Mobile Social Search

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An Elephant and Six Blind Men

An Elephant is NOT

- Wall
- Rope
- Snake
- Spear
- Tree
- Fan

An Elephant is …
an Elephant

Mobile Social Search (MSS)

is NOT Mobile
is NOT Social
is NOT Search

Is Mobile Social Search

Changing Times in *Search*

Mobile Social Search: ***Search 'inside'*** **problem solving in real time.**

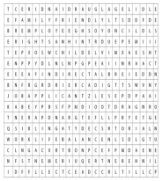
MSS: A Problem of Riches

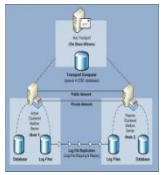
When we were (data) poor – we searched.

Now that we are (data) rich – we need mobile social search.

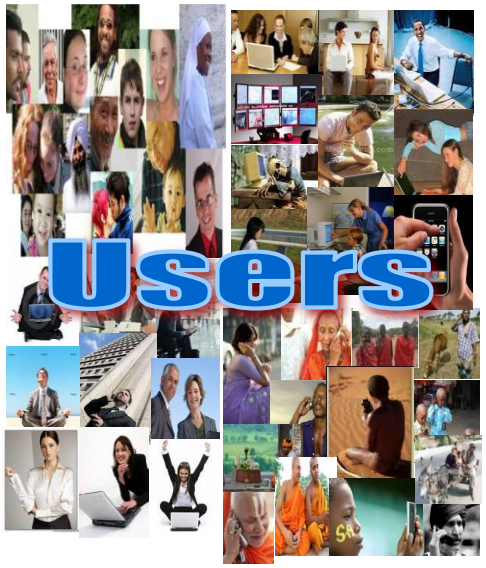
Search

Data



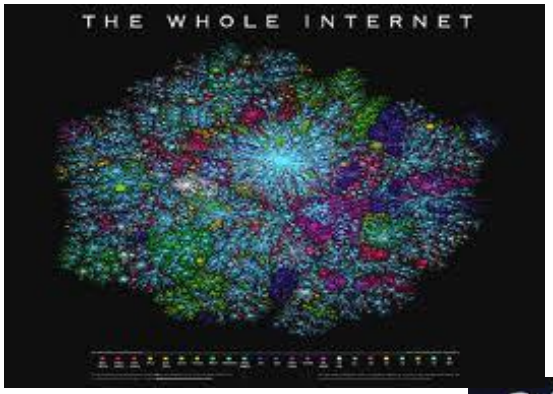


Connecting



Data

Then



Now

Users

Then

Now

Changes in Search 1: Restaurant

- What is an Italian Restaurant?
  - List Italian Restaurants in Brussels.
- Show me Italian Restaurants?
  - Use Yelp (or any other social approach) and distance from me to rank them.
- Where should I go to eat Italian food ***NOW***?
  - Consider time taken, current ambiance, and quality of food into consideration.

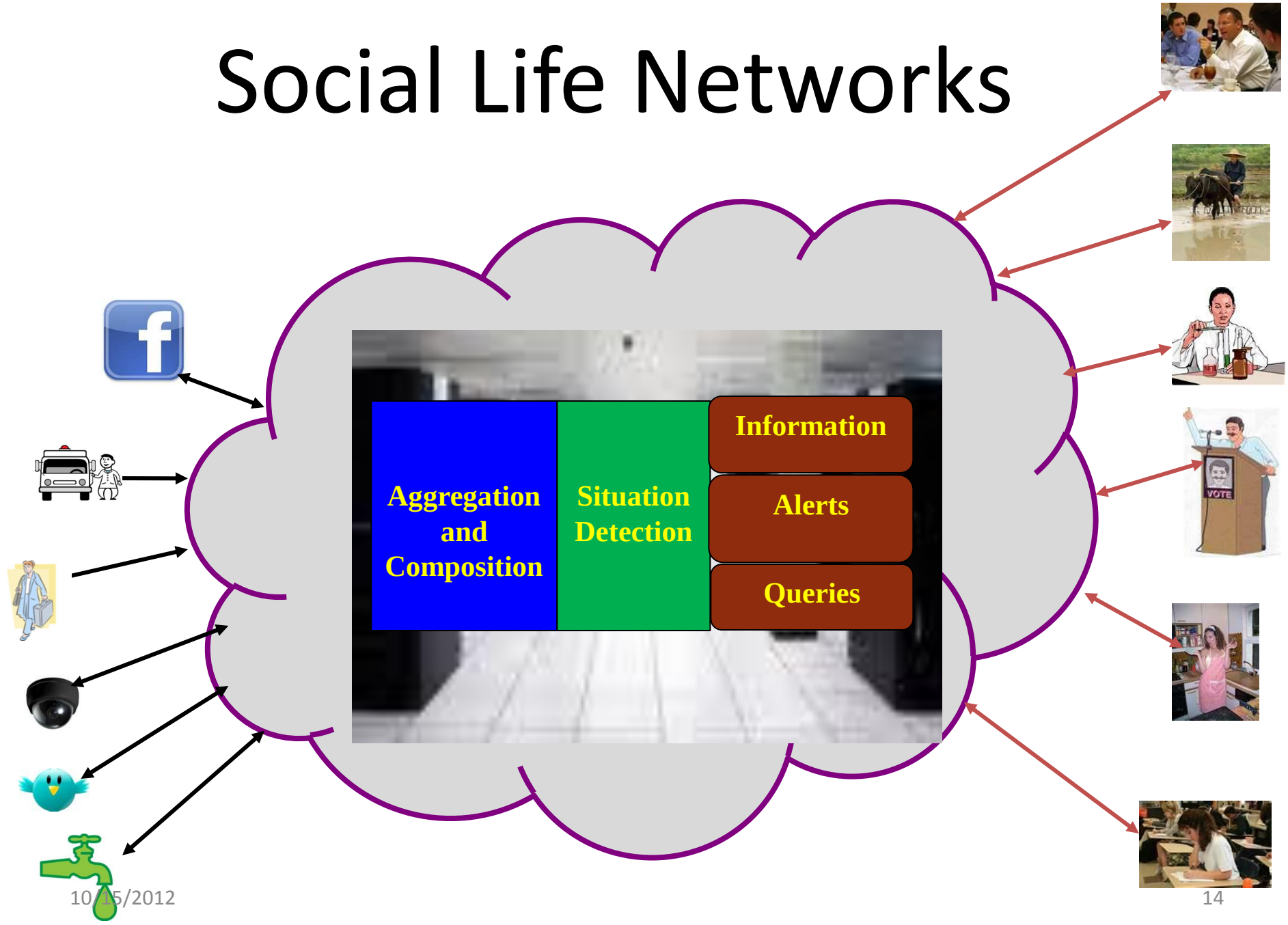
Changes in Search 2: Swine Flu

- What are symptoms of Swine Flu?
- Is there a major Swine Flu outbreak in my area?
- You are likely to be very sick with extreme case of Swine Flu soon, your doctor is ready with the set up.

