

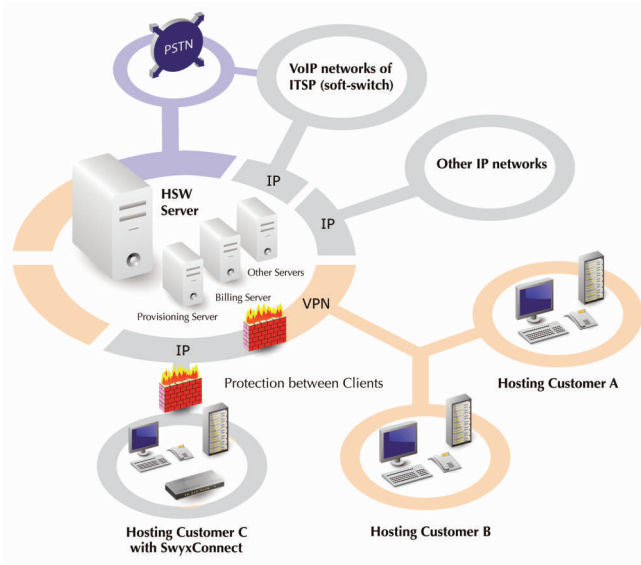


Hosted SwyxWare – Architectural and Operating Framework Overview

Hosted SwyxWare (HSW) is an award winning, off-the-shelf, 'next-generation' variant of the SwyxWare portfolio. It has all the feature-richness, flexibility and ease of use that thousands of enterprise customers already currently benefit from in a Customer Premises Equipment (CPE) environment. As a service provider, you can now run the Hosted SwyxWare (HSW) application on 'Virtual-PBXs' (V-PBXs) to provide customised IP-PBX services to meet the needs of your business customers. And your customers can choose from an extensive range of telephones/ audio devices, including IP desk-phones, DECT phones, SIP phones, USB headsets and handsets, an innovative PC-based soft-phone that

is easy to implement and easy to use, and a soft-phone for mobile phones

that extends PBX features to mobile employees.



Hosted SwyxWare - Key Architectural Features

- Software license based system enabling simple delivery and upgrade mechanisms for you and your customers
- Self provisioning for end users (within their own dedicated Virtual-PBX), controlled by the service provider
- Runs on a Windows 2003 64bit PC server platform as a Microsoft Windows Hosted Application Solution in a data centre environment
- Fully scalable, distributed servers host the HSW V-PBXs and provide call transfer to the outside world
- Simple, entry-level server options for new market players
- Centralised data base server for all V-PBXs
- Call transfer to PSTN via ISDN, a Soft-Switch or to SIP Service Providers

Hosted SwyxWare Operating Framework

As the 'Hoster', you can run Hosted SwyxWare in your data centre to provide reliable 24/7 operations and services. The hosted service is accessed by your business customers through routers and IP lines with suitable bandwidth to ensure relevant service levels. A DSL connection is the typical minimum requirement.

Hosted SwyxWare has the flexibility to work in multiple business models. Your customers may be running other business applications as CPE

solutions, or they may already receive hosted email services and other hosted application services from you. You may also offer call termination via a Hosted SwyxWare ISDN gateway at customer sites, or route your customer's phone traffic to your own/3rd party soft-switch or to one/more ITSPs through HSW's SIP trunking.

You may even choose to implement Hosted SwyxWare as a 'White Label Service' which can be branded and offered to end user customers

through Resellers and/or System Integrators. Administration capabilities within HSW allow for this option.

A Hosted SwyxWare installation operates as a multi-tenant solution providing each of your customers with a separate Virtual PBX (V-PBX). This V-PBX capability can scale to many 'Hosting Customers' sharing the same HSW system with the possibility for several thousand individual users in total.

Hosted SwyxWare Servers

The following section details the key servers that are required within your network to support your Hosted IP PBX service based on Hosted SwyxWare (HSW). Although it is possible to consolidate some server functions for a smaller scale solution, separate servers are recommended for full scalability.

1. HSW Front End Server:

This is the physical server that runs multiple appearances of V-PBXs. Your HSW installation may have many instances of physical Front End Servers, each with many V-PBXs.

2. HSW Back End Server:

Runs all voice channel control between your customers' sites and your HSW data centre and your gateways or other PSTN access systems. In large HSW installations multiple Back End Servers can be implemented for load sharing. Transfers calls from the different HSW Servers to the outside world.

