

Project Group Charter

Metaverse-ready Networks

Enabling the next generation of immersive experiences

This Project Group Charter establishes the scope, intellectual property and copyright terms used to develop the materials identified in this Project Group. Only Participants whose Authorized Representative executes this Project Group Charter are permitted to participate in this Project Group in accordance with the TIP Bylaws.

TIP Board of Directors Approval Date: October 24, 2022

1. PROJECT GROUP NAME

Metaverse Ready Networks

2. OBJECTIVES

In the next 5 to 10 years, we expect a new generation of online social experiences such as the metaverse, a more engaging and immersive experience than we ever thought imaginable, to start rolling out. These immersive services will demand more of network infrastructure - on performance, agility, programmability and reliability.

Today's networks are largely incapable of delivering metaverse-level experiences at scale to wide audiences. Therefore, we must reimagine the way we architect, build, deploy and manage networks. Fortunately, our industry, including organizations such as the Telecom Infra Project, has already made progress toward enabling many of the foundational networking technologies that are critical for delivering immersive experiences such as edge/cloud computing, network slicing and Open RAN.

In addition, a new paradigm of tighter collaboration between networks, user devices and applications, along with a deeper understanding and characterization of the interplay between networks, devices and application dynamics, will be essential to enable the next generation of immersive and interactive experiences.

This project group will be the focal point of TIP's activities to enable metaverse-ready networks.

3. PROJECT GROUP SCOPE

The scope of the project group will include but will not be limited to:

- Aligning on an industry-wide definition of “high-performance E2E network”, capable of supporting immersive applications at scale, over all access technologies.
- Developing industry-wide common definitions and requirements (TRDs/dTRDs) of quality of experience and methods for measuring them.
- Aligning the industry on the role that quality of experience (QoE) plays in evaluating network capabilities.
- Developing industry-wide common definitions and/or requirements for Quality of Experience (QoE) metrics.
- Explore how to develop and define the requirements of low-latency and enhanced network architectures that enable the metaverse and network sustainability.
- Define the requirements for enabling real-time interaction between control layers of applications and networks in order to adapt to user, network and environmental dynamics.
- Define the requirements for enabling dynamic programmability of networks to better address dynamic applications needs.
- Developing reference architectures for CSP networks to ensure high likelihood of metaverse-readiness.
- Define the suitable architecture for exposing network APIs to allow the needed connectivity requirements of metaverse services.
- Provide a prioritization of future network APIs that will enable metaverse ready services.
- Define the requirements of metaverse services to the network slicing mechanism to be implemented in the networks and the APIs that will allow the Interaction of the slicing solution with metaverse application.
- Assessing the impact of metaverse in the approach for converging wireless and wireline networks.

This is not an exhaustive list and may be expanded to support industry needs and in line with the Scope noted above. Any such expansion within Scope that does not require additional types of Deliverables (as defined in the PG deliverables paragraph) will not require this PG Charter to be re-chartered.

4. PROJECT GROUP DELIVERABLES

TIP may develop up to four types of Deliverables: Documents; Test Materials; Software; and in rare instances, Specifications. Intellectual Property Rights for each type of Deliverable are governed by a different policy or agreement, in each case approved by the TIP Board of Directors. The applicable policies or agreements are specified in the table below along with any procedures for approval and/or release of each Deliverable the Project Group intends to develop. All such policies and agreements may be found with TIP's Organizational Documents at: <https://telecominfraproject.com/organizational-documents/> unless otherwise identified **and attached** to this PG Charter. No Project Group may develop Software without forming a separate Project Group using the TIP Software Project Group Charter Template.

