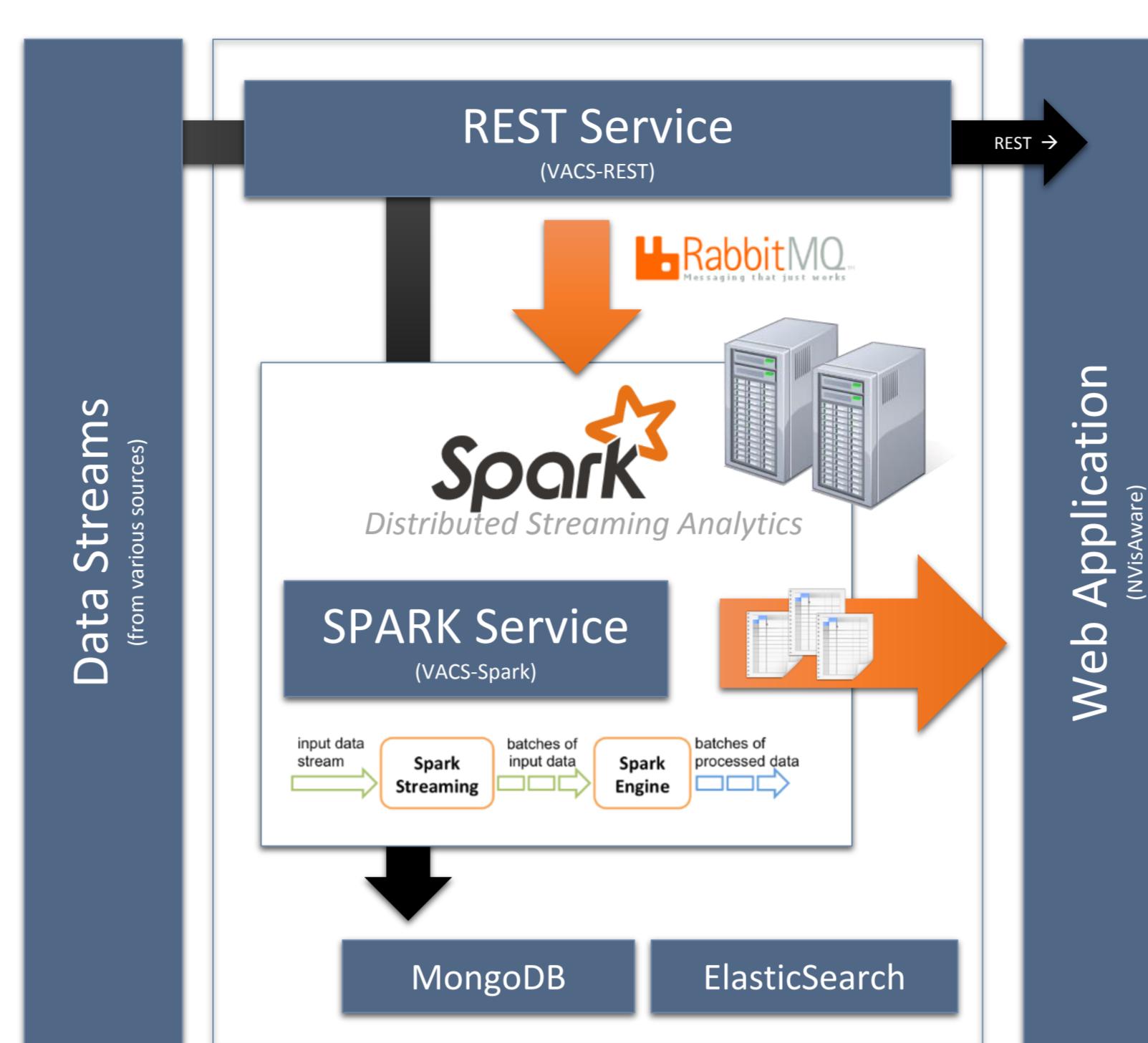


Visual Analytics for Data Streams

To solve the VAST Challenge 2014 MC3 we use *NStreamAware*, which is our real-time visual analytics system to analyze and explore heterogeneous data streams. We implement our technique on top of Apache Spark to calculate and extract *sliding slices*, which are aggregated summaries calculated on a sliding window.



