

APCO International Emerging Technology Forum

LTE Technology Futures

Phil Zion

General Dynamics Mission Systems

General Dynamics Public Safety Communications Projects

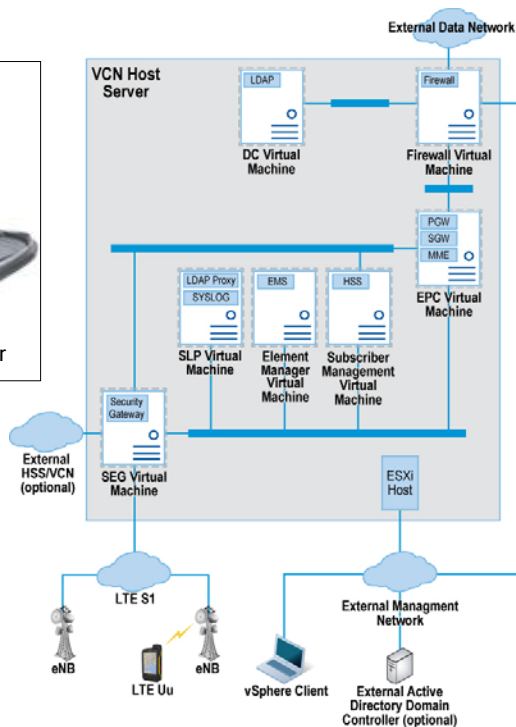
A trusted partner for secure communications networks



- System Integrator
- Solution Provider
- Original Equipment Manufacturer
- Site Engineering
- Standards Advocacy
- Research Support



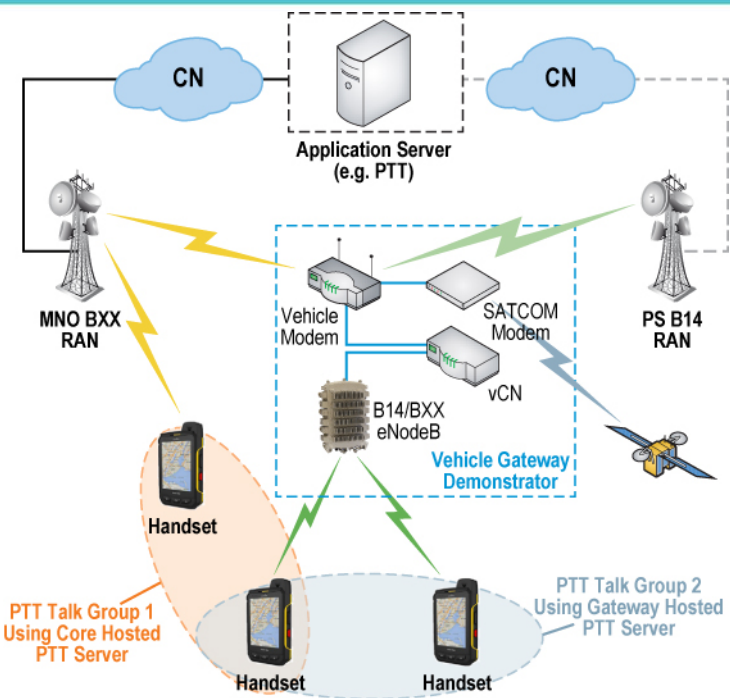
Deployable EPC with the VCN on a 1U server



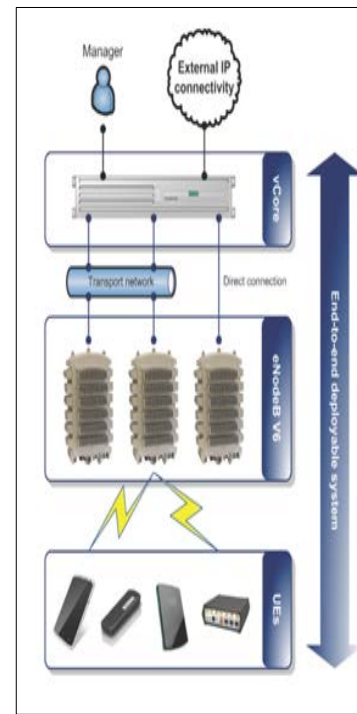
- Virtualized design operates on commodity hardware
- Each EPC function is a VM
- High Assurance (HA) configurations
- Supports standalone networks (e.g. Public Safety Vehicle Gateway)
- Available today

Public Safety Vehicle Gateway Demonstrator

Deployable standalone private network for emergency response



- Form factor: SUV or news van
- Self-organizing network
- Coverage extension for Mobile Network Operator (MNO) or PS
 - In-building coverage
 - Cell-edge enhancement
- Coverage creation
 - Standalone operation
 - Roam back to commercial MNO
 - SATCOM-capable
- Capacity enhancement
 - Urban emergency response
 - Rural planned surge





Model RN2480

High sensitivity, high power eNodeB



Model RN2402

Low-power eNodeB



Model ES2440

Infrastructure mesh point

- Size and weight reduction programs
- Long-range link closure with high-power UE, tall tower at PSCR
- Distributed Antenna System integration: e.g. Vail municipal system
- Band Class 14 handset integration: Sonim XP7 with applications: ESCHAT and Dragon Force
- Band Class 14 vehicle modem integration: e.g. GD/CalAmp VEH14ALO1

Phish Concert September, 2014



Phish Music Group Concert

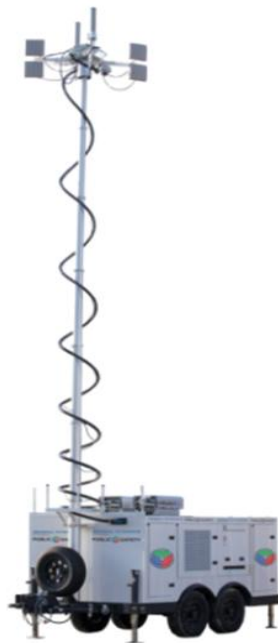


Performance achievement:

Public Safety: 14 – 16 Mbps

Conops achievement:

High-availability dedicated network (video feeds)



Cell on Wheels providing deployable service to Public Safety

Vail, Colorado February, 2015



International Ski Federation 2015 Alpine World Ski Championships



First-Net ready smartphones operating in Public Safety Band

Performance achievement:

Public Safety: 14 – 16 Mbps

Conops achievement:

Range extension; operational utility (video chat)

- **LTE Releases through 3GPP (2016 and beyond)**
- **Post-4G (2020 and beyond)**
- **Machine-to-machine / Internet of things**
- **Wearables**

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