Texas Public Safety Broadband Program

Government Technology Conference

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Texas Public Safety Broadband

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Public Safety LTE Broadband:

What is it?

Public Safety Broadband

An LTE *mobile data network* that will be built for the express use of Public Safety:

EMS, Law Enforcement, Fire, Emergency Management <u>& more</u>

Public Safety LTE Goal:

Provide public safety responders with the RIGHT INFORMATION in REAL-TIME to save lives and property.

North Texas Tornadoes 2013

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Public Safety Mobile Communication Misconceptions

- *Myth 1:* Public Safety has a mission critical data network just like they have separate two-way radio networks for voice communications

  FALSE

- *Myth 2:* Public safety data takes priority on carrier mobile networks

  FALSE

- *Myth 3:* In a disaster or other emergencies, public safety can take over carrier networks

  FALSE

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PS LTE will equip responders with real time data to do their jobs better and more efficiently through....

- Government "App Stores"
- Coordinated response tools
  - GPS tracking, mapping tools
  - ICS forms on handheld
  - Shared applications
- Real Time video
- Facial recognition
- Field reporting / Database queries
- Infrastructure information (i.e. blueprints)
- Public works
- Transportation
- Child welfare
- Education

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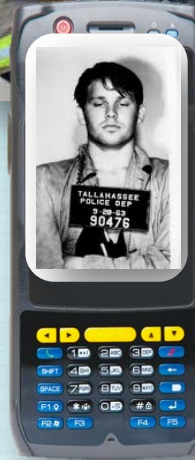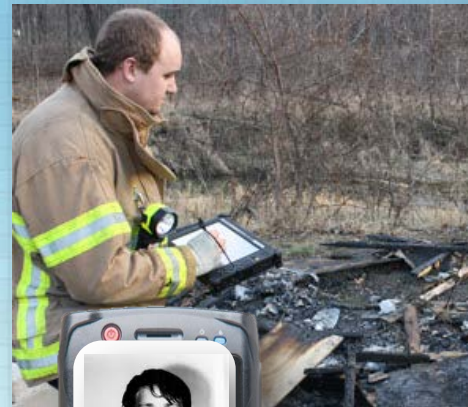
What is Public Safety Broadband?

