

Agenda: 5
Source: NVIDIA



Study on RAN architecture with AI and ML

NVIDIA

Motivation

- In Release 17, 3GPP conducted a study item on RAN intelligence **based on the current NG-RAN architecture and interfaces.**
- In Release 18, 3GPP is specifying data collection enhancements and signaling support **within existing NG-RAN interfaces and architecture** for AI/ML-based Network Energy Saving, Load Balancing and Mobility Optimization.
- Meanwhile, O-RAN Alliance has been augmenting NG-RAN interfaces and architecture with new nodes (e.g., Non-RT RIC and Near-RT RIC) and new interfaces (e.g., A1, E2, O1, and O2) towards a more open, virtualized, interoperable, and AI driven architecture.
- Considering the widely anticipated role of AI/ML in 6G and the 6G standardization will start around 2025, it is critical that we leverage the window of opportunity until then to study new interfaces and new nodes for the RAN architecture evolution, as well as achieving a further globally aligned way forward for AI-driven RAN architecture.
- Going beyond existing NG-RAN interfaces and architecture will unlock the full potential of AI-driven RAN.
- **It is essential to study RAN architecture evolution beyond existing NG-RAN interfaces and architecture (e.g., new interfaces and news nodes) towards an AI-driven RAN architecture on the path to 6G.**

Proposal

- **Establish a study item on RAN architecture evolution with AI/ML.**
 - Study RAN architecture evolution (e.g., new interfaces and new nodes) towards an AI-driven RAN architecture.