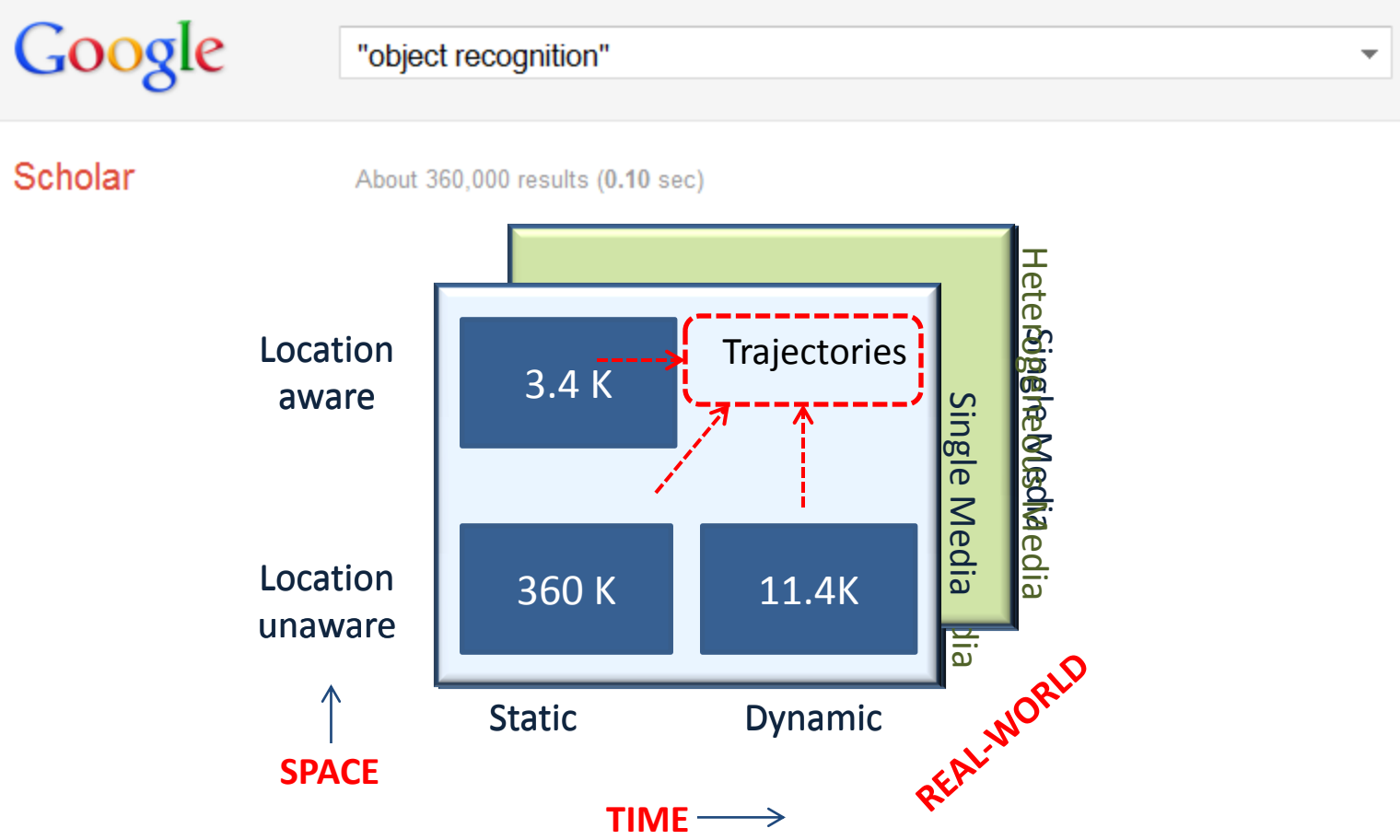
Social Networks

Connecting People

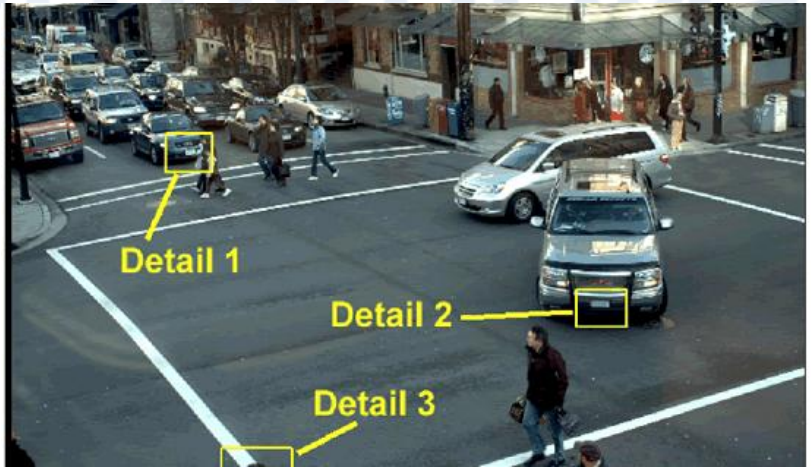
Social Life Networks



Concept recognition from *data*



SITUATIONS

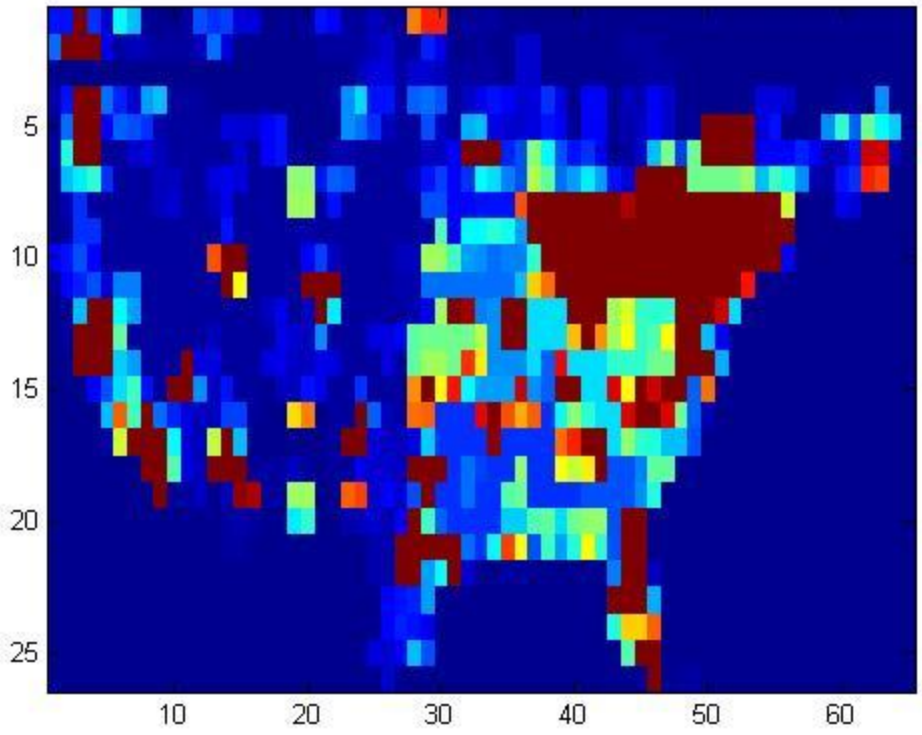


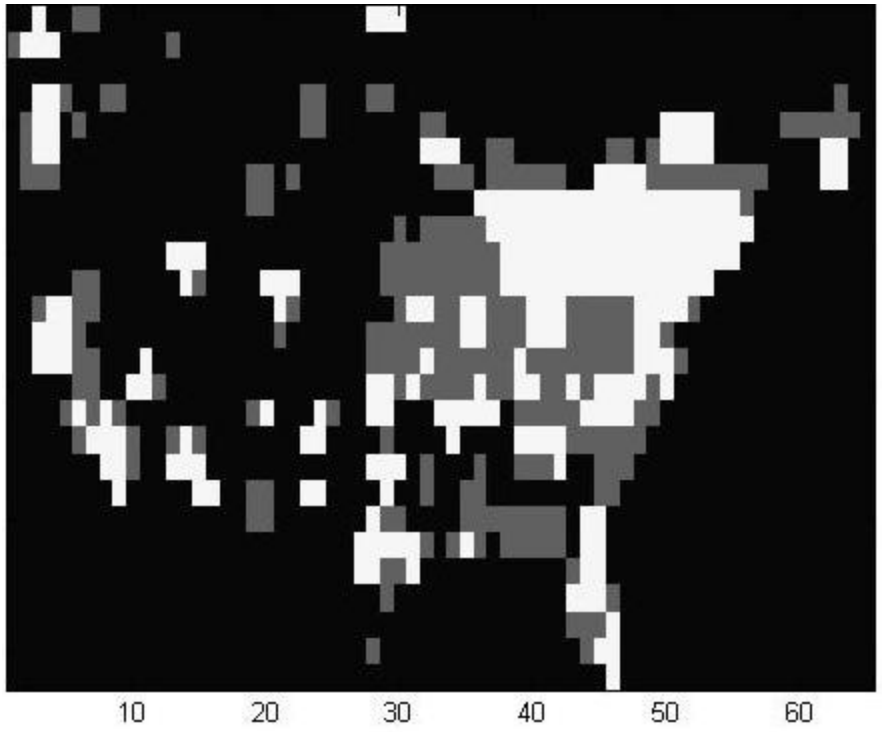
Situation Recognition

- Situation: An actionable abstraction of observed spatio-temporal characteristics.
- Allow users to define their own spatio-temporal features and create the situation detection filters.

