Asterisk As VoIP Gateway

Description

One of the most popular implementations of Asterisk is in the form of a **VoIP gateway**. It is frequently used in conjunction with Digium telephony interface cards to connect legacy PBX systems with VoIP services or, conversely, to link IP PBX systems to legacy PSTN connections. Asterisk's powerful multi-protocol call processing engine supports virtually every PSTN and VoIP protocol and technology making it possible to connect at a fraction of the cost of traditional gateway systems.

Supported Scenarios

VoIP Services For Legacy PBX Systems

▼ Legacy PBX <Analog> Gateway <SIP/Skype/IAX2/H.323> VoIP Service

▼ Legacy PBX <T1/E1/J1> Gateway <SIP/Skype/IAX2/H.323> VoIP Service

▼ Legacy PBX <ISDN-BRI> Gateway <SIP/Skype/IAX2/H.323> VoIP Service

PSTN Trunks For VoIP PBX Systems

▼ VoIP PBX <SIP/H.323> Gateway <Analog> PSTN

▼ VoIP PBX <SIP/H.323> Gateway <T1/E1/J1> PSTN

▼ VoIP PBX <SIP/H.323> Gateway <ISDN-BRI> PSTN

Private Network / Toll Bypass

▼ Legacy PBX <> Gateway <VoIP> Gateway <> Legacy PBX

▼ Legacy PBX <> Gateway <VoIP> VoIP PBX

Features

▼ Support for the most common protocols including:

IP Protocols	PSTN Protocols	
SIP	Analog	
Skype	T1/E1/J1	
IAX2	ISDN-PRI	
H.323	ISDN-BRI	MFC/R2 SS7

▼ Dynamic call routing for cost savings ("least cost routing") or for redundancy/fail-over.

▼ Call data forwarding and manipulation across various technologies.

▼ Inexpensive solution based on commodity computer hardware.

▼ Based on stable and widely tested Linux operating system.

Benefits

▼ Extend the life of legacy investments by adding IP telephony capabilities and services.

▼ Save money on long distance and international charges by using low cost VoIP services.

▼ Save money on toll charges by implementing private connections over the corporate WAN.

▼ Rapid return on investment (ROI) – generally less than 12 months.

Components

The components required to create a gateway with Asterisk vary slightly depending on the scenario. Most implementations require a combination of the following:

▼ Generic x86 computer platform (server or desktop)

▼ Linux operating system

▼ Asterisk telephony engine

▼ Digium digital or analog interface card(s)

▼ Interface cable(s) to legacy system

The computer can be any standard x86 (Intel or AMD) computer. The system will need to include either PCI or PCI-Express expansion slots. The chassis must be large enough to accommodate the interface cards. The system should be at least a Pentium IV or equivalent for a small gateway (up to 8 analog ports). Larger gateways and gateways that require transcoding (translation of the audio media from one format to another) will require more powerful hardware.

The operating system can be virtually any modern 2.6-series distribution of Linux. Digium recommends the AsteriskNOW distribution, which comes with Asterisk and the interface card drivers pre-installed. Digium offers support subscriptions for systems running RedHat Enterprise Linux 4/5, CentOS Linux 4/5, Ubuntu Server Long Term Support (LTS), Debian stable (currently "Lenny"), SUSE Enterprise Linux 10/11 and OpenSUSE 10/11.

The current Asterisk release is available as a binary installation for the RedHat and CentOS family of Linux distributions, and comes pre-installed on the AsteriskNOW distribution. It can be installed from source code with a few simple commands on any other supported Linux distribution. Details on downloading and installing Asterisk or the AsteriskNOW distribution are available at www.asterisk. org.

Interface cards are required to tie the gateway system in with legacy telephony technologies. To connect a PBX with analog trunk ports (or, conversely, to connect a VoIP PBX to analog lines) the gateway will need a Digium analog

Company	Product	Price	T1 Port Price	E1 Port Price
AudioCodes	Median 1000 w/ Quad T1/E1	$8,849.95	$92.00	$74.00
Dialogic	DMG2120DTI Four T1/E1	$5,995.00	$62.00	$50.00
Digium	Asterisk Gateway w/ Quad T1/E1	$3,495.00	$36.00	$29.00

Table 1. Cost comparison of commercial gateway solutions

card. Legacy systems with digital T1 or E1 connections (or VoIP systems that must connect with T1 or E1 lines) require a Digium single, dual or quad-spand digital card. Connection with ISDN-BRI trunk ports or ISDN-BRI lines is accomplished using a Digium BRI or analog/BRI hybrid card.

Comparison With Commercial Gateway Solutions

Assembling a VoIP gateway from Asterisk and a standard Linux computer can save significantly over the cost of purchasing a commercial gateway system, especially for high-capacity scenarios. For example, the table above compares the cost of building a four span (i.e. 4 T1 or E1) PRI gateway based on Asterisk with equivalent solutions from AudioCodes and Dialogic.

Asterisk Gateway Component Prices

$1,200 – Server Computer with Quad Core Intel Xeon (estimated)

$1,700 – Digium Quad Span (4 T1/E1) Interface Card w/ Hardware Echo Cancellation (estimated)

$0.00 – Linux Operating System

$0.00 – Asterisk Telephony Engine

$595.00 – Digium L1 Support Subscription

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More Information

To download Asterisk or AsteriskNOW or for more information on how to create a VoIP gateway or other solution with Asterisk, see: www.asterisk.org

To buy Digium interface cards, support subscriptions, add-on software, check out the Digium web store at: **http://store.digium.com** or contact Digium to find a reseller in your area.

For information on Digium's complete line of Asterisk training courses, visit **www.digium.com/en/training**

For information on support subscriptions for Asterisk, visit **www.digium.com/en/support**