


UTAH COMMUNICATIONS AUTHORITY

UTAH COMMUNICATIONS AUTHORITY

KEEPING PUBLIC SAFETY CONNECTED

2022 UCA Radio Division Update – Philip Krebs - 11/29/2022

1001
0101
1101

Radio Network Division Management

UCA Executive Management

Radio Network Division Director
Phil Krebs

Assistant Radio Division Director
Dan Dialogue

Network Division General Responsibilities:

- Infrastructure Trunk & Backhaul Maintenance
- UCA Field Fleet & Warehouse Operations
- P25 Project Execution & Site Expansion
- 911 PSAP Console Installation, Support & Connectivity

P25 Project Manager
Eric Larson

P25 Project

Resource Coordination Manager
Kierstin Martinez

Dispatch & Technical Staff

Supply Chain Purchasing Manager
Taylor Carroll

Purchasing & Warehouse Staff

Radio Project Manager
Travis Sylvester

Site Planning & Network Core Staff

Radio Network Division Staff

RF Field Technician
Curtis Benjamin

RF Field Technician
Michael Bright

RF Field Technician
Matthew Burch

RF Field Technician
Blake Collins

RF Field Technician
Wayne Diamond

RF Field Technician
JD Drummond

RF Field Technician
Jim Fresh

RF Field Technician
Dakota Jackman

RF Field Technician
Mike Lindquist

RF Field Technician
Trevor Pollock

Site Technician
Scott Stewart

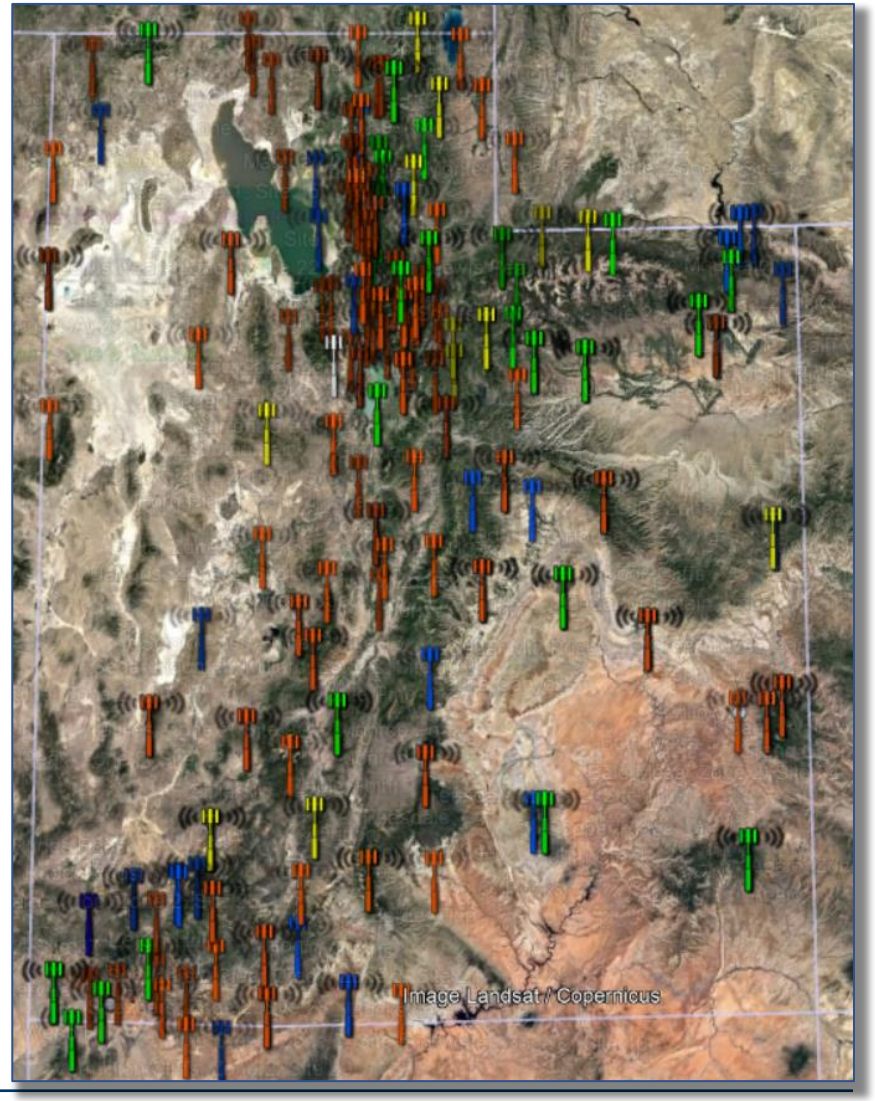
Site Technician
Jeremy White

FCC/ Warehouse
Janna Gunnell

FCC/ RF Field Technician
Tice Guymon

Scope