Swine flu: Situation Segmentation

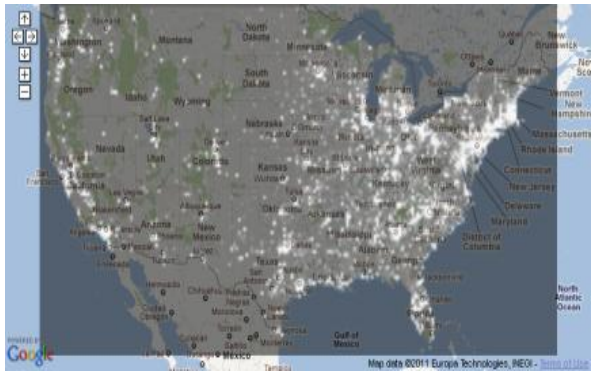
into ‘high’ and ‘low ’activity zones.



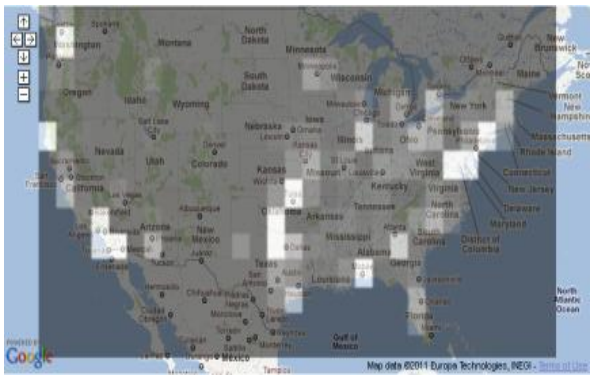


New Problem: Too Much Diverse Data

(a) Pollen levels (Source: Visual)



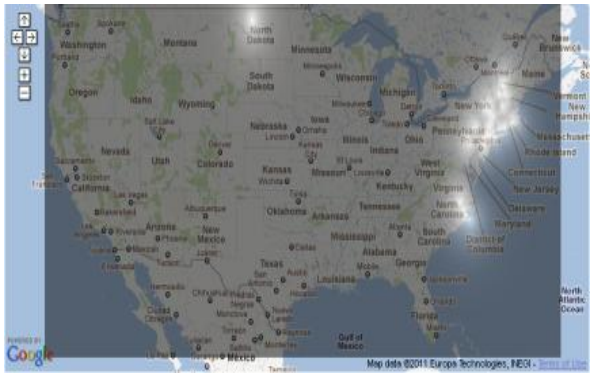
(b) Census data (Source: text file)



(c) Reports on 'Hurricanes' (source: Twitter stream)

d) Cloud cover (Source: Satellite imagery)

