Geospatial Innovation – Science and Technology

November 20, 2018

Data is Growing at Amazing Space…..

Sensors/RFID/
Devices
Mobile Web
User Click Stream
Web Logs
User generated
contents
Social Media
Interactions and
Feeds
Spatial GPS
coordinates
HD, Video, Images
Many more…

Size of universal data doubles every 2 years

Zettabytes

Exabytes

Petabytes

Terabytes

GB

MB

Increase Variety and Complexity of Data

Sentiment
Analysis
Behavioral
Targeting
Dynamic Pricing

GeoSpatial Data Lake - Introducing

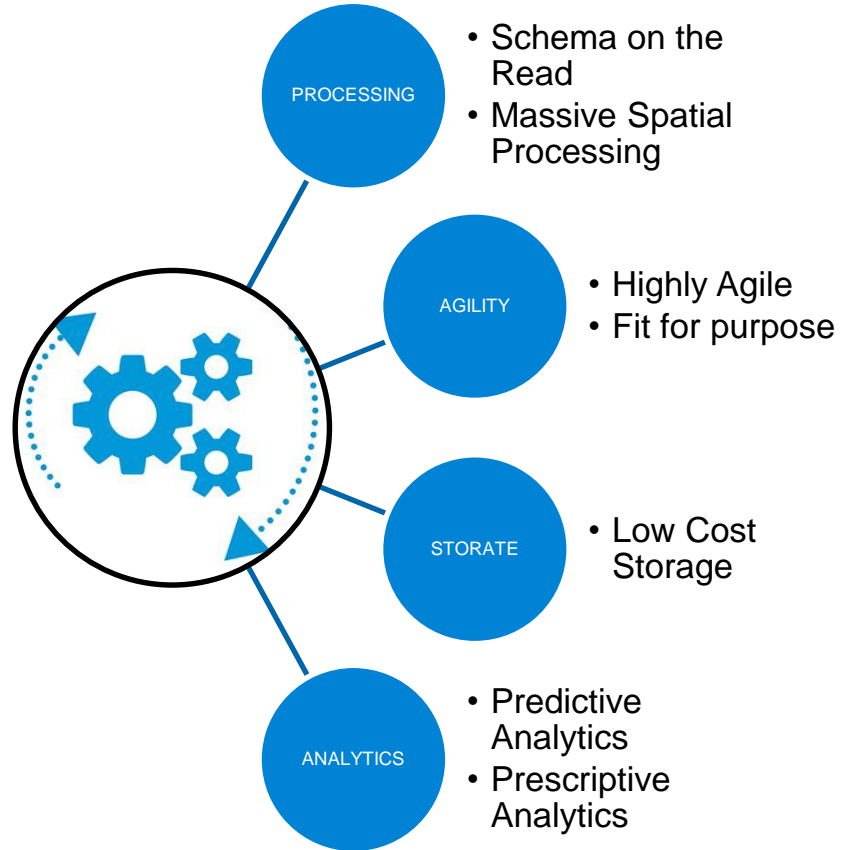**Large amount of Spatial Data – Imagery, Vector, Drone Feeds, LIDAR,**

