GQOE KPI Message Format

Proposal for KPI message format for gaming QoE over 5G networks

Werner Robitza, AVEQ GmbH
Bernhard Feiten, Deutsche Telekom AG, Technology & Innovation
Ulf Wüstenhagen, Deutsche Telekom AG, Technology & Innovation
Darrell Jung, Immersivecast Co., Ltd

VQEG Meeting, Dec. 2021
Purpose

Situation

● ISPs and network equipment operators want to keep Quality of Experience (QoE) of their customers high
● Especially for novel application areas like (VR) cloud gaming
● **Challenge:** How to measure the quality of cloud gaming from the client or server side?
● Application-specific information can be gathered in the software itself
● How do peers that simply route the traffic know the performance/quality?

→ We propose a UDP-based message for gaming-related KPIs
Architecture
Features

- Can be sent out-of-band over the wide-area network
- From the client to the server or vice-versa
- Specifically aimed at third party clients monitoring the service, but can also be used inside application

Based on the information from the messages, operators can make decisions on:

- Network shaping
- Packet prioritization
Data Format

- A JSON-like key-value object embedded in a UDP payload
- Specification draft including purpose and example results here: [GQOE KPI Message Format — Draft](#)
Discussion

- **QoE model:**
  - G.1072 has been used for evaluation
  - Model not directly in scope, especially for VR gaming
  - Model has limited application range (≤60 fps, ≤1080p, …) and does not work well beyond these ranges
  - Better to collect all KPIs and calculate QoE “offline”

- Are there similar proposals, technologies already implemented?
- Are there any relevant fields missing?
- How likely are OTT operators to implement something like this?
  - Messages reveal (anonymized or at least pseudonymized) data from the user
  - Possibly more useful in a closed environment (e.g. operator’s own deployment)