O-RAN Alliance Next Generation Research Group (nGRG)

Overview

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The Networking Channel - O-RAN Alliance: Next Generation Research Group panel

March 29, 2023

nGRG Mission

Ambition

- Provide a forum to facilitate O-RAN related 6G research efforts and to publish research findings
- Leverage industry and academic 6G research efforts and determine how O-RAN may evolve to support 6G and beyond, considering regional research efforts, ITU-R, and 3GPP development
- Achieve O-RAN sustainability from 4G/5G to 6G and beyond
- Consider the impact of 6G on O-RAN areas of interest and work with Industry Partners to unify the 6G technology path/timeline to avoid incompatibility b/w O-RAN and other SDOs

Operations

- Define the O-RAN nG research agenda and key priorities
- Establish research streams based on defined research priorities, and solicit research items under corresponding research streams
- Organize regular discussions and reviews of the progress/outcomes of research streams
- Study interworking of O-RAN solutions across different technologies

Outcomes

- Publish white papers and research reports based on the outcomes of the studies in the Group
- Recommend appropriate actions through white papers
- Sponsor topical workshops, seminars, and summits with appropriate partners

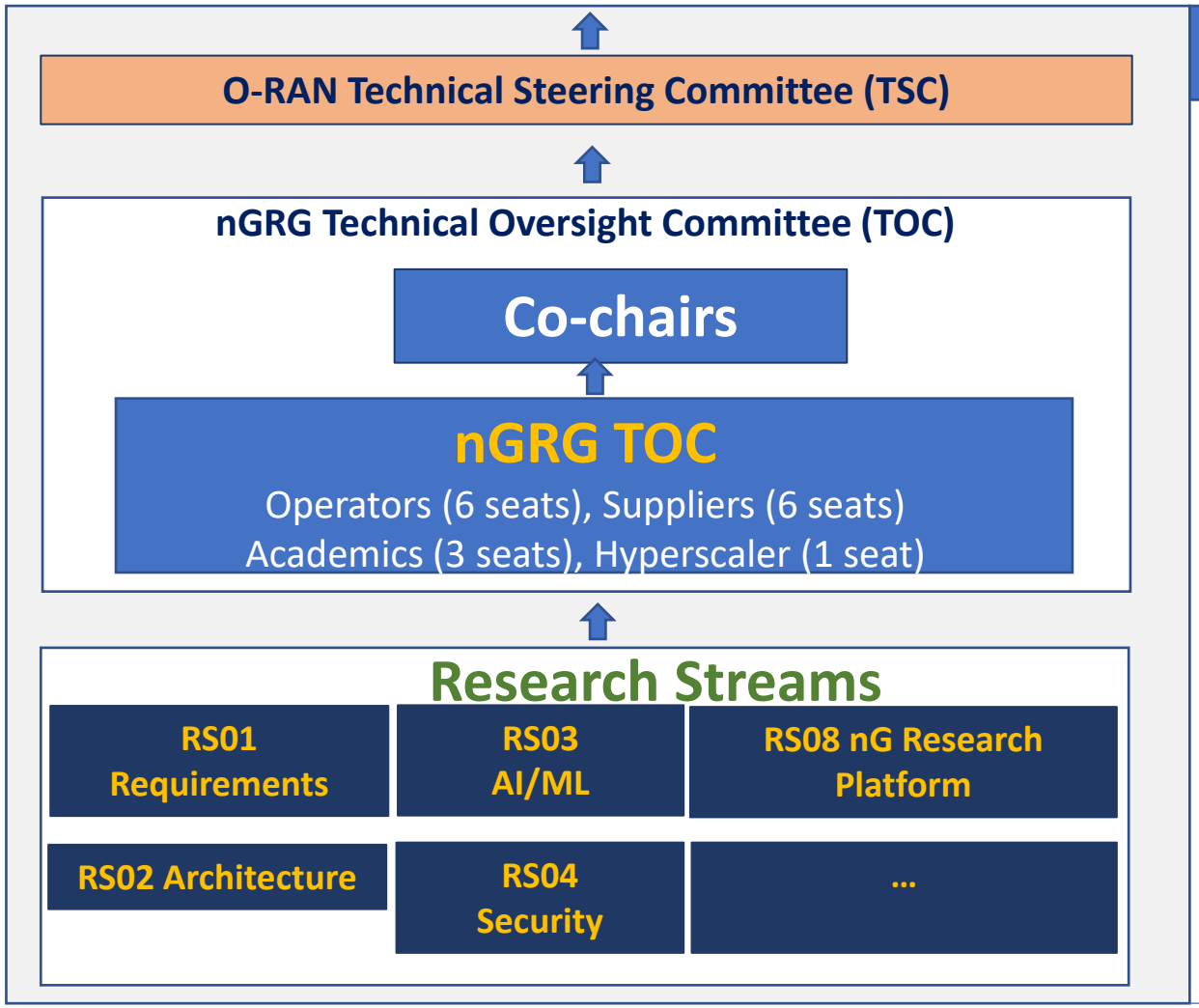
nGRG Roadmap

- **Near Term (2022-2025):** Align with Industry Partners and perform a high-level impact analysis of potential 6G technology trends and the ITU-R Vision for the next IMT on the O-RAN architecture and establish research items based on defined research priorities and the outputs include white papers and research reports.

- **Mid Term (2025-2027):** Based on the research findings, provide inputs to O-RAN WGs/FGs to prepare for O-RAN 6G standards studies and to coordinate O-RAN 6G collaborations with other SDOs.

- **Long Term (beyond 2027):** Align with other 6G research organizations, SDOs, and programs through liaisons via O-RAN SDFG and collaborate with O-RAN TIFG/IEEE/NSF etc. on potential 6G testbeds.

nGRG Structure



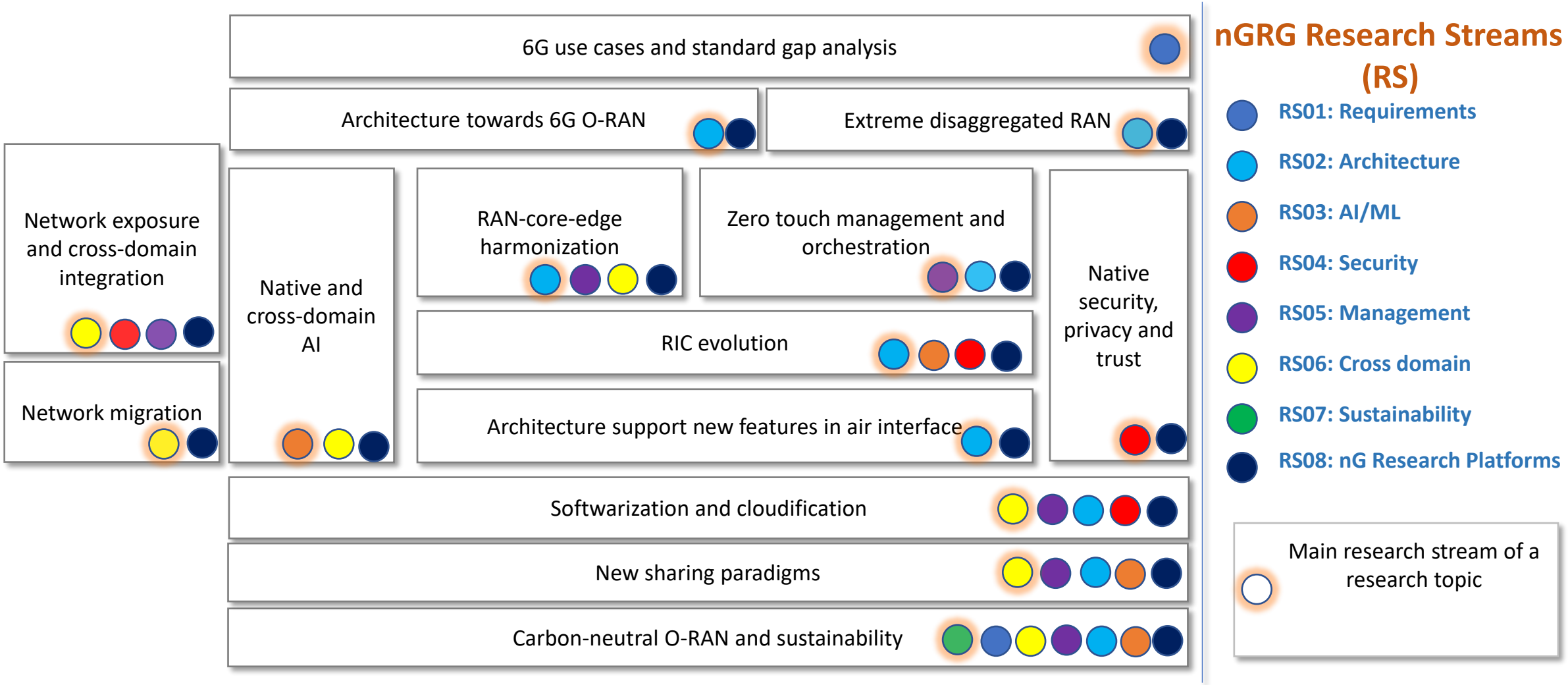
nGRG Technical Oversight Committee

AT&T, 中国移动 China Mobile, T··, 中国电信 China Telecom, vodafone, Jio, ERICSSON, NOKIA, DELL Technologies, Lenovo, NVIDIA, Microsoft, VTT