Injest all data

Variety of Information embedded - Structured Data, Semi Structured and Raw Data

Store in native format

Mobile data feeds, Vehicle data, Variety of IoT/sensors data

PROCESSING
- Schema on the Read
- Massive Spatial Processing

AGILITY
- Highly Agile
- Fit for purpose

STORATE
- Low Cost Storage

ANALYTICS
- Predictive Analytics
- Prescriptive Analytics

3

TELECOM USE CASE

By Examining Massive Amounts of End-User Mobile Location Data with Other Wireless Network Observation Data, We Can Introduce Subscriber-Verified Coverage that Prove QOS, and Thereby Reduce Churn and Increase NPS.
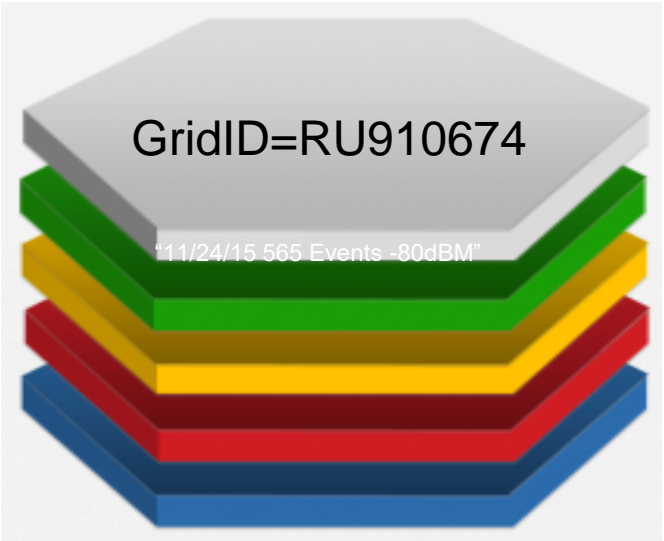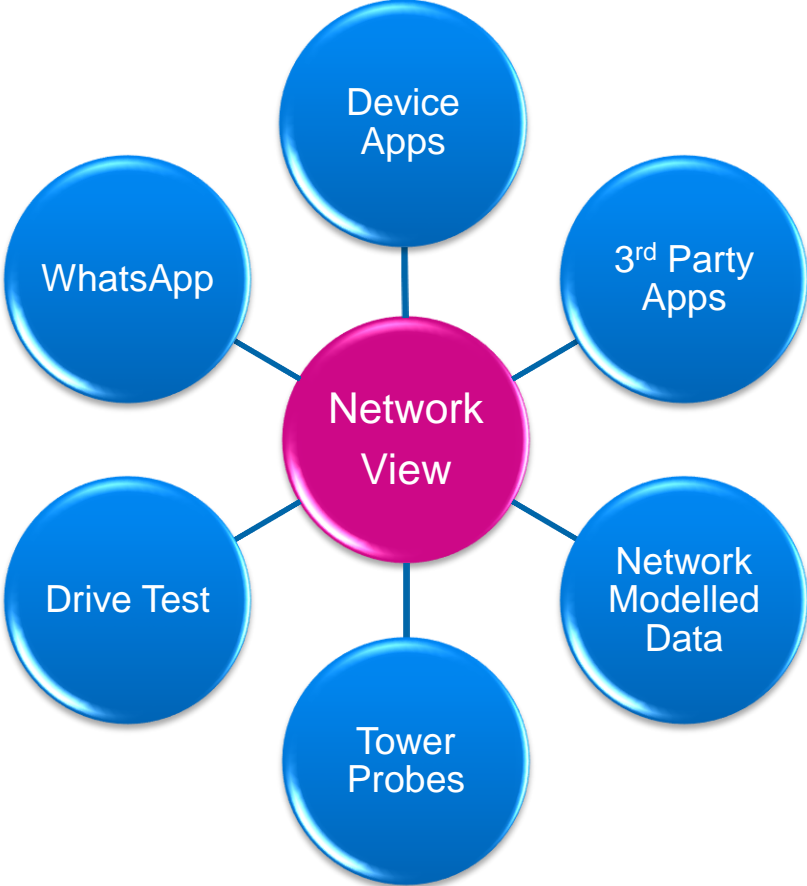
Telecom
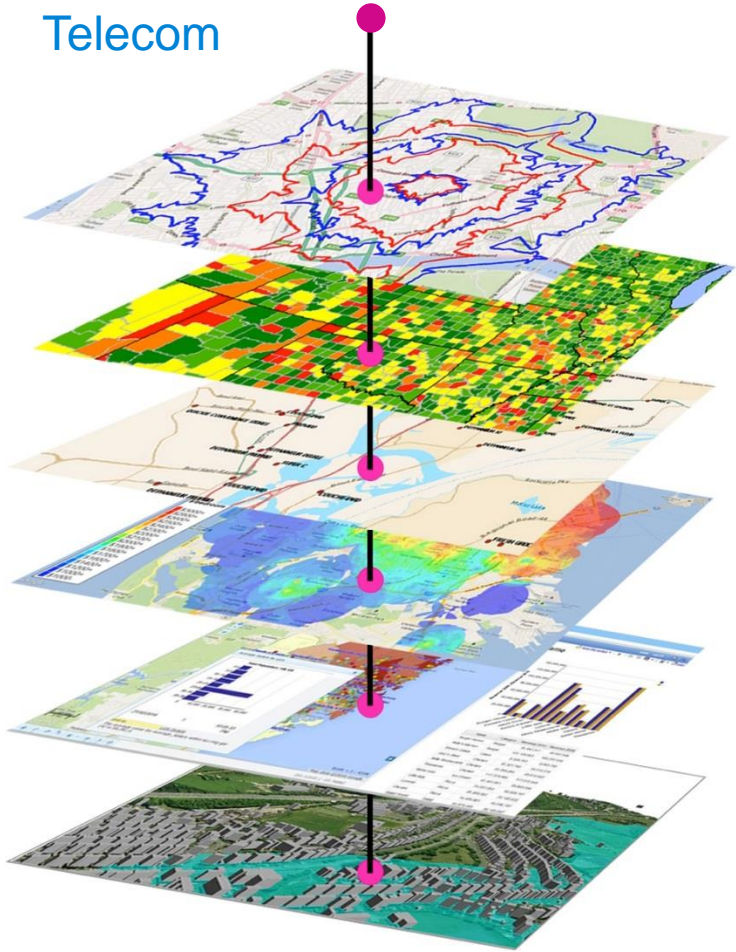
Capitalize on your coverage