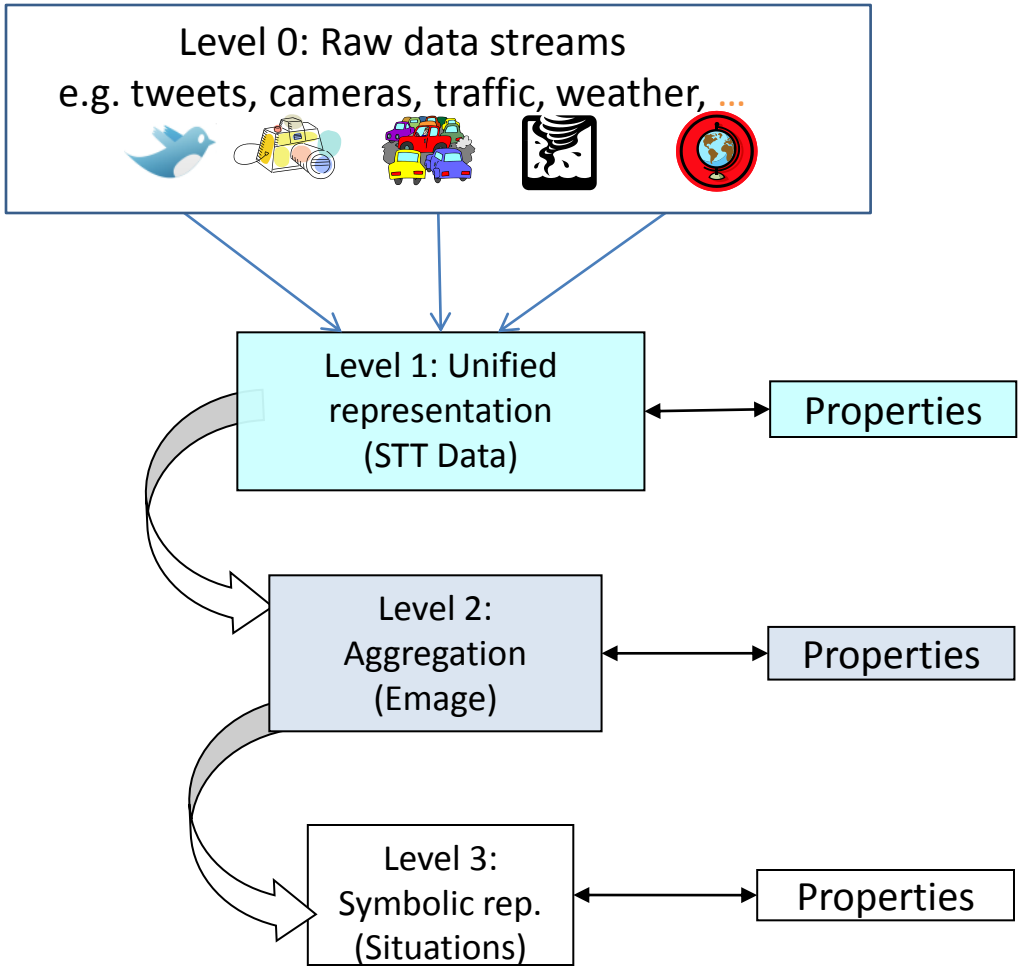
(e) Predicted hurricane path (source: KML)

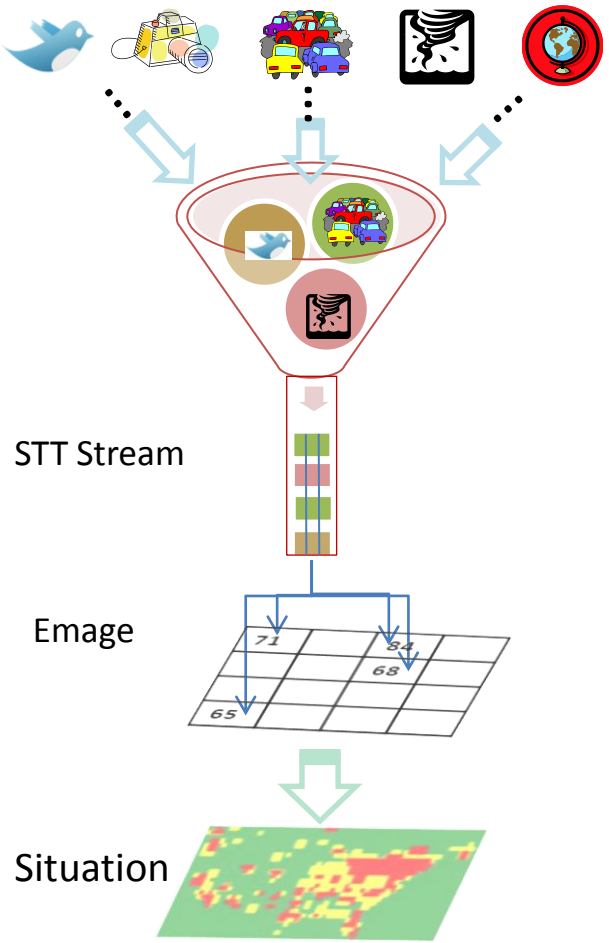


(f) Open shelters coverage(Source: KML)

Representation for different data sources into a common spatio-temporal format.

Data and Processing Levels





Eventshop

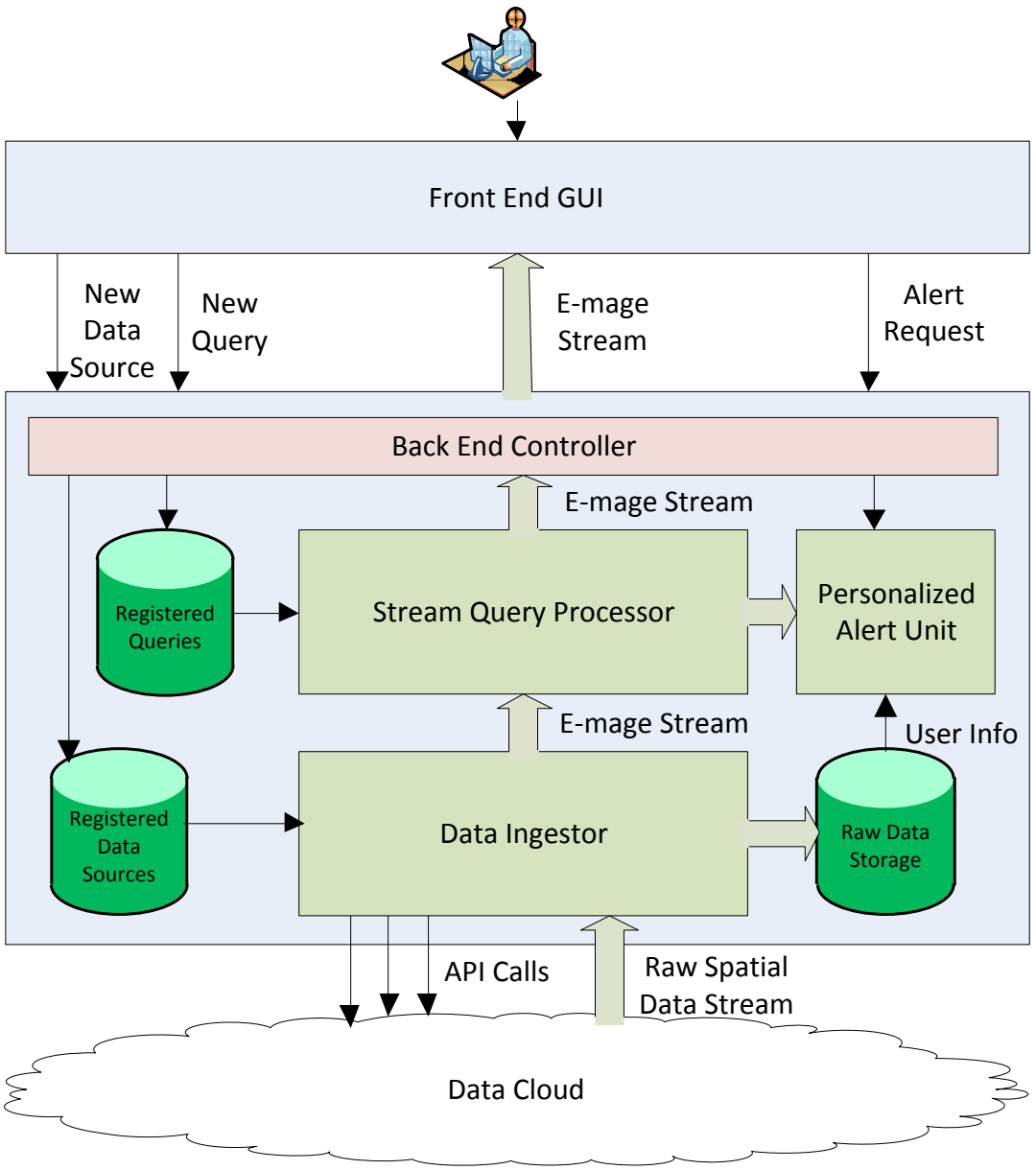
Billions of data sources.

