



Asterisk: Open Source VOIP PBX

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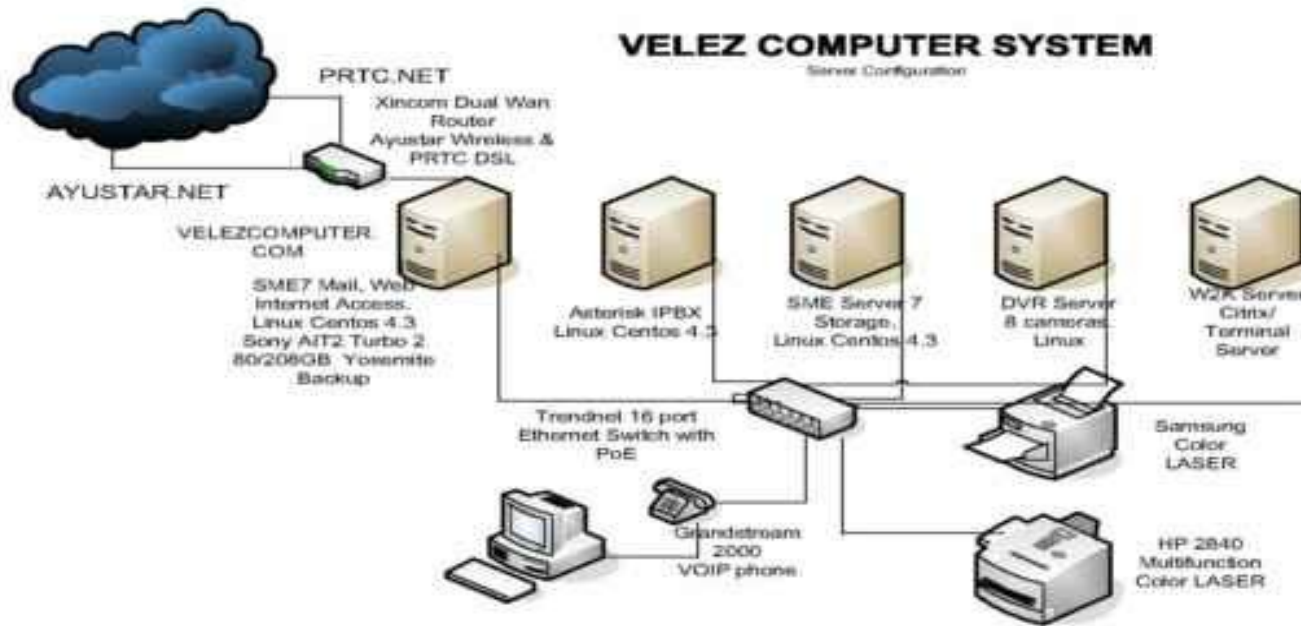
800 266-0730

Unified Messaging

- Since 1985 Velez Computer System (VCS) has provided customer solutions and services. In the past six years we have invested in Open Source solution like SMEServer, Open-Xchange, Asterisk, Trixbox, SugarCRM, Firefox, Thunderbird, Open-Office, ClamAV , SpamAssassin Linux desktop and many others. They replace or work with Microsoft solution at a much lower cost with added features.
- Solutions that are integrated to works in harmony to increase production and reduce cost. Now emails, faxes and voice mails are together and can be accessed from any email software including Microsoft Outlook. Mobility with remote portable extensions and Follow Me allow you to work anywhere at any time. Trixbox and SMEserver/Open-Xchange provides a complete solution with VOIP, email, antispam, antivirus, group calendar, schedule & contact, voice mail, faxes and Internet control. Open-Source technology working together with Microsoft technology



Our Office System





Why Asterisk?



- **Serious Cost Reduction**

- An Asterisk System can typically be installed for about half the cost of a traditional system. For large scale systems the saving can be even greater. As an example, prices start from \$5999* for a fully installed system with 10 handsets and 12 months support. Adding additional handsets can be done for as little as \$175 with no per handset license fees or mandatory maintenance contracts.

