Aerial RAN CoLab – OTA Full Stack Innovation Blueprint

Launchpad for Advanced Wireless Developers – Gateway to Developer Innovations and Extensions

Diagram (left column):

- **NVIDIA Cloud**
  - NGC API
  - SDK Manger
- **Developer Extensions**
  - xApp OpenRANGym
  - K8 Service Mgmt
  - ..
- **OSC RIC**
- **5G NR RAN**
  - OAI CI
  - OAI Layer 2+
  - OAI CN
  - OAI UE
- **CUDA Aerial Accelerated RAN**
  - Layer 1
  - Data Lake
  - PyAerial
- **K8**
- **Compute**
  - GH
  - BF3
- **SMC | Dell | Foxconn | NI | Samsung S23**

Bullet list (right column):

- COTS infrastructure composed of compute, virtualization, radios, fronthaul networking, precision timing, accelerators.
- Virtualized RAN workloads from NVIDIA and Open Air Alliance
- Data Lake + pyAerial for AI/ML frameworks : RF / IQ data + FAPI
- 3GPP Release 15+ O-RAN 7.2 split P5G on-prem lab network
- Reference OAI CI leverage for developer integration workflow
- Developers can deploy AI/ML models for and on the radio access network using OSC radio intelligent controller by following Northeastern OpenRANGym tutorial
- NVIDIA NGC APIs for Sterling K8 service orchestration of network functions
- NVIDIA SDK Manager development environment setup automation
- Developer contributions through extensions and plugins - for community benefit and to accelerate pace of innovations welcome!

NVIDIA