The 7510 Media Gateway Cheat Sheet

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Purpose of Media Gateway

The 7510 Media Gateway supports different functions or entities. Each function that you configure on the 7510 MGW, can be controlled by a different or the same Media Gateway Controller.

All of the virtual media gateway functions running on the 7510 share the same IP address but are assigned different port numbers.

IMS supports connectivity to different types of networks. The IMS network needs a device to be able to communicate with the protocols that each of those different networks uses.

7510 Voice-Band Services

*VoIP to PSTN (IP to TDM)

*IP Switching (IP to IP)

*TDM Switching (TDM to TDM)

*Connects Audio and Video calls over UDP

*Traffic Policing, and standard Tone Generation

* Voice Activity Detection (stops audio payload packets during silence)

*Comfort Noise Generation (no complete silence)

*Provides signaling to Media Gateway Controller (MGWC)

*Echo Cancellation

7510 InBand Signalling Services

These are used in the Trunking Gateway Funciton (TGW) and in the Border Functions

*Transmists DTMF Tones.

7510 Border Gateway Services

*Dynamic Media firewall

*Traffic policing

*NAT

*IPv4 & IPv6 interworking

*Transcoding and Media Resource Functions

* QoS Tagging

7510 SIP Firewall Service

*SIP signaling messages pass through here

*Malicious Attack Prevention

*Overlapping IP address support

Purpose of Media Gateway (cont)

*Per SIP method rate limiting

Functions of the 7510 Media Gateway

The Trunking Gateway is used to connect a PSTN to a Packet Network.

PSTN (aka TDM) interfaces are physically on the CIM card. (OC-3, DS-3 ports)

The MGWC on the 5450 ISC and MGW talk via MEGACO. MGWC tells MGW which ports to use for the call. RTP is used for the data path of the actual call. RTP traffic is not sent to the MGWC.

The Signaling Gateway this is used on certain networks to provide signaling to the

The Interconnect Gateway is used to connect to varying service provider's networks. For example it's what bridges the gap between AT&T's and Verizon's differing IMS networks.

Border Gateway Access Used in an IMS network, to connect

IMS Media Gateway Used to connect to the PLMN. This is the Public Land Mobile Network. The PLMN needs to connect to the PSTN to successfully route mobile calls. The IMS-MGW function is what provides this connection.

Different Functions of The MGW

(IMS-MGW)

(T-MGW) Trunking Media Gateway Function

(ATGW) Access Transfer Gateway To talk to the EPS LTE network

(IBGF) Interconnection Border Gateway Function To talk to other IMS networks.

(CAGW) Centralized Access Border Gateway Function

WebRTC Web Real Time Communication Border Controller

SIP Signaling Firewall

The 7510 Media Gateway can perform any of these functions together or alone. Associate these names with the Media Gateway.

CODECs

Adaptive Multi-rate Wideband (AMR-WB): 7510 Media Gateway deals with media transmission and conversion from one medium to another, so it must support transcoding of multiple types. Uses a wider range of frequency for speech. This encodes the voice, for its transmission. You may see AMR-WB written as G722.2 as well.

A CODEC is what compresses and decompresses the voice during transm-ission.

Other media CODEC's that the 7510 supports are:

*G.711: PCM, 64 kb/s

*G.723.1: MP-MLQ, 6.3 kb/s

* G.723.1: ACELP, 5.3 kb/s

* G.726: ADPCM, 16/24/32/40 kb/s

* G.728: low delay compression

* G.729A/B: CS-ACELP, 8 kb/s

Management

To manage the 7510 MGW, multiple methods are available, over a specified OAM network range of IP's.

The methods of access and logging is:

*SSH

*Telnet

*Syslog

*FTP/TFTP

*SNMP Traps

*Craft RS232 Serial Interfaces

Hardware:

Physical Cards on Hardware:

System Control Module Controls and Signals. Performs IP routing, and Manage-ment. Includes mezz. slot for hardware firewall card.

Switch Fabric Module PSTN and Packet Switching. Can field 128,000 DS0 calls and 64 gigabytes per second

Packet Interface Module Ethernet interface to the IP network. Accepts IP traffic

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Hardware: (cont)

Circuit Interface Module TDM interface to the PSTN network. Accepts PSTN traffic.
Media Conversion Module Provides the actual conversion using codecs between media.

Border Access Gateway

Centralized Access Border Gateway The C-AGW part of the MGW is what receives devices on other access networks be it trusted or untrusted.
Different access networks include:
Fixed Access: DSL, & Cable
Mobile Access: CDMA2000, WCDMA, GSM, GPRS
Wireless Access: WLAN, WiMAX
Devices on these networks can enter the IMS core through the C-AGW or C-BGF part of the Media Gateway.

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