Ascend

FAQ

MultiVoice™ for the MAX™ Release 1.0

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ASCEND

General Questions

1. What is Ascend is MultiVoice for the MAX Product?

The MultiVoice™ for the MAX™ product allows ordinary telephones to connect to other telephones using a public or private packet network. This is accomplished using a standard Voice-over-IP (VoIP) gateway that allows ordinary telephone calls to be transmitted across a packet network. The Ascend's VoIP gateway is known as the MultiVoice Gateway for the MAX. The gateway supports the ITU-T H.323 standard for transmitting voice over an IP network. When a voice call is received at a near-end MultiVoice Gateway, the voice signal is packetized, compressed, and transmitted over the packet network using standard protocols and voice compression technologies. At the far-end gateway the process is reversed and the call is delivered over the remote PSTN to its intended destination.

2. What are the components of the MultiVoice for the MAX Product?

The MultiVoice for the MAX product components include:

- MultiVoice Gateway for the MAX
- MultiVoice Access Manager (also know as the H.323 Gatekeeper).

3. What product hardware platforms will the MultiVoice for the MAX Product reside on?

The initial product platform for the MultiVoice Gateway will be the Ascend MAX 6000 platform with add-on DSP cards and the MultiVoice software. Existing MAX 4000 customers can also upgrade their MAX 400x chassis to support VoIP. In either case, the MAX platform must be dedicated to the MultiVoice Release 1.0 VoIP application. This restriction will be removed in a future release of the MultiVoice Gateway. The MultiVoice Access Manager (gatekeeper) will reside initially on a standard Intel PC server running the Windows NT v4.0 platform.

4. How does a MultiVoice call sound compared to a standard telephone call?

On a managed IP-network with multiservice Quality of Service (QoS) support, a call placed using the MultiVoice Gateway sounds just like a standard telephone call. This is possible because the MultiVoice Gateway supports the G.711 and G.729(A) toll-quality voice codecs and Ascend's network switching products can support end-to-end QoS. The G.711 codec is the same codec that is used by the standard PSTN network.

5. How does the MultiVoice for the MAX product compare to other products in the Ascend product family?

The MultiVoice product is based on the same hardware and software base as the current, industry-proven MAX platform. The configuration screens, physical characteristics, interfaces, slot modules, fault isolation capabilities, and maintenance functionality is the same as the current MAX platform with software enhancements to support the VoIP functionality.

The MultiVoice for the MAX product can also take advantage of the QoS features that are available on the IP Navigator software in Ascend's core switching products. IP Navigator provides the appropriate QoS requirements for handling real-time data such as voice.

6. When should the MultiVoice for the MAX product be used?

The MultiVoice product is an excellent solution for Voice-over-IP (VoIP) deployment because it is highly scaleable, integrated, and based on international standards. Although the MultiVoice product can be used to support VoIP services over an unmanaged IP network such as the Internet, in order to provide end-users with reliable and high-quality voice it is recommended that the MultiVoice for the MAX product be deployed on managed IP-networks. Since there is currently no QoS guarantees on unmanaged IP networks like the Internet, voice quality can suffer from delays or congestion on the network. This may result in inconsistent voice quality between calls or even within a call.

A managed public or private IP-network based on Ascend's Core Switching products can provide excellent QoS that can improve the overall reliability and quality of packet voice calls as compared to today's Internet telephony products. In this case, end-to-end QoS can be maintained resulting in toll quality, packet voice calls.

7. Who is the potential customer and target market for the MultiVoice for the MAX product?

The MultiVoice product is targeted at domestic and international ISPs, CLECs/Telcos, and corporate enterprise customers. Each market segment can realize the following benefits from the MultiVoice product:

ISP benefits:

- New service offering and revenue from existing customer base
- Obtain a higher return on an ISPs network by using existing network infrastructure to provide new service
- Cost justify increased internet access "pipes" to carry additional voice traffic on top of standard data traffic
- Transaction-based billing which scales with network usage

CLEC/Telcos benefits:

- Backbone provider revenues
- Revenues from leased lines
- Revenues from local calls (call completion by delivering telephone calls via a standard Internet connection)
- Two-tier pricing structure (Circuit Switched Service/Packet Switched Service) to address competitive threat from other service providers

Enterprise benefits:

- Backup for existing voice trunks (tie lines)
- Support the voice and data needs of small or branch office locations over a single private packet network
- Can deploy a MultiVoice Gateway on the premise (local gateway) on a private basis or as part of a service offering from a Network Service Provider
- Use spare capacity in internal packet network (intranet) to carry voice between PBXs in private networks (intraflow)
- Use same hardware for both data and voice remote access to enterprise network