- 800MHz Trunked Radio -126 Site Locations
  …and now P25 a trunked radio system co-located
- 800MHz Conventional – 38 Site Locations
- VHF Conventional – 63 Site Locations
- 483 Backhaul paths to move communications through the data cores
- Over 9,000 ancillary support devices
- Fleet of 32 vehicles
- 25,000 sqft Warehouse
- In order to keep a very high percentage of “up-time”, UCA technicians respond 24/7/365 to outages or potential outages.



Scope

- 800MHz Trunked Radio -119 Site Locations
  - …and now P25 a trunked radio system co-located
- 800MHz Conventional – 38 Site Locations
- VHF Conventional – 63 Site Locations
- 483 Backhaul paths to move communications through the data cores
- Over 9,000 ancillary support devices
- Fleet of 32 vehicles
- 25,000 sqft Warehouse
- In order to keep a very high percentage of “up-time”, UCA technicians respond 24/7/365 to outages or potential outages.

Scope

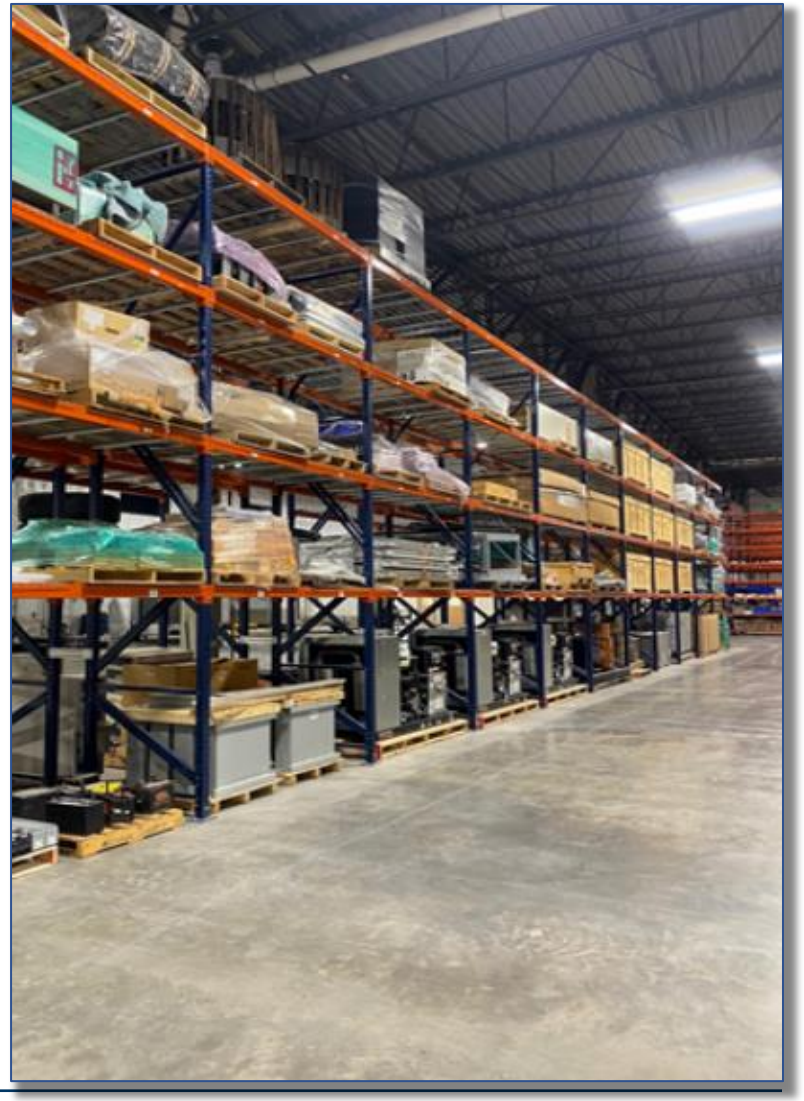
- 800MHz Trunked Radio -119 Site Locations
  - …and now P25 a trunked radio system co-located
- 800MHz Conventional – 38 Site Locations
- VHF Conventional – 63 Site Locations
- 483 Backhaul paths to move communications through the data cores
- Over 9,000 ancillary support devices
- Fleet of 32 vehicles
- 25,000 sqft Warehouse
- In order to keep a very high percentage of “up-time”, UCA technicians respond 24/7/365 to outages or potential outages.

Nelson Peak power problems

Francis Peak, Davis Co.

Scope

- 800MHz Trunked Radio -119 Site Locations
  - …and now P25 a trunked radio system co-located
- 800MHz Conventional – 38 Site Locations
- VHF Conventional – 63 Site Locations
- 483 Backhaul paths to move communications through the data cores
- Over 9,000 ancillary support devices
- Fleet of 32 vehicles
- 25,000 sqft Warehouse
- In order to keep a very high percentage of “up-time”, UCA technicians respond 24/7/365 to outages or potential outages.



Scope

- 800MHz Trunked Radio -119 Site Locations
  - …and now P25 a trunked radio system co-located
- 800MHz Conventional – 38 Site Locations
- VHF Conventional – 63 Site Locations
- 483 Backhaul paths to move communications through the data cores
- Over 9,000 ancillary support devices
- Fleet of 32 vehicles
- 25,000 sqft Warehouse
- In order to keep a very high percentage of “up-time”, UCA technicians respond 24/7/365 to outages or potential outages.

American Fork Canyon outage

Strawberry Peak, Wasatch Co.

Logan Peak line failure

Logan Peak line failure

2022-2023 Radio Division Projects

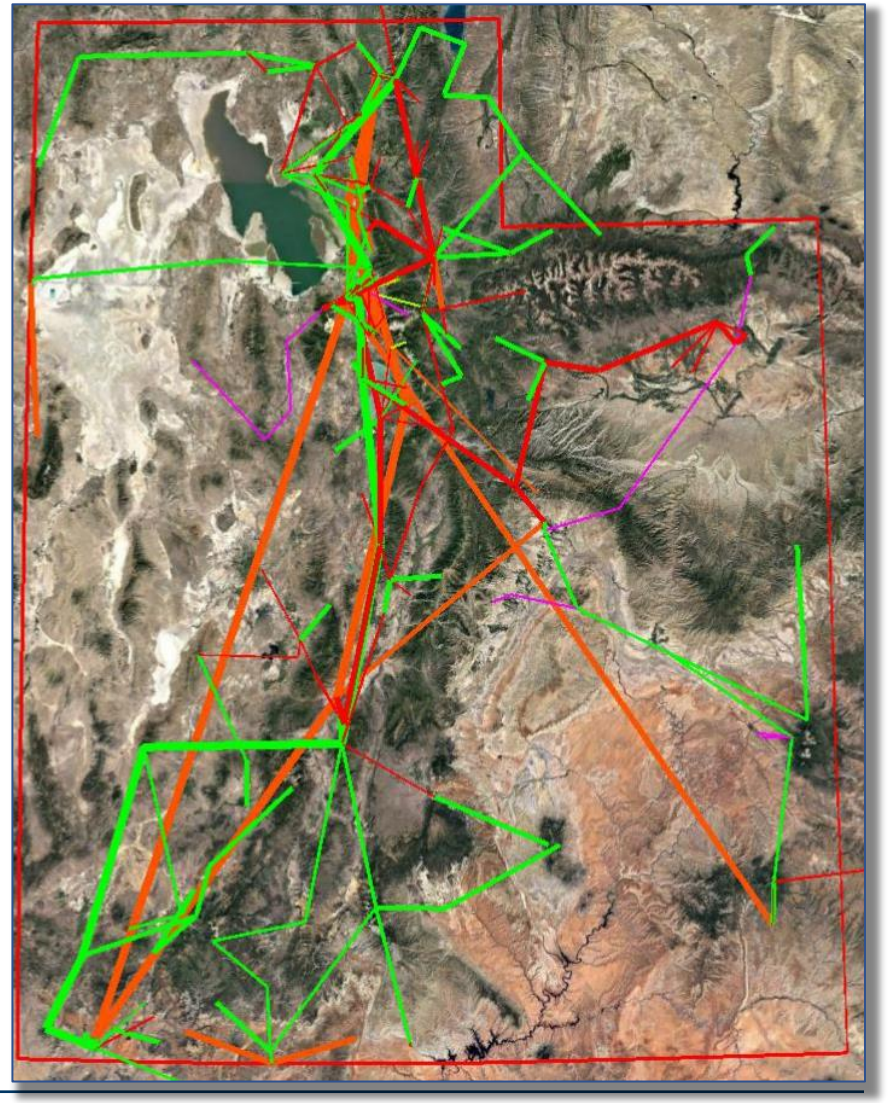
- P25 Intro
- P25 Project – Backhaul Upgrade (Ongoing)
- P25 Project – Statewide IP conversion (Ongoing)
- P25 Project – Existing Site Remediation (Ongoing)
- P25 Project – New/Future Sites (Ongoing)
- P25 Project – Migration (Future)
- P25 L3H specific system capabilities and benefits
- P25 Cutover
- Other Upgrade Projects

