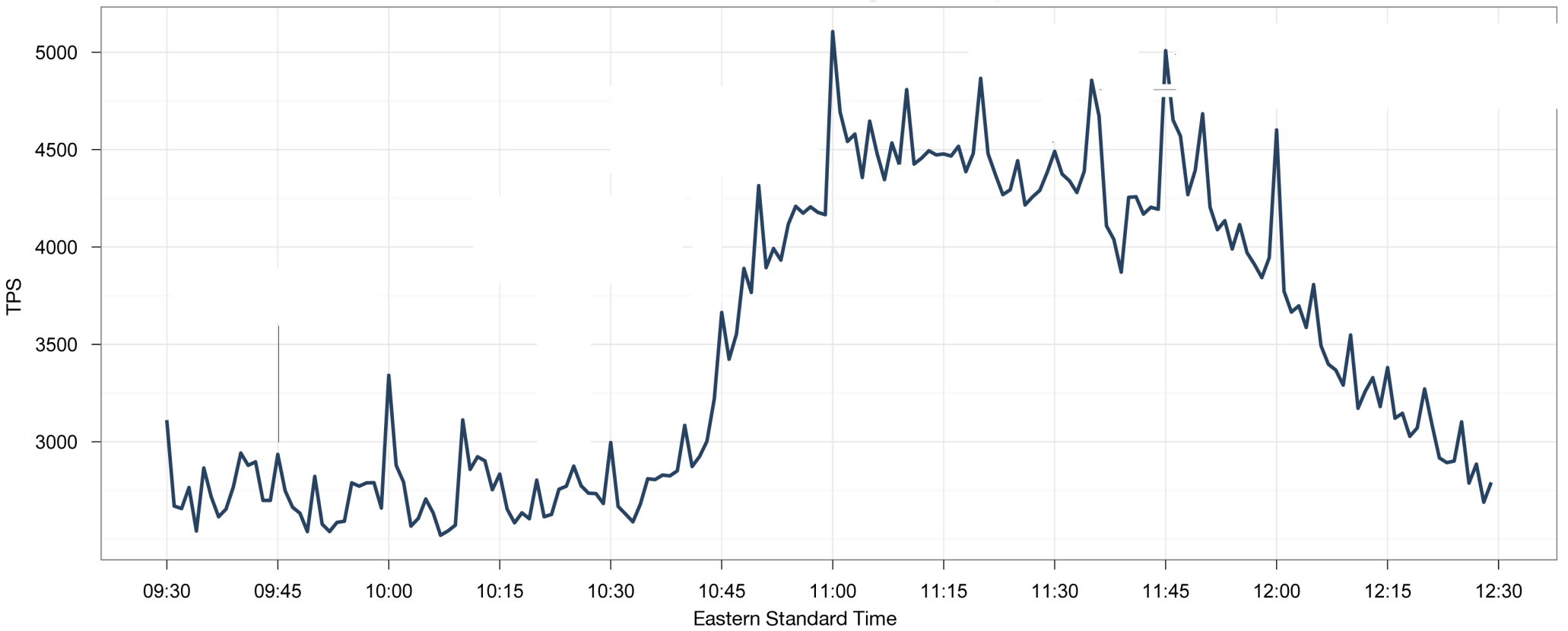
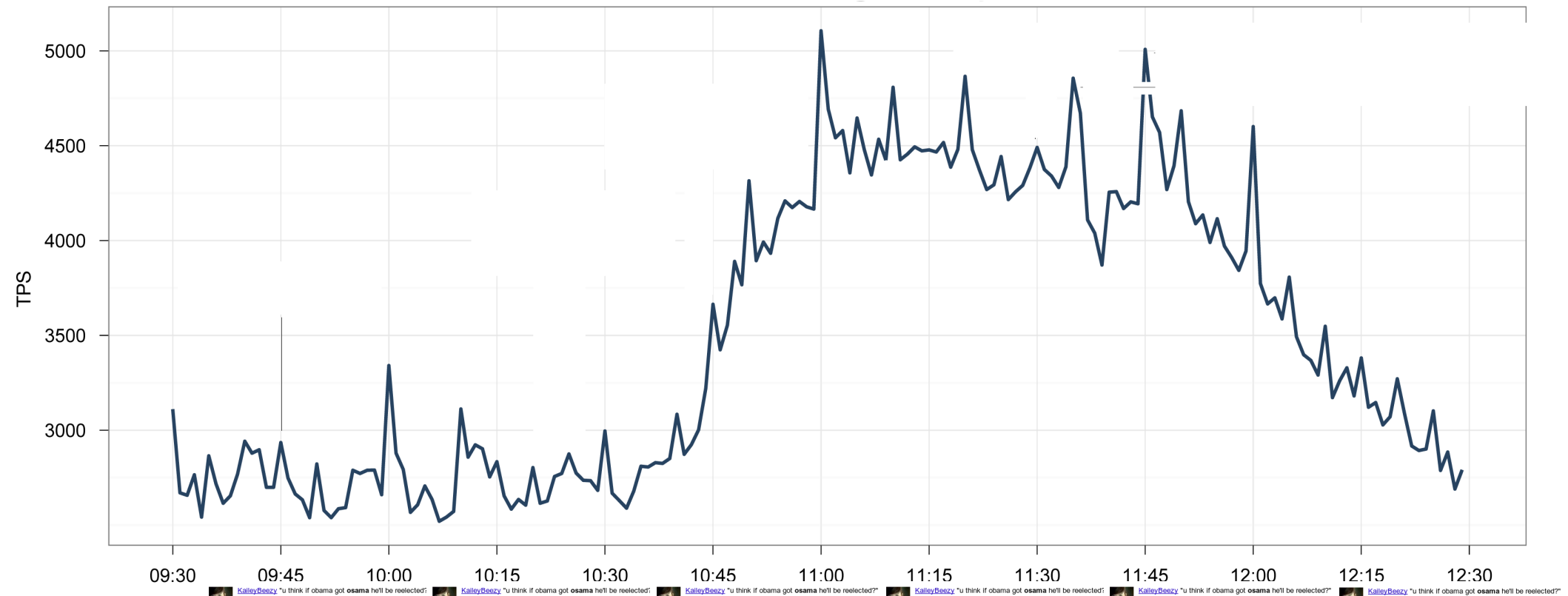
TwitInfo: Aggregating and Visualizing Microblogs for Event Exploration

Adam Marcus, Michael Bernstein, Osama Badar,
David Karger, Sam Madden, Rob Miller

MIT CSAIL

Tell stories using Twitter


5000
4500
4000
3500
3000
TPS
09:30
09:45
10:00
10:15
10:30
10:45
11:00
11:15
11:30
11:45
12:00
12:15
12:30
Eastern Standard Time



KailleyBeezy "u think if obama got **osama** he'll be reelected? -me "maybe if he captured him & beat him to death w/ american flagpole @ ground zero"-Chris
Twitter - May 1, 2011 10:39:59 PM

8kpower If this **Osama** thing is true that means we need a new "Hide and Seek" Champion
Twitter - May 1, 2011 10:39:59 PM

rlove President Obama to announce US killed **Osama** bin Laden, my bet.
Twitter - May 1, 2011 10:39:59 PM - Boston, MA, USA

GoodGetter Ding dong the witch is dead?! RT @jacksonjk: House Intelligence committee aide confirms that **Osama** Bin Laden is dead. U.S. has the body.
Twitter - May 1, 2011 10:39:59 PM

fotocarlos28 Presuntamente murio **Osama** Bin Laden
Twitter - May 1, 2011 10:39:57 PM

JonHenke If so...wow. RT @keithurbahn: So I'm told by a reputable person they have killed **Osama** Bin Laden. Hot damn.
Twitter - May 1, 2011 10:39:56 PM

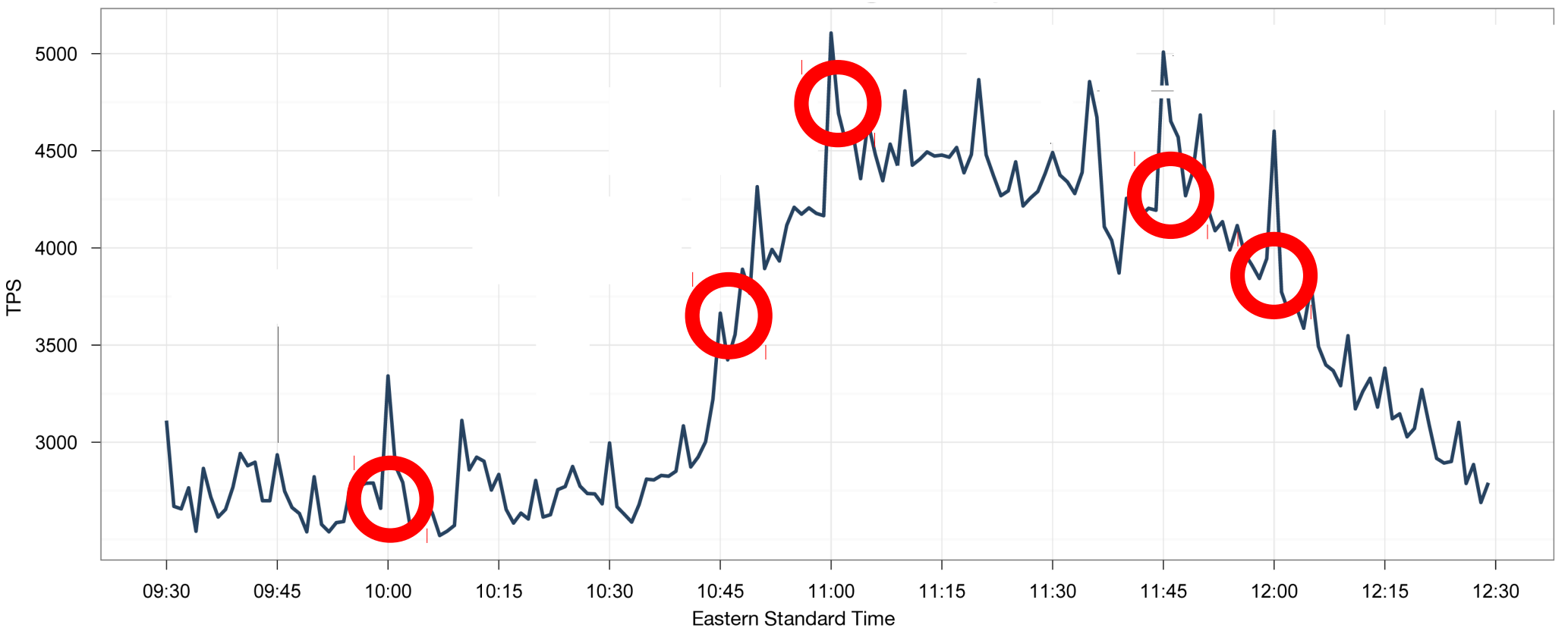
espn700shep There are reports **Osama** Bin Laden is dead!
Twitter - May 1, 2011 10:39:56 PM

LONG_DRIVE If **Osama** is in fact dead I guarantee Roy Halladay killed him.
Twitter - May 1, 2011 10:39:56 PM

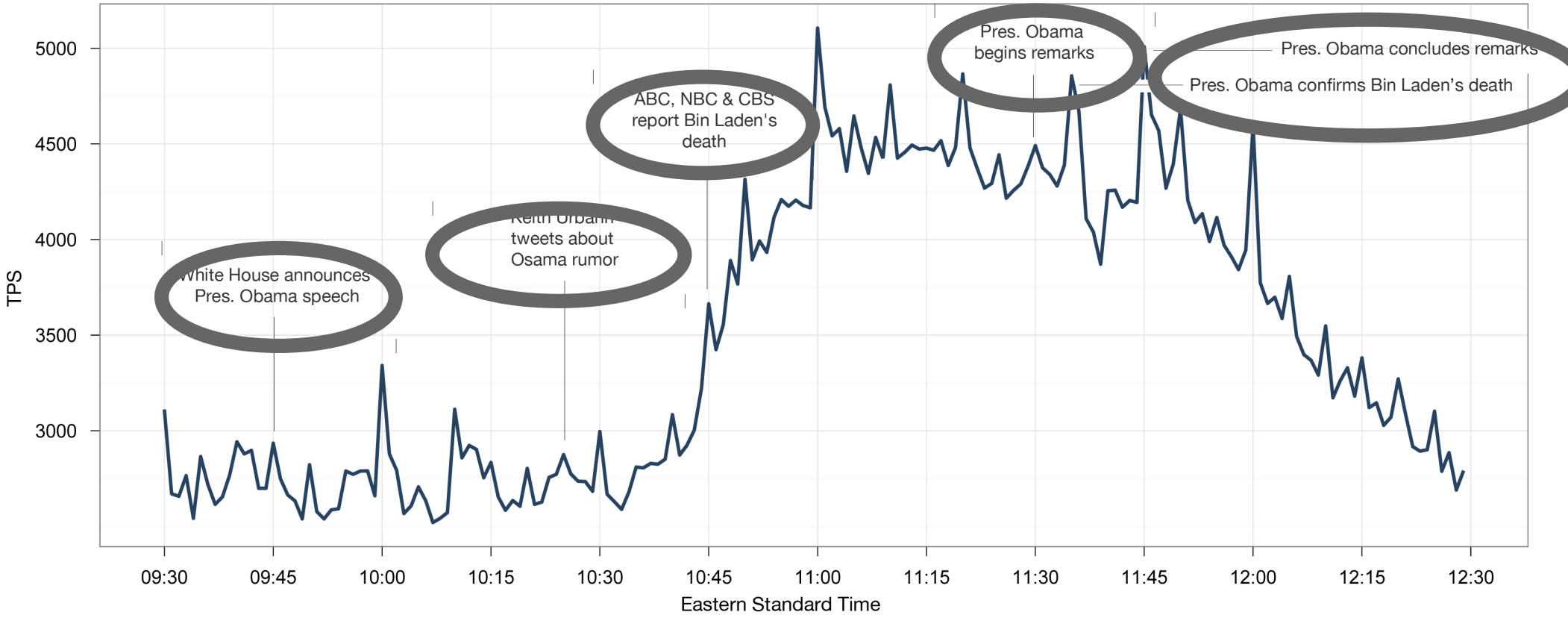
theoutdoorwife NYT reporting that **Osama** Bin Laden is dead.
Twitter - May 1, 2011 10:39:56 PM

FACLC PMOTUS may also claim **Osama** bin Laden is dead but suspiciously he will make statement wearing a mask & carrying a kidney machine. #fcot
Twitter - May 1, 2011 10:39:55 PM

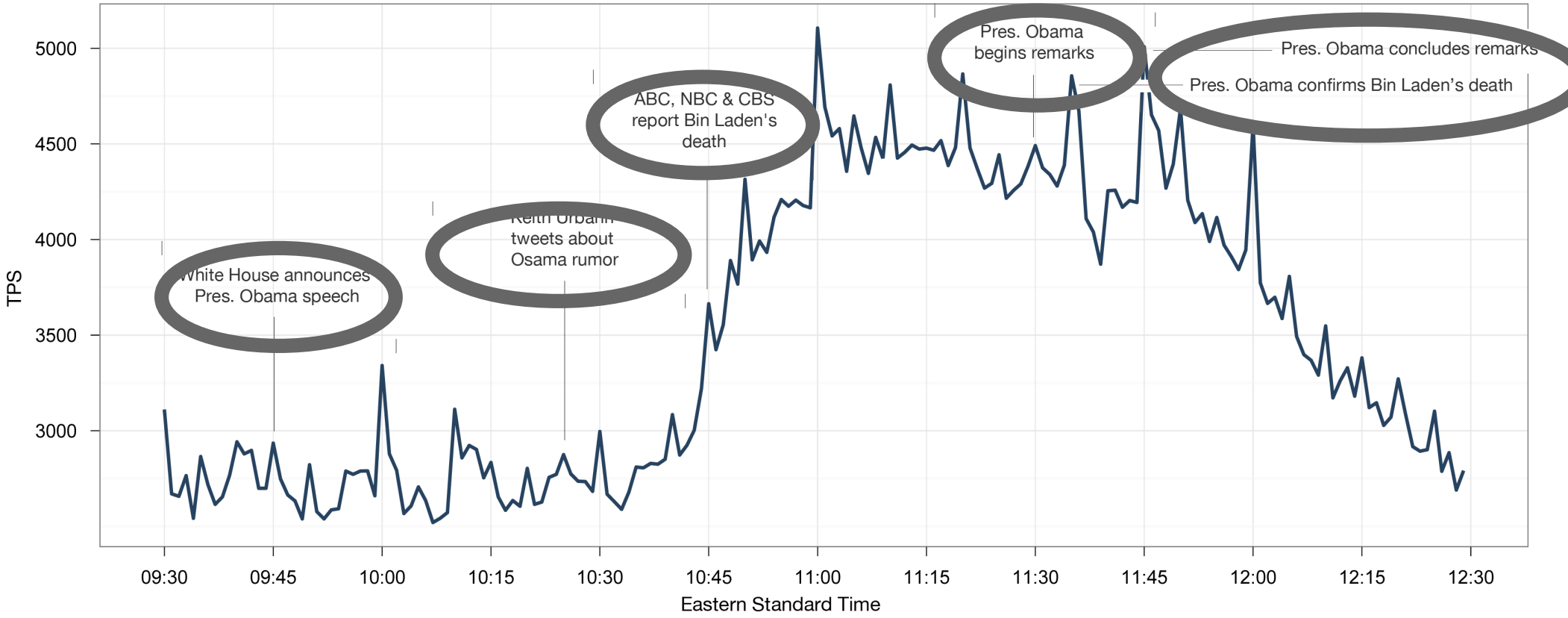
5000
4500
4000
3500
3000
TPS
09:30
09:45
10:00
10:15
10:30
10:45
11:00
11:15
11:30
11:45
12:00
12:15
12:30
too little
too much



