



# Application Note

## High Availability Media Gateways for the Enterprise Market

Powered By AudioCodes Mediant™ 3000

### The Case

Enterprises worldwide are adopting IP Telephony in an accelerated rate. With the adoption of IP Telephony and the replacement of old TDM telephony equipment, Media Gateways become a very important component of the Enterprise telephony solution. The Media Gateway is the network element which connected the IP-PBX system to the existing legacy PBX or in the case of a total replacement of the TDM system – connects the IP-PBX system to the TDM-based PSTN. In other cases, Media Gateways are used to create an IP-based Enterprise telephony network, connecting remote PBXs to each other via the cost effective IP network, replacing expensive TDM TIE-lines. The Media Gateway becomes a very important component of the new Enterprise Unified Communications infrastructure, and Enterprises are now evaluating it very carefully, before selecting the right solution for their requirements.

Until recently, most enterprise customers have relied on multiple low density non-redundant gateways which are typically small (8 or less) and do not support high availability meaning that any active calls will not be preserved should a media gateway fault occur. High availability gateways, (offering 0.99999 availability, or less than 5 minutes of down time per year) have been perceived as large and expensive and a unique playground for service providers.

This reality is changing with the availability of a new breed of gateways. These gateways offer high availability along with a compact footprint and capacities starting at 16 E1/T1 spans, which match the needs of large enterprise customer deployments.

The price per for these devices is also competitive as a single system can replace multiple small media gateways supporting an equivalent amount of traffic.

## High Availability Media Gateway Capacity Fit For Large Enterprises

The industry rule of thumb regarding the ratio between the number of employees and external telephony lines is 5:1. Based upon this fact, media gateway(s) supporting 16 E1 ports or 480 channels would be required in order to support an organization of approximately 2500 employees.

To satisfy this requirement for a deployment of this scale means selecting between two options: stacking multiple small, non-high availability media gateways or a single high availability media gateway. The advantages of the latter approach are simple: stellar reliability and management of a single unit which results in a smaller gateway footprint, less power consumption and easier device maintenance.

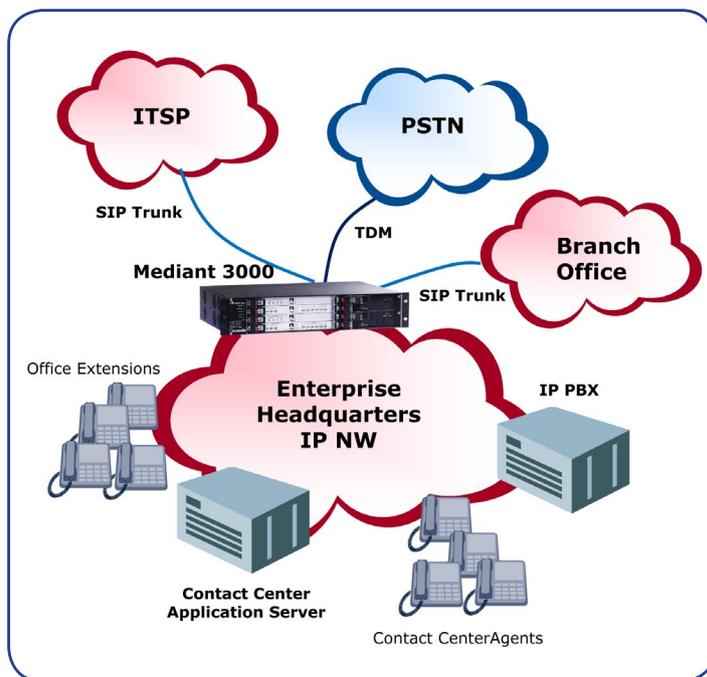
Similarly, some smaller enterprise customers may also find that high availability gateways are their first choice. As an example, Contact Center applications typically use a 1:1 concentration rate as they aim to keep all agents busy on the phone at any given time. Hence, a medium contact center that supports a few hundred agents fits the capacity model of a small high availability gateway. For a contact center to lose telephony service and any associated active calls could be catastrophic; therefore having a high availability media gateway is preferable. The same can be said about Conferencing Centers.