P25 Upgrade Project

- L3Harris selected by UCA to provide trunked radio upgrade
  - L3Harris trunked radio system is called the VIDA
- Project will upgrade 126 existing 800Mhz trunked sites to an APCO P25 Phase II compliant system
- P25 equipment from multiple vendors is approved for use.
  - https://www.uca911.org/file/1b1fd246-7115-40fd-b009-8b74024ee829
- Upgrade Project is approximately 2/3 complete
- Benefits
  - P25 brings added system capacity by using TDMA to place 2 simultaneous calls in a 12.5kHz channel
  - Serviceable Hardware/Software
  - Ethernet Based
  - Modern VOLTE and VOIP options

P25 Project – Backhaul Upgrade

- Evaluating legacy backhaul for replacement and optimization
  - Brought 10 new fiber circuits online in 2021-2022
  - 8-12 new fiber circuits pending
  - Upgraded 22 paths of microwave that were not compatible with P25

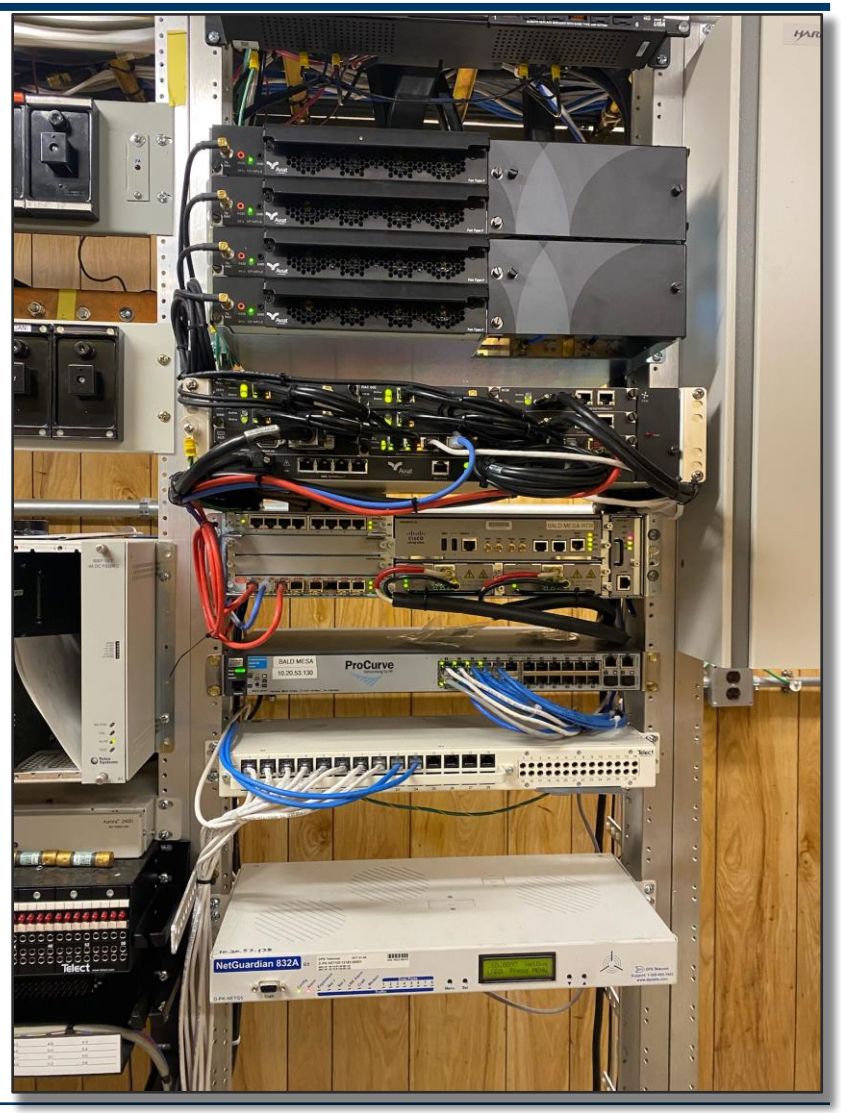


Key

= Fiber Backhaul
= Upgraded MW Backhaul
= Legacy MW Backhaul
= County/Other MW Backhaul

Statewide IP conversion - Ready for P25 transport

- UCA has responsibility to install tunneling network routers at each site ahead of L3Harris
  - Radio techs are becoming network experts!
  - Site routers: 92 out of 126 online
  - PSAP routers: 19 out of 29