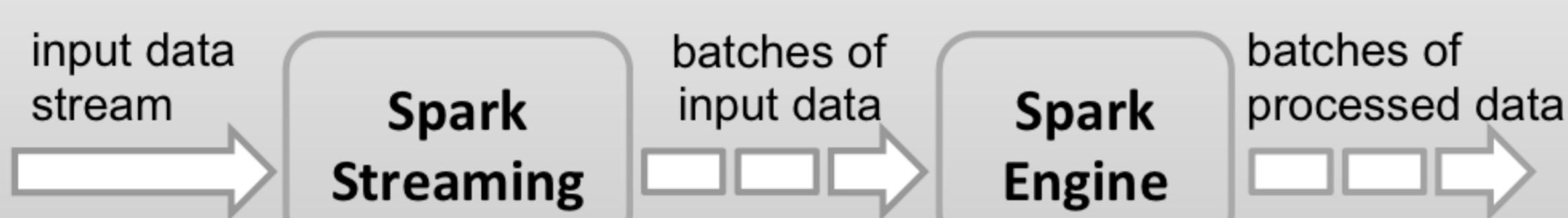
Challenge

How to explore heterogeneous data streams in real-time without overwhelming the analyst?

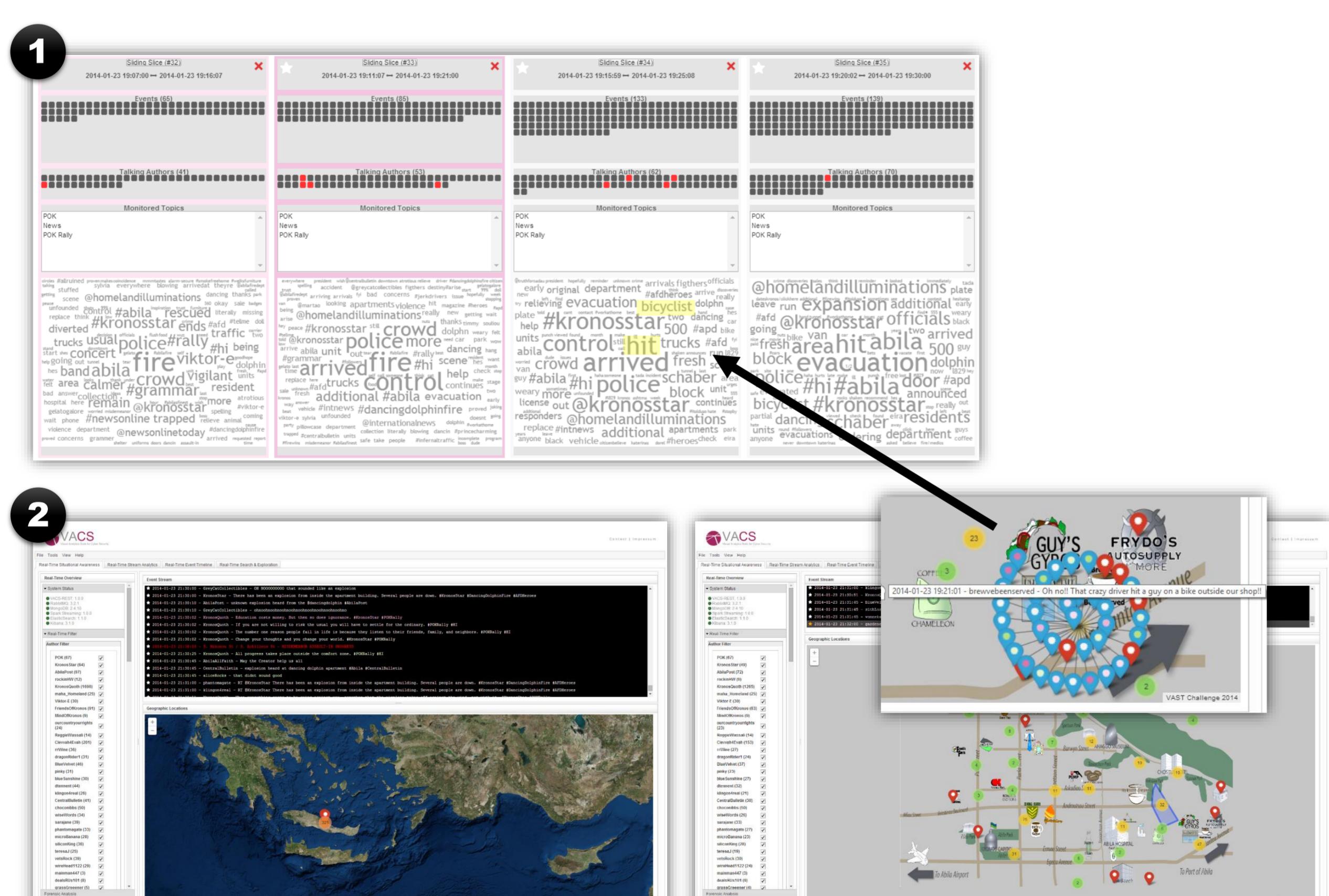
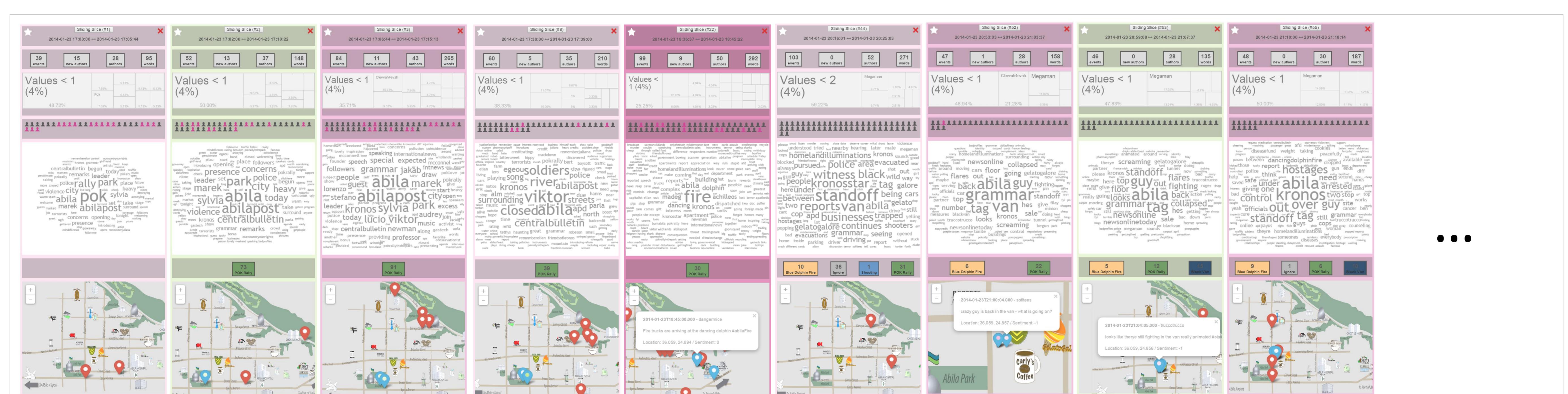
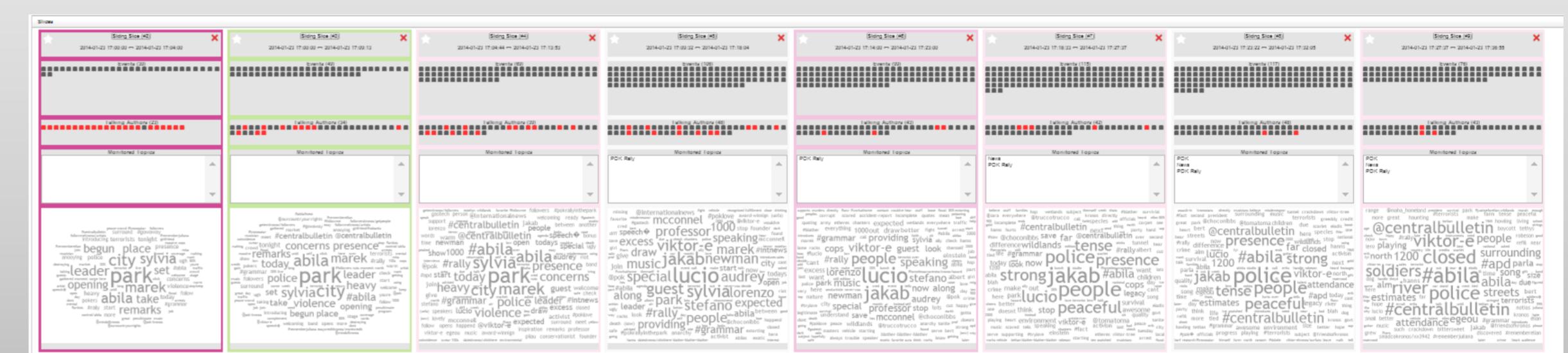
Our Solution