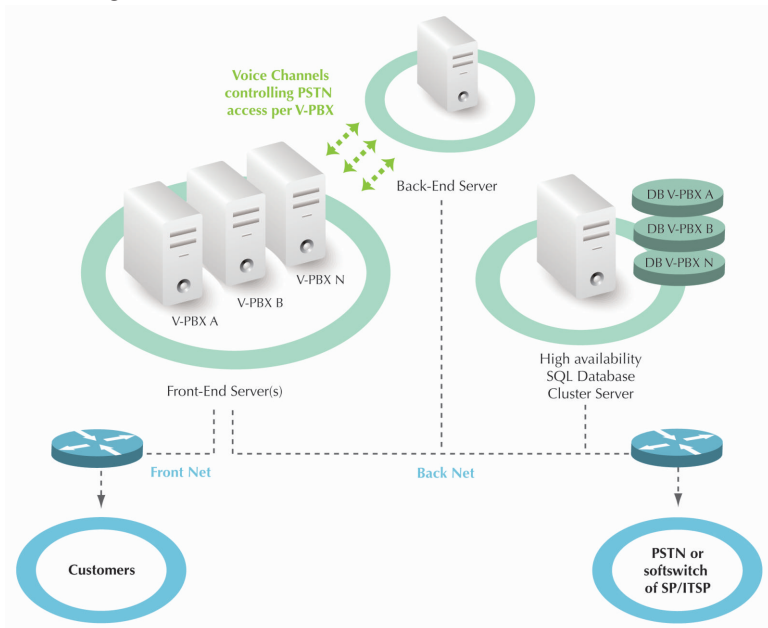
3. HSW Database Server:

Hosts all HSW Server databases for each of the V-PBXs and stores the call activity and reporting information, the internal Call Detail Records (CDR), customer specific settings e.g. speed dials, customer selected ring tones and WAV files,

global and personal phone books, and more.

4. Standby Server:

A windows server in 'cold standby' to be used for replacement of any Front End Server or Back End Server in case of hardware failure.



Hosted SwyxWare Administration and Browser-Based Management

To minimise the initial configuration effort and recurring administration tasks, HSW offers 'bulk administration' features which allow the administration of multiple users associated with one V-PBX in a single step. In addition, HSW provides other tools to import user data from an Active Directory or a LDAP directory into the HSW database.

HSW operates on the principle that the majority of user-specific administration work will be done through 'Self-Administration' by the customer but certain functions such as trunk definition, trunk maintenance, routing table creation, user class/profile definition etc. will be handled by your trained operators and administrators.

As with 'Customer-based' administration, these central administration functions are totally accessible (locally and remote) using the existing Microsoft Management Console (MMC) tool that is freely available for every desktop PC.

To provide an additional level of administration, HSW also offers browser-based web access to Customer Administrators for user-based administration functions (excluding administration relating to fax and calling scripts). Any web browser will give the administrator the access to all user and group based functions. Therefore a small company with a few users and simple set-up requirements would typically not need to install MMC or understand

how MMC works.

To ensure levels of security are maintained, Hosted SwyxWare provides for multiple administration levels for your organisation and your customer's organisation. And you can allocate the level of customer administration so that they have the level of control that suits your business practices.

Hoster Administration Roles:

- HSW Master Administrators
- HSW Back Office Administrators
- HSW Reseller Administrators

Customer Administration Roles:

- Customer Administrators
- Customer User Operators
- Customer Call Status Operators
- Customer Phonebook Operators

Hosted SwyxWare Reporting Service for Generation of Bills

The licensing and usage information of a HSW installation will be detailed in two reports automatically generated by HSW and provided to you via email on a scheduled monthly basis.

1. Service Report

The 'Service Usage Report' gives you a comprehensive report of your customer's usage of your Hosting Services. For each of your customers (i.e. each V-PBX) the report will show you how many days and how many users have been registered to your Hosting Service or Services during the last monthly reporting period. The report is available in human and machine readable formats so that it can easily be used for automated data transfer into your billing or ERP

system. 'Measurements' providing the reported service data are taken on a daily basis. The report as created by HSW will be digitally signed and therefore protected against unauthorised modification.

