSTATS IVR reporting section to document the usage of each path dialed.

☐ Ad-hoc Conference Bridging

Many telephone terminals are limited to a three-way conference function.

This limit on the number of parties who can take part has been enhanced by the integration of

an Ad-hoc conference bridge in ScopTEL. Furthermore, each extension can manage 100 conference rooms with an unlimited number of parties in each room..

There are different ways to enter each virtual conference room. The various modes are:

- Listen/Talk
- Monitor: This mode positions the user as a listener with no possibility of taking part in the conference orally
- Speak only: You join the conference in "speaker" mode, without being able to hear the other participants
- Administrator: In addition to being able to listen to and speak with the other participants, you have continued access to the following functions (activated through DTMF):
  o Exclude one or more participants
  o Temporarily mute one or more participants
- Marked: Unless the "marked" mode is used, each participant joining the conference can listen to and talk with the other participants.
  If the conference room has been configured for the use of the "marked" mode, each participant who enters the conference room will be isolated from the others (with or without hold music) until the user declared "marked" joins the conference
- Administrator/Marked: this mode combines the functions of the two modes described above

Each virtual conference room can be configured for the following optional parameters:

- Opening/closing schedule
- PIN upon request: In addition to the PIN (password) assigned statically to a conference room, the first participant may, if this parameter has been configured, define a temporary password which will only be active for the current session. When the last participant leaves, the temporary PIN will be erased
- Recording: Each virtual conference room can be configured to be systematically recorded. In the event that this parameter has not been configured, it is still possible to record a conference upon request (using the DTMF code or though the ScopSTATS interface)

☐ Incoming/Outgoing fax server

ScopTEL provides the tools needed to handle incoming/outgoing faxes in Fax-to-Mail and Mail-to-Fax modes.

Moreover, ScopTEL now supports T.38 completely and intrinsically.

The creation of virtual modems serves to establish one or more fax channels (possibility of establishing modem groups, for sending/receiving faxes in bulk).

Incoming fax:

When the virtual fax module is activated on the ScopTEL server, fax detection is possible on each incoming line (DNIS/SDA). If the destination of the incoming line has been configured for an extension or an application (conference, IVR, etc.), ScopTEL proceeds with carrier sensing. If it is "heard," the call is intercepted and handled by the fax handling process, then sent to the routing module (Fax-to-Email), so as to be delivered to an email server.

The incoming fax routing module can deliver faxes in various formats:

→ PDF (default)
→ TIFF
→ Postscript

Two types of rules apply to routing:

→ Based on DNIS/SDA dialled
→ Based on caller's Caller ID

Outgoing fax:

How it works…

A mailbox assigned exclusively to ScopTEL is identified (POP3 or POP+SSL) by the server at a frequency that can be configured. When the server picks up a message from this box, it makes the following analysis:

→ Verification of the UniqueID so as not to handle a fax that has already been sent
→ The subject of the message is broken down so as to extract the fax number(s) of the recipient(s), and potentially the token password if the token option has been configured
→ If so configured, the body of the message is analyzed in order to build the cover page message (cover page layout is handled by the cover page manager)
→ Attachments are converted to TIFF or PDF format for transmission
→ The fax is sent to a virtual modem or a group of virtual modems for transmission

The transmission report is emailed to the person who sent the original email.
Moreover, each user can access the receiving and transmission logs in the ScopSTATS interface, if authorized to do so.

In addition to these modes, it is also possible to connect a traditional (paper) fax with an analog port, connected behind an ATA converter (analog converter <-> SIP), as long as the converter supports the T.38 protocol.

☐ ACD (Automatic Call Dispatcher)

See the detailed documentation for this module.

☐ Billing

For businesses functioning in an analytic accounting mode, the billing module integrated in ScopTEL can satisfy their needs.

The following parameters of the billing module can be configured:

→ Definition of billing accounts. These accounts will be assigned to the extensions
→ Supplier definition. Each supplier declared will be assigned to one or more trunks (outgoing bundles)
→ Definition of types of calls. Example: "Calls to cell phones," "National calls," etc.
→ Currency definition
→ Definition of time slots. The operators can define different calling prices depending on the time; it is therefore imperative to declare these time slots in order to align them with the operators' rates
→ Rate definition. Also called a "tariff". This is where the communication prices are declared. The following parameters are used to define a rate:
  o A template: the model defines the format of the number dialled
  o A type of call. Used to group calls by families
  o A supplier
  o A time slot

Once these parameters have been entered and the accounts have been assigned to the extensions, the reports are programmed so as to be sent to the various recipients. The report parameters are as follows:

→ Distribution frequency:
  o Daily
  o Weekly
  o Monthly
→ Report format:
  o Text
  o HTML
  o PDF
→ Recipient's email address
→ Options:
  o Inclusion of "toll-free" calls
  o Inclusion of incoming calls
  o Potential mask to be applied to callers' numbers
  o Potential mask to be applied to numbers called
→ Columns to be displayed:
  o Date
  o Account code
  o Source (issuer)
  o Destination (recipient)

- o Channel
- o Destination channel
- o Place (only North America)
- o Type of call
- o Duration
- o Cost

It should be noted that the cost of the call can be displayed in real time in the users' ScopSTATS interface.

3. Security

Security is a major issue for VoIP solutions since there are so many inherent vulnerabilities when using VoIP.

To deal with security, ScopTEL includes comprehensive technologies and modules to considerably reduce the sources of attacks or malware intrusions. Nevertheless, ScopTEL does not claim to have covered all vulnerabilities and acknowledges that, for each project, the expertise of integrators, who are aware of these problems, should be called upon to deal with all aspects of security.

☐ Communications security

ScopTEL includes communication encrypting, proposing the activation of the following protocols:

- SIP TLS with certificate exchange for encoding signals
- SRTP, for coding media channels. The encoding modes proposed include:
  - AES 80
  - AES 32

☐ SIP security

- Support for SIP domains
- Strict policy enforcement of VoIP authentication policies.
- Fail2ban to restrict brute force SIP attacks by blacklisting malicious IP addresses
- Creation of ACL for the workstations: Only the extensions corresponding to the ACL are authorized to access the server
- Creation of Regular Expressions rules to restrict malformed signalling attacks

☐ Remote access security

ScopTEL also includes the following network security elements:

- A VPN server, allowing remote terminals to connect completely securely. The proposed VPN modes include:
  - PPTP
  - OpenVPN
- A firewall limiting access to the protocols reserved exclusively for the telephone services
- A Radius server (PAP, CHAP, MS-CHAP, EAP-TLS)

It is also possible to limit the accesses to various Web interfaces (GUI, ScopSTATS) solely to HTTPS requests.