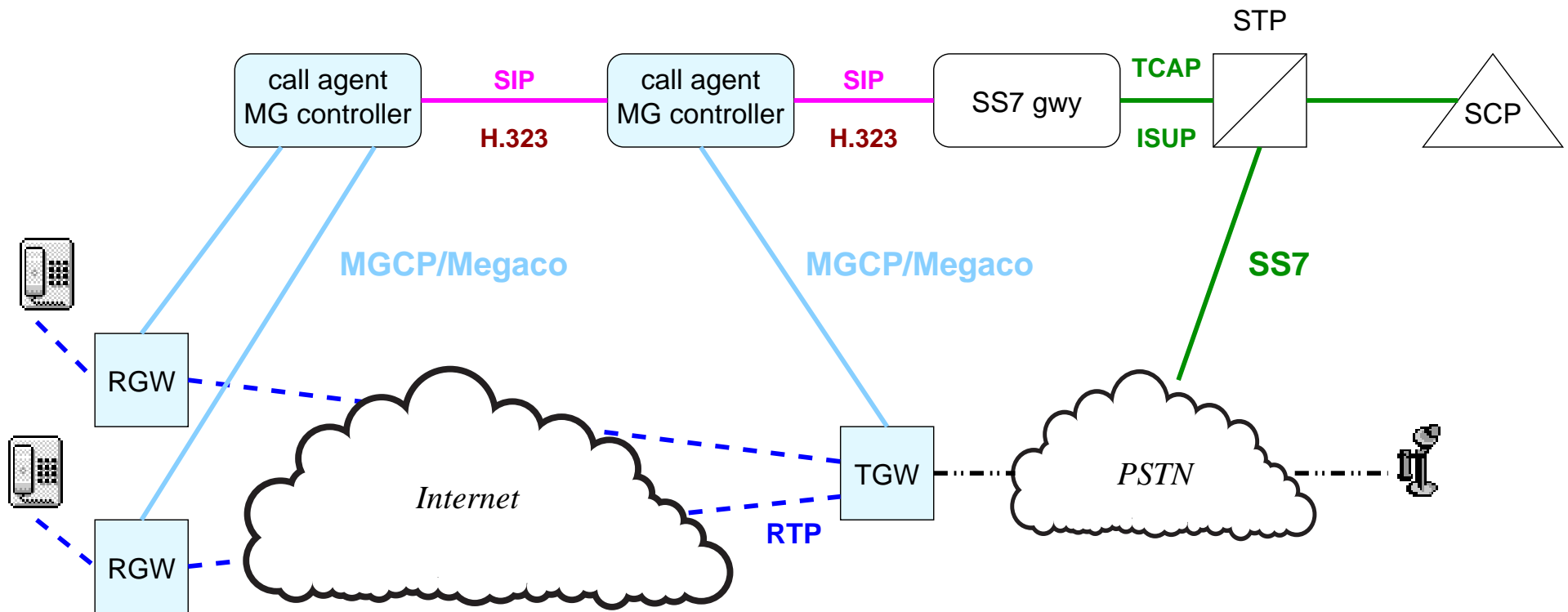


Media Gateway Control Protocol (MGCP and Megaco)

MGCP and Megaco

- gateways between IP telephony and PSTN: audio (media) and signaling
- large: digital (T-1, DS3), PBX \Rightarrow lots of DSPs
- small: residential gateway (1–2 lines) \Rightarrow cheap
- separate media gateway (MG) from media gateway controller (MGC)
- one MGC can control \gg 1 MG
- successor to MGCP: H.248/Megaco

Architecture



Rationale

- service deployment: upgrade a few, not every household
- charging for services like call waiting or caller ID
- reliability: 911 ... “general protection fault”
- simple end systems
- but: subscriber can only have one provider

Connections, endpoints, events, signals

end points: sources and sinks of data

connections: point-to-point, multipoint: ATM, IP, FR, PSTN, ...

events: off-hook, on-hook, flash hook, dialed digits, ...

signal: apply dialtone, ringing, busy, ...

packages: groups of signals and events

dialing plan: [xxxxxxx|1xxxxxxxxxxx | 011x.T]