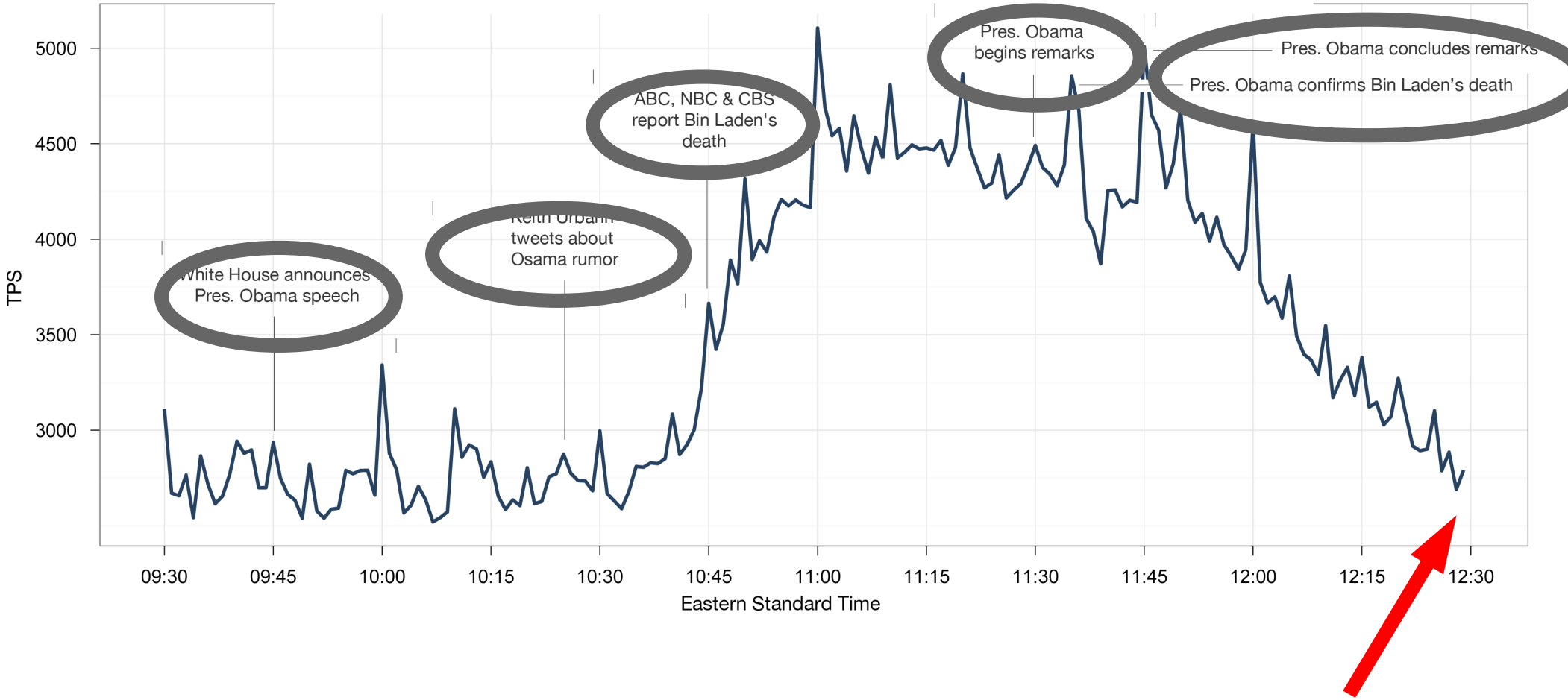
Identify events of interest



Identify events of interest
Label events



Identify events of interest
Label events
Add context: sentiment? location?



Identify events of interest

Label events

Add context: sentiment? location?

Streaming

TwitInfo automates the process of telling stories using Twitter

Identify events of interest

Label events

Add context: sentiment? location?

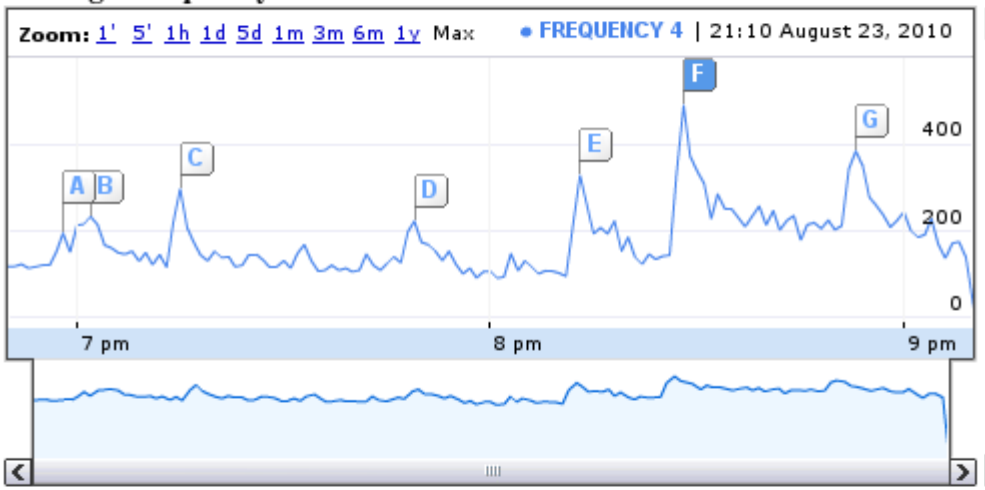
Streaming

twitInfo

august 23 manchester city vs. liverpool

Keywords: football, soccer, epl, premier_league, premierleague, manchester city, mancity, liverpool
Event dates: Aug. 23, 2010, 6:50 p.m. - Aug. 23, 2010, 9:10 p.m.

Message Frequency



Enter a filter term

G. liverpool, city, 3-0, kalah, tevez
Label this event
2010-8-23

F. liverpool, city, tevez, mancity, 3-0
Label this event
2010-8-23

E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

Tweet Map

Relevant Tweets

Tevez... Nets it man! ManCity 3-0 Liverpool... #mogbe

Man City 3-0 Liverpool (Tevez pen)

penalty for City. And Tevez makes it 3-0 for ManCity

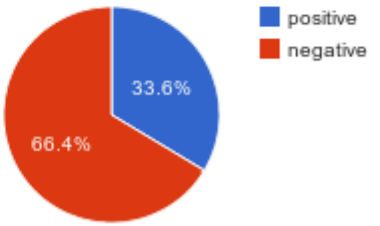
Mancity vs livpool 3-0 tevez gooollllll

BOLANEWS.COM - Update: Manchester City - Liverpool 3-0 (Tevez 66') http://twurl.nl/knkx4l

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Overall Sentiment

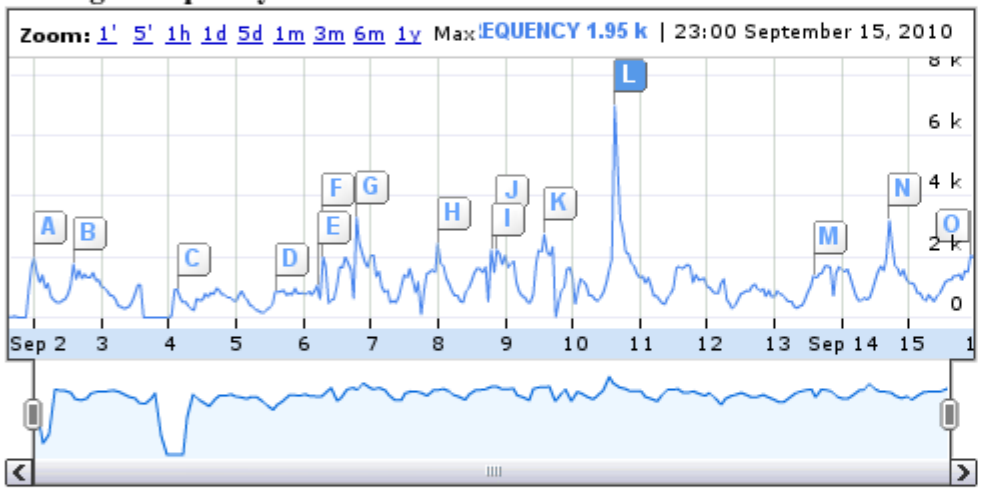


twitInfo

barack obama

Keywords: obama
Event dates: Sept. 1, 2010, 3 p.m. - Sept. 16, 2010, midnight

Message Frequency



Enter a filter term

administration
Label this event

2010-9-13

L. obama, president, economic, barack, economy
Label this event

2010-9-10

K. obama, burning, koran, quran, burn
Label this event

2010-9-9

Tweet Map

Relevant Tweets

Goolsbee Said to Be Picked to Head White House Economic Panel: President Barack Obama will appoint Austan Goolsbee... http://bit.ly/birIPH

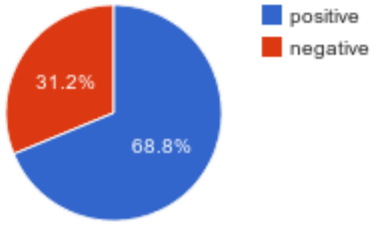
Top Adviser to Lead Panel on Economy - NYTimes.com: President Obama on Friday will promote a longtime economic adv... http://bit.ly/bklmF1

WASHINGTON — President Barack Obama has chosen one of

Popular Links

http://bit.ly/czJdxP (cited by 22)
http://lat.ms/dcig1f (cited by 4)
http://bit.ly/9XzAyd (cited by 4)

Overall Sentiment

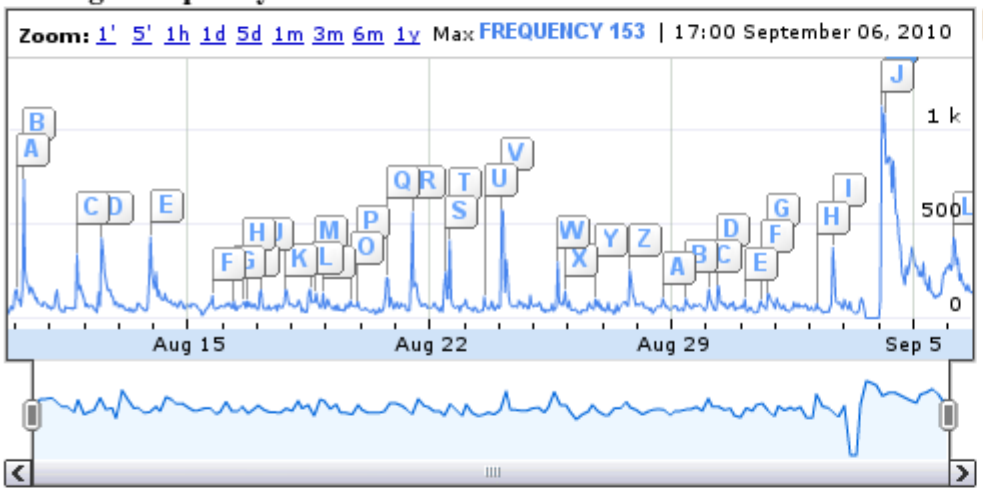


twitInfo

earthquakes

Keywords: earthquake
Event dates: Aug. 9, 2010, 7:18 p.m. - Sept. 6, 2010, 6 p.m.

Message Frequency



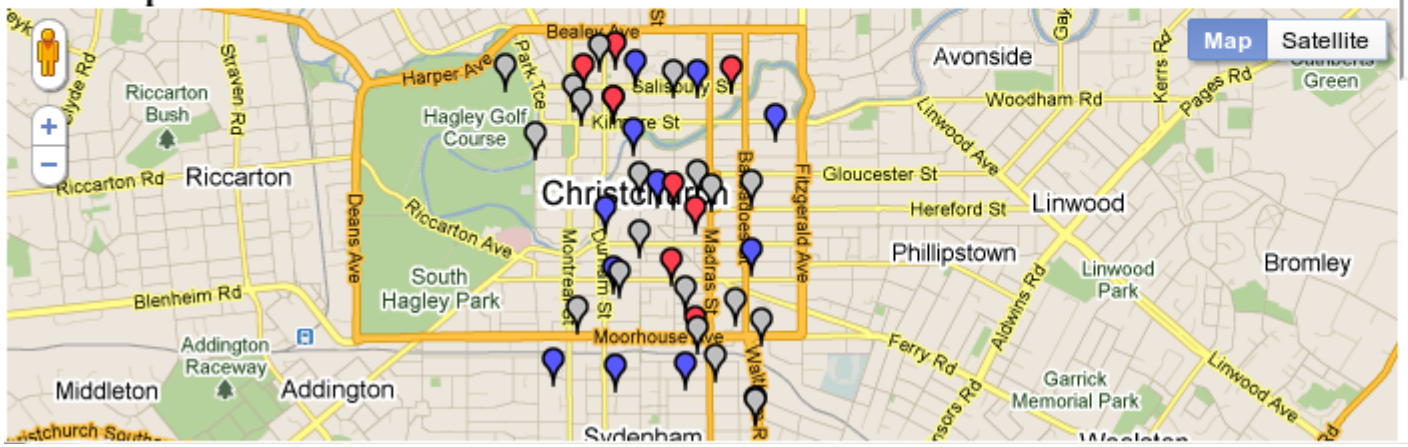
Enter a filter term

K. earthquake, christchurch, zealand, thoughts, prayers
Label this event
2010-9-4

J. earthquake, christchurch, 7.0, zealand, nz
Label this event
2010-9-4

I. earthquake, 3.3, felt, pablo, san
Label this event
2010-9-2

Tweet Map



Relevant Tweets

RT @mariacelina: This morning, my thoughts & prayers go out to those affected by the earthquake that recently hit Christchurch, New Zealand.

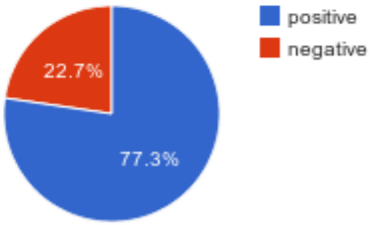
RT @KennyHamilton: Just heard about the earthquake in New Zealand...my thoughts and prayers go out to everyone in that country. I hope ...

RT @EvermoreBand: Thoughts and prayers with the people of Christchurch. Massive earthquake there, and no power or water for the whole city

Popular Links

http://on.cnn.com/8YDPyG (cited by 11)
http://bit.ly/ddWgtK (cited by 6)
http://bit.ly/aFh7RM (cited by 5)

