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University  
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# Closing the Circle

## Persistence in Browsers

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# Uses

- Personalising site preferences (e.g. showing a user's choice of custom widgets, color scheme, or font size)
- Persisting previous site activity (e.g. storing the contents of a shopping cart from a previous session, remembering if a user was previously logged in).
- Saving data and assets locally so a site will be quicker (and potentially less expensive) to download, or be usable without a network connection.
- Saving web application generated documents locally for use offline



# Storage on the Browser

- There are two types of storage locations:
  - local storage
    - mostly used for settings
    - it has a limit (at least 5M)
    - equivalent to Preferences in Android
  - databases
    - fully fledged databases that allow to store relevant amounts of information
      - Web Storage
      - Indexed DB
      - Caches

## Step 3 - Creating Functions

Now we need to create functions that will be called when tapped. First function is used for adding data to local storage

```
function setLocalStorage() {  
    localStorage.setItem("Name", "John");  
    localStorage.setItem("Job", "Developer");  
    localStorage.setItem("Project", "Cordova Project");  
}
```

The next one will log data we added to console.

```
function showLocalStorage() {  
    console.log(localStorage.getItem("Name"));  
    console.log(localStorage.getItem("Job"));  
    console.log(localStorage.getItem("Project"));  
}
```

# IndexedDB

<https://www.html5rocks.com/en/tutorials/offline/storage/>

- A collection of "object stores" which you can just drop objects into
- Similar to noSQL Databases
  - no constraints on the object structure as it happens in relational databases
- It supports asynchronous and synchronous operations

# Advantages:

<https://www.html5rocks.com/en/tutorials/offline/storage/>

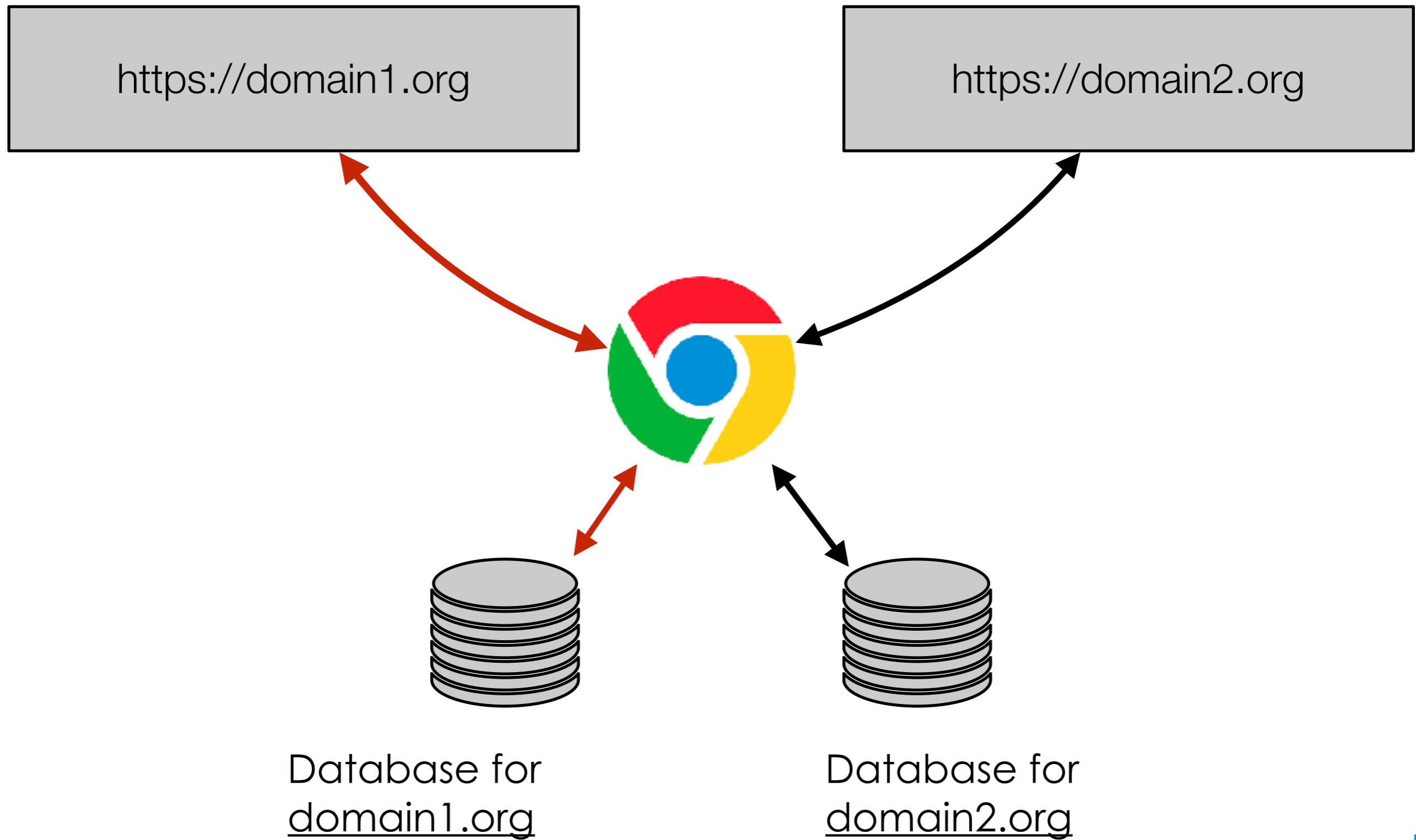
- Good performance (asynchronous API)
  - Database interaction won't lock up the user interface
- Good search performance,
  - data can be indexed according to search keys.
- Supports versioning
- Robust
  - it supports a transactional database model.
- Fairly easy learning curve
  - due to a simple data model
- Excellent browser support
  - Chrome, Firefox, mobile FF, IE10, Safari 10.1+, MS Edge

# Getting Started

<https://developers.google.com/web/ilt/pwa/working-with-indexeddb>

- The pure form of IndexedDB is quite complex
  - We are using IndexedDB Promised library
    - <https://github.com/jakearchibald/indexeddb-promised>
  - It simplifies the API while maintaining its structure
- In IndexedDB each database is unique to an origin
  - the site domain or subdomain
  - it cannot access or be accessed by any other origin
- Its foundations are the object stores,
  - equivalent to relations in a relational database

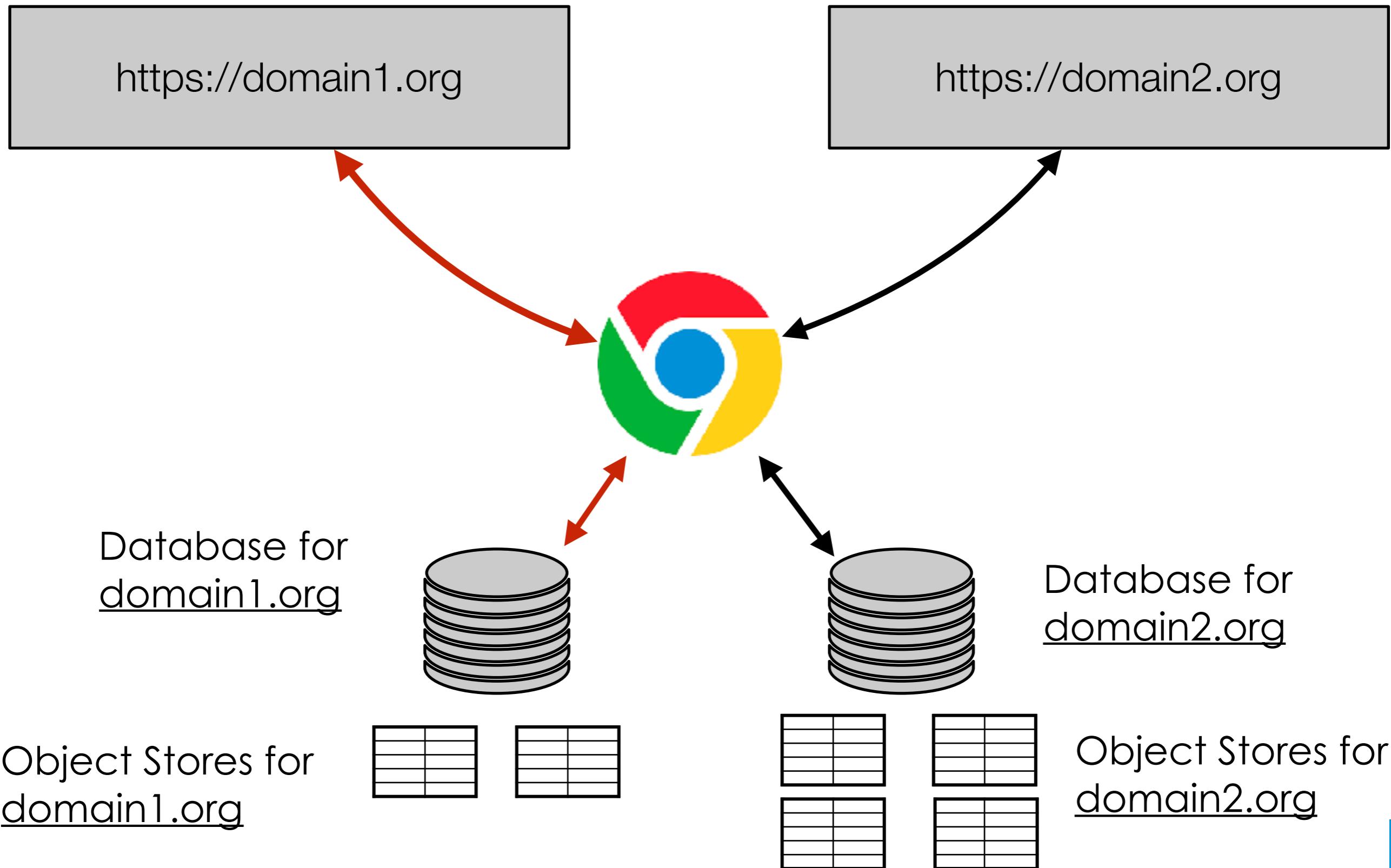
# Data is Private to the Site



# Terminology

- Database
  - contains the object stores
  - Multiple databases are possible with whatever names you choose
    - but try to limit to **one database per app**
- Object Store
  - An individual bucket to store data
  - Create one object store for each 'type' of data you are storing.
    - For example, given an app that persists blog posts and user profiles, you could imagine two object stores.
    - Unlike tables in traditional databases, the actual JavaScript data types within the store do not need to be consistent
      - you can store any Javascript object - but try to be consistent!

# Data is Private to the Site



- Index
  - an object store for organising data in another object store by an individual property of the data
    - The index is used to retrieve records in the object store by this property
    - For example, if you're storing people, you may want to fetch them later by their name, age, or favourite animal
- Transaction
  - A wrapper around an operation, or group of operations to ensure database integrity
  - If one of the actions fails, none of them are applied and the database returns to the previous state
- Cursor
  - A mechanism for iterating over multiple records in database

# Checking for IndexedDB support

Because IndexedDB isn't supported by all browsers, we need to check that the **user's browser supports it** before using it.

The easiest way is to check the window object:

```
if (!('indexedDB' in window)) {  
  console.log('This browser doesn\'t support IndexedDB');  
  return;  
}  
}
```

(insert this instruction in your page initialisation method - the same place where you check if service-workers are provided)



# in the lab...

```
* showing any cached forecast data and declaring the service worker
*/
function initWeatherForecasts() {
    loadData();
    if ('serviceWorker' in navigator) {
        navigator.serviceWorker
            .register({ scriptURL: './service-worker.js' })
            .then(function () {
                console.log('Service Worker Registered');
            })
            .catch(function (error){
                console.log('Service Worker NOT Registered ' + error.message);
            });
    }
    //check for support
    if ('indexedDB' in window) {
        initDatabase();
    } else {
        console.log('This browser doesn\'t support IndexedDB');
    }
}
```



# Opening a database

With IndexedDB you can create multiple databases with any names you choose. In general, there is just one database per app. To open a database, we use:

Note: the new version of the library uses `openDB` but I suggest to use the old one

```
idb.open(name, version, upgradeCallback)
```

This method returns a promise that resolves to a database object. When using `idb.open`, you provide a name, version number, and an optional callback to set up the database.

Here is an example of `idb.open` in context:

```
(function() {
  'use strict'; // impose strict syntax checks on the Javascript code

  //check for support
  if (!('indexedDB' in window)) {
    console.log('This browser doesn\'t support IndexedDB');
    return;
  }

  var dbPromise = idb.open('test-db1', 1); // 1 is the version of the database
})();
```

confused by the `(function...())()` wrapping?

<https://www.tutorialspoint.com/Why-are-parenthesis-used-to-wrap-a-JavaScript-function-call>

# Creating object stores

- A database typically contains one or more object stores
- To ensure database integrity
  - object stores can only be created and removed in the callback function in `idb.open`
  - The callback receives an instance of `UpgradeDB`, a special object in the IDB Promised library that is used to create object stores
  - Call the `createObjectStore` method on `UpgradeDB` to create the object store

# Example

```
(function() {
  'use strict';

  //check for support
  if (!('indexedDB' in window)) {
    console.log('This browser doesn\'t support IndexedDB');
    return;
  }

  var dbPromise = idb.open('test-db2', 1,
    function(upgradeDb) {
      console.log('making a new object store');
      if (!upgradeDb.objectStoreNames.contains('firstOS')) {
        upgradeDb.createObjectStore('firstOS');
      }
    });
})();
```

idb is a global variable created by the module. It contains a link to the indexedDB

# Defining primary keys

- to define how data is uniquely identified in the store

```
upgradeDb.createObjectStore('people', {keyPath: 'email'});
```

- the key path is a property in the Javascript object stored in the object store
  - IndexedDb is a schema-less db (i.e. elements are not required to have a pre-defined structure)
    - however if a key path is defined every object must have the property
  - You can use auto increments

```
upgradeDb.createObjectStore('logs',  
                           {keyPath: 'id', autoIncrement:true});
```

# Defining indexes

- Indexes are a kind of object store
  - used to retrieve data from the reference object store via a specified property

```
objectStore.createIndex( 'indexName' , 'property' , options );
```

- IndexedDb is a schema-less db (i.e. elements are not required to have a pre-defined structure)
  - however if a key path is defined every object must have the property



# Example

```
(function() {
  'use strict';

  //check for support
  if (!('indexedDB' in window)) {
    console.log('This browser doesn\'t support IndexedDB');
    return;
  }

  var dbPromise = idb.open('test-db4', 1, function(upgradeDb) {
    if (!upgradeDb.objectStoreNames.contains('people')) {
      var peopleOS = upgradeDb.createObjectStore('people', {keyPath:
'email'});
      peopleOS.createIndex('gender', 'gender', {unique: false});
      peopleOS.createIndex('ssn', 'ssn', {unique: true});
    }
  });
  •(...)
})()
```

name of the index

options

field in the JS Object

# Processing Data

- how to create, read, update, and delete data
  - they are async operations
- All data operations in IndexedDB are carried out inside a transaction
  - Each operation is organised as:
    - Get database object
    - Open transaction on database
    - Open object store on transaction
    - Perform operation on object stor

## Creating data

To create data, call the `add` method on the object store and pass in the data you want to add.

Add has an optional second argument that lets you define the primary key for the individual object on creation

but it should only be used if you have not specified the key path  
in `createObjectStore`

```
someObjectStore.add(data, optionalKey);
```

The data parameter can be data of any type: a string, number, object, array, and so forth.

The only restriction is if the object store has a defined keypath, the data must contain this property and the value must be unique

The add method returns a promise that resolves once the object has been added to the store.

# Note: adding to noSQL

- Indexed DB is a type of noSQL database, i.e. non relational
- In a NoSQL database, you can add any object, whatever its structure
  - as long as it has the appropriate fields for the index and key

```
var dbPromise = idb.open('test-db4', 1, function(upgradeDb) {  
  if (!upgradeDb.objectStoreNames.contains('people')) {  
    var peopleOS = upgradeDb.createObjectStore('people', {keyPath:  
'email'});  
    peopleOS.createIndex('gender', 'gender', {unique: false});  
    peopleOS.createIndex('ssn', 'ssn', {unique: true});  
  }  
})
```

- we can add to this database both these elements

```
{ssn: "123", gender: "M", age:12, email: "ss@11"}  
{ssn: "124", gender: "F", name: "My Name", email:  
"dds@11.com"}
```

```
dbPromise.then(async db => { // async is necessary as we use await below
  var tx = db.transaction('store', 'readwrite');
  var store = tx.objectStore('store');
  var item = {
    name: 'sandwich',
    price: 4.99,
    description: 'A very tasty sandwich',
    created: new Date().getTime()
  };
  await store.add(item); //await necessary as add return a promise
  return tx.complete;
}).then(function () {
  console.log('added item to the store! '+ JSON.stringify(item));
}).catch(function (error) {
  //do something
});
```

Important! Always check that the transaction completed successfully by capturing the output of transaction complete (then/catch)!!

- Note: no need to close the transaction

# Reading data

To read data, call the `get` method on the object store.

The `get` method takes the primary key of the object you want to retrieve from the store. Here is a basic example:

```
transaction.get(primaryKey);  
or  
index.get(conditions);
```

As with `add`, the `get` method returns a promise and must happen within a transaction.

Let's look at an example of the `get` method:

```
dbPromise.then(function(db) {  
  var tx = db.transaction('store', 'readonly');  
  return store.get('sandwich');  
}).then(function(val) {  
  console.dir(val);    // this is not suggested  
                      // if you have an index, use index})
```

# Use Indexes if possible

- Suppose we want to check if login/password are in a database

```
function getLoginData(loginObject) {  
  if (dbPromise) {  
    dbPromise.then(function (db) {  
      console.log('fetching: '+login);  
      var tx = db.transaction(LOGIN_STORE_NAME, 'readonly');  
      var store = tx.objectStore(LOGIN_STORE_NAME);  
      var index = store.index('userId');  
      return index.get(IDBKeyRange.only(loginObject.userId));  
    }).then(function (foundObject) {  
      if (foundObject && (foundObject.userId==loginObject.userId &&  
        foundObject.password==loginObject.password)){  
        console.log("login successful");  
      } else {  
        alert("login or password incorrect")  
      }  
    });  
  }  
}
```

- IDBKeyRange**.only checks for equality of an index in a database

# Updating data

To update data, call the `put` method on the object store.

The `put` method is very similar to the `add` method and can be used instead of `add` to create data in the object store.

`someObjectStore.put(data, optionalKey);`

Again, this method returns a promise and occurs inside a transaction. As with `add`, we need to be careful to check `transaction.complete` if we want to be sure that the operation was actually carried out.

```
dbPromise.then(async db => { //necessary as we use await below
  var tx = db.transaction('store', 'readwrite');
  var store = tx.objectStore('store');
  var item = {
    name: 'sandwich',
    price: 4.99,
    description: 'A very tasty sandwich',
    created: new Date().getTime()
  };
  await store.put(item); // necessary as it returns a promise
  return tx.complete;
}).then(function () {
  console.log('added item to the store! ' + JSON.stringify(item));
}).catch(function (error) {
  //do something
});
```

# Deleting data

To delete data, call the `delete` method on the object store.

```
someObjectStore.delete(primaryKey);
```

Once again, this method returns a promise and must be wrapped in a transaction

```
dbPromise.then(async db => {
  var tx = db.transaction('store', 'readwrite');
  var store = tx.objectStore('store');
  await store.delete(key);
  return tx.complete;
}).then(function() {
  console.log('Item deleted');
});
```

•

# Searching

```
someObjectStore.getAll(optionalConstraint);
```

This method returns all the objects in the object store matching the specified key or key range or all objects in the store if no parameter is given.

```
dbPromise.then(function(db) {  
  var tx = db.transaction('store', 'readonly');  
  var store = tx.objectStore('store');  
  return store.getAll();  
}).then(function(items) {  
  console.log('Items by name:', items);  
});  
•
```

Asking for all objects in a db is generally a bad idea

# Searching using cursors

- A cursor selects each object in an object store or index one by one, letting you do something with the data as it is selected
- We create the cursor by calling the `openCursor` method on the object store

```
someObjectStore.openCursor(optionalKeyRange, optionalDirection);
```

- This method returns a promise that resolves with a cursor object representing the first object in the object store (or `undefined`)
- To move on to the next object in the object store, we call `cursor.continue`

```
dbPromise.then(function(db) {  
    var tx = db.transaction('store', 'readonly');  
    var store = tx.objectStore('store');  
    return store.openCursor();  
}).then(function logItems(cursor) {  
    if (!cursor) {  
        return;  
    }  
    console.log('Cursored at:', cursor.key);  
    for (var field in cursor.value) {  
        console.log(cursor.value[field]);  
    }  
    return cursor.continue().then(logItems);  
}).then(function() {  
    console.log('Done cursoring');  
});  
•
```



# Query by range

```
function searchItems(lower, upper) {
  if (lower === '' && upper === '') {return;}

  // build the range object
  var range;
  if (lower !== '' && upper !== '') {
    range = IDBKeyRange.bound(lower, upper);
  } else if (lower === '') {
    range = IDBKeyRange.upperBound(upper);
  } else {
    range = IDBKeyRange.lowerBound(lower);
  }

dbPromise.then(function(db) {
  var tx = db.transaction(['store'], 'readonly');
  var store = tx.objectStore('store');
  var index = store.index('price');
  // use the range object. NOTE!! as query an index, you must open the cursor on THE
  // INDEX rather than on the STORE!!!
  return index.openCursor(range);
}).then(function showRange(cursor) {
  if (!cursor) {return;}
  console.log('Cursored at:', cursor.key);
  for (var field in cursor.value) {
    console.log(cursor.value[field]);
  }
  return cursor.continue().then(showRange);
}).then(function() {
  console.log('Done cursoring');
});
}
```

# Query by single value

- Suppose you want to query an index for a single value
  - use **IDBKeyRange.only**(value) in the condition
  - this time we will use getAll rather than the cursor
    - use getAll if you want to get a list of all the items in theDB satisfying a specific condition

```
function getDataAboutAValue(aValue) {  
  if (dbPromise) {  
    dbPromise.then(function (db) {  
      console.log('fetching: '+aValue+ ' from database');  
      var tx = db.transaction(STORE_NAME, 'readonly');  
      var store = tx.objectStore(STORE_NAME);  
      var index = store.index('someindex');  
      return index.getAll(IDBKeyRange.only(aValue));  
    }).then(function (itemsList) {  
      if (itemsList && itemsList.length>0){  
        ...  
      }  
    })  
  }  
}
```

# Versioning

new version

```
var dbPromise = idb.open('test-db7', 2, function(upgradeDb) {  
    switch (upgradeDb.oldVersion) {  
        case 0:  
            upgradeDb.createObjectStore('store', {keyPath: 'name'});  
        case 1:  
            var peopleStore = upgradeDb.transaction.objectStore('store');  
            peopleStore.createIndex('price', 'price');  
    }  
});
```

Used to upgrade the database to a new version - it keeps data consistent!!



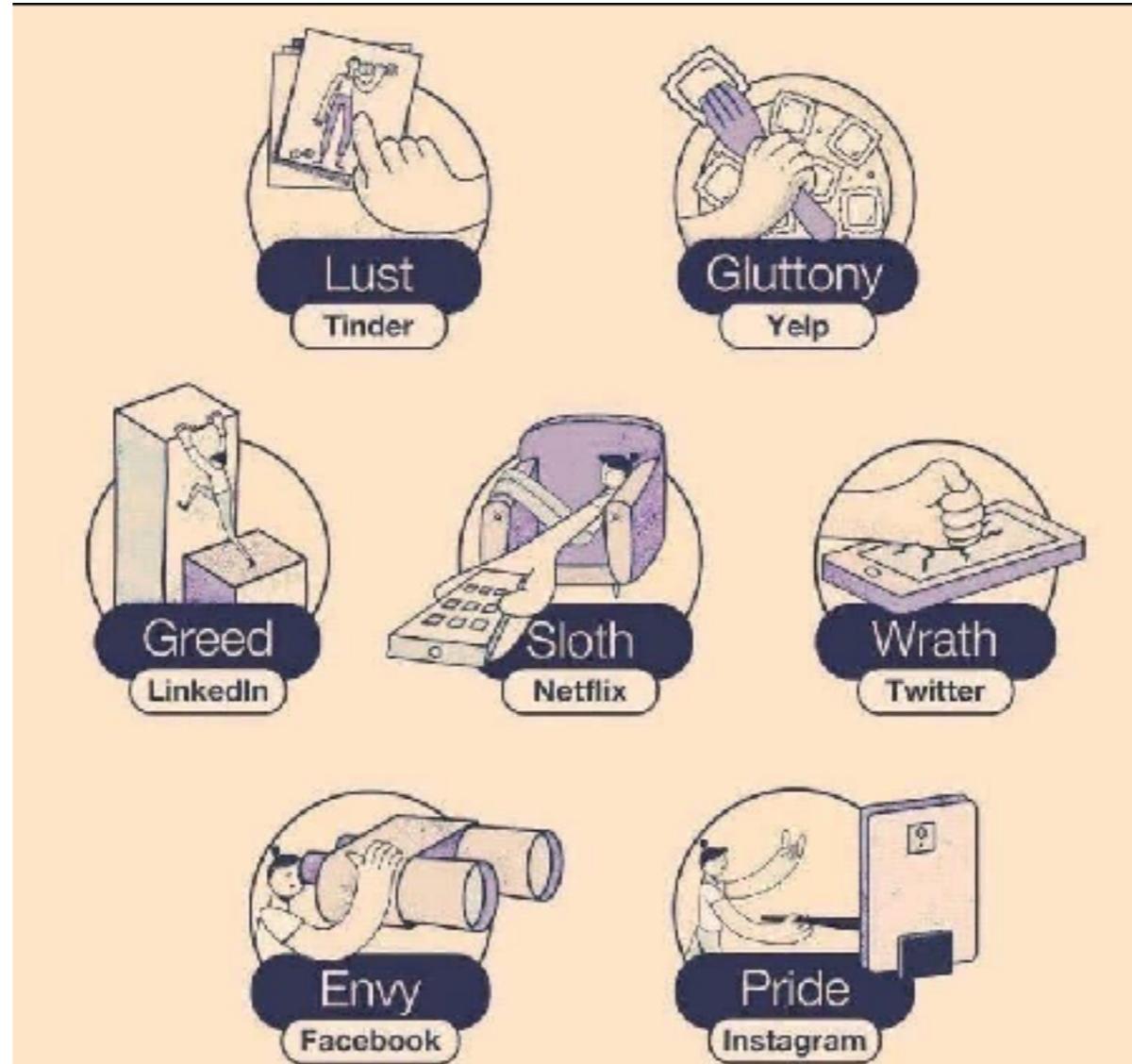
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# Questions?

Next lab is about IndexedDB



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# Understanding The Social Web

Prof. Fabio Ciravegna  
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# Russian interference in the 2016 United States elections

From Wikipedia, the free encyclopedia

*Further information: Timeline of Russian interference in the 2016 United States elections*

The Russian government interfered in the 2016 U.S. presidential election in order to increase political instability in the United States and to damage Hillary Clinton's presidential campaign by bolstering the candidacies of Donald Trump, Bernie Sanders and Jill Stein.<sup>[1][2][3]</sup> A January 2017 assessment by the Office of the Director of National Intelligence (ODNI) stated that Russian leadership favored presidential candidate Donald Trump over Hillary Clinton, and that Russian president Vladimir Putin personally ordered an "influence campaign" to harm Clinton's electoral chances and "undermine public faith in the US democratic process."<sup>[3]:7</sup>

On October 7, 2016, the ODNI and the Department of Homeland Security (DHS) jointly stated that the U.S. Intelligence Community was confident that the Russian Government directed recent hacking of e-mails with the intention of interfering with the U.S. election process.<sup>[4]</sup> According to the ODNI's January 6, 2017 report, the Russian military intelligence service (GRU) had hacked the servers of the Democratic National Committee (DNC) and the personal Google email account of Clinton campaign chairman John Podesta and forwarded their contents to WikiLeaks.<sup>[3]:ii-iii,2[5][6][7]</sup> Although Russian officials have repeatedly denied involvement in any DNC hacks or leaks,<sup>[8][9][10]</sup> there is strong forensic evidence linking the DNC breach to known Russian operations.<sup>[11]</sup> In

January 2017, Director of National Intelligence James Clapper testified that Russia also interfered in the elections by disseminating fake news that was promoted on social media.<sup>[12]</sup>

On October 31, 2016, President Barack Obama warned Putin via the tele phone to stop interfering or face consequences.<sup>[13]</sup> In December 2016, Obama ordered a report on hacking efforts aimed at U.S. elections since 2008,<sup>[14]</sup> while U.S. Senators called for a bipartisan investigation.<sup>[15][16]</sup> President-elect Donald Trump rejected claims of foreign interference and said that Democrats were reacting to their election loss.<sup>[17][18]</sup> On December

ODNI declassified findings of a highly classified assessment. It was assessed that, in general, no evidence supporting the findings of the assessment has been found.

**Assessing Russian Activities Recent US Elections**

**Key Judgments**

Russia's efforts to influence the 2016 US presidential election of Moscow's longstanding desire to undermine the US-led activities demonstrated a significant escalation in direction compared to previous operations.

We assess Russian President Vladimir Putin ordered an influence operation. Russia's goals were to undermine confidence in the election, denigrate Secretary Clinton, and harm her electability and that the Russian Government developed a clear profile with high confidence in those judgments.

- We assess Putin and the Russian Government again increased chances when possible by increasing secret unfavorable to him. All three agencies agree with this judgment. NSA has moderate confidence in this judgment.

- Moscow's approach evolved over the course of the campaign election prospects of the two main candidates. When it came to the election, the Russian influence campaign had high confidence in those judgments.

- Further information has come to light since Election Day that since early November 2016, increases our confidence in our judgments.

Moscow's influence campaign followed a Russian messaging intelligence operations such as cyber activity with overt agents, state-funded media, third-party intermediaries, as Russia, like its Soviet predecessor, has a history of conducting presidential elections that have used intelligence officers and candidates proxies as hostile to the Kremlin.

- Intelligence services conduct espionage operations against presidential election, including targets associated with both candidates.

- We assess with high confidence that Russian military intelligence (GRU) used the Geopolit 29 persona and PO.

ODNI declassified assessment activities and intentions in re

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**Cambridge Analytica**  
The Cambridge Analytica Files

Patrick Greenfield

Email  
Mon 26 Mar 2018  
00.53 BST



801

# The Cambridge Analytica files: the story so far

**What is the company accused of, how is Facebook involved and what is the Brexit link?**



▲ Facebook ran adverts on Sunday in several UK and US newspapers apologising for the data breach. Photograph: Dominic Lipinski/PA

## What are the allegations against Cambridge Analytica?

The data analytics firm used personal information harvested from more than 50 million Facebook profiles without permission to build a system that could target US voters with personalised political advertisements based on their psychological profile, according to Christopher Wylie, a former Cambridge Analytica contractor who helped build the algorithm. Employees of Cambridge Analytica, including the suspended CEO Alexander Nix, were also filmed boasting of using

Advertisement

Now

Leslie  
Are we still on for later? xxx

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Congratulations on getting the new template live!

Request a demo

16:47  
Tuesday, 3 April

Now

Leslie  
Are we still on for later? xxx

Earlier Today

**Say 'yes' with Contract Express.**

Request a demo

5pm ago

Are all those T's & C's standardised yet?

the answer company™  
**THOMSON REUTERS®**



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---

# How can you do that?

---

One step at a time: what is the social web? Who is it for?



- Let people ...
- Creating, su...



Broadcast Yourself™



The Pirate Bay



## SOCIAL MEDIA EXPLAINED

TWITTER I'M EATING A #DONUT

FACEBOOK I LIKE DONUTS

FOURSQUARE THIS IS WHERE  
I EAT DONUTS

INSTAGRAM HERE'S A VINTAGE  
PHOTO OF MY DONUT

YOUTUBE HERE I AM EATING A DONUT

LINKEDIN MY SKILLS INCLUDE DONUT EATING

PINTEREST HERE'S A DONUT RECIPE

LAST FM NOW LISTENING TO "DONUTS"

G+ I'M A GOOGLE EMPLOYEE  
WHO EATS DONUTS.



