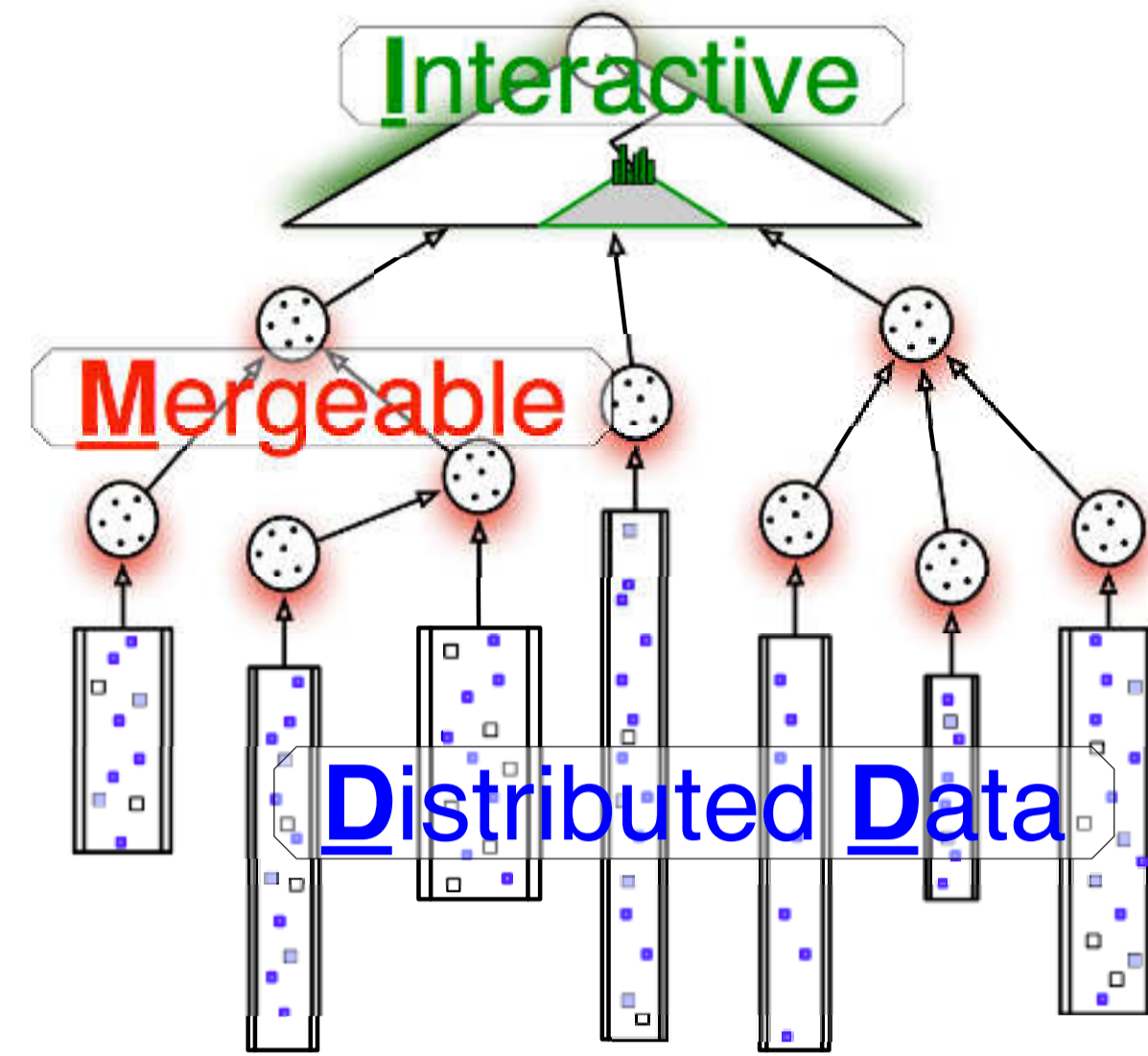


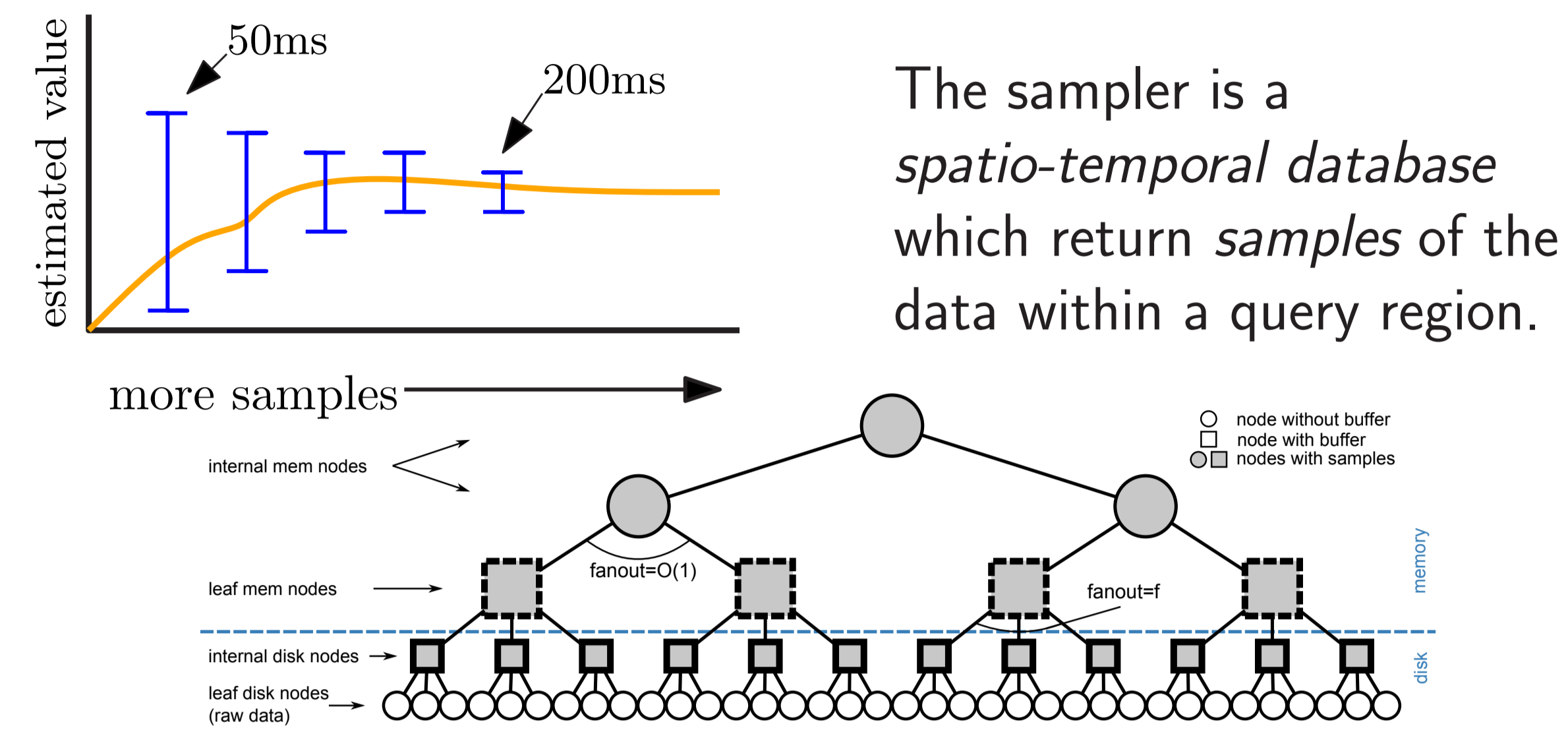


Motivation and Objective

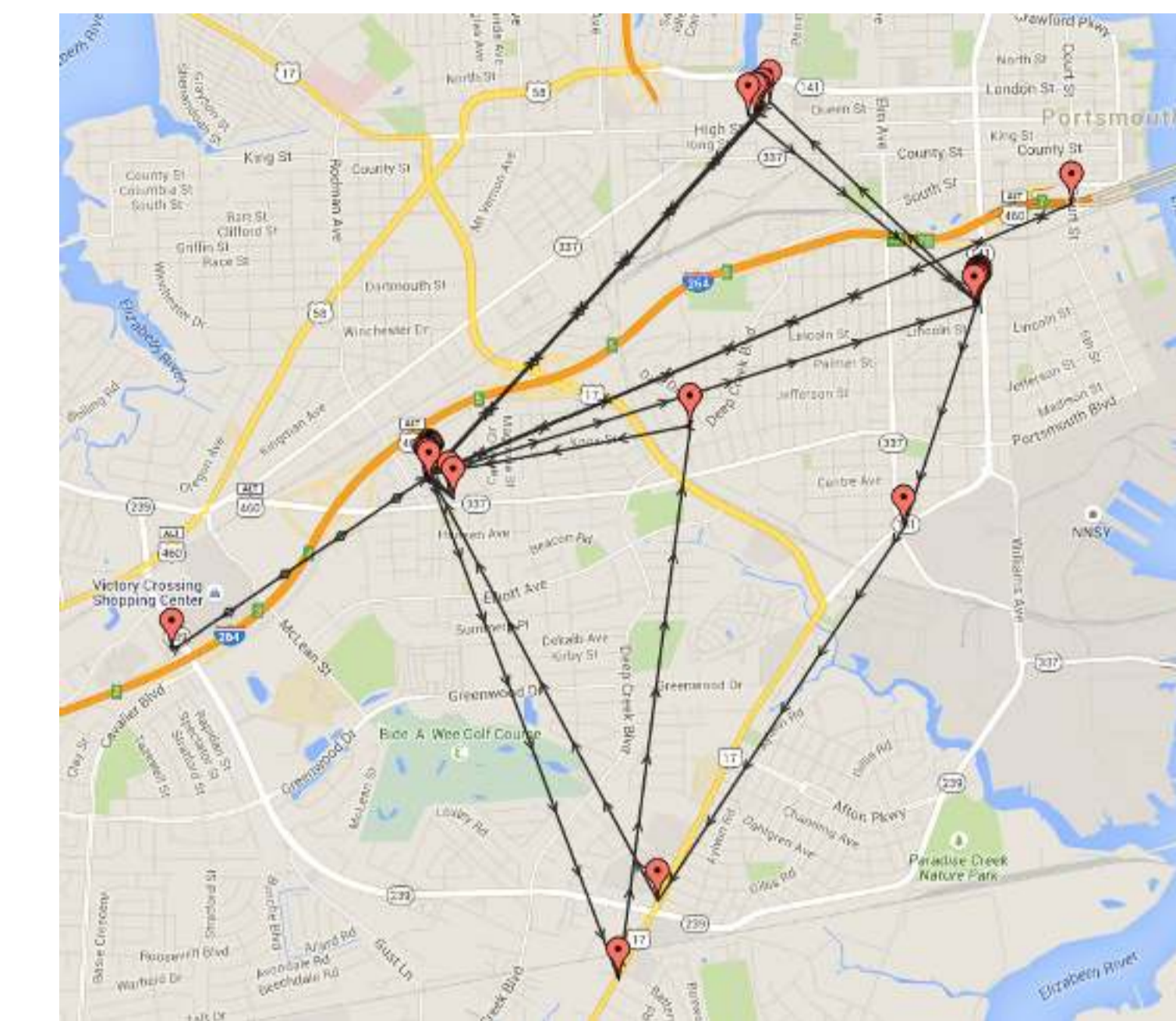
- ▶ Distributed spatial data (e.g., geo-spatial data) is massive.
- ▶ Approximate analysis is *fast* and often *effective* for this data.
- ▶ Integrating multiple data sources is a *key* requirement.
- ▶ Objective: Mergeable and Interactive data summaries.



Sampler and ST-Indexing



Twitter User Trajectory Analysis



STORM can analyze the approximate trajectory of data. From the trajectory we can infer where to user lives, works, and attends school.