Overall Sentiment



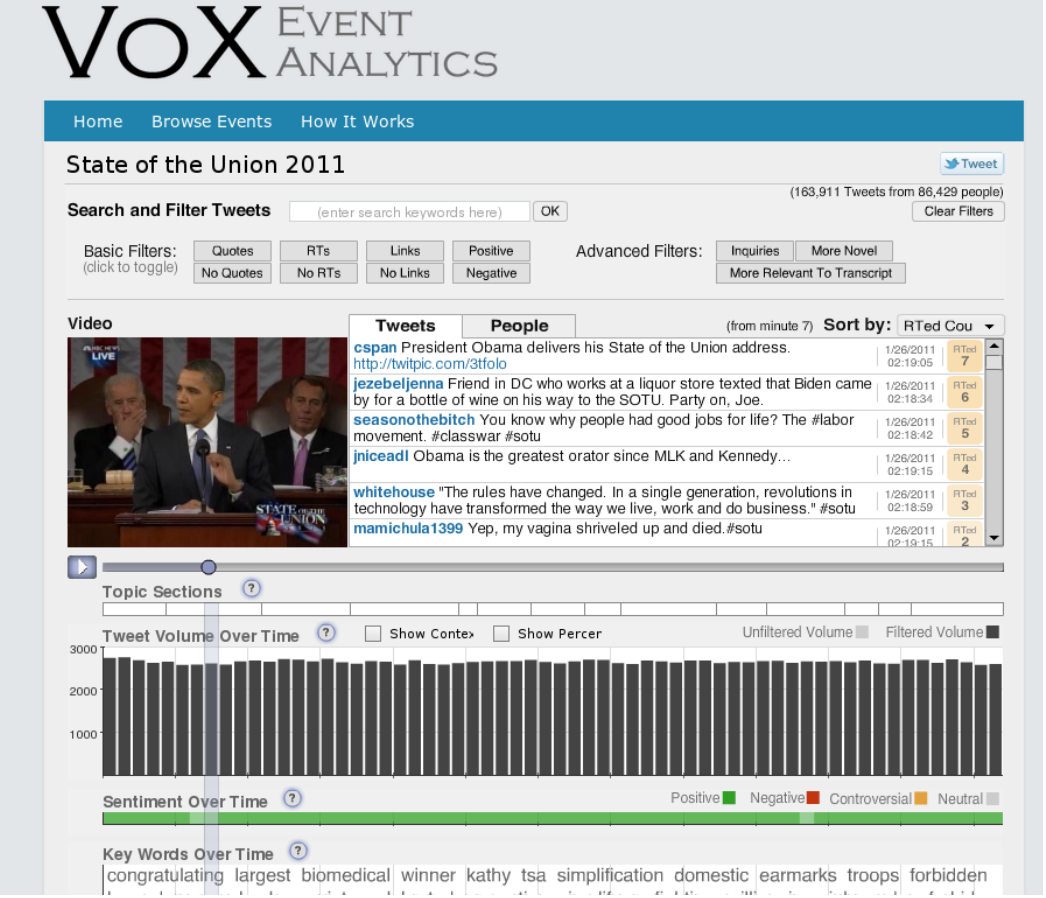
TwitInfo

event detection
event labeling
context
streaming algorithms

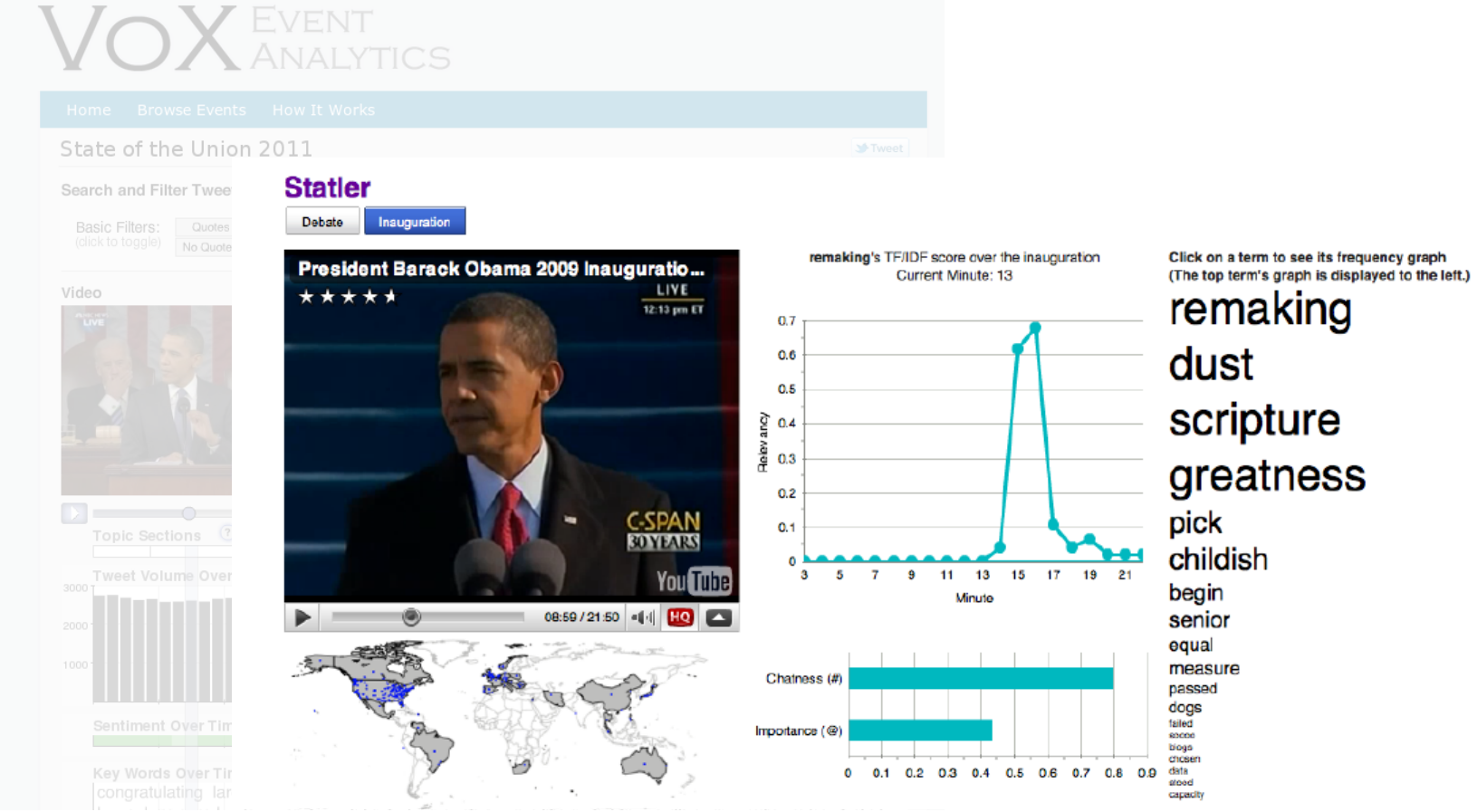
TwitInfo

event detection
event labeling
context
streaming algorithms

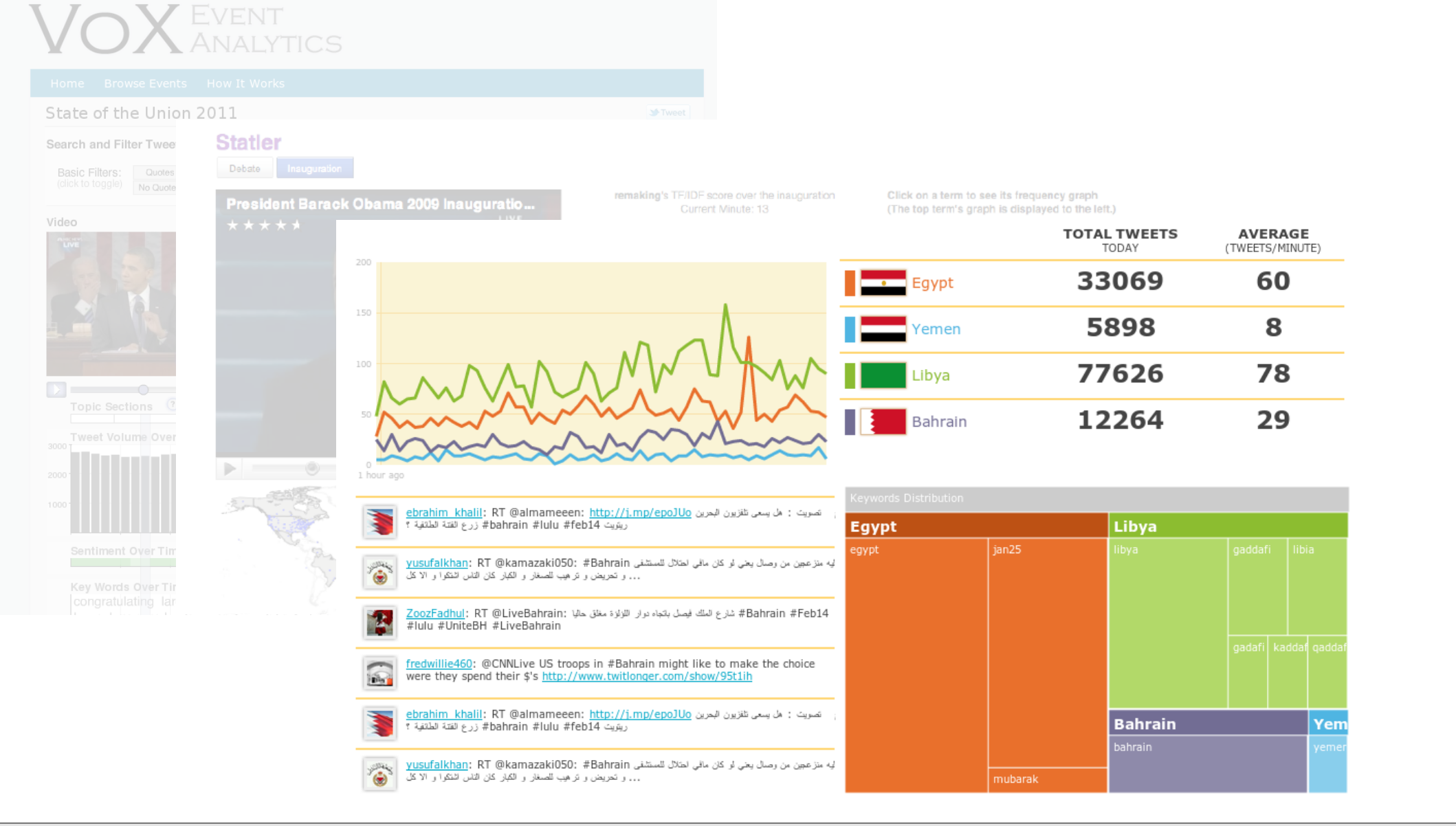
sentiment correction algorithm
evaluation: news consumers
evaluation: pulitzer prize journalist



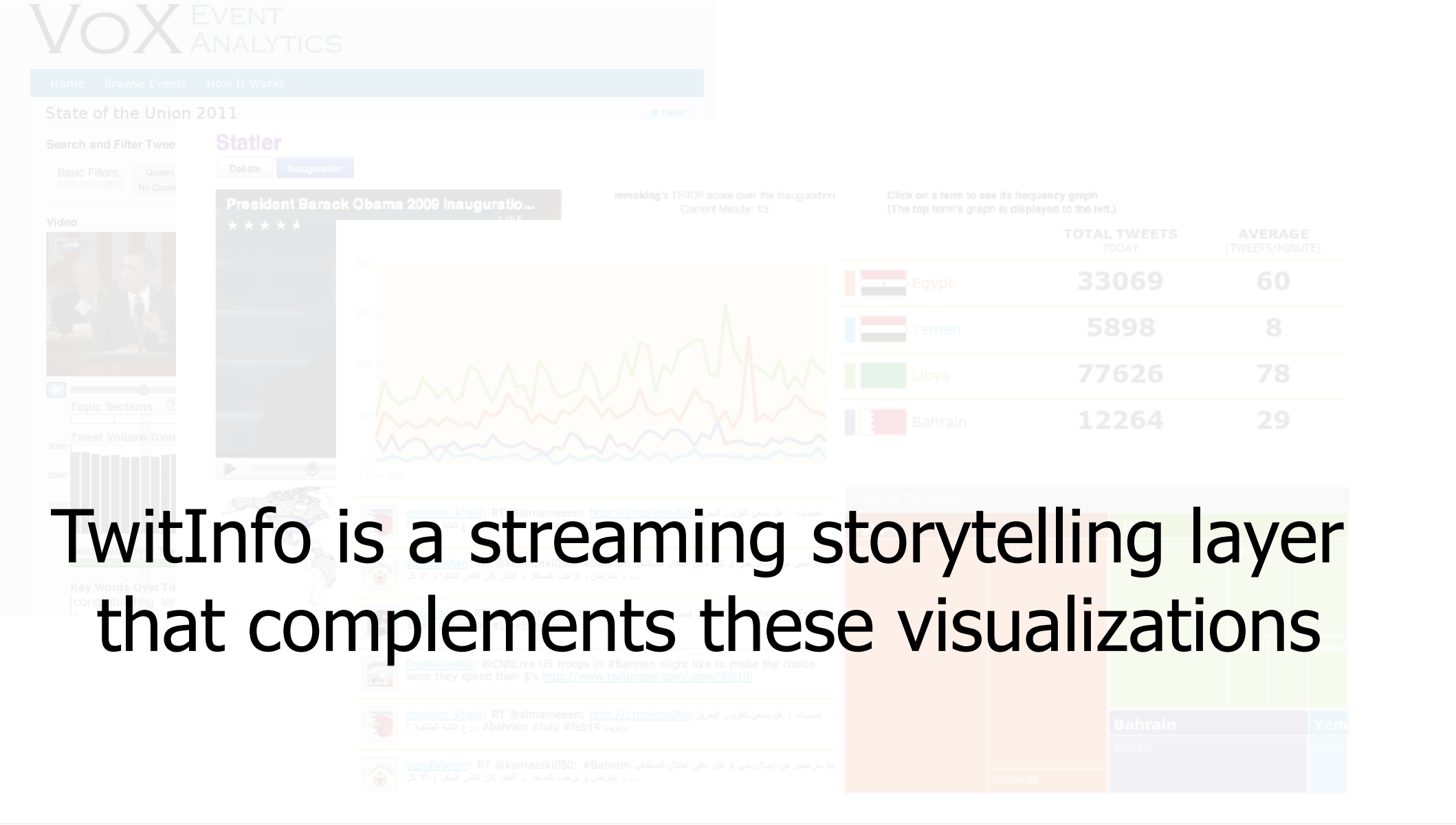
[Andre et al. UIST2007] [Diakopoulos et al. VAST 2010] [Diakopoulos+Shamma CHI2010] [Dork et al. InfoVis2010] [Go et al. 2010] [Leskovec et al. KDD2009] [Shamma et al. CSCW2010+2011]



[Andre et al. UIST2007] [Diakopoulos et al. VAST 2010] [Diakopoulos+Shamma CHI2010] [Dork et al. InfoVis2010] [Go et al. 2010] [Leskovec et al. KDD2009] [Shamma et al. CSCW2010+2011]



[Andre et al. UIST2007] [Diakopoulos et al. VAST 2010]
[Diakopoulos+Shamma CHI2010] [Dork et al. InfoVis2010]
[Go et al. 2010] [Leskovec et al. KDD2009]
[Shamma et al. CSCW2010+2011]



TwitInfo is a streaming storytelling layer that complements these visualizations

[Andre et al. UIST2007] [Diakopoulos et al. VAST 2010]
[Diakopoulos+Shamma CHI2010] [Dork et al. InfoVis2010]
[Go et al. 2010] [Leskovec et al. KDD2009]
[Shamma et al. CSCW2010+2011]

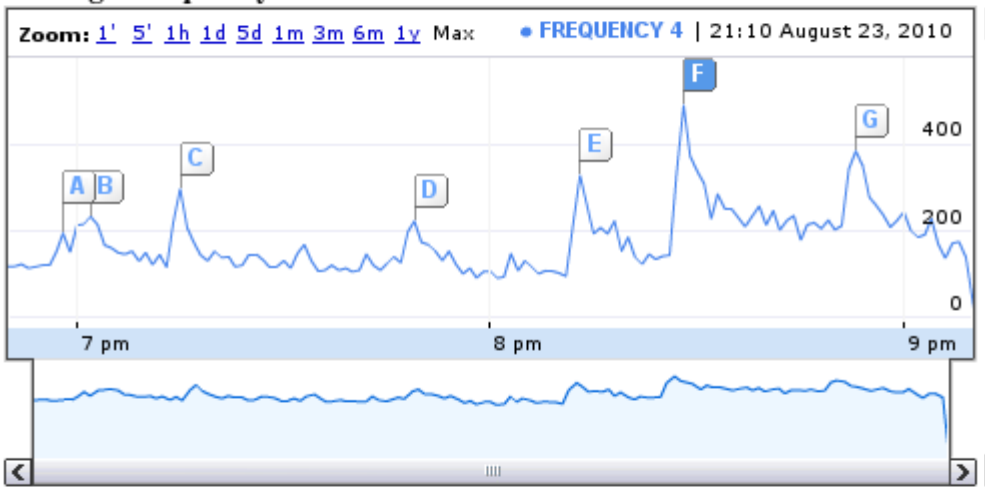
ui walkthrough
algorithm design
study/evaluation
discussion

twitInfo

august 23 manchester city vs. liverpool

Keywords: football, soccer, epl, premier_league, premierleague, manchester city, mancity, liverpool
Event dates: Aug. 23, 2010, 6:50 p.m. - Aug. 23, 2010, 9:10 p.m.

Message Frequency



Enter a filter term

G. liverpool, city, 3-0, kalah, tevez
Label this event
2010-8-23

F. liverpool, city, tevez, mancity, 3-0
Label this event
2010-8-23

E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

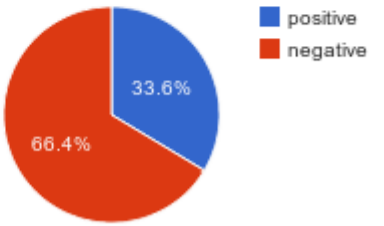
Tweet Map

Relevant Tweets

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Overall Sentiment

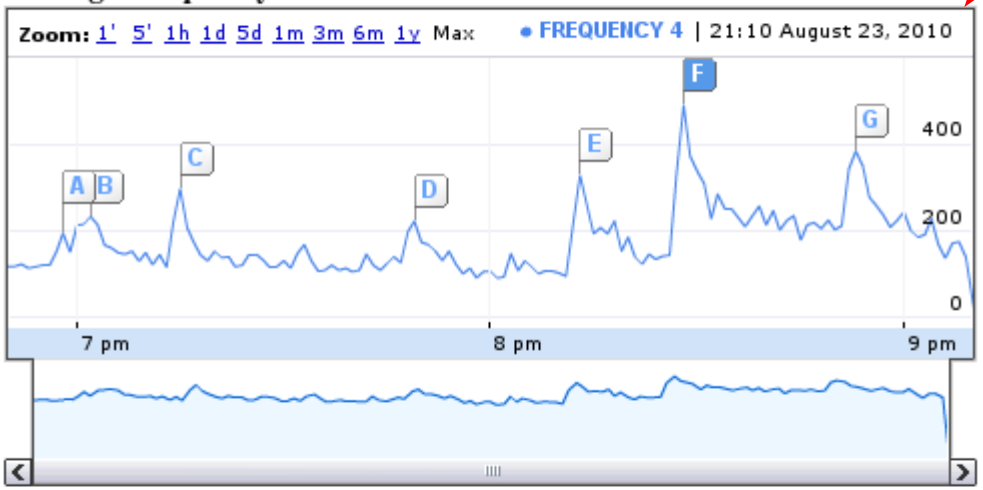


twitInfo

august 23 manchester city vs. liverpool

Keywords: football, soccer, epl, premier_league, premierleague, manchester city, mancity, liverpool
Event dates: Aug. 23, 2010, 6:50 p.m. - Aug. 23, 2010, 9:10 p.m.

