LocaPhone VoIP PBX System

Enterprise Business Telephony Solution

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LocaPhone VoIP Enterprise PBX

Enterprise Business Telephony Solution

Business Challenge
Improving your business telephony communications system.

Solution Description
LocaPhone VoIP PBX - the best value for your business phone system!

LocaPhone VoIP PBX system
Full-featured Unified Communications, with flexibility, power and ease of management.

Based on Asterisk, the world's leading open source telephony software.

Solution Benefits
LocaPhone provides significant savings in your total business communications cost.

No vendor lock-in!

Even better, all features are included, for one low price!

LocaPhone Specifications
Powerful Unified Communications and robust calling features.

LocaPhone Infrastructure & Devices
LocaPhone uses existing IP networks to build the PBX infrastructure.

Wide range of telephony devices from different vendors available - no vendor ‚lock-in'.

Devices integrate tightly directly into LocaPhone.

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Business Challenge - a PBX system!

To replace an existing telephony system (PBX), the new system should have at minimun the same functionality as the existing PBX. But it also should reduce costs, should offer improved communications possibilities to business users, should be self maintainable and configurable both by users and administration, and thus exceed the former PBX system.

Meet LocaPhone VoIP PBX - the Enterprise PBX solution provided by LocaNet oHG.

LocaPhone is a modern PBX system as a ‚soft switch', based on Voice-over-IP technology using the freely[1] available OpenSource software Asterisk. LocaPhone, Asterisk and other components run on Ubuntu Linux as an operating system.

1 Free as in that the software itself is provided without costs, and that the user is free to use and modify it.

Solution Description - LocaPhone PBX

A quick introduction to Asterisk

Asterisk is a fully Open Source, hybrid TDM and packet voice PBX platform. Asterisk is provided free of costs as Open Source software, published under GNU General Public License (GPL). Asterisk is a "soft switch", a protocol gateway, a media server, and a VoIP gateway.

Asterisk can use both traditional TDM technology and packet voice (Voice over IP, VoIP) protocols. Calls switched on TDM interfaces provide lag-less echo free TDM call quality, while retaining interoperability with VoIP packetized protocols. Asterisk acts as a full featured PBX, supporting virtually all conventional call features on station interfaces, such as CallerID, Call Waiting, Call Forward/Busy, Call Forward/No Answer, Call Forward Variable, different dial tones, Three-way Calling, Supervised Transfer, Unsupervised Transfer, Voicemail, Meet-me or 3rd party Conferencing, Least Cost Routing, VoIP gateway, Call Detail Records, Call Center functionality, Interactive Voice Response functionality, integrated Fax server, and more.

LocaPhone - The VoIP PBX system

LocaPhone is a software solution using Asterisk and other OpenSource software tools to provide a full featured VoIP PBX system, integrates telephony devices (IP telephones, conference phones, line interfaces) from selected manufacturers, and offers a Web browser-based User- and Admin configuration interface (both in German and English) for telephony functions and easy maintainance.

LocaPhone as an OpenSource software is free from any user- or device-based licensing scheme, and not limited in the amount of telephones, line connections, conference users, functions etc. All PBX features are provided without additional software costs. Additional features, such as some TAPI/CTI functions or e.g. detailed Call Center statistics, may require commercial third party software, depending on the setting used.

LocaPhone uses an existing IP network (LAN, WAN, VPN) to connect phones, servers and traditional telephony connections/lines (via media gateways), and seamlessly integrates with other telephony systems, and with network or server based applications (e.g. CTI with Exchange/ Outlook, contact center CRM, web based services etc.).

LocaPhone is both fully modular and scalable. Multiple server nodes can form one unified PBX system in one or more locations (sites), connected by the IP network. Additional line connectivity can be added by using IP trunks to carriers and/or by using additional media gateways. Its flexible software architecture offers a ‚telephony framework' which can be customized for additional, individual functionality.