Architecture of STORM

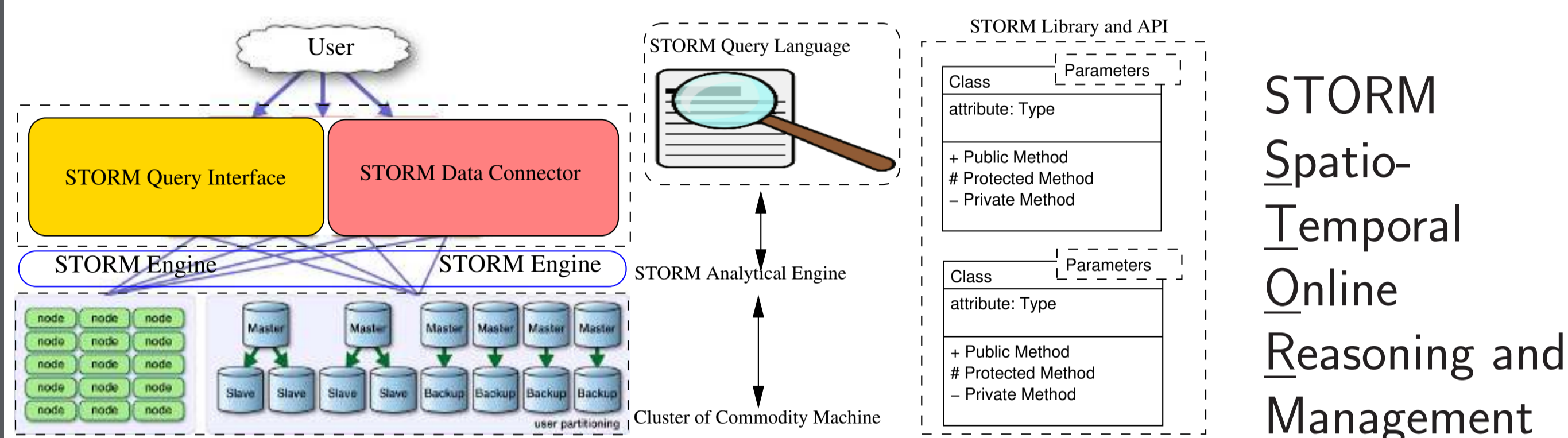


Figure: The STORM system overview.