Message Frequency



Enter a filter term

G. liverpool, city, 3-0, kalah, tevez
Label this event
2010-8-23

F. liverpool, city, tevez, mancity, 3-0
Label this event
2010-8-23

E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

Tweet Map

Relevant Tweets

Tevez... Nets it man! ManCity 3-0 Liverpool... #mogbe

Man City 3-0 Liverpool (Tevez pen)

penalty for City. And Tevez makes it 3-0 for ManCity

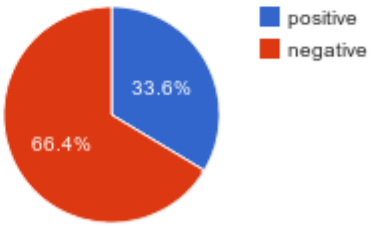
Mancity vs livpool 3-0 tevez gooollllll

BOLANEWS.COM - Update: Manchester City - Liverpool 3-0 (Tevez 66') http://twurl.nl/knkx4l

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Overall Sentiment

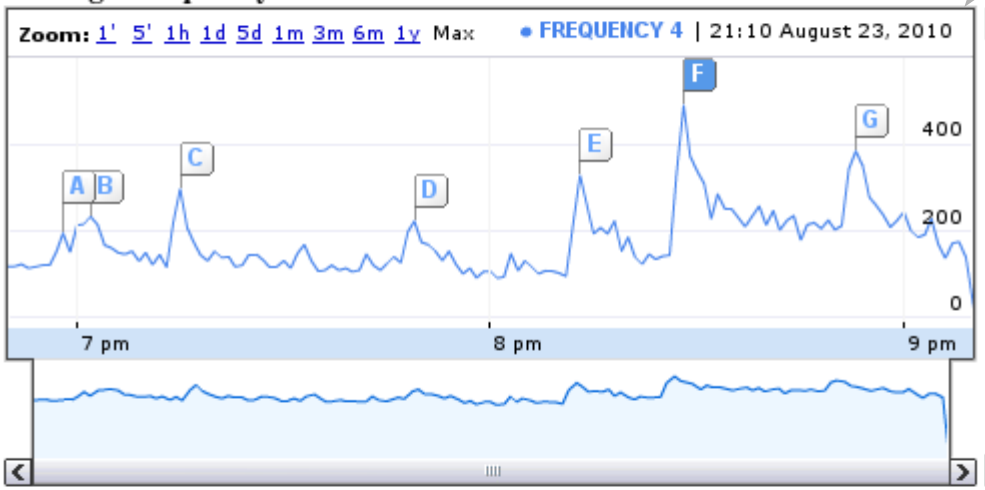


twitInfo

august 23 manchester city vs. liverpool

Keywords: football, soccer, epl, premier_league, premierleague, manchester city, mancity, liverpool
Event dates: Aug. 23, 2010, 6:50 p.m. - Aug. 23, 2010, 9:10 p.m.

Message Frequency



Enter a filter term

G. liverpool, city, 3-0, kalah, tevez
Label this event
2010-8-23

F. liverpool, city, tevez, mancity, 3-0
Label this event
2010-8-23

E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

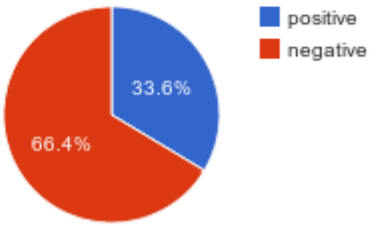
Tweet Map

Relevant Tweets

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Overall Sentiment

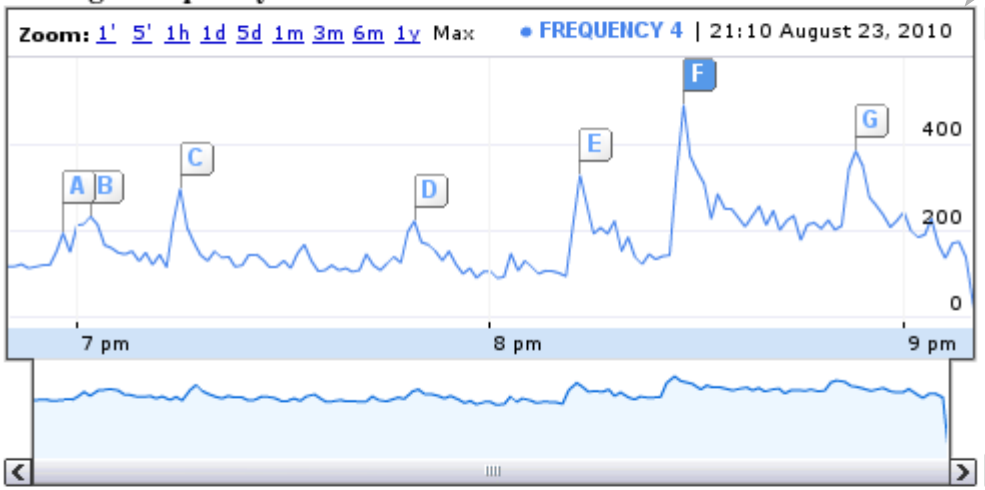


twitInfo

august 23 manchester city vs. liverpool

Keywords: football, soccer, epl, premier_league, premierleague, manchester city, mancity, liverpool
Event dates: Aug. 23, 2010, 6:50 p.m. - Aug. 23, 2010, 9:10 p.m.

Message Frequency



Enter a filter term

G. liverpool, city, 3-0, kalah, tevez
Label this event
2010-8-23

F. liverpool, city, tevez, mancity, 3-0
Label this event
2010-8-23

E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

Tweet Map

Relevant Tweets

Tevez... Nets it man! ManCity 3-0 Liverpool... #mogbe

Man City 3-0 Liverpool (Tevez pen)

penalty for City. And Tevez makes it 3-0 for ManCity

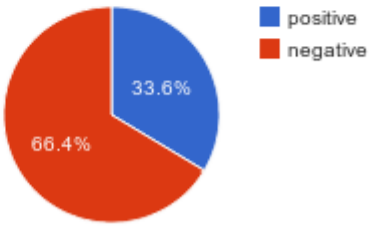
Mancity vs livpool 3-0 tevez gooollllll

BOLANEWS.COM - Update: Manchester City - Liverpool 3-0 (Tevez 66') http://twurl.nl/knkx4l

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Overall Sentiment

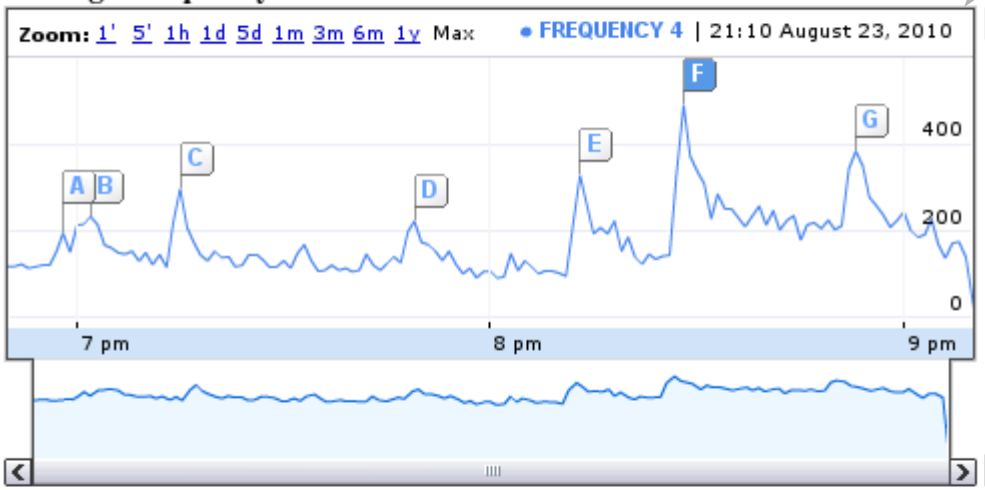


twitInfo

august 23 manchester city vs. liverpool

Keywords: football, soccer, epl, premier_league, premierleague, manchester city, mancity, liverpool
Event dates: Aug. 23, 2010, 6:50 p.m. - Aug. 23, 2010, 9:10 p.m.

Message Frequency



Enter a filter term

G. liverpool, city, 3-0, kalah, tevez
Label this event
2010-8-23

F. liverpool, city, tevez, mancity, 3-0
Label this event
2010-8-23

E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

Tweet Map

Relevant Tweets

Tevez... Nets it man! ManCity 3-0 Liverpool... #mogbe

Man City 3-0 Liverpool (Tevez pen)

penalty for City. And Tevez makes it 3-0 for ManCity

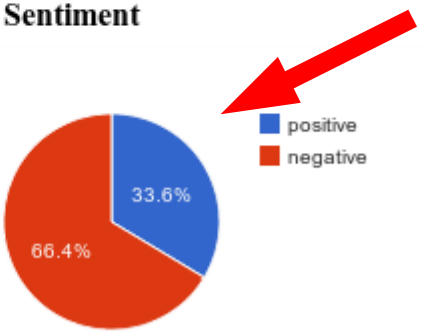
Mancity vs livpool 3-0 tevez gooollllll

BOLANEWS.COM - Update: Manchester City - Liverpool 3-0 (Tevez 66') http://twurl.nl/knkx4l

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Overall Sentiment

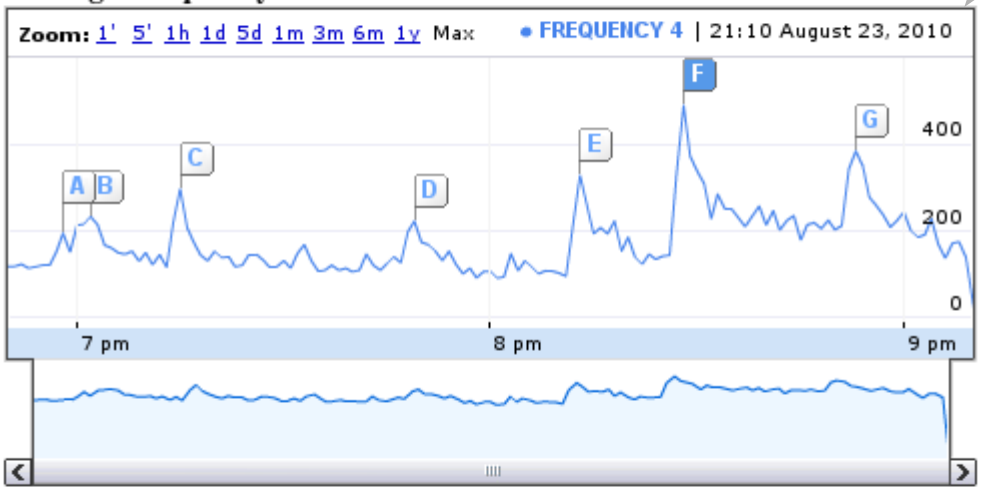


twitInfo

august 23 manchester city vs. liverpool

Keywords: football, soccer, epl, premier_league, premierleague, manchester city, mancity, liverpool
Event dates: Aug. 23, 2010, 6:50 p.m. - Aug. 23, 2010, 9:10 p.m.

Message Frequency



Enter a filter term

G. liverpool, city, 3-0, kalah, tevez
Label this event
2010-8-23

F. liverpool, city, tevez, mancity, 3-0
Label this event
2010-8-23

E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

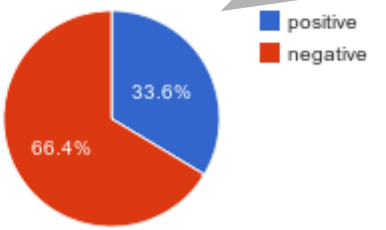
Tweet Map

Relevant Tweets

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Overall Sentiment



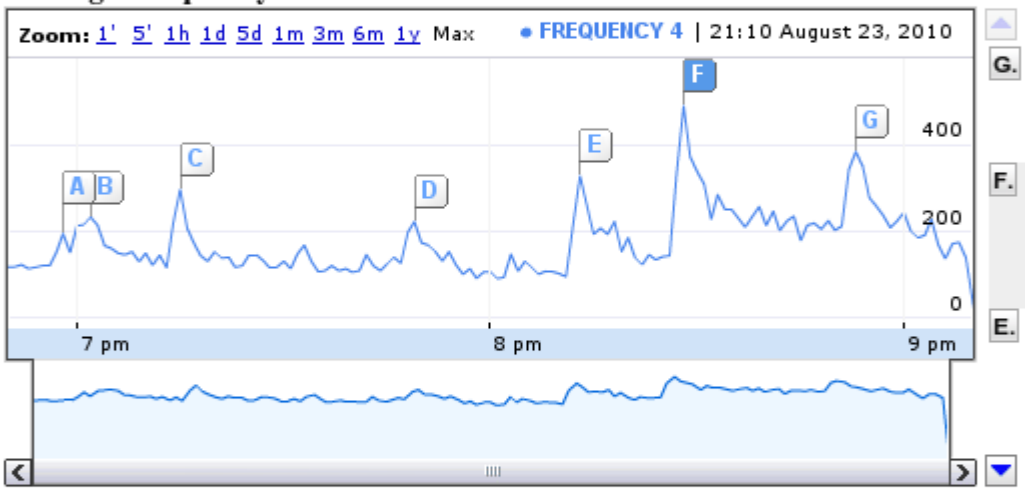
ui walkthrough

algorithm design

study/evaluation

discussion

Message Frequency



Enter a filter term

G. **liverpool, city, 3-0, kalah, tevez**
Label this event
2010-8-23

F. **liverpool, city, tevez, mancity, 3-0**
Label this event
2010-8-23

E. **liverpool, city, mancity, 2-0, man**
Label this event
2010-8-23

Message Frequency
Zoom: 1' 5' 1h 1d 5d 1m 3m 6m 1y Max
FREQUENCY 4 | 21:10 August 23, 2010
A
B
C
D
E
F
G
400
200
0
7 pm
8 pm
9 pm
Enter a filter term
G. liverpool, city, 3-0, kalah, tevez
Label this event
2010-8-23
F. liverpool, city, tevez, mancity, 3-0
Label this event
2010-8-23
E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

Large

Relatively Large

Relatively Large

Streaming

Relatively Large

Streaming mean deviation

Relatively Large

Adaptive

Streaming

mean deviation

Relatively Large

Adaptive Streaming

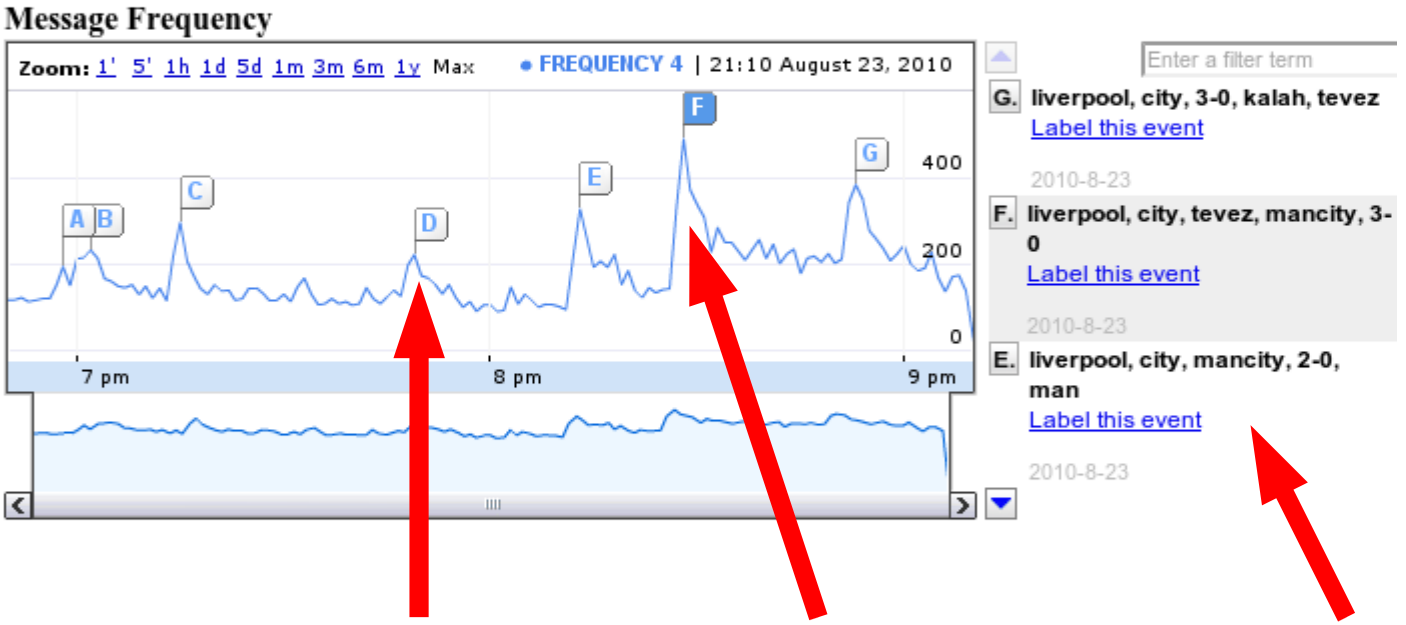
Exponentially weighted moving mean deviation

Relatively Large

Adaptive Streaming

Exponentially weighted moving mean deviation

RFC 2988: Computing
TCP's retransmission timer



Relatively Large TF-IDF

Adaptive Streaming

Exponentially weighted moving mean deviation

RFC 2988: Computing
TCP's retransmission timer

2 datasets: earthquakes, soccer games

Precision: 80-100%
Recall: 80-100%

Relatively Long

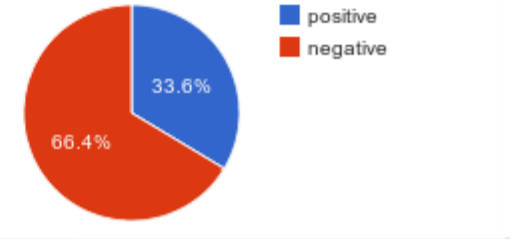
TF-IDF

Adaptive

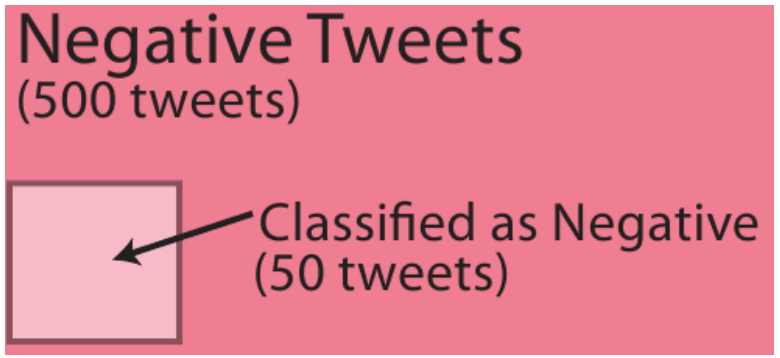
Streaming

Exponentially weighted moving mean deviation

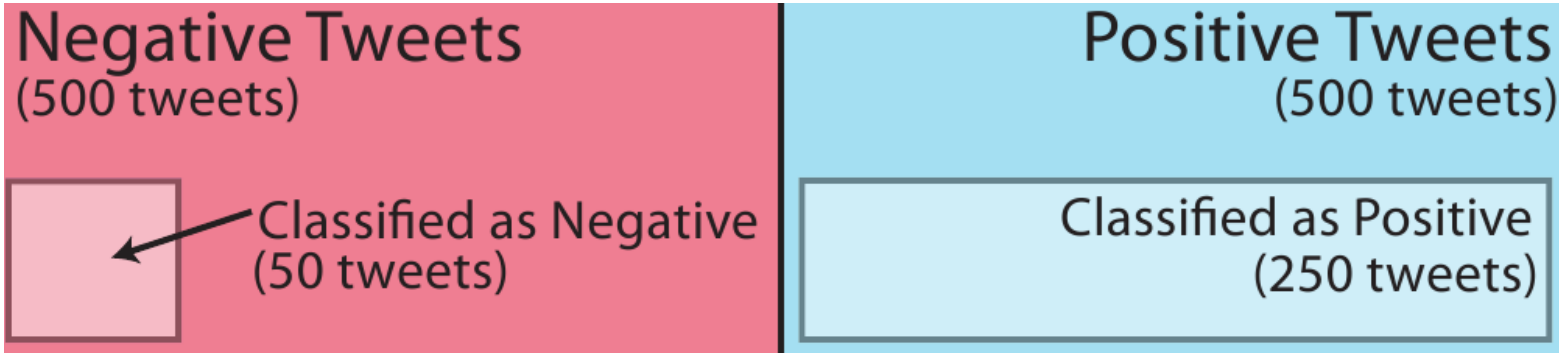
RFC 2988: Computing
TCP's retransmission timer

