

IMG 1010

Feature Highlight: VoIP Transcoding

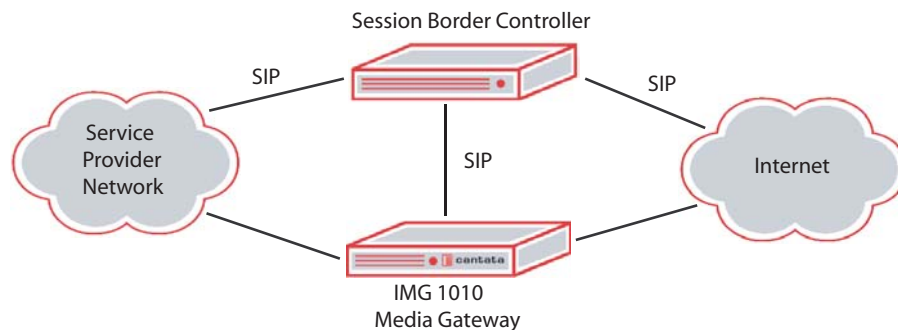


Overview

Traditionally, service providers have relied on TDM interconnections to move voice traffic on and off their networks, in part because of the high quality and reliable interconnections inherent in the technology. Now, however, recent advances in VoIP-based technology present a new lower-cost alternative that offers a quality and reliability that rivals TDM networks. VoIP networks have the added benefit of supporting advanced capabilities such as point to multipoint interconnection not available in TDM offerings. This combination of the increased quality/reliability, advanced features, proliferation of VoIP-based networks, and the lower cost of VoIP is encouraging service providers to use VoIP peering solutions for network interconnection.

With this transition to all-VoIP networks a new host of challenges arise. The use of the Public Internet brings up questions of security, quality, media interworking, and trust. Session border controllers and media gateways are the edge devices ideally suited to address these new challenges. Session border controllers provide the security for VoIP network interconnection through topology hiding and user authentication. Session border controllers can also address the concerns of trust and signaling interworking. The last challenge on the edge of VoIP networks is Media Interworking. H.323 to SIP signaling interworking can be handled by the media gateway or by the session border controller. RTP layer transcoding is best handled by a hardware DSP-base media gateway.

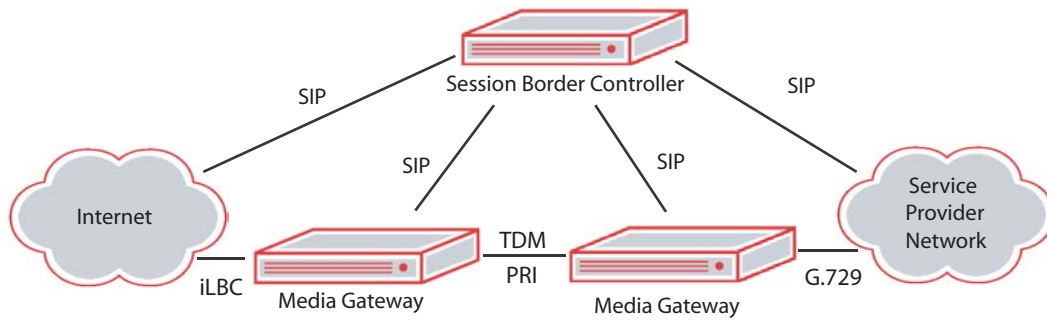
Figure 1: VoIP Carrier Network Edge



Transcoding implementations

With increasing numbers of service providers moving to VoIP the need for transcoding will increase. For ease of network engineering and operation, service providers usually select one or two codecs to be used in the core of their network. Large service providers that own long haul transport may select high quality, but bandwidth consuming G.711, whereas service providers using the Internet for transport may select G.729 or iLBC due to their high quality and low bandwidth consumption. Other vendors early implementation of transcoding were costly and required the installation of two media gateways connected back to back.

Figure 2: First Implementation of Transcoding



Functionally, this configuration meets the need for transcoding, but it is an inefficient, expensive solution. Since transcoding requires two TDM ports and two IP ports the cost is very high for each session. The TDM stage lowers voice quality and increases latency. In addition, management of the two discrete devices also increases maintenance costs. Route lists need to be updated and maintained to coordinate the flow of traffic between the two gateways.

Cantata's IMG 1010 Integrated Media and Signaling Gateway

The IMG 1010™ addresses the concerns of the first implementation in a compact 1U high form factor. The IMG 1010 media gateway supports SIP, H.323, SS7, and ISDN giving true any-to-any voice network connectivity. The IMG 1010 supports simultaneous TDM and IP hairpins. The ability to support IP hairpins enables not only IP signaling translation, but media translation as well. As VoIP networks evolve and move away from the PSTN, wide-band codecs will gain popularity. The IMG 1010 coupled with a Session Border Controller is the ideal solution to bridge islands of VoIP traffic.

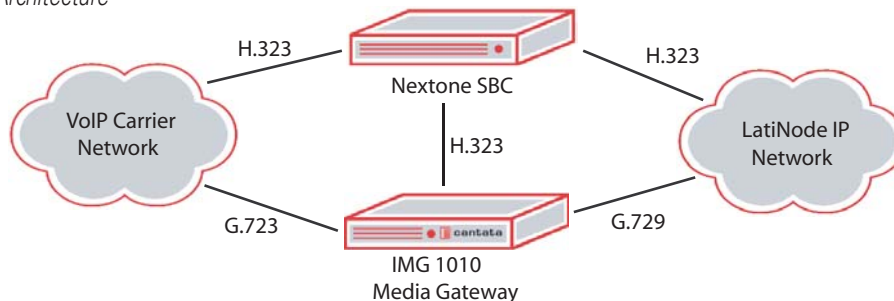
Transcoding Densities

Supported Codecs	Maximum Sessions
G.711	512
G.723.1	512
G.729 a/b	512
iLBC	336
GSM-AMR	336
EVRC	336

Real-World Example: LatiNode Deploys Nextone and Cantata for Transcoding

LatiNode is one of the world's largest companies in the international VoIP industry, transporting 3% of the global VoIP Long Distance (LD) traffic. LatiNode had a requirement to connect to a VoIP carrier that only supported G.723 while their core network supports G.729. The solution for LatiNode included an IMG 1010 integrated with their existing Nextone Session Border Controller to provide topology hiding, protocol interworking, and security. The IMG 1010's high density transcoding capability combined with the compatibility of Nextone's SBC, made it easy for LatiNode to select and deploy it in their network.

Figure 3: LatiNode Network Architecture



Summary

The rapid proliferation and growth of VoIP networks introduce new challenges for service providers. The replacement of TDM interconnection with VoIP peering introduces the requirement for Session Border Controllers for session management and Media Gateways for transcoding. The IMG 1010 media gateway solves current and future problems in next generation networks with its integrated transcoding. With its high density wireless and wireline codec support in a 1U form factor, the IMG 1010 is an excellent solution for the next generation service provider.