- **NStreamAware:** Scalable infrastructure with web-based visual analytics application.
- **NVisAware:** Visualization based on sliding slices.

Situational Awareness on Data Streams using Sliding Slices



Apache Spark™ is a fast and general engine for large-scale data processing which can run on a distributed computer cluster.

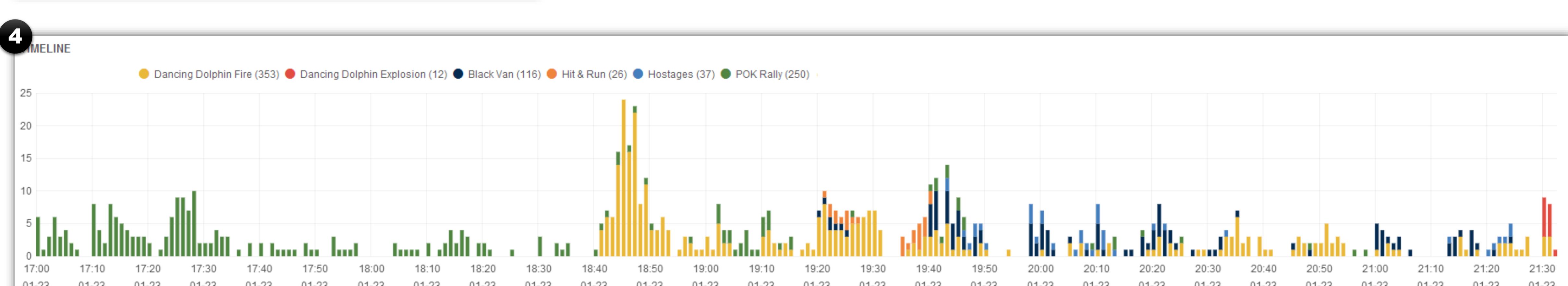


Integrated Perspectives

- 1 Real-Time Stream Analytics
- 2 Real-Time Situational Awareness
- 3 Real-Time Event Timeline
- 4 Real-Time Search & Exploration

To visually represent these sliding slices, we developed *NVisAware* (1) showing the slices in a small-multiple like visualization containing various small visualizations (e.g., word clouds). Each visual slice presents an overview of the current time segment of the data stream. As soon as a new slice is available it is pushed to the display.

Additionally, we implemented various other perspectives to monitor (2), let the user annotate events represented in an event timeline (3) and visually search & explore (4) the data.



Award for Outstanding
Comprehensive Submission