# The Social Web

[http://en.wikipedia.org/wiki/Social\\_Web](http://en.wikipedia.org/wiki/Social_Web)

- The social web can be described as people interlinked and interacting with engaging content in a conversational and participatory manner via the WWW
  - people are brought together through a variety of shared interests.
- Since social web applications are built to encourage communication between people, they typically emphasise some combination of the following social attributes:
  - Identity: who are you? (e.g. Facebook)
  - Relationships: who are you connected with? who do you trust? (Facebook)
  - Reputation: what do people think you stand for? (e.g. LinkedIn)
  - Presence: where are you? (e.g. FourSquare)
  - Groups: how do you organize your connections? (WhatsApp)
  - Conversations: what do you discuss with others? (e.g. Reddit, WhatsApp)
  - Sharing: what content do you make available for others to interact with?



# The social web (ctd)

- Two types of Web sites:
  - "people focus": the person is the focus of social interaction
    - A profile is constructed by each user
    - e.g. Facebook.
  - "hobby focus"
    - e.g. photography websites such as Flickr or Pinterest

Mashable

6642 followers, 18 following

Follow All

What we're loving on the web.  
<http://mashable.com/>

Search

Pinterest

Add + About dreamgrow.com

6 Boards · 126 Pins · 0 Likes

hey girl,  
I've put you on my foursquare To-Do list

Ryan Gosling Hey Girl Foursquare meme. What is it about this guy?

27 likes 2 comments 58 repins

job search CONFIDENTIALITY

76%  
88%  
30%

55%  
64%

15 Funny Facebook Timeline Cover Photos!

22 likes 1 comment 21 repins

Repinped onto Tips and Tricks from mashable.com

Fahrenheit Marketing Thanks for the great article and the repin.

Add a comment...

# Paper faces

Aggregators Folksonomy Wikis  
Blogs Participation User Centered Joy of Use  
Six Degrees

UK World Business Football UK politics Environment Education Science Tech Global development Cities Obituaries

Facebook

## Is Facebook for old people? Over-55s flock in as the young leave

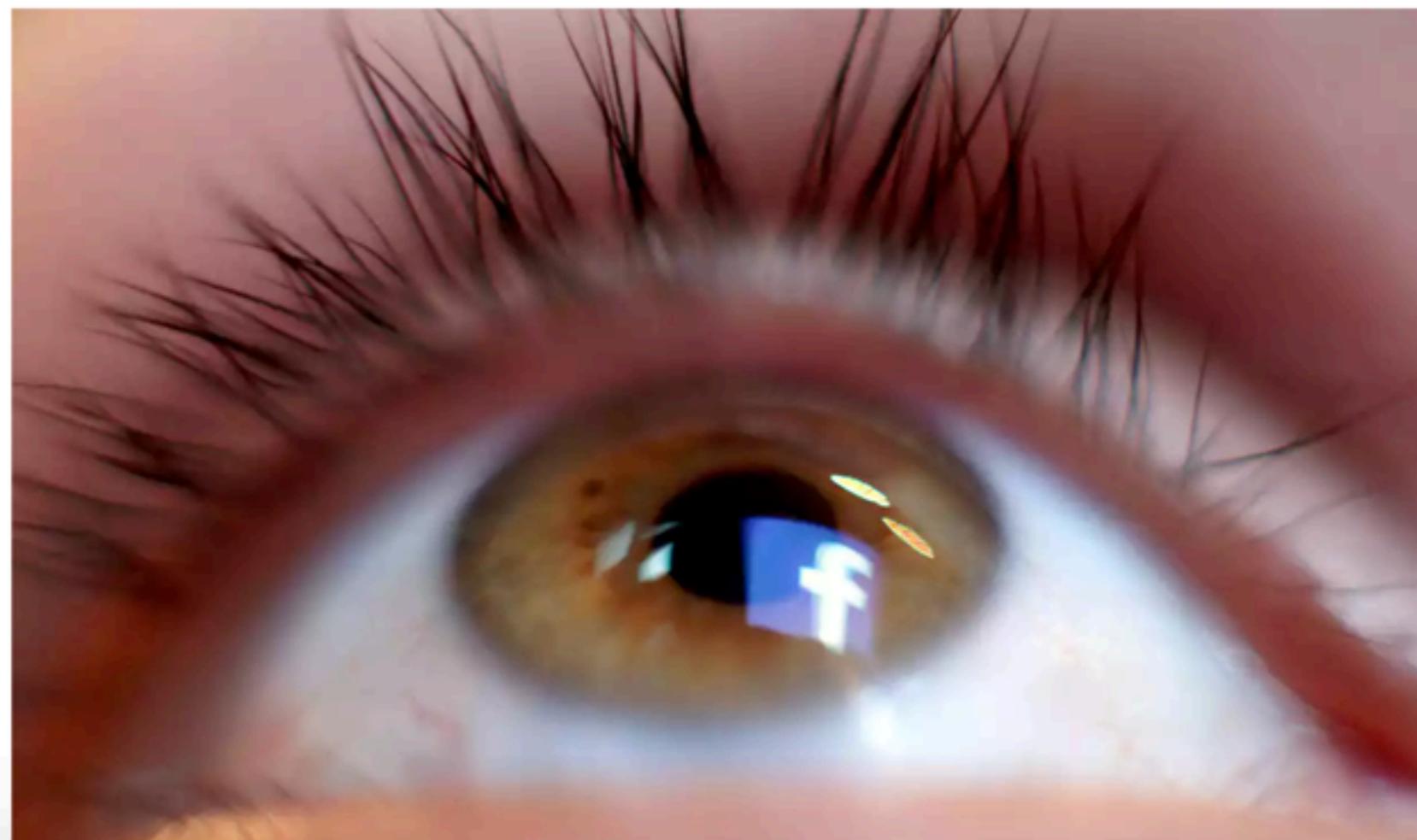
A forecast 700,000 UK teenagers and young adults will leave the social media site in 2018

Mark Sweeney

 @marksweney  Email  
Mon 12 Feb 2018 05.00 GMT



 4,327  1,519



JAN  
2020

# SOCIAL MEDIA USE AROUND THE WORLD

BASED ON THE NUMBER OF MONTHLY ACTIVE USERS OF TOP SOCIAL MEDIA PLATFORMS IN EACH COUNTRY OR TERRITORY

TOTAL NUMBER OF  
ACTIVE SOCIAL  
MEDIA USERS



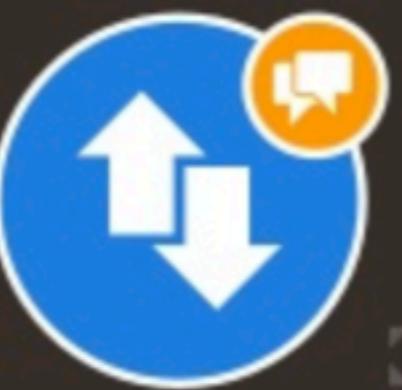
**3.80**  
BILLION

SOCIAL MEDIA  
PENETRATION (USERS  
vs. TOTAL POPULATION\*)



**49%**

ANNUAL GROWTH IN  
THE TOTAL NUMBER OF  
SOCIAL MEDIA USERS



**+9.2%**

TOTAL NUMBER OF SOCIAL  
MEDIA USERS ACCESSING  
VIA MOBILE PHONES



**3.75**  
BILLION

PERCENTAGE OF TOTAL  
SOCIAL MEDIA USERS  
ACCESSING VIA MOBILE



**99%**

SOURCES: KEROS ANALYSIS, COMPANY STATEMENTS AND EARNINGS AND UNCEMINT, SOCIAL MEDIA PLATFORMS' SELF-SERVICE ADVERTISING TOOLS, MEDIASCOPE, CAFEBAZAAR (ALL LATEST DATA AVAILABLE IN JANUARY 2020). \*NOTES: PENETRATION FIGURES ARE FOR TOTAL POPULATION, REGARDLESS OF AGE. # COMPARABILITY ADVISORY: SOURCE AND BASE CHANGES.

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are  
social** Hootsuite®



77 of 247





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## SOCIAL MEDIA USE vs. TOTAL POPULATION BY REGION

THE NUMBER OF ACTIVE SOCIAL MEDIA USERS IN EACH REGION COMPARED TO TOTAL POPULATION, REGARDLESS OF AGE





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## GROWTH IN SOCIAL MEDIA USER NUMBERS BY REGION

CHANGE IN THE TOTAL NUMBER OF PEOPLE USING SOCIAL MEDIA BETWEEN APRIL 2019 AND JANUARY 2020\*



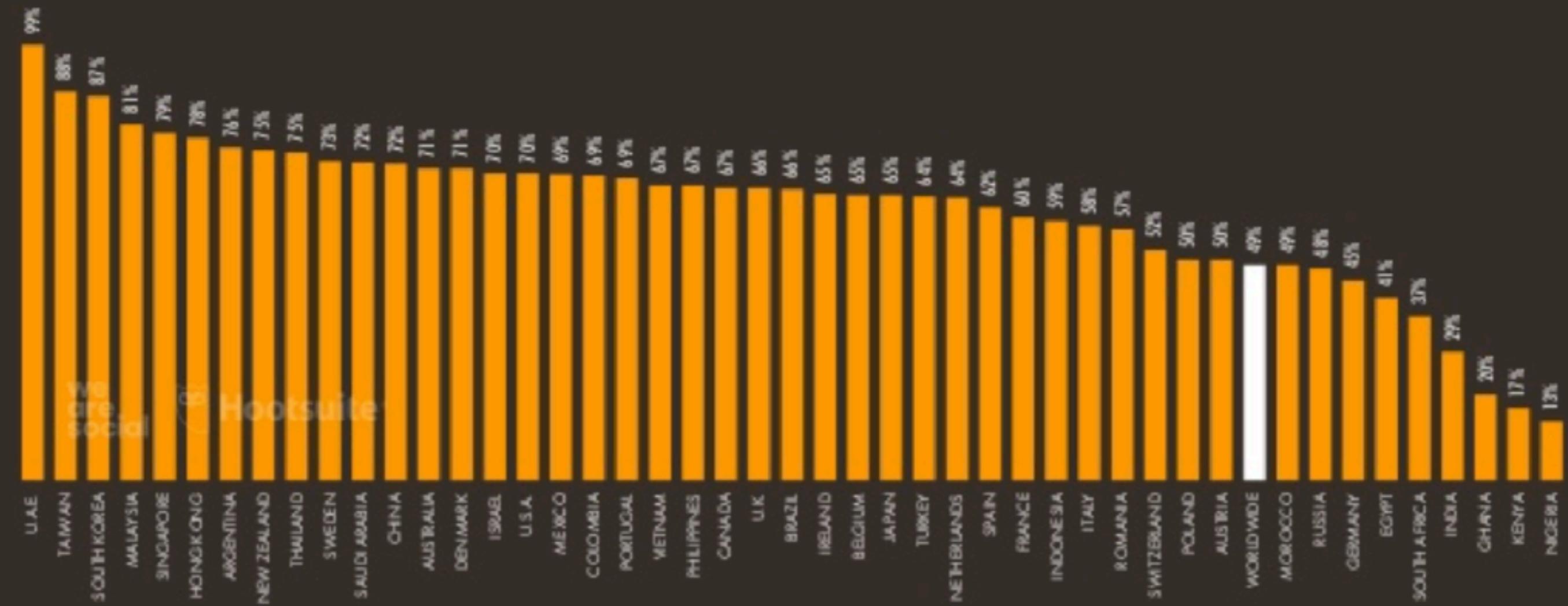
SOURCES: KERIS ANALYSIS, COMPANY STATEMENTS AND EARNINGS AND NO UNCONTROLS; SOCIAL MEDIA PLATFORMS' SELF-SERVICE ADVERTISING TOOLS; MEDIASCOPE, CAFEZAAR (ALL LATEST DATA AVAILABLE IN JANUARY 2020). \*NOTES: PENETRATION FIGURES ARE FOR TOTAL POPULATION, REGARDLESS OF AGE. REGION IS AS DEFINED BY THE UNITED NATIONS GEOGRAPHIC INFORMATION SYSTEM. \*\*COMPARABILITY ADVISORY: SOURCE AND BASE CHANGES. \*NOTE: WE HAVE BEEN UNABLE TO RE-BASE HISTORICAL USER NUMBERS FROM BEFORE APRIL 2019.



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# SOCIAL MEDIA PENETRATION

THE NUMBER OF ACTIVE SOCIAL MEDIA USERS COMPARED TO TOTAL POPULATION, REGARDLESS OF AGE



SOURCES: KEROS ANALYSIS, COMPANY STATEMENTS AND EARNINGS ANNOUNCEMENTS, SOCIAL MEDIA PLATFORMS' SELF-SERVICE ADVERTISING TOOLS, MEDIASCOPE, CAFEBAZAAR (ALL LATEST DATA AVAILABLE IN JANUARY 2020). \*NOTES: PENETRATION FIGURES ARE FOR TOTAL POPULATION, REGARDLESS OF AGE. \*\*COMPARABILITY ADVISORY: SOURCE AND BASE CHANGES.

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# SOCIAL MEDIA PENETRATION RANKINGS

COUNTRIES AND TERRITORIES\* WITH THE HIGHEST AND LOWEST LEVELS OF OVERALL SOCIAL MEDIA USE (REGARDLESS OF AGE)

## HIGHEST LEVELS OF SOCIAL MEDIA PENETRATION

#	HIGHEST PENETRATION	%	Nº OF USERS
01=	KUWAIT	99%	4,200,000*
01=	QATAR	99%	2,830,000*
01=	U.A.E.	99%	9,730,000*
04	BRUNEI	94%	410,000
05	MALTA	91%	400,000
06	ARUBA	90%	96,000
07	CAYMAN IS.	89%	58,000
08	TAIWAN	88%	21,000,000
09	SOUTH KOREA	87%	44,731,000
10	BAHRAIN	84%	1,400,000

## LOWEST LEVELS OF SOCIAL MEDIA PENETRATION

#	LOWEST PENETRATION	%	Nº OF USERS
213	NORTH KOREA	0.0%	[N/A]
212	ERITREA	0.6%	22,000
211	SUDAN	0.7%	300,000
210	TURKMENISTAN	1.2%	72,000
209	CHAD	we are social	2.0%
208	NIGER	2.1%	490,000
207	CENTRAL AFRICAN REP.	2.5%	120,000
206	SOUTH SUDAN	2.5%	280,000
205	MALAWI	2.7%	510,000
204	DEM. REP. OF THE CONGO	3.5%	3,100,000

SOURCES: KERIS ANALYSIS, COMPANY STATEMENTS AND EARNINGS ANNOUNCEMENTS, SOCIAL MEDIA PLATFORMS' SELF-SERVICE ADVERTISING TOOLS, MEDIASCOPE, CAFEBAZAAR (ALL LATEST DATA AVAILABLE IN JANUARY 2020). \*NOTES: FIGURES DENOTED BY (\*) HAVE BEEN CAPTURED AT 99% OF THE TOTAL POPULATION. ONLY INCLUDES COUNTRIES AND TERRITORIES WITH POPULATIONS OF AT LEAST 50,000 PEOPLE. PENETRATION FIGURES ARE FOR TOTAL POPULATION, REGARDLESS OF AGE. \*\*COMPARABILITY ADVISORY: SOURCE AND BASE CHANGES.

