



CRYSTALVOICE® *INTEROFFICE VOICE TRUNKING* *CONNECTING THE ENTERPRISE*

© 2003 CrystalVoice Communications, Inc.

Overview

CrystalVoice Communications is a leading provider of voice communications solutions over the raw, unmanaged Internet. CrystalVoice's patent-pending technology allows the user to experience full-duplex, high-quality voice over the Internet, even over low-bandwidth connections.

Today, enterprises are faced with the options of either absorbing the high cost of PSTN toll charges or the monthly expense of maintaining a wide area network (WAN) connection between offices.

Now, the promise of free, high-quality voice-over-IP is made possible with the CrystalVoice® *Interoffice Voice Trunking (IVT)* solution. Callers can use their existing TDM-based telephone system or IP based systems to call other sites within their enterprise without incurring long distance phone charges or expensive WAN or managed network charges.

Interoffice Voice Trunking is made possible by CrystalVoice's breakthrough technology that puts the "smarts" at the edge of the network, rather than the middle. As a result CrystalVoice enables high-quality voice to be transmitted over any network, including those without "quality of service", such as the public Internet.

CrystalVoice Components

CrystalVoice's *Interoffice Voice Trunking* solution includes the following system components:

- The CrystalVoice® *Internet Soft Switch (ISS)*, which provides system services such as presence management, call routing, call logging, directory services, and reporting. Web-based administration is provided via the CrystalVoice® *Systems Manager*. Both SQL and MSDE database services are supported.
- The CrystalVoice® *Internet Voice Transcoder (IVX)*, which performs call signaling and media transcoding to connect Internet calls to an existing voice network. The *IVX* is H.323 v2 and TAPI compatible.

Solution Benefits

Connecting PBX systems over the Internet affords advantages that extend beyond toll by-pass:

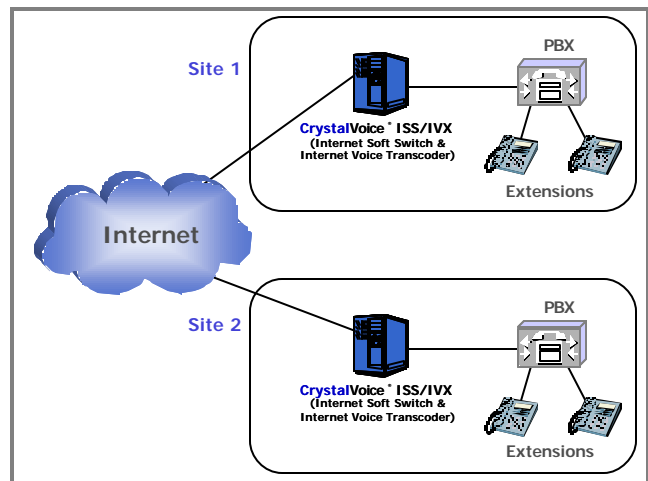
- Seamless experience for outside callers (e.g. customers)
- Extension-to-extension dialing across locations
- Transfer calls between offices
- Access voice mail from another location
- Find-me/follow-me between multiple offices
- Join conference calls from remote offices
- "Hop-off" to the PSTN at a distant location to eliminate long-distance charges

Multiple Configurations Supported

IP PBX and H.323 Based Solutions

CrystalVoice's products are fully compatible with the IP PBXs from Cisco and 3Com as well as any other H.323 compatible PBX, including circuit switched telephone equipment (see *Figure 1*).

Figure 1



Circuit Switched Solutions

Traditional PBXs can take advantage of the *Interoffice Voice Trunking* solution by installing a voice gateway to convert the circuit switched calls to IP.

Making Calls – Example Call Flow

The call flow below highlights an example *IVT* environment that utilizes a gateway to convert the telephone signals to IP packets for transmission over the Internet (see *Figure 2*).

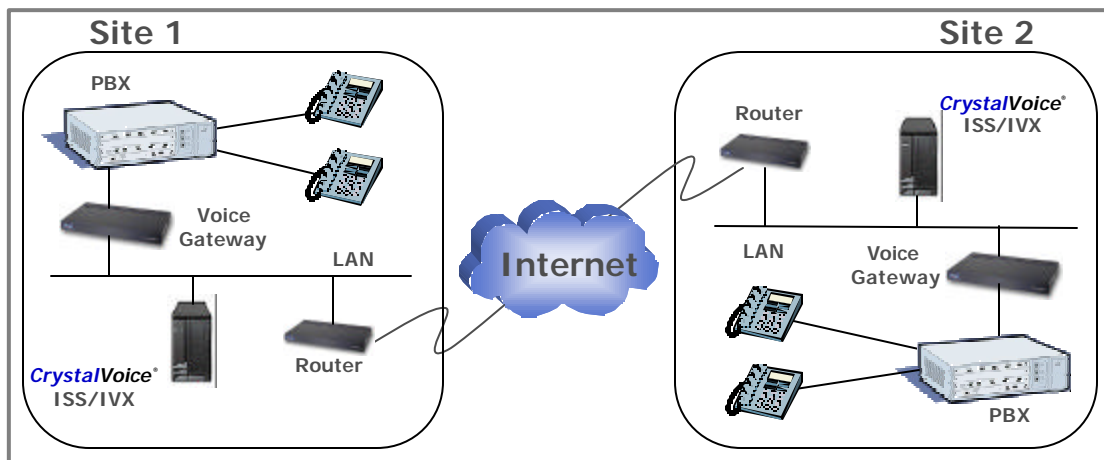
- A caller at Site 1 picks up the phone that is connected to the PBX on Site 1's LAN and dials the appropriate access number and extension to make a call.
- The PBX at Site 1 sends the call to the voice gateway, which converts the call to IP (H.323) and forwards it to the *IVX* located at Site 1.
- The *IVX* at Site 1 converts the IP (H.323) call to CrystalVoice's proprietary protocols and sends the call over the Internet to Site 2.
- The *IVX* at Site 2 receives the call and converts it back to IP (H.323) then forwards it to the voice gateway.
- The gateway converts the call back to a circuit switched call and sends it to the PBX at Site 2, which terminates the call to the desired phone extension located at Site 2.

Technical Features

CrystalVoice® Interoffice Voice Trunking (IVT)

- Runs on any Windows 2000 or XP server – enables companies to extend the useful life of legacy hardware (see *System Requirements* below)
- Supports any broadband Internet connection (e.g. DSL, ISDN, cable modem) without requiring specialized Quality of Service (QoS)
- Dynamic bandwidth utilization: 8 to 22 kbps per port – allows voice and data to share a common IP connection
- Circuit switched connectivity through an H.323 v2 interface from a voice gateway (e.g. Cisco VG200, 2600, 3600, and 5300)
- Secure, web-based administration from any computer via the CrystalVoice® *Systems Manager*
- High-reliability architecture

Figure 2



System Requirements

CrystalVoice® Internet Soft Switch (ISS) and Internet Voice Transcoder (IVX)

- Concurrent call capacity based on server capabilities
- Microsoft Internet Information Services (IIS) required for web-based administration
- Windows 2000 or XP
- SQL or MSDE database services

Cisco Requirements (if applicable)

- Cisco CallManager OS 3.0(12) or higher
- Cisco Voice Gateway IOS 12.1 or higher

3Com Requirements (if applicable)

- TAPI/WAV licenses (available from 3Com)
- NBX OS Release 4.0 or higher

For a dealer near you call: