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**SERIES J: CABLE NETWORKS AND TRANSMISSION
OF TELEVISION, SOUND PROGRAMME AND OTHER
MULTIMEDIA SIGNALS**

Interactive systems for digital television distribution

Quality control protocol for webcasting

ITU-T Recommendation J.121

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Quality control protocol for webcasting

Summary

This Recommendation defines protocols between a server and a client in order to distribute sound and television programs by J.120, i.e. perform "webcasting", over a general IP network, which is a non-QoS guaranteed network where data error or packet losses may occur. The use of these protocols results in an improvement of quality.

A scheme is provided wherein a quality report is sent from a client to the server, and the server performs optimum data distributions according to the client's report.

This Recommendation defines the kinds of parameters that a client should report to the server, as well as a transmission protocol that is used for sending the report from the client to the server. This Recommendation also defines transmission of supporting parameters that are useful for the server to analyze the client's report.

Source

ITU-T Recommendation J.121 was prepared by ITU-T Study Group 9 (2001-2004) and approved under the WTSA Resolution 1 procedure on 13 February 2002.

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 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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Quality control protocol for webcasting

1 Scope

The response of the server after receiving the client's report is outside the scope of this Recommendation.

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.

2.1 Normative references

- ITU-T Recommendation H.225.0 (2000), *Call signalling protocols and media stream packetization for packet-based multimedia communication systems*.
- ITU-T Recommendation J.120 (2000), *Distribution of sound and television programs over the IP network*.

2.2 Informative references

- IETF RFC 1889, (1996), *RTP: A Transport Protocol for Real-Time Applications*.

3 Terms and definitions

This Recommendation defines the following terms:

3.1 real-time transport protocol (RTP): A transport protocol for real-time applications defined in ITU-T Rec. H.225.0.

3.2 RTP control protocol (RTCP): A control protocol for RTP packets defined in ITU-T Rec. H.225.0.

3.3 webcasting: "Webcasting" is defined in ITU-T Rec. J.120. Distribution of sound and television programs over the IP network.

4 Abbreviations and conventions

4.1 Abbreviations

This Recommendation uses the following abbreviations:

IP	Internet Protocol
RTCP	RTP Control Protocol
RTP	Real-time Transport Protocol
TCP	Transmission Control Protocol
UDP	User Datagram Protocol

4.2 Conventions

If this Recommendation is implemented, the key words "MUST" and "SHALL" as well as "REQUIRED" are to be interpreted as indicating a mandatory aspect of this specification.

The keywords indicating a certain level of significance of a particular requirement that are used throughout this Recommendation are summarized below.

"MUST"	This word or the adjective "REQUIRED" means that the item is an absolute requirement of this specification.
"MUST NOT"	This phrase means that the item is an absolute prohibition of this specification.
"SHOULD"	This word or the adjective "RECOMMENDED" means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighed before choosing a different course.
"SHOULD NOT"	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
"MAY"	This word or the adjective "OPTIONAL" means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.

5 System definition

Figure 1 shows the system and its signal flow between the server and the clients. In this scheme, Sender Report (SR) and Receiver Report (RR) of RTCP are used for exchanging information between the server and the client. The RTCP is based on the periodic transmission of control packets to all participants in the session, using the same distribution mechanism as the media data packets. The underlying protocol shall provide multiplexing of the data and control packets, for example using separate port numbers with UDP.

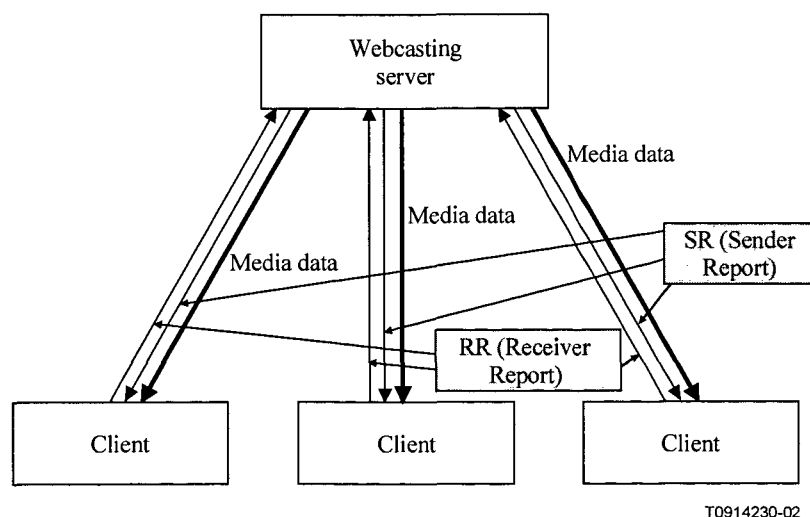


Figure 1/J.121 – Block diagram of quality control scheme for webcasting