- Exclusive for Public Safety
  - Middle Class Tax Relief and Jobs Creation Act of 2012
  - Band Class 14
  - Implemented nationally by FirstNet, a national organization under the NTIA and FCC and working in coordination with the Dept of Homeland Security
- Ubiquitous Interoperability
  - Federal, State, local and tribal responders
- Self-sustaining funding model
  - $7 Billion initial funding
  - Allowed users will buy access from NPSBN instead of carriers
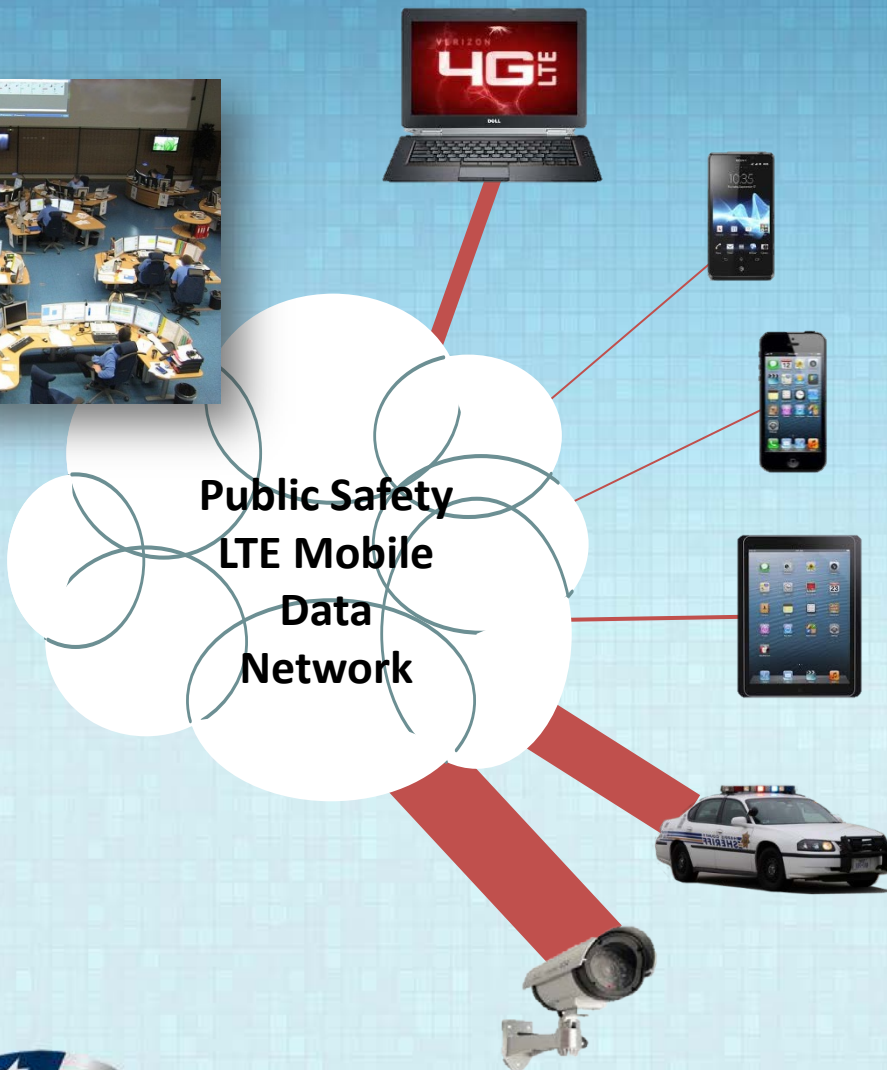- Data network based on the 3GPP LTE standard that commercial carriers currently use…but different!

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Carrier LTE Implementation

Carrier LTE
Mobile Data
Network
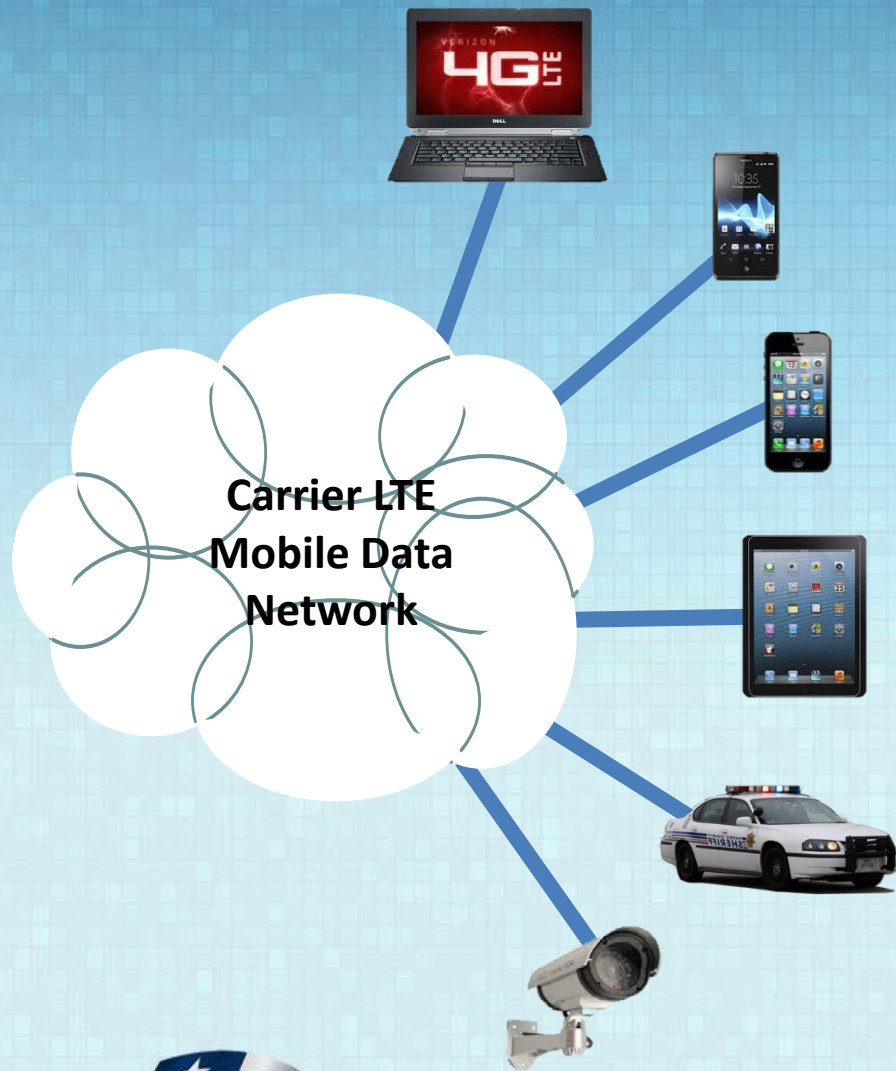
- All users are basically equal
- No pre-emption
- No prioritization

Public Safety LTE Implementation

Public Safety LTE Mobile Data Network

- Dynamic Prioritization of bandwidth
  - ✓ Event based
  - ✓ User based
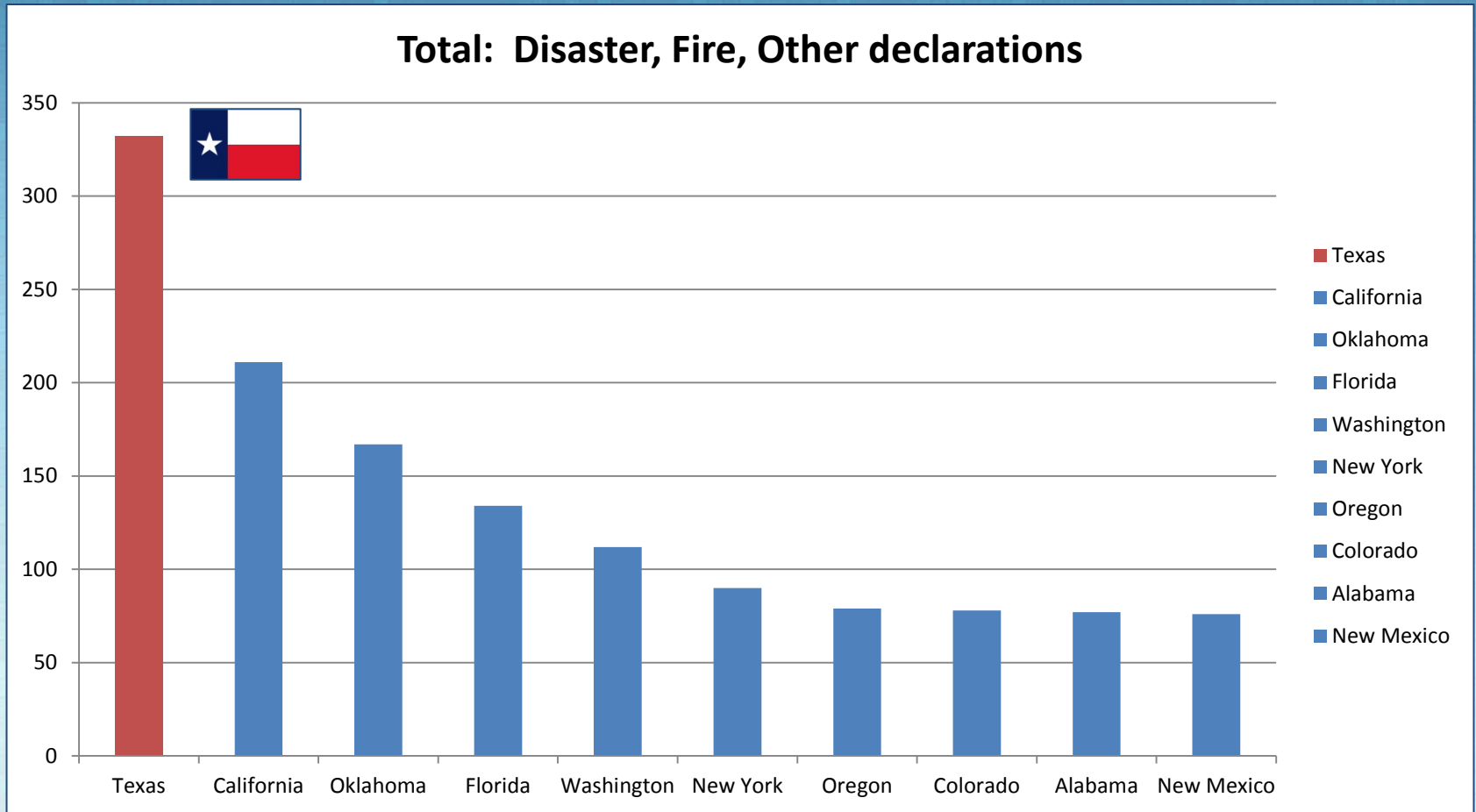 - ✓ Application based

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Public Safety Broadband:

Why do we need it?

Texas' Road to PS LTE

Harris County Hurricane Evacuation

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Texas: Leading the Nation in Disasters

Total: Disaster, Fire, Other declarations

Texas has faced far more catastrophic incidents than even the second place state, California.

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Texas Wildland Fires


Comal County Floods

Potential Hazards

- Hurricane
- Tornado
- Flood/Flash Flood
- Winter Storm
- Power Outage
- Water Outage
- Wildfire
- Mass Fatality
- HazMat or Chemical
- Terrorist Act
- Civil Disturbance

- Earthquake
- Oil Spill
- Economic Loss
- Communications
- Urban Fire
- Building Collapse
- Subsidence
- Utility Outages
- Drought
- Disease
- Rail Accident

TEXAS DEPARTMENT OF PUBLIC SAFETY
DIVISION OF EMERGENCY MANAGEMENT
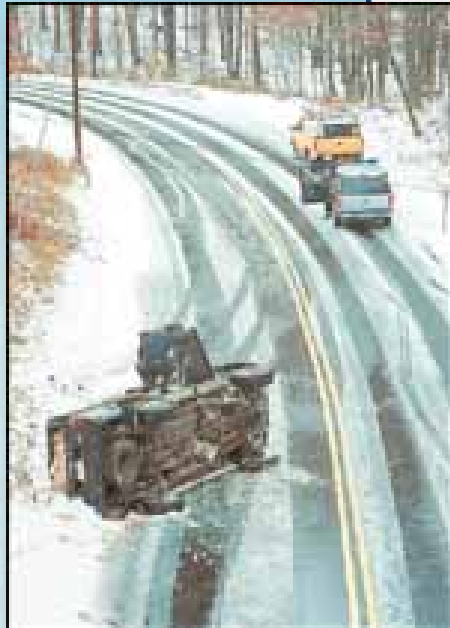
Amarillo Ice Storms

