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Media Gateway Control Protocol (MGCP) Call Flows
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Abstract

The Media Gateway Control Protocol (MGCP) organizes the communication
between a Media Gateway controller, or call agent, and a Media Gateway,
e.g. a Voice over IP gateway or a Network Access Server. MGCP is
defined in a companion document [1]. This document provides example of
MGCP usage by providing a variety of call flows, in the case of
telephony and network access servers.

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1.   Introduction

In order to understand the way the MGCP interface will be used, we have
described here several possible call flows between a TGW, which is a
trunking gateway that implements MGCP, and an RGW, which is a residen-
tial gateway that implements MGCP, as well as several call flows
describing how MGCP could be used to control a network access service.
For each of these call flows it is assumed that the default event pack-
ages are as follows:

TGW   Trunk package

RGW   Line package

NAS   Network Access Server package

The diagrams also show a Common Database (CDB) that can be queried for
authorization and routing information, and an Accounting Gateway (ACC)
that collects accounting information at the start and the end of calls.

These diagrams are solely meant to exhibit the behavior of the MGCP, and
to help understanding this protocol. They are not meant as a tutorial on
the implementation of a Call Agent. They may very well include miscel-
laneous errors and imprecisions.

2. Internet Telephony Call Flows.

We present seven Internet Telephony call flows:

*   A basic call between two "trunking gateways",

*   A basic call from a "residential gateway" to a "trunking gateway",

*   A basic call from a "trunking gateway" to a "residential gateway".

*   A basic call from an R2 trunk in a TGW to an SS7 trunk in a TGW.

*   A basic call from an ISDN trunk in a business gateway to an SS7
     trunk in a TGW.

*   A basic call with continuity test, from a "trunking gateway" to a
     "residential gateway".

*   A "hairpin" connection between two endpoints on a trunking gateway,
     using regular call set-up procedures.

*   A "hairpin" connection between two endpoints on a residential gate-
     way, using accelerated procedures.

2.1. Connection from a TGW to another TGW

The figure below gives the flow that results in a connection between two
trunking gateways.

```
 _____
| sw1|  SG1|  TGW1|   CA  | TGW2|  SG2|
|____|_____|_____|_____|_____|_____|
| IAM|   ->|      |       |      |     |
|    |  IAM|  - - |   ->  |      |     |
|    |     |   <- |  CRCX |      |     |
|    |     |  ACK |   ->  |      |     |
|    |     |      |  CRCX |   -> |     |
|    |     |      |   <-  |  ACK |     |
|    |     |      |  IAM  |  - - |  -> |
|    |     |      |       |      |  IAM|
|    |     |      |       |      |   <-|
|    |     |      |   <-  |  - - |  ACM|
|    |     |   <- |  ACM  |      |     |
|  <-|  - -|  ACM |       |      |     |
|    |  ...|      |       |      |     |
|    |     |      |       |      |   <-|
|    |     |      |   <-  |  - - |  ACM|
|    |     |   <- |  MDCX |      |     |
|    |     |  ACK |   ->  |      |     |
|    |  <- |  - - |  ANM  |      |     |
|  <-|  ANM|      |       |      |     |
| REL|   ->|      |       |      |     |
|    |  REL|  - - |   ->  |      |     |
|    |     |   <- |  DLCX |      |     |
|    |     |  Perf|   ->  |      |     |
|    |     |  data|       |      |     |
|    |  <- |  - - |  RLC  |      |     |
|  <-|  RLC|      |       |      |     |
|    |     |      |  DLCX |   -> |     |
|    |     |      |   <-  |  Perf|     |
|    |     |      |       |  data|     |
|    |     |      |  REL  |  - - |  -> |
|    |     |      |       |      |  REL|
|    |     |      |       |      |   <-|
|    |     |      |   <-  |  - - |  RLC|
|____|_____|_____|_____|_____|_____|
```

During these exchanges the MGCP is used by the Call Agent to control the
two endpoints located on the two TGW.

The exchanges start with the arrival from the first switch (SW1) of an

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