



I E T F

Media Operations Use Case for an Augmented Reality Application on Edge Computing Infrastructure

`draft-ietf-mops-ar-use-case-12`

Renan Krishna, Akbar Rahman

MOPS WG IETF 117 San Francisco July 2023

Draft's Table of Contents

Sections 4 and 5.2 have been updated

Table of Contents

	1. Introduction	2
	2. Conventions used in this document	4
	3. Use Case	4
	3.1. Processing of Scenes	4
	3.2. Generation of Images	5
New Update {	4. Requirements	6
	5. AR Network Traffic	7
	5.1. Traffic Workload	7
New Update {	5.2. Traffic Performance Metrics	9
	6. Acknowledgements	10
	7. Informative References	10
	Authors' Addresses	15

Section 4 Update: Removed: Requirements for ABR algorithms

These requirements for ABR algorithms are out of scope for this draft as the intended audience for this document are **network operators**. These operators are interested in providing edge computing resources to **operationalize** the XR application use case such as the one presented in this draft. On the other hand, the choice of ABR algorithm rests with the XR app developer.

~~Thus, once the offloaded computationally intensive processing is completed on the Edge Computing, the video is streamed to the user with the help of an ABR algorithm which needs to meet the following requirements [ABR_1]:~~

- ~~* Dynamically changing ABR parameters: The ABR algorithm must be able to dynamically change parameters given the heavy-tailed nature of network throughput. This, for example, may be accomplished by AI/ML processing on the Edge Computing on a per client or global basis.~~
- ~~* Handling conflicting QoE requirements: QoE goals often require high bit-rates, and low frequency of buffer refills. However in practice, this can lead to a conflict between those goals. For example, increasing the bit-rate might result in the need to fill up the buffer more frequently as the buffer capacity might be limited on the AR device. The ABR algorithm must be able to handle this situation.~~
- ~~* Handling side effects of deciding a specific bit rate: For example, selecting a bit rate of a particular value might result in the ABR algorithm not changing to a different rate so as to ensure a non-fluctuating bit-rate and the resultant smoothness of video quality. The ABR algorithm must be able to handle this situation.~~

Section 5.2 Update: Replaced 'Expected End-to-End Latency' with 'Required Response Time'

- Response times can be defined as the time interval between the end of a request submission and the end of the corresponding response from a system.
 - If the XR device offloads a task to an edge server, the response time of the server is the round-trip time from when a data packet is sent from the XR device until a response is received.
- The **required** response time depends only on the Quality of Service (QoS) required by an application.
 - The response time is therefore independent of the underlying technology of the network and the time taken by the computational tasks.

Next Steps: WGLC?

- With these additional changes does the WG think the document is ready for WGLC?