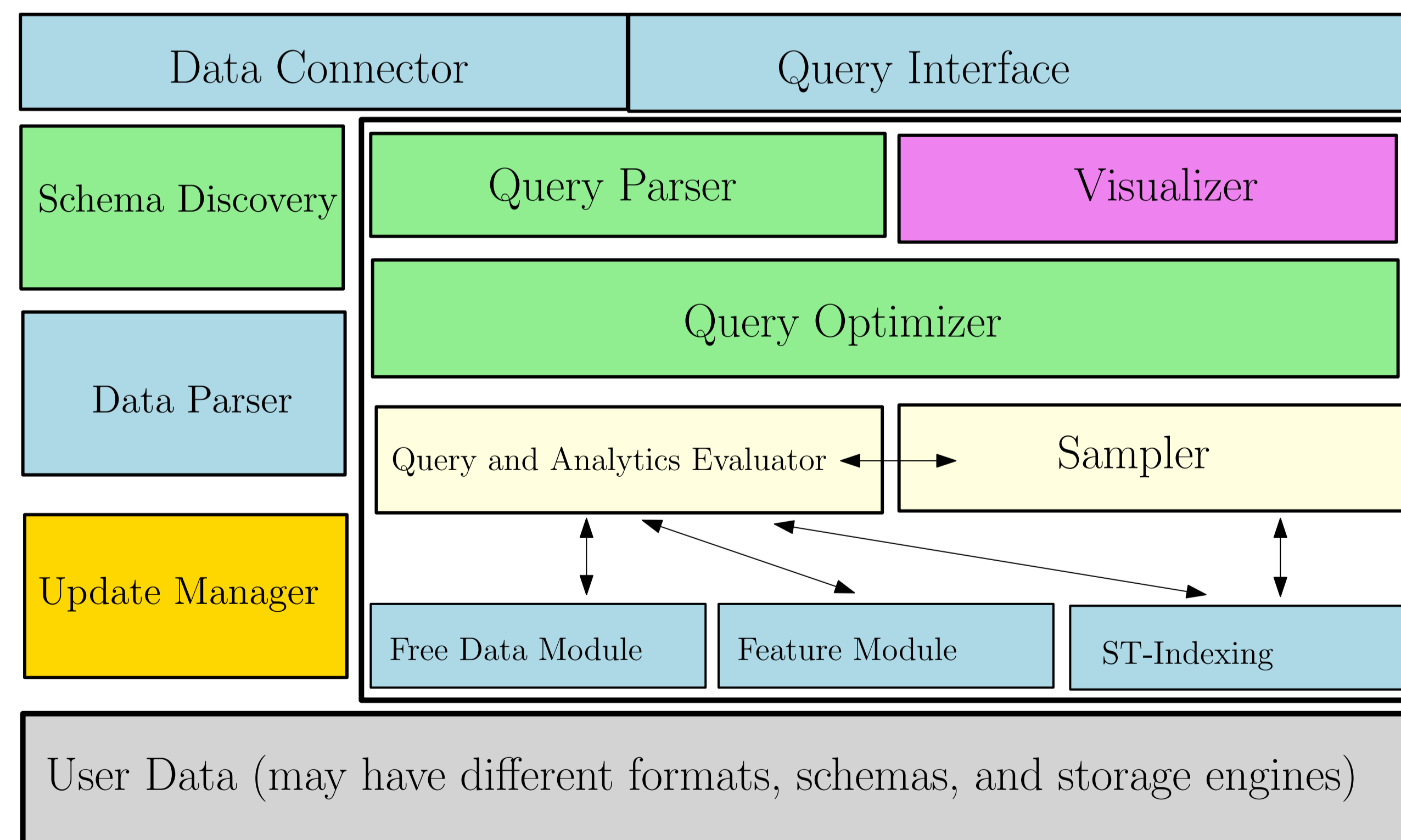
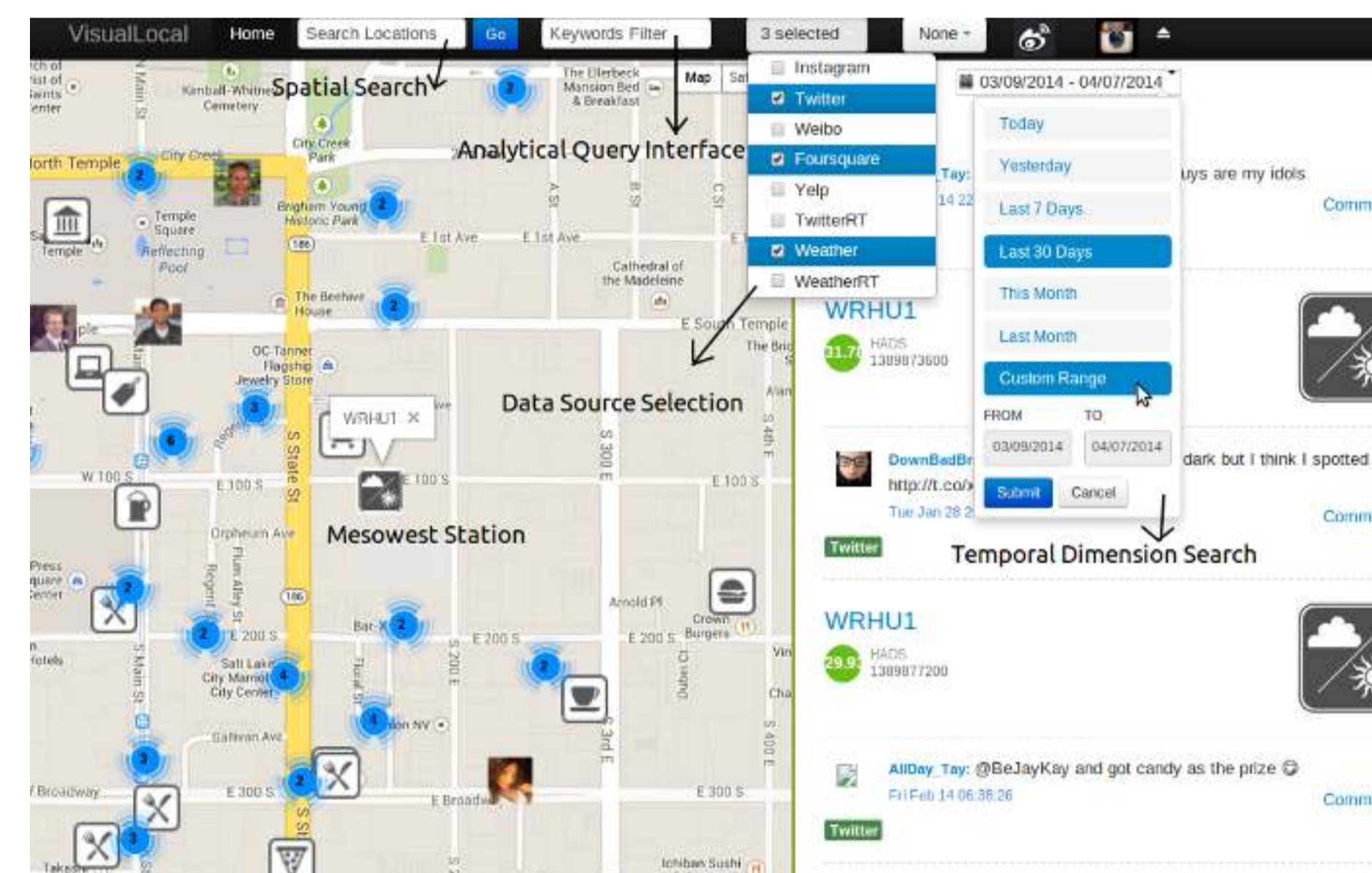


Figure: The STORM engine architecture.

