



Commonwealth of Virginia STARS Network and Case Study

What is STARS?

- The Statewide Agencies Radio System (STARS) is a statewide Project 25 **digital** trunked land mobile radio system that provides statewide voice and mobile data radio coverage for 21 participating state-level public safety and public service agencies
- STARS mobile radios operate in the VHF high-band frequency spectrum between 150 to 160 MHz while the portable radios operate in the 700/800 MHz band
- Network is operated and maintained by the Virginia State Police Communications Division

STARS

Participating Agencies

Alcoholic Beverage Control

Capitol Police

Chesapeake Bay Bridge
Tunnel Police

Conservation and Recreation

Corrections

Emergency Management

Environmental Quality

Fire Programs

Forestry

Game and Inland Fisheries

Health

Juvenile Justice

Military Affairs

Mines, Minerals, and Energy

Motor Vehicles

State Police

Transportation

Virginia Information Technologies Agency

Virginia Marine Resources Commission

Virginia Port Authority

Governance

- STARS Management Group
- User Agency Requirements Committee (UARC)
- Virginia State Police (VSP) Communications Division

Virginia State Police (VSP) Communications Division

- Under the command of the Communications Officer, the VSP Communications Division designs, installs, operates, and maintains the STARS Backbone Network, STARS vehicles, and dispatch centers in compliance with requirements of the Federal Communications Commission (FCC), the Federal Aviation Administration (FAA) and the Environmental Protection Agency (EPA)

What Capabilities Does STARS Provide Users?

- Statewide mobile radio coverage
- Portable radio coverage through use of a Digital Vehicle Repeater System (DVRS)
- Statewide mobile data for users
- Commercial broadband data
- Automatic Vehicle Location (AVL) system
- Dispatch consoles for agencies to communicate with their mobile users
- Interoperability with state, local, and federal agencies

System Overview

- The system is operated from the Network Operations Center at State Police Headquarters (SPHQ) in Richmond
- Infrastructure consists of two zones
 - SPHQ in Richmond
 - Division 6 Dispatch in Salem
- Microwave radio network linking all sites
- STARS Provides 97 Percent Coverage (Based on Population)

System Overview

- The backbone network consists of:
 - 67 LMR repeater sites
 - 17 microwave-only repeater sites
 - A number of area offices served via microwave radio
 - Eight in-tunnel amplifier systems
 - 20 dispatch centers
- The user community consists of :
 - Over 3,200 Digital Vehicular Repeaters (DVR's)
 - Over 10,500 mobile and portable radios
 - Over 3,000 mobile data terminals

Backbone Design

- The STARS backbone is designed to public safety reliability standards consisting of:
 - SONET ring architecture consisting of UPSR add-drop multiplexers
 - Generator backup power at all backbone sites
 - UPS and/or -48VDC battery backup

COMLINC

- The Commonwealth's Link to Interoperable Communications (COMLINC) is a statewide network of 172 radio gateways and computer networks that provide communications between disparate radios systems operated by state, local, and federal agencies.
- The COMLINC Network provides Interoperability for planned events to include: Inaugurations, Motorcades, NASCAR Races, Large Events, Etc.

COMLINC Best Practice

- Presidential Visit to Charlottesville (February 2014)
 - Presidential motorcade through County of Albemarle and City of Charlottesville
 - VSP units patched to regional 800 MHz law enforcement system for motorcade and traffic operations
 - Successful direct communication between state and local law enforcement

Challenges during STARS Implementation

- Build-Out Process to include all local, state and federal approvals to construct a site.
- Locating real-estate for tower locations
- Identifying usable radio frequencies
- Implementation Schedule impacted by weather

Questions and Discussion

Law Enforcement Case Studies

Case Studies

- F-15 Fighter Jet Crash, Augusta County (8-27-14)
 - Approximately 30 Agencies involved and approximately 150 searchers
 - Virginia Army National Guard Aircrafts were able to communicate during the search efforts with the Virginia Department of Military Affairs, Virginia Emergency Operations Center and other State Agencies on scene through the STARS Network
 - There was no Internet or Cell coverage and Satellite Phones had to be utilized

Case Studies

- Due to the rural landscape, Internet coverage is lacking and having a Public Safety Broadband Network is vital for interoperability and the ability to disseminate information and intelligence in a timely matter and on a dependable Network.

Case Studies

- 2015 Lockn' Music Festival
 - Event scheduled from September 10-14
 - Internet Service provided for the Command Post
 - Traffic Cameras and coordination with Promotor
 - Due to extreme storms on Sep. 9th, gates closed for entry
 - Gates opened on Sep. 10th and the delayed opening caused massive traffic congestion
 - Due to Traffic Congestion, the amount of internet traffic in the area by attendees had severe ramifications

Case Studies

- The Command Post lost Internet Connectivity
- An emergency purchase through a local broadband Vendor was set-up to provide connectivity
- The STARS Network was able to provide Interoperability during the event, however, the need for a Public Safety Grade Broadband Network was identified.