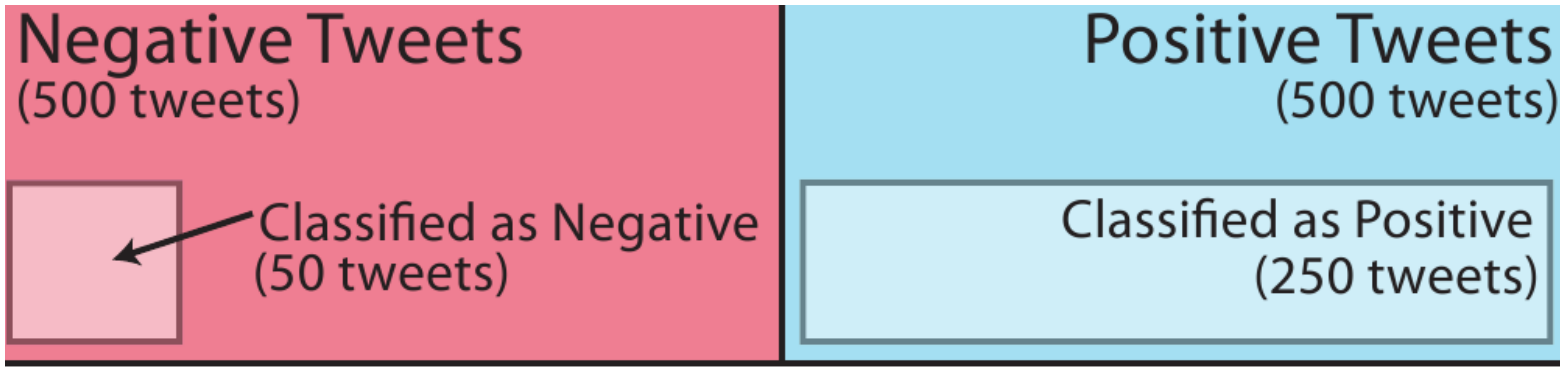

positive
negative
33.6%
66.4%

positive
negative
33.6%
66.4%

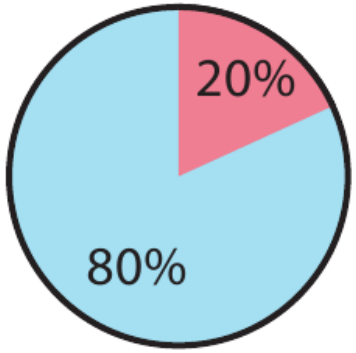

Negative Tweets
(500 tweets)
Classified as Negative
(50 tweets)

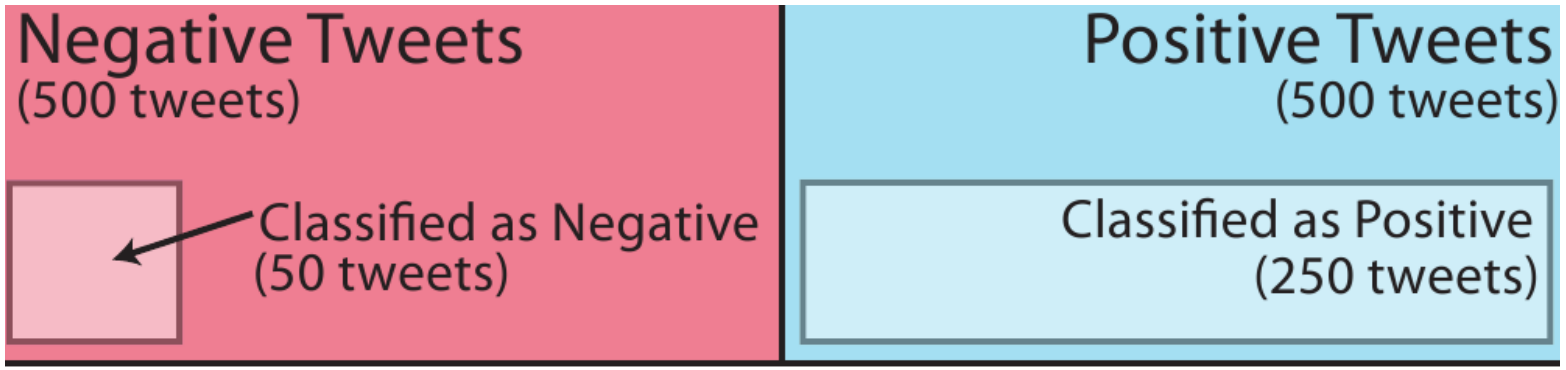
positive
negative
33.6%
66.4%


Negative Tweets
(500 tweets)
Classified as Negative
(50 tweets)
Positive Tweets
(500 tweets)
Classified as Positive
(250 tweets)

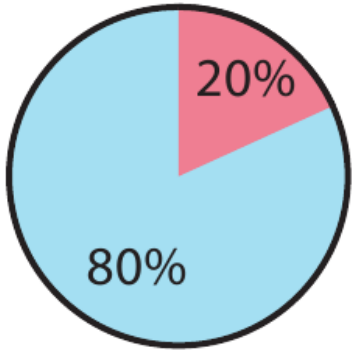


Uncorrected Output:

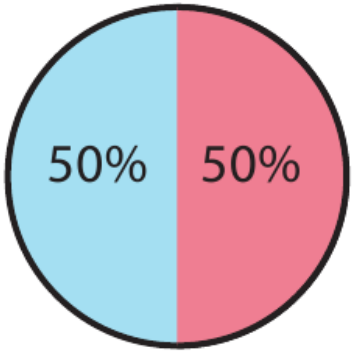




Uncorrected Output:



Recall-Normalized Output:



MAYBE CUT!

ui walkthrough
algorithm design
study/evaluation
discussion

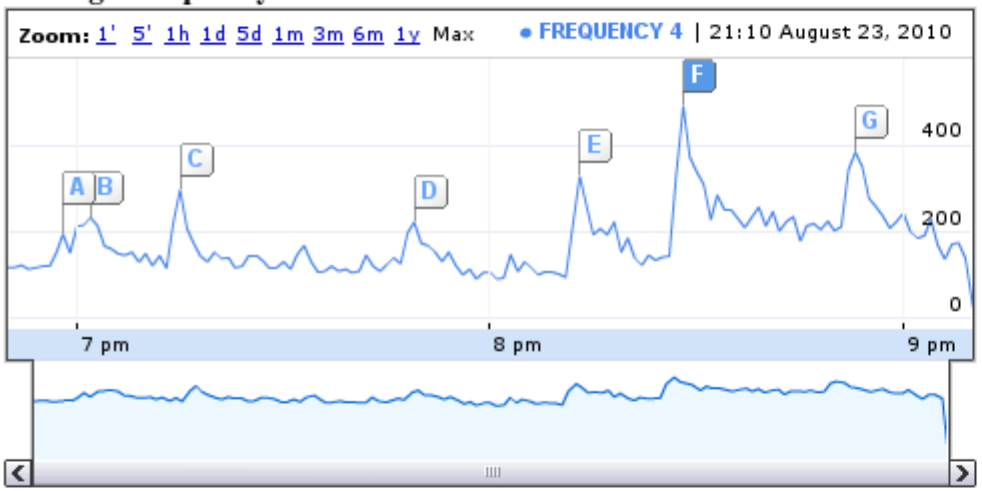
12 participants: four female/8 male
first half: directed tasks
second half: 5 min write article (soccer, Obama)

how do they use the interface?
what can they learn from TwitInfo?

Participant 6:

"After the peace talks, Obama traveled to the ASEAN conference and to NATO to work on issues in those parts of the world. He then spent the week dedicated to domestic economic issues. First he proposed a research tax break, then a $50 billion investment in infrastructure, then the issue came up about whether he should keep some tax breaks that Bush had implemented, and he's asking for some tax breaks from business, and these are generating some controversy because [. . .]"

Message Frequency



Enter a filter term

G. **liverpool, city, 3-0, kalah, tevez**
Label this event
2010-8-23

F. **liverpool, city, tevez, mancity, 3-0**
Label this event
2010-8-23

E. **liverpool, city, mancity, 2-0, man**
Label this event
2010-8-23

Relevant Tweets

Tevez... Nets it man! ManCity 3-0 Liverpool... #mogbe

Man City 3-0 Liverpool (Tevez pen)

penalty for City. And Tevez makes it 3-0 for ManCity

Mancity vs livpool 3-0 tevez gooollllll

BOLANEWS.COM - Update: Manchester City - Liverpool 3-0 (Tevez 66') http://twurl.nl/knkx4l

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Message Frequency

Everyone

Enter a filter term

G. **liverpool, city, 3-0, kalah, tevez**
Label this event

2010-8-23

F. **liverpool, city, tevez, mancity, 3-0**
Label this event

2010-8-23

E. **liverpool, city, mancity, 2-0, man**
Label this event

2010-8-23

Relevant Tweets

Tevez... Nets it man! ManCity 3-0 Liverpool... #mogbe

Man City 3-0 Liverpool (Tevez pen)

penalty for City. And Tevez makes it 3-0 for ManCity

Mancity vs livpool 3-0 tevez gooollllll

BOLANEWS.COM - Update: Manchester City - Liverpool 3-0 (Tevez 66') http://twurl.nl/knkx4l

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Message Frequency

Everyone

G. liverp
Labe
2010-
F. liverp
0
Label
2010-
E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

Split

Relevant Tweets

Tevez... Nets it man! ManCity 3-0 Liverpool... #mogbe

Man Citv 3-0 Liverpool (Tevez

. And Tevez makes
ity

ool 3-0 tevez

COM - Update:
y - Liverpool 3-0
(Tevez 66') http://twurl.nl/knkx4l

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Message Frequency

Everyone

Split

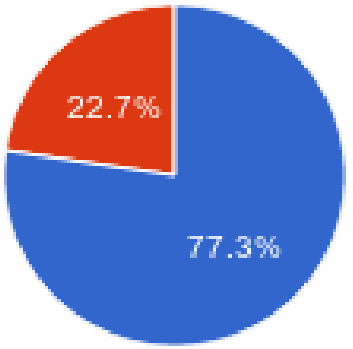
Relevant Tweets

Popular Links

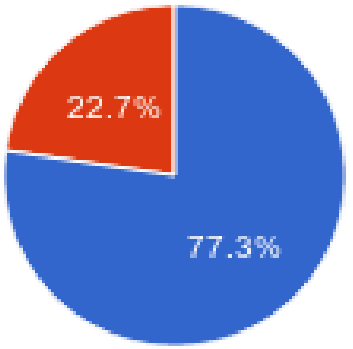
http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)

News Junkies

earthquakes



earthquakes



"my thoughts and prayers go out to everyone in that country. I hope..."

Journalist Interview

Journalist Interview

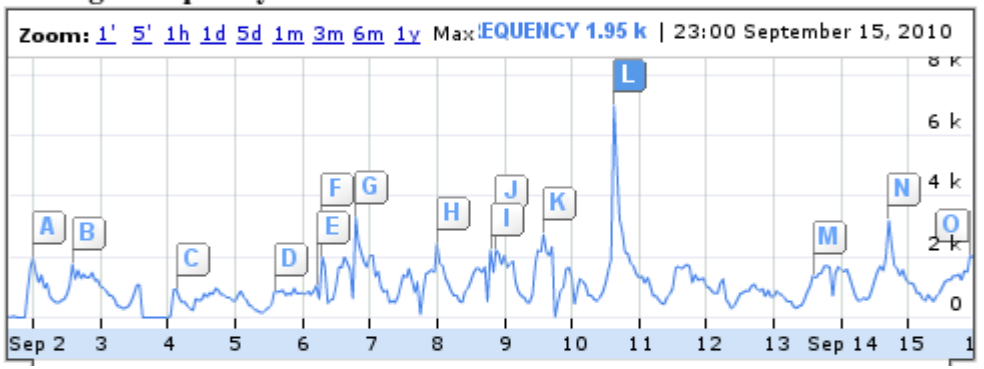
backgrounding

barack obama

Keywords: obama

Event dates: Sept. 1, 2010, 3 p.m. - Sept. 16, 2010, midnight

Message Frequency



Journalist Interview

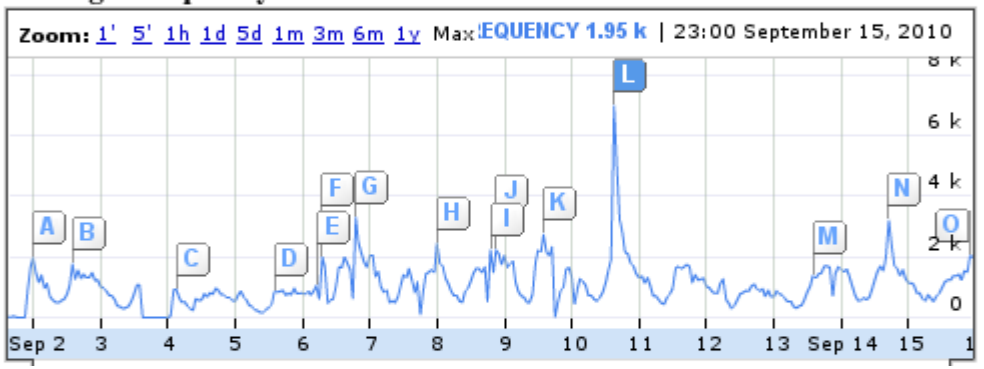
backgrounding

barack obama

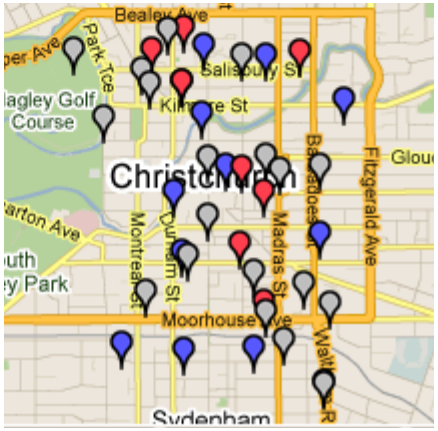
Keywords: obama

Event dates: Sept. 1, 2010, 3 p.m. - Sept. 16, 2010, midnight

Message Frequency



eyewitnesses



ui walkthrough
algorithm design
study/evaluation
discussion

appropriate algorithms for the medium

appropriate algorithms for the medium

other uses for streaming algorithms/signal processing

appropriate algorithms for the medium

other uses for streaming algorithms/signal processing

sentiment: caution!

appropriate algorithms for the medium

other uses for streaming algorithms/signal processing

sentiment: caution!

mixed-initiative storytelling

TwitInfo

http://twitinfo.csail.mit.edu

marcua@csail.mit.edu / @marcua

Adam Marcus, Michael Bernstein, Osama Badar,
David Karger, Sam Madden, Rob Miller

Twitter data for fun and stories

Twitter data for fun and stories

How can we tell stories with the tweet stream?

Twitter data for fun and stories

How can we tell stories with the tweet stream?

How can we extract data from the tweet stream?

Twitter data for fun and stories

How can we tell stories with the tweet stream?

TwitInfo

How can we extract data from the tweet stream?

Twitter data for fun and stories

How can we tell stories with the tweet stream?

TwitInfo

How can we extract data from the tweet stream?

