

A Short Introduction to the O-RAN Software Community (OSC)

- An open-source project collaborated by O-RAN Alliance and the Linux Foundation established in 2019
- Mission: to support the creation of open software for the RAN and develop reference software with the O-RAN Alliance's open architecture and specifications.
- Standard Apache 2 license for Open-Source software contributions.
- Releases every 6 months, 8 completed releases so far

- Responsible for all technical oversight of the open source Project.
- 12 TOC members appointed by the Technical Steering Committee of O-RAN Alliance (the “TSC”)

Company	Name	Alternate
AT&T	David Kinsey Co-Chair	
China Mobile	Jinri Huang Co-Chair	James Li
Deutsche Telekom	Jakub Nový	Ondřej Hudousek
NTT DOCOMO	Masahiro Fujii	Minami Ishii
Orange	Julien Boudani	
TIM	Andrea Buldorini	
Ericsson	John-Paul Lane	John Keeney
Nokia	Arunkumar Halebid	Thoralf Czichy
Radisys	Ganesh Shenbagaraman	Ankit Barve
Samsung	Avinash Bhat	Peter Moonki Hong
Viavi Solutions	Ultan Kelly	Baruch Friedman
Wind River	Jackie Huang	Jon Zhang

Grow the community of developers contributing code and also growing the community of companies running O-RAN SC instances, via focus on these areas: Release functionality, WG activities, Policies

RSAC co-chairs: David Kinsey (AT&T), Rittwik Jana (Google)

Project Key	Project Name	Description	Project Technical Lead (Affiliation)
AIMLFW	AI/ML Framework	AI/ML workflow implementation for O-RAN environment.	Joseph Thaliath (Samsung)
DOC	Documentation	Documentation on contributions and O-RAN SC contents.	Weichen Ni (CMCC)
INF	Infrastructure	infrastructure and O-Cloud implementation	Jackie Huang (Wind River)
INT	Integration and Testing	Integration and interoperability tests for release, end to end and use case testing.	James Li (CMCC)
NONRTRIC	Non-RealTime RIC (RAN Intelligent Controller)	To support non-real-time radio resource management, higher layer procedure optimization, policy optimization in RAN, and providing guidance, parameters, policies and AI/ML models to support the operation of near-RealTime RIC functions in the RAN to achieve higher-level non-real-time objectives.	John Keeney (Ericsson)
OAM	Operations and Maintenance	Provides reference implementation according to the O-RAN OAM documents.	Martin Skorupski (Highstreet)
OCU	O-RAN Central Unit	Essentially idle at the moment. Utilize a commercial CU binary from Radisys.	Su Gu (CMCC)
ODUHIGH	O-RAN Distributed Unit High Layers	Focus on initial L2 functional blocks based on seed code contributions.	Ankit Barve (Radisys)
ODULOW	O-RAN Distributed Unit Low Layers	Utilize Intel FlexRAN.	Luis Farias (Intel)
RIC	Near Realtime RAN Intelligent Controller	RIC Platform to support xAPPs with limited support for O1, A1, and E2 interfaces.	Thoralf Czichy (Nokia)
RICAPP	RIC Applications	Open source sample xAPPs and platform applications that can be used for integration, testing, and demonstrations.	Sunil Singh (HCL)
SIM	Simulations	Simulators used for testing O-RAN NF interfaces.	Alex Stancu (Highstreet)
SMO	Service Management and Orchestration (SMO)	To integrate different software artifacts of existing open-source projects creating a fully functional open-source Service Management and Orchestration	Seshu Kumar Mudiganti (Wind River)

- "I" – Energy Saving
- "H" – SMO Integration
- "G" – AI/ML Framework
- "F" - O-cloud
- "E" – Network Slicing
- "D" - Closed Loop Processing
- Cherry - Application Life Cycle Management (LCM) & Traffic Steering
- Bronze - End-to-End RAN communications
- Amber - Initial RAN Elements