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- **Control**

- Asterisk Allows a business to take control of their phone calls. Once a call is received by Asterisk, virtually anything can be done. Asterisk provides a level of granular control normally only associated with the most expensive of systems.

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- **Integration**

- Asterisk can be integrated into your existing business systems such as Microsoft Outlook, CRM and ERP systems. Integration is probably Asterisk's greatest strength. Being able to integrate your business systems directly with your phone system changes how you view and use your phone system. See the page on ***Integrating Asterisk*** for a discussion on how Asterisk can be integrated with business systems.

* with 4 POTS Lines (4FXO)

- **VoIP**

- Asterisk was built to handle VoIP calls. Significant savings can be had by using Asterisk to send all inter-office calls across the internet as well as reducing external call costs by using Mobile Telephone Gateways and accessing flat rate national call costs. It is not uncommon for the savings in call costs to pay for the acquisition of an Asterisk Phone System.

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- **No Lock-In to Proprietary Systems**

- Obtain support, accessories and upgrades from a variety of sources. There are dozens of third party applications which can further extend the functionality of Asterisk and a surprising number of them are free.
- Telephone handsets are standards based (SIP) and can be re-used on other SIP based PABXs.

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- **Reduced Cabling Costs**

- VoIP based telephone calls are not just for making calls over the internet. Asterisk can also use VoIP for calls within the office using your existing LAN lines. When wiring a new office, this can lead to considerable savings as only one set of cables need to be laid.



Asterisk's Features



- **Call features**

- **ADSI On-Screen Menu System**

- Alarm Receiver
- Append Message
- Authentication
- Automated Attendant
- Blacklists
- Blind Transfer
- Call Detail Records
- Call Forward on Busy
- Call Forward on No Answer
- Call Forward Variable
- Call Monitoring
- Call Parking
- Call Queuing
- Call Recording
- Call Retrieval
- Call Routing (DID & ANI)
- Call Snooping
- Call Transfer
- Call Waiting
- Caller ID
- Caller ID Blocking
- Caller ID on Call Waiting
- Calling Cards
- Conference Bridging
- Database Store / Retrieve
- Database Integration
- Dial by Name
- Direct Inward System Access
- Distinctive Ring
- Distributed Universal Number Discovery (DUNDI™)
- Do Not Disturb
- E911
- ENUM
- Fax Transmit and Receive (3rd Party OSS Package)

- Flexible Extension Logic
- Interactive Directory Listing
- Interactive Voice Response (IVR)
- Local and Remote Call Agents
- Macros
- Music On Hold
- Music On Transfer:
 - Flexible Mp3-based System
 - Random or Linear Play
 - Volume Control
- Predictive Dialer
- Privacy
- Open Settlement Protocol (OSP)
- Overhead Paging
- Protocol Conversion
- Remote Call Pickup
- Remote Office Support
- Roaming Extensions
- Route by Caller ID
- SMS Messaging
- Spell / Say
- Streaming Media Access
- Supervised Transfer
- Talk Detection
- Text-to-Speech (via Festival)
- Three-way Calling
- Time and Date
- Transcoding
- Trunking
- VoIP Gateways
- Voicemail:
 - Visual Indicator for Message Waiting
 - Stutter Dialtone for Message Waiting
 - Voicemail to email
 - Voicemail Groups
 - Web Voicemail Interface
- Zapatteller



Asterisk's Features



- **Computer-Telephony Integration**
- AGI (Asterisk Gateway Interface)
 - Graphical Call Manager
 - Outbound Call Spooling
 - Predictive Dialer
 - TCP/IP Management Interface



Asterisk's Features



- **Scalability**
- TDMoE (Time Division Multiplex over Ethernet)
Allows direct connection of Asterisk PBX
Zero latency
Uses commodity Ethernet hardware
Voice-over IP
Allows for integration of physically separate installations
Uses commonly deployed data connections
Allows a unified dialplan across multiple offices



Asterisk's Features



- **Codecs**

- ADPCM

 - G.711 (A-Law & μ -Law)

