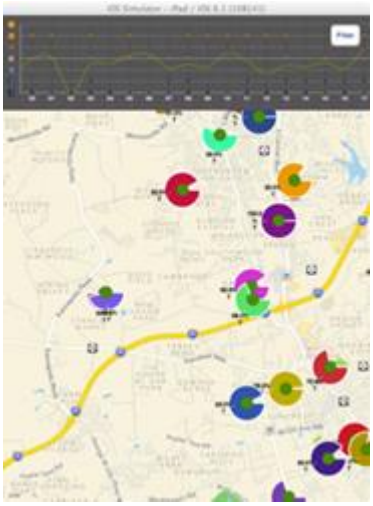
Stratifyd
Case Study

Stratifyd for Utilities



Stratifyd technology used to assess infrastructure resiliency during disasters through simulation and visual analysis.

Executive Summary

Stratifyd Signals™ was used by a large energy in the U.S. Its Regulated Utilities business unit serves over 7 million retail electric customers in six states, representing a population of approximately 24 million people. The utility company is a Fortune 500 company traded on the New York Stock Exchange. 2015 Operating Revenues exceeded $20B.

Challenges for the Utility

Predict the unforeseeable.

This is a challenge for large utility companies that need Visual Analytics for Security Applications (VASA). The challenge was creation of a tool that effectively analyzes emergency situations caused by severe weather conditions and natural disasters. The system must present historical and simulated events where users can instantly consider various scenarios, alternative, operational and simulation attributes. Based on these decisions and parameters, new simulations may be run to explore the effects on multiple critical infrastructures, and the effectiveness of contingency plans and mitigation strategies.

Predictive analytics was needed to create the critical infrastructure simulation and analysis system. Response is situational because it will depend on the properties of the particular coupled infrastructure and will depend on the type of occurrence that brings stress to the critical

stratifyd
Data to Revenue

infrastructure (e.g., heat wave, hurricane, breakdown of an oil pipeline, earthquake, etc.).

Stratifyd technology was used to generate simulations based on 14 (8 historical and 6 hypothesized) hurricane paths.

Our system supports emergency planning and operations with an integrated analytical process that emphasizes Resiliency Index (*RI*) through integrated modeling and simulating of multiple infrastructures.

How Signals Helps

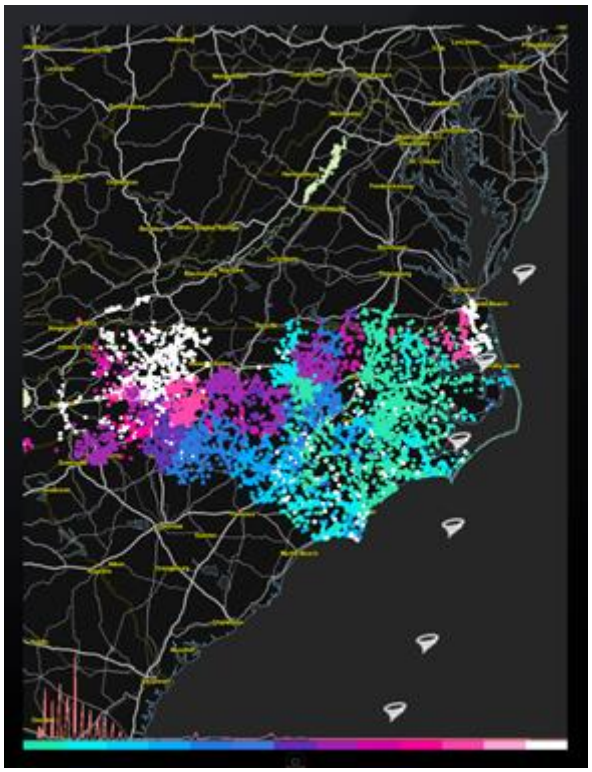
- Responders can directly zoom into a specific location within a time-range to perform detailed analysis.
- A Resiliency Index is attached to individual commodities, and visually breakdown to its causes.

Results

Stratifyd provides these specific results:
We developed event-based algorithms that aggregate and transform the simulation data into geospatial-temporal visualizations to enable the users to detect patterns and build new models effectively using their background knowledge and experience.

A mobile application was developed as an analysis portal to understand the progression of impacts on critical infrastructures.

Using the mobile device, emergency responders or planners can gain an overview of critical threat situations and recovery possibilities that are derived from the simulation results.



Above:

- Overview of impacts on critical infrastructure based on 14 hurricane simulations.
- The timeline in the bottom of the chart above indicates the significant impacts on infrastructure typically happens towards the early stages of these hurricane simulations.
- Color is encoded to different hurricane stages.

Emergency responders can zoom into a specific location within a time-range to perform detailed analysis.