



Geospatial 9-1-1 Call Routing in Michigan

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Agenda

- Location accuracy trends
- Testing geospatial routing in Michigan
- Supporting it with GIS

The location accuracy challenge

Wireless location accuracy, and call routing, isn't good enough.



Addressing the challenge federally

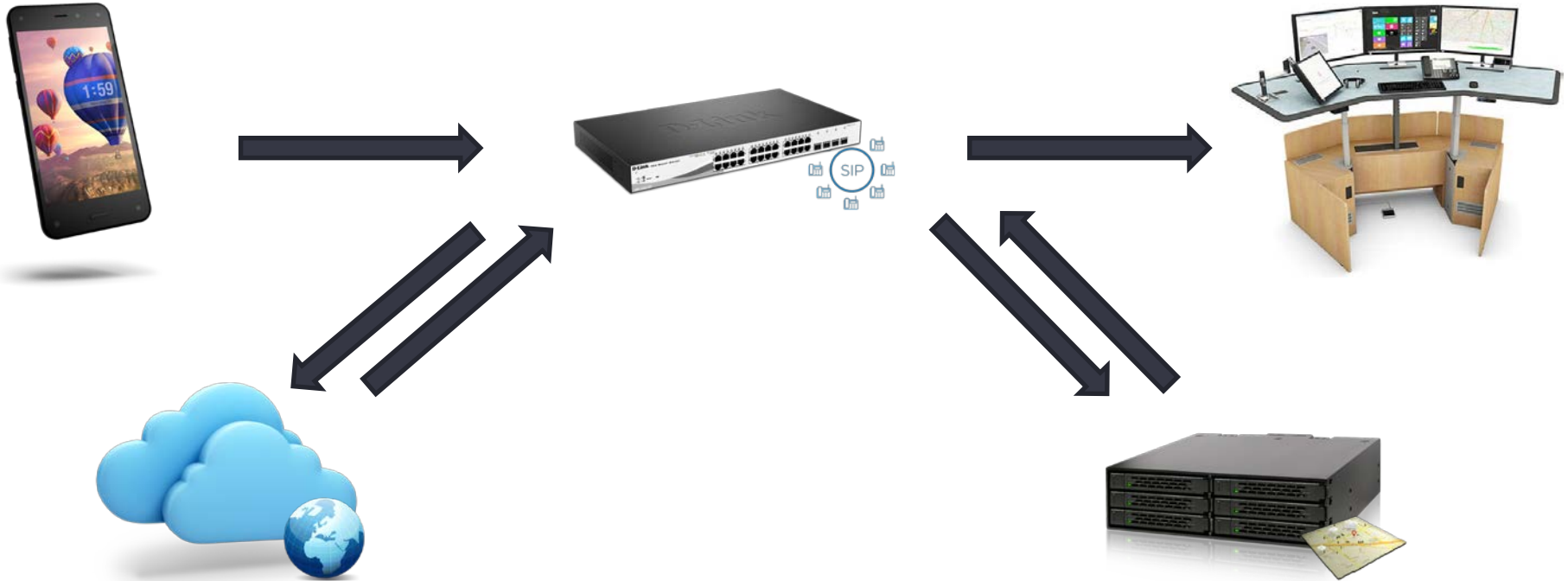
- FCC has taken the lead
 - Issuing the 4th Report and Order
 - Location-based routing findings within Communications Security, Reliability and Interoperability Council (CSRIC)
 - Notice of Inquiry (NOI) on location-based routing

Addressing the challenge at INdigital

Let's start routing calls geospatially.

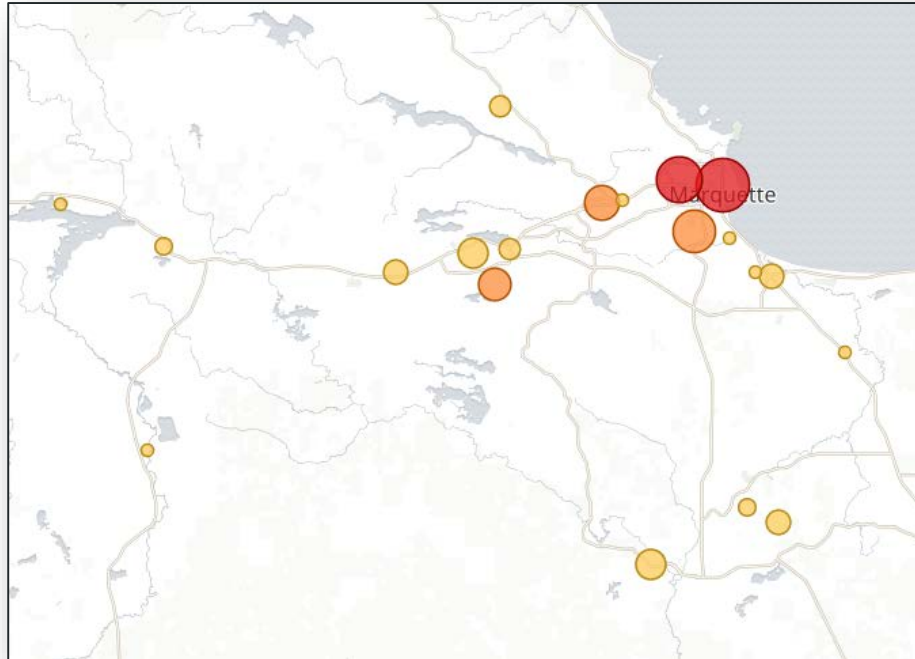
- We have conducted testing in Marquette County since March 2018 – the longest trial nearly 48 hours
- We gather location information during a single ring cycle
- If we don't get location information we tabular route
- We used Next Generation 9-1-1 NENA i3 standards in making call routing decisions