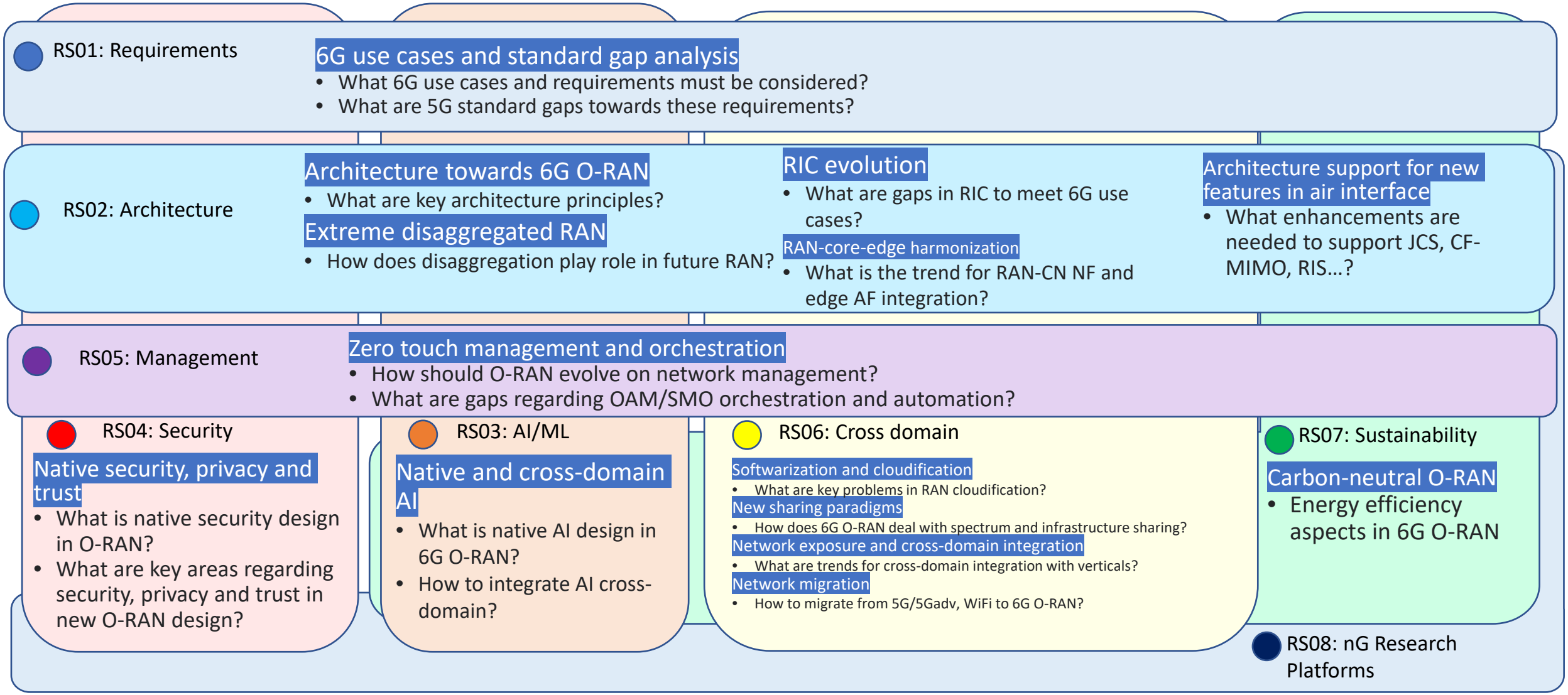
Academics

- **Prof. Vincent Poor**, Princeton University, USA
- **Prof. Khaled Ben Letaief**, Hongkong University of Science and Technology, China
- **Prof. Hans Schotten**, TU Kaiserslautern, Germany