Describing connections

MGCP uses SDP to describe connections:

```
v=0  
c=IN IP4 128.16.59.1  
m=audio 3456 RTP/AVP 0 96  
a=rtpmap:96 G726/4
```

MGCP commands

NotificationRequest: call agent requests gw to send events

Notify: gw sends event: e.g., off-hook

```
RQNT 1201 endpoint-1@rgw-2567.mci.net MGCP 1.0  
N: ca@cal.mci.net:5678  
X: 31415  
R: hd
```

```
NTFY 2001 endpoint-1@rgw-2567.mci.net MGCP 1.0  
N: ca@cal.mci.net:5678  
X: 31415  
O: hd
```

MGCP commands

CreateConnection: attach endpoint to IP address

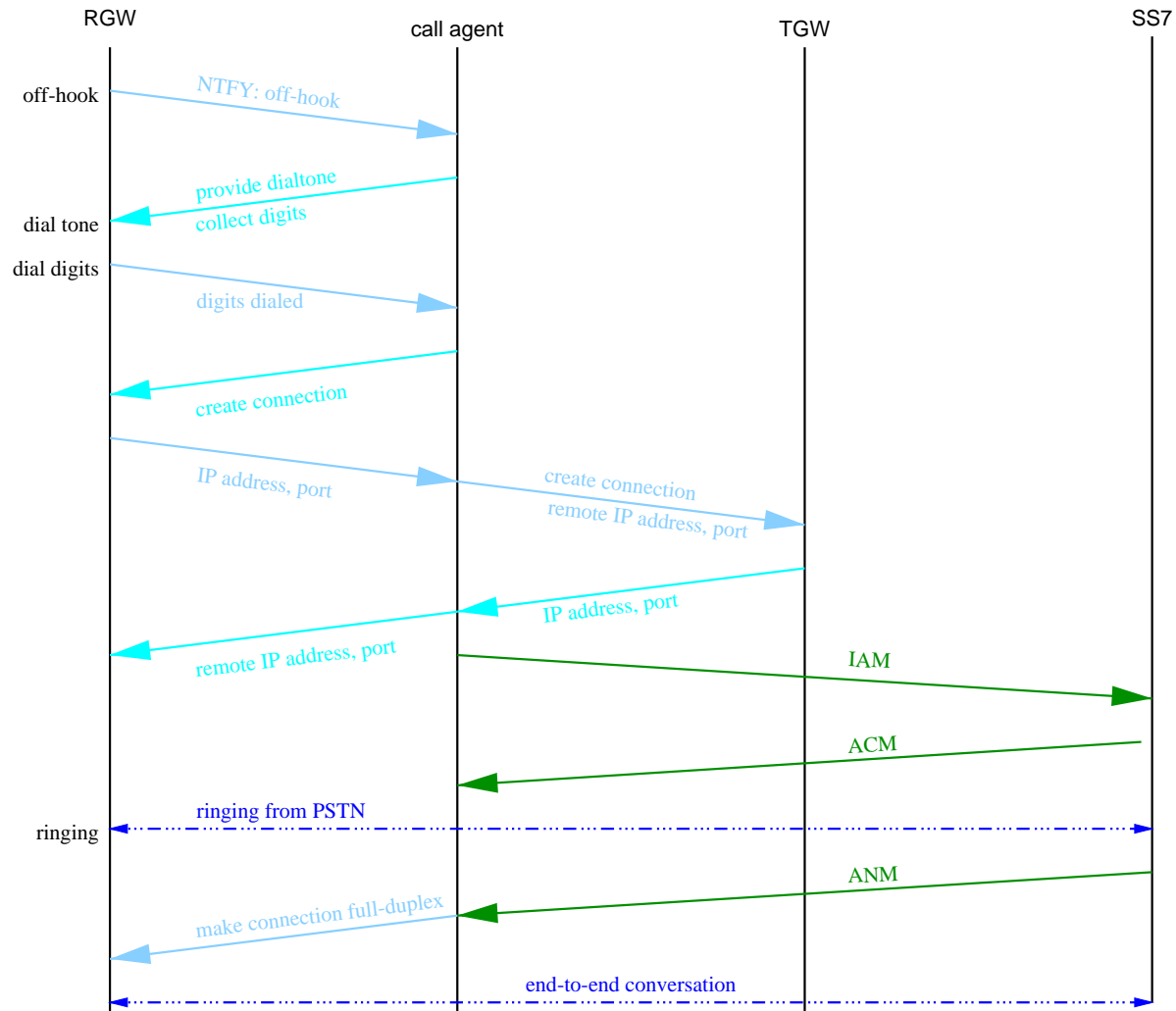
ModifyConnection: change IP address, port, ...

