

## MiMOMax Data Acceleration Protocols

MiMOMax Data Acceleration Protocols (M-DAP) is designed to enhance VoIP and other real-time applications dramatically. MDAP achieves a massive increase in capacity and quality by the following mechanisms:

- Header compression of:
  - Ethernet
  - IP (Internet Protocol)
  - UDP (User datagram Protocol)
  - RTP (Real Time Protocol)
- Quality of Service
- Payload compression (future)

VoIP applications typically produce very small data payloads at a fast regular interval (e.g. 20-100ms). This results in very inefficient use of bandwidth as most of the packets consist of headers rather than voice payload. M-DAP is able to compress a typical voice stream as follows.

Ethernet	IP	UDP	RTP	Voice	CRC
14 bytes	24 bytes	8 bytes	14 bytes	~30 bytes	4 bytes

Figure 1: Uncompressed Ethernet frame

Becomes:

Compression header	Voice payload	CRC
3 bytes	~30 bytes	4 bytes

Figure 2: Compressed Ethernet frame

This compression has two effects:

- The bandwidth required for the voice traffic is reduced by as much as 60%
- Delay across the link is reduced as there is less data to send

M-DAP QoS observes the industry standard DiffServ model. The DiffServ model defines the following classes and drop precedences:

<b>Class:</b>	<b>Drop precedence:</b>		
Express Forward (EF)	Will not drop if BW available		
Assured Forward 1 (AF1)	AF11	AF12	AF13
Assured Forward 2 (AF2)	AF21	AF22	AF23
Assured Forward 3 (AF3)	AF31	AF32	AF33
Assured Forward 4 (AF4)	AF41	AF42	AF43
Best Effort (BE)	First to be dropped		

M-DAP goes much further than the standard QoS offerings. M-DAP is able to partition the data pipe such that bandwidth is guaranteed for EF traffic. This is done on a sub frame basis which means that EF traffic can not get delayed by other large frames (for example FTP) that may be in transit. This results in excellent delay and jitter performance that would otherwise only be achievable with multi-megabit systems.

When many data streams are present, M-DAP will shape the traffic such that Express forward is given priority over other classes. The assured forward classes specify various drop precedences and lastly any remaining bandwidth is allocated to Best Effort.