Importing Data into STORM

A user can import their own spatio-temporal data set into STORM, allowing custom analytics of user data.

STORM Interface



Kernel Density Estimation

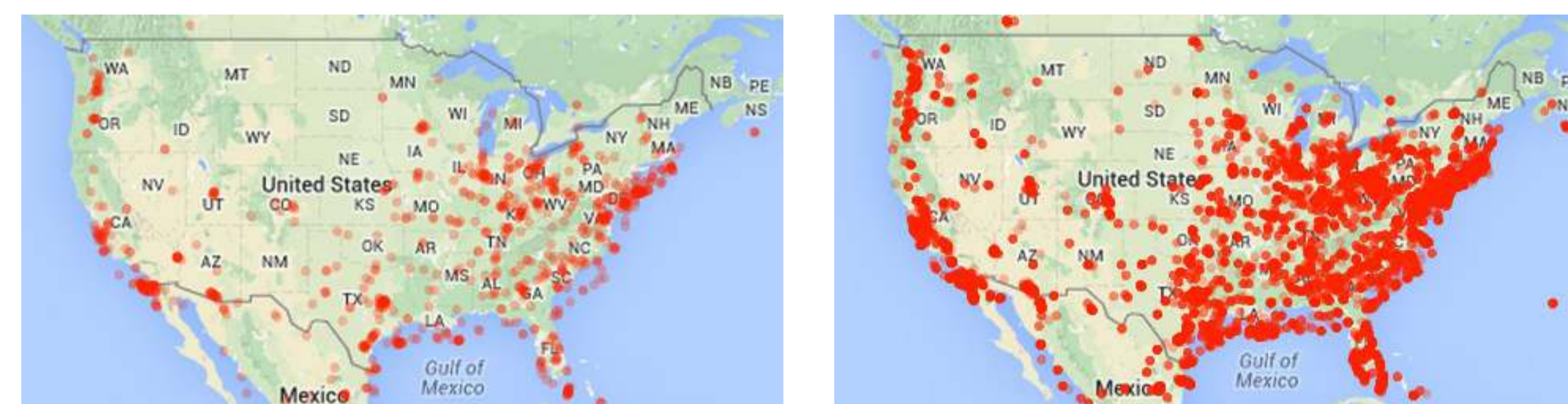


Figure: Dot density with few samples.

Figure: Dot density with many samples.

