Using the GENI LTE Testbed for Mobility and Edge Cloud Research

GENI Webinar

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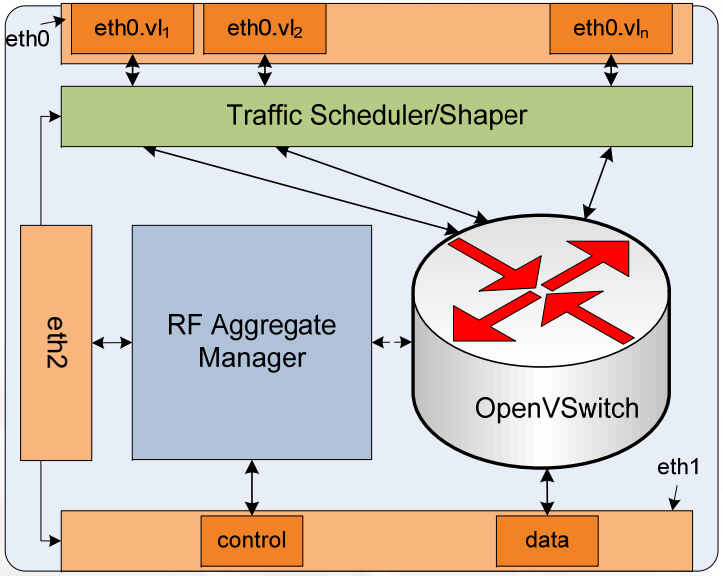
LTE eNodeB Platforms

ip.access	Amarisoft (USRP)	OAI and srsLTE (USRP)	Airspan
			
Rel 8.9	Rel 12	Rel 8.6	Rel 10 (upgreadable)
FDD	FDD/TDD	FDD/TDD	TDD/(FDD)
10MHz	20 MHz	10 MHz	20 MHz
2 x 10 dBm	20 dBm (2 x 20 dBm)	20 dBm (up to 4 x 30 dBm)	2 x 37 dBm (2 x 40 dBm)
13 Mbps	BW limited	20 Mbps	300 Mbps
4 (max idle 64)	BW limited	5 (25)	> 100 (256)

