Slide 1

Smart Solutions
for a Weather-Ready Nation.

A Weather-Ready Nation Decision Support Tool
for Protecting Vulnerable Communities

James Frenzer (SAIC)

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Slide 2

Prototype Components

A. Data Inputs
- U.S. Census data to locate elderly on a 1 km grid
- METAR data from NCDC to provide wind and temperatures
- Radar data from NCDC for ice accumulation information
- Tweets to confirm power outage locations

B. Technologies
- Amazon Web Services for a variety of low-cost, on-demand servers
- Amazon Kinesis for real-time processing of streaming data from numerous sources
- Postgres/PostGIS for storing and displaying gridded information

C. Benefits
- Build apps very quickly (less than 4 weeks) in a very powerful development environment
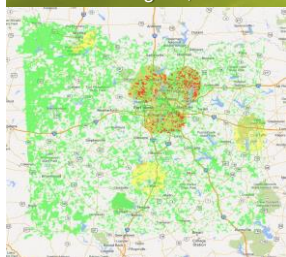- Handle Velocity, Variety, and Volume
- Scalable

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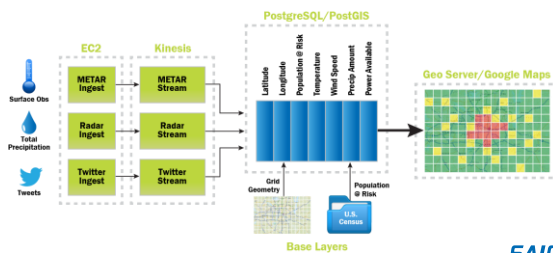## Pervasive High Winds, Low Temps, Accumulating Ice, and Power Outages

COLOR KEY

- Elderly Present
- Elderly Present + Power Could Be Out
- Elderly Present + Power Likely Out
- Power Outages Confirmed

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Impact Based Decision Support System – Architecture

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Candidate Enhancements/Next Steps

- Add weather forecasts to facilitate pre-event planning
- Incorporate detailed outage data from utilities
- Include other data sources to further refine locations for "people at risk" (e.g. nursing home patients, people with disabilities, etc.)
- Develop advanced tweet analysis algorithms, including location information
- Incorporate other social media streams (Tumblr, Facebook, Instagram, etc.)
- Incorporate algorithms and visualizations for additional severe weather events (e.g. floods, icing, fires, and snowfall)
- Develop a mobile app for first responders
- Release as an open source project

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Thank You

James B. Frenzer, Program Manager
Tel: 757.269.9210| Email: james.b.frenzer@saic.com

Troy Anselmo, Senior Solution Architect
Tel: 757.269.9209| Email: troy.m.anselmo@saic.com

Visit us at saic.com

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