



Big Data Analytics

The Next Frontier in Logistics?

www.dataart.com

Today's presentation

Today's presentation

- **What is Big Data about?**
-

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- What is Big Data about?
 - **How is it used?**
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- What is Big Data about?
 - How is it used?
 - **What's happening now in Logistics**
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Today's presentation

- What is Big Data about?
 - How is it used?
 - What's happening now in Logistics
 - **How can it help me?**
-

What is Big Data?

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It's data where, quite simply,
there is rather a lot of it.

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Sometimes its just text

And might even be images

Big Data Sources

Where does it all come from?

Big Data Sources

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1. People generated: people talking to people. There are one billion Facebook users.
-

Big Data Sources

1. People generated . People talking to people . There are one billion Facebook users.
 2. Machine Generated. Machines talking to machines. The Bankers Automated Clearing Service processes billions of transactions every week.
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Big Data Sources

1. People generated . People talking to people . There are one billion Facebook users.
 2. Machine generated. Machines talking to machines. The Bankers Automated Clearing Service processes billions of transactions every week. **Electronic Data Interchange** processes similarly large volumes of transactions.
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Big Data Sources

1. People generated . People talking to people . There are one billion Facebook users.
 2. Machine generated. Machines talking to machines. The Bankers Automated Clearing Service processes billions of transactions every week. Electronic Data Interchange
 3. The Internet of Things (IoT) Sensors collecting and sharing data. Several million vehicles report their geographical position every day.
-

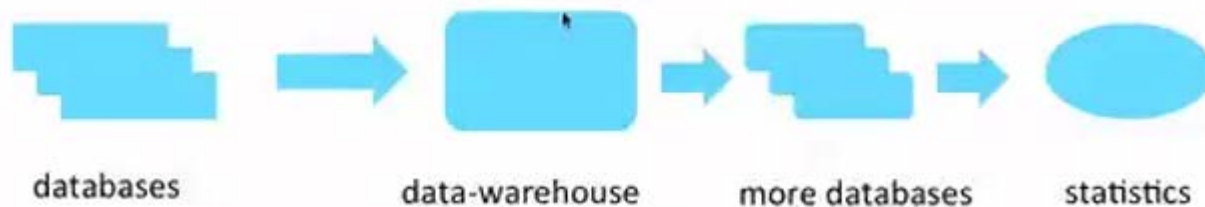
Processing Big Data

Practical implications of this volume
and structure (or lack of it)

Processing Big Data

Ordinary data processing

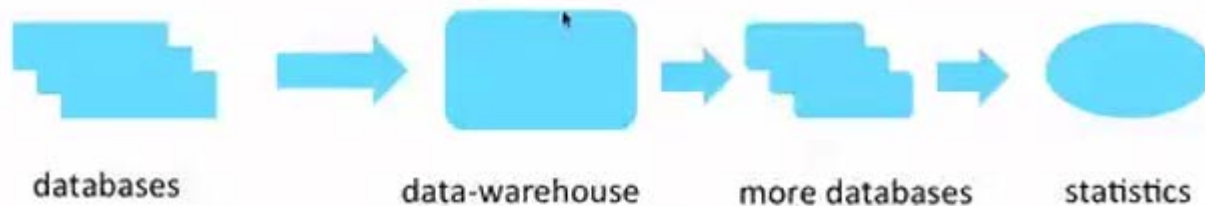
traditional 'business intelligence' using databases:



Processing Big Data

Ordinary data processing

traditional 'business intelligence' using databases:



Simply doesn't work

So now what?

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A little bit of history to explain where this technology has its origins...

So now what?

First came the web (the late 90s) and the accompanying super exponential growth in the number of pages available

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...then technology needed to exploit it

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Google Search

I'm Feeling Lucky

Processing Big Data - Volume

1. Massively Parallel Processing

Processing Big Data

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Technology that allows large numbers of small computers to work on the same problem.

Google has more than 3 million servers!

Processing Big Data

1. Massively Parallel Processing: Technology that allows large numbers of small computers to work on the same problem.

The databases, operating systems and server stuff

Processing Big Data - Structure

1. Massively parallel processing: Technology that allows large numbers of small computers to work on the same problem. The databases, operating systems and server stuff.
 2. New Development Environments for Natural Language Processing
-

Processing Big Data

1. **Massively parallel processing:** Technology that allows large numbers of small computers to work on the same problem. The databases, operating systems and server stuff.