Fertilizer Plant Explosion, West, Texas

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Disasters Require Mobility

- **Hubs are loading points for tens of thousands of evacuees**

- **Typically in convention center or mall parking lots**

- **Extremely susceptible to cellular overload**

Evacuation Transportation Hubs
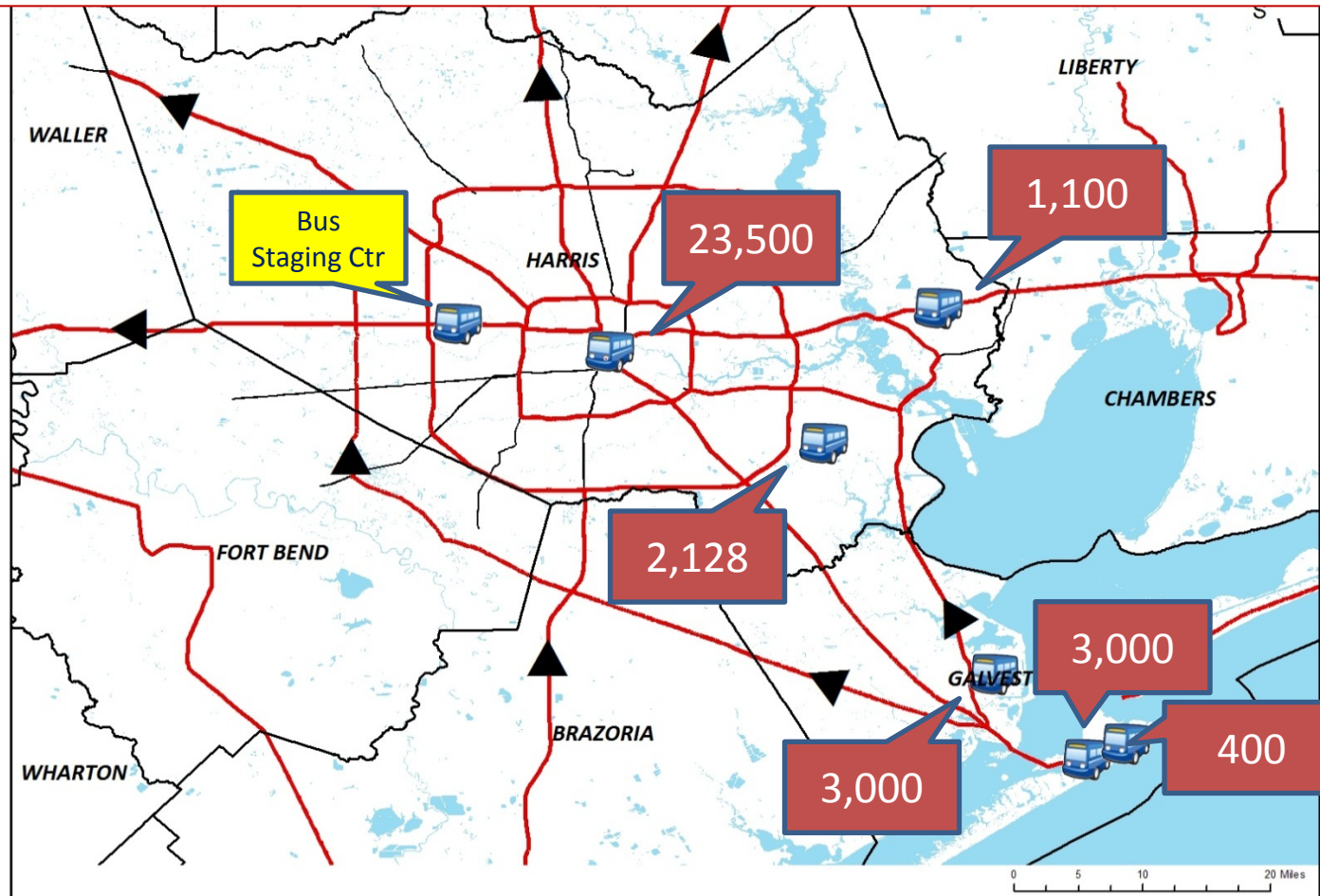
Public Safety Broadband:

How
and when
will it happen?

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It is already happening....
Harris County, Texas

