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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Communication procedures

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Gateway control protocol: MGC information package

ITU-T Recommendation H.248.45

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ITU-T Recommendation H.248.45

Gateway control protocol: MGC information package

Summary

This Recommendation describes an extension to the ITU-T Rec. H.248.1 Gateway Control Protocol to enable an MGC to store data on an MG that can be subsequently retrieved to facilitate MGC recovery action.

Source

ITU-T Recommendation H.248.45 was approved on 29 May 2006 by ITU-T Study Group 16 (2005-2008) under the ITU-T Recommendation A.8 procedure.

FOREWORD

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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Gateway control protocol: MGC information package

1 Scope

This Recommendation describes an extension to ITU-T Rec. H.248.1 [1] gateway control protocol to enable an MGC to store data on an MG that can be subsequently retrieved to facilitate MGC recovery action.

The standard H.248 audit mechanism permits an MGC to retrieve data from an associated MG in order to re-synchronize connection data/state between an MGC and an MG. In terms of identifying the other end of this bearer connection, the Remote Descriptor that is associated with the ephemeral termination enables the other end of the bearer connection to be identified – albeit not in a format that may be convenient for the MGC to use. In many cases, the Remote Descriptor may not enable the other end to be identified (e.g., some MGs may use different control and media addresses).

In order to achieve a coordinated recovery action, whereby both GW connections in a single call/end-to-end connection can be torn down in parallel, it is proposed to define this H.248 package to enable the MGC to store a block of data on an MG which enables the MGC to identify the other end of the bearer connection. The structure of the stored data is understood only by the MGC and is opaque to the MG. Thus, the MGC is now able, via standard H.248 audit mechanisms, to retrieve the previously stored data block in the event of an MGC failure. The MGC is now able to identify the other end of the connection (e.g., typically on separate MGs) and thus provide a coordinated clean-up of the related connections on the separate MGs. The MGC is at liberty to define the contents of the string in a proprietary manner that is most convenient for its own usage.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[1] ITU-T Recommendation H.248.1 (09/2005), *Gateway control protocol: Version 3*.

3 Terms and definitions

See ITU-T Rec. H.248.1. This Recommendation uses no particular terms and definitions.

4 Abbreviations

This Recommendation uses the following abbreviations:

AGW Access GateWay

CIC Call Identification Code

GW GateWay

ISUP ISDN User Part

MG Media Gateway

MGC Media Gateway Controller

REL RELease message

SDP Session Description Protocol

SS7 Signalling System No. 7

TGW Trunking GateWay

5 MGC Information Package

Package Name: MGC Information package

PackageID: MGCInfo (0x00a0)

Description: This package enables the MGC to store an opaque data block against a physical or ephemeral termination in the MG. The data block is applicable when the termination is involved in a connection and is thus defined in the LocalControl Descriptor.

Version: 1

Extends: None

5.1 Properties

5.1.1 Data Block

Property Name: Data Block

PropertyID: db (0x0001)

Description: This property holds the MGC (Recovery) Information data block.

Type: Octet String

Possible values: A range of zero to 128 octets. The range can be further limited in the appropriate H.248 Profile, which defines the application, which utilizes this property.

Default: An empty string

Defined in: LocalControl

Characteristics: read/write

5.2 Events

None.

5.3 Signals

None.

5.4 Statistics

None.

5.5 Error Codes

No additional error codes.

5.6 Procedures

5.6.1 Setting the property

The property is set by the MGC when a termination (either physical or ephemeral) is placed into a non-NULL Context.

Having been initially set, it is permissible for the MGC to subsequently modify the property by overwriting the previous setting.

5.6.2 Resetting the property

The property is reset to its default value when a physical termination is returned into the NULL Context. For ephemeral terminations, the property shall be set to the default value when the ephemeral termination is created and no string has been supplied by the MGC.

