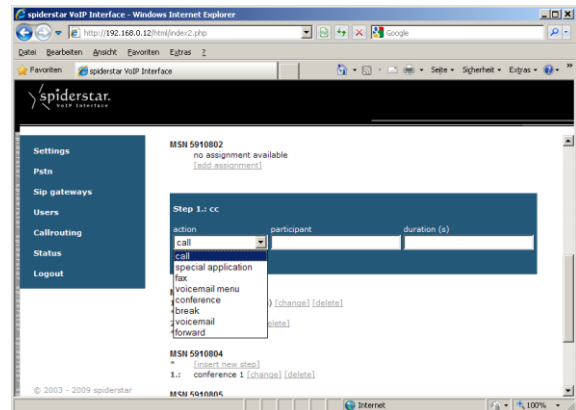




Case study

VoIP based pbx system for business

When our customer, a consulting company, first approached us in 2003 and asked us to work out a voip solution for their small and medium sized offices we were skeptical: a lot of heterogeneous internet telephony solutions had been around for many years – many of those known for their low voice quality, time lags and one-way audio. Could voip really be the future? “Think the unthinkable” we delivered a first prototype of a voip pbx system for small and medium sized offices. The first one providing a web based user interface to Asterisk, our technical choice for the underlying opensource voip engine which just had been released in version 1. Testing out the system with customers we concluded that results were very promising which brought us to the decision to finalize the system with additional features which had been required by customers and offer it as a all-in-one solution including voip termination. In the years to follow we sold the system internationally to customers including listed companies and built custom solutions on top including interactive voice response systems and solutions for callcenters. Even though low margins and increasing regulatory requirements brought us to iterate and finally retire the product the system is still in use today.



Model/Description	spiderstar VoIP Interface
Version	4.0.0
Software	
System	Linux
Scriptlanguage	PHP
Database	PostgreSQL
Telephony	
VoIP signaling	SIP
Codecs	G.711/(G.729 - optional)
max. users	No limitation – users require license (3 free)
Fax (receive)	digital (T.38 support) as pdf
Fax (send)	digital (T.38 support) with email/pdf attachment
MusicOnHold	MP3
Voicemail	on absence/ide/busy /always as wav file
Voicemail menu	Yes
Hold/transfer	yes
Conferences (press conference function)	In 5 conference rooms
Call forward	Yes (in pbx)
Day/night settings	With special applications
CDR protocol	In postgresQL database
Ip gateway support	SIP/IAx2
LCR	Yes – in callrouting table
IVR	Multidimensional with announcements
Other	
Time	System time
Email delivery	With integrated smtp server (sendmail)
Smarthost support	Yes
Interface	Webbased (English/German/French/Spanish)

Advantages of voice over ip (voip)
There are several advantages along with voip technology. One thing is the capability to use an ip-gateway that may drastically reduce the telephone costs for national and international calls. Using an ip-gateway or so called centrex service also enables the user to perform calls completely over ip so that no other p2t connection is required. Having migrated to ip telephony every connection is established via the local area network. The benefit of this is that no separate telephone lines are required and in addition to that calls can even be routed over wireless lan. Last but not least, there are some comfort features that are typical for voip telephony such as voice2email functionality, music on hold as mp3 and the configuration via a web interface.

General features
The device supports ip telephony based on H.323 and sip protocol and can register itself at an ip-gateway using sip protocol. Therefore the server is compliant to any ordinary ip handset and can also be used together with ip softphones and headsets.
The pbx includes an interface to PSTN (S0). As usual, calls can be set on hold, can be transferred or deflected. A parked user will hear music on hold that had been uploaded as mp3 before.

Fax 2 email gateway
Incoming faxes are being delivered as an email attachment. This allows faxes to be forwarded to other users or to be stored for a long time. Of course incoming faxes can also be printed on a piece of paper as they had been handled before.

Remote access
Remote access allows every user to dial in the corporate network. Doing this data on the lan can be accessed within homeoffice and calls can be seamlessly be received at home. All this is handled with a secure 128 bit encrypted VPN connection.

Voice mailbox
Every participant gets his or her own voice mailbox. Incoming messages will be forwarded to the user's email account. In addition to that voicemails may be accessed through a voicemail menu. Everyone can define in what case he (she) won't be available (in absence, on busy, always).

Conferencing
5 conference rooms allow communicating with more than 2 participants – internal and external.

Ip gateways
Ip gateways are a very popular method of reducing telephone costs. Using ip gateways the call is going to be routed over the internet to a sip proxy where an account exists for the company permitting the caller to reach any participant in the world on his or her p2t line.

Figure: two branches being interconnected with spiderstar.net voip telephony server and all together 10 computers and 10 ip handsets, in addition to that two fileservers.

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VoIP 4 all.
spiderstar.net voip telephony server for small/home office.