"Opening" of WiMAX & LTE

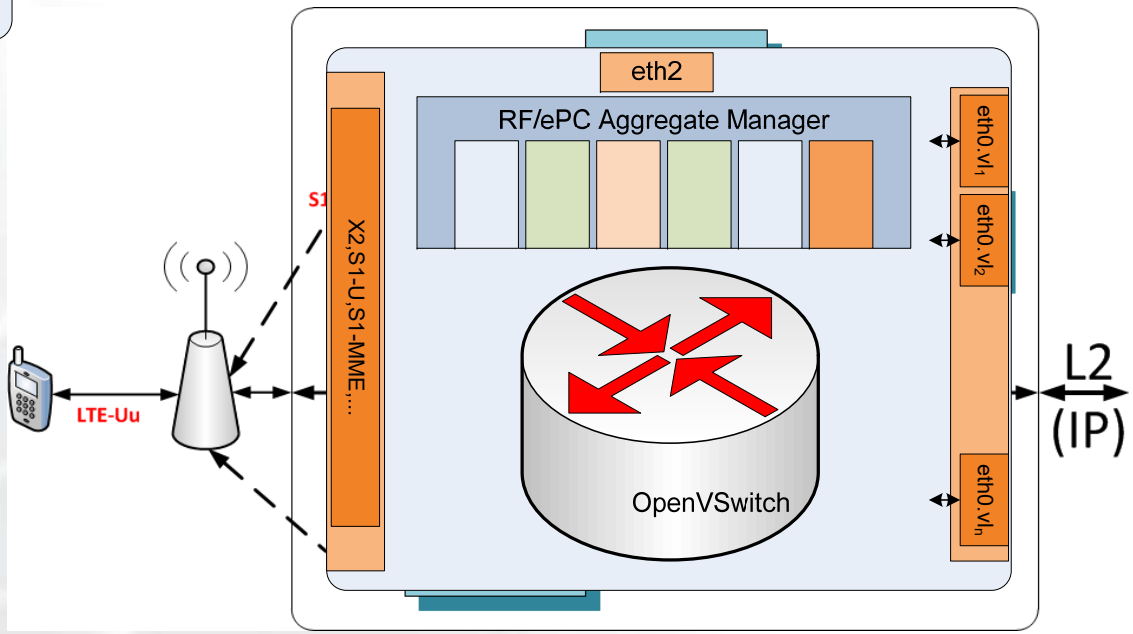


WiMAX

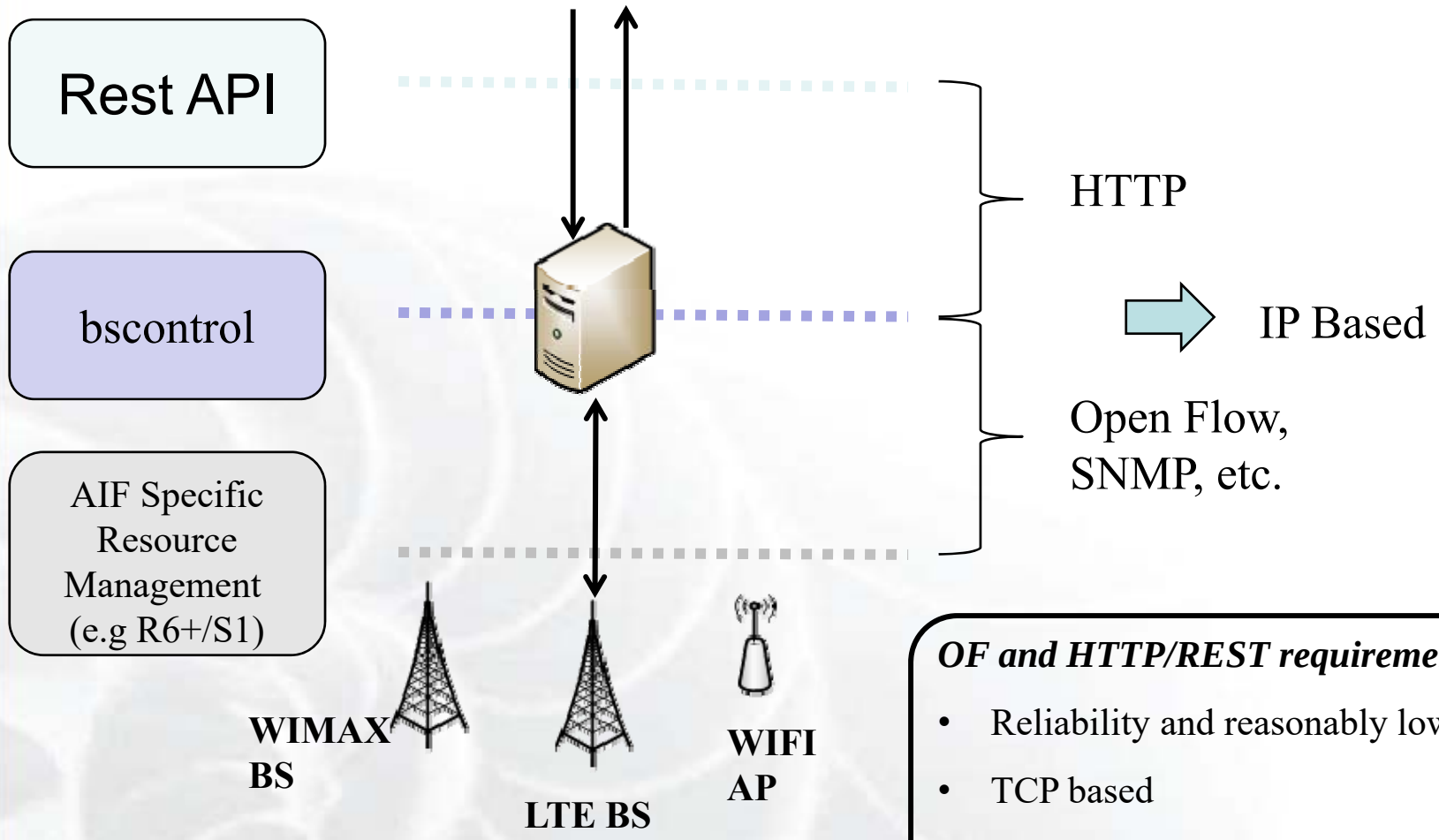
- Exposed all controllable parameters through API
- Removed all default IP routing, simplified ASN controller*
- All switching purely based on MAC addresses
- Implemented the datapath virtualization and *VNTS* shaping mechanism in click/openvswitch for slice isolation

LTE

- Exposed all controllable parameters through the same REST based API
- Implemented the datapath with openvswitch
- *Current development: ePC replacement with open source (i.e. simplification/elimination of LTE control protocols)*



Unified Control



OF and HTTP/REST requirements:

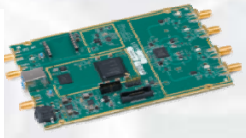
- Reliability and reasonably low latency
- TCP based