 - G.722

 - G.723.1 (pass through)

 - G.726

 - G.729 (through purchase of a [commercial license](#))

 - GSM

 - iLBC

 - Linear

 - LPC-10

 - Speex

- **Protocols**

- IAX™ (Inter-Asterisk Exchange)

 - H.323

 - SIP (Session Initiation Protocol)

 - MGCP (Media Gateway Control Protocol)

 - SCCP (Cisco® Skinny®)



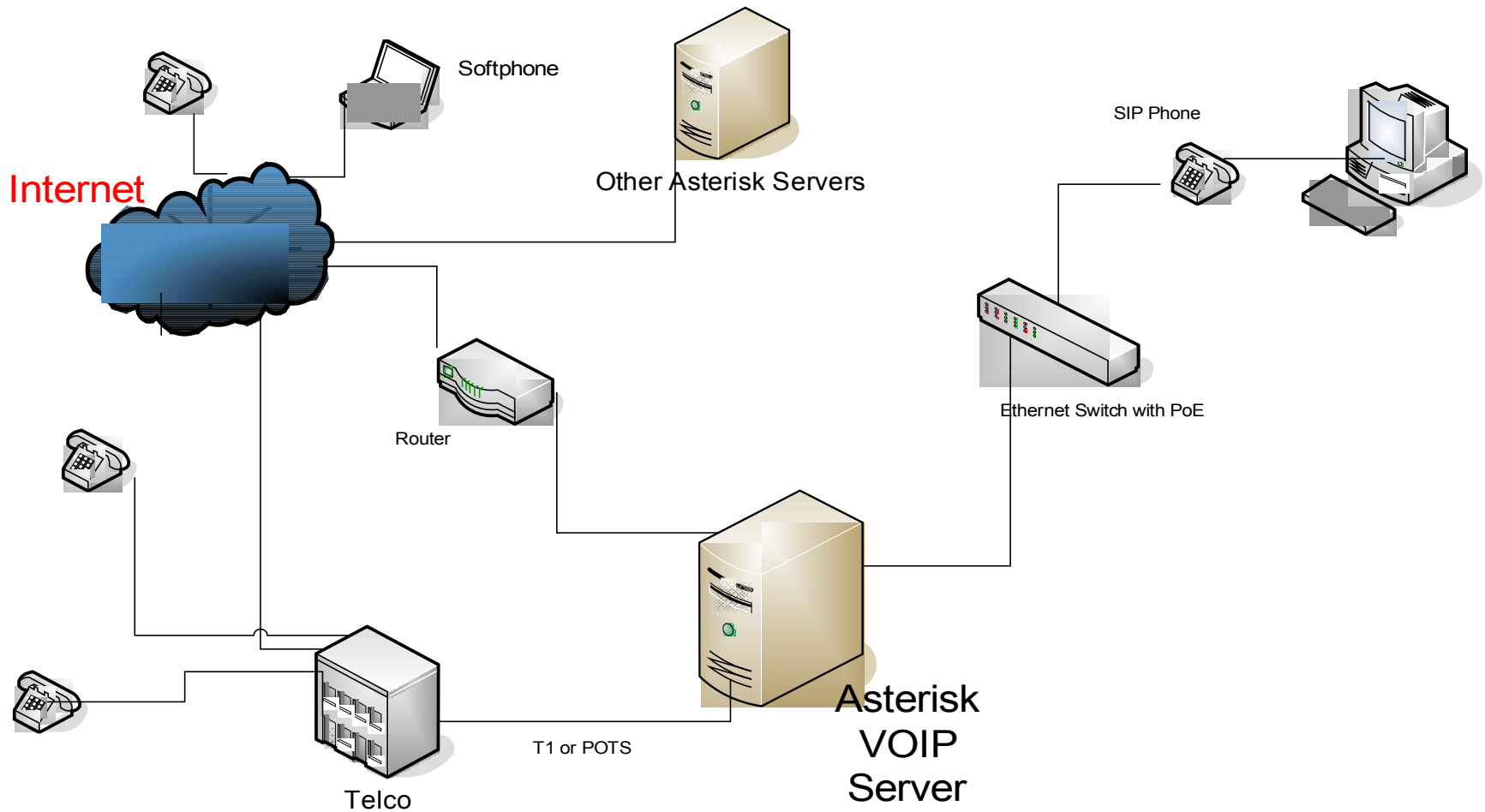
Asterisk's Features



- **Traditional Telephony Interoperability**
- E&M
- E&M Wink
- Feature Group D
- FXS
- FXO
- GR-303
- Loopstart
- Groundstart
- Kewlstart
- MF and DTMF support
- Robbed-bit Signaling (RBS) Types
- MFC-R2 (Not supported. However, a [patch is available](#))
- **PRI Protocols**
- 4ESS
- BRI (ISDN4Linux)
- DMS100
- EuroISDN
- Lucent 5E
- National ISDN2
- NFAS



Asterisk's Setup





Asterisk's Benefits



- **Choose the Cheapest Call Rate**

- An Asterisk PABX will connect to any telecommunications provider and just about any of the new generation Voice Over IP (VoIP) providers that are in the market.*? The benefit is that with an Asterisk PABX, you can connect to whichever service provides the best value for money. In fact, with an Asterisk PABX, you can even connect to multiple services and have Asterisk send calls over the services which provides the cheapest call rates for any given call.

- The small number of exceptions are proprietary VoIP service such as 'Skype' who currently refuse to connect to any other network

- **Costs Savings on Long Distance Calls**

- An Asterisk PABX is shipped ready to connect to a VoIP provider which yields direct cost savings on long distance calls. IP based PABX, such as Asterisk, when coupled with a VoIP provider (provide internet phone calls) delivers untimed National Calls and significantly discounted International calls. Local calls can often be discounted to Telstra's standard rate. Calls to other people who use the same VoIP provider are generally free. While savings will differ based on your usage patterns, typically they will be in the 30-50% range

- **Savings on line costs**

- Another benefit of an IP based PABX such as Asterisk is the savings on line costs. When you start making calls using an Asterisk PABX using VoIP, most organisations will find that they can reduce the number of PSTN (Telstra, Optus) lines into their business.

