TELECOM INFRA PROJECT®

Project Group Charter

Video Quality of Experience Management Project Group

PG short name: "VQoE PG"

This Project Group ("PG") Charter establishes the purpose, project scope, and intellectual property license terms applicable to the Project described below ("Project"). Only Participants whose Authorized Representative agrees to the terms of this Project Group Charter are permitted to participate in this Project Group.

Access to the PG, its draft and final Deliverables, meetings, etc. and permission to use it are offered by TIP to any TIP Participant who agrees to the terms of this Charter. You agree that you will not share any Contributions of other PG members, or any draft or final PG Deliverables with any party who is not a member of this PG unless made public.

TIP Board of Directors Approval Date: October 15, 2025

Project Group Charter Effective Date: October 15, 2025

1. PROJECT GROUP NAME

Video Quality of Experience Management Project Group, or "VQoE"

2. PURPOSE

Radio spectrum is a limited resource and will continue to be the bottleneck for network expansion. Efficient delivery of video content at the application level, optimized use of spectrum and RAN (Radio Access Network) optimizations are necessary to deliver services efficiently to more subscribers. It is imperative that current and future telecom-platform applications maximize Quality of Experience (QoE) for their end users. This requires both the efficient use of limited spectrum resources and identifying and resolving QoE issues. Each party in the industry - Content and Application Providers (CAPs), device vendors, operating system (OS) vendors and Communication Service Providers (CSPs) - are all vital to delivering content along the end-to-end service path. Each component along the service path (hardware, software, content, networking, etc.) directly impacts an app's QoE and user experience, and therefore must operate seamlessly together to provide successful delivery of application content.

In order to maintain a high level of QoE across applications while balancing the use of network resources in a fair and non-discriminatory way for users and CAPs, the PG will establish an industry wide framework defining common best practices, an agreed set of technology solutions for efficient delivery of content, a network information exchange mechanism including semantic representations of the information as well as an API to enable the exchange. In addition to that we need to define industry-wide QoE metrics that are consistent across CAPs and can be shared with CSPs while maintaining user/subscriber privacy.

3. SCOPE

The Scope of the VQoE PG is primarily focused on:

Metrics Development: Build app-quality metrics to be shared with networks, QoE metrics that can be shared among CSPs and CAPs, QoE models, and actionable control mechanisms.

QoE Models and Management: Develop QoE models and management systems to ensure consistent QoE across diverse networks and devices.

Within this scope, and to address the challenges of working across diversity parties in the ecosystem to drive collaborative solutions, the proposed VQoE PG work activities will address the following:

- Aligning - Collaboratively evaluating potential technologies and best practices for managing application level QoE.
- Modeling – leverage existing industry work and agree on QoE models understandable by all parties involved
- Measuring – Agree on common metrics, levels of aggregation and mechanisms for exchange between different parties
- Visibility - Understanding relationships, dependencies to correlate
- Troubleshooting – Be able to pinpoint bottlenecks, misconfigurations and optimization options across the entire delivery path
- Governing – applying policies, enforcing them in order to respect user/subscriber choice and efficiently use network resources while maintaining good QoE
- Routing – optimal content routing across CAPs and/or CDNs and CSPs requires coordination – particularly related to ensuring that end user content is delivered from content servers that are close(st) to the ingress/egress of the CSP's network. This inherently requires that information be exchanged to enable such optimal server selection.

The key principles for this work should be:

- Win/win/win solutions for the entire ecosystem (end users, CAPs and CSPs)
- Explicit – explicit collaboration between CAPs and CSPs is required to avoid inferred, error-prone assumptions about application needs, traffic conditions and subscriber preferences
- Privacy focused – QoE metrics that provide anonymization and aggregation. APIs for information exchange that offer transparency and account for privacy requirements

- Non-discriminatory – Treat similar content types the same way irrespective of source (CAP) or destination (user, mobile device)
- Inband or Outband information exchange – Where information is to be exchanged between parties, we can achieve this via either marking network packets or via APIs – the TIP activity should help decide on solutions that are efficient and feasible adoptable

In order to maintain a high level of QoE across applications while balancing the use of network resources in a fair and non-discriminatory way for users and CAPs we need to establish an industry wide framework defining common best practices, an agreed set of technology solutions for efficient delivery of content, a network information exchange mechanism including semantic representations of the information as well as an API to enable the exchange. In addition to that we need to define industry-wide QoE metrics that are consistent across CAPs and can be shared with CSPs while maintaining user/subscriber privacy.

