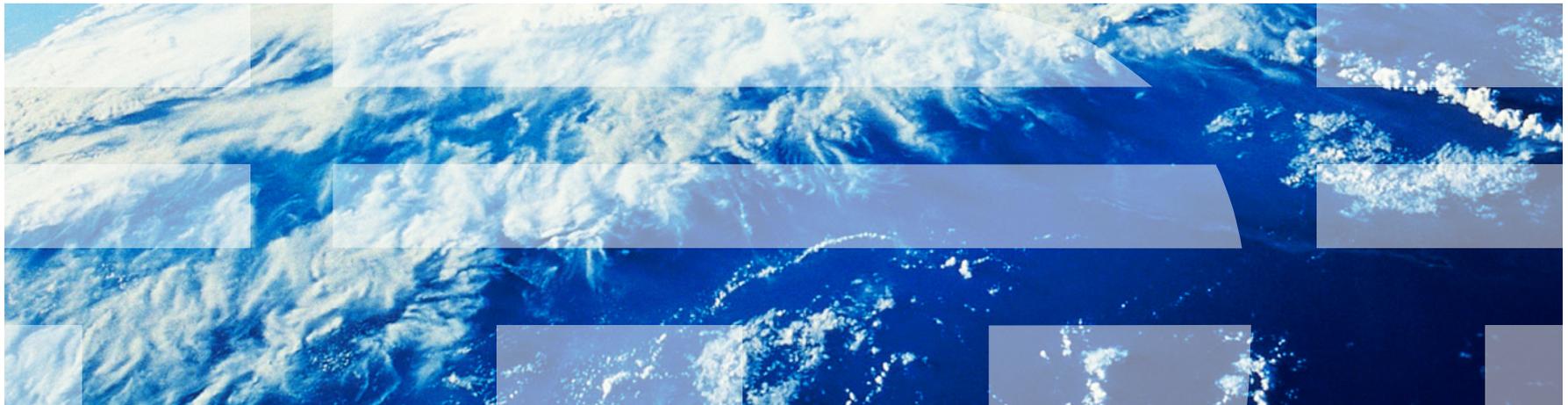


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# TSCOPE: Real-time Mobile Data Collection Technology Using Spatiotemporal Data Casting

Kang-Won Lee, Starsky Wong  
*IBM Watson Research Center*



## Natural disaster like Sandy disrupts the communication infrastructure in a major way

- With power outage, also gone are
  - Wireless at home
  - TV
  - Radio
  
- People used
  - Cell phones
  - Car stereos
  - Hot spots
  
- To connect with rest of the world
  - Voice calls
  - Web access (facebook!)
  - News



*\*Individual experience may vary*

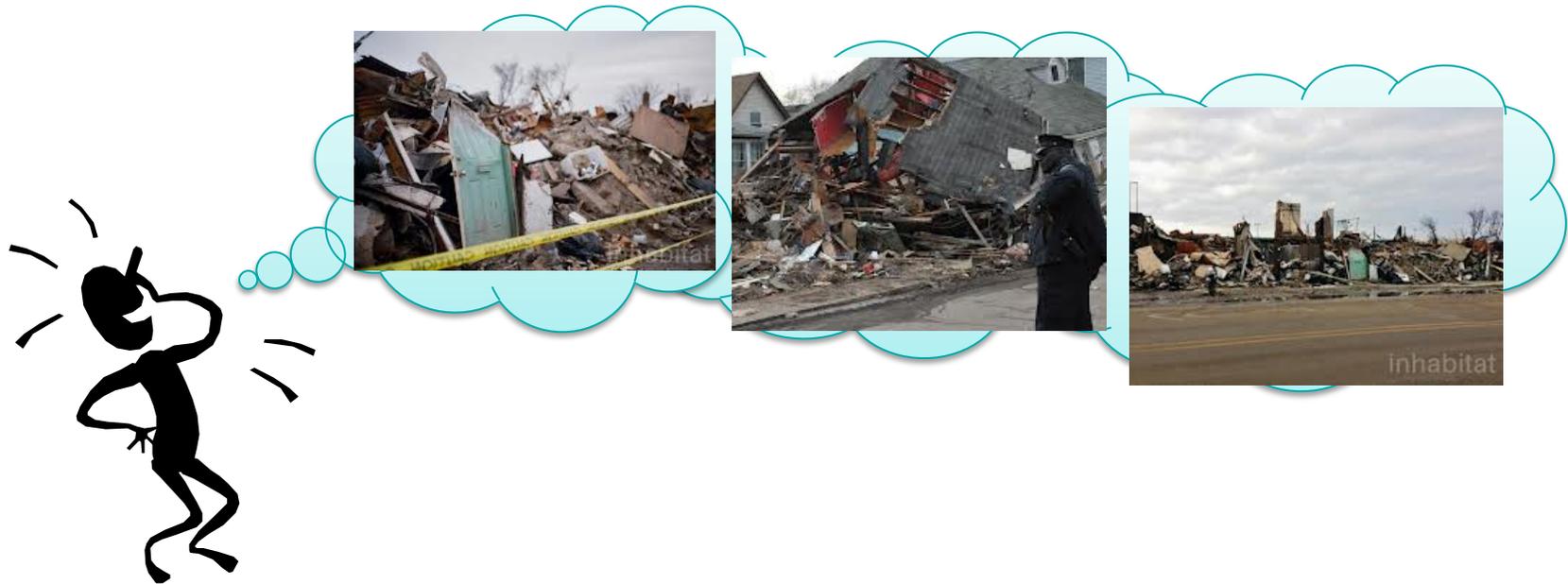
However, it is difficult to gain *situation awareness*

- ***Situation Awareness (SA)***
  - Knowing what is going on so you can figure out what to do (Adam, 1983)
  
- General public
  - News is too generic
  - Voice call is for close family and friends
  - Websites are not up to date
  
- Same for government, city, aid workers
  - Lack of useful source of information
  
- How can we know the current situation of *a specific area of interest?*



## Consider a scenario...

- Government agency is trying to assess the flooding situation in a certain area
  - By collecting data & evidence, e.g., text messages, pictures from people in the affected area
- Ideally, the agency should be able to send a query to mobile phones owned by the people in the affected area
  - *Without* knowing who they are and where they are



## TSCOPE is ...

- A real-time mobile data collection service that allows
- Sending *location-oriented* queries to users to get SA data
- *Without requiring knowledge* of the contact information of the recipients and their whereabouts



- TSCOPE leverages the power of crowdsourcing to create a *real-time Google street view*

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## Basic requirements

- Location-based data cast
  - The service should support sending queries to mobile devices based on location - in a particular region (Garment district), near point of interest (near Rockefeller Center).
  - We may need policy based management to control so that data cast reaches certain devices
  
- User friendliness
  - It is important to help users to use the service using human friendly names instead of geocodes (e.g., situation near Union Station, City Hall)
  
- Storage of past queries
  - One obvious function to support is to store previous search results and create index so that they can be used to answer future queries of similar nature
  
- Temporal aspects in spatiotemporal
  - It will be useful to support queries for specific time duration in the past.