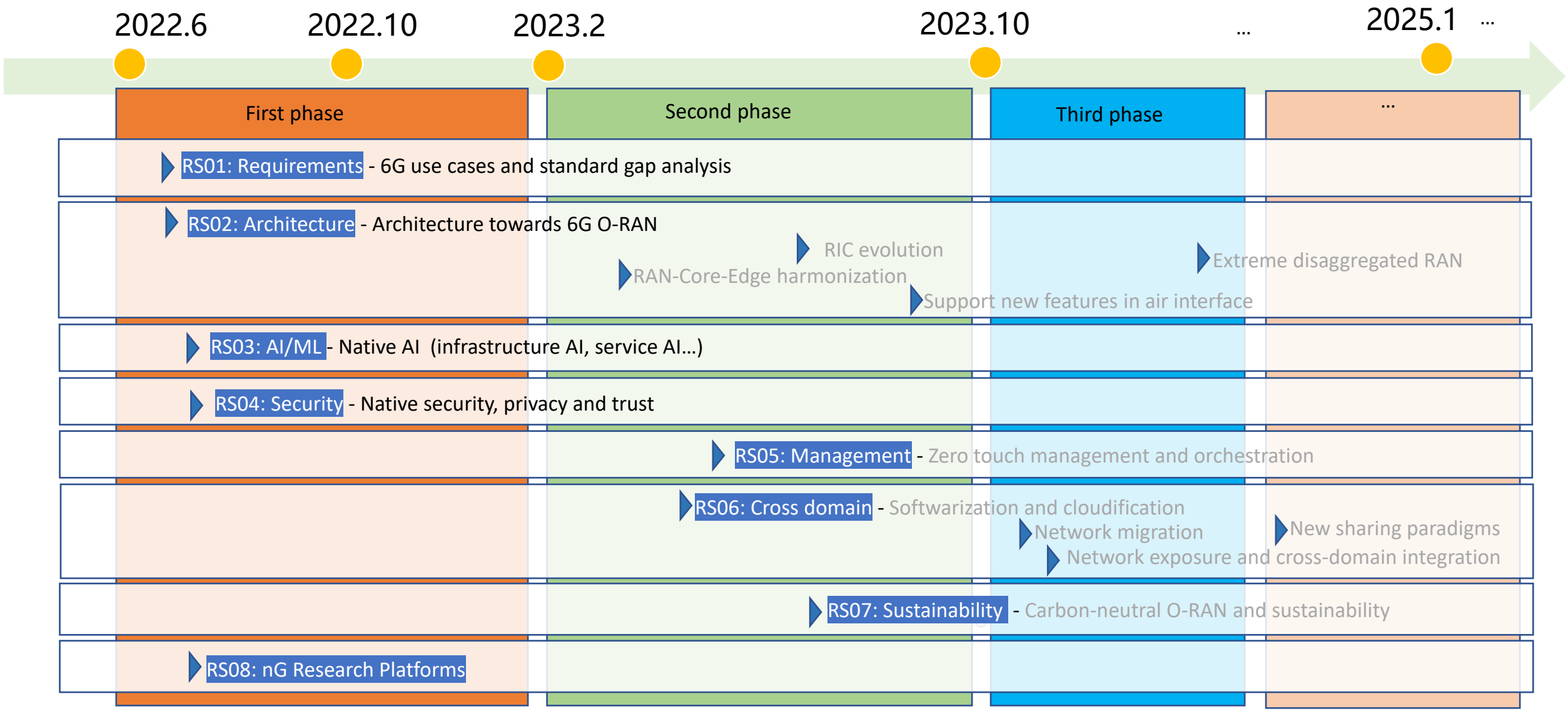
nGRG Research Topics



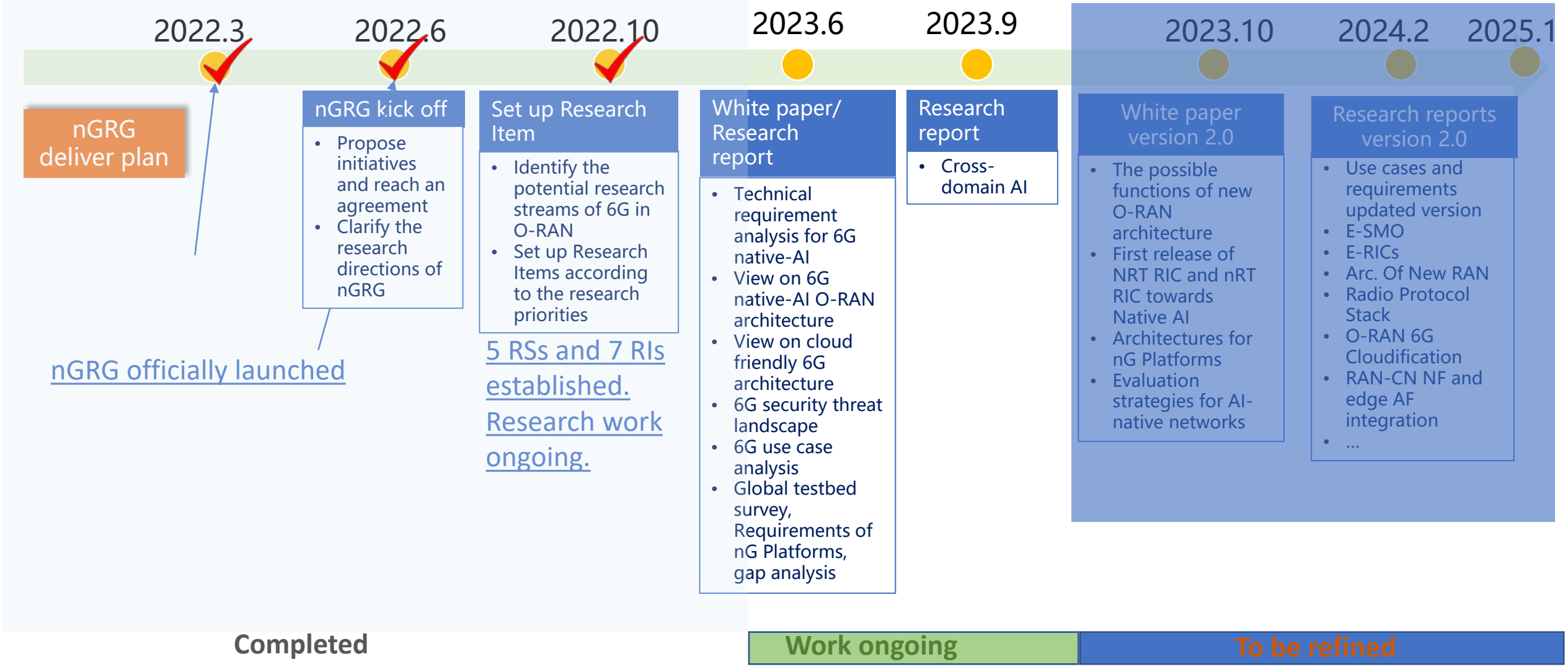
nGRG Research Streams



Research Stream Priority Consideration



Timeline



Ongoing Research Streams

	Research stream	Leader(s)	Status and planned activities
RS01	**6G use cases and standard gap analysis**	Jio, SK telecom, T-Mobile, Rakuten	**Aim at exploring the area of 6G use cases and perform an analysis of the potential gaps in the O-RAN standards to enable them. The outcome of the work may take the form of research reports and/or white papers**
RS02	**Architecture towards 6G O-RAN**	中国移动 China Mobile, NOKIA, Qualcomm, Bell	**Aim at exploring the area of network architecture and key architectural principles**
RS03	**Native AI and cross domain AI**	中国电信 China Telecom, Lenovo, Jio, VTT	**Aims at research on how to support native AI and cross domain AI in 6G O-RAN**
RS04	**Native security**	Jio, DELL, Qualcomm	**Focus on the security landscape associated with nG work across the Telecom industry, academia, research institutions and industry alliances and its relevance to areas of interest of the O-RAN Alliance.**
RS08	**nG research platform**	KEYSIGHT TECHNOLOGIES, VIAVI, AT&T, verizon	**Explore requirements for the evaluation of nGRG concepts and influence the research platforms/testbed in industry and academia towards prioritized nGRG research areas aligned with O-RAN Alliance principles**

Ongoing Work and Achievements

Current work

- **5 research streams** (RS) and **7 research items** (RI) ongoing, focusing on O-RAN key research priorities.
- First wave of **white papers** and **research reports** starts from June 2023, covering use cases and requirements, cloud friendly and native AI architecture, native AI operational requirement, native security, etc.

Specific partnership

- Strong **partnership** with global 6G industry associations, to keep the alignment of technical development for 6G pre-std work.
  - Information exchange with NGMN, NextG Alliance, 6G-IA, ITU-T FG Autonomous Networks, IEEE Future Network Initiative, FCC TAC 6G WG, etc

nGRG events

- nGRG workshop series:
  - 1st nGRG workshop (Visit the Link for records) held on Oct. 20, 2022; **19** invited speakers and panelists, **130+** attendees;
  - 2nd nGRG workshop (Visit the Link for records) held on Feb. 16. 2023; 15 invited speakers and panelists; 5 6G associations from Europe, USA, and Asia, **140+** attendees
- **nGRG special session** in Open RAN Summit (Madrid, Oct. 26, 2022)
- Regular **industry/academic talks** at nGRG plenary meetings

Thank you!

For more information, please contact:

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