- **Cheap Lan Line to Mobile calls**

- Many people are not aware that making a call from a lan (local-area network) line phone to a mobile phone is the most expensive type of call you can make. Mobile to mobile calls are far cheaper and some mobile telephone providers even provide free calls within their own network. With an Asterisk PABX, and the addition of a 'Mobile Phone Gateway', Asterisk can turn any call to a mobile phone from your office phone into a low cost mobile to mobile call.

- Organisations which have a number of sales staff on the road with mobile phones can gain access to significant savings by the addition of a 'Mobile Phone Gateway'.

- In some circumstances, the savings achieved from a mobile gateway are enough to pay for the complete PABX in under 12 months.

- **Unified Messaging - Fax, Voicemail and Email**

- An Asterisk PABX provides the ability to have all of your messages delivered to your email inbox.

- **- Voicemail**

- - Asterisk can be configured to deliver any voicemails directly to your email client. Just click on the message and you can listen to your voicemail directly from your computer.

- **- Fax**

- - By adding AsterFax, Asterisk is able to send and receive facsimiles directly to and from your existing email client.

- With Asterisk all your messages arrive at a single location which makes life so much more simple. With AsterFax, you no longer need a private fax number for sending/receiving sensitive documents as the documents can be delivered directly to your desk phone using 'Direct In Dialling' (DID) where each employee has their own private number.



Asterisk's Benefits



- **Savings on Cabling**

- When fitting out a new office or renovating an existing one, the cost of cabling can be quite extensive. An Asterisk PABX system will run over the same cables as your computers. For small installations a single cable to each desktop is sufficient to provide a connection for a telephone and a computer (this does require a telephone handset which includes an Ethernet pass through option). For larger installations, we recommend having a separate set of cables for the telephony system. Even in these circumstances, savings are possible as only a single type of cable needs to be installed.