How it works



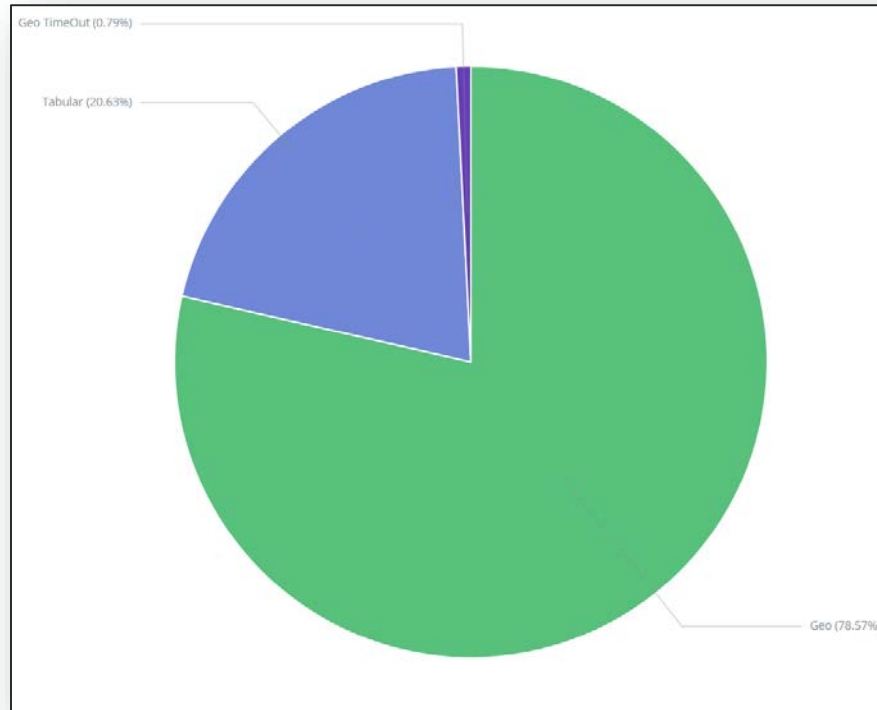
Our findings

131 9-1-1 calls from March 28th through March 30th.



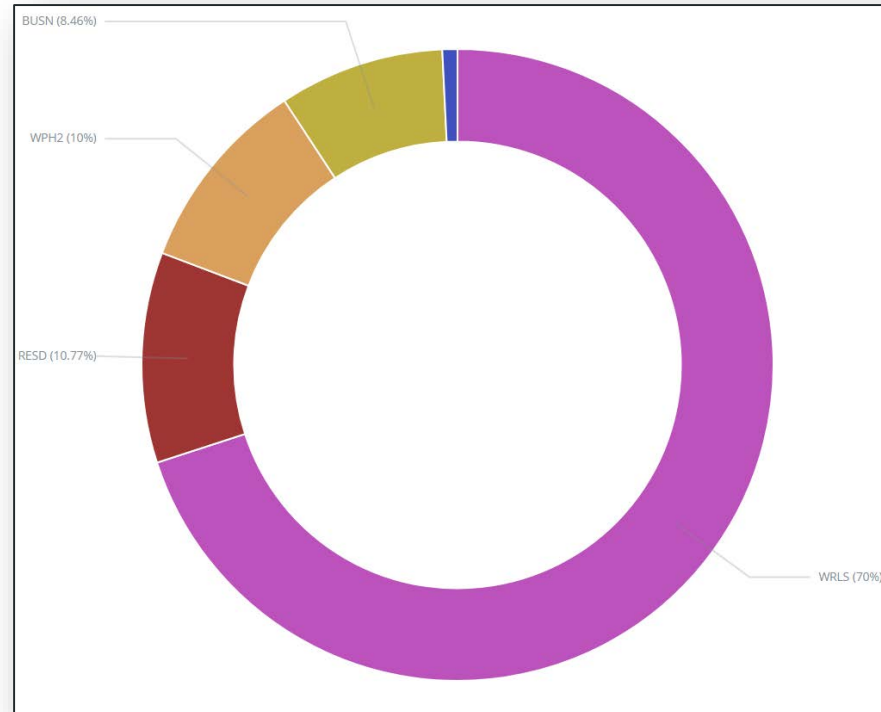
Our findings

79% of total calls were wireless. 99% of those calls were geospatially routed.