8. What are the competitive advantages of the MultiVoice for the MAX product?

- Small footprint (MAX platform)
- Integrated platform
- ITU-T H.323 standard implementation
- Toll-quality 8 Kbps voice compression - G.729(A)
- High-density PSTN interfaces (T1/PRI/E1, BRI)
- Supported H.323 gatekeeper functionality for building large networks
- Integrated CSU/DSU - Frame Relay, Ethernet 10/100-Base-T
- Plug-In DSP16, DSP12, or DSP8 cards
- Scaleable platform
- 48/96 MultiVoice port bundles on the MAX 6000 (for T1-based systems)
- 30/90 MultiVoice port bundles on the MAX 6000 (for E1-based systems)

9. When can customers purchase the product?

The product will be available for *Controlled Introduction* on April 15, 1998.

10. What MAX software code will be included in the product launch?

The MAX 6000 bundles and MultiVoice MAX software upgrade will include all software required to run the MultiVoice application.

11. Has the MultiVoice for the MAX product been homologated for International and Domestic locations?

Yes. The specific country in which the MAX platform has been homologated is available via the Ascend Web site upon product launch.

12. Where can customers purchase the MultiVoice for the MAX product?

The MultiVoice for the MAX Product will be available for purchase via standard MAX distribution channels as follows:

- Distributors
- VAR Channels
- Direct from Ascend

For more information, please call Ascend in the U.S. at 1-800-621-9578 or visit our Web site at http://www.ascend.com.

13. Will the product have available documentation at time of launch?

The MultiVoice for the MAX product will include a User's Guide for installation, setup, configuration, administration, and troubleshooting of the MultiVoice Gateway and the MuliVoice Access Manager. On-line help will also be provided.

14. How can this product be implemented into my existing Network?

The Ascend sales force and technical support teams will be available to answer and assist customers with questions regarding their existing network and business needs. Support may also be available directly from certified Ascend distributors and system integrators. Also, check Ascend Web site (http://www.ascend.com) for more information on the MultiVoice for the MAX product.

Hardware Questions

1. Does the MultiVoice for the MAX product require new Hardware?

No. The MultiVoice for the MAX Release 1.0 product will use existing Ascend MAX hardware with additional DSP cards for the MultiVoice Gateway and a standard Intel-based PC server for the MultiVoice Access Manager.

2. How many DSP cards can the MultiVoice Gateway for the MAX have?

The MAX 6000 base chassis is capable of simultaneously housing up to six (6) MXV-SL-DSP16 card (sixteen voice ports), or MXV-SL-DSP12 card (twelve voice ports), or MXV-SL-DSP8 card (eight voice ports) in any combination. All hardware will be manufactured by Ascend.

3. What Hardware components can be found within the MultiVoice Gateway for the MAX?

The MultiVoice Gateway software can support MultiVoice DSP16, DSP12, and/or DSP8 slot cards. Each slot card requires one slot in the Gateway chassis and the slot cards can be used in any combination. Each DSP16 slot card can support up to sixteen (16) voice-over-IP ports for a maximum of ninety-six (96) ports per MAX 6000 chassis. A total of 6 DSP slot cards can be populated simultaneously thus filling all available slots. The DSP Card provides 16 DSPs along with a 17th DSP for control purposes. The MAX host processor is capable of boot control of all of the DSPs. The control DSP communicates with the host CPU via a shared RAM interface. Communications between the Control DSP and the 16 Slave DSPs is via internal memory. The DSP12 and DSP8 cards are identical to the DSP16 except that they support 12 and 8 DSP ports, respectively.

4. What is the maximum number of telephony WAN ports available on the MultiVoice Gateway for the MAX?

The MultiVoice Gateway will support up to 96 DS0 ports (simultaneous calls) using T1/PR1 and up to 90 ports (simultaneous calls) using E1/PRI. Note that the fourth E1 available on the MAX 6000 platform is not used since the maximum number of physical voice ports available on a MultiVoice Gateway is 96 ports.

5. Can I upgrade my existing MAX 400x platform to a MultiVoice Gateway?

A customer will be able to use their existing MAX 4000 (international), MAX 4002, and MAX 4004 chassis as a standalone (dedicated) MultiVoice Gateway. The MAX 400x can be upgraded via software upgrade (hash codes) and by adding MultiVoice DSP cards. No other standard MAX hardware module or slot card is support by the MultiVoice Gateway software[1].

