

Draft new Technical Report ITU-T TR.URCN-req

Requirements of Ubiquitous Real Time Communication Network for future networks

Summary

This Technical Report will research the Service Requirements of Ubiquitous Real Time Communication Network for future networks, addressing service trends analysis, vision, typical service scenarios and network capabilities of Ubiquitous Real Time Communication Networks. It will address the following aspects:

- Service trends of Ubiquitous Real Time Communication Network
- Vision and Service scenarios of Ubiquitous Real Time Communication Network
- Network Capabilities of Ubiquitous Real Time Communication Network

Keyword

Ubiquitous Real Time Communication Network, future networks

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Draft Technical Report ITU-T TR.URCN-req

Services Requirements of Ubiquitous Real-time Communication Network for future networks

1. Scope

This Technical Report describes the services requirements of Ubiquitous Real-time Communication Network (URCN) for future networks. The scope of this Technical Report is as follows:

- Service Trends of Ubiquitous Real-time Communication Network
- Vision and Service scenarios of Ubiquitous Real-time Communication Network
- Network Capabilities of Ubiquitous Real-time Communication Network

2. References

[ITU-R R-REC- Framework and overall objectives of the future development
M.2083-0-201509- of IMT for 2020 and beyond
I!!PDF-E]

[ITU-R R19-WP5D- Framework and overall objectives of the future development
230612-TD- of IMT for 2030 and beyond
0905!R2!MSW-E]

3. Definitions

3.1 Terms defined elsewhere

This Technical Report uses the following terms defined elsewhere:

TBD

3.2 Terms defined in this Technical Report

This Technical Report defines the following terms:

TBD

4. Abbreviations and acronyms

This Technical Report uses the following abbreviations and acronyms:

TBD

5. Conventions

In this Technical Report, potential requirements which are derived from a given use case, are classified as follows:

The keywords "it is critical" indicate a possible requirement which would be necessary to be fulfilled (e.g., by an implementation) and enabled to provide the benefits of the use case.

The keywords "it is expected" indicate a possible requirement which would be important but not absolutely necessary to be fulfilled (e.g., by an implementation). Thus, this possible requirement would not need to be enabled to provide complete benefits of the use case.

The keywords "it is of added value" indicate a possible requirement which would be optional to be fulfilled (e.g., by an implementation), without implying any sense of importance regarding its fulfilment. Thus, this possible requirement would not need to be enabled to provide complete benefits of the use case.

6. Introduction

[Editor's Note] This section will contains the background of Real-Time Communication, the key contents of this Technical Report and the targets of Ubiquitous for future networks..

The typical traditional Real-Time Communication services are audio and video services such as Real-Time audio and video calls. With the future network development of new technologies and user experiences, the Real-Time Communication services need to be expanded and diversified accordingly to match such requirements. And the "Ubiquitous" encompasses the key targets of future real-time communication services characters, such as Ubiquitous experience, Ubiquitous AI and Ubiquitous connectivity.

Ubiquitous experience: In order to enable users to truly experience immersion during real-time communication services, it comprehensively mobilizes various senses such as vision, hearing, taste, smell, touch.

Ubiquitous AI: Artificial intelligence technology will be fully applied to real-time communication networks, such as media processing through AI, automatic generation of content through AIGC, and even AI assisted decision-making for network control.

Ubiquitous connectivity: In Future network, the terminals will no longer be limited to mobile phones or smartwatches. Any personal wearable, home intelligent, or industry customized device with the ability to generate, process, and exchange real time data can also access the network.

7. Service Trends of Ubiquitous Real-time Communication Network for future network

[Editor's Note] Below the proposed initial content for this clause, to be developed further with the progress of the document.

7.1 Key Trends of Technological Innovation

The emergence of innovative technologies such as artificial intelligence and metaverse have provided new opportunities and challenges for the support of related services by the real-time communication networks. The capabilities offered by AI, AR, XR and 3D modeling will provide users with more personalized and enriched content experiences which have to be supported by powerful real-time communication networks.

7.2 Key Trends of User experience

The network is expected to support user requirements of ultra-high-definition audio and video call quality and real scenes reproduction, providing consistent immersive communication experience for different user devices and related access technologies

8. Vision and Service scenarios of Ubiquitous Real-time Communication Network for future networks

[Editor's Note] Below is the initial draft structure of this clause, which will be developed with the progress of the document. The service scenarios in this clause will be able to derive the consequent network capabilities specified in clause 8.