DeleteConnection: returns statistics (packets sent, ...)

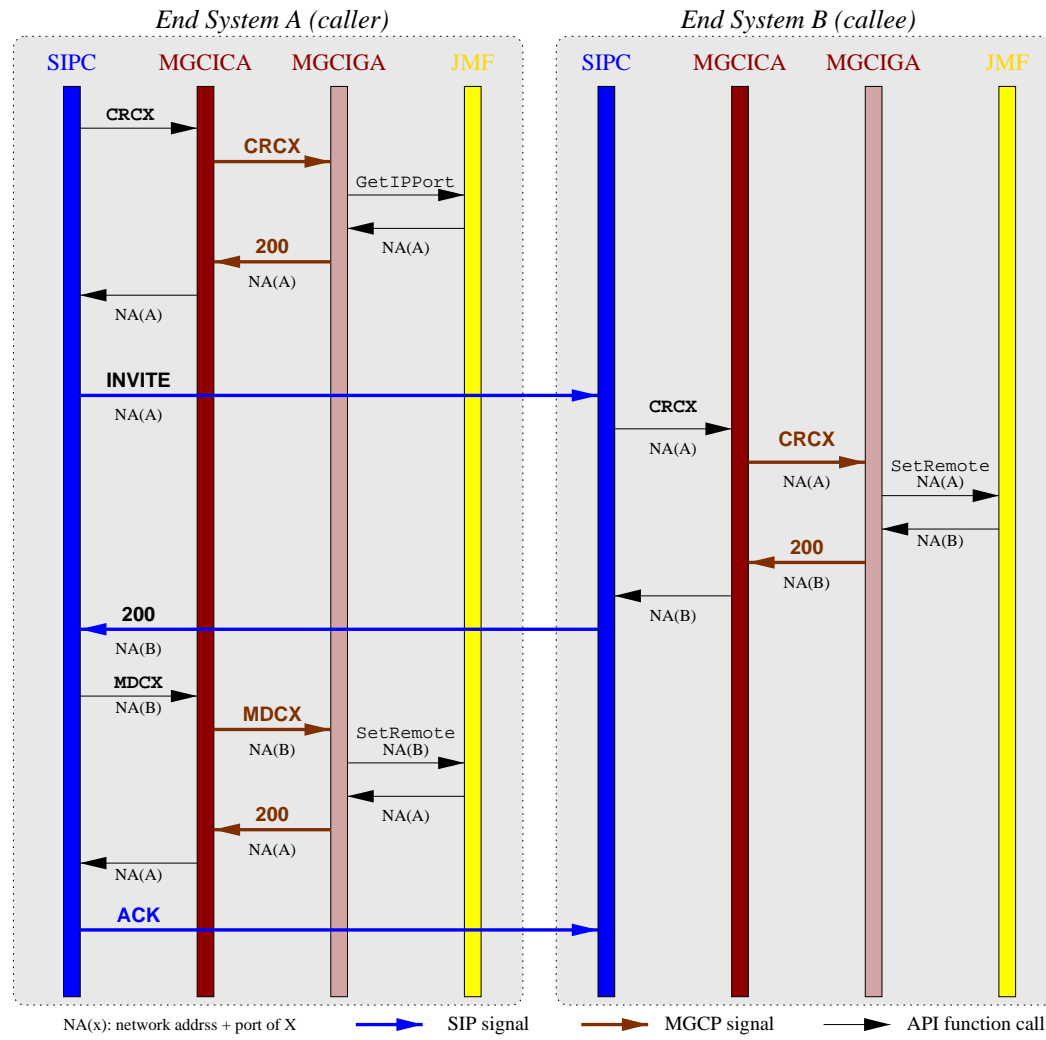
AuditEndpoint: get status of endpoint (events, dialing plans, ...)

