



TAMU Internet2 Technology Evaluation Center (ITEC)

TxICC Wireless Communications Update

16 July, 2019



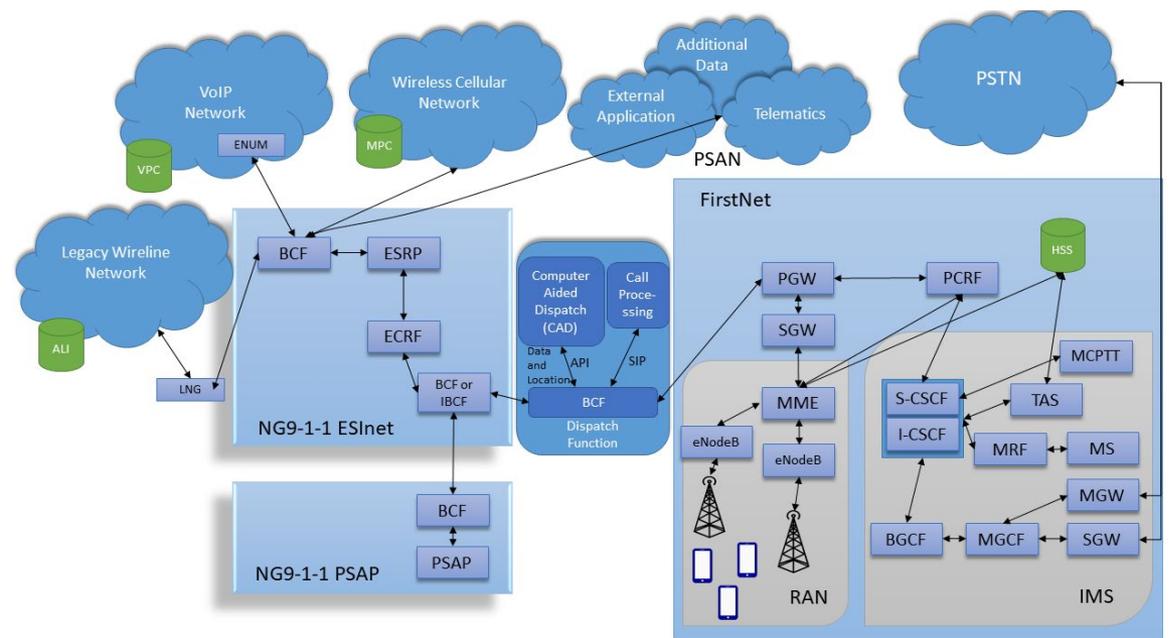
ITEC background

- Established in 2004
- Developed the first NG 9-1-1 system in the world with US DoT funding in 2007
- Established NG 9-1-1 Plugtest (ICE) for NENA in 2009.
- Hosted ETSI MCPTT Plugtest June 2018.
- Host of both TAMU Winter Institute and U.S. support for DHS Canadian United States Resilience Experiment (CAUSE)



ITEC Resources

- 100 Gigabit Internet access
- The lab has all of the functional elements described in the APCO Project 43 architecture.





US Army Futures Command

Modernization Priorities

Long Range
Precision Fires

Next Gen Combat
Vehicles

Future Vertical Lift

Army Networks
(PNT)

Air & Missile
Defense

Soldier Lethality
(Syn Training)



4G and 5G RDT&E platform

Support unmanned vehicles

Interoperability

not just network interconnection but secure data sharing

Resilience – Communication under any condition

Using legacy network, next generation network, optical and other networks together.

Establishing network requirements for large scale sensors, applications, and network slicing

Support for exercises to test new technology

Internet2

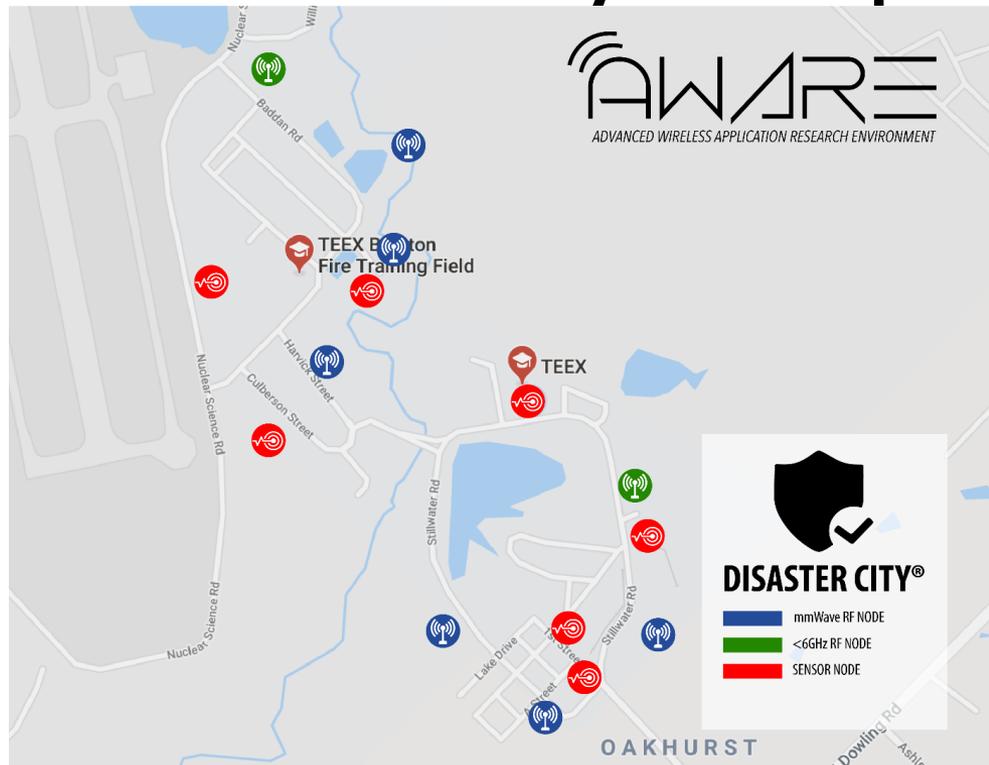
8.8 Terabit per second global network, with every tool imaginable, and serves as a research and education network linking 300+ major research universities and some of the sharpest minds on the planet.