Selecting and combining appropriate sources to detect situations.

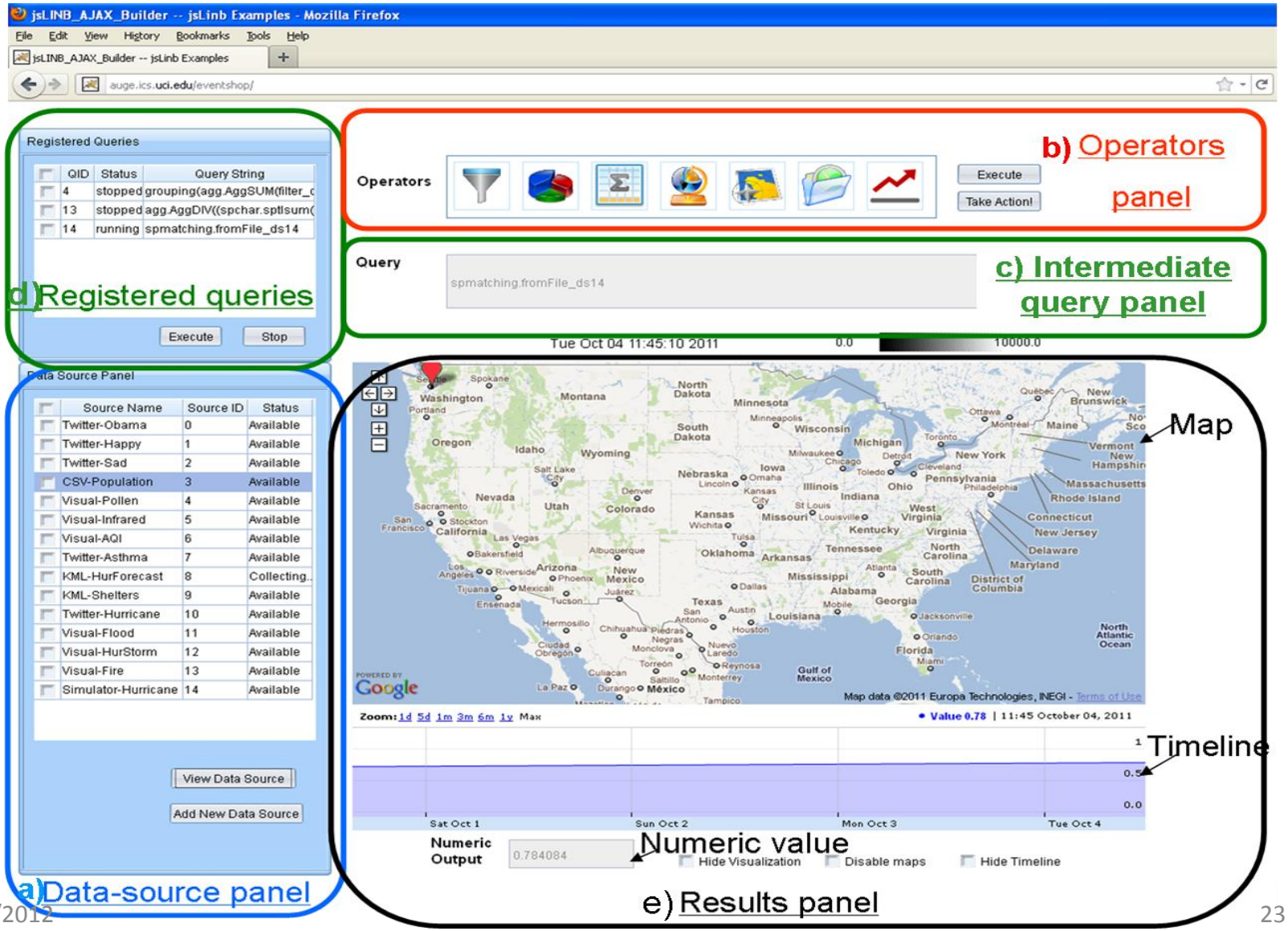
Interactions with different types of Users

