

OPEN CORE NETWORK

This Project Group Charter establishes the scope, intellectual property and copyright terms used to develop the materials identified in this Project Group. Only Participants that execute this Working Group Charter will be bound by its terms and be permitted to participate in this Project Group and shall be considered “Contributors” in the Project Group as defined in the Telecom Infra Project IPR Policy document.

TIP Board of Directors Approval Date: 02/19/2020

1. PROJECT GROUP NAME

Open Core Network (OCN)

2. PURPOSE

The Open Core Network group is working to develop an open, cloud-native, and converged core that is a collection of microservices implementing various core network functions (“open, flexible and extensible”):

- running on standardized software and hardware infrastructure (“infrastructure agnostic”),
- supporting 3GPP 5GC and EPC (licensed), Wi-Fi (unlicensed) and shared spectrum (e.g., CBRS) networks (“access agnostic”), and
- enabling seamless migration from 4G EPC to 5GC in both NSA and SA modes (but no 2G or 3G access support).

The goal is to innovate on the packet core technologies across any access wireless networks operating on licensed, unlicensed and shared spectrum; develop microservice, orchestration and automation frameworks on OCN platform, and support an ecosystem of developers, OEMs, SIs, MNOs, and ISPs around OCN based solutions.

3. PROJECT GROUP SCOPE

The project group will focus on three major workstreams:

1. **(Workstream #1) Applications and Services:** Design, develop and deliver a set of production-grade microservices implementing 3GPP 4G/LTE, 5G, shared spectrum (e.g., CBRS) and Wi-Fi core network functions and APIs between such functions as well as between these functions and RAN elements or Network Management Systems.
2. **(Workstream #2) Orchestration:** Design, develop and deliver an orchestration framework for integrating, deploying and managing OCN microservices, including FCAPS, metrics, analytics and monitoring for OCN microservices only.
3. **(Workstream #3) Automation:** Design, develop and deliver an infrastructure and test automation, i.e., CI/CD framework for running and testing OCN microservices only.

4. PROJECT GROUP DELIVERABLES

- The group will maintain a collaboration portal holding documentation for the OCN components and guidelines for contributors consisting of developers, OEMs, SIs, MNOs, and ISPs.
- The group will align with other TIP PGs working on relevant technologies, such as, orchestration and automation; and work towards defining, designing and developing unified and common artifacts, especially towards infrastructure and network management.
- The group will work on a quarterly cadence and produce the following set of Deliverables, as appropriate, based on the workstream defined milestones:
 - Draft product requirements specification of open core based on prioritized use cases
 - Software
 - Microservices implementation of core network functions and components
 - Orchestration of microservices
 - API specifications
 - Standardized hardware blueprints
 - Automation tools, frameworks and scripts

The initial 2020 portion of the software project is planned to focus on delivering a “Minimum Viable Core (MVC)” that will address the UPF,

AMF, SMF, AUSF and UDM 5GC functions in the form of microservices (and the relevant EPC functions as a “converged core”).

- The group will collaborate via liaison agreements with other industry groups working on core network technologies, such as,
 - OpenAirInterface Software Alliance (<https://www.openairinterface.org/>): Contributing seed code and development services for OCN platform.
 - OpenStack Foundation (<https://www.openstack.org/>): Contributing cloud-native infrastructure, including containers, container orchestration and automation framework (not necessarily OpenStack platform).
 - Open Network Foundation (<https://www.opennetworking.org/>): Contributing components of OCN platform (to be determined).
 - Linux Foundation (<https://www.linuxfoundation.org/>): To be determined.

and incorporate advances in core networking technologies at the industry level, especially at the advent of 5G, CBRS and Wi-Fi6 technologies.