AuditConnection: get status of connection (id's, parameters)

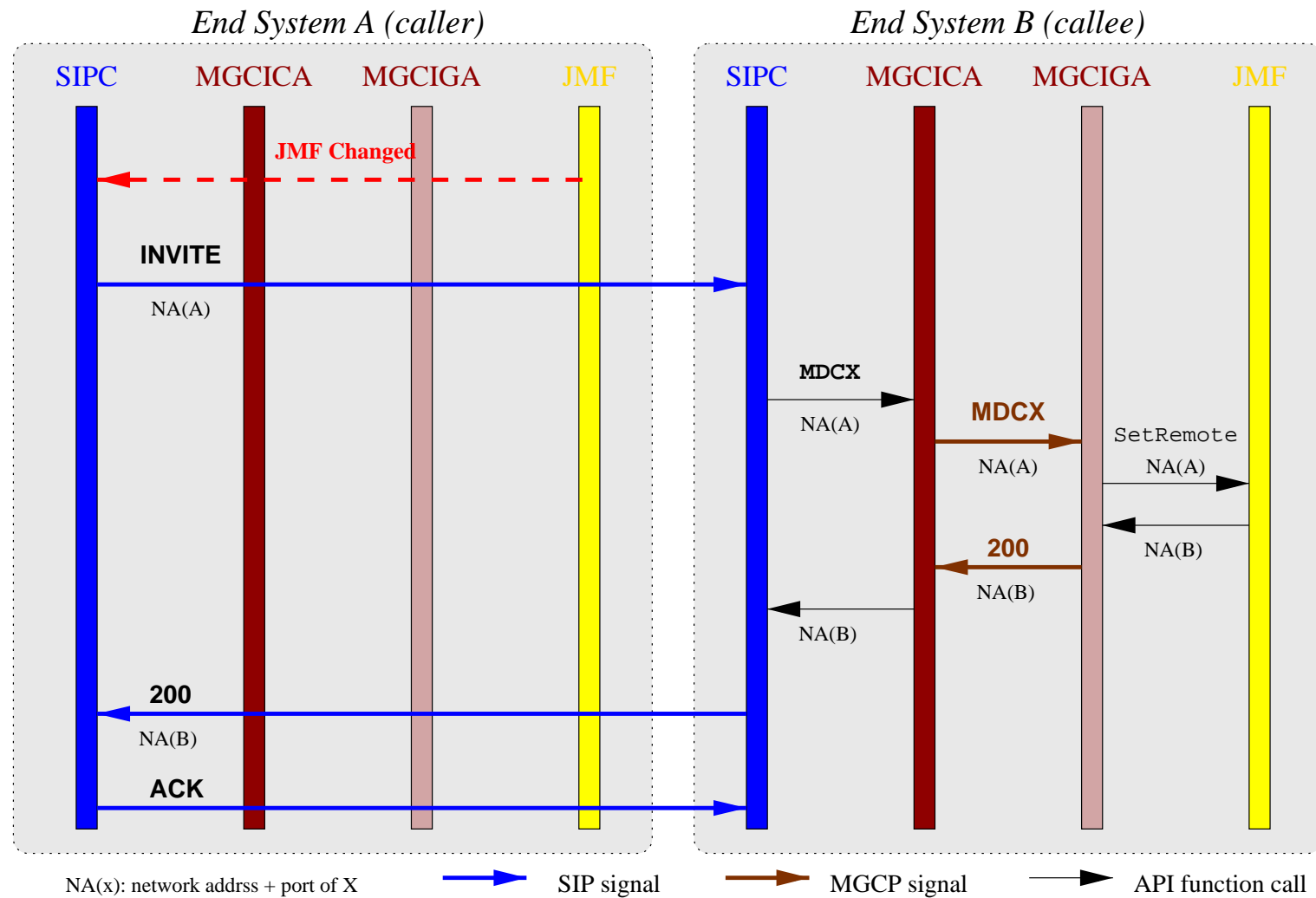
Interoperation with PSTN



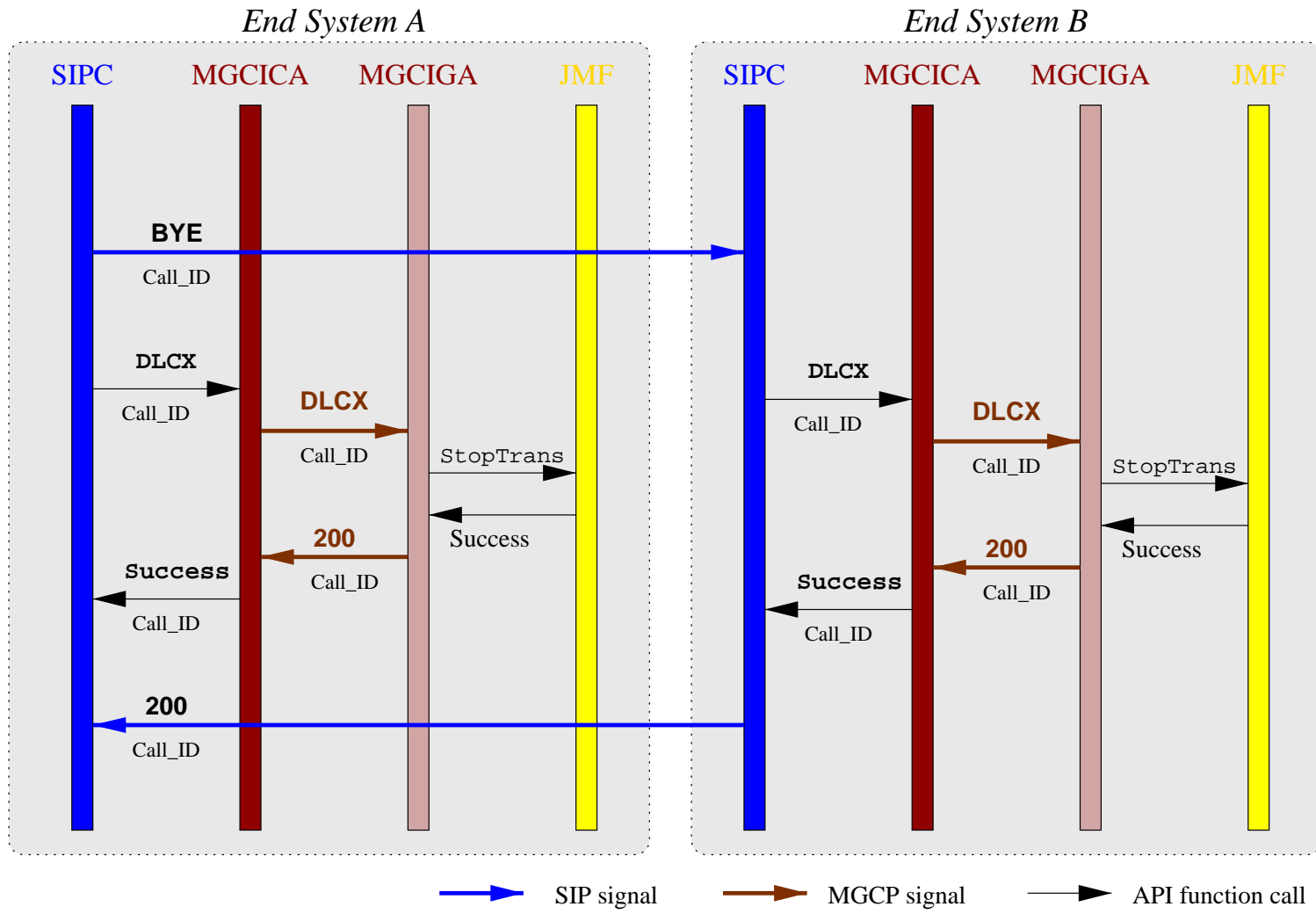
Interworking with SIP: INVITE



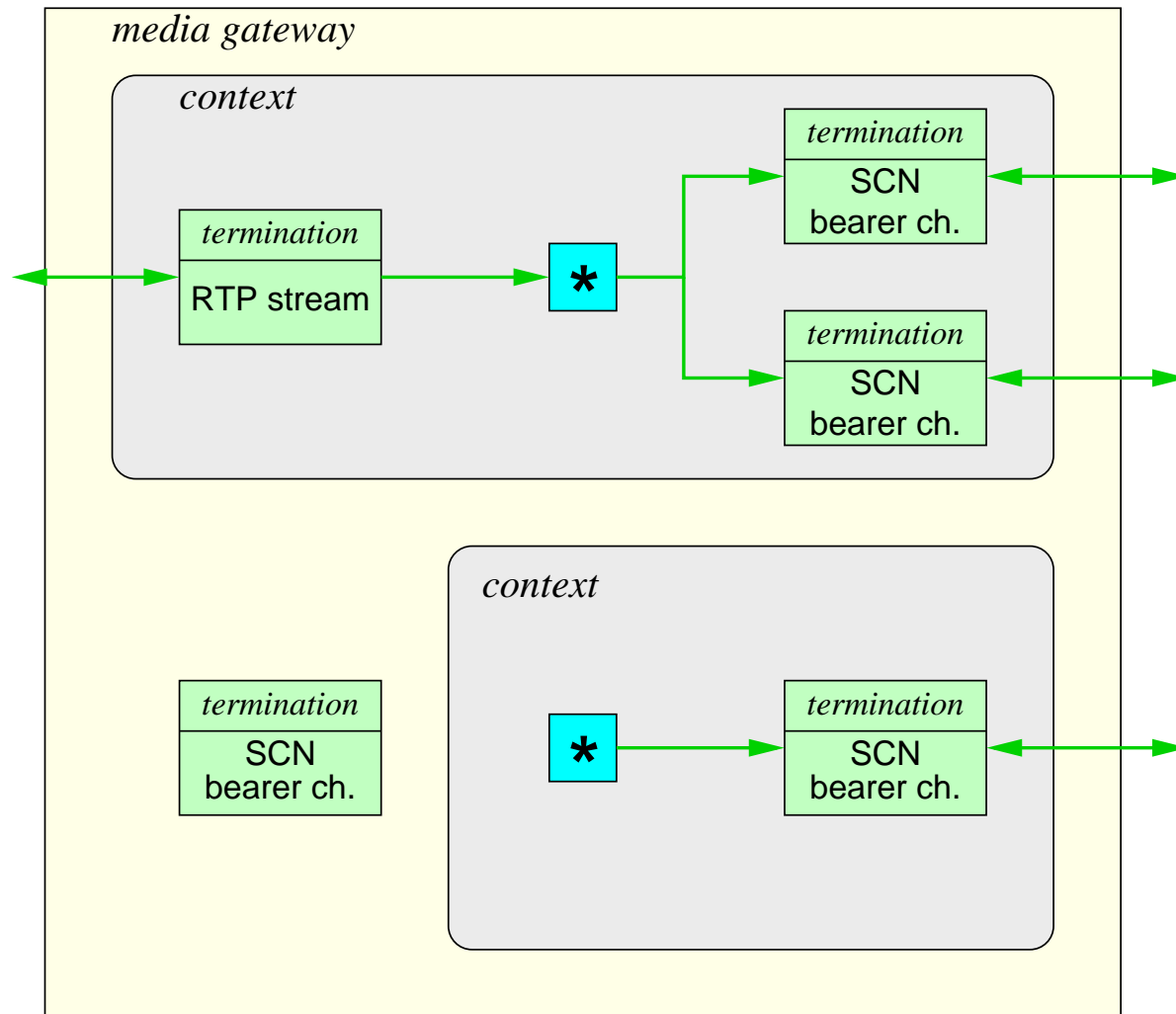
Interworking with SIP: re-INVITE



Interworking with SIP: BYE



Megaco architecture



Megaco operations

Add: termination to context;

Modify: properties, events and signals of a termination;

Subtract: disconnects a termination from its context;

Move: atomically moves a termination to another context;

AuditValue: returns the current state of properties, events, signals and statistics of terminations;

AuditCapabilities: returns all the possible values for termination properties, events and signals;

Notify: MG informs the MGC of the occurrence of events;

ServiceChange: MG notifies the MGC that a termination or group of Terminations is about to be taken out of service or has just been returned to service.