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# SOCIAL MEDIA GROWTH RANKINGS: RELATIVE CHANGE

COUNTRIES AND TERRITORIES\* WITH THE HIGHEST PERCENTAGE CHANGE IN SOCIAL MEDIA USERS (JAN 2020 vs. APR 2019<sup>\*\*</sup>)

#	HIGHEST RELATIVE GROWTH	▲ %	▲ USERS	#	HIGHEST RELATIVE GROWTH	▲ %	▲ USERS
01	CHAD	+252%	+240,000	11	KYRGYZSTAN	+33%	+620,000
02	GUINEA-BISSAU	+89%	+120,000	12	KIRIBATI	+31%	+10,000
03	TURKMENISTAN	+68%	+29,000	13	EQUATORIAL GUINEA	+31%	+24,000
04	FED. STATES OF MICRONESIA	+58%	+13,000	14	LESOTHO	+29%	+97,000
05	TAJIKISTAN	+49%	+220,000	15	DEM. REP. OF THE CONGO	+28%	+680,000
06	INDIA	+48%	+130,000,000	16	UGANDA	+27%	+530,000
07	UZBEKISTAN	+44%	+970,000	17	KAZAKHSTAN	+26%	+1,900,000
08	IRAN	+39%	+9,400,000	18	SOUTH SUDAN	+26%	+57,000
09	BURKINA FASO	+35%	+410,000	19	COMOROS	+23%	+32,000
10	MALAWI	+34%	+130,000	20	BURUNDI	+22%	+96,000

SOURCES: KEROS ANALYSIS; SOCIAL MEDIA PLATFORMS' SELF-SERVICE ADVERTISING TOOLS; MEDIASCOPIC; CARDBAZAAR (ALL LATEST DATA AVAILABLE IN JANUARY 2020)

\*NOTES: FACEBOOK REVISED THEIR REPORTING METHODOLOGY IN MARCH 2019, AND WE HAVE BEEN UNABLE TO REBASE HISTORICAL DATA FROM BEFORE APRIL 2019.

ONLY INCLUDES COUNTRIES AND TERRITORIES WITH POPULATIONS OF AT LEAST 50,000 PEOPLE. \*\*COMPARABILITY ADVISORY: SOURCE AND BASE CHANGES.



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# SOCIAL MEDIA GROWTH RANKINGS: ABSOLUTE CHANGE

COUNTRIES AND TERRITORIES\* WITH THE LARGEST CHANGE IN THE ABSOLUTE NUMBER OF SOCIAL MEDIA USERS (JAN 2020 vs. APR 2019\*)

#	LARGEST ABSOLUTE GROWTH	▲ USERS	▲ %	#	LARGEST ABSOLUTE GROWTH	▲ USERS	▲ %
01	INDIA	+130,000,000	+48%	11	NIGERIA	+3,400,000	+14%
02	CHINA	+15,000,000	+1.5%	12	COLOMBIA	+3,400,000	+11%
03	INDONESIA	+12,000,000	+8.1%	13	JAPAN	+3,000,000	+3.8%
04	BRAZIL	+11,000,000	+8.2%	14	BANGLADESH	+3,000,000	+9.1%
05	IRAN	+9,400,000	+39%	15	EGYPT	+2,900,000	+7.3%
06	U.S.A.	+6,900,000	+3.1%	16	ALGERIA	+2,400,000	+12%
07	PHILIPPINES	+5,800,000	+8.6%	17	PAKISTAN	+2,400,000	+7.0%
08	VIETNAM	+5,700,000	+9.6%	18	THAILAND	+2,300,000	+4.7%
09	MEXICO	+5,300,000	+6.3%	19	GERMANY	+2,300,000	+6.5%
10	SOUTH AFRICA	+3,500,000	+19%	20	ARGENTINA	+2,200,000	+6.9%

SOURCES: KEROS ANALYSIS; SOCIAL MEDIA PLATFROMS' SELF-SERVICE ADVERTISING TOOLS; MEDIASCOPE; CARIBAZAAR (ALL LATEST DATA AVAILABLE IN JANUARY 2020). \*NOTES: FACEBOOK REVISED THEIR REPORTING METHOD-LOGIC IN MARCH 2019, AND WE HAVE BEEN UNABLE TO RELEASE HIS Q1-Q2 DATA FROM BEFORE APRIL 2019. ONLY INCLUDES COUNTRIES AND TERRITORIES WITH POPULATIONS OF AT LEAST 50,000 PEOPLE. FIGURES IN THE '▲ USERS' COLUMN HAVE BEEN ROUNDED. \*COMPARABILITY ADVISORY: SOURCE AND BASE CHANGES.

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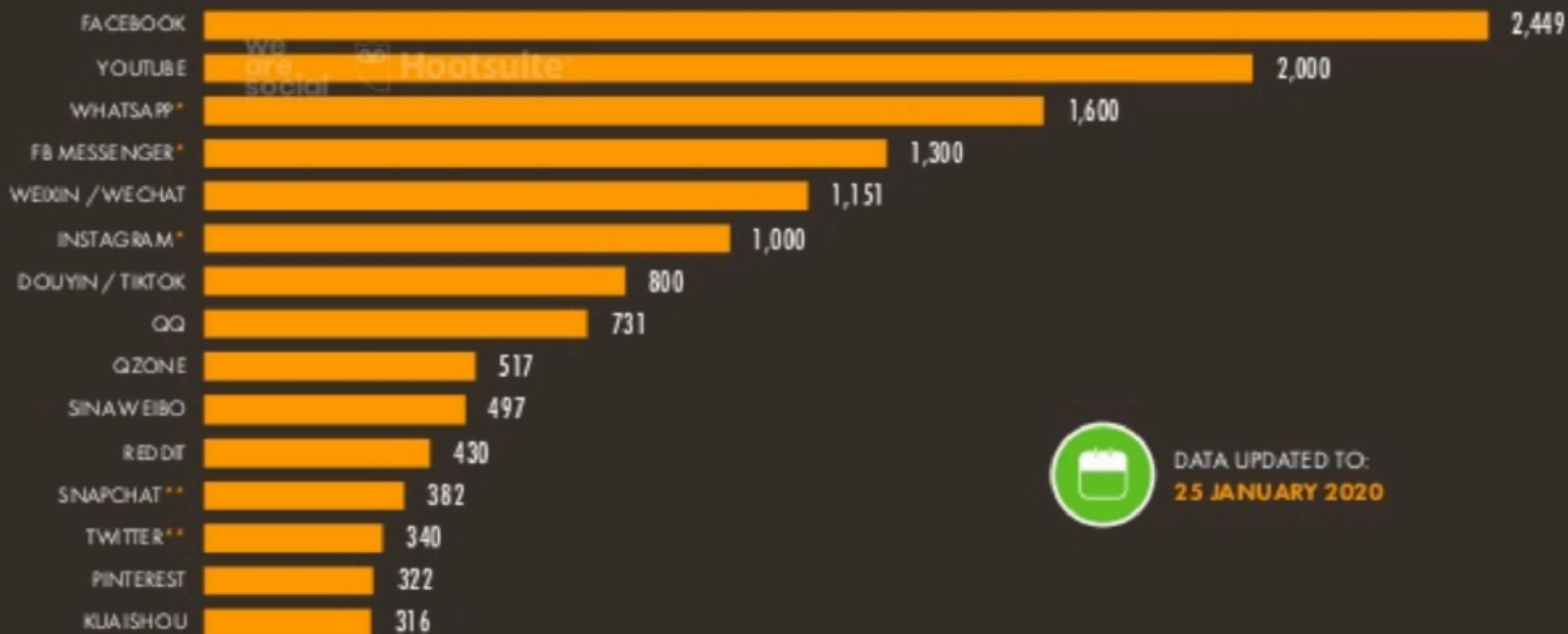
 **Hootsuite**



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## THE WORLD'S MOST-USED SOCIAL PLATFORMS

BASED ON MONTHLY ACTIVE USERS, ACTIVE USER ACCOUNTS, ADVERTISING AUDIENCES, OR UNIQUE MONTHLY VISITORS (IN MILLIONS)



DATA UPDATED TO:  
25 JANUARY 2020

SOURCES: KIROS ANALYSIS, COMPANY STATEMENTS AND EARNINGS ANNOUNCEMENTS, PLATFORMS' SELF-SERVICE ADVERTISING TOOLS (ALL LATEST AVAILABLE DATA). NOTES: PLATFORMS IDENTIFIED BY (\*) HAVE NOT PUBLISHED UPDATED USER NUMBERS IN THE PAST 12 MONTHS. PLATFORMS IDENTIFIED BY (\*\*) DON'T PUBLISH MAU DATA. FIGURES FOR TWITTER AND SNAPCHAT USE EACH PLATFORM'S LATEST ADVERTISING AUDIENCE REACH, AS REPORTED IN EACH PLATFORM'S SELF-SERVICE ADVERTISING TOOLS (JANUARY 2020).



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## TOP MESSENGER APPS AROUND THE WORLD

THE MOST ACTIVE MESSENGER APP\* IN EACH COUNTRY OR TERRITORY IN DECEMBER 2019



SOURCE: SIMILARWEB (JANUARY 2020). \* NOTES: RANKINGS ARE BASED ON MESSENGER APPS WITH THE HIGHEST NUMBER OF AVERAGE DAILY ANDROID APP USERS IN EACH RESPECTIVE COUNTRY OR TERRITORY DURING DECEMBER 2019. FIGURES IN PARENTHESES IN THE LEGEND DENOTE THE NUMBER OF COUNTRIES OR TERRITORIES IN WHICH EACH APP IS THE TOP RANKED MESSENGER. FIGURE FOR FACEBOOK MESSENGER INCLUDES MESSANGER Lite.



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# The Social Web

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An historical view on Web 2.0 to reflect on the current Web



# Harnessing collective intelligence

- Let people tell you what they know/what they like
- Social bookmarking





# Harnessing collective intelligence

- Hyperlinking is the foundation of the web.
  - As users add new content, and new sites, it is bound in to the structure of the web by other users discovering the content and linking to it.
    - Much as synapses form in the brain, with associations becoming stronger through repetition or intensity, the web of connections grows organically as an output of the collective activity of all web users.
- Google's breakthrough in search was PageRank
  - A method of using the link structure of the web rather than just the characteristics of documents to provide better search results.
  - What is popular is important
    - Many hyperlinks reaching the page
    - Important hyperlinks reaching the page

## **What Is Web 2.0**

**Design Patterns and Business Models for the Next Generation of Software**

by [Tim O'Reilly](#)  
09/30/2005



# Harnessing Collective Intelligence: Wikipedia

- Wikipedia, an online encyclopaedia based on the unlikely notion that an entry can be added by any web user, and edited by any other,
  - A radical experiment in trust
  - Eric Raymond's dictum (originally coined in the context of open source software) "with enough eyeballs, all bugs are shallow,"
- Wikipedia is already in the top 10 websites. This is a profound change in the dynamics of content creation!

**What Is Web 2.0**  
Design Patterns and Business Models for the Next Generation of Software

by Tim O'Reilly  
09/30/2005



# Discussion



## Missing criticism

[edit]

This article seems to miss the criticisms against Semantic Web, for instance the complaint that you have to *write it twice, once for the human and once for the computer*. Secondly that Google was able to make description metatags unnecessary which suggests that the entire double-markup exercise can be solved by (meta)tagging and analysis.

Oh, and I am not putting in the NPOV tag here, that causes too much noise from troublesome editors, an example of tags having gone sour. How is that for post modern grade irony? — *The preceding unsigned comment was added by 85.164.70.218 (talk • contribs)* .

A greater concern in some critics' estimation[1] is how to find a source of revenue to pay the [bandwidth](#) bill. If [100,000 computers](#) can continuously pull your data and understand it but cannot make purchasing decisions on their own, then there is nobody to look at the [advertising](#).  
--[Damian Yerrick](#) (✉) 22:36, 20 February 2006 (UTC)

## First Paragraph is Incomprehensible

[edit]

By the way it was written, I imagine this wasn't written by a native speaker. I would be more than willing to help change it, but am not really sure what's trying to be said here. Could someone jump on this??



# Harnessing: The Mechanical Turk (amazon.com)

- A web service that Amazon is calling 'artificial artificial intelligence.'
- If you need a process completed that only humans can do given current technology (judgment calls, text drafting or editing, etc.),
  - you can simply make a request to the service to complete the process.
- The machine will then complete the task with volunteers, and return the results to your software."



Image from wikipedia

**amazonmechanical turk**  
beta  
Artificial Artificial Intelligence

<https://www.mturk.com/mturk/welcome>



# But at what price?

- Not everything is necessarily good

<http://turkernation.com/showthread.php?21352-The-Myth-of-Low-Cost-High-Quality-on-Amazon-s-Mechanical-Turk>

## **1 The Myth of Low Cost, High Quality on Amazon's Mechanical Turk**

"So far, I've earned \$8.06 for almost four hours of Turkling."

[http://www.boston.com/business/techn...borer\\_exp.html](http://www.boston.com/business/techn...borer_exp.html)

"... but all of it is characterized by rates of pay that are usually well below the U.S. minimum wage of \$7.25 an hour."

[http://www.huffingtonpost.com/julian...b\\_2687431.html](http://www.huffingtonpost.com/julian...b_2687431.html)

"Estimates of what workers can earn on these crowdsourced tasks range from about \$1.20 to \$5 an hour without any benefits."

[http://economix.blogs.nytimes.com/20...ype=blogs&\\_r=0](http://economix.blogs.nytimes.com/20...ype=blogs&_r=0)

"Some requesters aim to pay close to the equivalent of minimum wage (e.g., \$1 for a 10-minute assignment). Other requesters opt to pay significantly less than this, as low as 50 cents per hour. We have found that approximately 75 cents is a reasonable rate for a 30-minute survey, though if you need to collect data very quickly, or have a complex task or study, then consider paying more per HIT."

<http://www.siop.org/tip/oct11/03barger.aspx>

"The first wave of participants included 530 participants, who were paid \$0.75 for approximately 20 minutes. This rate of pay (\$2.25 per hour) is above average for MTurk HITs; the median hourly wage for tasks performed on MTurk is \$1.38 (Horton & Chilton, 2010)"

<http://cpx.sagepub.com/content/early...612469015.full>

The refrain is the same - Turkers are being paid slave wages! Requesters, come join in this free-for-all and post your work for \$1 per hour! Over and over again, both in academic papers and newspapers, we're told that mTurk is a cheap platform for getting work done. Sounds great, but have you considered that maybe this isn't actually the case if you want high quality work done?

If you dig down into these studies and articles, you'll find the secret: sure, if you pay \$1 the work will get done, but it will be completed by scammers using "bots" (automated answering systems), people who don't necessarily understand the instructions (as English is not their strongest language), or those who don't care about the quality of the work they complete. That's fine for simple work that doesn't require mastery of the English language, but every HIT is posted with the requirement that the answers provided actually offer what is being asked.



# 5 Great Ways of Harnessing Collective Intelligence

- Be The Hub of A Hard To Recreate Data Source
  - This is a classic Web 2.0 concept and success here often devolves to being the first entry with an above average implementation.
    - Wikipedia, eBay, and others which are almost entirely the sum of the content their users contribute.
    - Just be careful and avoid crowded niches, like peer production news.

The Wikipedia content: from competitive advantage to common heritage

A screenshot of a Wikipedia page titled "Fundraising". The page features a large image of Jimmy Wales on the right. At the top, there is a banner with text from him: "Please read: A personal appeal from Wikipedia founder Jimmy Wales". Below the banner, the word "Fundraising" is highlighted in blue, serving as a section header. The page content discusses the process of soliciting and gathering contributions, mentioning that it typically refers to money for non-profit organizations but can also refer to the identification and solicitation of investors or other sources of capital for for-profit ventures. Navigation links at the top include "Article", "Discussion", "Read", "Edit", "View history", and "Search".

Dion Hinchcliffe

[http://www.kreeo.com/#cbok/Collective\\_Intelligence/contents](http://www.kreeo.com/#cbok/Collective_Intelligence/contents)  
(This blog entry has unfortunately disappeared)



# 5 Great Ways of Harnessing Collective Intelligence

- Seek Collective Intelligence Out
  - Google uses hyperlink analysis to determine the relevance of a given page and builds its own database of content which it then shares through its search engine.
    - Not only does this approach completely avoid a dependency on the ongoing kindness of strangers it also lets you build a very big content base from the outset.

Do you think that this ad would work?  
(note this is a spoof ad)

New features Log in / create account

Article Discussion Read Edit View history Search

A personal appeal from Microsoft founder Bill Gates

Help Bing! index pages

From Wikipedia, the free encyclopedia

"Contributions" redirects here. For information about the Wikipedia user contributions log, see Help:User contributions.

Fundraising or fund raising (also development) is the process of soliciting and gathering contributions as money or other resources, by requesting donations from individuals, businesses, charitable foundations, or governmental agencies (see also crowd funding). Although fundraising typically refers to efforts to gather money for non-profit organizations, it can also refer to the identification and solicitation of investors or other sources of capital for for-profit enterprises.

