Telecom Infra Project: Project Group Charter

Date of Approval by TIP Board of Directors: 3 May 17

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.

1. Project Group Name. ***Open interfaces for virtualized RAN with non-ideal fronthaul***

2. Purpose. ***This project will focus on virtualization of the RAN for non-ideal backhaul, in particular maximizing the performance through optimization of physical layer, compression, and other methods.***
The project will help the ecosystem to provide low-cost Remote Radio Unit (RRU)s for a diversity of deployment scenarios, which can be managed and dynamically reconfigured by a centralized infrastructure over non-ideal transport (i.e. not Common Pubic Radio Interface CPRI). Key scenarios for this include high density locations in indoor environments, rural or suburban/urban broadband connectivity, and multi-operator/neutral host deployments.

3. Project Group Scope. The project will assess one or more RAN functional splits (A PHY split where only the FFT and below is in the remote radio unit being the first split to focus):

- Define the interface/reference implementation for Remote Radio Unit (RRU) vendors to build upon

- Develop proof of concept with at least two RRU vendors, and at least one vendor of the centralized RAN component. (This can be done in a phased approach. Phase 0: initial Phluido deployment with current vendors, Phase 1: RRU from 3rd party vendors, Phase 2: vRAN from 3rd party.)

- Develop a more carrier-grade demonstration for solution-specific scenarios

- Look at low and high power solutions for different scenarios (e.g. low power for high density small cells, high power rural access, typical macro and HetNet deployment scenarios for urban and dense urban area)

- Assess solution applicability and performance over different fronthaul options/configurations (e.g Ethernet (reference), copper, microwave, in-band, DOCSIS 3.x)

- Highlight performance benefits of the split for certain scenarios (e.g. COMP in high density deployment)

- Demonstrate the remote reconfiguration capability across various use cases (e.g. multi-operator, multi-frequency)

4. Project Group Deliverables.

- Reference implementation for each function split
- Carrier-grade lab proof-of-concept
- Early field trials for at least one of the use cases - high density locations in indoor environments, rural broadband connectivity, macro and HetNet deployment scenarios for urban and dense urban area), and multi-operator/neutral host

- Benchmark report with performance metrics for various types of fronthaul

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.

7. Initial Project Champions.

BT, Phluido, CableLabs, Vodafone Group, TIM

8. (Proposed) Chair and/or Co-Chair of Project.

- Chair - Richard MacKenzie (BT)
- Co-chair – TBD

9. Participation Criteria. (this criteria is identical to SI project)

- Fit of the proposed contributions to the project group scope
- Technical fit of the proposed contributions to the architectural framework of the project group
- Commitment to contribute a non-proprietary open solution or open extension / API
- Productive interaction with a system integrator

PARTICIPANT SIGNATURE

_____   _____
Signed name   Title

_____   _____
Print name   Company Name

_____   _____
Email address   Date