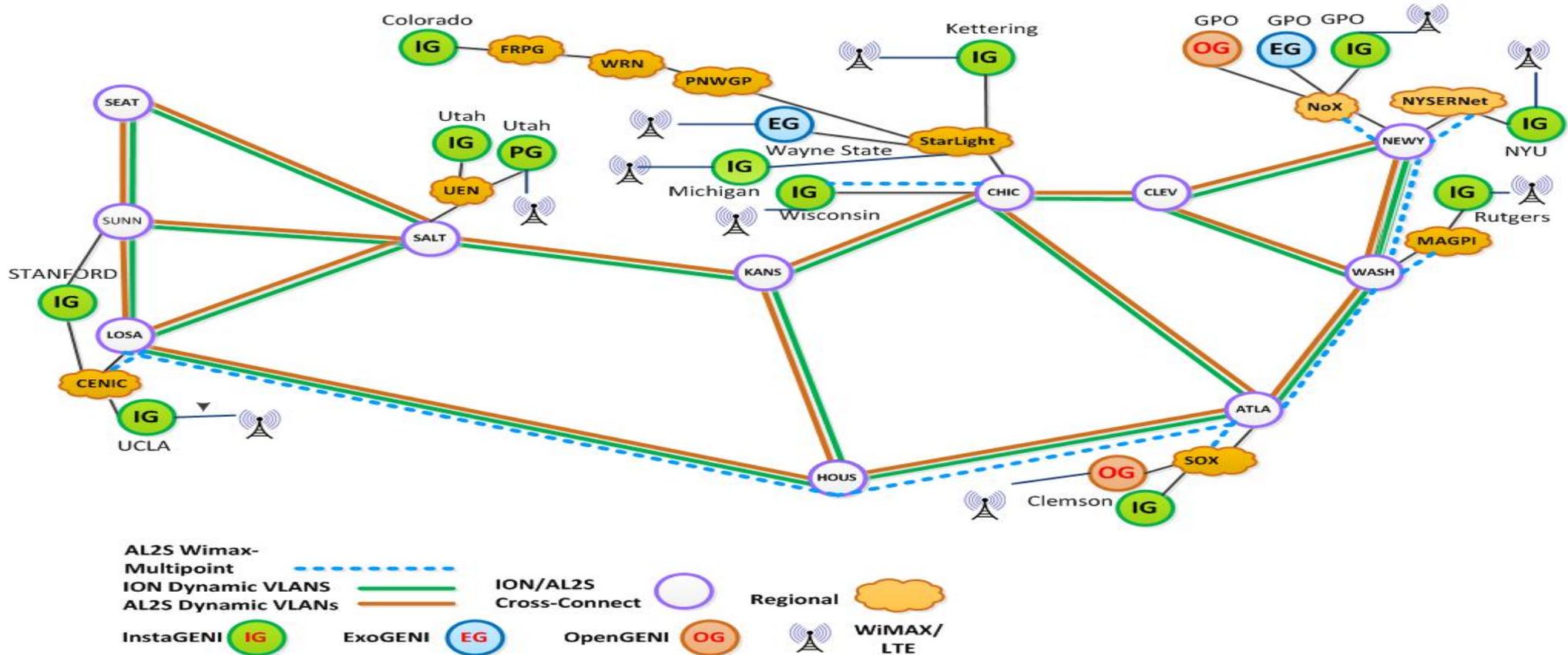# 4G LTE in GENI

Abhimanyu Gosain

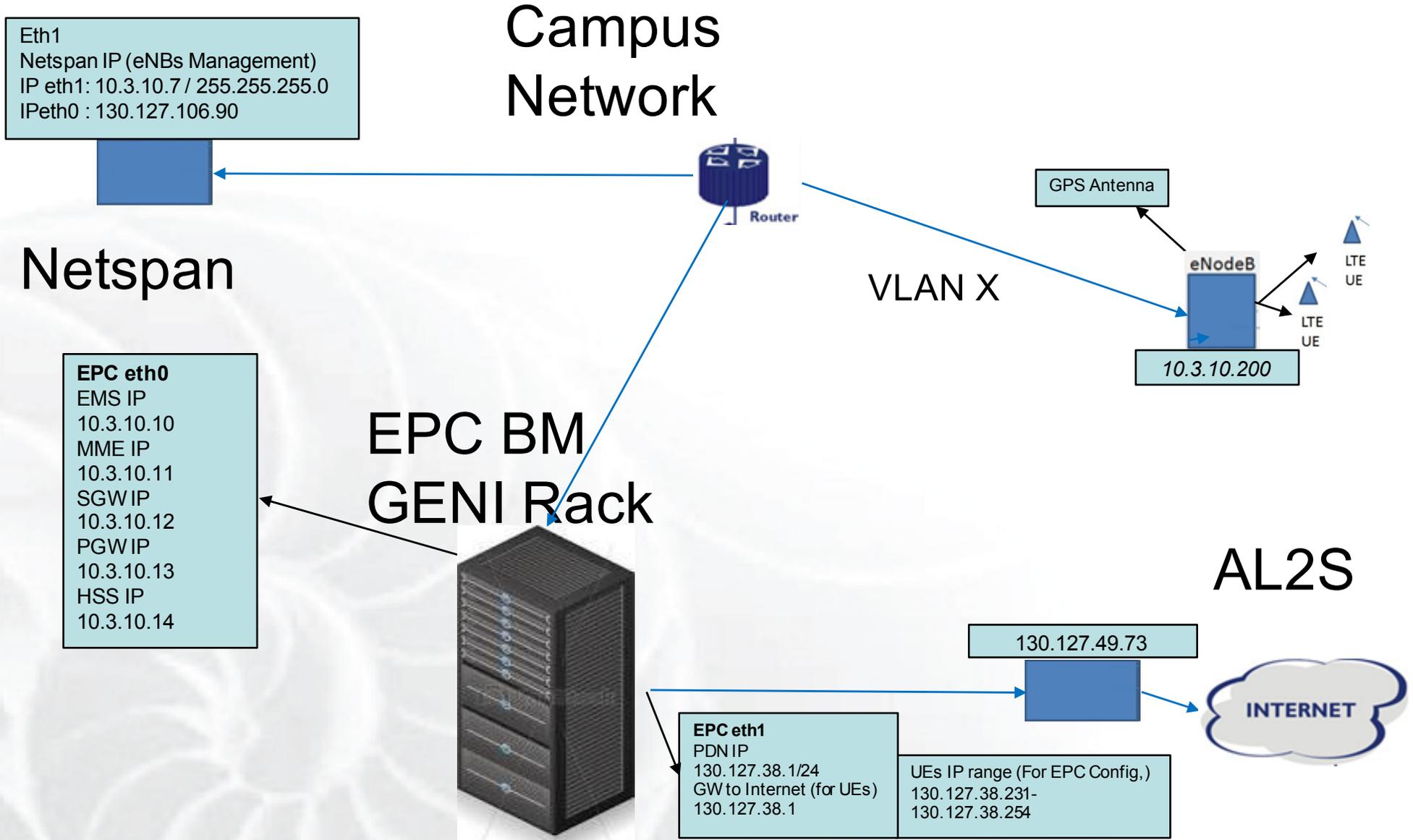*agosain (at) bbn (.) com*

GEC-24

March 15 2017

AGENDA

- GENI Wireless Deployment Status (Manu)
- Site Deployment Plans (All Sites)
- 5G Going Forward (Hadi,Jose)
- GENI Transition (Manu)

- 26 Wimax + 10 LTE Base Stations in 13 Sites

- 90 android handsets available to experimenters

- 36 wireless (yellow) nodes

- Uniform experimenter experience using yellow nodes, GENI Racks

- Sliced, virtualized and interconnected through AL2S/Internet2

- 4 Sites have received equipment and are online.
- Shipment of 9 BS at 5 Sites by End of March.
- Need to determine Fiber to Ethernet outdoor conversion. (if desired)
- Upgrade Netspan software.
- Configure VLAN on campus network for backhaul network to Control Server located in Kettering University.
- Configure VLAN on GENI Rack to connect BS to GENI L2 AL2S Network.

LTE Campus deployment

Eth1
Netspan IP (eNBs Management)
IP eth1: 10.3.10.7 / 255.255.255.0
IPeth0 : 130.127.106.90

Campus Network

Router

Netspan

GPS Antenna

eNodeB