Deliverable	IPR Treatment	Approval Procedures
Use Case Definition and High-Level Requirements	Document IPR Policy	Versions by consensus of the Project Group; final approval by the Technical Committee
Requirement Documents and Detailed Requirements Documents	Document IPR Policy	Versions by consensus of the Project Group; final approval by the Technical Committee

White Papers or Case Study	Document IPR Policy	Initial version may be created in the Project Group, TIP Community Lab, or Field Trials; consensus driven approval in the Project Group, Lab or Trial; final approval by the Technical Committee if the PG chooses to publish
Test Plans for use in Lab and Trial activities, Test Reports, Lab Exit Reports, Field Trial Exit Reports	Document IPR Policy	Initial version may be created in the Project Group, TIP Community Lab, or Field Trials; consensus driven approval in the Project Group, Lab or Trial; final approval by the Technical Committee if the PG chooses to publish
Playbooks	Document IPR Policy	Versions by consensus of the Project Group; final approval by the Technical Committee

Contributions to Deliverables and any license to use the Deliverable upon its finalization are governed by TIP's Organizational Documents which may be accessed [here](#). The IPR policies and agreements referenced below are TIP Organizational Documents unless otherwise specified and attached to this Charter.

5. FOR DELIVERABLES WHICH ARE SPECIFICATIONS*

Check if the PG is developing Specifications as defined in the TIP IPR Policy. All such Specifications must be listed in the table set forth in Section 4 and the IPR Treatment must reference this Section 5. **[If not checked, the remainder of Section 5 should be left blank]**

PATENT LICENSING

The patent license for all Contributions, Draft Specifications, and Final Specifications within this Project Group shall be:

RAND License Option, as set forth in Section 5.2.1 of the Telecom Infra Project IPR Policy.

Royalty-free License Option, as set forth in Section 5.2.2 of the Telecom Infra Project IPR Policy.

FINAL SPECIFICATION COPYRIGHT LICENSING

Each PG Contributor as defined in the TIP IPR Policy agrees that to the extent that its Contributions are incorporated into the Final Specification it hereby grants TIP a copyright license in its included Contributions to release those included Contributions as incorporated into the Final Specification under the terms indicated below. **[Check one box]**

Option 1 as set forth in the TIP Supplemental Copyright Policy.

Option 2 as set forth in the TIP Supplemental Copyright Policy.

Creative Commons Copyright Attribution 4. See <http://creativecommons.org/licenses/by/4.0/legalcode>.

Full Release of Copyright into the public domain.

* THIS SECTION 5 IS NOT APPLICABLE FOR ANY OTHER TYPE OF DELIVERABLE

6. PROJECT GROUP LEADERSHIP

PROPOSED CHAIRS

- Rashan Jibowu - Meta
- Alexandre Harmand - Telefónica
- Durga Satapathy - T-Mobile US
- Fabio Paolo Panunzi Capuano - TI Sparkle
- Ricardo Villarreal - Microsoft
- Barry Elia - AT&T

7. COLLABORATION AND COOPERATION

The group will be structured and managed as a single Project Group, with the option to create additional sub work streams as appropriate to meet community needs.

EXTERNAL INDUSTRY COLLABORATION

The group will leverage existing Metaverse network standards, network standards and infrastructure, as appropriate, from other industry groups such as:

- Metaverse Standards Forum - <https://metaverse-standards.org/>
- TM Forum - <https://www.tmforum.org/>
- GSMA CAMARA - <https://camaraproject.github.io/>

INTERNAL TIP COLLABORATION

The Metaverse Ready Network project group will collaborate with the TIP Open Core Network project group, OpenRAN project group, OpenWiFi project group and Open Optical and Packet Transport project group. Collaboration will be restricted to contributors of both the Metaverse Ready Network project group and additional project group.

The project group may also review draft versions of requirements with other TIP project groups, as deemed appropriate and necessary by the co-chairs.

8. CHARTER UPDATE

This Project Group Charter will be updated to reflect any changes as set forth in the [Project Group Charter Revision Policy](#).

ACCEPTANCE

Contact Name

Contact Title

Email

Telephone

Company Name

Company Address/City/State/Country/Postal Code

Company Website URL

Primary services or product company provides

Signature

Date

Printed Name