- Network Optimization
- Data Monetization
- Customer Acquisition
- Customer Engagement

Multi-Source Approach to Optimize Telecom Network Coverage

Multi-Source Approach to Optimize Telecom Network Coverage

Description- Improve Understanding of Network Performance by Collecting, Organizing, Enriching and Visualizing Device Driven Network Insights.

**Data Sources-** Device Collected Location Based Network Performance Data

Types of Analysis- Perform Spatial Processing via Vector and Raster Based Methods to Generate Map, Data Science and Business Intelligence Data Products That Deliver Network Performance Insights

Expected Business Outcomes- Through the Deployment of this Solution, a Wireless Providers can dramatically Improved ROI and Decision Making on Infrastructure Investments in New Spectrum, Small Cell and Tower Based Technologies.
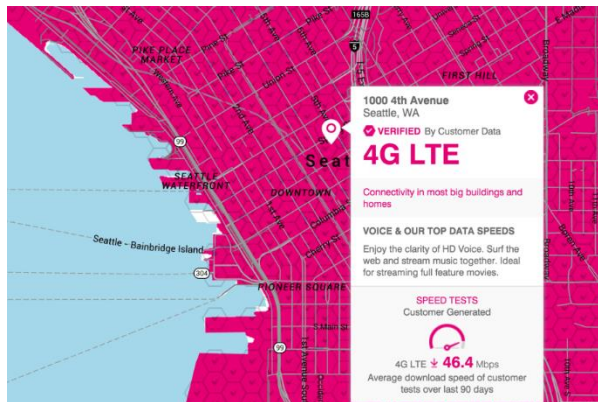
Multi-Source Approach to Optimize Telecom Network Coverage
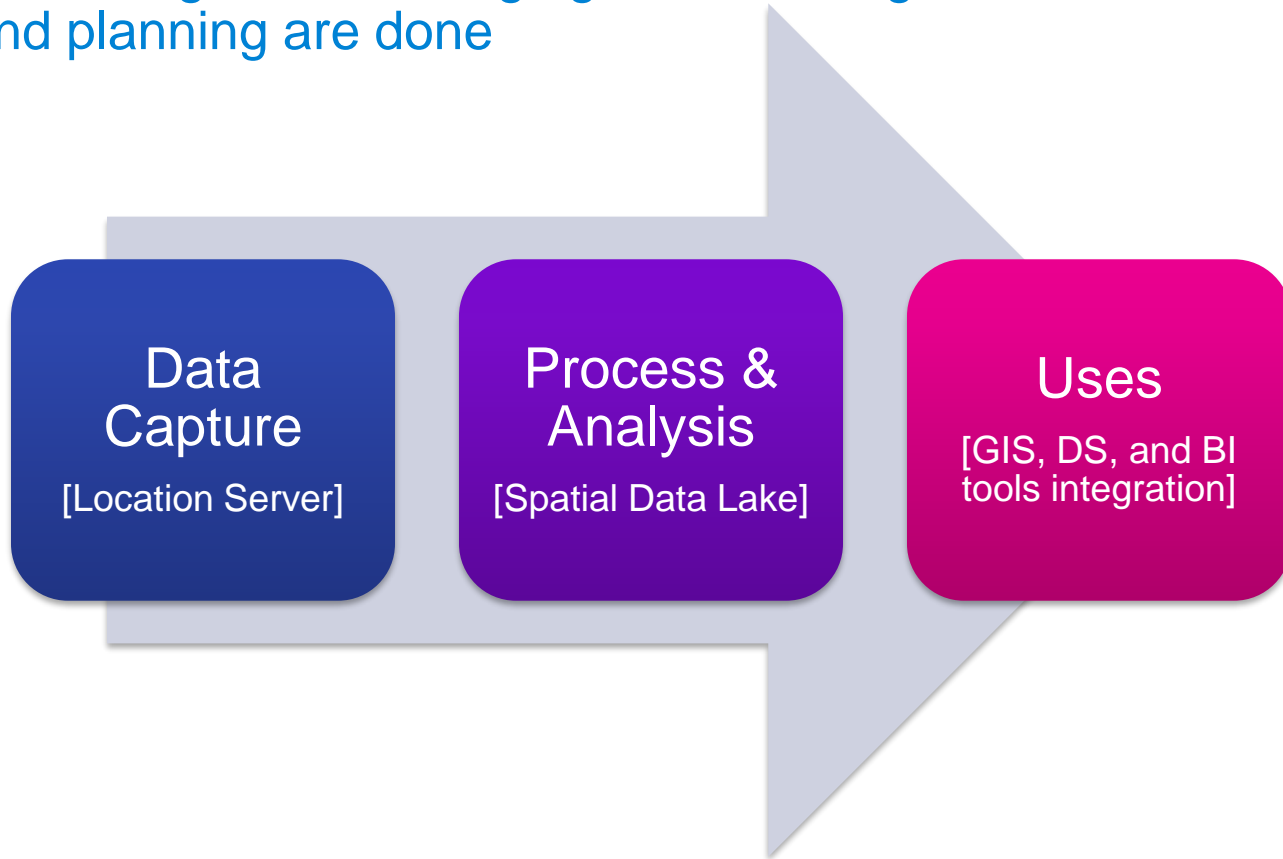
Old: RF Propagation Modeling
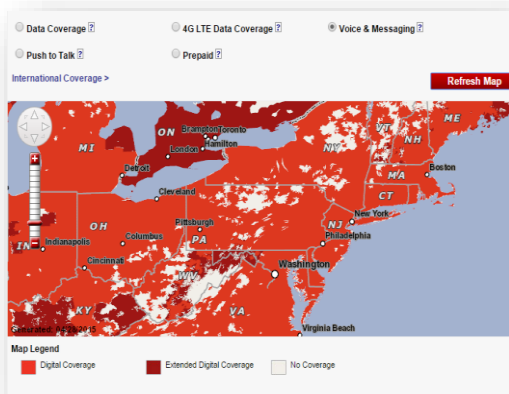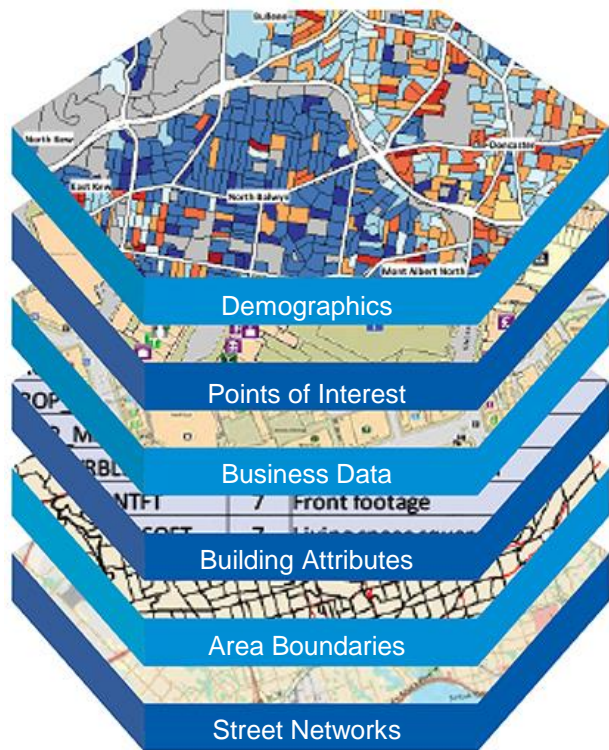

New: Big Data + RF Propagation Modeling

Perspective	Old	New
Accuracy	Model based	Verified with real users
Granularity	Coarse	High (60 m or lower hex)
Timing	Monthly or worse	Near Real Time
Information	Yes/No	Rich (e.g.network speed)

Big Data technologies are changing how coverage analysis and planning are done

Data Capture
[Location Server]

Process & Analysis
[Spatial Data Lake]

Uses
[GIS, DS, and BI tools integration]

Each layer of location data adds new details and additional insight.

