



Technical Training and Consultancy to the NEW Communications Era

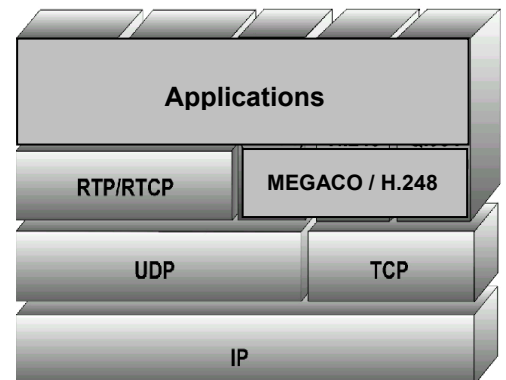
About MEGACO / H.248

What is MEGACO / H.248?

MEGACO/H.248 is the latest industry standard protocol for interfacing between hosts and call agents called Media Gateway Controllers (MGC's) and Media Gateways (MG's) – eg. an IP Telephone and the PSTN. The standard is the result of a unique collaborative effort between the IETF and ITU standards organizations. Derived from MGCP (which, in turn, was derived from the combination of SGCP and IPDC).

What is the MEGACO / H.248 Standard?

MEGACO / H.248 draws heavily on MGCP and provides for a master-slave, transaction-oriented standard in which Media Gateway Controllers (MGC) control the operation of Media Gateways (MG). Some VoIP standards (such as H.323) specify gateways as an entity for transitional points to TDM and the PSTN. However, other VoIP standards (such as SIP) have little or no inherent regard for this calling function, requiring an additional process/standard to enable this transitional call.



MEGACO provides:

- Control for various types of terminations
- Support for negotiation of call capabilities
- Multi user call scenarios
- Rich termination dynamics
- Quality of Service (QoS) and traffic measurement support
- Error reporting on protocol, call, capability and network failures

How MEGACO works: When a gateway detects an off hook condition, it tells the gateway controller, which might respond with a command to instruct the gateway to put dial tone on the line and listen for DTMF tones indicating the dialled number. After detecting the number or identity of the 'called party', the gateway controller determines how to route the call and, where possible uses an inter-gateway signalling protocol such as SIP or even H.323.

There are two basic component concepts to Megaco: **terminations and contexts**.

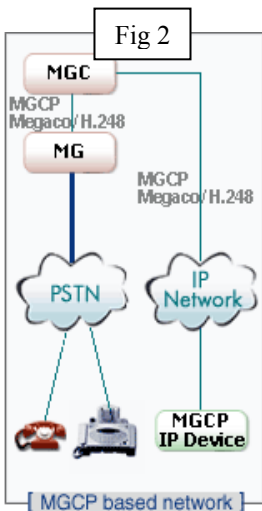
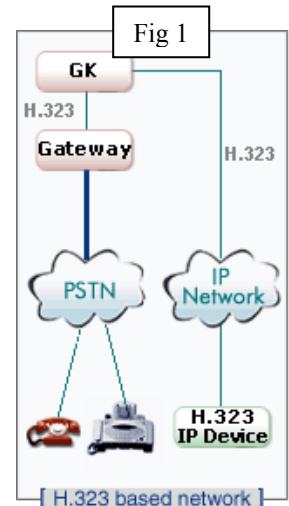
Terminations represent streams entering or leaving the gateway (for example, analogue telephone lines, RTP streams, or MP3 streams). Transitional terminations are generally created 'as needed', and then released. Such terminations are called "ephemerals" and are used to represent flows on the packet network, such as an RTP stream.

Terminations may be placed into **contexts**, which are defined as when two or more termination streams are mixed and connected together. The normal, "active" context might have a physical termination (say, one DS0 in an E1) and one ephemeral one (the RTP stream connecting the gateway to the network). Contexts are created and released by the gateway under command of the gateway controller.