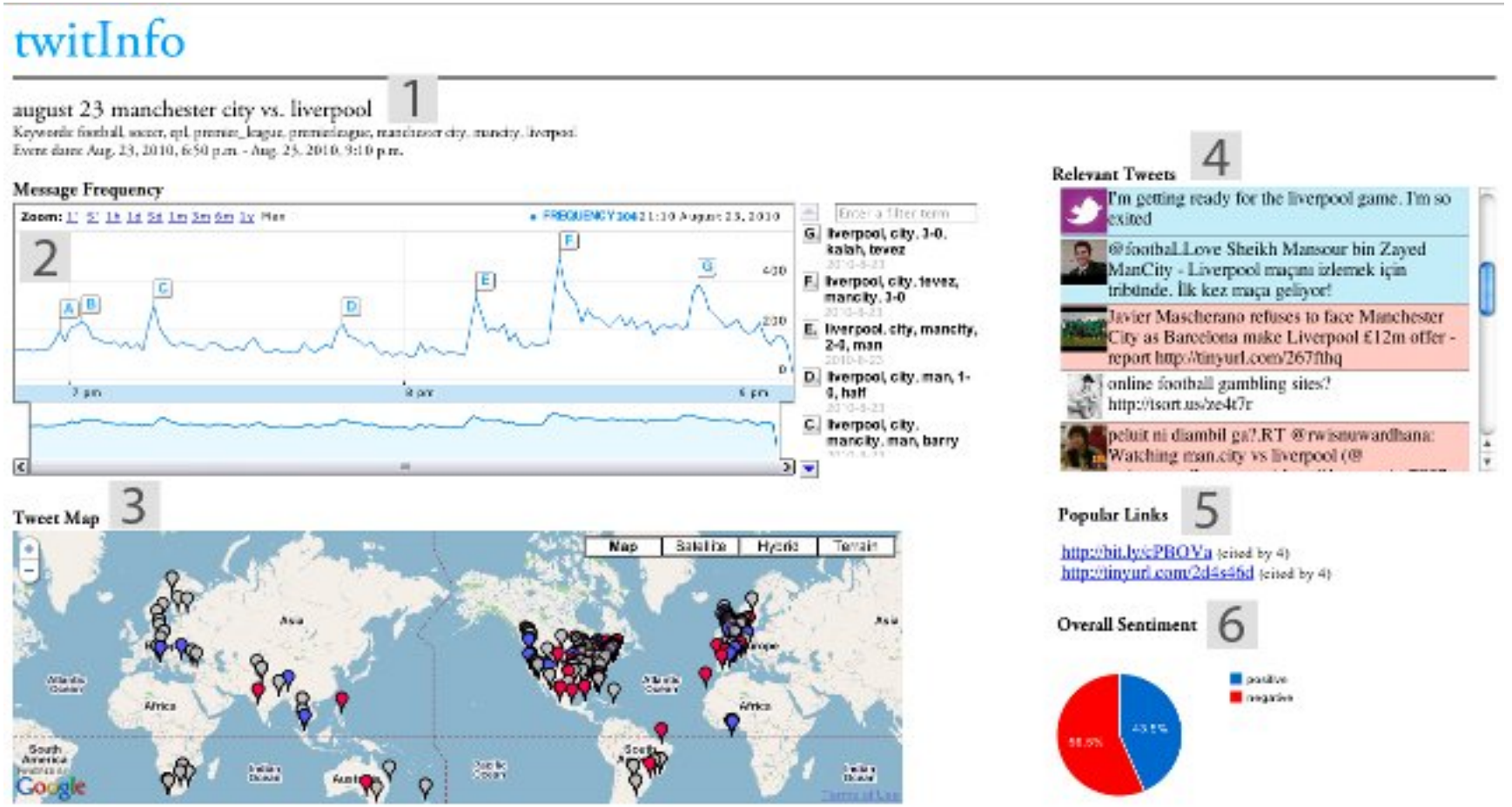
TweeQL

TwitInfo

How can we tell stories with the tweet stream?

TwitInfo

How can we tell stories with the tweet stream?



TwitInfo Uses

Automatically identify events
e.g., goals, earthquakes

TwitInfo Uses

Automatically identify events
e.g., goals, earthquakes

Backgrounding
e.g., Obama's last two weeks

TwitInfo Uses

Automatically identify events
e.g., goals, earthquakes

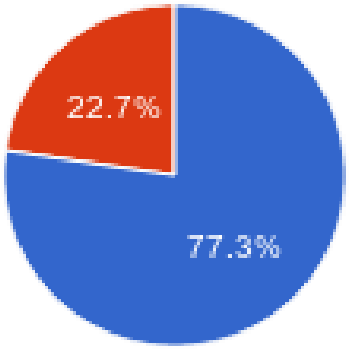
Backgrounding
e.g., Obama's last two weeks

Identifying sources on the ground
e.g., interviewing earthquake survivors

Cautionary Tweet Tales

Sentiment is tricky

e.g., "My warmest prayers go out to the people of Christchurch."



Cautionary Tweet Tales

Sentiment is tricky

e.g., “My warmest prayers go out to the people of Christchurch.”

Location is evasive

Cautionary Tweet Tales

Sentiment is tricky

e.g., "My warmest prayers go out to the people of Christchurch."

Location is evasive

Spam is everywhere

TwitInfo

Automated event detection makes tweet-based story-telling possible

TwitInfo

Automated event detection makes tweet-based story-telling possible

Interfaces tell a story, people add context

TwitInfo

Automated event detection makes tweet-based story-telling possible

Interfaces tell a story, people add context

TweeQL

How can we extract data from the tweet stream?

TweeQL

How can we extract data from the tweet stream?

“It's a balmy 89°C in Phoenix”

location=Phoenix, temperatureC=89

TweeQL

How can we extract data from the tweet stream?

"It's a balmy 89°C in Phoenix"

location=Phoenix, temperatureC=89

"I'm starting to dig Obamacare!"

topic=Obama, sentiment=positive

Twitter data hacking is hard

- Learn the API
- Transform data
- Stuff it into a database

Twitter data hacking is hard

- Learn the API
- Transform data
- Stuff it into a database

Ad-hoc data processing

Twitter data hacking is hard

- Learn the API
- Transform data
- Stuff it into a database

Ad-hoc data processing

TweeQL extracts data from tweets as they pass through the stream

TweeQL extracts data from tweets as they pass through the stream

Data extraction

e.g., location, sentiment, temperature, opencalais

TweeQL extracts data from tweets as they pass through the stream

Data extraction

e.g., location, sentiment, temperature, opencalais

SQL-like queries

e.g., SELECT location, text FROM twitter

TweeQL extracts data from tweets as they pass through the stream

Data extraction

e.g., location, sentiment, temperature, opencalais

SQL-like queries

e.g., SELECT location, text FROM twitter

stream, not table

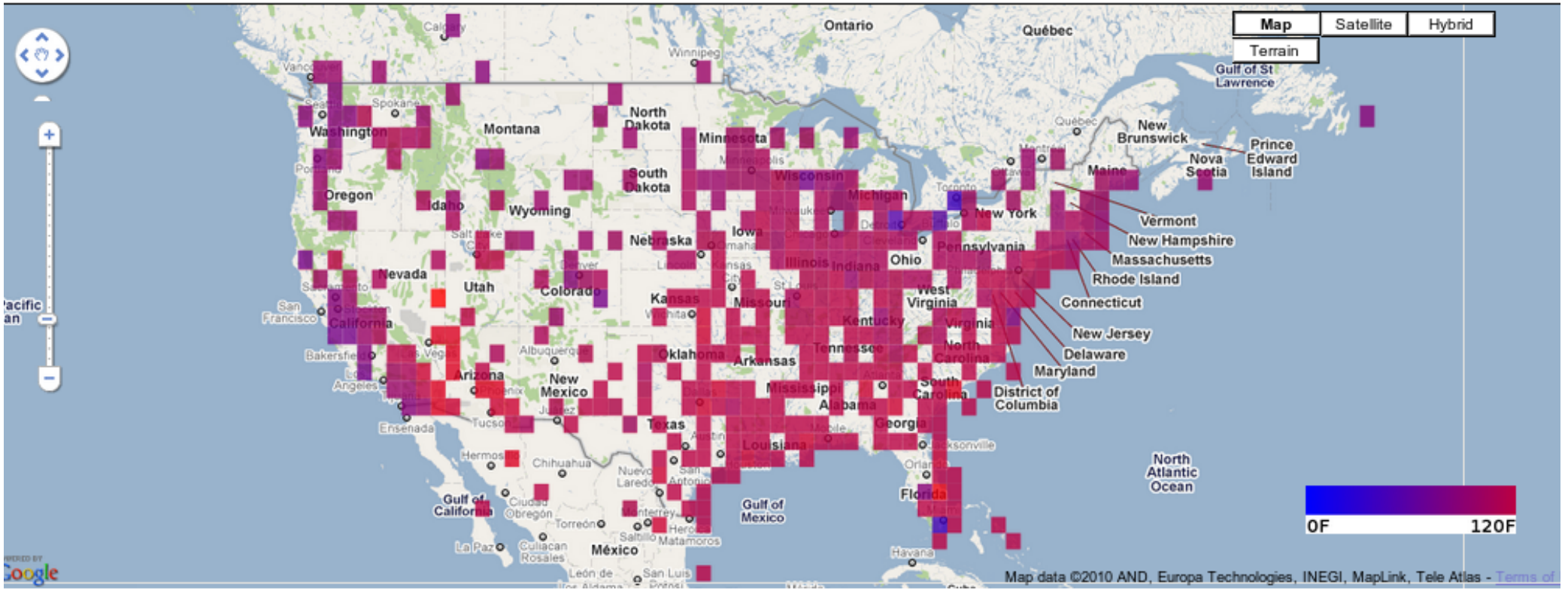
TweeQL demo
nerd alert

TweeQL's other features

- Aggregation
- Outlier detection
- Joins/mashups with other sources

Average temperatures extracted from tweets.

Search



Unstructured data

Unstructured data

+

Structured queries

Unstructured data

+

Structured queries

=> Structured data

Unstructured data

+

Structured queries

=> Structured data => Meaningful visualizations

Thanks!

- TweeQL: http://github.com/marcua/tweeql
- TwitInfo: http://twitinfo.csail.mit.edu/
- Ask me about Mechanical Turk + Journalism!

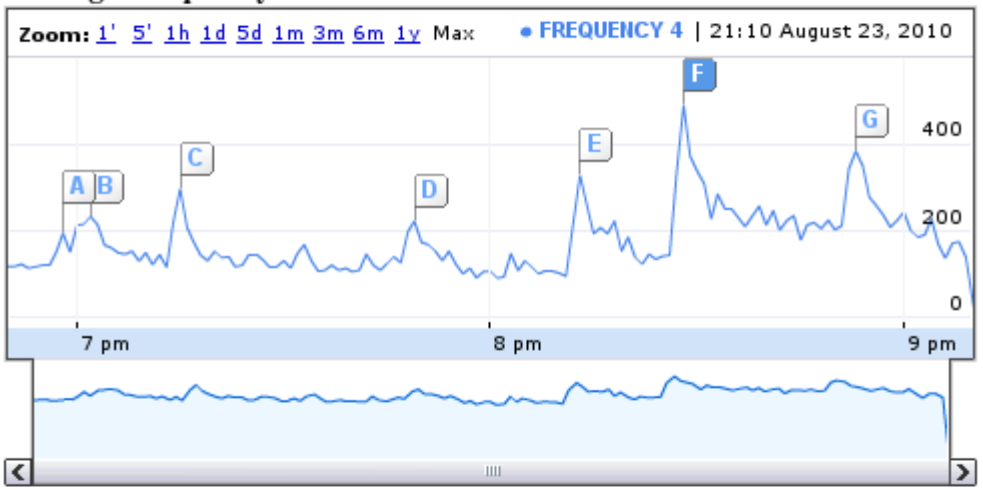
Adam Marcus
@marcua
marcua@csail.mit.edu
http://people.csail.mit.edu/marcua

twitInfo

august 23 manchester city vs. liverpool

Keywords: football, soccer, epl, premier_league, premierleague, manchester city, mancity, liverpool
Event dates: Aug. 23, 2010, 6:50 p.m. - Aug. 23, 2010, 9:10 p.m.

Message Frequency



Enter a filter term

G. liverpool, city, 3-0, kalah, tevez
Label this event
2010-8-23

F. liverpool, city, tevez, mancity, 3-0
Label this event
2010-8-23

E. liverpool, city, mancity, 2-0, man
Label this event
2010-8-23

Tweet Map

Relevant Tweets

Tevez... Nets it man! ManCity 3-0 Liverpool... #mogbe

Man City 3-0 Liverpool (Tevez pen)

penalty for City. And Tevez makes it 3-0 for ManCity

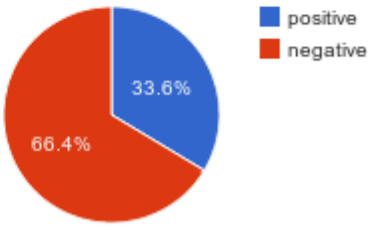
Mancity vs livpool 3-0 tevez gooollllll

BOLANEWS.COM - Update: Manchester City - Liverpool 3-0 (Tevez 66') http://twurl.nl/knkx4l

Popular Links

http://bit.ly/alLvUw (cited by 5)
http://bit.ly/cxBF2H (cited by 5)
http://twitcam.com/1rmka) (cited by 5)

Overall Sentiment

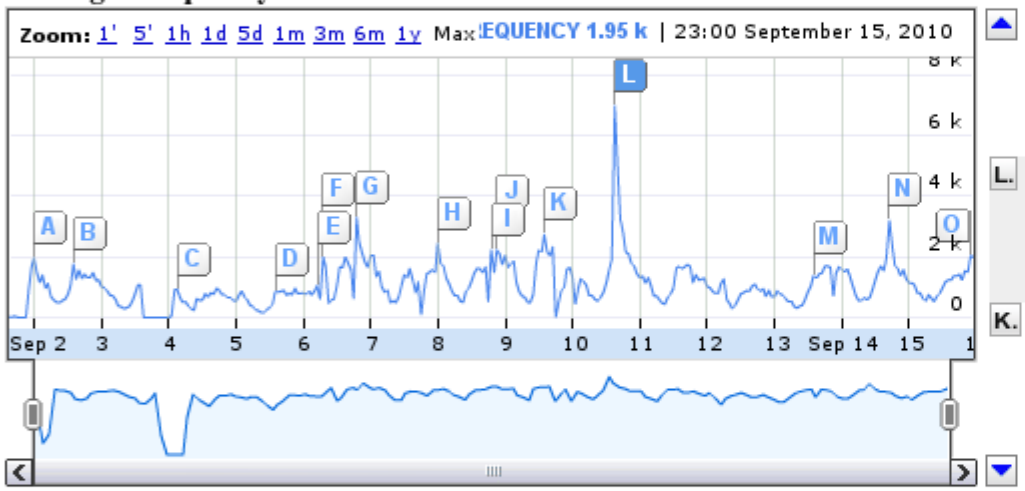


twitInfo

barack obama

Keywords: obama
Event dates: Sept. 1, 2010, 3 p.m. - Sept. 16, 2010, midnight

Message Frequency



Enter a filter term

administration
Label this event

2010-9-13

L. obama, president, economic, barack, economy
Label this event

2010-9-10

K. obama, burning, koran, quran, burn
Label this event

2010-9-9

Tweet Map

Relevant Tweets

Goolsbee Said to Be Picked to Head White House Economic Panel: President Barack Obama will appoint Austan Goolsbee... http://bit.ly/birIPH

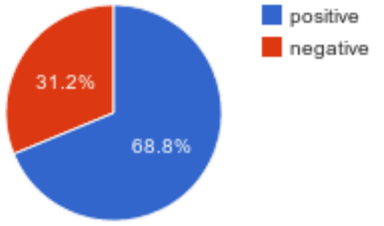
Top Adviser to Lead Panel on Economy - NYTimes.com: President Obama on Friday will promote a longtime economic adv... http://bit.ly/bklmF1

WASHINGTON — President Barack Obama has chosen one of

Popular Links

http://bit.ly/czJdxP (cited by 22)
http://lat.ms/dcig1f (cited by 4)
http://bit.ly/9XzAyd (cited by 4)

Overall Sentiment

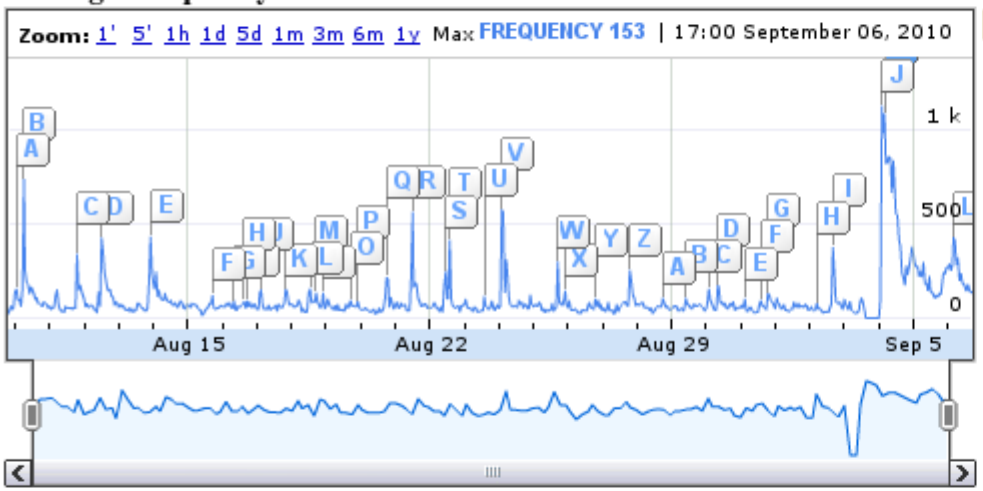


twitInfo

earthquakes

Keywords: earthquake
Event dates: Aug. 9, 2010, 7:18 p.m. - Sept. 6, 2010, 6 p.m.