Demographics

Points of Interest

Business Data

Building Attributes

Area Boundaries

Street Networks

Location Insights
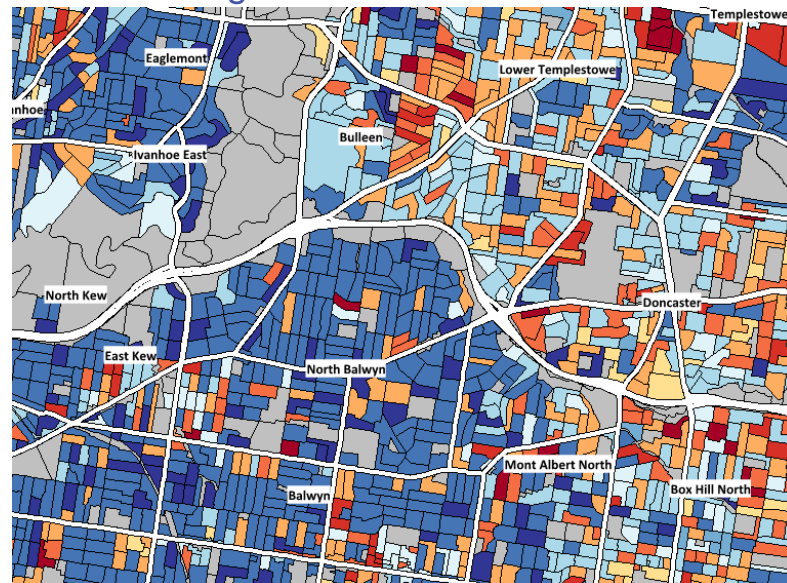
Complete location attributes by grid segment.

Scalability & Performance

90 billon records in 30 min

Mobile log records
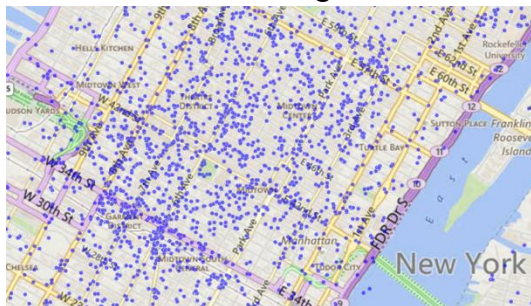
Hex level coverage map

