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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Communication
procedures

Gateway control protocol: Transport over ATM

ITU-T Recommendation H.248.5

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ITU-T Recommendation H.248.5

Gateway control protocol: Transport over ATM

Summary

This Recommendation defines the transport of H.248.1 Gateway Control Protocol messages over ATM. ATM transport is an alternative to UDP or TCP. Transport of H.248.1 over UDP or TCP is defined in ITU-T Rec. H.248.1 Annex D.

NOTE – This Recommendation has been renumbered. It was formerly known as ITU-T Rec. H.248 Annex I.

Source

Recommendation H.248.5 was prepared by ITU-T Study Group 16 (2001-2004) and approved under the WTSA Resolution 1 procedure on 17 November 2000.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had 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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ITU-T Recommendation H.248.5

Gateway control protocol: Transport over ATM

1 Scope

This Recommendation defines a package that extends the applicability of the H.248.1 Gateway Control Protocol Recommendation. Specifically, H.248.5 defines the transport of H.248.1 Gateway Control Protocol messages over ATM. ATM transport is an alternative to UDP or TCP. Transport of H.248.1 over UDP or TCP is defined in H.248.1 Annex D.

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 revisions: 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.

- Recommendation ITU-T H.248.1 (2000), *Gateway Control Protocol*.
- Recommendation ITU-T I.361 (1999), *B-ISDN ATM layer specification*.
- Recommendation ITU-T Q.704 (1996), *Signalling network functions and message*.
- Recommendation ITU-T Q.2110 (1994), *B-ISDN ATM adaptation layer – Service specific connection oriented protocol (SSCOP)*.
- Recommendation ITU-T Q.2210 (1996), *Message transfer part level 3 functions and message using the services of ITU-T Recommendation Q.2140*.

3 Acronyms

This Recommendation uses the following abbreviations:

AAL	ATM adaptation layer
ALF	application layer fraying
MTP3b	message transfer part level 3 using Q.2140
SSCOP	service specific connection oriented protocol
UDP	user data protocol

4 Transport over MTP3b/N-SAL/Type 5 AAL

Protocol messages defined in this Recommendation may be transmitted over an SS7 network. Service indicator value 14, as defined in 14.2.1/Q.704, shall be used. The value corresponds to the bits DCBA equal 1110. These protocol messages are using the services of MTP3b as described in ITU-T Rec. Q.2210.

In a transaction-oriented protocol there are still ways for transaction requests or responses to be lost. As such it is recommended that entities using MTP3b transport implement application timers for each TransactionRequest.

4.1 Providing At-Most-Once functionality

Messages, being carried over MTP3b, may be subject to losses. In the absence of a timely response, commands are repeated. Most commands are not idempotent. The state of the MG would become unpredictable if, for example, Add commands were executed several times. The transmission procedures shall thus provide an "At-Most-Once" functionality.

The procedures in D.1.1/H.248.1 shall be followed with two exceptions:

- The LONG-TIMER shall not be used;
- The TransactionResponseAck parameter shall not be used.

4.2 Transaction identifiers and three-way handshake

4.2.1 Transaction identifiers

Clause D.1.2.1/H.248.1 is recommended to be followed.

4.2.2 Three way handshake

Clause D.1.2.2/H.248.1 is not applicable.

4.3 Computing retransmission timers

With reliable delivery, as MTP3b provides, the incidence of loss of a transaction request or reply is expected to be very low. Therefore, only simple timer mechanisms are required. E.g the first retransmission of a request can occur after a short interval. If additional retransmissions are required, a longer time interval is recommended between the retransmissions.

4.4 Provisional responses

The procedures in 8.2.3/H.248.1 apply. If an entity receives a repetition of a transaction that is still being executed, a TransactionPending should be sent.

4.5 Ordering of commands

MTP3b provides ordered delivery of transactions therefore no special procedures are required.

5 Transport using SSCOP/Type 5 AAL

Protocol messages described in this Recommendation may be transmitted via SSCOP links. These protocol messages are using the services of SSCOP as described in ITU-T Rec. Q.2110.

In a transaction-oriented protocol, there are still ways for transaction requests or responses to be lost. As such, it is recommended that entities using SSCOP transport implement application timers for each request and response.

5.1 Providing the At-Most-Once functionality

Messages being carried over SSCOP, are not subject to transport losses, but loss of a transaction request or its reply may none the less be noted in real implementations. In the absence of a timely response, commands are repeated. Most commands are not idempotent. The state of the MG would become unpredictable if, for example, Add commands were executed several times.

To guard against such losses, it is recommended that entities follow the procedures in D.1.1/H.248.1.

5.2 Transaction identifiers and three-way handshake

5.2.1 Transaction identifiers

Clause D.1.2.1/H.248.1 applies.

5.2.2 Three-way handshake

It is possible that transaction replies may be lost even with a reliable delivery protocol such as SSCOP. Entities using SSCOP shall follow the procedures in D.1.2.1/H.248.1.

5.3 Computing retransmission timers

With reliable delivery, the incidence of loss of a transaction request or reply is expected to be very low. Therefore, only simple timer mechanisms are required.

5.4 Provisional responses

The procedure of 8.2.3/H.248.1 applies.

Entities that receive a TransactionPending shall switch to a longer repetition timer for that transaction. Entities shall retain Transactions and replies until they are confirmed. The procedure of D.2.4/H.248.1 should be followed, but simple timer values should be sufficient.

5.5 Ordering of commands

SSCOP provided ordered delivery of transactions. No special procedures are required.

6 Transport using Type 5 AAL with ALF

Protocol messages defined in this Recommendation may be transmitted via Type 5 AAL links. These messages are using the services of Type 5 AAL as described in ITU-T Rec. I.361.

In a transaction-oriented protocol there are still ways for transaction requests or responses to be lost. As such, it is recommended that entities using Type 5 AAL with ALF transport implement application level timers for each request and each response, similar to those specified for application level framing over UDP.

6.1 Providing the At-Most-Once functionality

Messages being carried over Type 5 AAL with ALF may be subject to losses. In the absence of a timely response, commands are repeated. Most commands are not idempotent. The state of the MG would become unpredictable if, for example, Add commands were executed several times. The transmission procedures shall thus provide an "At-Most-Once" functionality.

To guard against such losses, it is recommended that entities follow the procedures in D.1.1/H.248.1.

6.2 Transaction identifiers and three-way handshake

6.2.1 Transaction identifiers

Clause D.1.2.1/H.248.1 applies.

6.2.2 Three-way handshake

When Type 5 AAL with ALF is used as transport, the entities shall follow the procedures in D.1.2.2/H.248.1.

6.3 Computing retransmission timers

When Type 5 AAL with ALF is used as transport, the entities shall provide the same type of calculation as described in D.1.3/H.248.1.

6.4 Provisional responses

When Type 5 AAL with ALF is used as transport, the entities shall follow the procedures in D.1.4/H.248.1.

6.5 Ordering of commands

When Type 5 AAL with ALF is used as transport, the entities shall follow the procedures in 9.1/H.248.1.

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