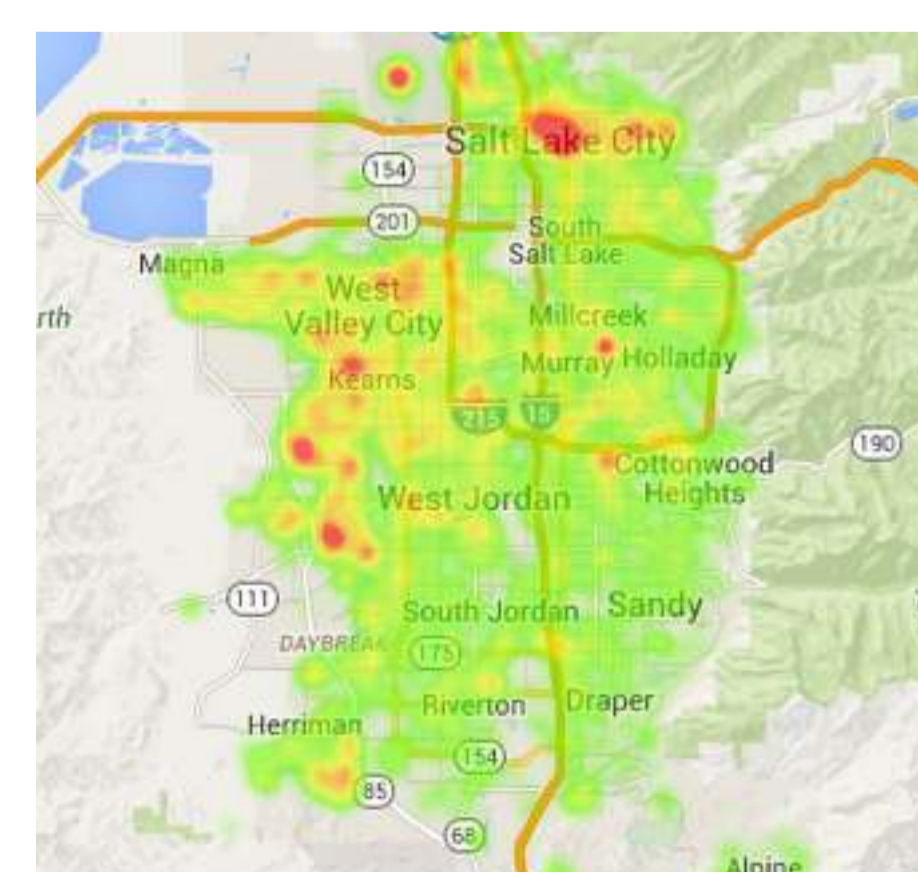


Figure: Salt Lake City KDE



Figure: USA KDE

Spatio-Temporal Wordcloud



Short-text understanding estimator after a highly anomalous heavy snow storm in Atlanta..