2. Royalty Report

The second report generated by HSW on a monthly basis is the 'Swyx Royalty Report'. Based on the same measurement intervals as the Service Usage Report, HSW generates a report of the licenses in use during this period. Consolidated over all of your customers and your offered hosted PBX services this report will summarise to Swyx which 'Service Access Licenses' (SAL) have been in use in your HSW installation during the reporting period.

Like the Service Report this report is available in human and machine readable formats and electronically signed to be protected against unauthorised modifications. But, unlike the Service Report, the Royalty Report (also provided to Swyx) does not disclose any of your customer's data and shows only accumulated numbers. Based on this report Swyx will use the Royalty Report to send you a Royalty bill each month according to the Royalty price list as defined by the 'Service Provider License Agreement' (SPLA) between you and Swyx.

Hosted SwyxWare User and Virtual-PBX Licenses**User based functions and options:**

- HSW Basic User License
- HSW System Phones Usage
- HSW SwyxCTI: for SwyxPhones (IP)
- HSW SwyxMobile: PBX features for Mobile Devices
- HSW SwyxVoicemail
- HSW SwyxFax: PC Fax / Fax to Desktop
- HSW SwyxECR: Script-Based Call Routing
- HSW SwyxRecord: Ad Hoc Call Recording
- HSW SwyxMonitor: Call Monitoring/Intrusion

Virtual-PBX based options:

- HSW Conference Room / Conference Server
- HSW Voice Channel
- HSW Fax Channel

Summary of User and Virtual-PBX Options

1. Basic User License – provides high-performance phone functions including call handling, call connection, call authorisation, all call switching processes, ad hoc conferencing for 3 or more parties, rules-based call routing, and the management of group calls. Also includes support for Swyx and 3rd party SIP phones and the SwyxIt! soft-phone that integrates the phone with the PC world, providing critical telephony functions such as dial, redial, call forwarding, transfer, hold and conference as well as online company and personal phone books in an innovative and easy to use graphical interface. Integration with Microsoft Outlook provides each SwyxIt! user with a contact data 'pop-up' on incoming calls as well as the ability to 'dial from contacts'.

Features:

- Support for a wide range of audio devices: IP telephones, H.323 telephones, DECT handsets, SIP telephones, USB handsets, USB headsets, SIP soft-phones
- Extensive range of PBX features including: call back on busy / no answer (internal calls), call swap, call waiting indication, speed dials, hunt groups, etc.
- One click Application Sharing (except where client is Microsoft® Vista®)
- Integration with Microsoft® Outlook®
- Innovative, easy to use and feature-rich soft-phone that offers many functions that enhance the user experience

Note: Voice Channel licenses are required to enable incoming and outgoing calls to pass via PSTN, SIP trunking, or another V-PBX, etc.

2. Usage of Swyx System Phones – Swyx offers its own SwyxPhone desktop IP phone family (L4xx and L5xx series models) as an alternative to standards compliant SIP phones that typically have limited functionality. These System Phones require no manual

configuration at the desktop – they will automatically configure when plugged into a LAN port.

Note: To run these SwyxPhones within a HSW environment this license is required per SwyxPhone connected to a V-PBX, and a VPN connection is required between the customer's site and the HSW data centre.

Features:

- A range of models with varying numbers of function keys with LEDs, keys for volume settings, and much more
- Password protection
- Supports powerful telephony functions, call swap, call pick-up, redirection and many more
- Visual indication of voicemail
- Hands free listening
- Hands free speaking (select models)
- Self labelling keys (select models)
- Headset connection (most models)



3. CTI for SwyxPhones – integrates the SwyxIt! soft-phone with the L4xx or L5xx series Swyx System Phones so that users can choose to take full advantage of easy to use PC-based telephony or the familiar functionality of a desk phone, or a combination of both when dialling, re-dialling, holding and forwarding calls, conferencing, accessing voicemail, etc.

Features:

- Integrates PC and telephone functionality
- Can be used for both incoming and outgoing calls
- Gives users the choice of a graphical user interface for PC telephony as well as a familiar looking telephone
- Can be implemented by

businesses with thin clients as well as standard PCs/laptops



4. PBX features for mobile phones – enables the mobile phone to operate as an internal extension of the enterprise IP-PBX. Allows mobile users to access many key features and capabilities of their office telephone system, while needing only a single handset. Users can be contacted via a single number that is independent of the network connection. Although SwyxMobile provides greatest ease of use when a SwyxIt! Mobile client is installed onto devices running Symbian or Windows Mobile operating systems, SwyxMobile functionality is still accessible via simple key strokes with nearly every mobile device even without a SwyxIt! Mobile client.