TEXAS A&M ENGINEERING



EXTENSION SERVICE

Funding coming in September to build a 4G and 5G wireless testbed for Army and public safety



What is 5G

- 3GPP next generation wireless standard
 - Sub 6 GhZ (all of the current bands) up to 900 Mbps today. Gig plus expected.
 - Millimeter wave 28 to 50 GhZ Gigabit today, expect much more.
- Deployments today
 - Sub six deployment in South Korea 30,000 nodes.
 - Verizon and AT&T mmWave very limited deployments in select cities.
- Battle for World Dominance
 - China Huawei and ZTE
 - United States Nokia and Ericsson

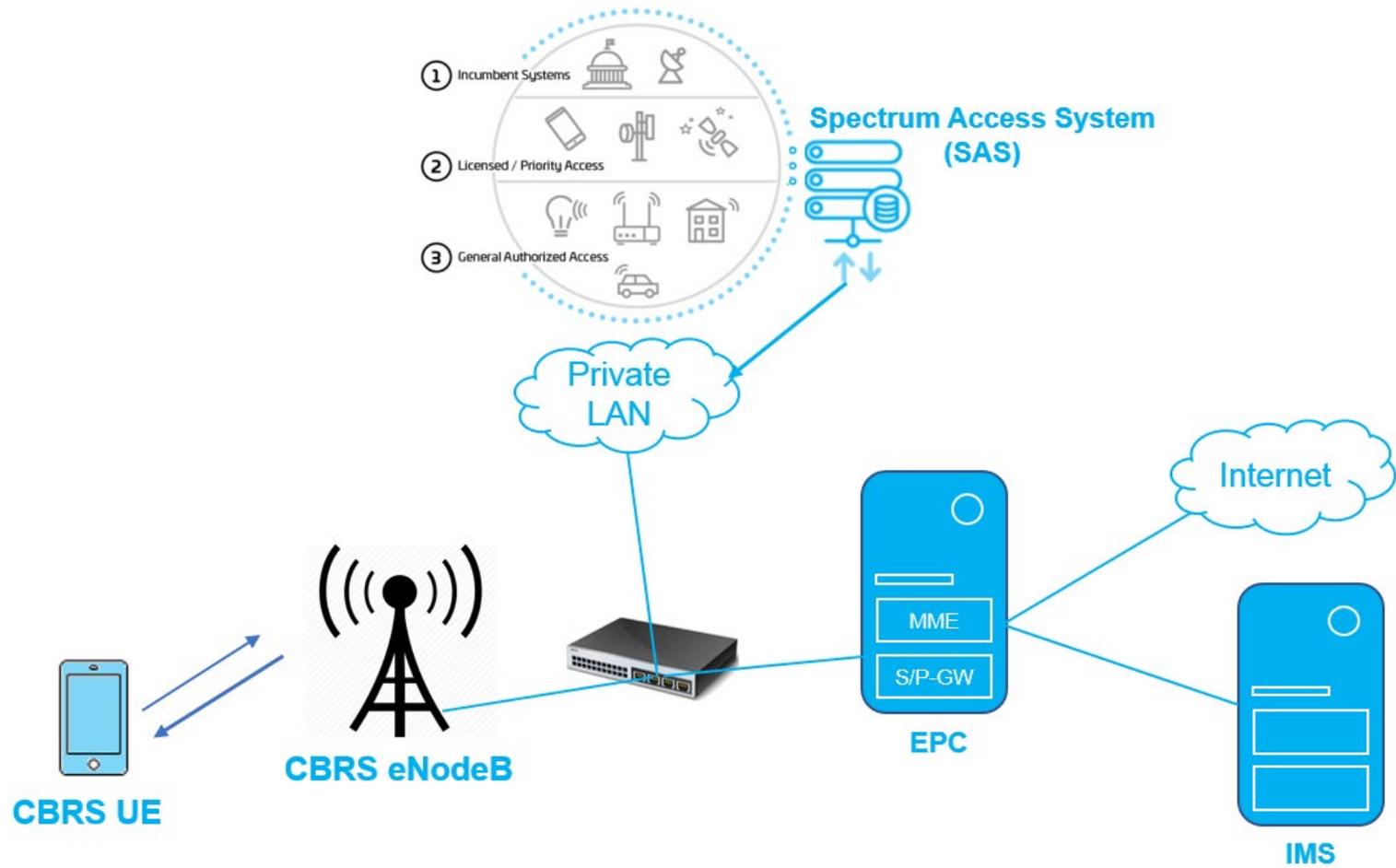


New opportunity to support your own LTE network

- FCC opens up Citizen Band Radio Spectrum (CBRS)
- Makes available 150 MHz in the 3.5 GHz (band 48)
- Three tiers of operators
 - Incumbent
 - PAL 7 licenses to be auctioned for 10 MHz each (one provider can purchase 4)
 - General Access (shared but managed)



CBRS Sharing



Potential CBRS service providers

- Incumbent WSP (AT&T, Verizon)
- New WSP entrants (google)
- Industry (large plants such as Shell, DOW etc)
- Government (non-mission critical devices such as IoT)
- In building offload



CBRS Device EcoSystem



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