5.6.3 Retrieving the property

The property is retrieved by the MGC in the event of an MGC failure. The retrieval is performed via the H.248 audit mechanism. The property is part of the LocalControl Descriptor and is thus retrieved using the AuditValue command that specifies a specific TerminationID. The audit may be performed against either the Media Descriptor (which contains the LocalControl Descriptor) or else the individual property within the LocalControl Descriptor, i.e.,

```
Audit{Media}
```

or

```
Audit{Media {Stream=1{LocalControl{MGCInfo/db}}}}
```

5.6.4 Example scenario

Consider a stable call/bearer connection between a TGW and an AGW – both MGs being under the control of a single MGC (see Figure 1). During the supervision phase, the MGC suffers a failure/disturbance and loses its transient memory.

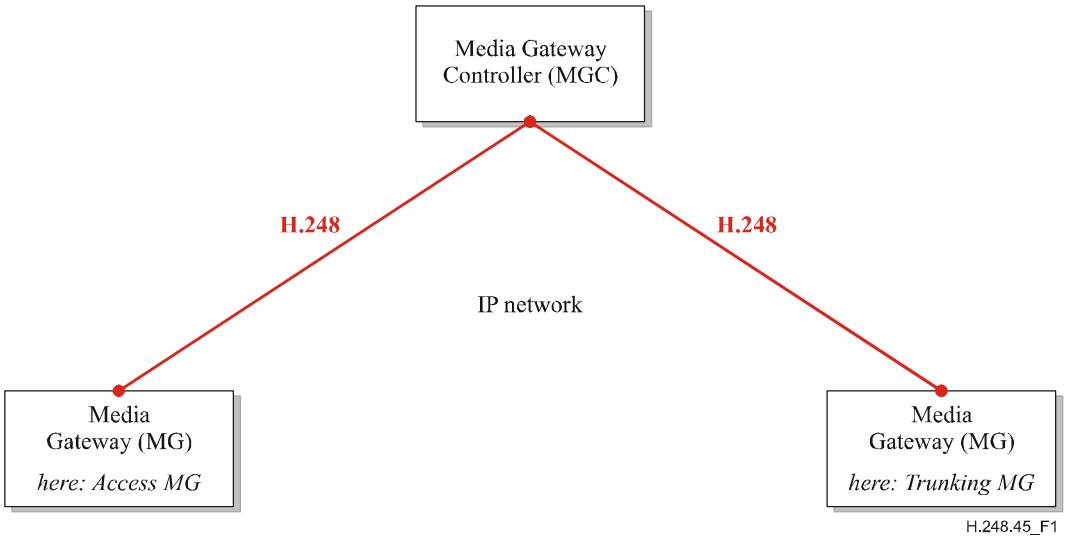

Figure 1/H.248.45 – Example of scenario where two MGs are controlled by a single MGC

As part of its normal recovery action, the MGC would typically perform H.248 audits on its MGs to re-synchronize its lost data. This is typically done as a background activity. In addition, call control signalling messages will also be received which will also initiate H.248 audit activity. Consider that an SS7 "ISUP-REL" message is received for the active call. The MGC will now:

1) Translate the SS7 CIC identity to corresponding TGW and endpoint identity (H.248 TerminationID).

2) The H.248 audit mechanism enables the MGC to determine that the endpoint is connected (in a non-NULL Context) and also the related ephemeral endpoint identity (H.248 TerminationID).

3) In terms of identifying the other end of this connection, the MGC also retrieves the MGC information string (that was previously stored when the connection was established). The string may be stored/retrieved via either a physical or ephemeral termination.

4) The MGC is now able to interpret the previously stored string as identifying the associated AGW termination. As a result, the call may be torn down in a coordinated manner dealing with both MGs concerned. The MGC information string thus permits a faster and better coordinated recovery by the MGC.

This approach can be extended to any number of terminations within a context – e.g., each termination within a 3-way connection/context may each be provided with a separate MGC Information data block.

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