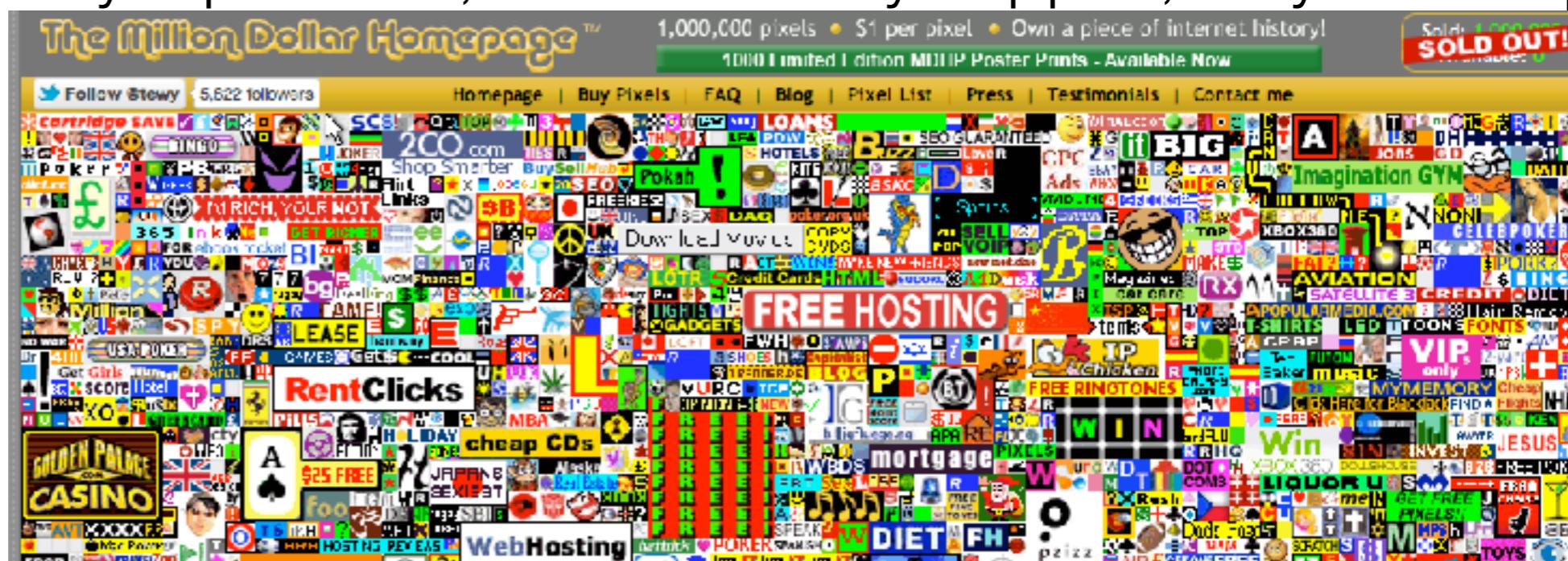


Dion Hinchcliffe

[http://www.kreeo.com/#cbok/Collective\\_Intelligence/contents](http://www.kreeo.com/#cbok/Collective_Intelligence/contents)

# 5 ways (ctd)

- Trigger Large-Scale Network Effects
    - This is arguably harder to do than either of the methods above
    - Smaller examples can be found in things like the Million Dollar Pixel Page.
    - Probably not very repeatable, but when they happen, they can happen big.



[The Million Dollar Homepage - Own a piece of internet history!](#)

[milliondollarhomepage.com/](http://milliondollarhomepage.com/)

Block all milliondollarhomepage.com results

The **website** of Alex Tew, a 21-year-old entrepreneur, who hopes to pay his way through university by selling **1 million pixels** of internet ad space for \$1 each.



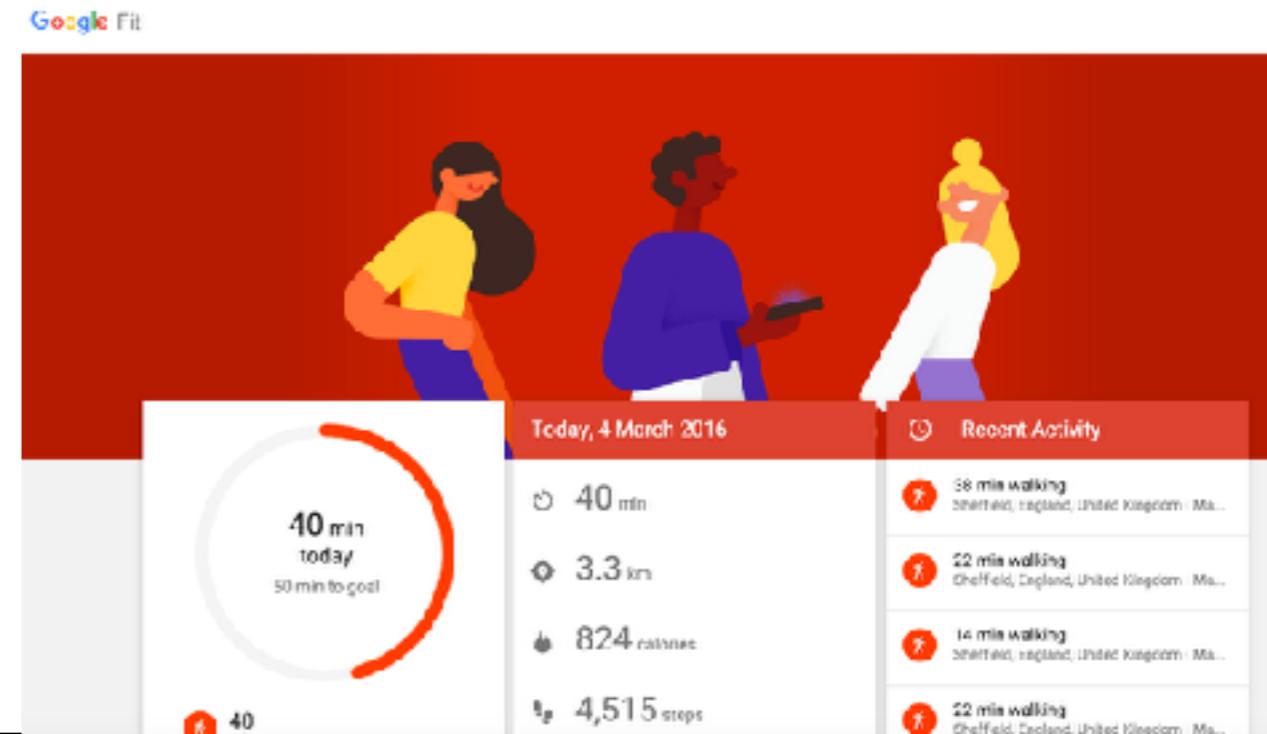
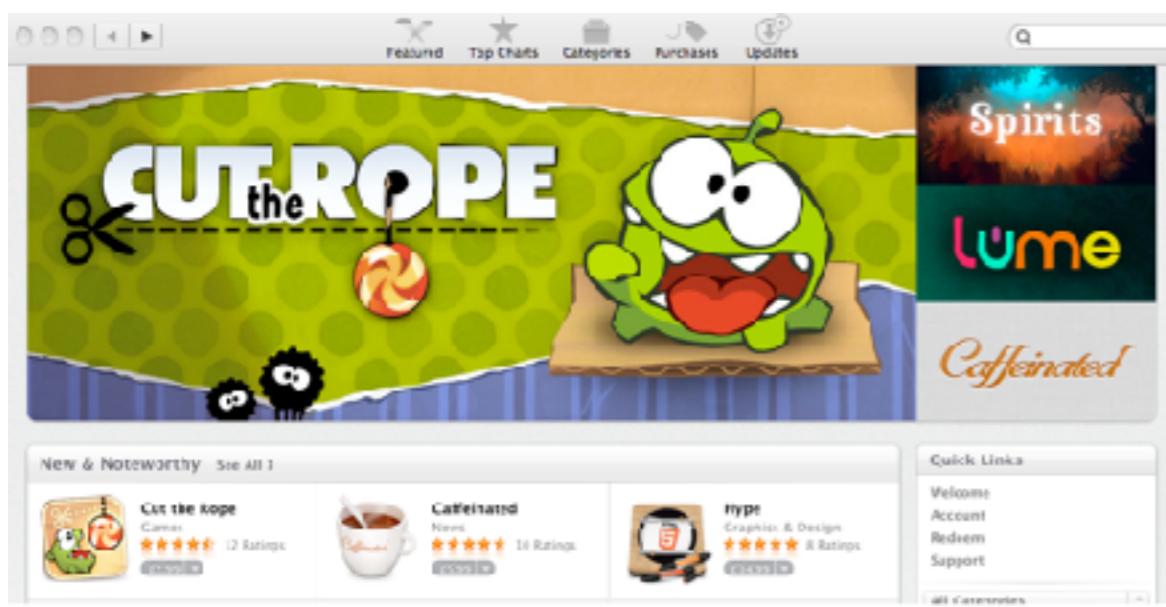
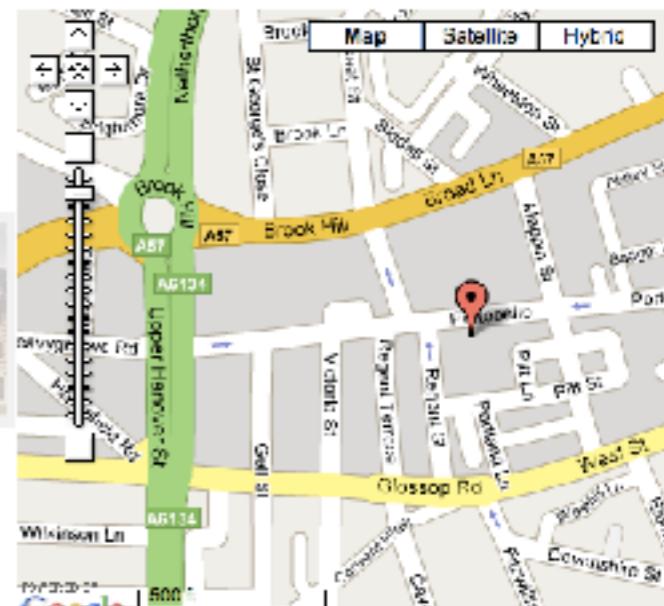
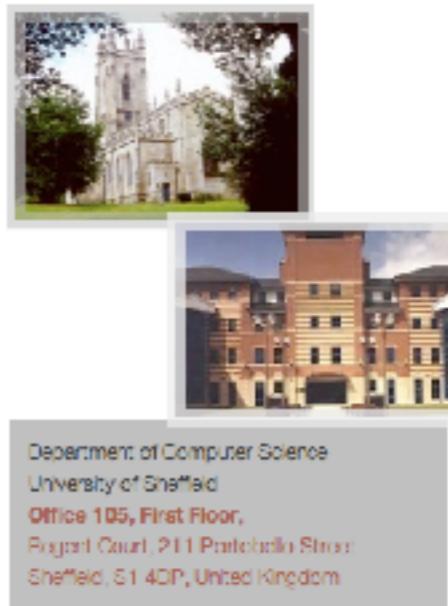
# Trusting users as co-developers

- Let people play with your data
- Let people play with your software



HealthKit

HealthKit allows apps that provide health and fitness services to share their new Health app and with each other. A user's health information is stored and secure location and the user decides which data should be shared with your app.





# Involving users



- Amazon sells the same products as competitors such as Barnesandnoble.com,
  - They receive the same product descriptions, cover images, and editorial content from their vendors.
- What is the difference, then?
  - Barnesandnoble.com search is likely to lead with the company's own products, or sponsored results
  - Amazon has made a science of user engagement.
    - They have an order of magnitude more user reviews, invitations to participate in varied ways on virtually every page
    - They use user activity to produce better search results.
      - Amazon always leads with "most popular", a real-time computation based on
        - Sales
        - "Flow" around products

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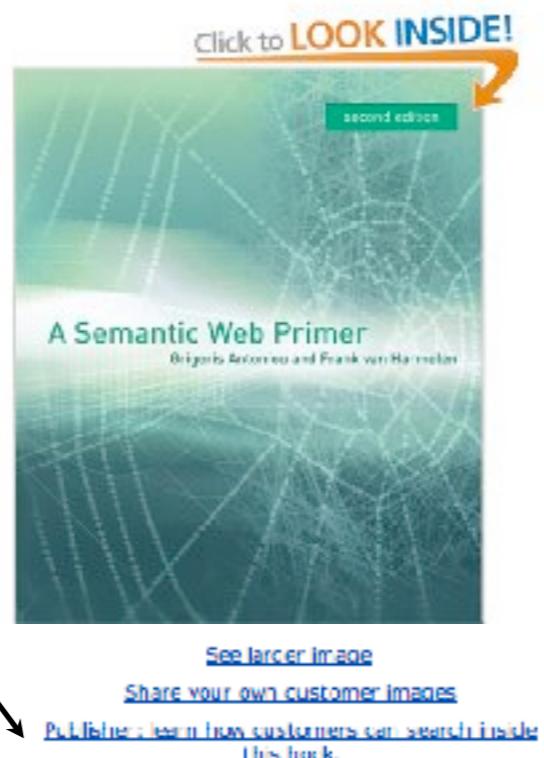
# amazon.co.uk as Web 2.0 and As old Shop Keeper

Look Inside like in a shop

Instruction to publishers  
to provide additional  
service  
(advantage to both: co-  
operation to sell more)

more details about the product  
(standard service)

cluster interests based on  
past experience  
(like the old shop keeper)



## Frequently Bought Together



This item: Semantic Web Primer, second edition (Cooperative Information Systems Series) by Antoniou  
[Semantic Web for the Working Ontologist: Effective Modeling in RDFS and OWL](#) by Dean Allemang  
[Explorer's Guide to the Semantic Web](#) by Thomas B. Passin

## Customers Who Bought This Item Also Bought



details about the service and  
offers (standard e-commerce  
services)

Semantic Web Primer, second edition (Cooperative Information Systems Series) (Hardcover)  
by Antoniou (Author), Graafland (Author), Harmanen (Author), Frank van (Author)  
No customer reviews yet. Be the first!

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the judgment is shared by the users

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Comments are published positive or negative (or so it seems!)

## All Customer Reviews

Average Customer Review: **5 stars**

[Write an online review](#) and share your thoughts with other shoppers!

4 of 4 people found the following review helpful:

**A high level introduction**, September 5, 2005

Reviewer: [Kaustav Bhattacharya](#) (London, UK) - [See all my reviews](#)

Read full review

This book gives you a good high level introduction to the concepts and potentials of the Semantic Web. It does not go in to much detail and more it this book meant to. The author details the core concepts in a lucid manner, opening up the readers imagination to the potential applicaton of this emerging method of organising information on the web. As well as RDF the book looks at OWL, and the combination of the two emerging standards. There are many helpful references throughout the book for your further reading pleasure, many of which can be found online as well as in print.

For anyone wanting to get a good top level overview on the subject of the Semantic Web without getting bogged down with too much indepth coding detail, this book is ideal and fits very snuggly in any techie's laptop bag :-)

Was this review helpful to you? [YES](#) [NO](#) [\(Report this\)](#)

9 of 9 people found the following review helpful:

**Covers all bases with clarity and in depth**, September 8, 2004

Reviewer: ["antmiller"](#) - [See all my reviews](#)

Apparently aimed at undergraduates looking at information science, this is also an invaluable introduction for technical managers transferring into this realm. The basic concepts are clearly illuminated, and all key technologies explained at a good pace: not too simple, not too rushed.

The structure of the examples is well thought out: It's generic enough to make sense in most domains, without being so general as to be meaningless.

There are many books exploring the more esoteric social and scientific edges of the semantic net, and plenty of very specialised technical tomes on each specific technology- this work bridges the gap admirably.