(applicable to both GRE/GTP interfaces)

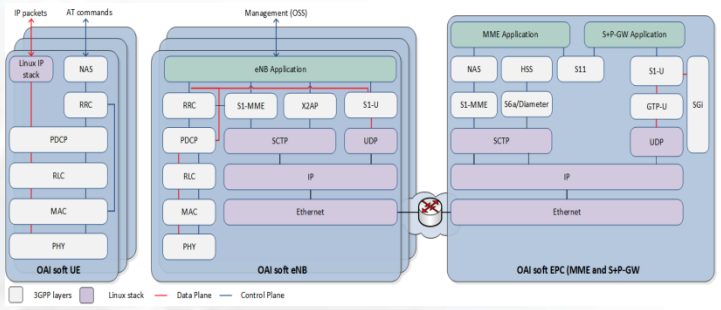
Open Air Interface (OAI)

- OpenAirInterface.org today and Ecosystem
- Open-source for 5G
- Software Alliance
  - Membership
  - License
  - Strategic member areas

Hardware Platforms



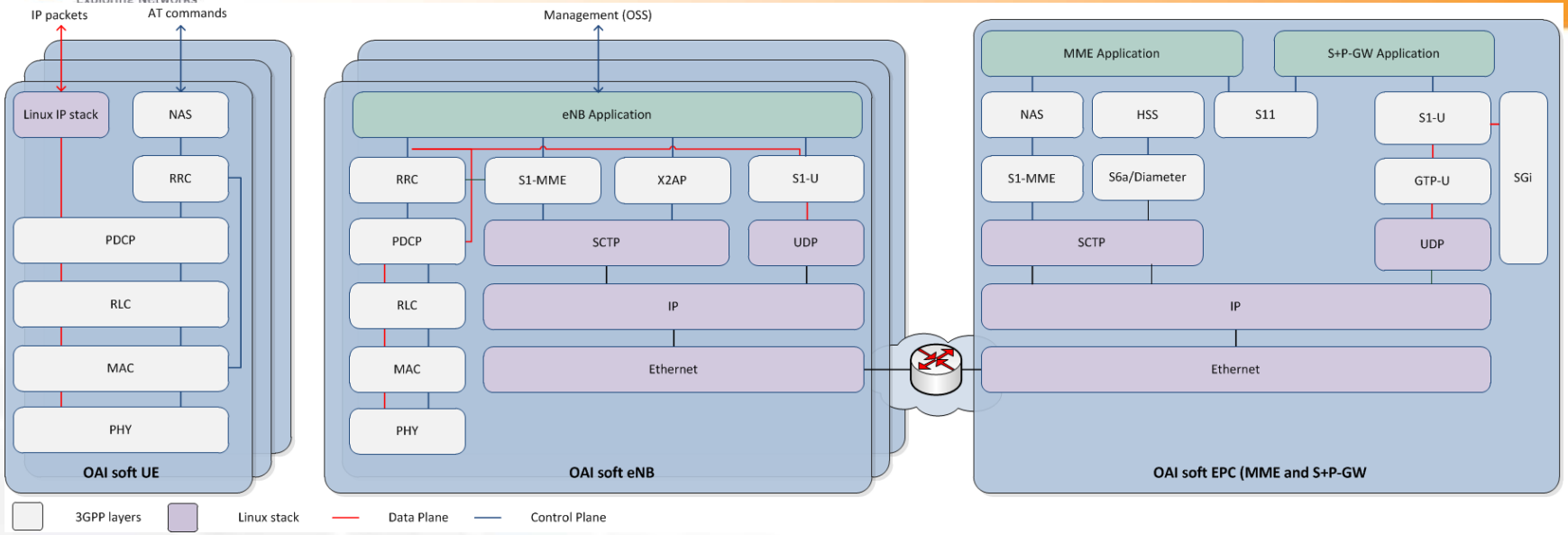
Software Platforms



LTE in a PC

Courtesy: Navid Nikaein, Eurecom/Open Air Interface

OAI Software platform



- Commercial UE ↔ OAI eNB + Commercial EPC *
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Courtesy: Navid Nikaein, Eurecom/Open Air Interface

Tutorials

- Tutorial 1: Commercial eNodeB and UE
  - Airspan Harmony 1000 Basestation and Netgear USB LTE Adapter basic connectivity and throughput test
- Tutorial 2:
  - SDR based eNodeB (OpenAirInterface) with split design: remote radio head (RRH) connected via 1G Ethernet to software baseband running on GENI rack machine with Netgear USB LTE adapter as client.

Tutorial 2: SDR Based eNodeB