Our findings

Of the 104 wireless calls, 10% were Wireless Phase 2.



Our findings

Call setup times, call routing breakdowns, and wireless location accuracy.

	Count	Min time	Max time	Avg Time	Phase 1	Phase 2	Avg Phase 2 Uncertainty
Geospatial Route	103	682ms	4.883s	4.047s	88.4%	11.6%	27.22m*
Tabular Route	27	24ms	53ms	33ms	-	-	-
Geospatial Timeout with Tabular Fallback	1	20.695s	20.695s	20.695s	-	-	-

Next steps

- Extend the Marquette test for a longer period of time
- Have a larger regional test
- Test a high density, multiple jurisdiction county
- Compare location accuracy of the network vs device-enhanced location
- Evaluate GIS operational policies and data accuracy
- Deploy geospatial routing across the Peninsula Fiber Network (PFN)

9-1-1 GIS Repository

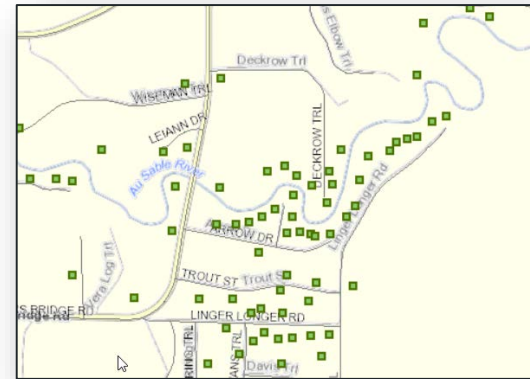
- Created a central 9-1-1 GIS Repository
 - Enabling PSAPs to share GIS information
 - Establishing MOAs
 - Setting standards for GIS data exchange
 - Framework for NG9-1-1 call routing
- Statewide Public Safety Answering Point (PSAP) Boundary Layer
- Statewide Road Centerline Layer
- Address Points and Emergency Service Zone layer schemas

Functionality of System

- Import GIS data into repository
 - Field mapping to repository standard
 - QA/QC tools to validate data and downloadable report
- Export tool
 - Export data back out to your data schema
 - Export other PSAPs data (need export permission from PSAP)
- Data Viewer
 - PSAPs can use viewer as a mapping tool
 - Search, measure, aerial imagery, topographic images
- Backup of data and securely accessible outside of PSAP

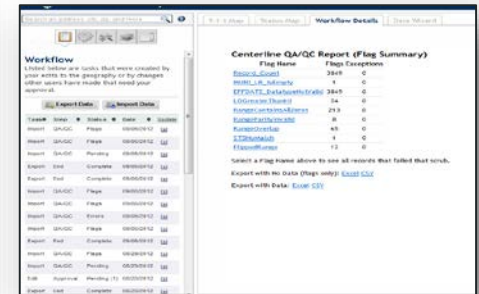
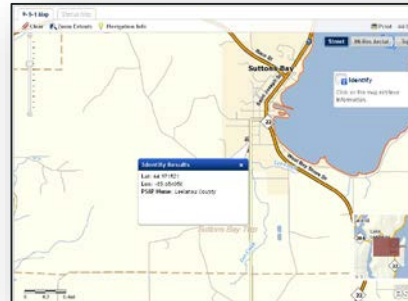
Next Steps

- Continued Data Maintenance/Updates
 - Importance of maintaining GIS data regularly for call routing
 - Quality control processes as checks and balances
- Address Points
 - 23 counties have uploaded address pts.
 - More accurate location for validation and determining call routing
 - More specific location for call taking and dispatch
 - NENA site/structure recommendations
- Fire, Police, EMS boundaries



Next Steps

- Develop scheduled export of data for ECRF providers
- Review data standards with latest GIS Data Model
- Include additional quality control checks based on new standards
- Streamline data upload process to detect changed features



Flag Name	Flags	Exceptions
BLIND_CURVE	3448	0
BLIND_CURVE_ANGLE	2443	0
DTM_HEIGHT_EXCEEDED	24	0
LOG_CURVE_LENGTH	279	0
BLIND_CURVE_RADIUS	4	0
RANGE_OVERLAP	45	0
DTM_HEIGHT	5	0
FLYOVER_ERROR	13	0

Select a Flag Name above to see all records that failed that check.
Export with no data (Flags only): [Export CSV](#)
Export with Data: [Export CSV](#)

Q & A

Open Discussion



Thank You!

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