Was this review helpful to you? [YES](#) [NO](#) [\(Report this\)](#)

the community helps judge the quality of the comment

Comments on the comments



# The Long Tail

**What Is Web 2.0**

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by Tim O'Reilly  
09/30/2005

- Google's success came from an understanding of what Chris Anderson refers to as "the long tail," the collective power of the small sites that make up the bulk of the web's content.
  - DoubleClick's offerings require a formal sales contract, limiting their market to the few thousand largest websites.
  - Google figured out how to enable ad placement on virtually any web page.
    - What's more, they eschewed publisher/ad-agency friendly advertising formats such as banner ads and popups in favor of minimally intrusive, context-sensitive, consumer-friendly text advertising.
- The Web 2.0 lesson: leverage customer-self service and algorithmic data management to reach out to the entire web, to the edges and not just the center, to the long tail and not just the head.



# From Proprietary Software to Proprietary Data

- Every significant internet application to date has been backed by a specialized database:
  - Google's web crawl and indexing
  - Amazon's database of products and user contributions
  - eBay's database of products and sellers,
- Database management is a core competency of Web 2.0 companies, so much so that we have sometimes referred to these applications as "infoware" rather than merely software.



# Data Ownership = Success?

- A number of cases where control over the database has led to market control and outsized financial returns
  - Look at the copyright notices at the base of every map served by MapQuest, maps.yahoo.com, maps.msn.com, or maps.google.com,
    - you'll see the line "Maps copyright NavTeq, TeleAtlas,"
    - for the new satellite imagery services, "Images copyright Digital Globe."
- These companies made substantial investments in their databases
  - NavTeq alone reportedly invested \$750 million to build their database of street addresses and directions.



- NavTeq has gone so far as to imitate Intel's familiar Intel Inside logo:
  - Cars with navigation systems bear the imprint, "NavTeq Onboard."
  - Data is indeed the Intel Inside of these applications, a sole source component in systems whose software infrastructure is largely open source or otherwise commodified.



# The failure of MapQuest

- A failure to understand the importance of owning an application's core data will eventually undercut its competitive position.
  - MapQuest pioneered the web mapping category in 1995
  - When Yahoo!, and then Microsoft, and then Google, decided to enter the market, they were easily able to offer a competing application simply by licensing the same data

## **What Is Web 2.0**

**Design Patterns and Business Models for the Next Generation of Software**

by [Tim O'Reilly](#)  
09/30/2005



# How to make use of Data: Amazon.com

- Instead Amazon.com
  - Original database came from ISBN registry provider R.R. Bowker.
    - Like competitors such as Barnesandnoble.com,
  - But Amazon
    - Enhanced the data,
      - adding publisher-supplied data such as cover images, table of contents, index, and sample material.
    - Harnessed their users to annotate the data
- Now Amazon (not Bowker) is the primary source for bibliographic data on books, a reference source for scholars and librarians as well as consumers.
- Imagine if MapQuest had done the same thing, harnessing their users to annotate maps and directions, adding layers of value. It would have been much more difficult for competitors to enter the market just by licensing the base data.

**What Is Web 2.0**  
Design Patterns and Business Models for the Next  
Generation of Software

by Tim O'Reilly  
09/30/2005



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# Getting Information on Social Media

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Wikidata item

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View source

View history

Search Wikipedia

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# Russian interference in the 2016 United States elections

From Wikipedia, the free encyclopedia

*Further information: Timeline of Russian interference in the 2016 United States elections*

The Russian government interfered in the 2016 U.S. presidential election in order to increase political instability in the United States and to damage Hillary Clinton's presidential campaign by bolstering the candidacies of Donald Trump, Bernie Sanders and Jill Stein.<sup>[1][2][3]</sup> A January 2017 assessment by the Office of the Director of National Intelligence (ODNI) stated that Russian leadership favored presidential candidate Donald Trump over Hillary Clinton, and that Russian president Vladimir Putin personally ordered an "influence campaign" to harm Clinton's electoral chances and "undermine public faith in the US democratic process."<sup>[3]:7</sup>

On October 7, 2016, the ODNI and the Department of Homeland Security (DHS) jointly stated that the U.S. Intelligence Community was confident that the Russian Government directed recent hacking of e-mails with the intention of interfering with the U.S. election process.<sup>[4]</sup> According to the ODNI's January 6, 2017 report, the Russian military intelligence service (GRU) had hacked the servers of the Democratic National Committee (DNC) and the personal Google email account of Clinton campaign chairman John Podesta and forwarded their contents to WikiLeaks.<sup>[3]:ii-iii,2[5][6][7]</sup> Although Russian officials have repeatedly denied involvement in any DNC hacks or leaks,<sup>[8][9][10]</sup> there is strong forensic evidence linking the DNC breach to known Russian operations.<sup>[11]</sup> In

January 2017, Director of National Intelligence James Clapper testified that Russia also interfered in the elections by disseminating fake news that was promoted on social media.<sup>[12]</sup>

On October 31, 2016, President Barack Obama warned Putin via the telephone to stop interfering or face consequences.<sup>[13]</sup> In December 2016, Obama ordered a report on hacking efforts aimed at U.S. elections since 2008,<sup>[14]</sup> while U.S. Senators called for a bipartisan investigation.<sup>[15][16]</sup> President-elect Donald Trump rejected claims of foreign interference and said that Democrats were reacting to their election loss.<sup>[17][18]</sup> On December

ODNI declassified findings of a highly classified assessment. It was assessed that俄罗斯间谍活动对美国选举构成显著的威胁。相比以往，俄罗斯在干扰美国选举方面表现得更加自信。

**Assessing Russian Activities Recent US Elections**

## Key Judgments

Russia's efforts to influence the 2016 US presidential election of Moscow's longstanding desire to undermine the US-led activities demonstrated a significant escalation in direction compared to previous operations.

We assess Russian President Vladimir Putin ordered an influence operation. Russia's goals were to undermine and denigrate Secretary Clinton, and harm her electability and that Putin and the Russian Government developed a clear pre-election confidence in these judgments.

- We assess Putin and the Russian Government again increased chances of success by increasing secret unfavorable to him. All three agencies agree with this judgment. NSA has moderate confidence in this judgment.

- Moscow's approach evolved over the course of the campaign election prospects of the two main candidates. When it came to the election, the Russian influence campaign had high confidence in these judgments.

- Further information has come to light since Election Day that since early November 2016, increases our confidence in our goals.

Moscow's influence campaign followed a Russian messaging intelligence operations—such as cyber activity—with overt agents, state-owned media, third-party intermediaries, and Russia, like its Soviet predecessor, has a history of conducting presidential elections that have used intelligence officers and candidates perceive as hostile to the Kremlin.

- Intelligence services conduct espionage operations during presidential election, including targets associated with both candidates.

- We assess with high confidence that Russian military intelligence (GRU) used the Geopolit 29 persona and PO.

ODNI declassified assessment activities and intentions in re

[News](#)[Opinion](#)[Sport](#)[Culture](#)[Lifestyle](#)[More](#)

**Cambridge Analytica**  
The Cambridge Analytica Files

Patrick Greenfield

Email  
Mon 26 Mar 2018  
00.53 BST



801

# The Cambridge Analytica files: the story so far

**What is the company accused of, how is Facebook involved and what is the Brexit link?**



▲ Facebook ran adverts on Sunday in several UK and US newspapers apologising for the data breach. Photograph: Dominic Lipinski/PA

## What are the allegations against Cambridge Analytica?

The data analytics firm used personal information harvested from more than 50 million Facebook profiles without permission to build a system that could target US voters with personalised political advertisements based on their psychological profile, according to Christopher Wylie, a former Cambridge Analytica contractor who helped build the algorithm. Employees of Cambridge Analytica, including the suspended CEO Alexander Nix, were also filmed boasting of using

Advertisement

Now

Leslie  
Are we still on for later? xxx

**Say 'yes' with Contract Express.**

Congratulations on getting the new template live!

Request a demo

16:47  
Tuesday, 3 April

Now

Leslie  
Are we still on for later? xxx

Earlier Today

**Say 'yes' with Contract Express.**

Request a demo

5pm ago

Are all those T's & C's standardised yet?

the answer company™  
**THOMSON REUTERS®**



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# How Can you do That?

---

# Twitter Developer Documentation

[Docs](#)

## Products & Services

[Best practices](#)[API overview](#)[Websites](#)[Cards](#)[OAuth](#)[REST APIs](#)[Streaming APIs](#)[Ads API](#)[Gnip](#)[MoPub](#)[Fabric](#)

# Twitter Developer Documentation

The Twitter Platform connects your website or application with the worldwide conversation happening on Twitter.

## Fabric

[Fabric](#) is a platform that helps your mobile team build better apps, understand your users, and grow your business. Fabric consists of core services and best-in-class partner integrations for app stability, analytics, all the way to monetization. It brings together critical app data to show you how your app is doing – in real-time.

## Twitter for Websites

[Twitter for Websites](#) is a suite of embeddable widgets, buttons, and client-side scripting tools to integrate Twitter and display Tweets on your website or JavaScript application. Engage your visitors with a single Tweet, multiple Tweets, a Twitter Moment, Tweet buttons, follow buttons, and more.

## Cards



# Situation Awareness

- All knowledge that is accessible and can be integrated into a coherent picture to assess and cope with a situation (Sarter 1991)
  - Complete and reliable information elusive

# Large events

- Multiple events, distributed quite widely across multiple locations, and spread over several consecutive days.
- Multiple agencies, including full-time specialist agencies – such as the police, ambulance service, fire service, transport staff, local authorities and event planners – and also many part-time, temporary stewards
- Events are opportunities
  - for days out
  - in locations unfamiliar to most participants
  - several people may not have means to enter
  - attracting street entertainers, souvenir sellers, etc.

# The control room

- It gathers all agencies involved (ambulances, etc.)
- The CR job:
  - Collect information, analyse and understand events, make hypotheses, forecast events





# Features and Challenges

- Dimensions of complexity:
  - From highly localised (Music festival) to widely distributed event(tidal floods)
    - Geographically and by population density
      - A flood in London Vs a flood in Doncaster

UK Floods Jan 2014



UK Tidal Floods Dec 2013





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# Crowd Management



# Six stabbed as violence hits St Paul's Carnival 2014 in Bristol

By The Bristol Post | Posted: July 07, 2014

By Emma Grimshaw



Glastonbury Festival 2014: Two Dead at English Concert Despite Decrease in Crime, Controversies



GET THE MOST POPULAR MUSIC TIMES UPDATES WEEKLY



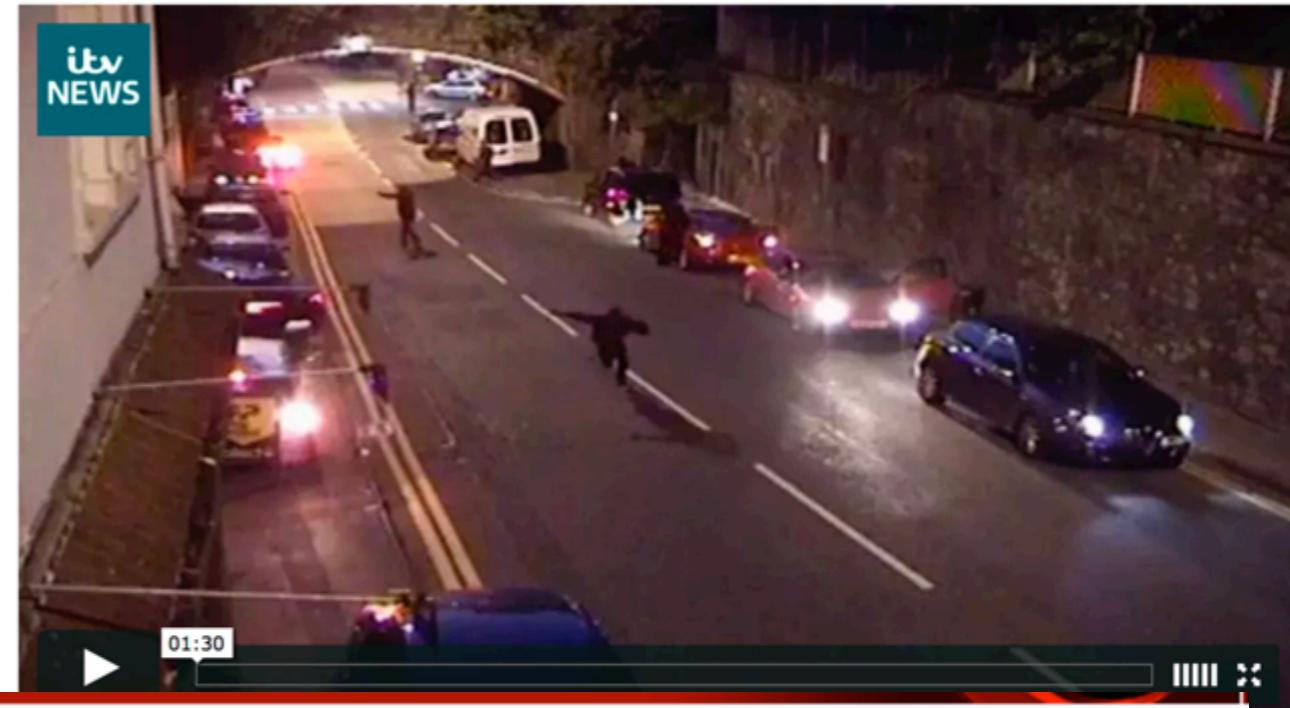
7:46 pm, Wed 27 Jun 2012

WEST COUNTRY (E) 5 UPDATES

27 June 2012 at 1:13pm

## St Paul's Carnival Murder Trial

Two men on trial for murder and bloodshed following the St Paul's Carnival last year. Rico Gordon was shot in the head and three other people suffered bullet wounds.



Last Updated: Friday, 24 June, 2005, 17:15 GMT 18:15 UK

E-mail this to a friend

Printable version

## Soaked Glastonbury gets under way

**The Glastonbury Festival is under way after suffering serious disruption when storms tore across its site at Pilton, Somerset, on Friday morning.**

Heavy rain flooded parts of the site, with dozens of tents lost under water, while lightning strikes affected the stages and knocked out power lines.



GETTY IMAGES

VIDEO Glastonbury floods

Bands such as The White Stripes, Doves and The Killers are due to play at the event, with 112,500 people expected.



# From large to small issues



UK Feminista  
@UK\_Feminista



## evidence (e.g. tweets)

#ineedfeminism because "tomorrow a 'musician' will rap that rape is fun." #glastonbury  
[pic.twitter.com/TmuojnKJ8Z](http://pic.twitter.com/TmuojnKJ8Z)

9:12 AM - 29 Jun 2013



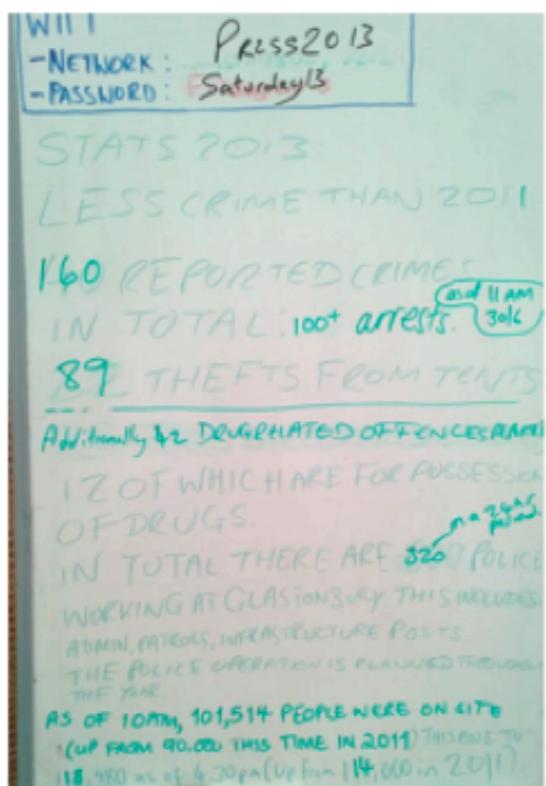
the looks of it wow #rude	
Complaints at BBC streaming quality	Are BBC #glastonbury streams working? Never ending stutter, buffering, connection loads+flash crash. I'm on 80Mb/s 1 quality and bandwidth issues of the coverage



**Louis Emanuel**  
@louisjemanuel

Saturday's police stats at #Glastonbury make for interesting reading.  
[pic.twitter.com/OzIK3oh6gc](http://pic.twitter.com/OzIK3oh6gc)

Reply Retweet Favorite More



event	evidence (e.g. tweets)
someone was robbed	So my boyfriend has been robbed at @GlastoFest. People like that really spoil it for people #scum #takeyourownmoney #theifs

# 1 Large Festival

- over 200,000 people on site
- over 3 days:
  - 296 reported crimes
    - 120 thefts
  - 170 arrests
    - 92 for drug related offences
  - 1 person dead
- But this is really just the tip of an iceberg
  - And also mostly policing related



# Expect the unexpected

- On February 11, 2004, a 38-year-old employee dressed as Pluto was killed at the Magic Kingdom when he was run over by the Beauty and the Beast float in the Share a Dream Come True Parade.