Message Frequency



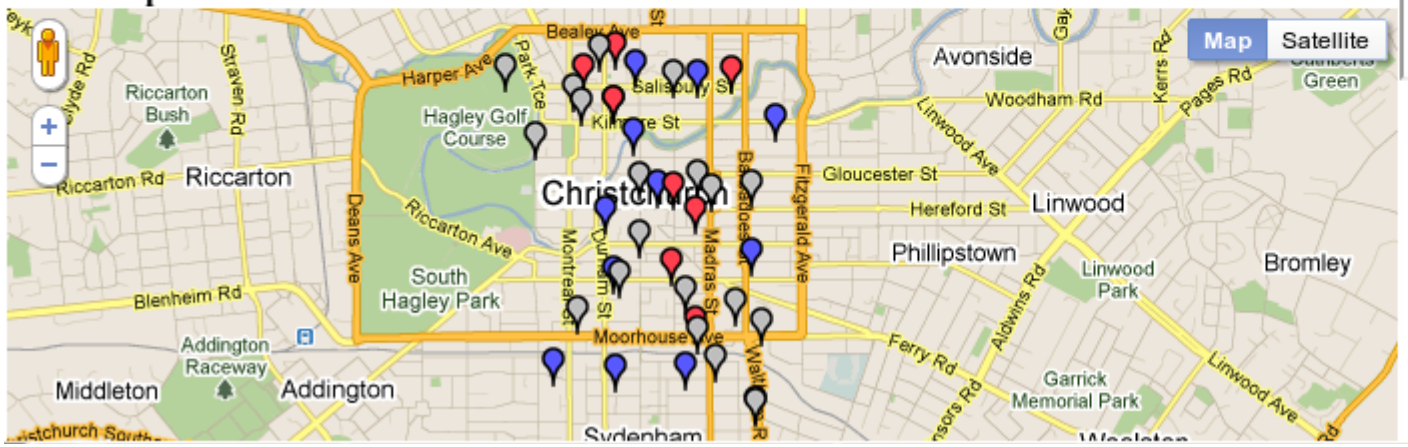
Enter a filter term

K. earthquake, christchurch, zealand, thoughts, prayers
Label this event
2010-9-4

J. earthquake, christchurch, 7.0, zealand, nz
Label this event
2010-9-4

I. earthquake, 3.3, felt, pablo, san
Label this event
2010-9-2

Tweet Map



Relevant Tweets

RT @mariacelina: This morning, my thoughts & prayers go out to those affected by the earthquake that recently hit Christchurch, New Zealand.

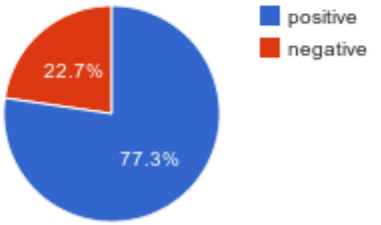
RT @KennyHamilton: Just heard about the earthquake in New Zealand...my thoughts and prayers go out to everyone in that country. I hope ...

RT @EvermoreBand: Thoughts and prayers with the people of Christchurch. Massive earthquake there, and no power or water for the whole city

Popular Links

http://on.cnn.com/8YDPyG (cited by 11)
http://bit.ly/ddWgtK (cited by 6)
http://bit.ly/aFh7RM (cited by 5)

Overall Sentiment



TweeQL Lessons Learned

- Geographic limitations
- Requires grungy regular expressions
- Data is not necessarily relational

Behind the Hunt for Bin Laden

Reuters

President Obama and members of his national security team receiving an update on Sunday. A classified document in front of Hillary Rodham Clinton was blurred before this photo was released. More Photos »

Log in to see what your frie
sharing on nytimes.com. Pr
Policy | What's This?

What's Popular Now

Bin Laden Is Dead, Obama Says

Behind the Hunt for Bin Laden

Reuters

President Obama and members of his national security team receiving an update on Sunday. A classified document in front of Hillary Rodham Clinton was blurred before this photo was released. More Photos »

Log in to see what your frie
sharing on nytimes.com. Pr
Policy | What's This?

What's Popular Now

Bin Laden Is Dead, Obama Says

Behind the Hunt for Bin Laden

Reuters

President Obama and members of his national security team receiving an update on Sunday. A classified document in front of Hillary Rodham Clinton was blurred before this photo was released. More Photos »

Log in to see what your frie
sharing on nytimes.com. Pr
Policy | What's This?

What's Popular Now

Bin Laden Is Dead, Obama Says

Reporting was contributed by Elisabeth Bumiller, Charlie Savage and Steven Lee Myers from Washington, Adam Ellick from New York, and Ismail Khan from Peshawar, Pakistan.

Behind the Hunt for Bin Laden

Reuters

President Obama and members of his national security team receiving an update on Sunday. A classified document in front of Hillary Rodham Clinton was blurred before this photo was released. More Photos »

Log in to see what your frie
sharing on nytimes.com. Pr
Policy | What's This?

What's Popular Now

Bin Laden Is Dead, Obama Says

1 | 2 | 3 | 4 NEXT PAGE »

Reporting was contributed by Elisabeth Bumiller, Charlie Savage and Steven Lee Myers from Washington, Adam Ellick from New York, and Ismail Khan from Peshawar, Pakistan.

Behind the Hunt for Bin Laden

Log in to see what your frie
sharing on nytimes.com. Pr
Policy | What's This?

What's Popular Now

Bin Laden Is Dead, Obama Says

Travel Dy
Excellence in S
Explore the splendors

Man City 3-0 Liverpool (Tevez pen)

penalty for City. And Tevez makes it 3-0 for ManCity

Mancity vs livpool 3-0 tevez gooollllllll

BOLANEWS.COM - Update: Manchester City - Liverpool 3-0 (Tevez 66') http://twurl.nl/knkx4l

3-0! Mancity vs liverpool

gool de carlos tevez para el manchester city 3-0 liverpool

Tevez scores and City now has a very commanding 3-0 lead over Liverpool

Behind the Hunt for Bin Laden

Depth

Log in to see what your frie
sharing on nytimes.com. Pr
Policy | What's This?

What's Popular Now

Bin Laden Is Dead, Obama Says

Travel Dy
Excellence in S

Explore the splendors

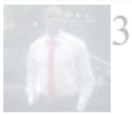
Man City 3-0 Liverpool (Tevez pen)

penalty for City. And Tevez makes it 3-0 for ManCity

Mancity vs livpool 3-0 tevez goooll

Breadth

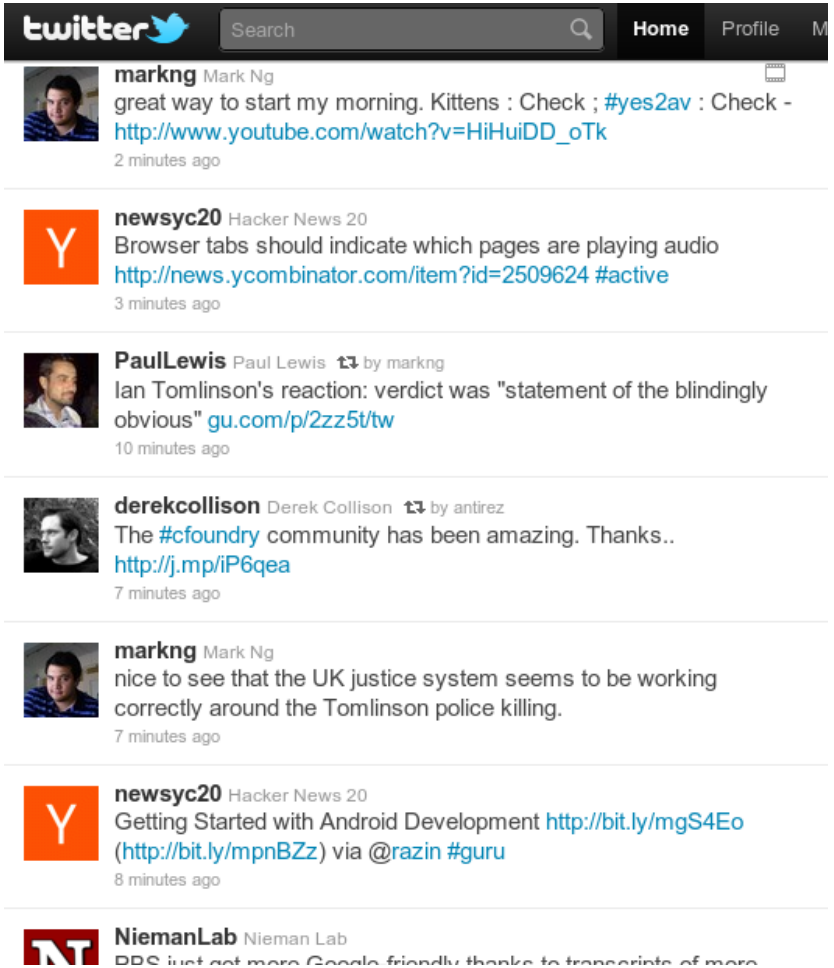
BOLANEWS.COM - Update: Manchester City - Liverpool 3-0 (Tevez 66') http://twurl.nl/knkx4l

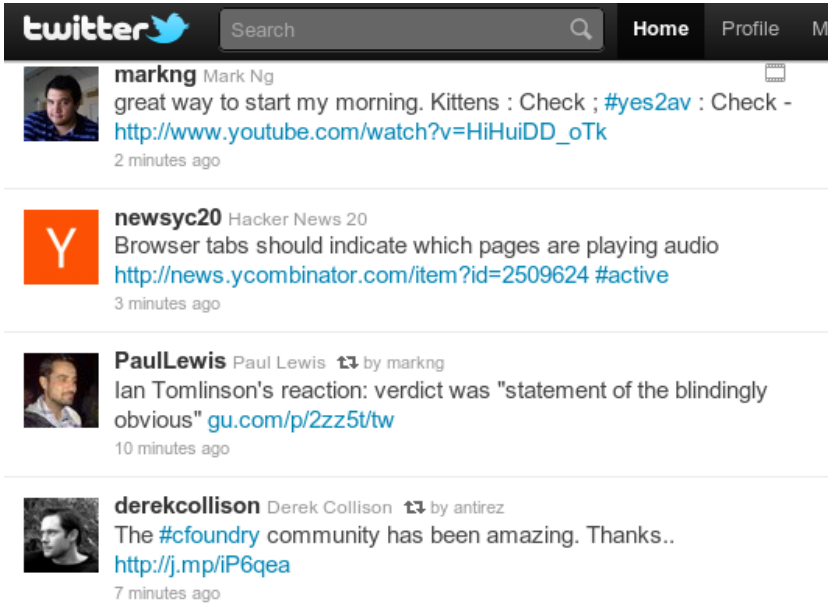


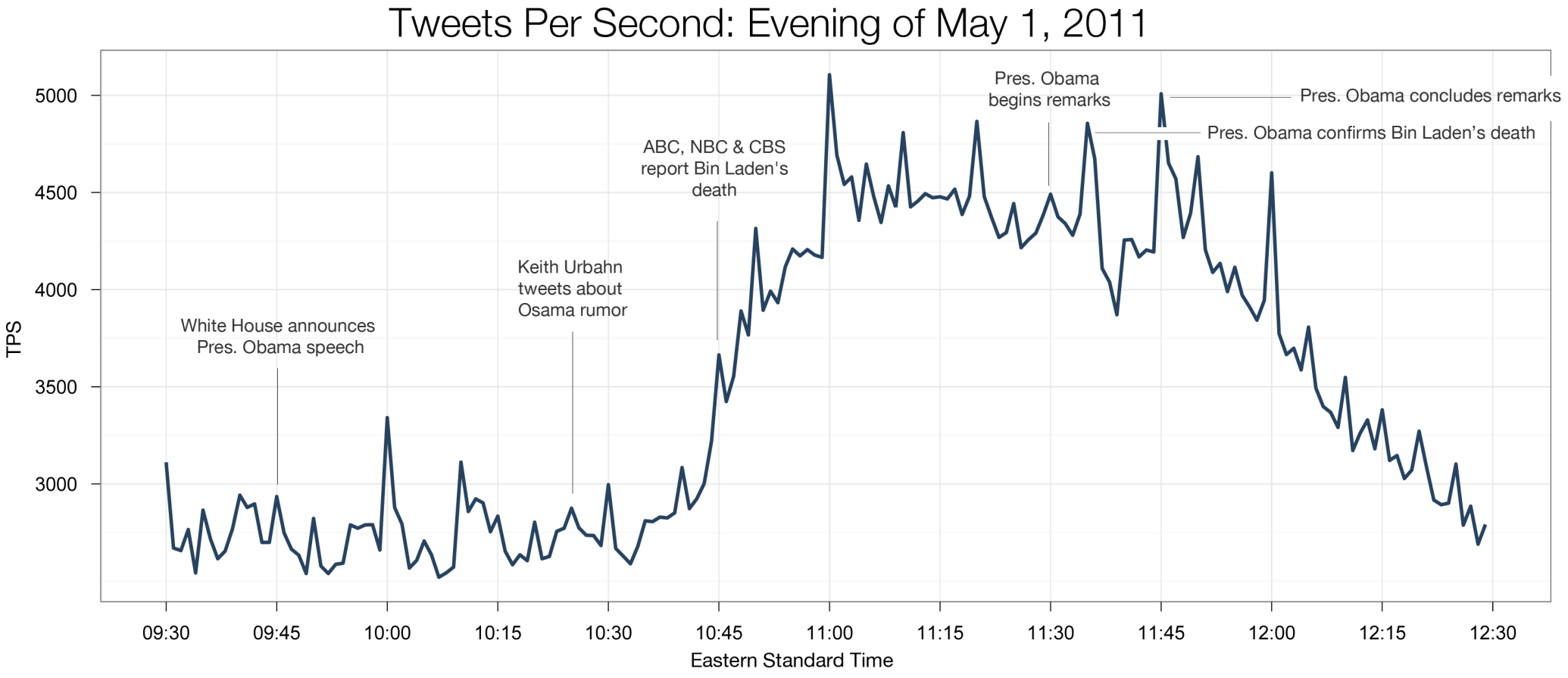
3-0! Mancity vs liverpool

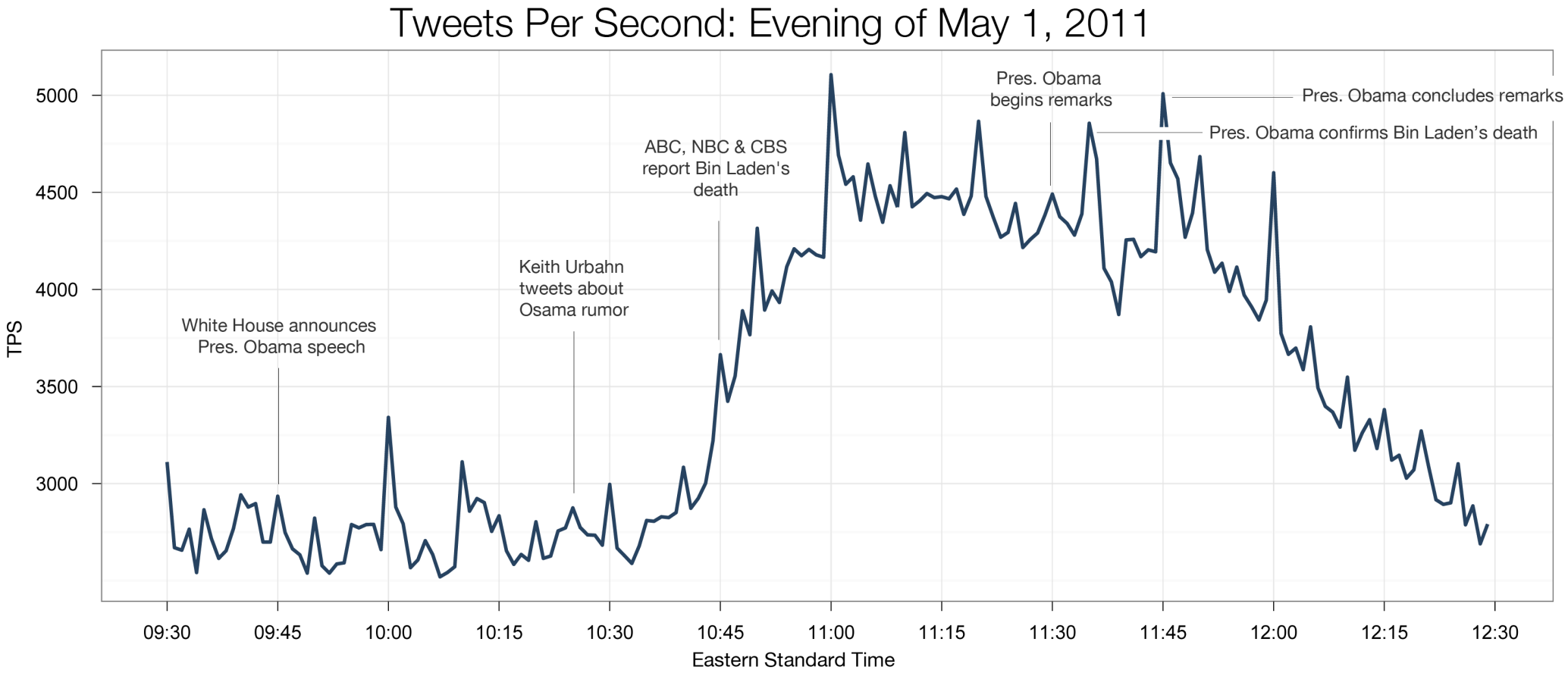
gool de carlos tevez para el manchester city 3-0 liverpool