2. Natural Language Processing

Technology invented to process data that goes beyond adding numbers or looking for occurrences of text strings in a name field.

Textual Analysis

1. Count the occurrences of words
-

Textual Analysis

1. Count the occurrences of words

2. Rank them

Textual Analysis

1. Count the occurrences of words
 2. Rank them
 - 3. Score them (e.g. positive negative)**
-

Textual Analysis

Do something useful.....

Textual Analysis

1. Do something useful.....

By analysing social media communications a TV client knows what is likely to become a breaking story in its area of coverage

Textual Analysis

1. Sentiment Analysis – Movie Reviews

The movie was actually neither that funny nor super witty

<http://www-nlp.stanford.edu/sentiment/>

Textual Analysis

The movie was actually neither that funny nor super witty

Advanced textual analysis correctly scores this review as negative.

<http://www-nlp.stanford.edu/sentiment/>

How is Big Data used?

Just a few examples:

- Online advertising – predicting intent and interest

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- Categorising and recognising places, faces, people
- **Personalised genomic medicine**

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- **Building more intelligent public services: energy, water**

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- Building more intelligent public services: energy, water
- **Security**

What's Happening in Logistics?



Large Retail: Small Parcel Savings

- Large retailers using DHL, Fed Ex, UPS et al
- Focus in on parcel costs
- Found they paid overnight premium for parcels going 'next door'
- Realised parcel spend was not within contract Ts & Cs
- Employee compliance with company procedures was deficient (depot to depot costs unreasonable)

<http://www.operasolutions.com/small-parcel-savings-webinar/?submissionGuid=d270fcff-1b3b-48a2-9619-6f59ca7e922d>

What's Happening in Logistics?



“Deere’s Technology Use Solves ‘Insolvable’ Problems”

Analysing the inventory of parts and other supplies in real time, allowing it to allocate resources appropriately.

Equipment ships with sensors that monitor wear and anticipate replacement cycles.

Land area and usage along with yield forecasts are factored into demand forecasts using Big Data

<http://www.bigdata-startups.com/BigData-startup/john-deere-revolutionizing-farming-big-data/>

<http://blogs.wsj.com/cio/2013/01/10/deeres-technology-use-solves-insolvable-problems/>

What's Happening in Logistics?

Fuel Retailer:

- Using sensor data from its network of service stations and convenience stores, a **fuel retailer** knows in near real time what its fuel product mix and consumption rates are in each area of its geographical territories
- Incoming point of sale (POS) data also tells it which mixes of products (besides fuel) work best in different geographical areas so it can tailor offers accordingly
- The end business result? Faster time to market with offers, and better revenue positioning and agility because offers can be instantaneously changed to respond to customer demand shifts.

What's Happening in Logistics?

Large Manufacturer:

- To minimize exposure to risk in its global supply chain, a **large manufacturer** overlays geographical supplier locations with weather statistics for tornadoes, hurricanes, earthquakes
- Then calculates the probabilities of natural disasters occurring through a predictive analytics program
- The end business result? The company now has a way to orchestrate its suppliers so that it has backup plans and failover to suppliers in other areas of the world if a key supplier gets hit by a disaster and the incident takes down production.
- By proactively managing its perceived risks, the company now has a way to avoid disruption to its supply chain that can endanger revenue capture and even impair customer perceptions of the company.



