Overview

• First Responder Needs
• First Responder Tools
  • Vortex
  • WatchTower
  • PinPoint / PiPoint
  • Ops Dashboard
• Impact
First Responder Needs

• Better information sharing across agencies and jurisdictions
  • Time shouldn't be wasted during an event figuring out how to share information
  • Log in, start sharing, no setup

• Better awareness of where personnel and assets are located
  • How far away are personnel (from across jurisdictions / agencies)
  • Where are the assets / vehicles

• Ability to quickly create reports
  • Known location
First Responder Tools Overview

• Message Router (Vortex)
  • Ability to route information to multiple destinations
  • Read information from multiple sources (including legacy systems)

• Mobile Application (WatchTower)
  • Send Position Reports
  • View Data from the Message Router

• Vehicle Application (PinPoint / PiPoint)
  • Sends Position reports via GPS (laptop or Pi)

• Dashboard Application (Ops Dashboard)
  • View information from the Message Router using COT dashboard (ESRI)
Vortex (Message Router)

- Open cloud-based messaging platform
  - Multi-tenant
  - Secure
  - Highly-Available
  - Fault-Tolerant
- Designed to be ‘transparent’ to end-user – just get better data / tools
- The Vortex Router provides a message routing platform that utilizes NIEM EMLC & EDXL that enables sharing and viewing of information without the restrictions of proprietary applications or interfaces
- NIEM EMLC & EDXL are data standard specifications that allow for data to be delivered and understood across organizations
- NIEM EMLC & EDXL support resource management throughout the Mutual Aid timeline by providing first responders with the information they require when they require it
- Swagger based API documentation available for 3rd party integration
SYSTEM OVERVIEW

Source Database

Poller with Vortex Plugin Service and Plugin Library

Poller reads from source database

Data is structured into DE message by Vortex Plugin Library

Vortex Router with Vortex API, Database, Federation Service and GeoServer

DE messages is sent through Vortex router

Destination System

Message is sent to destination systems

Vortex Database

Message is stored in Database

Pull Request

WatchTower

Push Request

Ops Dashboard
What does it do?

• Share information using open standards:
  • OASIS EDXL
  • NIEM EMLC
  • OGC WMS / WFS / STAPI

• Visualize data:
  • ESRI ArcGIS Enterprise
  • GeoServer

• Collaborate in real-time:
  • Cross-Platform Map Markup
  • Analytics / Alarms / Alerting

• **Not a silo for your data, scale to support needs, integrate with your existing tools & technologies**
WatchTower (Mobile Application)

• Mobile application for both iOS and Android
• Automatically sends Position Reports
• View data from Vortex on a Map
• Connect to Sensors via Bluetooth
  • Sensor information sent to Vortex
  • Physio Sensors connected to First Responder
Tech Deep Dive

- Built using Xamarin
  - Visual Studio Framework to create mobile apps for iOS and Android using C#
- Native application UI / Frameworks helps users understand tool quickly, helps drive use
- Access C# libraries for Emergency Management Standards
Screenshots / Demo
PinPoint / PiPoint (Vehicle Application)

- **PinPoint**
  - Works with in-car laptop
  - Requires GPS unit to be attached
  - Sends position reports automatically to Vortex

- **PiPoint**
  - Runs on a Rasberry Pi, no laptop required, do need GPS
  - Install on vehicles that normally don’t track position
    - ATV
    - Seqway
    - bicycle
Screenshots / Demo

**Waiting for GPS**
- Enable
- Disable

**Reporting Disabled**
- Enable
- Disable

**Reporting Enabled**
- Enable
- Disable

**PinPoint Settings**
- Unit Id: PINPOINT.TEST
- Unit Type: Fire Truck
- Reporting Rate (seconds): 3

**GPS Details**
- GPS Name: COM7
- GPS Fix: No Fix

**In/Out**
- GPS Message Received: 0000
- Position Messages Sent: 0000

**GPS Message Received**
- 433
- Position Messages Sent: 0000

**GPS Message Received**
- 17
- Position Messages Sent: 2
Ops Dashboard (Dashboard Application)

• Built on ESRI Operations Dashboard for ArcGIS
• Displays Vortex information geographically on ArcGIS map
• Click to view more information about messages
Screenshots / Demo
Impact to Disaster

• Information is shared across agencies and jurisdictions
  • Reduce time taken configuring applications and devices
  • Information is sent to the right destinations
• Improved Situational Awareness for First Responders
  • Visual understanding of where incidents are occurring
  • Understanding of where personnel and assets are located
    • Updated in real time
• Information is secure and available in the cloud
  • Reduce risk of using own hardware / systems during disaster
Takeaways

• Focus on Open Data Standards
  • Don’t hide data behind walls
  • Users want access to data, it should be transparent to them

• Improve Situational Awareness to let users better plan and execute during an event
  • Know where personnel and assets are exactly (stop estimating)
  • Give people access to the data they need, reduce setup time

• Use tools that improve functionality while decreasing risk
  • Scalability and Uptime associated with cloud computing
  • Data is secure and encrypted
Future Plans

• Vortex
  • Open Source Dashboard
  • Chat
  • Analytic Dashboard

• WatchTower
  • Ability to create Situational Reports
  • Ability to attach photos / video to reports
  • Zero Configuration
Questions?