Features:

- One Number Reachability (via extension dialling)
- Same user rights/restrictions as for user's office phone
- Call twinning (simultaneous ringing of desk phone and mobile phone)
- Call Hold, Call Transfer, Consultancy Call, Call Swap
- Easy to set call forwardings (unconditional, busy, no reply)
- Remote Inquiry of Voicemail
- Ad hoc conferencing and call recording
- Presence information is provided to other SwyxIt! users
- Integration into phone's 'native' Contacts, Speed-Dials and Call logs
- Configurable settings for calls

Summary of User and Virtual-PBX Options

within SwyxIt! Mobile client e.g. country code, area code, etc.

- Signalling via DTMF and SIP



5. **Voicemail** – a highly featured voicemail environment that can easily be customised by each individual user whether in the office or remote. Users can access their voicemails via a telephone or via the SwyxIt! soft-phone. Voicemail is always saved in the email system without separate storage or synchronisation needs and can be forwarded or copied like any other email.

Features:

- Voicemail access is protected via individual PIN codes
- Voicemails can be securely accessed via any telephone or via the SwyxIt! client
- If a phone is not available voicemails can be listened to via a PC with a sound card
- Voicemails can be sent to email applications such as Microsoft Outlook and Lotus Notes where they can be accessed and played as wav files and can also be forwarded as easily as emails

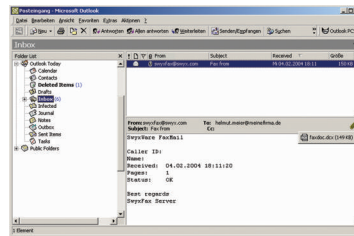
6. **PC Fax / Fax to Desktop** – gives each user a personal desktop fax capability with a direct extension number, enabling them to receive faxes through their Microsoft Outlook Inbox and to send faxes from their PC/laptop so that fax communication becomes an integral part of their desktop applications.

Features:

- Each user can be assigned a

separate fax extension number associated with the user's mailbox

- Incoming faxes sent to an unassigned number can be delivered to a nominated location such as the system administrator's inbox
- Automatic printing of incoming faxes to any local or network printer
- Easy electronic forwarding of received faxes to other SwyxFax users or fax machines
- Quick preview of received fax messages



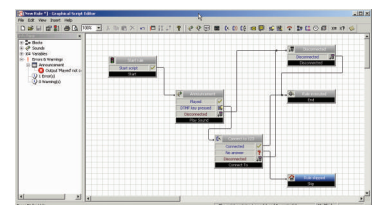
7. **Script-Based Call Routing** – allows the creation of call routing scripts via a graphical tool enabling users to set up sophisticated call handling sequences for incoming calls. With IVR scripting, hunt groups, database access and more, the tool allows users to clearly visualise call handling scenarios in the form of a flow-chart. It is a perfect instrument for your customers to define their own in-house call centre with typical call distribution and call queuing options, including access to the customers' own data bases.

Features:

- Graphical representation of call flows
- Actions: loop, follow me, message, record message, generate email, voicemail, receive DTMF signals, remote inquiry, access IMAP4 mail server
- Look-up and retrieval from customer's own database records
- Decision-dependent actions (Caller ID, Called Extension,

Time/Date/Day, Outlook/Notes Calendar, etc)

- User definable enhancements through COM objects or procedures in Visual Basic Script
- Interactive Voice Response (IVR) via DTMF
- Time and date-dependent actions
- Variables: length of call, number, name, date, time, weekday, extension dialed, identification number (PIN)



8. **Ad Hoc Call Recording** – each user has the ability to record conversations on an ad hoc basis directly from their SwyxIt! soft-phone, through a simple button click.

Features:

- Users can record all or parts of a call via SwyxIt! (in non-CTI mode)
- Users can have the recordings listed with date and time stamps and can choose which ones to listen to
- Recordings can be exported to enable other employees to learn from the more experienced call handler

9. **Call Monitoring/Intrusion** – to protect the business and support customers, managers/supervisors can silently monitor employee's/ agent's calls and can 'whisper' advice or guidance to the employee/agent without the other party on the call being aware of what the supervisor/manager says. The supervisor /manager can also join the call and fully participate in the conversation. Note: This option is required for each user/agent to be monitored.