[1] The eight (8) port ISDN BRI network interface card (MX-SL-8BRIN) is supported by the MAX Voice software and will required a slot port on the MAX chassis.

6. What are the minimum hardware requirements for the MultiVoice Access Manager?

The MultiVoice Access Manager will require the following minimum hardware requirements:

- Pentium® 100 MHz CPU
- 32 Mb of System RAM
- 2 GB of Hard Disk space
- CD-ROM Drive
- 10/100Base-T Network Interface Card
- Windows NT v4.0 Server or Workstation

Software Questions

1. What Software functions can be found in the MultiVoice Gateway for the MAX?

The host CPU on the MultiVoice Gateway will perform the following functions:

- H.245 conference management
- RAS signaling to the Access Manager
- Q.931 signaling to the WAN
- Packet routing

The DSP CPUs will perform the following functions:

- G.7xx encode/decode
- hybrid echo cancellation
- packet loss recovery function
- RTP packetization/depacketization

2. Is the MultiVoice Gateway for the MAX ITU-T H.323 standard compliant?

The MultiVoice Gateway provides an implementation of the ITU-T H.323 standards including recommended voice codecs specifications. Support of multiple codecs will allow customer flexibility in offering different levels of voice quality service to end-users. The MultiVoice for the MAX R1.0 product will support toll quality voice using the G.711 and G.729(A) codecs. Ascend plans to provide support for other codecs and new H.323 capabilities in future releases of the MultiVoice platform.

3. What are the features of the MultiVoice Gateway for the MAX?

The Release 1.0 MultiVoice Gateway will support the following features:

- Phone-to-Phone H.323 operations
- Telephony WAN interfaces
- Packet network interfaces
- Voice codec support
- Voice VPN support
- Hybrid-line echo cancellation support
- DTMF detection and generation

4. What are the features of the MultiVoice Access Manager?

The Release 1.0 MultiVoice Access Manager will support the following features:

- Microsoft Windows NT v4.0 support
- ITU-T H.323-compliant gatekeeper implementation
- Phone-to-IP address translation
- Web-based administration interface
- PIN-based user authentication
- Voice VPN support
- Telephone number aliases
- Call Detail Accounting Records (CDR)
- Gateway and user database support
- Third-party billing system support

5. How many MAX applications can the MultiVoice Gateway support?

The R1.0 MultiVoice Gateway will require a dedicated MAX running the MultiVoice VoIP application only. Future releases of the MultiVoice Gateway will support multi-application configurations.

6. What are the various end points that will support voice communications using the MultiVoice for the MAX product?

The MultiVoice Gateway will work with any standard telephone that is supported within the Public Switched Telephone Network (PSTN). The MultiVoice Gateway will support T1/PRI, E1/PRI, and BRI telephony network interfaces from most PSTN network interconnect switches or private PBXs. Any telephone that is supported behind this infrastructure will be supported by the MultiVoice Gateway. PC-based H.323 “softphones” will also be supported in a future release of the MultiVoice for the MAX product.

7. How will the MultiVoice for the MAX product handle customer billing?

The MultiVoice Access Manager provides third-party billing application access to the call detail records (CDR) generated for every call that is established on the MultiVoice network. These records can then be used by a billing application to generate end-user bills for calling usage on a MultiVoice network. The Access Manager measures call duration in seconds thus supporting billing resolution down to the second.

8. How will I manage the MultiVoice for the MAX product?

The MultiVoice Access Manager supports local and remote system management functions through web-based administration pages that can be accessed via a standard web browser. The R1.0 Access Manager will support Microsoft's Internet Explorer v3.02 and Netscape Navigator v3.01. In addition, the NavisAccess™ network management solution can also be used to provide seamless integration of the dial and voice service delivered over a common MAX platform. NavisAccess is an SNMP-based management console that provides device level configuration, fault, performance and historical trend analysis.

9. How many MultiVoice Access Managers do I need to use in a MultiVoice network?

In R1.0, the MultiVoice network must contain one and only one MultiVoice Access Manager. In future releases, a

MultiVoice network will support one or more Access Manager on the same network.

10. What are the transport and lower layer protocols supported by the MultiVoice for the MAX Product?

The network and transport protocols supported by the R1.0 MultiVoice for the MAX products are TCP, UDP and IP.

11. What operating system will the MultiVoice Access Manager run on?

The Release 1.0 MultiVoice Access Manager will be supported on Windows NT v4.0 Server or Workstation. Future releases of the MultiVoice Access Manager will be supported on UNIX platforms.

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