



## About MGCP

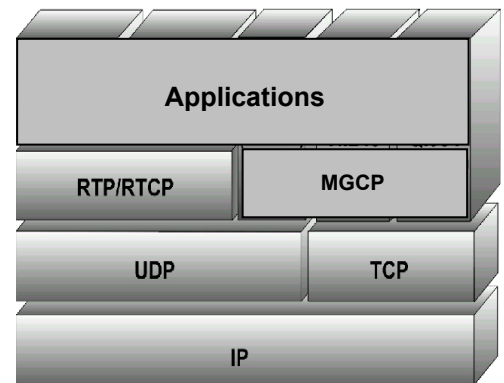
### What is MGCP?

As IP based telephony services began to gain some realism (late 1990's), there was a clear need for 'gateway' control to interface to the many non-IP based networks & technologies (such as Residential Gateways, ATM, Access Gateways and the PSTN. Media Gateway Control Protocol (MGCP) was developed within the IETF to address this requirement (main development vendors Level3, Bellcore & Vertical Networks).

### What is the MGCP Standard?

MGCP assumes a call control architecture where the call control "intelligence" is outside the gateways and handled by external call control elements. These call control elements are defined as 'Call Agents', but often termed as Media Gateway Controllers, Soft Switches or even IP PBX's.

MGCP assumes that these call control elements (where there are 2 or more), will synchronize with each other to send coherent commands to the gateways under their control. (note: MGCP does not define the actual mechanism for synchronizing the Call Agents).



**How MGCP 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.

**A little more detail:** MGCP assumes a connection model where the basic constructs are endpoints and connections.

Endpoints can be physical or virtual. Examples of physical endpoints are:

- An interface on a gateway that terminates a trunk connected to the PSTN
- An interface on a gateway that terminates an analog POTS connection to a phone, key system, PBX, etc.

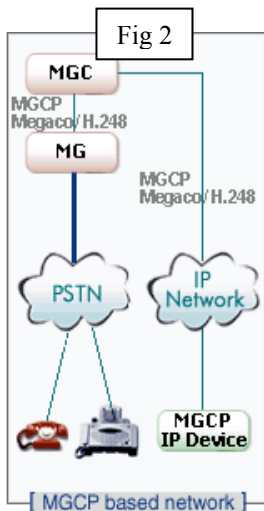
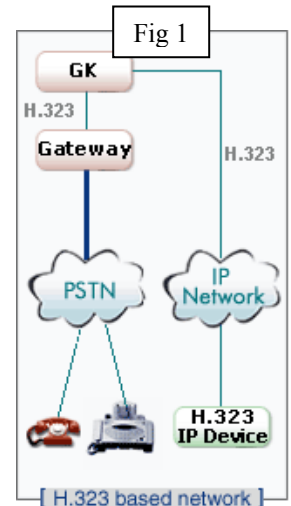
Virtual endpoints are those endpoints not requiring any hardware such as an audio-content server.

Connections can be point to point or multipoint. A point to point connection is an association between two endpoints with the purpose of transmitting data between these endpoints. Once this association is established for both endpoints, data transfer between these endpoints can take place. A multipoint connection is established by connecting the endpoint to a multipoint session

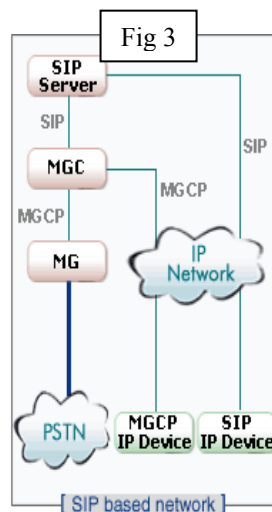
## MGCP and the Network

Here we take a look at how MGCP 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.



- An MGCP based network (Fig 2) – Here we see how an MGCP 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’ MGCP Benefits

There are several advantages of using MGCP and IP based communications systems over traditional telephony engineering models. Among these are scalability, expandability, development time, reliability, and vendor independence.

**Scalability:** With an IP-based communications agent talking to multiple IP-based media gateways over an IP network, the number of ports you can install into the system is virtually limited only by the number of IP addresses available in the network. It could also be limited by the number of call setup requests per second an agent can support and how big a database of phone numbers and IP addresses, etc, an agent has to maintain.

**Expandability:** Scalability describes the ‘sizing’ capabilities and benefit of MGCP, but the process of scaling (either up or down) is also a major benefit (example – a single Call Agent / MGC could support and control 100’s of Media Gateways. Limited really by design and the need for redundancy.

**Development time:** As a standard, we have seen that development of MGCP is promoted and developed not singularly but by many vendors / developers allowing for speedy innovative progression.

**Reliability:** With the possible deployment of multi-Call Agents / MGC’s this sees the ‘virtualization’ of gateway and call control, resulting in increased reliability.

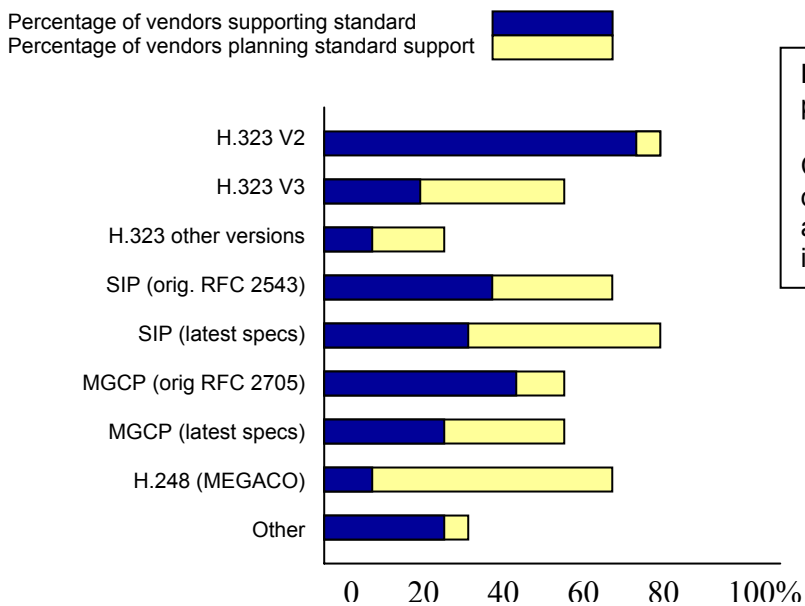
**Vendor independence:** Producing solutions that conform to a standard allows for rapid development and solutions that interoperate.

## What's the status & future for MGCP?

MGCP has set the pace for newer standards (MEGACO / H.248), and is out there within the vendor and user communities in volume. Going forward, the collective development of MEGACO / H.248 makes sense, and is beginning to find 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 within 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.