8.1 Immersive Real-Time Communications

[Editor 's Note] This sub-clause will describe the immersive real-time communication service scenarios, such as the Full-fused immersive real-time communication and collaboration, covering multiple types of immersive terminals: VR headsets, AR glasses, naked-eye 3D devices, while being compatible with ordinary mobile phones.

TBD

8.2 AI enabled Real-Time Communications

[Editor 's Note] This sub-clause will describe the AI enabled real-time communication service scenarios. The AI enabled Real-Time Communication can provide call assistants for all users to improve the efficiency of user daily communication. One typical AI enabled Real-Time Communication use case is the real-time calling assistant.

TBD

8.3 Ubiquitous Real-Time Connectivity

[Editor 's Note] This sub-clause will describe the ubiquitous connectivity service scenarios for Real-Time Communication network. In future network, the communication terminals will no longer be limited to mobile phones. Any personal wearable, home intelligent, or industry customized device with the ability to generate, process, and exchange real time data can also access the network. The operators can provide ubiquitous connectivity in both 2B industry and 2C consumer service scenarios.

TBD

9. Network Capabilities of Ubiquitous Real-time Communication Network for future networks

[Editor 's Note] The network capabilities in this clause will build on the requirements identified in clause 8.

TBD

A.13 justification for proposed draft new Technical Report: TR.URCN-req (Service Requirements of Ubiquitous Real Time Communication Network for future networks)

Question:	20/13	Proposed new ITU-T: <input type="checkbox"/> Supplement <input type="checkbox"/> Implementor's guide <input type="checkbox"/> Technical paper <input checked="" type="checkbox"/> Technical report <input type="checkbox"/> Handbook <input type="checkbox"/> Other: _____	Geneva, 04-15 March 2024	
Reference and title:	ITU-T Technical Report “Service Requirements of Ubiquitous Real Time Communication Network for future networks”			
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Purpose and scope:				
<p>This draft new Technical Report specifies Service Requirements of Ubiquitous Real Time Communication Network for future networks.</p> <p>The scope of the draft new Technical Report includes the following aspects:</p> <ul style="list-style-type: none"> - Service Trends of Ubiquitous Real-time Communication Network - Vision and Service scenarios of Ubiquitous Real-time Communication Network - Network Capabilities of Ubiquitous Real-time Communication Network 				
Summary (provides a brief overview of the proposal):				
<p>A real-time communication network is the basic communication infrastructure provided by operators for the support of real-time communication services.</p> <p>Based on the analysis of the evolving driving forces of real-time communication networks and the requirements of future service scenarios, and considering the emergence of innovative technologies such as XR, multi-modal communications, AI generated content, naked-eye 3D, this draft new Technical Report will address the service trends, vision, typical service scenarios and network capabilities of ubiquitous real-time communication networks (URCN).</p> <p>The study is expected to provide references and guidelines to carry out research and standardization on the network architectures of future real-time communication networks.</p>				
Relations to ITU-T Recommendations or to other standards (approved or under development):				
<ul style="list-style-type: none"> • FG-NET2030 “Representative use cases and key network requirements for Network 2030” (TR-FG-NET2030, approved on 2020) This Technical Report in Part I presents the seven use cases and their corresponding key network requirements for Network 2030: holographic type communications (HTC); tactile Internet for remote operations (TIRO); intelligent operation network (ION); network and computing convergence (NCC); digital twin (DT); space-terrestrial integrated network (STIN); industrial IoT (IIoT) with cloudification. In Part II, five overarching abstract requirement dimensions are proposed and scored relatively in order to compare the requirements of each use case. 				

- ITU-T Supplement 67 to ITU-T Y.3000 series “Representative use cases and key network requirements for Network 2030” (agreed on July 2020) -
- FG-MV “Capabilities and requirements of generative artificial intelligence in metaverse applications and services” (FGMV-22, published December 2023)
This Technical Specification specifies use cases and requirements for Generative Artificial Intelligence in metaverse applications and services. It has numerous use cases in metaverse applications and services, from creating personalized avatars and environments to generating more intelligent and personalized services.
- ITU-R “Framework and overall objectives of the future development of IMT for 2020 and beyond”
This Recommendation describes framework and overall objectives for the development of the terrestrial component of International Mobile Telecommunications (IMT) for 2020.
- ITU-T Q.5004
This Recommendation defines a simplified IMS signalling architecture with the aim of making the current IMS network more efficient and less complex.

Liaisons with other study groups or with other standards bodies:

ITU-T SG2, SG11, SG16, ITU-R SG5, 3GPP SA1

Supporting members that are committing to contributing actively to the work item:

China Mobile, Huawei Technologies, China Telecom, China Unicom, ZTE