Global News Media Analysis with Big Data

Trends in Media: Analysis with Big Data

- Application collects news from more than 50 original news sources
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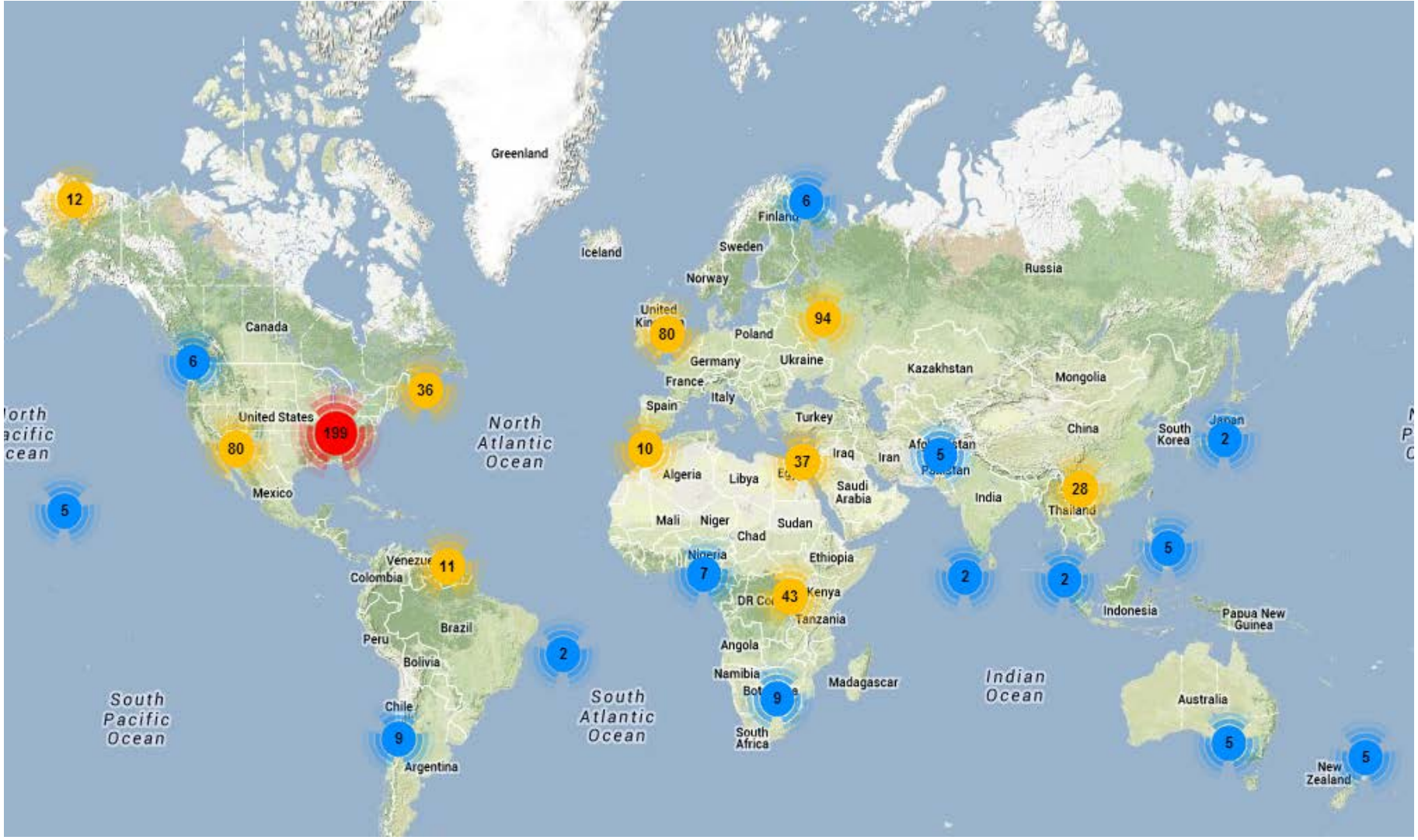
