

Powder Software Stacks

Software stacks (to be made) available as profiles

1st Annual Powder Users' Workshop

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Software stacks (profiles) currently available in UofU testbeds

- Powder Technology Preview:
 - OpenAirInterface:
 - OAI RAN and OAI Core
 - Ready to run **and modify** (relevant source code available from profile)
 - OTS UE (Android Nexus 5) with SDR eNodeB
- PhantomNet (federated with Powder):
 - Variety of research efforts
- CloudLab (federated with Powder):
 - OpenStack:
 - Highly configurable
 - Different OpenStack versions (Pike, Ocata, Newton, Mitaka)
 - Variety of sample VM images

Stacks we expect to have available as profiles soon

On OTS SDR Equipment

- (More) OAI: SDR based UE
- srsLTE: srsUE, srsENB, srsEPC
- GNU Radio: general SDR software development toolkit

Stacks we are (more or less) committed to provide

- “Bare” radio: hardware only; basis for adding own software
- General SDR Frameworks: GNU Radio, SoapySDR, gr-osmosdr, UHD, rtl_sdr
- Metrology, Sensing and Analysis: tools for spectrum sensing and network analysis

Stacks/software that might be of interest to users

RAN, Edge, Core, NFV/Orchestration/Management

- OAI: 5G-NR: basic PHY testing functionality; 5G NGFI: next generation fronthaul interfaces; NBIoT; D2D...
- M-Cord: open source reference solution; SDN, NFV, cloud; virtualized RAN and EPC
- Intel vEPC: virtualized EPC
- OSM: open source NFV Management and Orchestration (MANO) software aligned with ETSI NFV
- ONAP: policy driven orchestration and automation of physical and virtual network functions
- ETSI MEC: multi-access (mobile) edge cloud (Openstack/DPDK/others?)
- OpenDayLight: network customization and automation, SDN, NFV
- CORD family: Central Office Re-architected as a Datacenter

Stacks/software that might be of interest to users

Tools, IoT, Analysis

- Xilinx ISE, RFNoC
- Matlab/Octave, LabView
- Black box RF modules (NI)
- LoRa
- TensorFlow, Flink, Hadoop, Spark