# The human factor

- Irresponsible law abiding citizens
- the fallacy of personal risk assessment





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# Supporting the Control Room

# Technologies in use

- Most common used technologies are radios and street cameras
- The Plato's cave issue



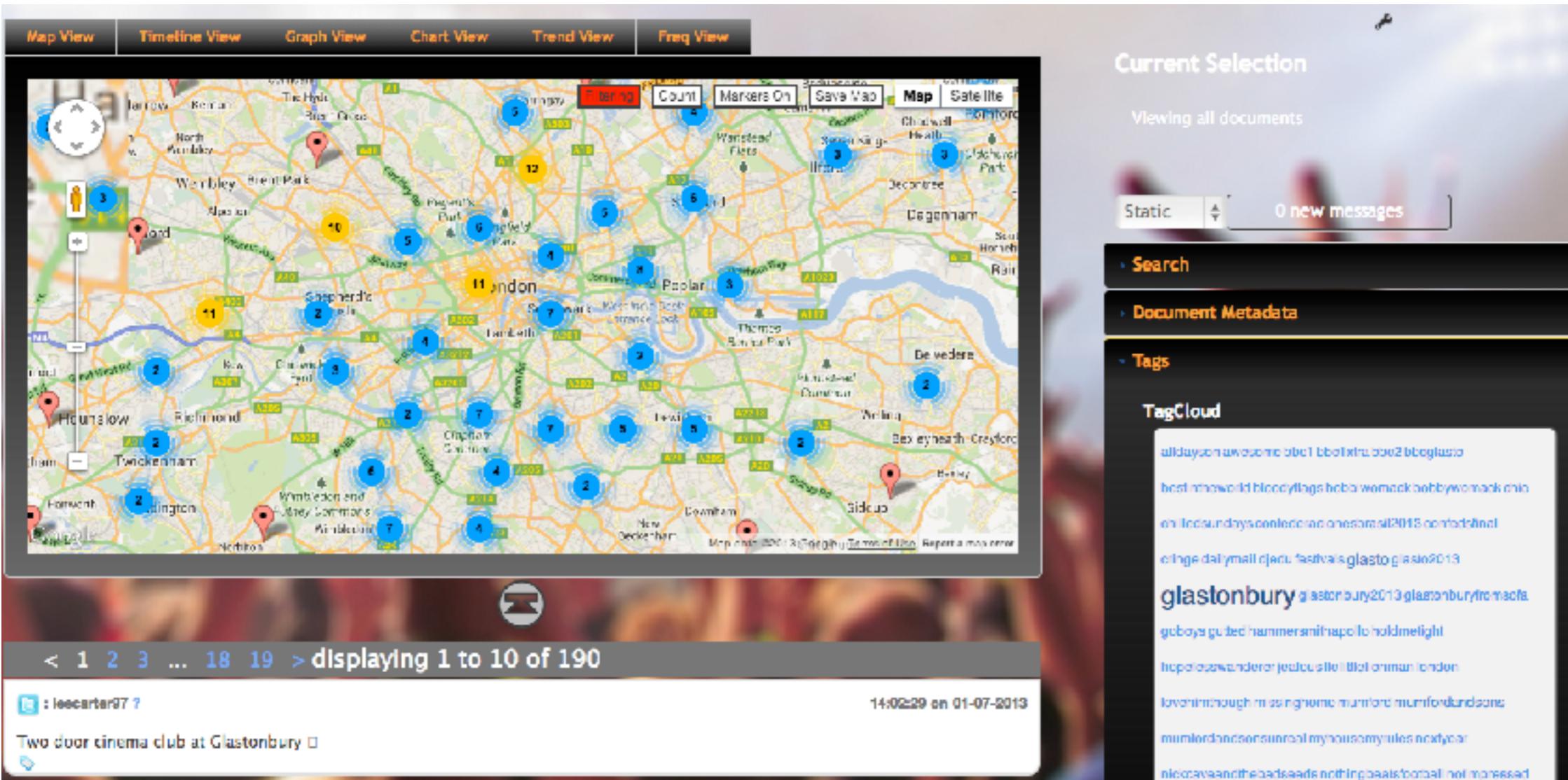


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# Social Media Monitoring

# Why?

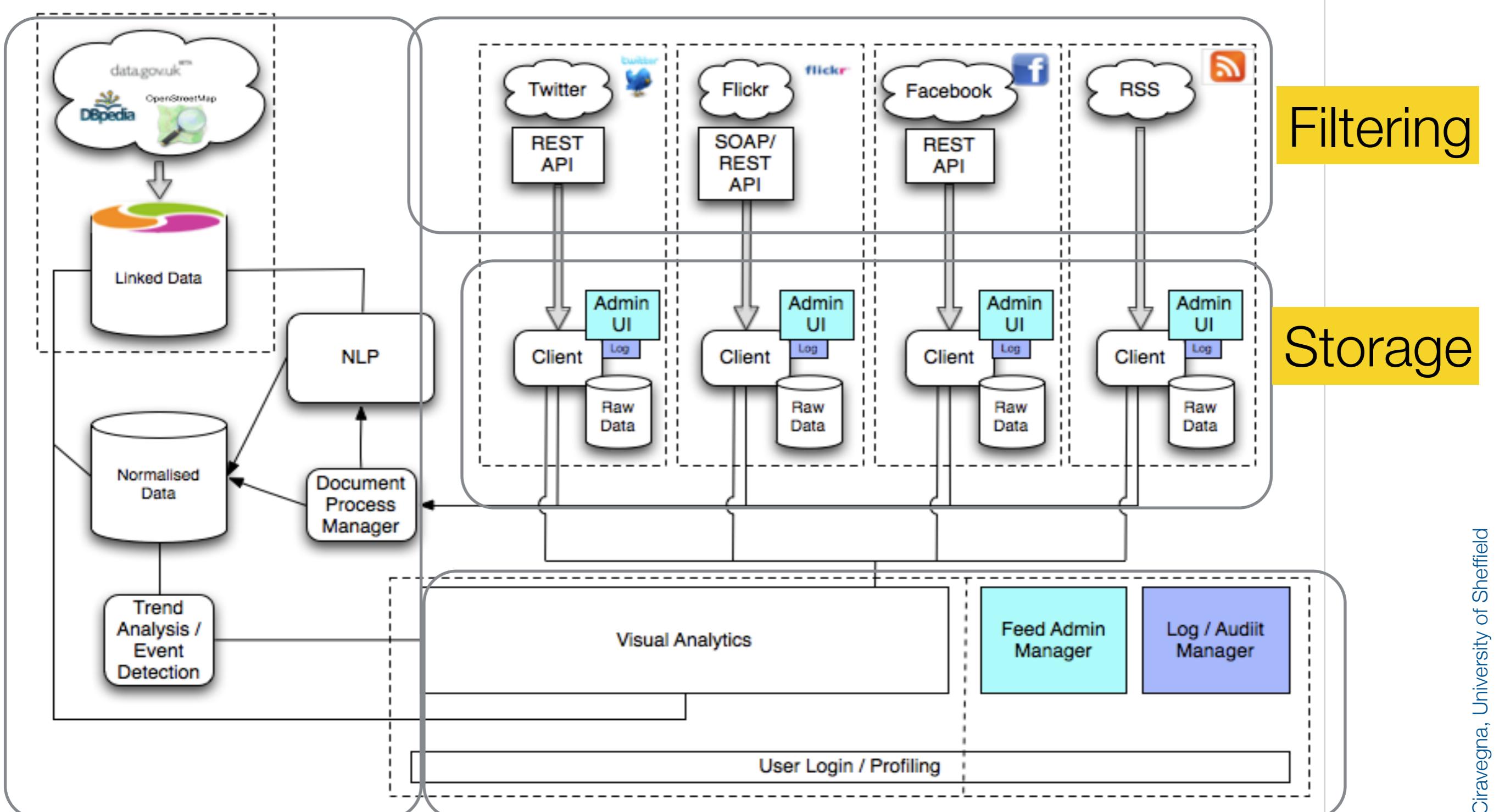
- Social media analysis allows identification of crowd intention and movements
- Benefits for event managers
  - Detailed and real time situation awareness
  - Resource optimisation
    - Effort and allocation of resources targeted to the real situation
  - Prevention rather than intervention
  - Management of crowd dynamics
    - Behaviour understanding
    - Rumour management



TRACKING REAL TIME INTELLIGENCE IN DATA STREAMS

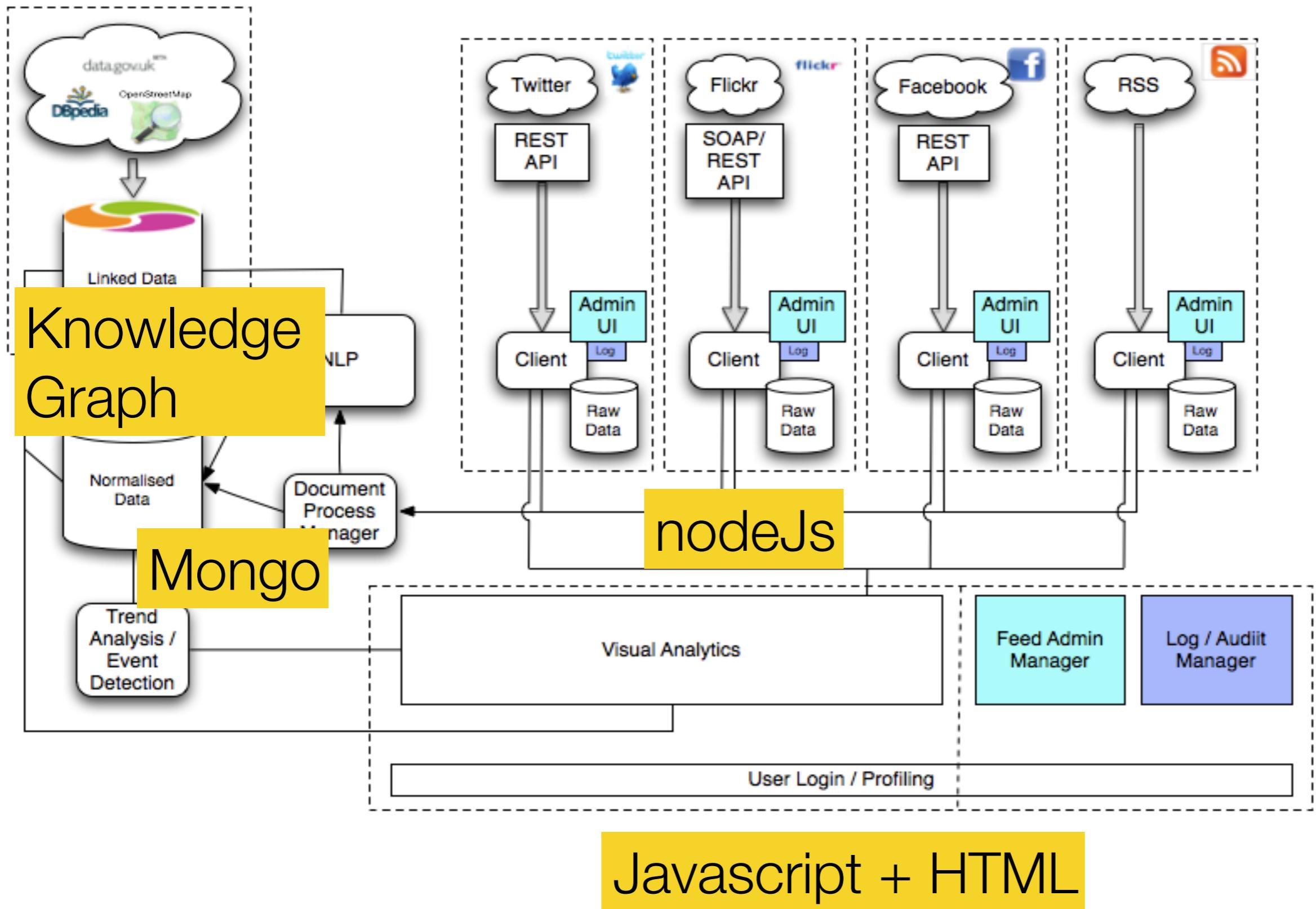


# TRIDS Architecture



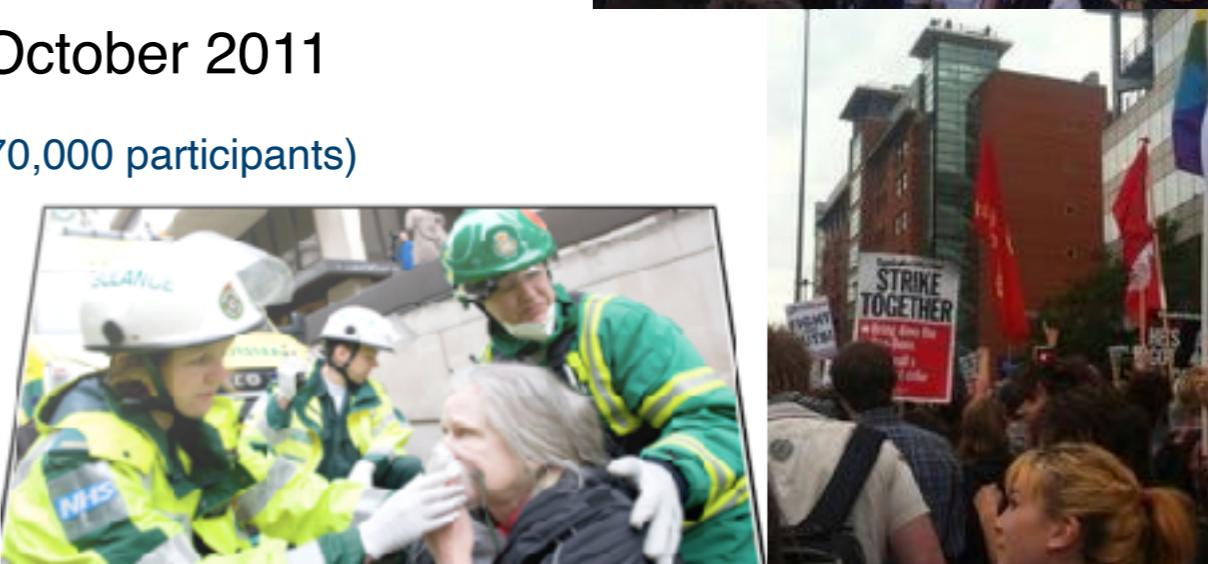


# Seen through this module's eyes



# UK Large Scale Events

- Glastonbury: Largest Music Festival in the World, June 2013 and 2014
  - User: Organisers and Silver Command, 200,000 participants
- Tour de France (UK), July 2014
  - Users: Sheffield CC control room
- Bristol Harbour Festival, July 2013 and 2014
  - Emergency Services, July 2013: 200,000 participants
- Leeds Music Festival, August 2013
  - Security Company, 80,000 participants
- Bristol St Paul's Carnival July 2011 and 2013
  - User: Bristol Emergency Services (Silver and Bronze Commands)
  - Estimated 70-150,000 participants
- Conservative Party Conference, Manchester, UK, October 2011
  - User: Man's Emergency Service control room (Silver Command) (70,000 participants)
- Forward Defensive Exercise, London, February 2012
  - Preparation of London 2012 Olympics
  - MET police





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# Italy



CITTÀ  
PATRIMONIO UNESCO

Cittadino Impresa - SUAP Servizi online Uffici Amministrazione ViviVicenza

## Bomba Day

### Evacuazione per disinnesco

venerdì 25 aprile 2014



> Uffici > Dipartimento territorio > Settore Infrastrutture, Gestione Urbana e Protezione Civile > Protezione Civile > Bomba Day - Evacuazione per disinnesco

Bomba Day - Evacuazione per disinnesco

**Bomba Day - Evacuazione per disinnesco**  
venerdì 25 aprile 2014

Qui, in particolare, tramite la nuova applicazione per smartphone più di 40 operatori hanno via via registrato e inviato i dati sull'evoluzione della piena al Centro operativo comunale (Coc) costituito nella sede di AIM. Ai Coc, accanto allo staff decisore diretto dal sindaco, stamane sedevano infatti anche i ricercatori del progetto europeo WeSenselt, coordinati da esperti dell'università di Sheffield, con il compito di testare la trasformazione in mappe, curve di piena e grafici di tutte le segnalazioni "qualificate" inviate tramite app dai volontari posizionati in prossimità dei sensori fisici, integrandole con le segnalazioni "spontanee" inviate da volontari chiamati a vestire i panni dei cittadini sul territorio e con i commenti reali raccolti dalla rete dei social media in merito all'evento.

