



LocaPhone VoIP PBX System

Enterprise Business Telephony Solution

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.

LocaNet GmbH

Tel +49 231 91596-66
<http://www.locaphone.de>

Business Challenge - a PBX system!

To replace an existing telephony system (PBX), the new system should have at minimum 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 GmbH.

LocaPhone is a modern PBX system as a 'soft switch', based on Voice-over-IP technology using the freely¹ 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 packetised 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 maintenance.

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 customised 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).

LocaPhone VoIP Enterprise PBX

Enterprise Business Telephony Solution

Solution Benefits

Cost reduction

No licensing, no fees

Fully controlled PBX

Easy and simple deployment of
devices and functions

Customisation for individual needs

Solution Benefits

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

Substantial cost reduction

Combined with IP telephones and media gateway 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 maintenance.

Customisation

Through its support for internationalisation, 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 customised 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

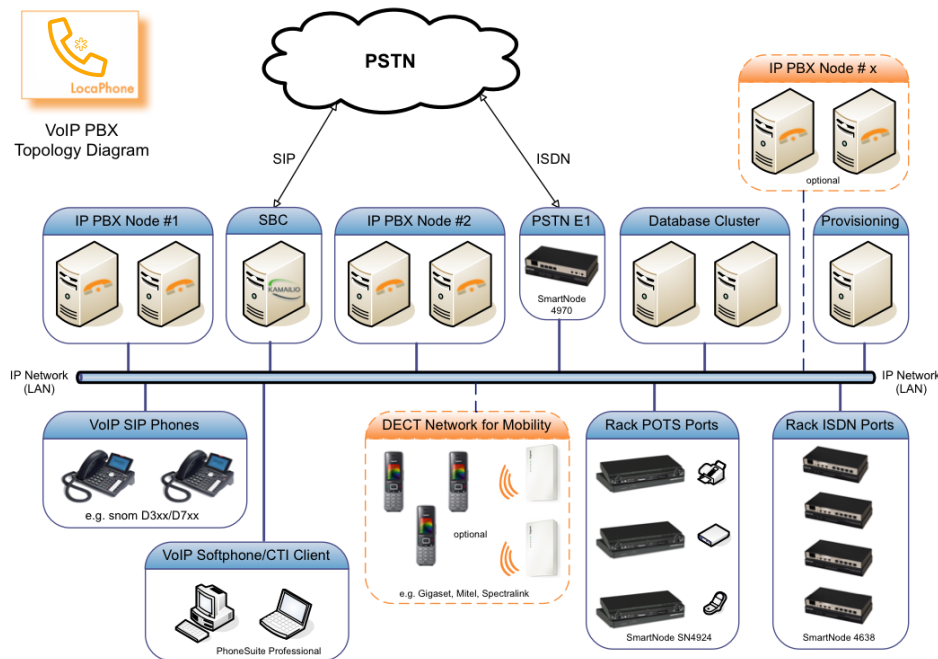
LocaPhone's unusually flexible dial plan allows seamless integration of all PBX functionality. Once a call is in a, anything can be done to it. In the same way that a Web server like Apache gives the user fine-grained control over virtually every aspect of its operation (and configuration), the same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

LocaNet GmbH

Tel +49 231 91596-66
<http://www.locaphone.de>



VoIP PBX
Topology Diagram



PBX processors

The LocaPhone Telephony System (PBX) can be provided as single server or as a redundant multi-node cluster system on different servers (see diagram):

- core servers for users (ca. 800 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 virtual machines or hardware servers, 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 from Patton, Audiocodes or others, to connect via e.g.:

- ISDN PRI/E1/Q.SIG media gateways
- ISDN BRI/S0 media gateways
- POTS Media Gateways
- other gateway devices

Media gateways are small standalone or rack-mount devices for cabinet installation with a 19"/1U form factor. Breakout patch panels for analog ports can be 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 infrastructure for site-wide radio coverage.

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

Additional handsets can easily be added to the DECT network, both from Gigaset PRO, MITEL, Yealink, Spectralink or other handsets using the basic DECT GAP-protocol.

An optional cellular mobile DECT networks consists of:

- DECT System Master (e.g. Gigaset PRO up to 20.000 users/6000 radio stations)
- DECT IP Base radio stations (8/10 chans)
- DECT Handsets from Gigaset PRO, MITEL, Yealink, Spectralink or other GAP compatible handsets

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 for example the following telephony devices:

- Snom D3xx, D7xx & legacy IP Phones, with optional keypad extensions
- PhoneSuite Professional Softphone/CTI-Client (Windows only)
- DECT Handsets from Gigaset PRO, MITEL, Yealink or Spectralink.

LocaPhone can also be used with alternative telephony devices:

- Mitel 68xxi/67xxi & legacy IP Phones
- Yealink SIP-T5x/T4xU/S/G IP Phones
- Gigaset Maxwell 4/3/2/basic
- Yealink/Poly conference phones

IP Telephony Headsets

IP desk phones and softphones may use the same Poly/Plantronics/Jabra headsets, wireless (BT) or via 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 D3xx/D7xx & legacy phones
Yealink T4xG/S, T5xA/V/S phones
MITEL 68xxi/67xxi & legacy phones
Gigaset Maxwell 4/3/2/basic
Polycom SoundStation conf phones
Gigaset PRO DECT N870/N670
Gigaset PRO Handsets
MITEL DECT RFP, 6xx Handsets
Patton SmartNode Media Gateways
S500 VoIP PBX Appliance

Supported Protocols & Codecs

LocaPhone supports most current telephony protocols:

SIP (ETSI) Trunk, SIP Numbers
EURO ISDN S0 (BRI), 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.

LocaNet GmbH

Tel +49 231 91596-66
<http://www.locaphone.de>



LocaPhone S500 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.

- 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 to 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

Hospitality

- Alarm and Wake-Up
- Room status reporting
- Announcements
- Branding
- limited/restricted access
- checkout clean-up

LocaPhone VoIP Enterprise PBX

LocaPhone S500 Enterprise Business Telephony Solution

LocaPhone S500 VoIP Appliance
LocaPhone VoIP PBX for up to 80
users/extensions/phones/devices.

Already includes LocaPhone PBX
telephony software:

Faxserver, VoiceMail, IVR, ACD,
Live-Monitoring, Conferencing,
CTI/TAPI, Hospitality applications

'Carrier-grade' industrial server

LocaNet GmbH

Tel +49 231 91596-66
<http://www.locaphone.de>