- 14 PS LTE E-Node-B sites completed by end of this month

- Additional sites ready for installation pending frequencies

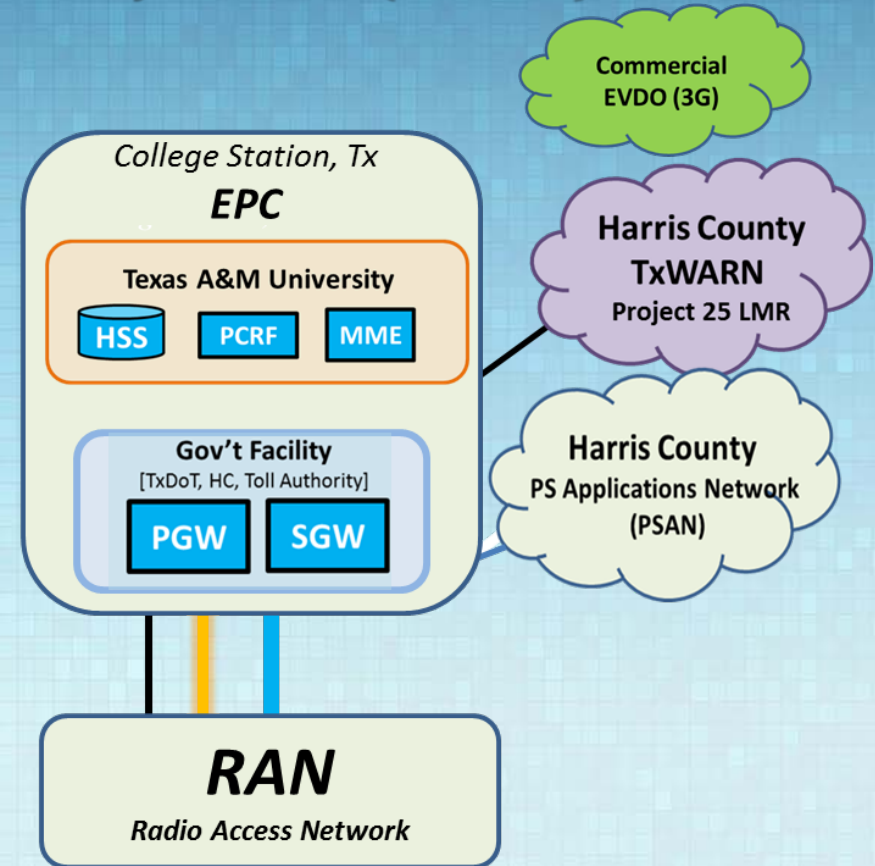- Baytown Police and Fire <u>live</u> on the system today

Jurisdictions in varying stages of PS LTE:

City of Pasadena
City of Webster
City of Houston
Harris County
Port of Houston Authority
All of Brazoria County
...and others

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Harris County BIG-Net Overview

Broadband Interoperability Gateway Network (BIG-Net)

- **Distributed EPC components for operational efficiencies**
- **BIG-NET Vehicular-based system using Vehicle Subscriber Modem (VSM)**
- **Port of Houston area cameras**
- **EPC connected to Harris County PSAN**
- **EPC connected TxWARN**
  - **P25 to LTE PTT service**
- **Initial applications include:**
  - **video, PTT, database inquiries, and intranet access**

Commercial EVDO (3G)

College Station, Tx
EPC

Texas A&M University

HSS | PCRF | MME

Gov't Facility
[TxDoT, HC, Toll Authority]

PGW | SGW

Harris County TxWARN Project 25 LMR

Harris County PS Applications Network (PSAN)

