

H.248 Annex I (Pre-Decision White Document)

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1. Abstract

This document reproduces the content of the ITU-T Study Group 16 White Document draft of H.248 Annex I, which is scheduled for decision in Geneva in November 2000. H.248 Annex H describes procedures for transport of the Megaco protocol over ATM.

This document is submitted for IETF comment prior to ITU-T decision, in accordance with procedures currently being negotiated between ITU-T Study Group and ISOC on behalf of the IETF.

2. Conventions used in this document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC-2119](#) [2].

3. Transport over MTP 3B/N-SAL/AAL5

Megaco/H.248 protocol messages may be transmitted over an SS 7 network. Service indicator value 14 shall be used. These protocol messages is using the services of MTP 3 B as described in

recommendation Q.2210.

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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 MTP 3 B transport implement application timers for each TransactionRequest.

3.1 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.

To guard against such losses, it is recommended that entities follow the procedures in Megaco/H.248 Section D.1.1 with the exception of the use of LONG-TIMER and TransactionResponseAck parameter, which shall not be used.

3.2 Transaction identifiers and three way handshake

3.2.1 Transaction identifiers

Megaco/H.248 Section D.1.2.1 is recommended to be followed.

3.2.2 Three way handshake

It is not applicable.

3.3 Computing retransmission timers

With reliable delivery, as MTP 3B 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.

3.4 Provisional responses

The basic procedures in Megaco/H.248 [section 8.2.3](#) apply.

3.5 Ordering of commands

MTP 3B provides ordered delivery of transactions therefore no special procedures are required.

4. Transport using SSCOP

Protocol messages described in this document may be transmitted via SSCOP links. These protocol messages are using the services of SSCOP as described in recommendation Q.2110.

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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.

4.1 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 Megaco/H.248 Section D.1.1.

4.2 Transaction identifiers and three way handshake

4.2.1 Transaction identifiers

Megaco/H.248 Section D.1.2.1 applies.

4.2.2 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 Megaco/H.248 Section D.1.2.1.

4.3 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.

4.4 Provisional responses

The basic procedure of Megaco/H.248 [Section 8.2.3](#) applies. Entities that receive a Transaction Pending shall switch to a longer repetition timer for that transaction. Entities shall retain Transactions and replies until they are confirmed. The procedure of

Megaco/H.248 Section D.2.4 should be followed, but simple timer values should be sufficient.

4.5 Ordering of commands

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

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5. Transport using TYPE 5 AAL with ALF

Protocol messages defined in this document may be transmitted via type 5 AAL links. These messages are using the services of Type 5 AAL as described in recommendation 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 transport implement application level timers for each request and each response, similar to those specified for application level framing over UDP.

5.1 Providing the At-Most-Once functionality

Messages, being carried over Type 5 AAL, 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 Megaco/H.248 Section D.1.1.

5.2 Transaction identifiers and three way handshake

5.2.1 Transaction identifiers

Megaco/H.248 Section D.1.2.1 applies.

5.2.2 Three way handshake

When Type 5 AAL is used as transport the entities shall follow the procedures in Megaco/H.248 Section D.1.2.2.

5.3 Computing retransmission timers

When Type 5 AAL is used as transport the entities shall provide the same type of calculation as described in Megaco/H.248 Section D.1.3.

5.4 Provisional responses

When Type 5 AAL is used as transport the entities shall follow the procedures in Megaco/H.248 Section D.1.4.

5.5 Ordering of commands

When Type 5 AAL is used as transport the entities shall follow the procedures in Megaco/H.248 [Section 9.1](#).

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6. Security Considerations

Security considerations regarding media gateway control are discussed in [section 10](#) of [3].

7. References

- 1 Bradner, S., "The Internet Standards Process -- Revision 3", [BCP 9](#), [RFC 2026](#), October 1996.
- 2 Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- 3 ITU-T Recommendation H.248, "Gateway Control Protocol", Geneva, June 2000. Also to appear as RFC xxxx (currently [draft-ietf-megaco-merged-01.txt](#)).
- 4 ITU-T Recommendation Q.2110.
- 5 ITU-T Recommendation Q.2210.
- 6 ITU-T Recommendation I.361.

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