Performance Considerations

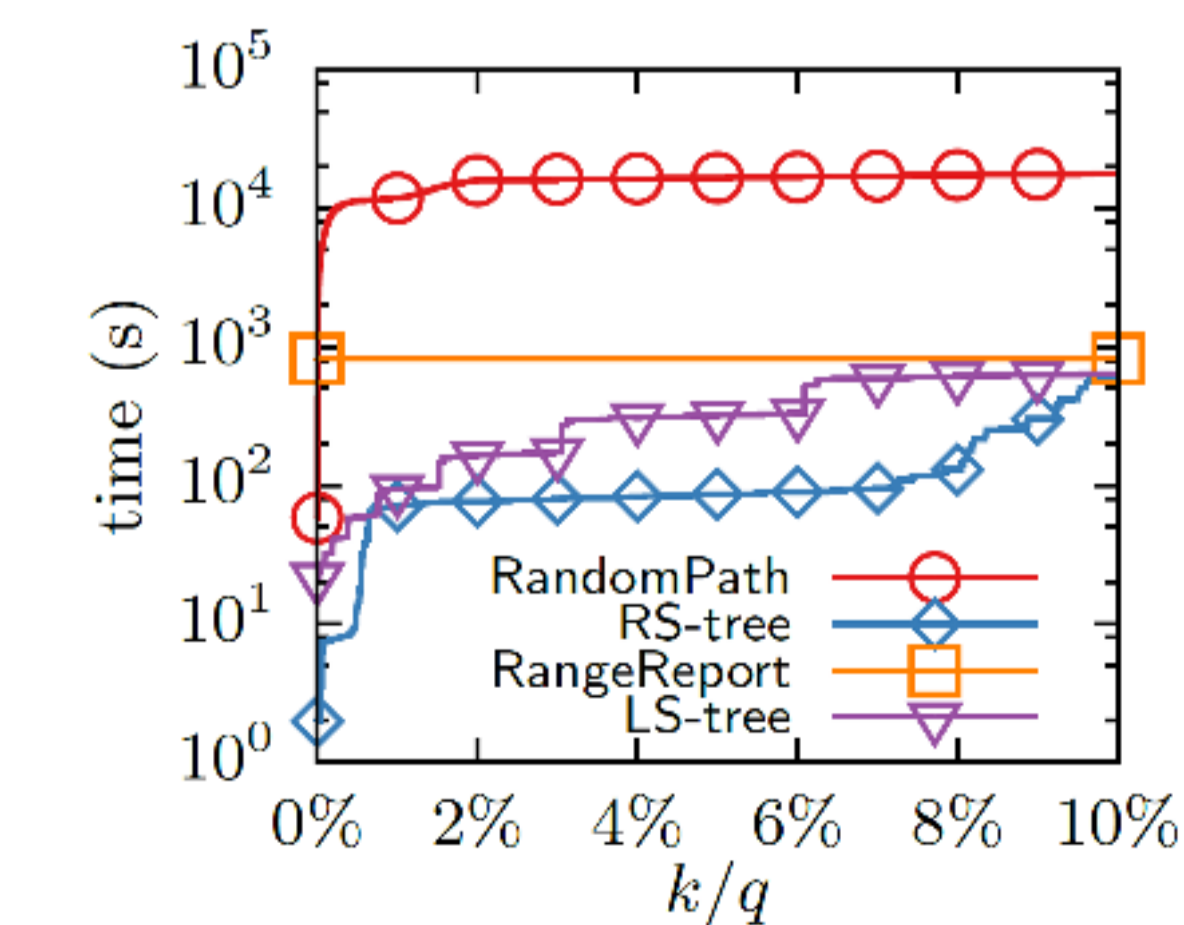


Figure: query efficiency: vary k

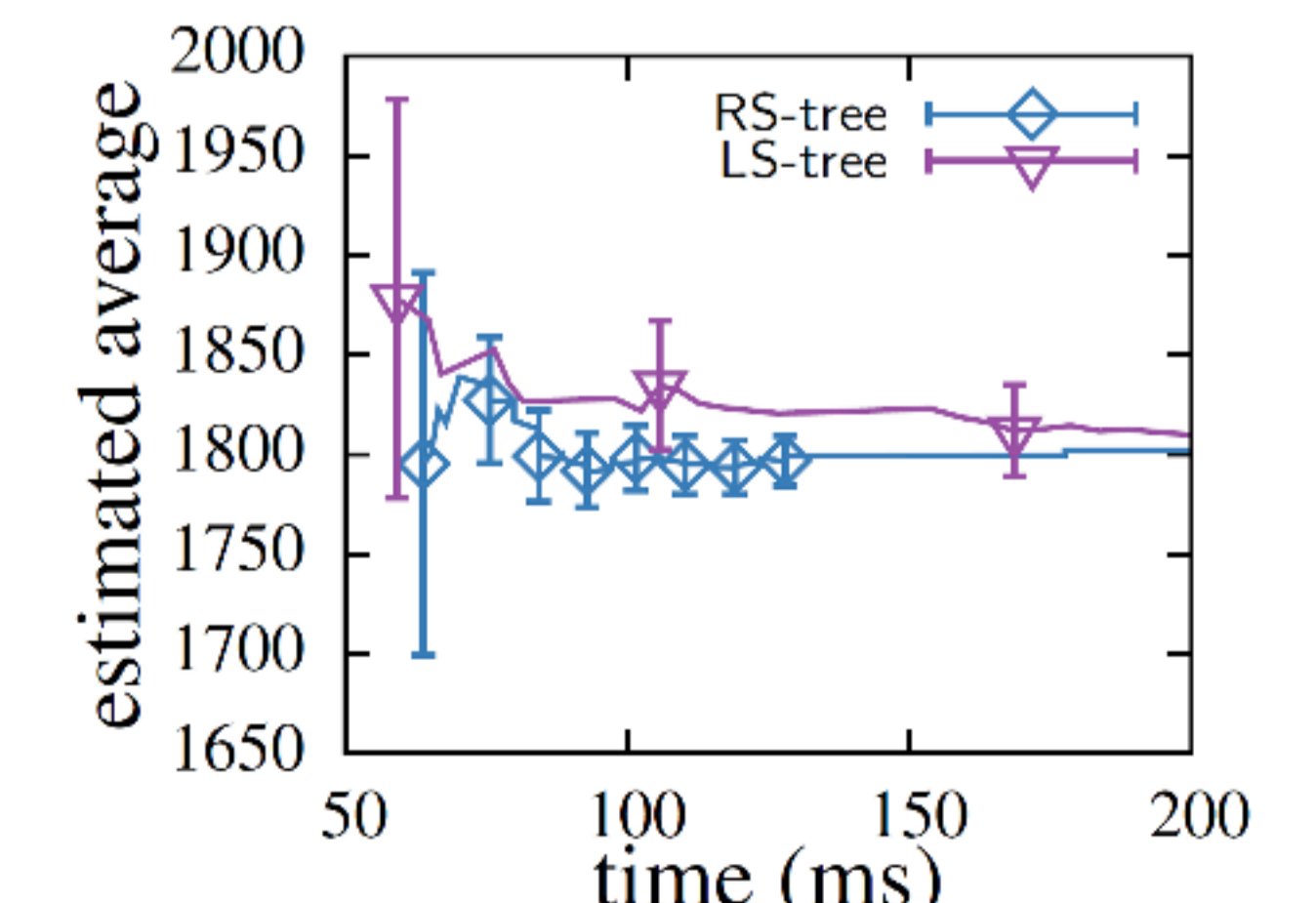


Figure: query accuracy calculating avg altitude of a dataset.