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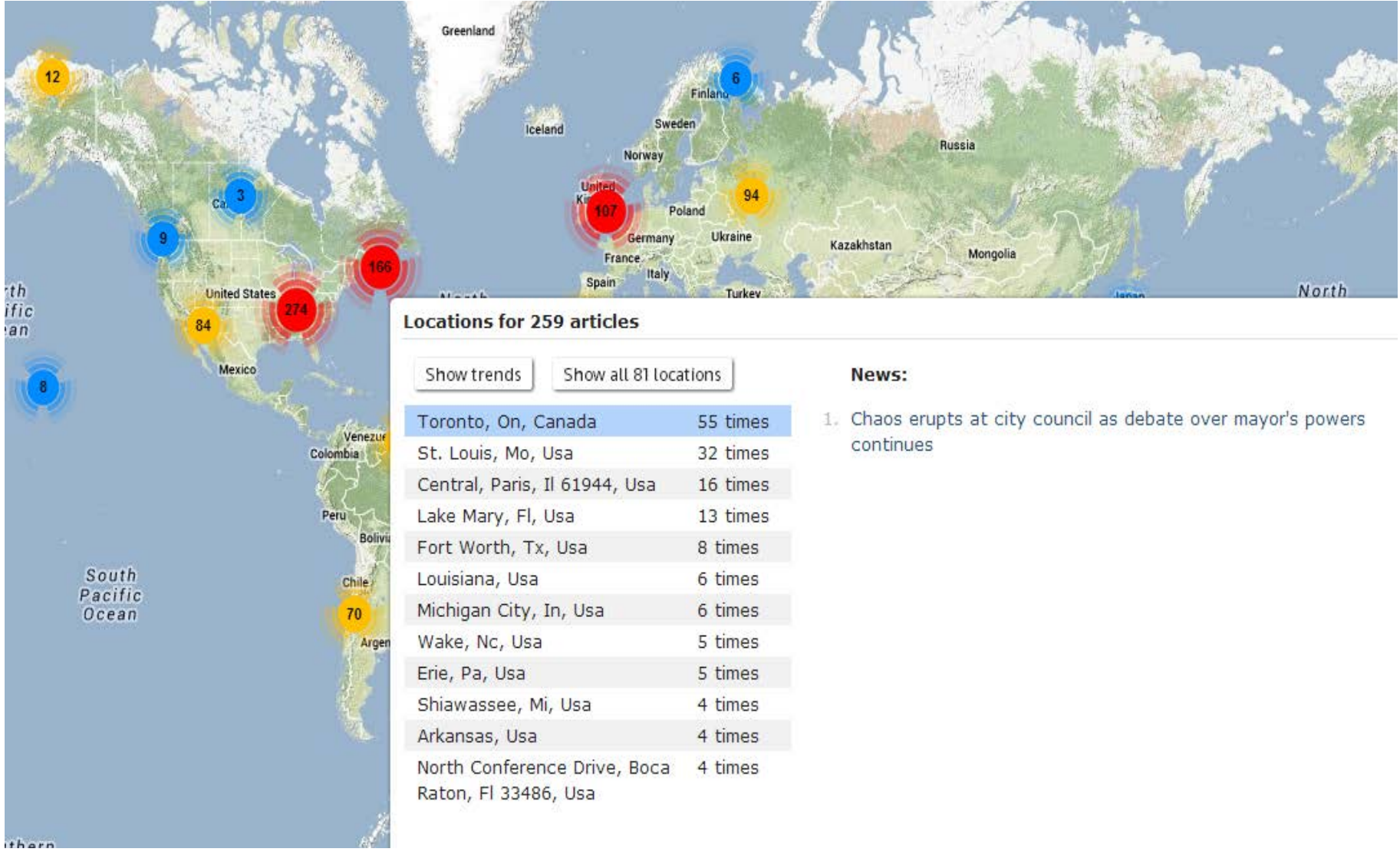
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 - So what is the world talking about? Geo view...
-