## Enterprise IP to IP Needs

Large enterprises migrating to VoIP are leaning towards heterogeneous enterprise telephony networks which may consist of multiple PBX systems from various vendors, some of which are legacy while others are IP based. An enterprise customer can choose to connect either to a PSTN service provider or an Internet Telephony Service Provider (ITSP) or both. This requires the media gateway to support advanced IP-to-IP capabilities in addition to its standard "legacy" TDM to VoIP interworking capabilities. These IP-to-IP features include SIP normalization and translation load balancing, transcoding and more. SIP normalization is required as various PBXs and ITSPs may use different SIP "dialects".

With the addition of the IP to IP capability, media gateways assume the role of a VoIP "router" where each call is routed either to the PSTN, or to another IP-PBX or to an ITSP – as demonstrated in the diagram below.

High Availability gateways are often required at enterprise headquarters in order for branch offices to be connected to the main office via SIP trunks. Media gateways need to handle all the SIP trunks going to branch offices, IP-PBXs and ITSPs as well as TDM trunks going towards the PSTN.



## Unified Communications

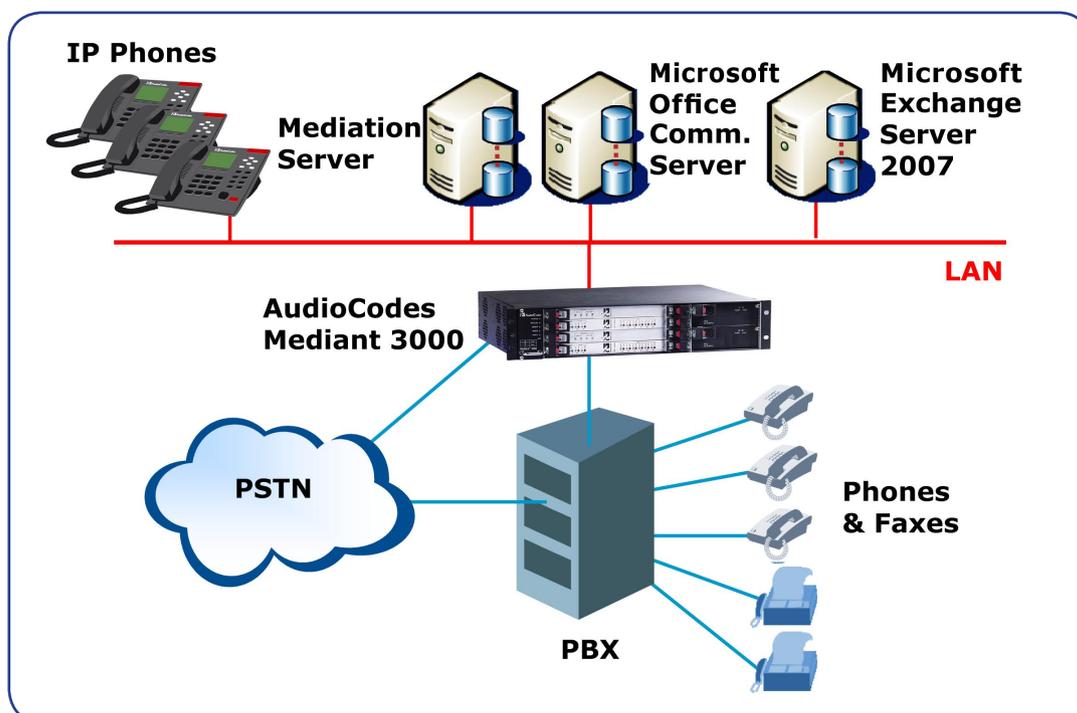
Unified Communications is an industry term which describes an architecture where all forms of communication, including telephony, video, email, and instant messaging, are accessible from a single user interface on his/her computer, thus simplifying communications while providing a more complete and effective experience to the user.

Many enterprise deployments are embracing this new trend, seeking to increase employee efficiency. Microsoft, one of the leading Unified Communications vendors, has created Office Communications Server 2007 for Unified Communications.