4. PROJECT GROUP PARTICIPATION

Any individual who is employed by, affiliated with, or otherwise represents a TIP Participant that has agreed to this PG Charter may participate in the PG, subject to compliance with the following criteria, if any:

- None

A PG Member may be suspended or removed from the PG for failure to meet the above criteria, and as otherwise set forth in the TIP PG Procedures, Bylaws, or other TIP Policy.

5. PROJECT GROUP LEADERSHIP

The VQoE PG will have at least one and up to 5 designated Chairs/Co-Chairs to oversee and guide general PG activities. Additionally, upon creation of a Subgroup, individual Subgroup leads/co-leads will be designated to guide the activities of the Subgroup, reporting upwards into the larger PG.

6. PROJECT GROUP FUNCTION & STRUCTURE

The group will be structured and managed as a single Project Group, with the option to create workstreams and/or Subgroups as appropriate to meet community needs. If the Co-Chairs determine a Subgroup is needed to effectively manage and develop an activity within the PG, a Subgroup Charter will be drafted and approved pursuant to TIP Policies..

7. COLLABORATION AND COOPERATION

The VQoE PG may leverage existing network standards and infrastructure, collaborating with other consortia that are involved with developing technologies relevant and relating to that of the PG, including those listed below.

- ITU-T Video Quality Experts Group (VQEG)
- IETF Standard COmmunication with Network Elements (SCONE)

Additionally, the VQoE PG will collaborate with other PGs within TIP.

8. PROJECT GROUP DELIVERABLES

The PG will develop the types of Deliverables selected below. Creation of and contributions to Draft Deliverables, as well as approval of Final Deliverables is subject to the PG Procedures. The IPR treatment for all Deliverables is set forth in the TIP Intellectual Property Policy, as revised from time-to-time by action of the Board, and other of TIP's Organizational Documents, as applicable.

Deliverable	**Approval Procedures**
Overview and assessment of use cases	Project Group
Technical Requirements Document and Detailed Technical Requirements Document	Project Group
Test Plans and Allocation Criteria	Test and Validation Council
Blueprint / MVS	Project Group
Publications (technical papers, blogs, etc.), PoC implementation and results, guideline documents	Project Group

VQoE PG Deliverables - Areas of Focus

1. Neutral Collaboration Platform: Develop a neutral platform for collaboration to drive unified efforts on common areas of interest for CAPs and CSPs.
2. Establish best practices and identify technologies to optimize the network traffic and balance QoE, including mechanisms to exchange network information in an easy and scalable way.
3. Establish a common approach of QoE ranges mapped to video use cases that could assist on network planning.
4. QoE Engineering/Management: Standardize QoE engineering and management across applications and operator networks.
5. QoE Targets: Define QoE targets for different use cases and under different network conditions.

VQoE PG Deliverables - Key needs:

1. Metrics for application-level QoE to be agreed amongst CSPs and CAPs to benchmark, verify and troubleshoot
2. Policy semantics - Network policies around video traffic are different around the world. Define a generic framework to describe video optimizations that are consumable by all stakeholders
3. Identify and articulate collaborative solutions for traffic management that preserve or enhance application QoE including but not limited to self-regulation mechanisms that are feasible deployable by all parties involved

4. Best Practices and Guidelines - Having an industry wide set of best practices would avoid the NxN individual bilateral agreements, reduce costs for both CAPs and CSPs
5. All stakeholder categories MUST be represented for solutions to be feasible and deployable

CHARTER UPDATE

This Project Group Charter will be updated to reflect any changes as set forth in the Project Group Charter Revision Policy.

ORIGINAL SUPPORTING COMPANIES

The initial sponsoring / supporting companies of the VQoE PG are:

- AT&T
- Meta
- Orange
- Telefonica
- Vodafone