Core functions can be provided by deployed clustered server settings or by a simple ‚one-in-all' server setting. LocaPhone has built-in fail-save mechanisms for redundancy concepts and improved availability (load balancing).

Solution Benefits

LocaPhone as a software based VoIP system delivers a number of unparalleled advantages.

Substantial cost reduction

Combined with IP telephones and media gatweway telephony hardware offered by different manufacturers, LocaPhone provides a complete, extensive PBX system at a fraction of the price of traditional PBX and key systems, while providing a level of functionality exceeding that of many of the more expensive systems available. It also complements existing PBX systems by avoiding costly replacement of existing PBX investments.

License-free - and open!

No licensing scheme, no limitations on functions or users, and no proprietary hardware (provided by just one single vendor) is used. Because of its “open” nature LocaPhone eliminates further vendor lock-in, and offers a choice to the customer to use the desired or necessary telephony hardware for its setting.

Complete Control

LocaPhone allows the user to take control of their phone system, by using different ways of operating their telephony requirements (on an IP phone, within a Web browser, on a PC client, on a mobile phone or smartphone etc).

Rapid deployment and development

LocaPhone allows PBX's features such as VoiceMail, Fax server, Interactive Voice Response (IVR) and other applications to be rapidly created, configured and deployed, by using its powerful Web browser interface, or its command line interface (CLI) with scripts for easy configuration and maintainance.

Customization

Through its support for internationalization, configuration options, and open source code, every aspect of LocaPhone can be configured or modified. For example, codes for call features can be modified in order to accommodate proprietary protocols, feature menus displayed on IP telephones can be customized to serve individual needs, and individual call flows including automated call distribution, voice mail and IVR functions can be set up.

Dynamic content deployment

As Web servers like Apache allow a developer to deploy dynamic content on the web, such as customer account information, LocaPhone permits such dynamic content deployment over the telephone.

Flexible dial plan

LocaPhone's unusually flexible dial plan allows seamless integration of all PBX functionality. Once a call is in a, anything can be done to it. In the same way that an Web server like Apache gives the user fine-grained control over virtually every aspect of its operation (and configuration), the same applies to LocaPhone and telephony calls.

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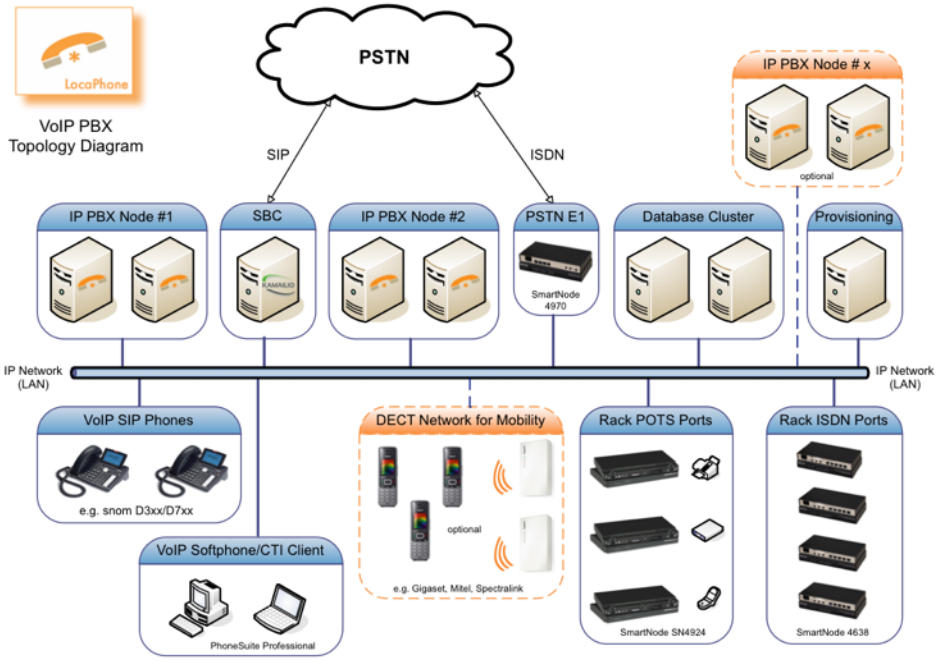