Summary of User and Virtual-PBX Options

Features:

- Supervisors can silently listen to an agent's call with no disruption to the conversation between agent and customer/prospect
- Supervisors can 'whisper' information or advice to an agent without the other party hearing the whispered conversation
- Supervisors can actively participate in a conversation to provide guidance or resolve a customer issue that may be beyond the capabilities of the agent at that point in time

10. Conference Room / Conference

Server - this option allows your customers to set-up and conduct both internal and external conference calls for their staff, suppliers and customers by dialling into one or more special extension numbers associated with this conference facility. Personal Identification Numbers (PINs) can be applied for additional security.

Features:

- Virtual conference rooms can be set up by a system administrator
- The number of participants who can join a conference call is unlimited (as long as trunk lines are available for external callers)
- Participants in a conference can also conference in other participants

11. Voice Channel – This option allows you to easily control the use of available bandwidth within your HSW installation, i.e. introducing a limitation of resource allocation that a specific V-PBX may request so that a particularly active customer on one V-PBX does not impact resource availability for another customer running on another V-PBX.

For example, 8 voice channels would allow the users of a specific V-PBX to participate in 8 simultaneous phone calls with

destinations outside their V-PBX e.g. via the PSTN or with an Internet phone subscriber. Any calls between 'on-site' users of the same V-PBX will stay local without the need for a voice channel – even when these two users are at different physical locations. With this control mechanism you can offer your customers a PBX service with different throughput characteristics and multiple provider routing capabilities.

Features:

- Prevents V-PBXs from blocking other V-PBX customers by providing control of maximum assigned bandwidth to each V-PBX within a HSW installation
- Allow usage of different PSTN and SIP trunks as well as of different providers according to trunk specific routing rules
- Provide 'number replacement of subscriber IDs to allow Caller ID presentation according to customer requested rules depending on call destination, trunk type and more

12. T.38 Fax Channel – supports Fax transmission and has very similar properties to Voice Channels but provides T.38 protocol support to make transmission of a Fax reliable between all standards compliant fax devices and a fax device within HSW. A Fax Channel is required for each parallel (simultaneous) fax transmission from a SwyxFax Server (in combination with the Swyx Fax Option) within a V-PBX and also for each fax terminal adapter set up at a customer's site to connect a group 3 fax machine.

Features:

- The number of fax channels licensed equates to the number of faxes that can be simultaneously sent or received 'off-PBX' at the same time.
- When all fax channels of a Customer's V-PBX are in use, the next incoming/outgoing fax will receive a busy/engaged signal.

- Allows T.38 Fax transport between a gateway and SwyxFax server or to a terminal adapter with a Fax 3 device attached

Key Features of Hosted SwyxWare

Installation and Administration

- Tool to import users from Directory Services into Hosted SwyxWare
- Automatic server recognition
- Automatic service restart in case of error
- Bulk administration
- Configurable self administration for the client (for their own V-PBX only)
- Configuration and Administration via Microsoft Management Console or Web based Administration
- Connection logging and display
- Easy creation of new V-PBXs by using HSW
- Internal ISDN PRI/BRI for data transfer
- Multi-site support for each V-PBX
- Service definition by service feature assignment ("Feature Profiles")
- Multi-service capability - multiple services with different capabilities supported in parallel (within a single V-PBX and to individual users)
- Multi-trunk (multi-carrier/multi-ITSP) routing
- Microsoft Windows user or SIP-based authentication
- Multi gateway support - either Swyx provided ISDN gateways with up to 60 B channels or third party SIP or H.323 Gateways / Softswitch
- Multi-level administration with different administration rights
- Music on hold per V-PBX with .WAV or .MP3 files
- SMTP authentication for email accounts
- SNMP statistics and traps
- Status display via Microsoft Management Console
- STUN support (Simple Traversal of UDP through NAT firewalls)
- IP telephones supported: 3rd party SIP-compliant phones, H.323 (version 2) telephones, Swyx DECT handsets, family of Swyx IP systems phones, Swyx SIP phone
- Supports SIP trunking with DDI