An enterprise customer deployment consisting of an existing (TDM) PBX would have to interconnect the PBX to the Microsoft Unified Communications server, in order to realize the benefits of Unified Communications, as illustrated in the diagram below. As the Microsoft architecture is based on SIP, a TDM PBX would require a VoIP to TDM media gateway to supply this interconnection.

In the case of IP-PBX, a SIP to SIP interworking function may be necessary as the SIP dialects of the IP-PBX and any application server might differ. This interworking can be achieved by means of a media gateway supporting IP to IP functionality. Another advantage of using a gateway while an IP-PBX is present in the network, is its utilization by the IP-PBX for PSTN connectivity.

As previously outlined, it can be deduced that large enterprise customers stand to gain more from high availability gateways. In this case, high availability gateways with IP-to-IP functionality can be utilized.



## The Mediant 3000 Mid-Density High Availability Media Gateway

AudioCodes' novel Mediant 3000 is a high availability gateway, with a capacity spanning from 480 to 2016 ports.

When compared to other media gateways in the market, the Mediant 3000 has some unique market advantages which ensure its suitability for the enterprise environment:

- Less space consumption at the enterprise's data center - remarkable small footprint of 2 Rack Units for up to 2016 ports
- Low power consumption - below 288 Watts
- Most comprehensive interoperability with various PBXs and PSTN switch vendors
- Saves leased line costs using high density interfaces. The lease cost of a single T3 containing 24 T1s is roughly the same as the lease cost of seven T1s. The Mediant 3000 is the one of the only high availability gateway of its size to offer high density OC3, STM-1 and T3 interfaces, in addition to standard T1/E1 interfaces
- Enterprise customers can begin with a small investment in terms of channel capacity and add capacity via simple software keying, as their needs continue to grow, reaching 2016 ports
- Enterprises can choose to start with a non redundant configuration and upgrade to full redundancy by purchasing an additional blade as their requirements mature
- IP-to-IP capabilities include:
  - SIP to SIP normalization
  - Network Topology Hiding
  - Transcoding and Conversion
  - Signaling Translation
  - Multiple Service Provider Connectivity and Load Balancing
  - Redundancy between Servers/Softswitch
  - Survivability
- Roadmap for RTA codec support – Microsoft propriety voice codec
- Best audio quality as independently verified



## Conclusion

Large enterprises which require hundreds of outside lines, cannot afford to lose the telephony service. High availability media gateways provide a solution which is reliable, easy to maintain and cost-effective. The Mediant 3000 outperforms its high availability media gateway peers by offering large Enterprise customers a quick return on investment through its high density PSTN interfaces, overall feature-richness and great interoperability for facilitating smooth integration.

### About AudioCodes

AudioCodes Ltd. (NasdaqGS: AUDC) provides innovative, reliable and cost-effective Voice over IP (VoIP) technology, Voice Network Products, and Value Added Applications to Service Providers, Enterprises, OEMs, Network Equipment Providers and System Integrators worldwide. AudioCodes provides a diverse range of flexible, comprehensive media gateway, and media processing enabling technologies based on VoIPerfect™ - AudioCodes' underlying, best-of-breed, core media architecture. The company is a market leader in VoIP equipment, focused on VoIP Media Gateway, Media Server, Session Border Controllers (SBC), Security Gateways and Value Added Application network products. AudioCodes has deployed tens of millions of media gateway and media server channels globally over the past ten years and is a key player in the emerging best-of-breed, IMS based, VoIP market. The Company is a VoIP technology leader focused on quality and interoperability, with a proven track record in product and network interoperability with industry leaders in the Service Provider and Enterprise space. AudioCodes Voice Network Products feature media gateway and media server platforms for packet-based applications in the converged, wireline, wireless, broadband access, cable, enhanced voice services, video, and Enterprise IP Telephony markets. AudioCodes' headquarters and R&D are located in Israel with an additional R&D facility in the U.S. Other AudioCodes' offices are located in Europe, India, the Far East, and Latin America.

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