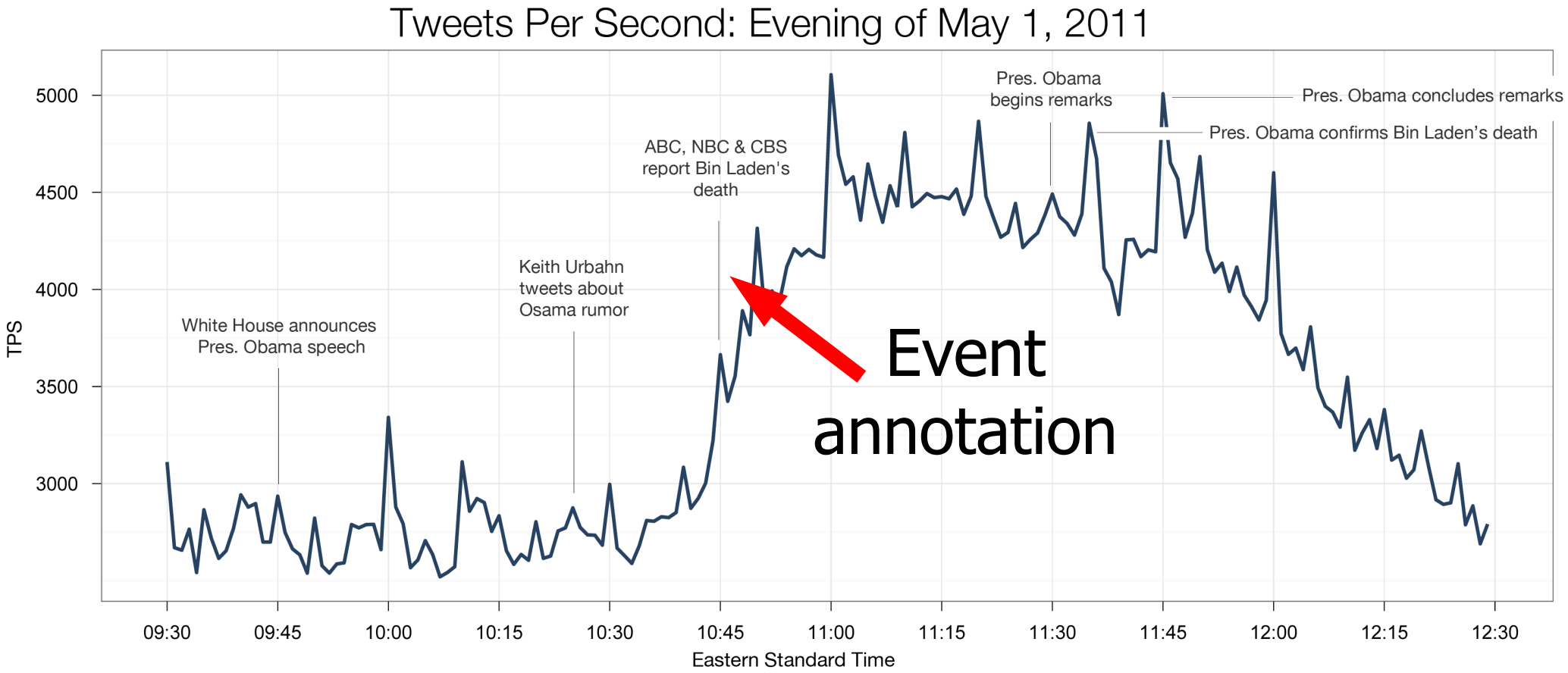
Tevez scores and City now has a very commanding 3-0 lead over Liverpool

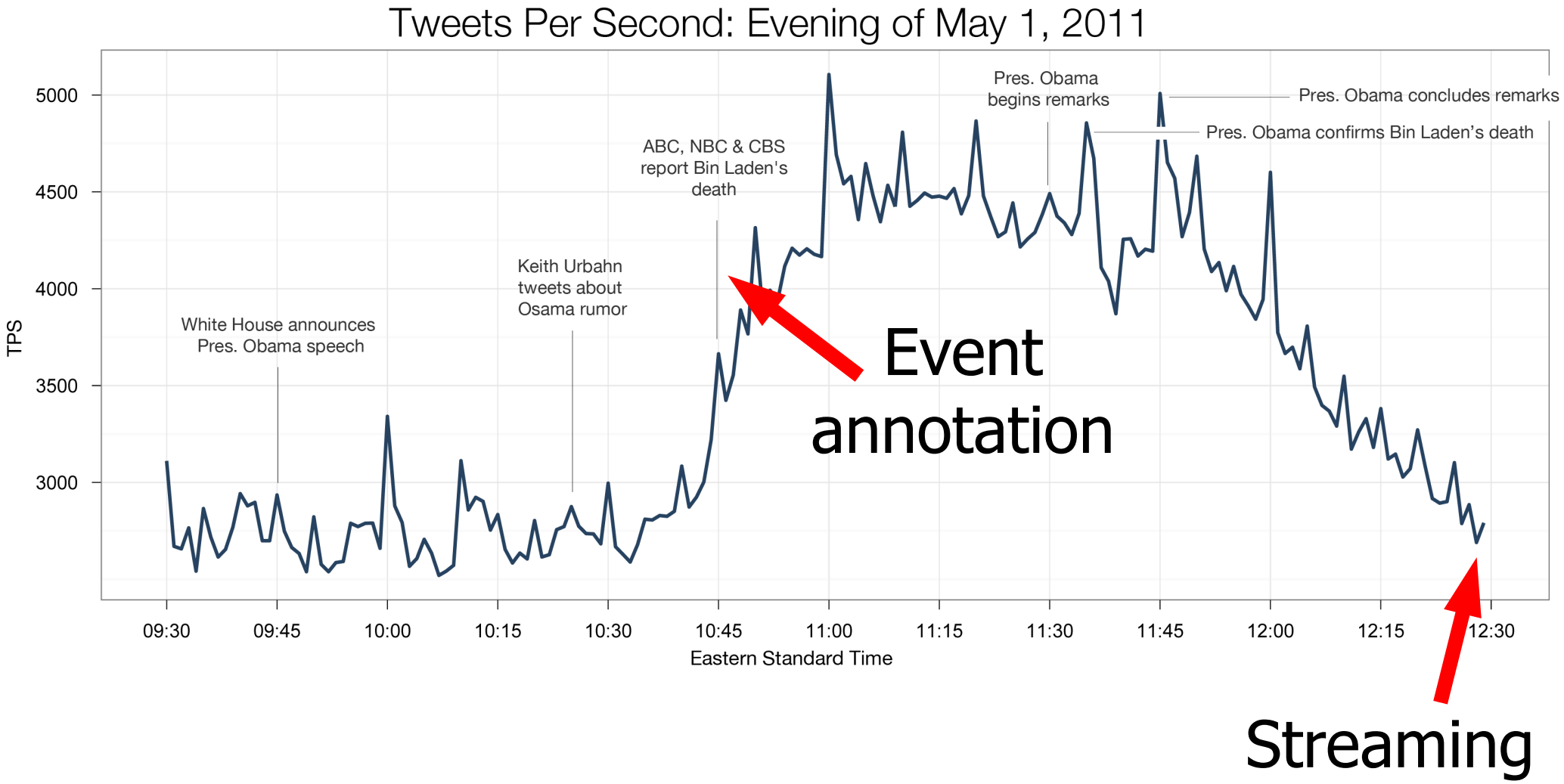

twitter
Search
Home
Profile
M
markng Mark Ng
great way to start my morning. Kittens : Check ; #yes2av : Check - http://www.youtube.com/watch?v=HiHuiDD_oTk
2 minutes ago
newsyc20 Hacker News 20
Browser tabs should indicate which pages are playing audio http://news.ycombinator.com/item?id=2509624 #active
3 minutes ago
PaulLewis Paul Lewis by markng
Ian Tomlinson's reaction: verdict was "statement of the blindingly obvious" gu.com/p/2zz5t/tw
10 minutes ago
derekcollison Derek Collison by antirez
The #cfoundry community has been amazing. Thanks.. http://j.mp/iP6qea
7 minutes ago
markng Mark Ng
nice to see that the UK justice system seems to be working correctly around the Tomlinson police killing.
7 minutes ago
newsyc20 Hacker News 20
Getting Started with Android Development http://bit.ly/mgS4Eo (http://bit.ly/mpnBZz) via @razin #guru
8 minutes ago
NiemanLab Nieman Lab

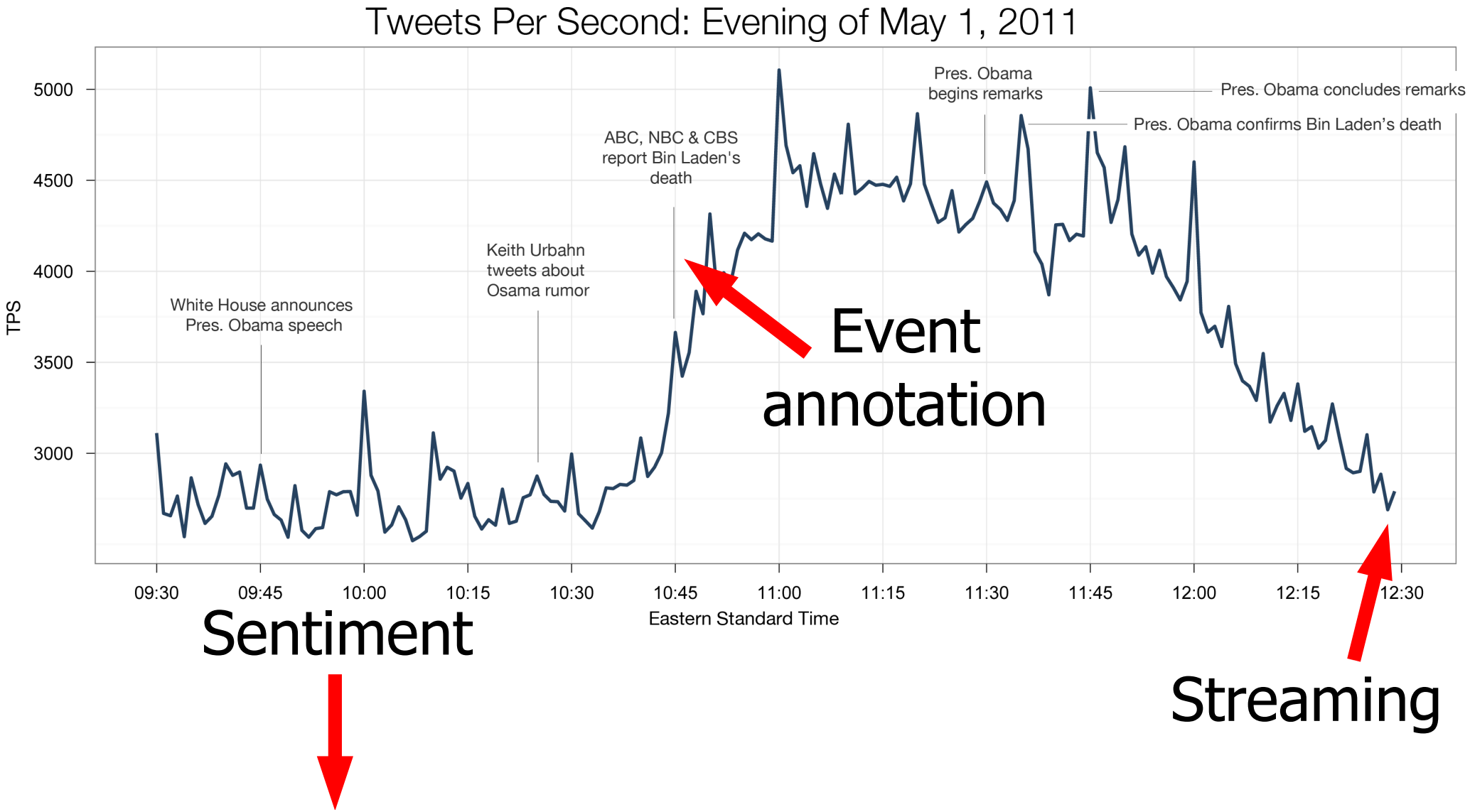

twitter
Search
Home
Profile
markng Mark Ng
great way to start my morning. Kittens : Check ; #yes2av : Check - http://www.youtube.com/watch?v=HiHuiDD_oTk
2 minutes ago
newsyc20 Hacker News 20
Browser tabs should indicate which pages are playing audio http://news.ycombinator.com/item?id=2509624 #active
3 minutes ago
PaulLewis Paul Lewis by markng
Ian Tomlinson's reaction: verdict was "statement of the blindingly obvious" gu.com/p/2zz5t/tw
10 minutes ago
derekcollison Derek Collison by antirez
The #cfoundry community has been amazing. Thanks.. http://j.mp/iP6qea
7 minutes ago


Tweets Per Second: Evening of May 1, 2011
TPS
5000
4500
4000
3500
3000
White House announces Pres. Obama speech
Keith Urbahn tweets about Osama rumor
ABC, NBC & CBS report Bin Laden's death
Pres. Obama begins remarks
Pres. Obama confirms Bin Laden's death
Pres. Obama concludes remarks
09:30
09:45
10:00
10:15
10:30
10:45
11:00
11:15
11:30
11:45
12:00
12:15
12:30
Eastern Standard Time


Tweets Per Second: Evening of May 1, 2011
TPS
5000
4500
4000
3500
3000
White House announces Pres. Obama speech
Keith Urbahn tweets about Osama rumor
ABC, NBC & CBS report Bin Laden's death
Pres. Obama begins remarks
Pres. Obama confirms Bin Laden's death
Pres. Obama concludes remarks
09:30
09:45
10:00
10:15
10:30
10:45
11:00
11:15
11:30
11:45
12:00
12:15
12:30
Eastern Standard Time

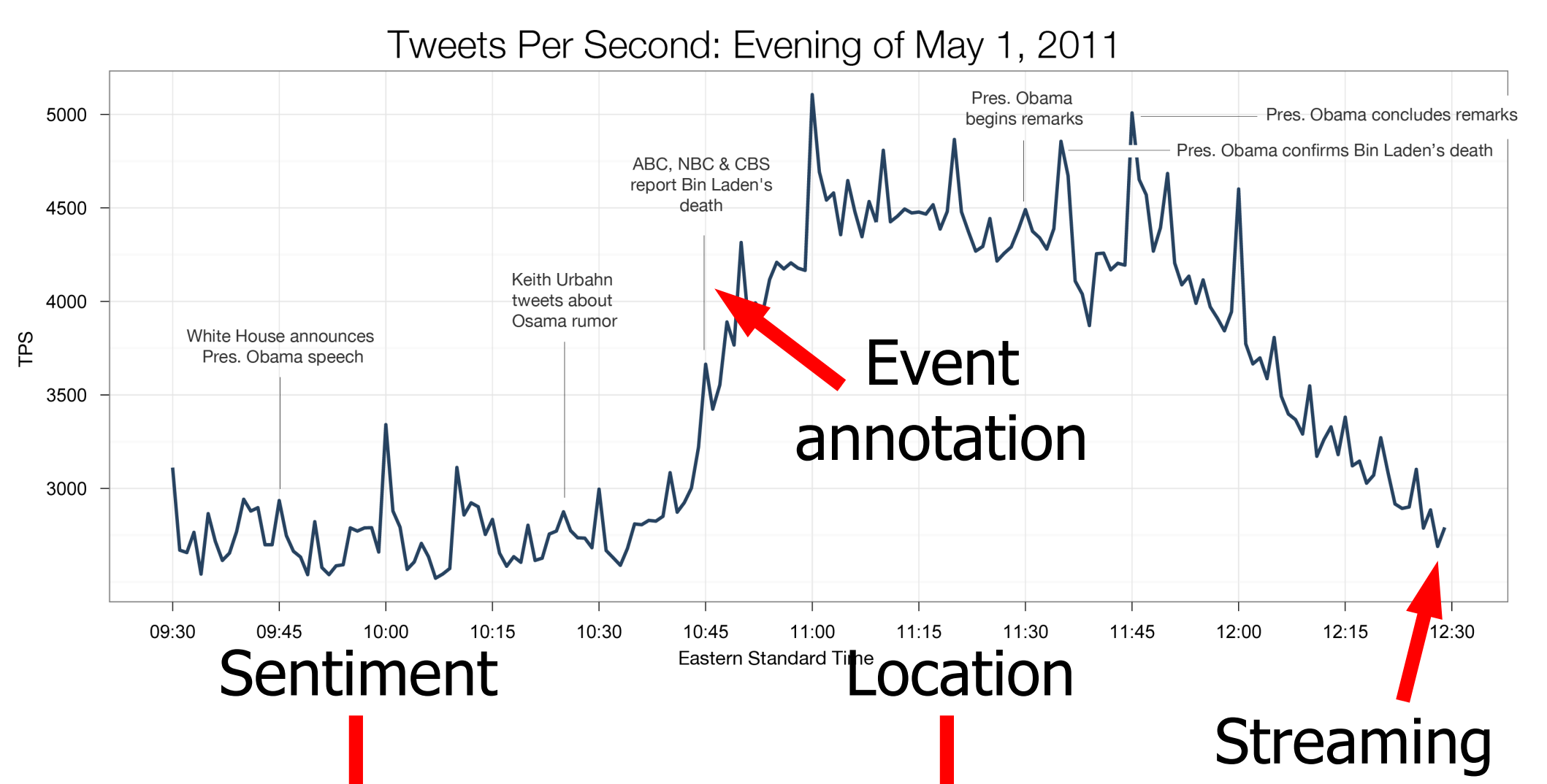

Tweets Per Second: Evening of May 1, 2011
TPS
5000
4500
4000
3500
3000
White House announces Pres. Obama speech
Keith Urbahn tweets about Osama rumor
ABC, NBC & CBS report Bin Laden's death
Pres. Obama begins remarks
Pres. Obama concludes remarks
Pres. Obama confirms Bin Laden's death
Event annotation
09:30
09:45
10:00
10:15
10:30
10:45
11:00
11:15
11:30
11:45
12:00
12:15
12:30
Eastern Standard Time


Tweets Per Second: Evening of May 1, 2011
TPS
5000
4500
4000
3500
3000
White House announces Pres. Obama speech
Keith Urbahn tweets about Osama rumor
ABC, NBC & CBS report Bin Laden's death
Pres. Obama begins remarks
Pres. Obama confirms Bin Laden's death
Pres. Obama concludes remarks
Event annotation
09:30
09:45
10:00
10:15
10:30
10:45
11:00
11:15
11:30
11:45
12:00
12:15
12:30
Eastern Standard Time
Streaming



@laurenceb
Laurence Berland

Again, glad UBL dead, but this jubilation troubles me. The dead are still dead. We ought strive for a world where killing isn't necessary.



@laurenceb
Laurence Berland

Again, glad UBL dead, but this jubilation troubles me. The dead are still dead. We ought strive for a world where killing isn't necessary.

@harrisj
Jacob Harris

Do we have an idea how many tweets were from within the US vs. elsewhere last night? Otherwise twitter users <> US network compare flawed