20.48M

Lines Of Code Changed



7.85K



Commits

188

Contributors



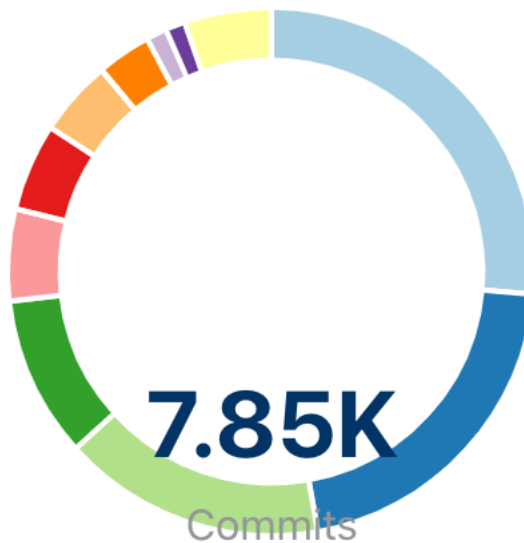
18

No Of Sub Projects



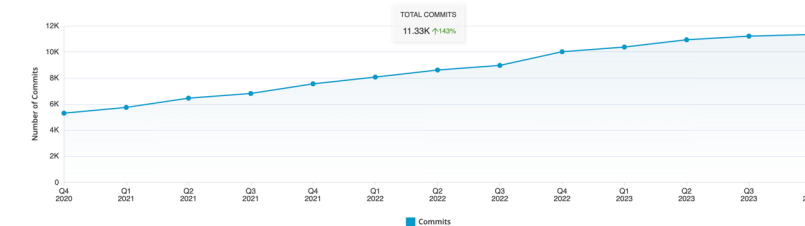
114

Repositories

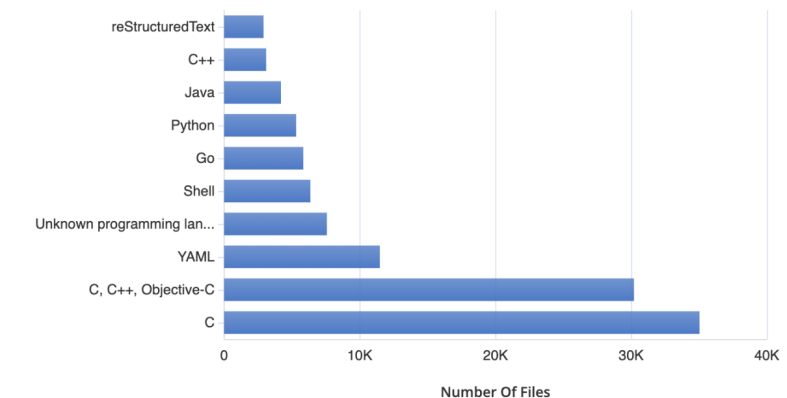


- AT&T Services, Inc.
- Ericsson Software Technology
- Nokia Corporation
- Wind River Systems, Inc.
- Radisys Corporation
- highstreet technologies GmbH
- Samsung Electronics Co. Ltd.
- The Linux Foundation
- HCL Technologies Ltd.
- China Mobile Communication Company Ltd
- Others

Commits made across all monitored repositories.



Individuals actively contributing to a project



- North America East Coast Lab (New Jersey, maintained by AT&T):
 - Full compute, storage and networking support. Allow public access and resource sharing.
 - Implemented 3 O-Cloud resource pools (Simplex with one server; Duplex with two servers; Duplex+ with more than 2+ servers)
 - In progress to acquire RU emulators and RICTest tools
- North America West Coast Lab (California, maintained by China Mobile Technology (USA) Inc.):
 - Software centric and focused on RIC, SMO and xApp testing.
 - Building an automated CI/CD pipeline with the XTesting framework.
 - Test automation with POWDER to run integration and pairwise tests
- Asian Pacific Lab (Taiwan, maintained by National Taiwan University of Science and Technology):
 - In progress to duplicate the full set up of the East Coast Lab, a joint effort from NTUST, NYCU, ChungHwa Telecom, and Auray.
 - Focus on O-DU integration and security tests.
 - Contributing to the Energy Saving use case. Work with Viavi to generate synthetic data

With 3 OSC open labs it allows to share the resources (servers, emulator hardware) for the community to support the development of OSC software, make integration and thorough evaluation easier and more efficient.

Upstream projects:

- ONAP
- Yocoto
- StarlingX

Collaboration:

- Open Air Interfaces (OAI)
- ONAP
- Nephio

- Energy Saving use case, starting from simple cell on/off, with a rApp running AI/ML algorithm based on usage data
- End-to-end orchestration NF
- Establish an E2E call session with OSC components (UE <-> RAN <-> CORE <-> OTT)
- Lab interconnection
- Super Wireless RAN Blueprint (AWRBP) initial validation

Thank You!