- **Low Cost access to advanced telephone features.**

- As the Asterisk PABX is a new generation telephone system, it delivers new price points on standard features which make them affordable to even small business, while adding new advanced features. This is the most significant advantage of an Asterisk PABX when comparing it to other VoIP based PABXs.
- Previously, features such as call queuing, digital receptionist and voicemail were only available in high end PABXs. With an Asterisk PABX, the same set of features are delivered in every system, which means that even small businesses get access to the same advanced features as large corporations.

- **Mobility**

- With an Asterisk PABX the definition of a telephone extension has changed. A telephone extension is no longer a fixed device at a fixed location. Employees working from home or on the move can now make phone calls to office extensions (or anywhere else for that matter) as if they were sitting at their desk in the office. The inverse is also true; an Asterisk PABX can be configured so that it knows where you are and routes incoming calls to you no matter where you are. Travelling staff can pack a VoIP handset (which can be as small as a Bluetooth headset when used in conjunction with a laptop) and make calls from anywhere that a broadband internet connection is available.

- **Advanced Billing and Call Accounting Services**

- All Asterisk PABXs come with a call accounting service so that you can keep track of each call made including source and destination number, duration etc. This can be used to track call usage of different departments.
- Optional advanced modules are also available to provide web based reporting tools where required.

- **Free Inter-Office calls with a Multi-Branch PABX**

- Every Asterisk PABX has the ability to connect to one or more Asterisk PABXs. This means that its very easy to connect multiple offices and route calls between them. Add a reliable Internet Connection at each end and you can start making free calls between offices even if they are located interstate or internationally.

- **Keep your old PABX**

- For organisations which have a large investment in their existing PABX, an Asterisk PABX can be installed along side, giving you the added benefits without having to throw your old Telephone system away.
- It is often far cheaper to install an Asterisk PABX along side your existing PABX that it is to upgrade your existing system.

- **Scalability**

- Asterisk technology scales from small offices with 6-7 phones, to large scale enterprises with thousands of phones spread across the globe. You can scale up an Asterisk PABX by adding additional PABXs or upsizing the existing server. It is important to note that even when upsizing you can still use the same version of Asterisk, therefore you don't lose any investments you have made in customising, purchasing peripheral systems or handsets. This is especially important when you start talking about integrating your business systems with your PABX using Computer Technology Integration (CTI). The same Asterisk PABX technology can be used whether you are a small 5 employee business or a global enterprise, system compatibility will be maintained as you grow to bigger systems.

- **Open Standards means no Lock-In**

- The Asterisk PABX is built on open standards which means that you are not locked into any single vendor for support. Asterisk also operates with standards based (SIP) phones so that if you decided to move to another PABX, you wouldn't need to throw your phones away. You can mix and match phones from multiple vendors such as Cisco, Polycom and Snom.



Equipment



- **Grandstream 2020**
- 6 lines indicators with individual SIP account
- 7 programmable hard keys and 4 XML programmable context-sensitive soft keys
- Multi-line support of up to 13 call appearance lines with dual-color LED indicators
- Expandable to additional 112 lines through expansion key-modules
- Support Caller ID display or block, per call or permanent
- Call waiting, hold, mute, transfer (blind or attended), forward, and more
- Multi-party conferencing (up to 5-way)



Grandstream 2000



- Multiline support of up to 11 lines indicators (expandable to 112 lines through expansion key-module)
- Graphical LCD to display up to 8 lines and 22 characters per line
- Dual 10/100Mbps Ethernet ports
- 2.5mm headset jack (versions 0.3 and 0.4 - 3.5mm headset jack)
- Support Caller ID display or block, per call or permanent
- Call waiting, hold, mute, transfer (blind or attended), forward, and more
- 3-way conferencing
- Integrated Power-over-Ethernet (802.3af)