- **Decision Makers**
- **Individuals**

Eventshop: Architecture



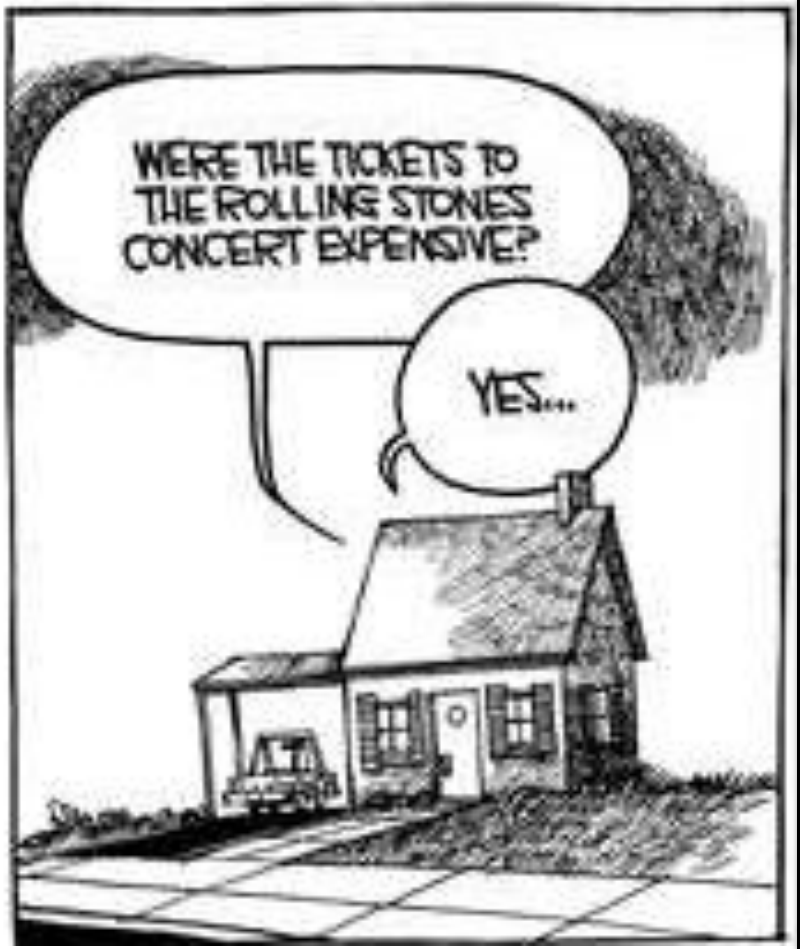
Eventshop: Interaction Environment



Situation characterization operators

S. No	Operator	Input	Output
1	Selection σ	Temporal E-mage Set	Temporal E-mage Set
2	Arithmetic & Logical⊕	K*Temporal E-mage Set	Temporal E-mage Set
3	Aggregation α	Temporal E-mage set	Temporal E-mage Set
4	Grouping γ	Temporal E-mage Set	Temporal E-mage Set
5	Characterization : •Spatial ϕ •Temporal τ	 •Temporal E-mage Set •Temporal Pixel Set	 •Temporal Pixel Set •Temporal Pixel Set
6	Pattern Matching ψ •Spatial ϕ •Temporal τ	 •Temporal E-mage Set •Temporal Pixel Set	 •Temporal Pixel Set •Temporal Pixel Set

Personal Situation



Personalized Situation Control

Macro situation

Date=12/09/10

Alert Level=High

Micro event

e.g. "Arrgggh, I have a sore throat" (Loc=New York, Date=12/09/10)