Locations for 259 articles

Show trends Show all 81 locations

Toronto, On, Canada	55 times
St. Louis, Mo, Usa	32 times
Central, Paris, Il 61944, Usa	16 times
Lake Mary, Fl, Usa	13 times
Fort Worth, Tx, Usa	8 times
Louisiana, Usa	6 times
Michigan City, In, Usa	6 times
Wake, Nc, Usa	5 times
Erie, Pa, Usa	5 times
Shiawassee, Mi, Usa	4 times
Arkansas, Usa	4 times
North Conference Drive, Boca Raton, Fl 33486, Usa	4 times

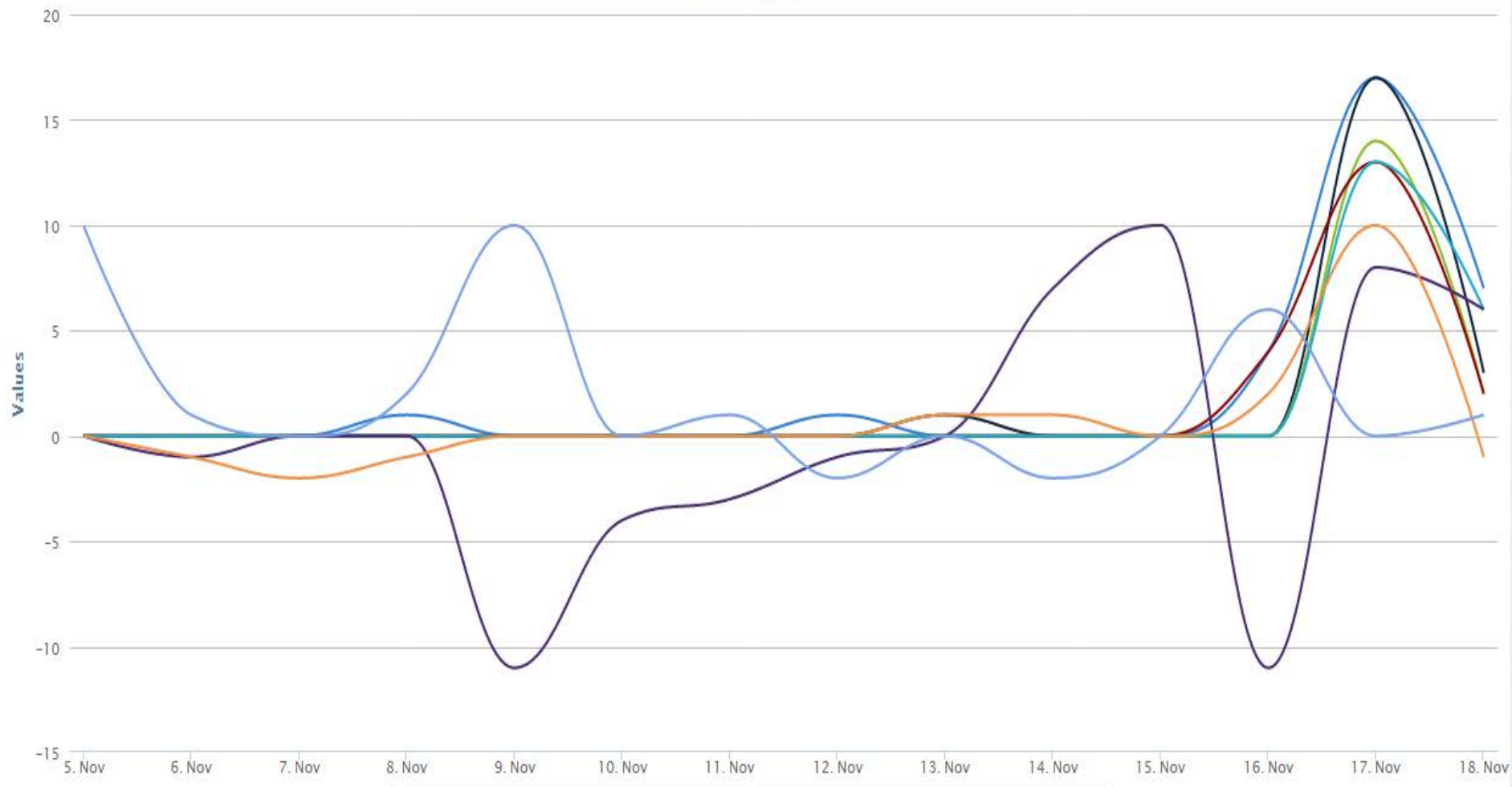
News:

1. Chaos erupts at city council as debate over mayor's powers continues

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 - So what is the world talking about?
 - Trend view...
-

Trends for category:business



boeing dubai emirates airbus dubai airshow u.s. america pakistan

Less More

Should you be using Big Data?

Big Data sounds brilliant,
where do I start?

Should you be
using Big Data?

Big Data sounds brilliant,
where do I start?



Should you be using Big Data?

Are any of the challenges I face
right now capable of being
addressed by Big Data?

Should you be using Big Data?

7 Universal Constructs for Analytics



People



Events



Places



Concepts



Organizations



Things



Time

Should you be using Big Data?

- Bring in your IS dept. and start small
 - You probably already have a lot of data
 - Remember, access to large datasets is available and sometimes free.
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