PBX processors

The LocaPhone Telephony System (PBX) is provided as a redundant multi-node cluster system on different servers (see diagram):

- core servers for users (ca. 400 IP phone users/server)
- data-base server cluster (MySQL database cluster)
- provisioning server (IP Phone device auto-configuration)
- web server (Web browser interface for users and administration).

Servers can be installed in one or on different locations/sites.

TDM connections (PRI/BRI, POTS)

The LocaPhone Telephony System (PBX) uses external media gateways for TDM connections, e.g.:

- ISDN PRI/E1/Q.SIG media gateways (SmartNode 4970/4980/4990)
- ISDN BRI/S0 media gateways (SmartNode 463x/412x/466x)
- POTS Media Gateways (SmartNode 43xx/44xx/49xx/41xx)
- other gateway devices from Patton Inalp.

Both server and media gateways are rack-mount devices for cabinet installation. Each device has a 19"/1U form factor. Breakout patch panels for analog ports are provided.

Packet connections (SIP)

The LocaPhone Telephony System (PBX) can be configured to connect to:

- unlimited number of IP phone endpoints (may require additional core servers)
- unlimited number of SIP trunks (carrier PSTN termination, VPN trunks)
- unlimited number of Media Gateways

All devices above are interconnected by a switched Ethernet TCP/IP LAN (L2/L3, QoS optional) provided by the customer. Different installation sites for servers or telephony hardware should be connected via fully managed MPLS VPN.

DECT Networks

The LocaPhone Telephony System (PBX) will provide as an option a cellular DECT-network infratstucture for site-wide radio coverage.

Handsets can roam freely across the installation site with seamless handover.

Additional handsets can easily be added to the DECT-network, both from Gigaset/Mitel/Spectralink (special handsets for the network) or other handsets using the basic DECT GAP-protocol.

An optional cellular mobile DECT networks consists of:

- DECT System Master (Gigaset up to 100 users/30 radio stations, Mitel 65.000/1.024, Spectralink 4.096/256)
- DECT IP Base radio stations (8/11 chans)
- DECT Handsets, from Gigaset, MITEL, Spectralink or other GAP-compatible.

Radio coverage can be installed for one or multiple sites/clusters, as one single network.

IP Telephony devices

The LocaPhone Telephony System (PBX) will be using the following telephony devices:

- snom D3xx, D7xx, 3xx IP Phones, with optional keypad extensions
- PhoneSuite Professional Softphone/CTI-Client (Windows only)
- DECT Handsets from Gigaset, Mitel or Spectralink.

LocaPhone can also be used with alternative telephony devices:

- Mitel 67xxi/68xxi IP Phones
- Yealink SIP-T4xG/T4xS IP Phones
- Gigaset Maxwell 10/3/basic
- Polycom SoundStation conference phones

IP Telephony Headsets

Both snom phones and softphones may use the same Plantronics/Jabra headsets, using different cables to connect to either phone or PC.

LocaPhone VoIP Enterprise PBX

Enterprise Business Telephony Solution

Supported Connections & Devices

LocaPhone supports a variety of IP phones and hardware interfaces for bringing in telephony channels: SIP trunks, analog FXS/FXO ports, ISDN BRI and PRI (E1/T1) ports, GSM connections and others.

Interface ports are connected with external media gateway devices to LocaPhone by using an existing IP network.