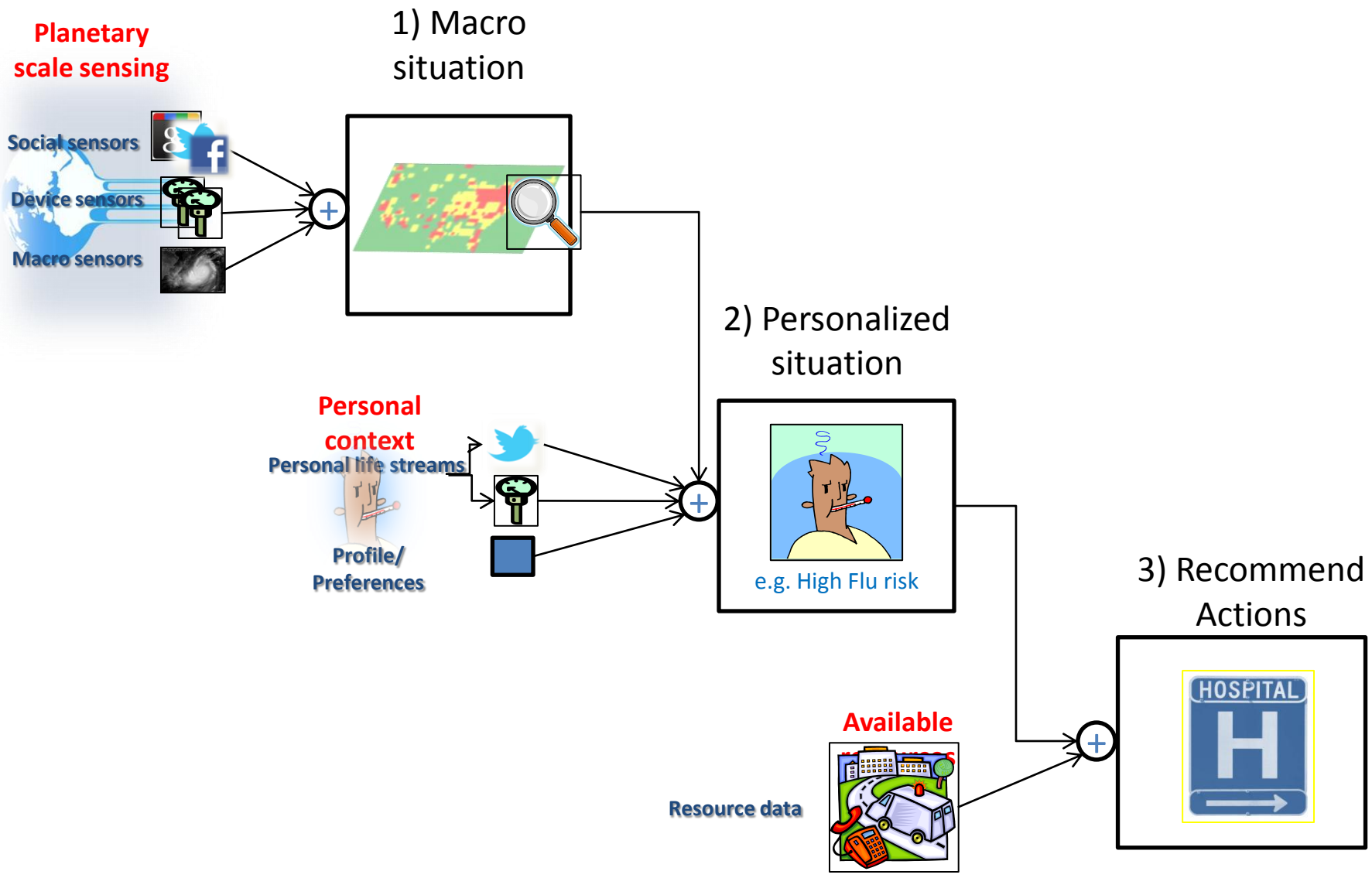
Situational controller

- Goal
- Macro Situation
- Rules

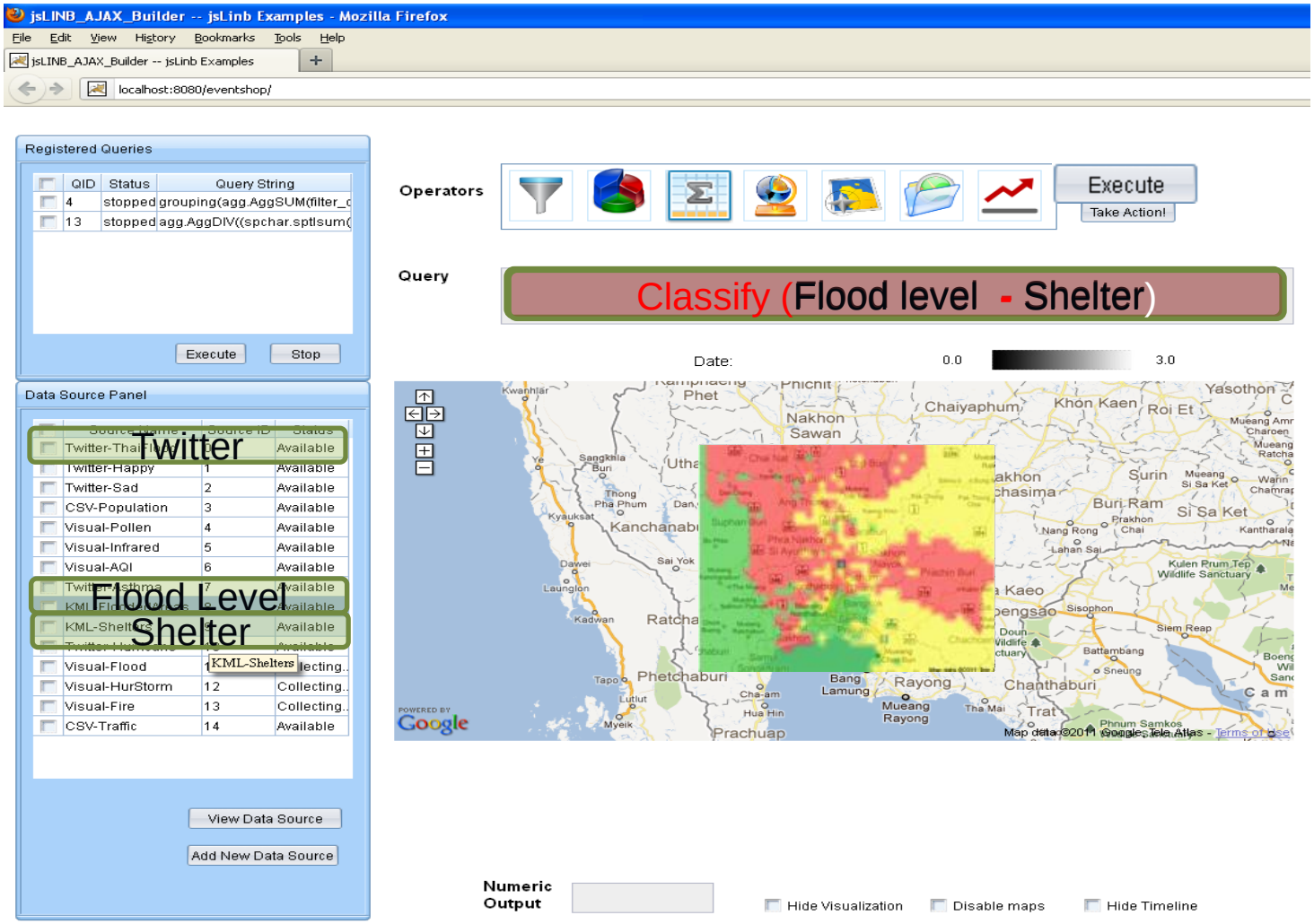
Control Action

"Please visit nearest CDC center at 4th St immediately"

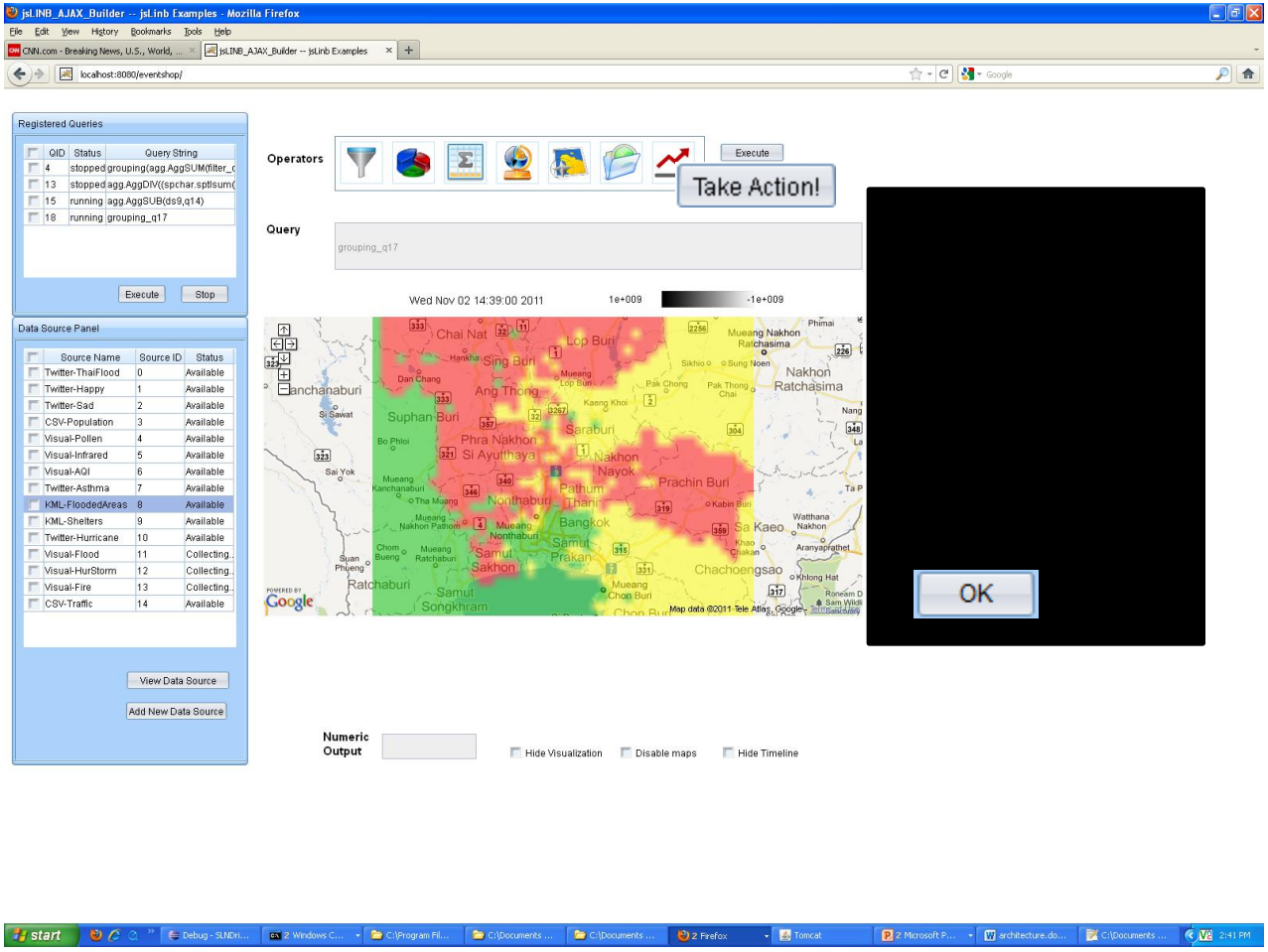
Level 1 personal threat + Level 3 Macro threat -> Immediate action