VLAN X

LTE UE

LTE UE

10.3.10.200

EPC eth0
EMS IP
10.3.10.10
MME IP
10.3.10.11
SGW IP
10.3.10.12
PGW IP
10.3.10.13
HSS IP
10.3.10.14

EPC BM GENI Rack

AL2S

130.127.49.73

INTERNET

EPC eth1
PDN IP
130.127.38.1/24
GW to Internet (for UEs)
130.127.38.1

UEs IP range (For EPC Config,)
130.127.38.231-
130.127.38.254

Can Stock Photo - csp553204

4G Base Station Hardware

AirHarmony

Located closer to the end user, providing much higher aggregate data rates

TDD LTE

Max Transmit Power: 30 dBm per Tx

2 x 2 MIMO: SM and TxD

Operational Frequency Bands:
 7 and 41 (2.6 GHz),12, 13, 14 and 17 (700 MHz), 20 (800 MHz), 40 (2.3-2.4 GHz), 42 and 43 (3.4-3.8 GHz)

EPC Software

EPC on bare Metal node on GENI rack

Rspec publicly available

LTE Release 8 compliant

Connect LTE eNodeB to local EPC

Please research and share different clients the community can use….

LG Nexus 5
Android 5
Test SIM

Netgear 341U USB Modem
Linux Driver
Test SIM
Greenpacket LTE CPE

- Rutgers(Ivan Seskar) will be PoC going forward
- GMOC will handle Monitoring, per Wireless agreement with Sprint
- GPO member (Heidi) will mana