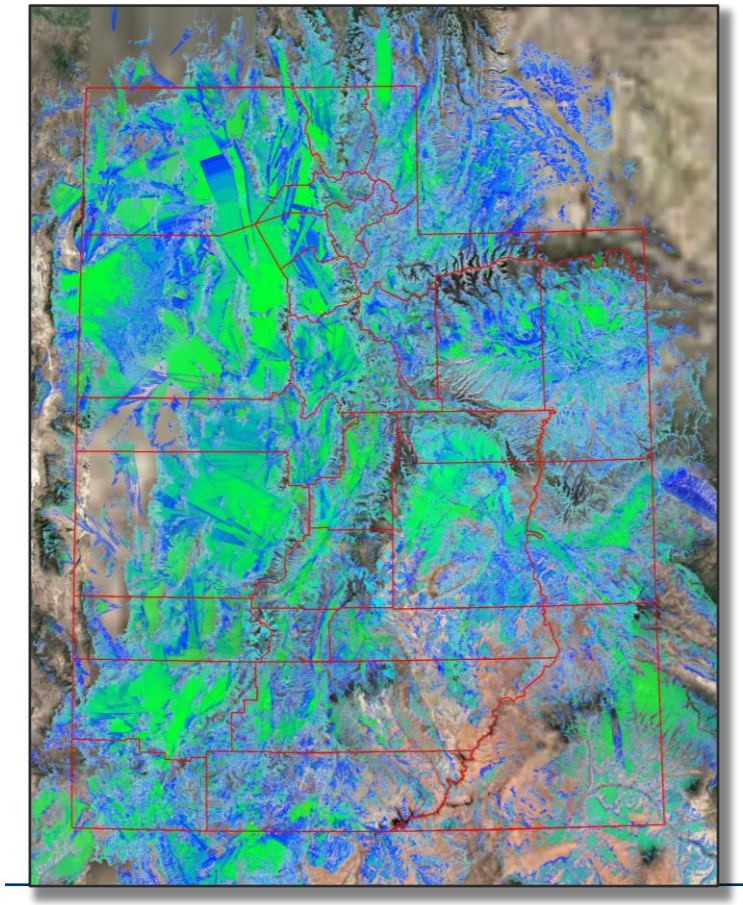
P25 Project – Existing Site Remediation

- Remediation
  - Grounding
  - Tower
  - Civil
- 94% Sites Complete