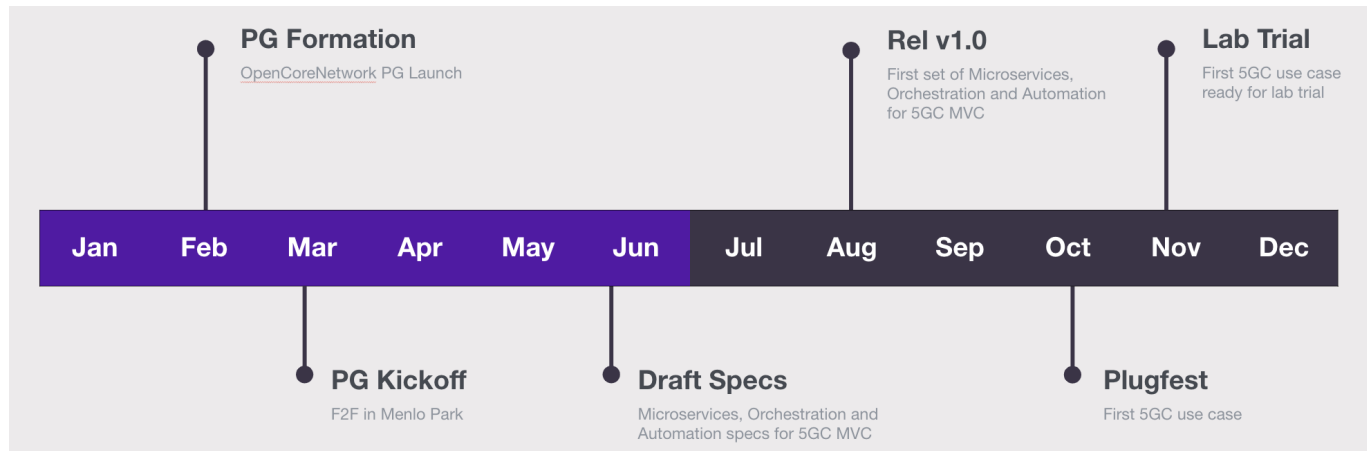
- The group will actively drive adoption of the artifacts produced with MNOs and ISPs through the following activities, but not limited to,
 - Plugfests,
 - Lab trials, and
 - Field trials

in collaboration with other TIP groups and leveraging TIP labs. The tentative timeline for these activities are planned for 2020 (the *plan chart* below shows the activities only for the first twelve months, while we expect the project to span over three years: 2020 - 22).

The plugfests will be planned between developers, OEMs and SIs producing and/or contributing microservices, orchestration and automation artifacts and at one of the TIP Community Labs.

The lab trials will be planned with MNOs and ISPs, especially from Initial project champions who have expressed interest in trialing this group’s artifacts in their labs.

The field trials will also be planned with MNOs and ISPs, typically upon successful completion of lab trials, in their networks. Field trials are expected to commence in early to mid 2021.



5. PATENT LICENSING

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

[Check one box]

- 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.

6. FINAL DELIVERABLE COPYRIGHT LICENSING

Project Group agrees to grant the following copyright license for the Final Specification:

[Check one box]

- Creative Commons Copyright Attribution 4, Each Project Group Contributor agrees that its Contributions are subject to the Creative Commons Attribution 4.0 International license - <http://creativecommons.org/licenses/by/4.0/legalcode>.

▫ Full Release of Copyright into the public domain, Each Project Group Contributor agrees to release its Contributions to the public domain and waive all copyrights associated with them.

✕ TIP Document IPR Policy: https://telecominfraproject.com/wp-content/uploads/TIP-Document-IPR-Policy-May_BODApproved.pdf

7. INITIAL PROJECT CHAMPIONS

- Rakuten Mobile
- British Telecom
- Vodafone
- Telenor
- Facebook
- Tecore Networks
- Mirantis
- Amdocs
- Wavelabs

8. CHAIR AND(OR) CO-CHAIR OF PROJECT GROUP

CHAIR

Sagiv Draznin, Rakuten Mobile

CO-CHAIR

Tassos Michail, Facebook Connectivity

9. PARTICIPATION CRITERIA

Participants of the working group need to commit to the licensing terms set out in this project charter and actively contribute to one or multiple work streams listed in the project group scope. Active participation hereby means:

- For MNOs and ISPs (“Operators”):
 - To actively participate in group meetings
 - To assign technical resources to support the needs of the project group
 - To share their core networking requirements with the TIP project group members through RFI/RFPs
 - To publicly endorse the agreed-upon specifications, blueprints, APIs and frameworks

- To conduct field trials or/and deployments and share the results as well as learnings
- For OEMs and SIs (“Solution Providers”):
 - To actively participate in group meetings
 - To assign technical resources to support the needs of the project group
 - To publicly endorse the agreed-upon specifications, blueprints, APIs and frameworks
 - To provide open interfaces based on the agreed-upon specifications, blueprints, APIs and frameworks
 - To produce artifacts and to integrate Open Core Network based solutions
 - To support lab testing, field trials and/or deployments
- For Developers:
 - Constructive contribution to project deliverables, incl. questions and discussions in workstream forums and meetings
 - Development, contribution and availability of new technologies, relevant for the Open Core Network evolution, for the community
 - Software contributions related to Open Core Network system, including porting of software stacks for various wireless access technologies
 - Supporting testing and automation of Open Core Network based solutions
 - Supporting integration, deployment and operation of Open Core Network based solutions

ACCEPTANCE

Contact Name

Contact Title

Email Address

Telephone Number (Include Country Code)

Company Name

Company Address, City, State, Country, Postal Code

Company Web Page URL

Primary services or products the company provides

Signature

Date

Signed by (print name)