ATCOM 530P

- SIP/IAX2 support.
- Support two sip servers running at the same time.
- Redundancy sip server capable.
- NAT, Firewall.
- DHCP client and server.
- Support major G7.xxx CODEC.
- VAD,CNG.
- G.165 compliant 16ms echo cancellation
- E.164 dial plan and customized dial rules
- Hotline.
- Call Forward, Call Transfer, 3-way conference calls
- Call ID display
- DND(Do Not Disturb),Black List,Limit List



Telephony Devices

- 4 FXO or FXS adapter

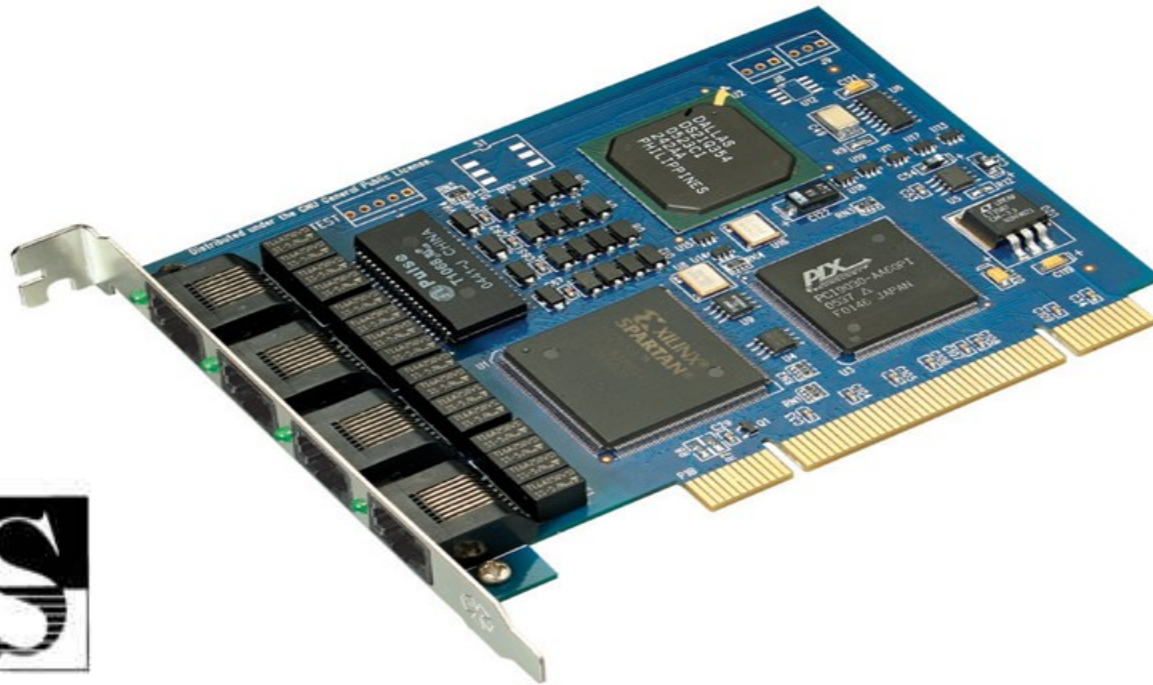


- Digium 8 FXO or FXS



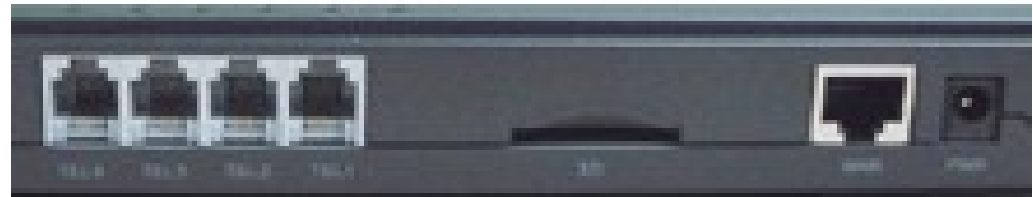
Telephony Adapters

- 4 Port T1 PCI Card (96 lines)



Telephony Appliance

- **ATCOM IP04 Appliance**
- Up to 4FXO or FXS combination
- AsteriskNow GUI



POWER
JACK

10/100 Ethernet Switch PoE