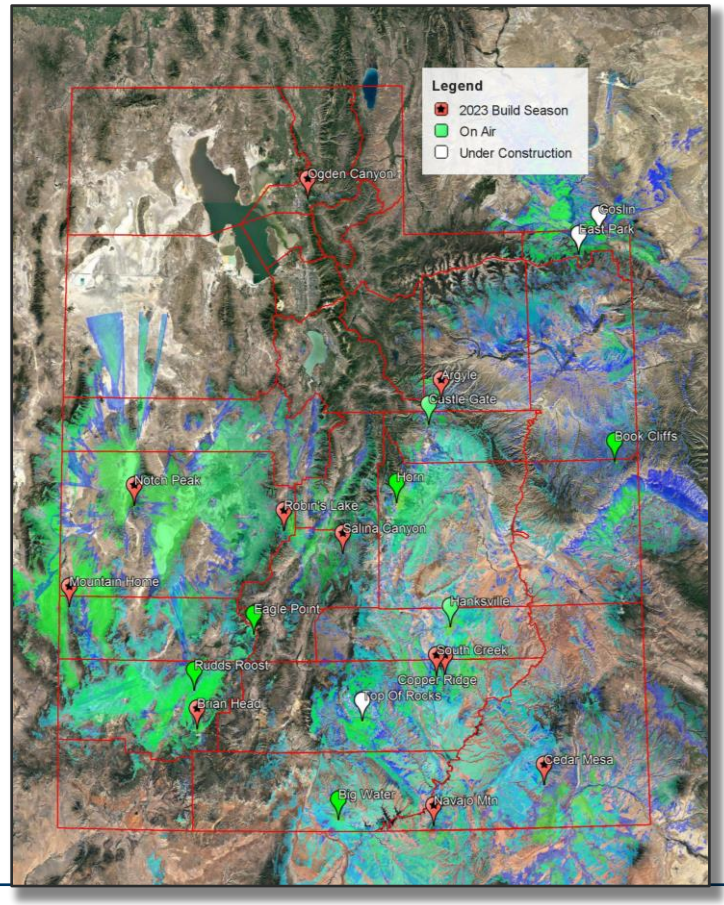
P25 Project – New Sites

- Future Sites - Improved Coverage

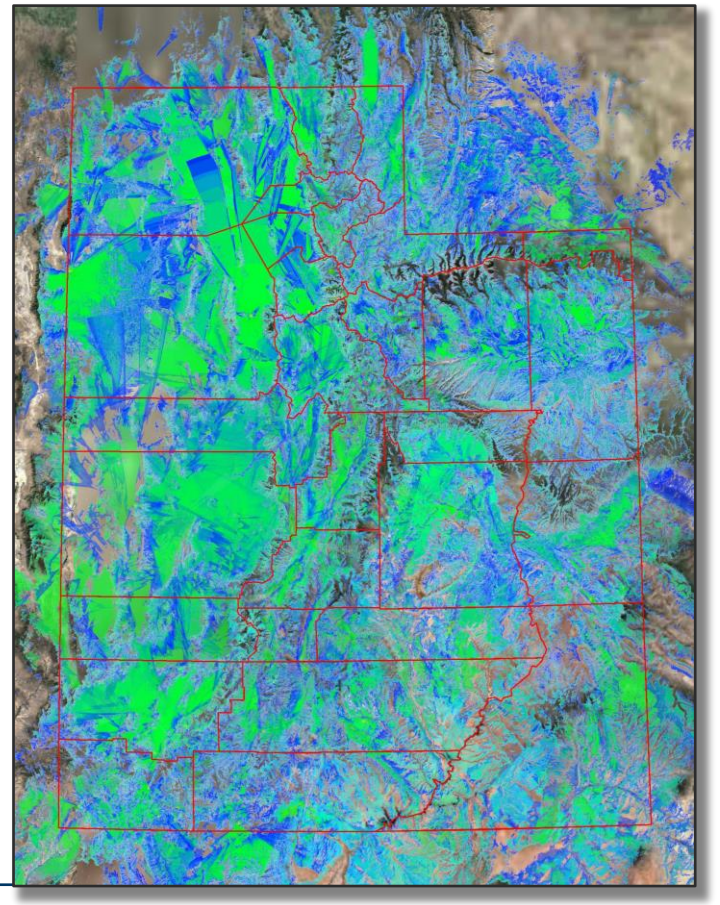
Current:



Added:



Future:



PTT Over Broadband LTE and Wi-Fi

Virtual P25 Radio Application

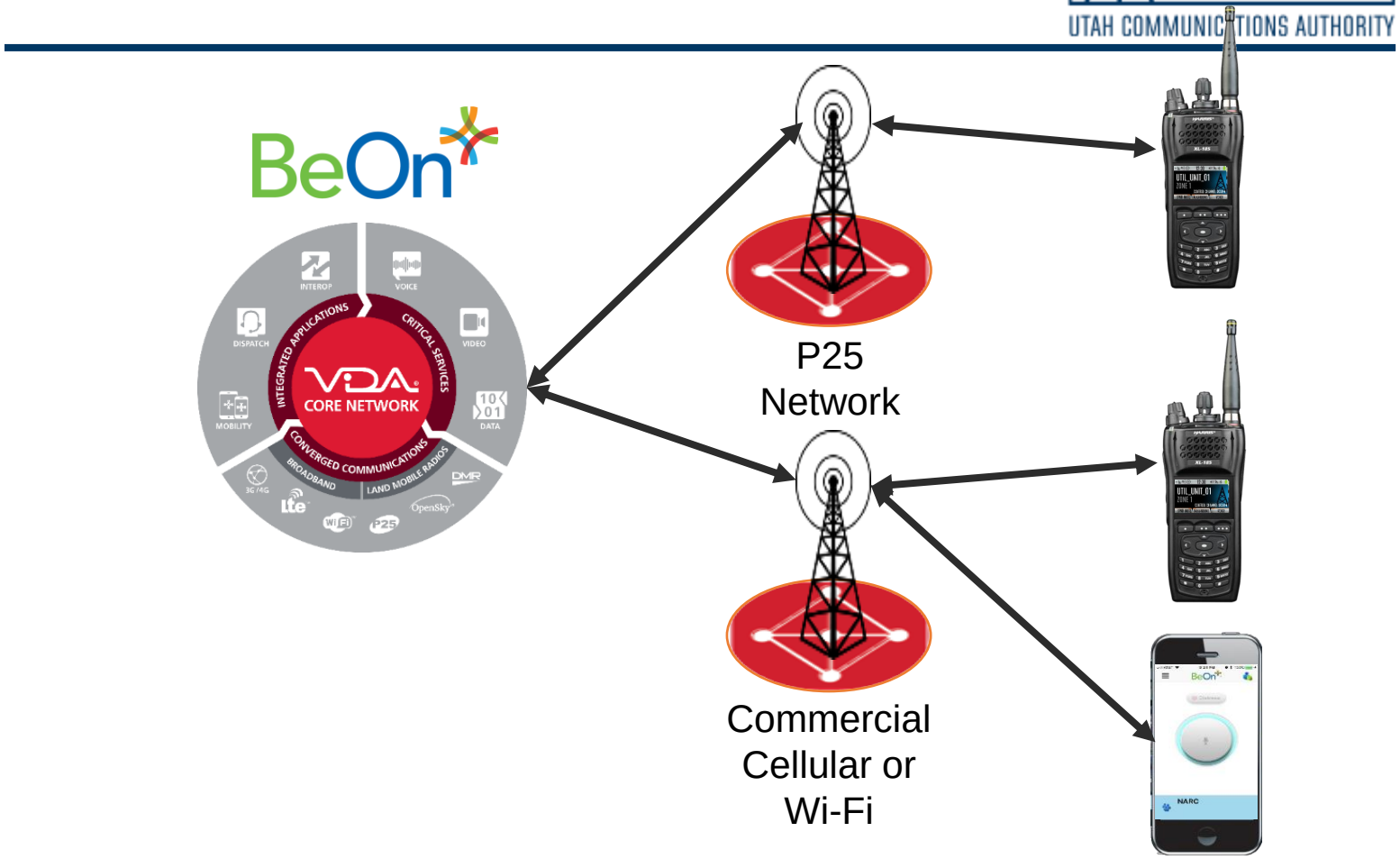
- VoIP based; PTT over LTE & Wi-Fi
- L3H XL platform (Optional Add On)
- Available on Android™, Windows® PC, and iOS™ platforms
- Reduces traffic loading on system
- Supports geographic mapping and utilizes Google® Mapping data