RAN
Radio Access Network

Primary Users:
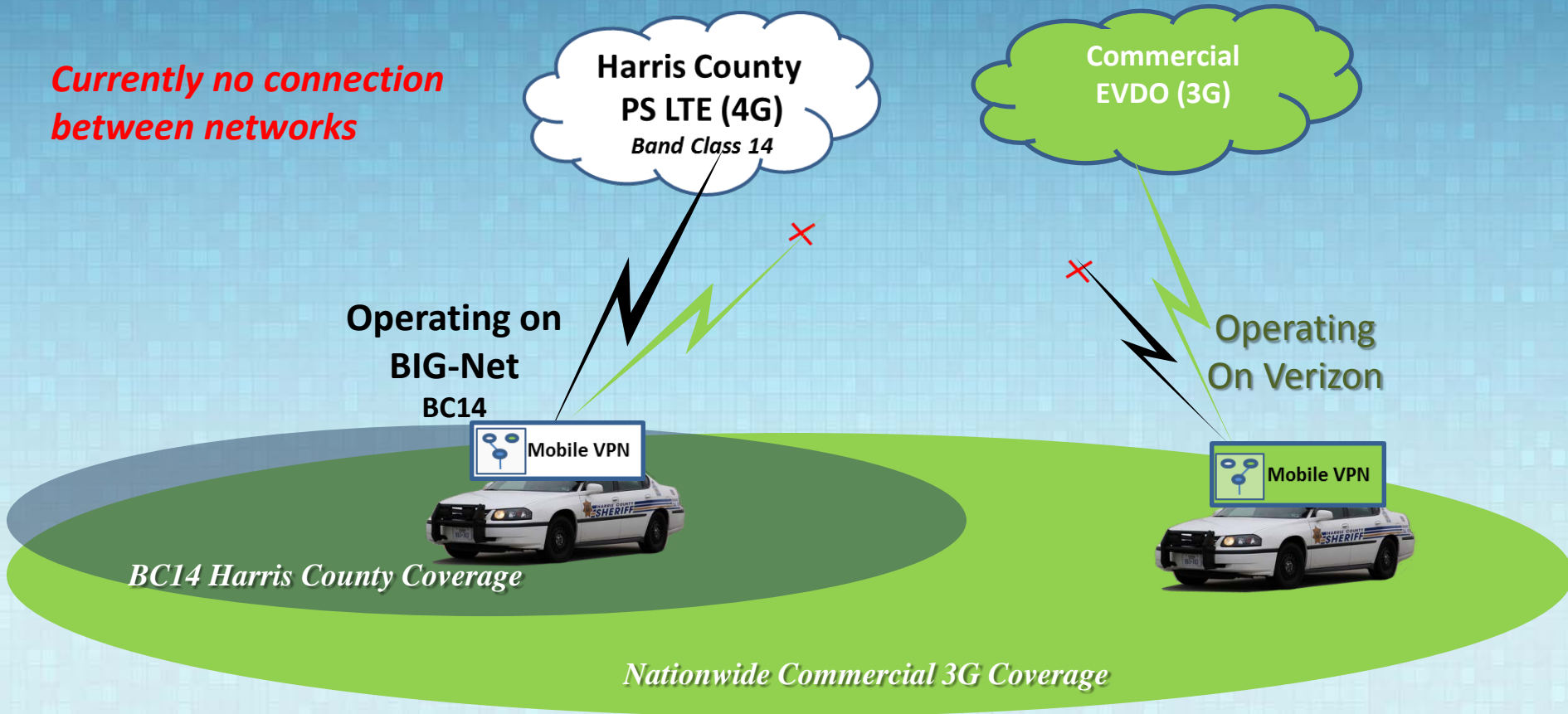 *City of Baytown*
  Harris County Sheriff
  METRO Transit

Future Users:
  City of Houston
  City of Pasadena
  Adjacent Counties

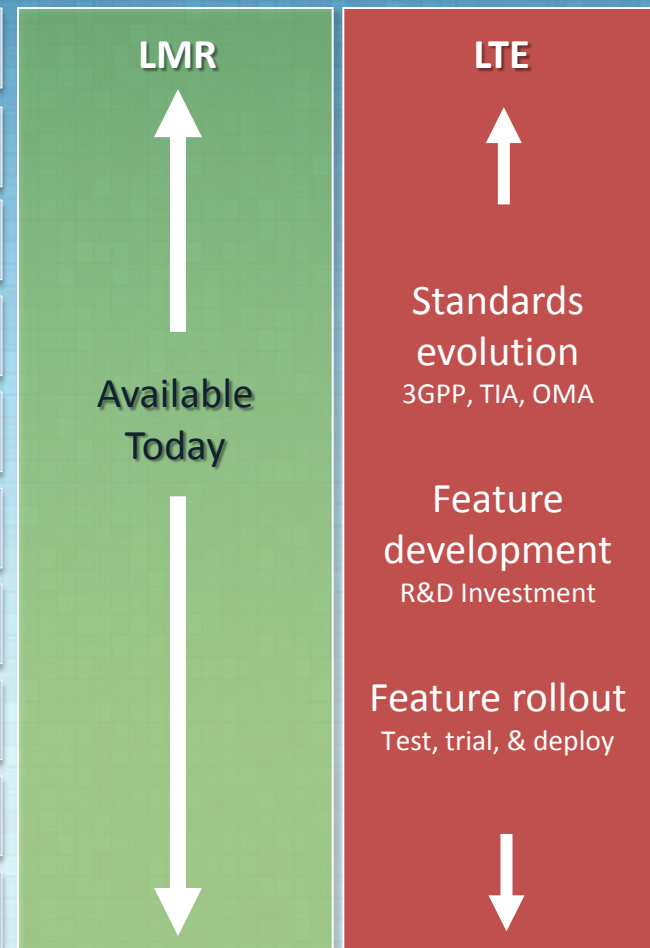**Texas Public Safety Broadband Program**