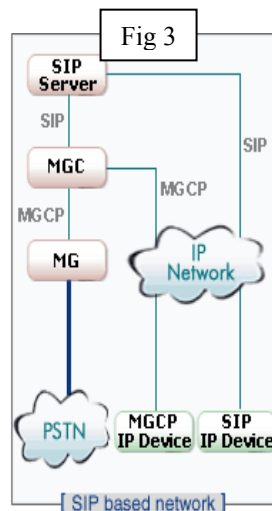
MEGACO / H.248 and the Network

Here we take a look at how MEGACO / H.248 works and relates with other standards to create similar calling patterns.

- H.323 based network (Fig 1)– As described above, H.323 has a gatekeeper ‘entity’ which it uses to control transitional calling from an IP network to the PSTN.



- A MEGACO / H.248 based network (Fig 2) – Here we see how an MEGACO/H.248 IP Device, works with an associated MGC and MG for transitional calling and control.



- A SIP based network (Fig 3) – Here we see how a SIP IP Device, works with an associated MGC and MG (directly or through a separate server) for transitional calling and control.

‘Key’ MEGACO / H.248 Benefits

MEGACO / H.248 provides that crucial linkage between the TDM/PSTN based and IP based network segments and historical industries. Ok, so there are alternatives, both proprietary and standard – as we discussed above (eg. H.323). However, as SIP seems set to evolve as the primary ‘inter-gateway’ multimedia standard, stretching out across private and public domains – MEGACO / H.248 has a major role to play alongside.

The following are the ‘key’ benefits of MEGACO / H.248 over MGCP and previous:-

- Supports multimedia and multipoint conferencing enhanced services
- Improved syntax for more efficient semantic message processing
- TCP and UDP transport options
- Allows either Text or Binary encoding
- Formalized extension process for enhanced functionality
- Expanded definition of PACKAGES

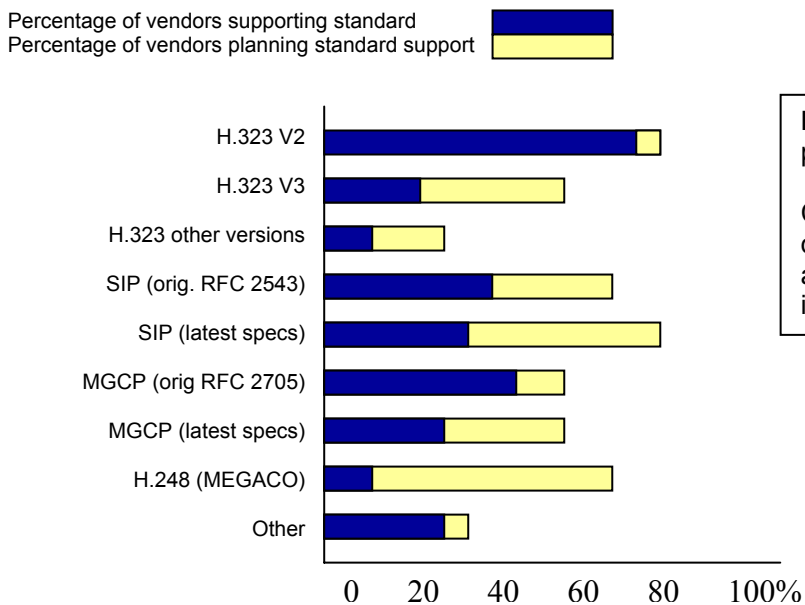
What's the status & future for MEGACO / H.248?

As we first described, MEGACO / H.248 is an evolutionary standard, and as such leaves a trail of predecessors behind.

MGCP was the real input to MEGACO / H.248, and is out there within the vendor and user communities in volume. The collective development of MEGACO / H.248 makes sense, and is finding foot hold within these communities, but will take time to mature and overcome the 'why change it works?'

With the majority of migrations to MEGACO / H.248 likely via simple firmware upgrades, we should see that going forward, MEGACO / H.248 takes us a step in the right direction when it comes to simplifying and consolidating the array of contrasting and competing VoIP standards.

MEGACO / H.248 looks like the winner in the Media Gateway Control, as the below diagram shows expected take up of MEGACO / H.248.



Note: Numerous source information points were used to create this graph.

Collectively, this graph is intended to demonstrate the relative standards adoption (and expected) within the industry.