



INTERNATIONAL TELECOMMUNICATION UNION

**TELECOMMUNICATION
STANDARDIZATION SECTOR**

STUDY PERIOD 2017-2020

SG16-TD509/WP1**STUDY GROUP 16****Original: English****Question(s):** 13/16

Online, 17-28 January 2022

TD**Source:** Editor F.ILMTS-reqs**Title:** F.ILMTS-reqs "Requirements for interactive low-latency multimedia transmission system over the Internet" (New): Initial draft (Online, 17-28 January 2022)**Purpose:** Admin**Contact:** Jufeng Chen
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E-mail: miao.chuanyang@zte.com.cn**Keywords:** Over-the-top; multimedia transmission system; low latency; interactive; requirements; use cases**Abstract:** This TD contains the initial text for the new draft Recommendation F.ILMTS-reqs "Requirements for interactive low-latency multimedia transmission system over the Internet" according to the result of the discussion in the SG16 meeting (Online, 17-28 January 2022).

This is the initial text for the new draft Recommendation, based on the discussions of contribution **SG16-C860R1** at this SG16 meeting held online, 17-28 January 2022.

Document	Source	Title	Agreements
SG16-C860-R1	Alibaba (China) Ltd, BUPT	New: F.LMDS-reqs: Proposal for a new work item on Requirements for low-latency multimedia delivery system	Proposal for new WI agreed.

NOTE – Editorial adjustments performed by TSB.

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Draft New Recommendation ITU-T F.ILMTS-reqs

Requirements for interactive low-latency multimedia transmission system over the Internet

Summary

[To be provided before Consent]

Keywords

Over-the-top; multimedia transmission system; low latency; interactive; requirements; use cases

1 Scope

This Recommendation defines the requirements for interactive low-latency multimedia transmission system over the Internet (ILMTS), including service requirements, management requirements, accounting requirements, networking requirements, QoS and performance requirements, scalability requirements, and specifies the use cases for the ILMTS.

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.

[TBD]

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

[TBD]

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

[TBD]

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

OTT	Over-The-Top
P2P	Peer-to-Peer

5 Conventions

In this Recommendation:

- The keywords "is required to" indicate a requirement which must be strictly followed and from which no deviation is permitted if conformance to this Recommendation is to be claimed.
- The keywords "is recommended" indicate a requirement which is recommended but which is not absolutely required. Thus, this requirement need not be present to claim conformance.
- The keywords "can optionally" and "may" indicate an optional requirement which is permissible, without implying any sense of being recommended. These terms are not intended to imply that the vendor's implementation must provide the option and the feature can be optionally enabled by the network operator/service provider. Rather, it means the vendor may optionally provide the feature and still claim conformance with the specification.

6 Introduction

As the mobile Internet ushers, a variety of video live streaming applications begin to erupt. In addition, online live shopping, online live education and other application which are called the interactive live streaming applications become popular. The "interactivity" brings another practical requirement of live streaming business. Different from the one-way transmission of traditional media streams, the interactive live streaming applications require new two-way channels to meet the interactive requirements. Traditional live video systems usually use Content Delivery Network (CDN) for video distribution. The mainstream protocols adopted include RTMP, HTTP/FLV, HLS, etc., and there have been a lot of diversified optimization for traditional live broadcasting application scenarios. However, CDN adopts a tree-like hierarchical structure, and uses TCP protocol for the video transmission. Consequently, it is desirable to significantly reduce the end-to-end transmission delay.

A two-way low-latency multimedia delivery system over the Internet is required to satisfy the above requirements. In this Recommendation, we call it Interactive Low-latency Multimedia Transmission System over the Internet (ILMTS). The ILMTS adopts the hybrid network structure which combines the hierarchy and P2P networking modes. Meanwhile, the multiple efficient video transmission technologies can be used for optimizing the end-to-end performance of video delivery, including dynamic P2P routing planning, low-latency content transport protocol, and distributed edge content processing. By the elaborate design and finetuning of the delivery mechanism, the end-to-end transmission delay of ILMTS can achieve hundreds of milliseconds. Therefore, the ILMTS has many interactive network video application scenarios, such as E-commerce live broadcasting, online multi-party meeting, live distance learning, 1V1 video calling, and cloud games.

7 Requirements for interactive low-latency multimedia transmission system over the Internet

7.1 Service requirements

[TBD]

7.2 Management requirements

[TBD]

7.3 Accounting requirements

[TBD]

7.4 Networking requirements

[TBD]

7.5 QoS and performance requirements

[TBD]

7.6 Scalability requirements

[TBD]

Appendix I

Use cases for interactive low-latency multimedia transmission system over the Internet

(This appendix does not form an integral part of this Recommendation.)

I.1 E-commerce live broadcasting

[TBD]

I.2 Multiparty meeting

[TBD]

I.3 Live distance learning

[TBD]

I.4 Video calling

[TBD]

I.5 Cloud games

[TBD]

Editor note: The low-latency OTT multimedia transmission system uses the efficient protocols defined for optimizing the QoS. But the ILMTS-based Recommendation does not define new protocols. More contributions are needed.