Provisioning/Billing

- Customer billing based on actual subscribed Services per V-PBX and user
- Detailed monthly reports for each configured client to enable customer billing by the Hoster
- SPLA agreement (Service Provider License Agreement) between Swyx and Hoster defines royalties for each of "billable feature" in a "pay per use" model
- No upfront investment in licenses required as monthly royalty payments are made to Swyx by the service provider only when end user customers are configured to use the hosted service
- Single license key allows Service Provider to operate any number of virtual PBXs with all features
- Platform Licensing also requires Microsoft Service Provider License Agreement (SPLA)

Quality Of Service (QOS) / Voice Quality

- Line echo compensation (G.165)
- Support of QoS Level 2 (802.1pQ) and Level 3 (DiffServ)
- Voice compression (including G.729A)
- Voice encoding - G.711 and G.729A

Telephony Functionality for End User Customers¹

- Assistant configuration
- Automatic redial
- Blind call transfer
- Call deflection (forward ringing calls before pick up)
- Call forwarding (forward unconditionally, on busy and delayed)
- Call hold, pick-up, swap and transfer
- Call waiting indication
- Callback on busy (internal calls)
- Callback on no reply (internal calls)
- Caller list, with date, time and name resolution
- Default handling of a call that cannot be connected
- Dialling by block dialling and by overlap sending
- Dialling from all Windows applications (special support for Microsoft Internet Explorer)
- Dialling from Outlook Contacts
- Dialling of vanity numbers
- Different PSTN access codes, e.g. to distinguish business / private calls
- Disable lines
- "Do Not Disturb"
- DTMF generation
- ENUM support (Telephone Number Mapping)
- Fixed forwarding
- "Follow-Me"
- Individual forwarding using call routing
- Inquiry call
- Manager-secretary function
- Mute microphone
- Name dialling from phone book with auto complete
- Name resolution of dialling numbers
- Parallel calls to mobile phones
- Personal and global phone books
- Phone book with user status
- Programmable function keys with System phones
- Redial list with date and time
- Remote configuration of call forwarding
- Roaming user profiles
- Selection of caller ID for outgoing calls
- Shortcuts to activate 3rd party applications from SwyxIt!
- Signalling of availability in phonebook / on speed dials
- Speed dials
- Supervised call transfer
- Suppression of own caller ID for external calls

¹ Note: Level of telephony functionality is dependent on telephone/audio device used

Ease of User and Enhanced Functions

- Advise of Charge (AOC)
- Announcement before connection to dialled subscriber
- Call Details Records
- Call forwarding depending on schedule entries in Microsoft Outlook Calendar
- Call restrictions for subscribers by Rights Profiles (individual configurable for internal calls only, local calls, long distance calls, international calls or any defined number and number range)
- Call Routing Manager
- Call signalling for internal and external calls
- Call signalling via pop-up information
- Compressed Announcements using MP3 files
- Conferencing - ad hoc (user initiated)
- Configurable Least Cost Routing
- Configuration of SwyxPhone function keys at SwyxIt! and SwyxPhone
- Context sensitive online help
- Dialling of SIP-URIs
- Display of time and date
- Drag and drop (e.g. of phone numbers)
- DTMF support
- Extended Retry-Mechanism
- Fixed Mobile Convergence (FMC): integration of mobile phones
- Function Codes
- Generation of Microsoft Outlook Journal entries
- Group calls
- Group signalling
- Handset on/off hook support
- Hotkeys
- Hunt Groups (parallel, sequential, rotary and random)
- Individual graphical user interfaces (skins)
- Intercom (push to talk)
- Internal Numbers which can be mapped to certain public PSTN phone numbers
- HiFi ringtones for SwyxIt! client
- Logging of calls in the Microsoft Outlook Journal
- Mapping of project numbers to outgoing calls
- Name resolution from Microsoft Outlook contacts in SwyxIt! client display
- Name resolution from Microsoft Outlook contacts with pop-up contact
- Number replacement table for external calls
- Programmable speed dials
- Receiving voicemails and fax documents as E-Mail in Microsoft Outlook
- Search function within phone book
- Secondary call signalling, configurable
- SIP (Session Initiation Protocol) calls can be made from SwyxWare
- Selection of user name at program start up
- Silent 'ringing'
- Skin editor
- Sound wizard
- Status display for all connections
- TAPI 2.2 (TSP)
- Tip of the Day (on start up)
- WAV-player in Microsoft Outlook Preview Pane and in the Mail Form