Illustration is conceptual, not all connections are shown.

Multi-Network Operation

Currently no connection between networks

Harris County PS LTE (4G)
Band Class 14

Commercial EVDO (3G)

Operating on BIG-Net
BC14

Mobile VPN

Operating On Verizon

Mobile VPN

BC14 Harris County Coverage

Nationwide Commercial 3G Coverage

- Design allows coverage throughout region, but is not optimal
  - 3G not as robust, delivers fewer features and control mechanisms

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Mission Critical Requirements

Requirement	Description	LMR	LTE
One to Many	~500ms group communications setup, low latency		
Network Resiliency	Site & zone trunking, failsoft, IP path re-routing		
Mission Critical Devices	High velocity, ruggedized, environment, accessories		
Direct Mode	Subscriber continuity, out-of-network coverage	**Available Today**	**Standards evolution** 3GPP, TIA, OMA
Dispatch	Console control & interrupt, agency partitioning		
Coverage	95%+ guaranteed geographic coverage, in-building		**Feature development** R&D Investment
Interoperability	LMR networks, legacy applications & services		
Emergency	Subscriber ID, location, remote monitor, pre-emption		**Feature rollout** Test, trial, & deploy
Priority	Individual, group, jurisdictional, agency, voice		
Security	E2E encryption, key management, access control		

LMR will continue to provide Mission Critical communications for the foreseeable future!

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Public Safety Broadband:

How will it impact government IT professionals?

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What does PS Broadband mean to government IT systems?

- HEY…..It's a DATA network…

- …But a MISSION CRITICAL data network

- Security, security, SECURITY…

- Thinking about WIFI across your city?…
    - You might want to think again….

- Cost model promotes multiple users…
    - Not just "traditional" public safety
    - Private sector responders too

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And then there are applications…

- Regional application stores
- Interoperability <u>and</u> Local control
- Authentication and trust across agencies
- Public Safety focused applications
  - This is a team sport!
  - The right information, right now! ….
    But HOW and WHO determine that?
  - How much is TOO MUCH information?

The Evolution of Public Safety IT

- What new skills sets will be needed?
  - Half IT Geek / Half Dispatcher
  - Quick to filter and synthesize
  - Focused
  - Compensated

- Where will personnel gain these new, intermingled skill sets?

- How will best practices be determined?

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Texas is Preparing for LTE:
But we need your help!

- Establish Stakeholders and state advisory group

- Establish Outreach & Education Program

- Sign up to receive information concerning the Texas Public Safety Broadband Network (TxPSBN): http://tinyurl.com/b7qkbjf

- *Tell your co-workers and friends to sign-up too!*

West Fertilizer Plant 2013

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Want more information?

- View the Texas LTE website at:

  http://www.dps.texas.gov/LTE

- Email us at: lte@dps.texas.gov

- Sign up to receive information concerning the Texas Public Safety Broadband Program (TxPSBP):

  - http://tinyurl.com/b7qkbjf

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Questions?

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Thank You!