LocaPhone primarily supports IP telephony devices from:

snom 3xx/D3xx/D7xx phones
MITEL 5xi/67xxi/68xxi phones
Yealink T4xG/T4xS phones
Gigaset Maxwell 10/3/basic
Polycom SoundStation conf phones
Gigaset DECT N720 & Handsets
MITEL DECT RFP 3x, 6xx Handsets
Patton SmartNode Media Gateways

Supported Protocols & Codecs

LocaPhone supports most current telephony protocols:
SIP (ETSI), SIPconnect 1.1
EURO ISDN S0 (BRI)
EURO ISDN S2M (PRI)
POTS FXS (analog phone port)
POTS FXO (analog landline port)
Q.SIG

LocaPhone supports current telephony codecs:
G.711 A/µ-Law, G.722, G.723.1
G.726, G.729, GSM, iLBC, Linear
T.38 (Fax over IP)
H.261/H2.63/H.264 (Video)
‚clear-mode' (ISDN B-channel over IP)

LocaPhone provides seamless and transparent translation between all of the above protocols and codecs.

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LocaPhone M800 VoIP PBX Appliance

ISDN and analog devices

The LocaPhone Telephony System (PBX) provides the following telephony ports, for existing devices to be connected to:

- ISDN BRI/S0 ports for existing services (e.g. RAS, Modems, data transmissions)

The number of ISDN BRI/S0 ports offered is designed for non-blocking ISDN connections.

However, the SmartNode 4638 offers 5 ISDN ports each, of which just 4 can be connected to IP. The fifth port can also be used in a “first come, first served” setting, so that if not all devices connected to the ISDN media gateway are used together, the number of ISDN media gateways could be reduced.

- FXS ports (FXS, analog a/b-line), for existing devices (e.g. Fax machines, Conference phones, single DECT Base stations, modems for alarms etc.)

The number of analog ports offered is designed for non-blocking connections, provides usual analog FXS line connectivity (line voltage, ring current/frequency), and can be individually configured for special services (Fax via T.38 over IP, Intercom, special tone schemes, ring tone sequences, MWI signalling etc.).

Telephony features

The LocaPhone Telephony System (PBX) provides the basic set of features (as stated in the current specifications sheet), and will provide the following additional features:

VoiceMail mailboxes for all users
- unlimited number of mailboxes
- Message Waiting Indication by message lamp and text display
- individual prompts and recordings per user
- unlimited recording time
- forward voicemails via email

Fax server
- for incoming & outgoing Fax transmissions
- unlimited Fax boxes & extensions
- email to Fax, Fax to email
- Fax client software for Windows, OS X
- individual Fax routing
- Fax queue management

Conferences
- 3rd party conference via button on phone
- virtual conference rooms
- conferences with up to 30 users each
- conferences can be held ‚on the fly‘

CallCenter
- call distribution via queues to agents
- agent functionality
- realtime-monitoring of queues/agents

Roaming Users/Hot Desking
- users can log off from their phones and log in on a different phone
- all individual phone settings (caller lists, phone books, ringer & volume settings, BLF busy lamp field configuration) are automatically set on the phone on which user logs in
- different call diversions configurable if user is logged in/off

Softphones
- PBX extensions can either be used with hardware IP phone or with PC client software (softphone)
- PhoneSuite Softphone (Windows) with BLF and CTI features, provides MS Exchange/ Outlook/3rd party integration
- Softphones provide CLIP (name, number), call transfer, call diversion, conference etc.
- Softphones can be used with same headset hardware as hardware IP phones

CTI Integration

CTI/TAPI is provided by LocaPhone:
- click to dial by Web interface
- click to dial by Phonesuite client
- MS Exchange integration via Phonesuite
- API provided for individual integration of CTI services

LocaPhone VoIP Enterprise PBX

LocaPhone M800 Enterprise Business Telephony Solution

LocaPhone M800 VoIP Appliance
LocaPhone VoIP PBX for up to 100 users/extensions/phones/devices.

Already includes PBX telephony interfaces - connects to ISDN BRI, analog FXS and analog FXO ports.

Includes Switch: LAN PoE ports for IP Phones and DECT components.

‚Carrier-grade‘ hardware plattform.

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