Hex-binning

Verification
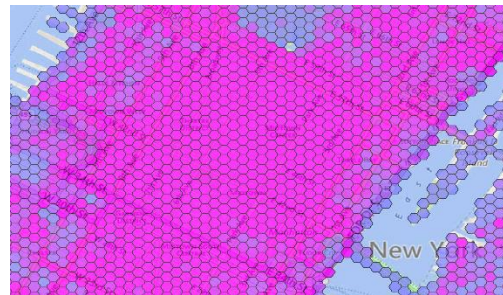
90 days aggregation
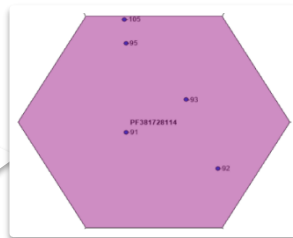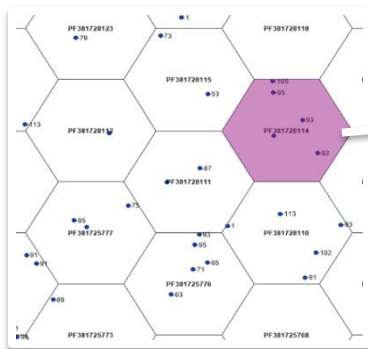
count: 5
rssi_mean: -93
Drop_call: 0
…
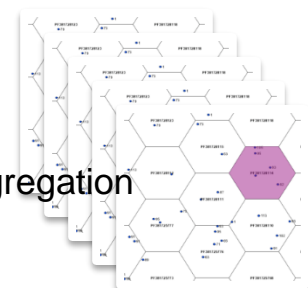
Spatial Data Lake - Traffic Density
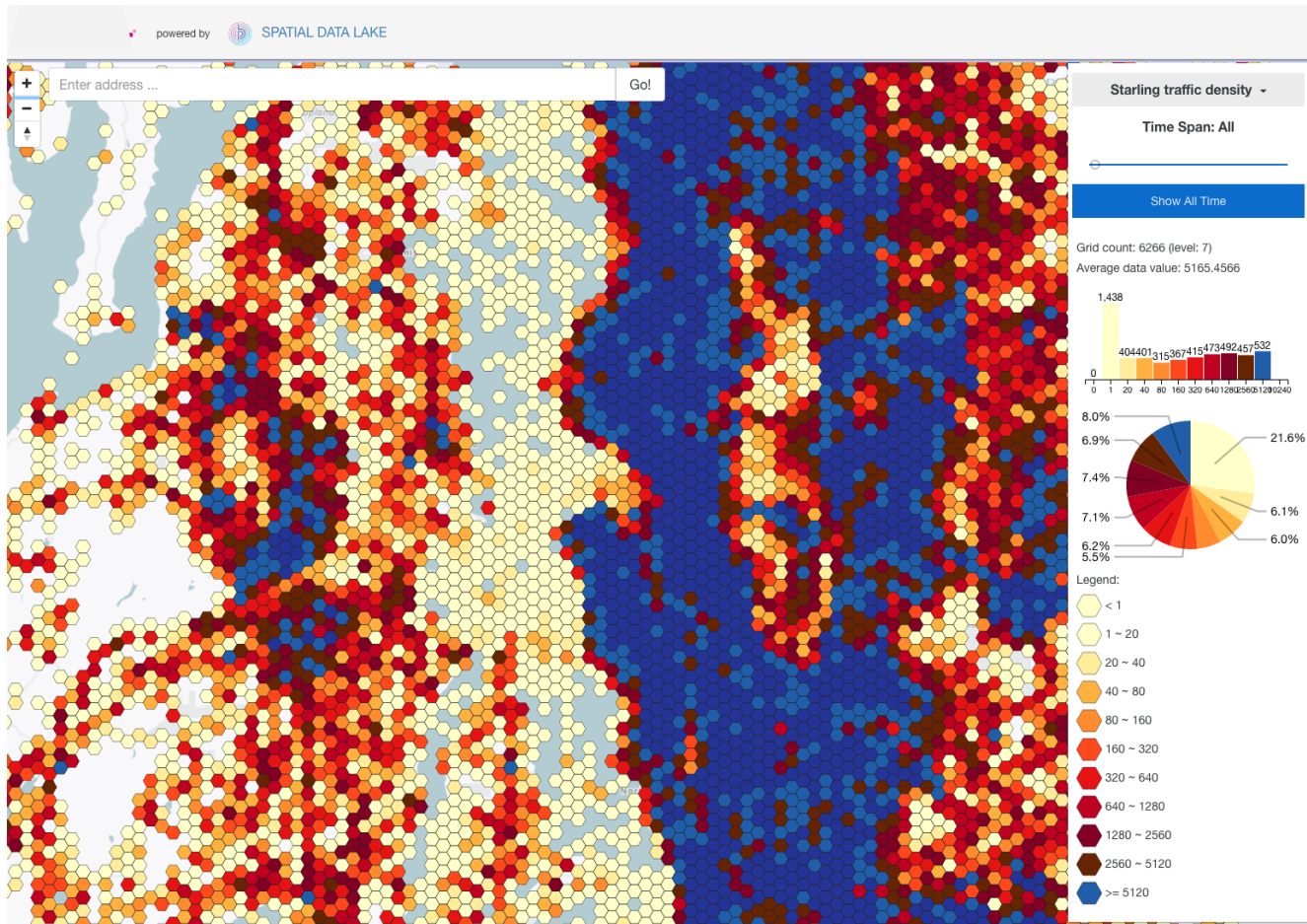
Big Data Driven Spatial Analytics and Visualization Engine