



Build Your Own: Making Media Gateways with AdvancedMCs

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Media Gateways

Growth in voice and video over IP, with the adoption of IP Multimedia Subsystem (IMS) architecture for next-generation networks, is driving the trend towards network components based on standard form factors. As more telecom equipment manufacturers seek off-the-shelf components based on standard telecom-grade, high-capacity form factors, the market is quickly adopting MicroTCA™ and AdvancedTCA® platforms to meet the demand.

Among the various off-the-shelf components being sought by today's telecom equipment manufacturers for use with these platforms are media gateways. A media gateway typically translates voice and video traffic from TDM to IP networks. This component is required in IMS and other NGN networks in order to connect between the following networks:

- Broadband wireline IP network
- Broadband wireless IP network (WiFi and WiMAX)

- Voice PSTN network
- Access media gateways which have TDM telephone lines or TDM trunk interfaces
 - Border media gateways which interconnect TDM networks to IMS networks. For example, connecting a TDM wireline network to an IMS-based wireless network
 - Mobile video media gateways that translate voice and video bidirectional and streaming traffic between IP (typically SIP) networks and mobile 3G-324M networks
- Video over PSTN using H.324 deployed in countries where broadband penetration is limited

Media gateways have four primary components. We list each here, plus a few product examples.

- Access Interface AdvancedMCs
Access Interfaces provide intelligent protocol processing to handle both:

- TDM Voice channels converting to I-TDM for transport within the MicroTCA chassis
- Signaling (such as SS7, ISDN, CAS) which is provided by the TDM network to supply call control information

A product ideally suited to this function is the iSPAN 3639 T1/E1/J1 Intelligent Communications Controller which provides all of these functions and incorporates a powerful on-board computer.

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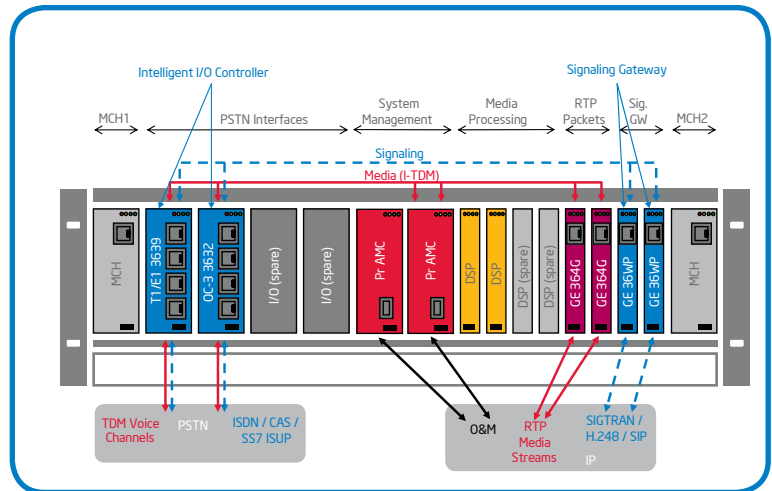
Wireless networks introduce an additional complication by using subrate DS-O TDM voice. This is addressed by AdvancedMCs which can provide subrate TDM voice interfaces and have enhanced the I-TDM protocol to transport the subrate voice. For instance, the Interphase iSPAN 3632 OC-3/STM-1 Interface Processor can handle over 8,000 channels of full rate or subrate voice and extend any signaling information embedded in these channels to a Processor AdvancedMC.

- Network Interface AdvancedMCs Media gateways connect to the IMS network through IP network interfaces. The iSPAN 364G is a gigabit Ethernet controller which addresses this requirement by supporting network diversity by providing four interfaces.

Since media gateways connect to network platforms, IP signaling protocols are used to send call control information. These protocols include:

- MGCP or H.248 used to connect to a softswitch
- SIGTRAN or SIP to connect to an IMS CSCF

An intelligent quad-port gigabit Ethernet controller such as iSPAN 36WP can be used to support these signaling protocols and offload the media gateway system processor.



Example of a media gateway based on MicroTCA

- System Processor AdvancedMCs The media gateway typically uses a Processor AdvancedMC to provide administration and management while adding a complete processor subsystem. (See illustration above.) Processor AdvancedMCs based on the Intel® Architecture processor are widely available and are a good choice for this component.
- DSP AdvancedMCs Media gateways provide transcoding of the voice between networks such as wireless and wireline networks. The SurfRider™ DSP from Surf is an example of a powerful DSP AdvancedMC.

Summary

MicroTCA and AdvancedMCs provide a true open systems platform which will revolutionize the industry. By selecting and integrating currently available AdvancedMC building blocks, key IMS platforms can be developed. The flexible architecture of MicroTCA allows Media Gateways to easily be enhanced to incorporate new capabilities.

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