Coverage Enhancement

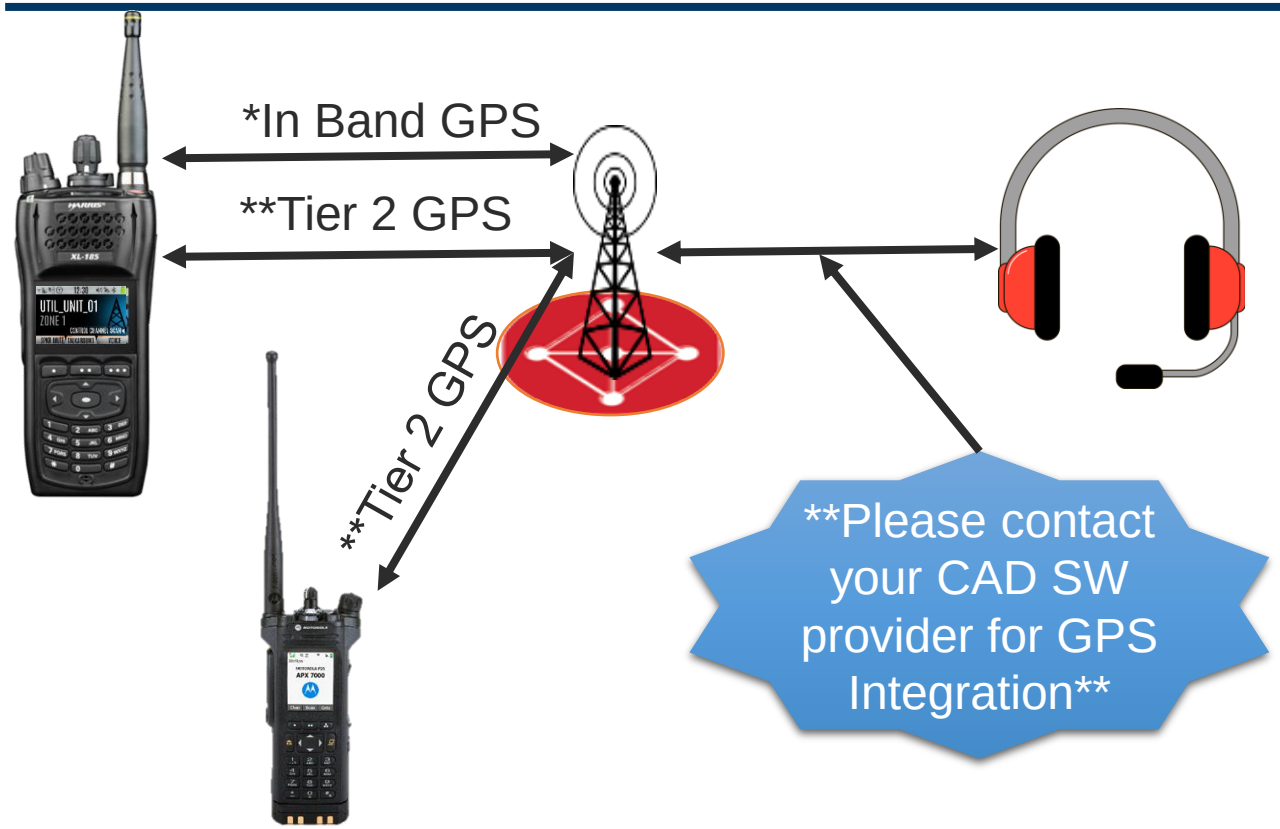
- Extends coverage outside the traditional LMR footprint
- Economical supplemental coverage
  WiFi in place of BDA's
- PTT encrypted comms between smartphones and XL radios

P25 Based Comms

- End to end AES encryption
- Woven into L3Harris system architecture
- IP encapsulated packets
- No reoccurring monthly fees



P25 & GPS Operations



- GPS location is transmitted when radio is keyed
- The dispatcher can see the location of radio units when they are in an active communication with the user
- The L3H Symphony Console offers a feature to show the LAT/LONG of emergency declaring units (In Band GPS Only)
- Typical Horizontal (2D) Accuracy is 2m
- GPS does not work indoors

*In Band GPS is L3Harris-Only and is only supported with XL Radios
**Tier 2 GPS is supported with P25 radios OOB

P25 Project – Cut Over

- Late Q4 2023 – Q1-2024
  - Every Radio in the state will need to be re-programmed
    - Coordinate with programming@uca911.org
    - Reprogramming is projected to take several months.
    - Agencies will be given a specific date and time for programming and will report to a specific location in their respective counties.
    - The P25 system will support Phase I radios to start but new radios purchased will be required to be Phase II
    - Agencies with APX Phase I only radios should contact their Motorola representative to purchase a software upgrade.
    - Radio upgrade funding – Please see emails from Quin Stephens and Tina Mathieu
    - The existing 800MHz system will remain operational during the programming process.
    - Gateways at the PSAPs will temporarily interconnect the 800MHz and P25 systems during the migration process.

Other 2022-2023 Upgrade Projects

- Statewide Alarm System Upgrade - Notify Technicians
  - Combines environmental alarms and site equipment status all in one view
  - Technicians can easily see the statewide status immediately
- Notification for System Outages – Notify Public Safety Stakeholders
  - We are requesting that each PSAP have a **single** email point of contact
  - If you are an Agency or Public Safety entity, contact your PSAP to be relayed notifications
    - Scheduled Outages
    - Emergency Outages
    - Outage Updates
    - Resolution
  - Automation of messaging (Future)

Questions