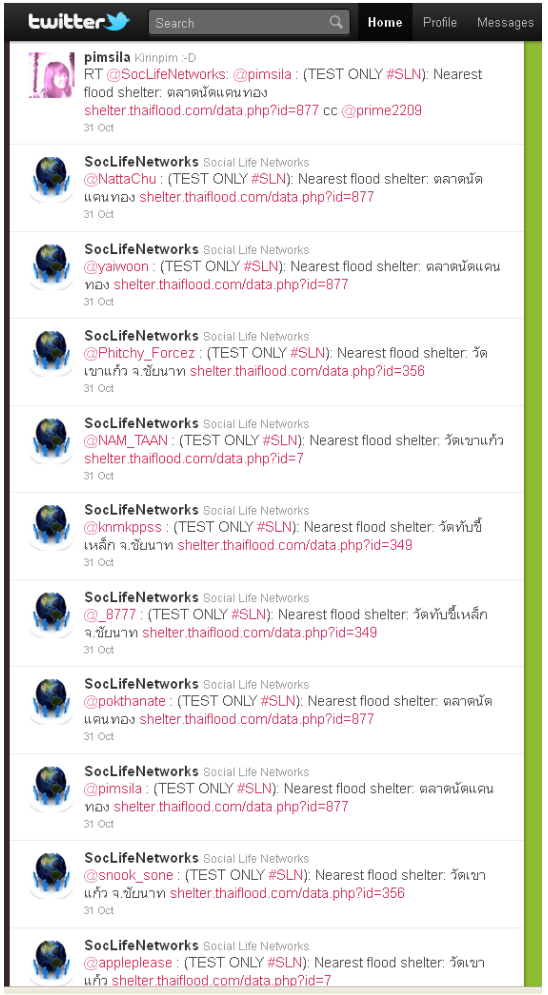

Planetary scale sensing
Social sensors
Device sensors
Macro sensors
1) Macro situation
Personal context
Personal life streams
Profile/ Preferences
2) Personalized situation
e.g. High Flu risk
3) Recommend Actions
Available
Resource data
HOSPITAL

Eventshop: Thai Floods



Taking personalized actions

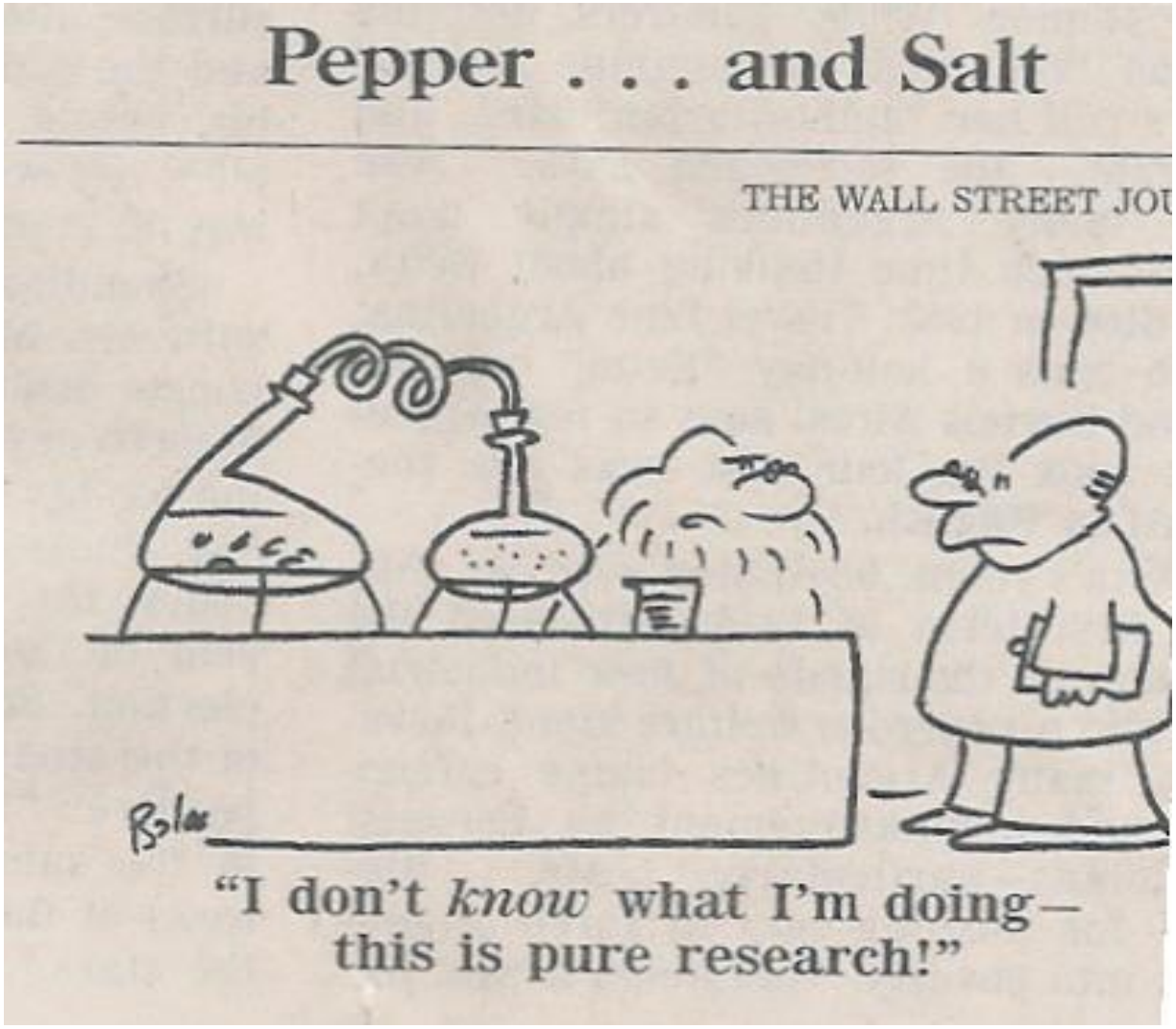




Changing Nature of Search

- Was for Archived data and mostly for researchers *(using Desktop)*.
- Currently: Mobile clients, Local data, and Social Graph (SoMoLo).
- Immediate Future: Situations from Real Time data and Recommendations.
- Future: Predictive control of emerging situations.

Thanks for your time and attention.



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