# VICENZATODAY

NOTIZIE ZONE EVENTI SEGNAL

ZONE Centro Storico Montecchia Maggiore Stadio Torri di Quartesolo Isola Vicentina Schio Bassano del



Vieni a Portorose,  
Vivi LifeClass

WELLNESS RESORT  
PORTOROŽ

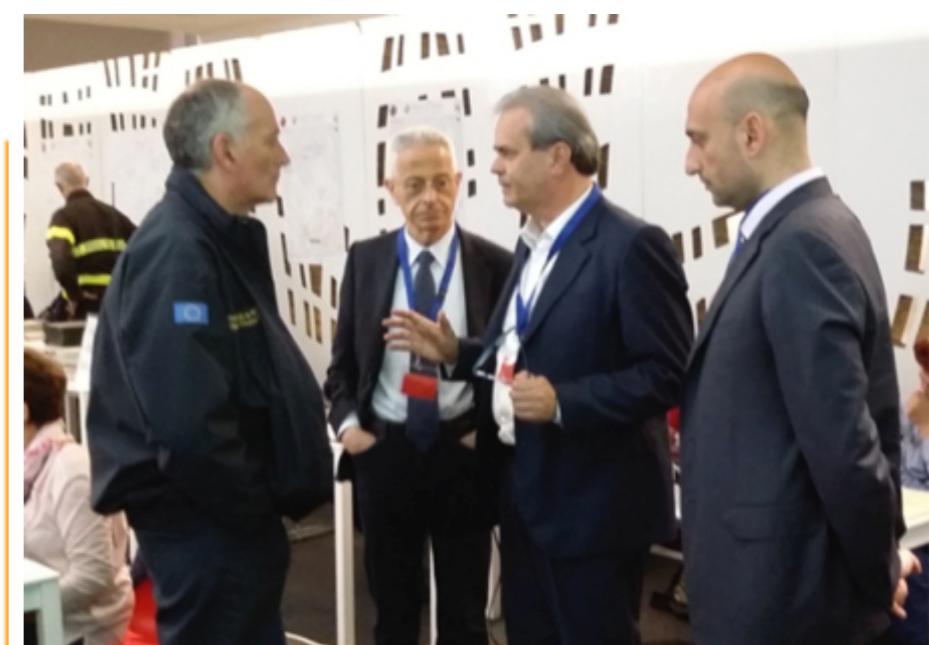
Mezza pena  
da € 50  
a persona a

## Esercitazione a Vicenza con drone e smartphone: ora il Bomba day

Durante l'esercitazione è stato testato anche un drone capace di raccogliere in volo le immagini di una possibile piena, mentre una squadra di sommozzatori ha simulato il recupero di una persona caduta nel fiume

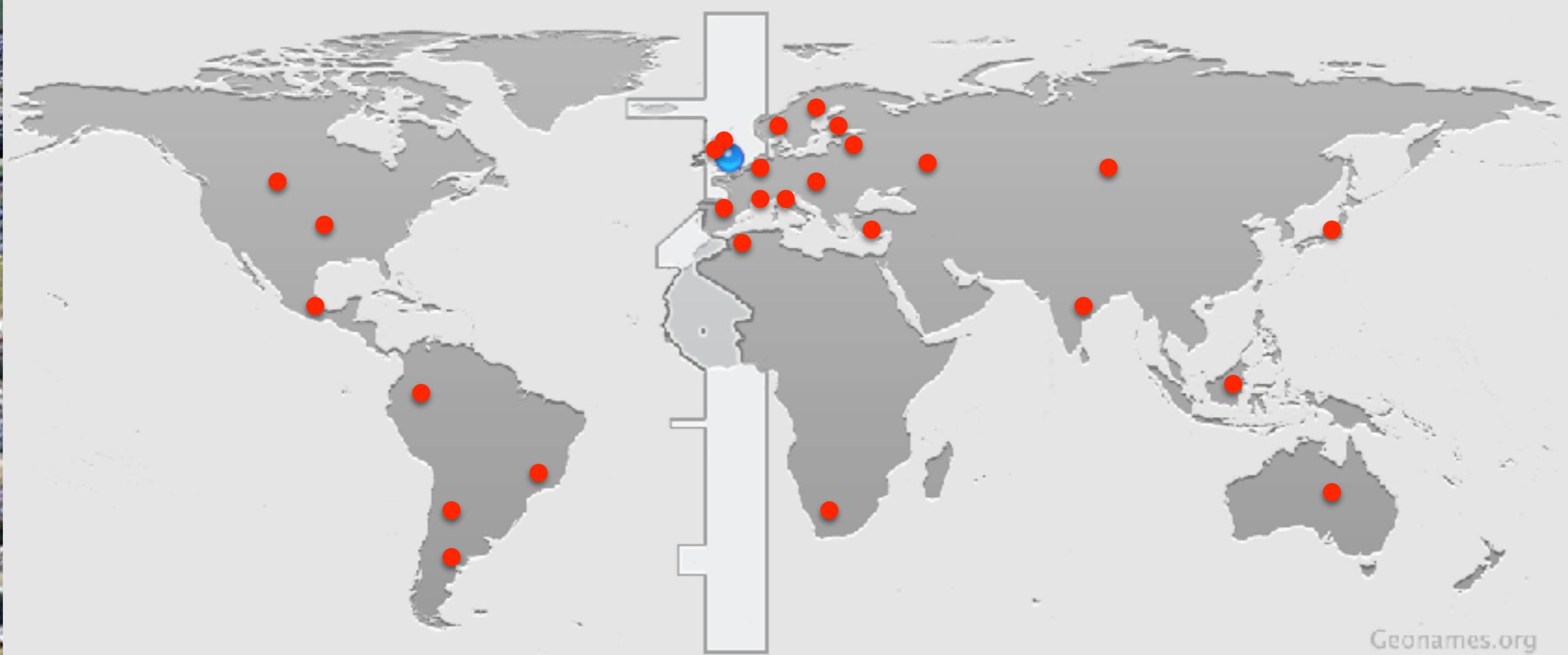
VT Redazione - 30 Marzo 2014

Twitter 3 Facebook Consiglia 5



	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY	
	Shift	Shift	Shift	Shift	Shift	Shift
0		deep/neil	vita	fabio	sam	vita
1		deep/neil	vita	fabio	sam	vita
2		deep/neil	vita	fabio	sam	vita
3		deep/neil	vita	fabio	sam	vita
4		deep/neil	vita	fabio	sam	vita
5		deep/neil	vita	fabio	sam	vita
6	vita		vita	fabio	sam	vita

Title



Geonames.org



SILENT RUNNING

# What did we see?

- 20 minutes to discover simulated bombing of Aldwych underground station
- Timeline of events precise to the minute
  - Time of alarm, London Ambulance first service to arrive, picture of casualties emerging aided and unaided, sniffer dogs arriving, pictures from inside closed off station, interiors of recovery centre and mortuaries,...
  - “You saw more from Sheffield than we saw from London”

Passengers' beginning to emerge from station entrance, coughing, as first @LondonFire appliance arrives: <http://it.co/EzDfOewc> #999Exercise



Walking wounded being evacuated as part of London Olympic emergency services exercise <http://it.co/PIkELNwjt>



11:21 Explosive search dogs arrive at the scene



11:36 Problem highlighted about cluttering road with vehicles



12:46 Pictures of casualties



13:04 BBC Feature announced

twitter: Ldn\_Ambulance

999Exercise #999Exercise #999Exercise

→ BBC #999Exercise is featured on @BBCLondonNews at 1pm. Find out more about the emergency exercise with @metpoliceuk @LondonFire <http://it.co/OFbNeqKc>

1:13 Flickr stream becomes available showing casualties



0:00 Picture of a police dog issued

twitter: metpoliceuk

999Exercise #999Exercise #999Exercise

→ EXERCISE: Picture of a police search dog down at the scene of #999Exercise in Surrey Street <http://it.co/OFbNeqKc>

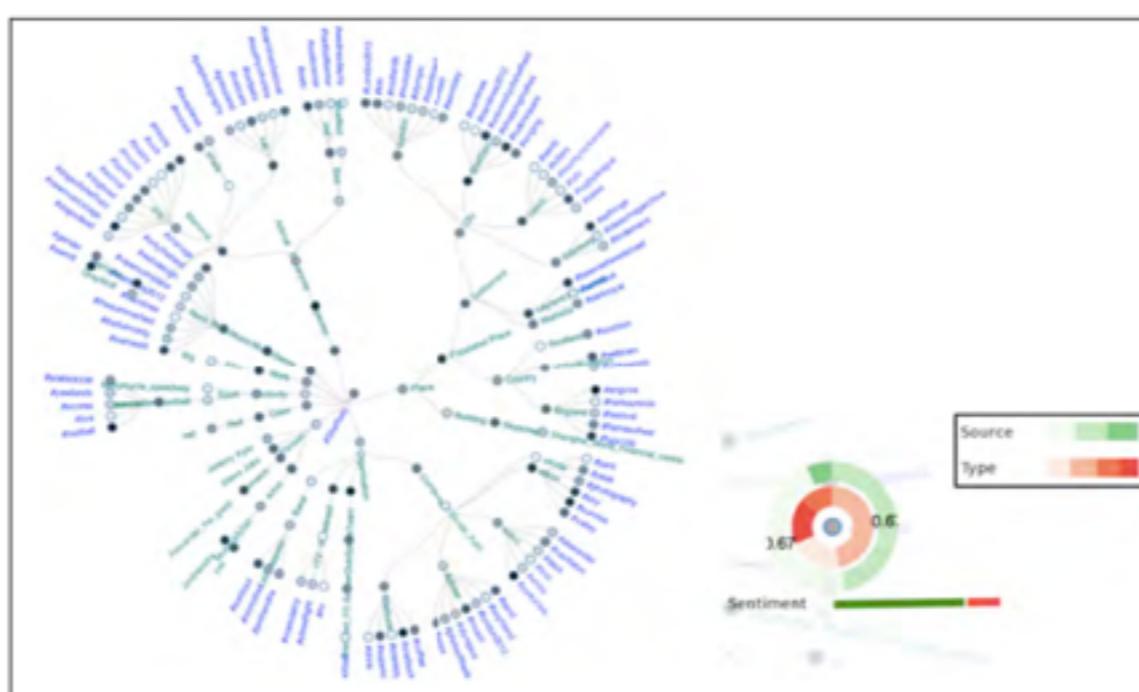
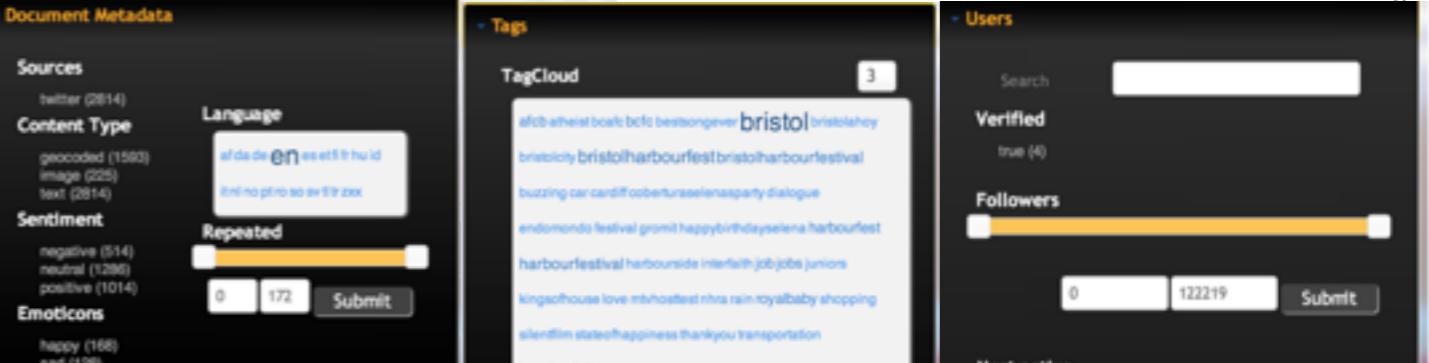
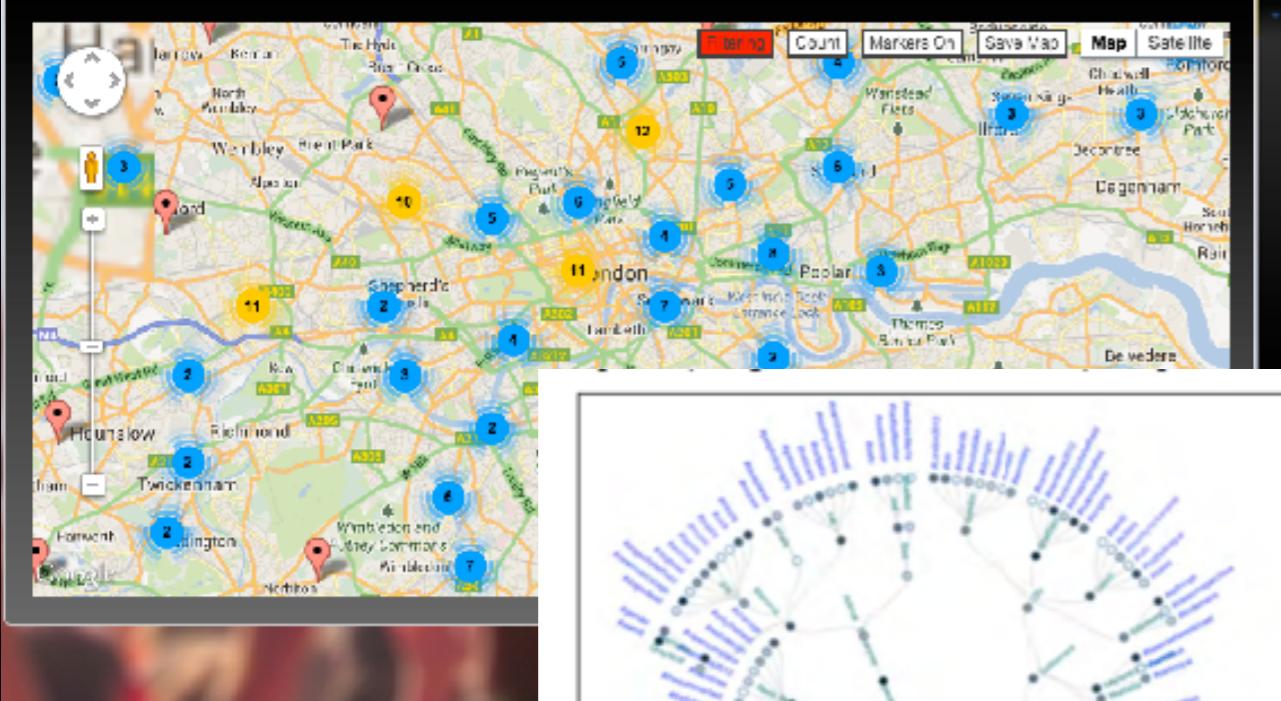
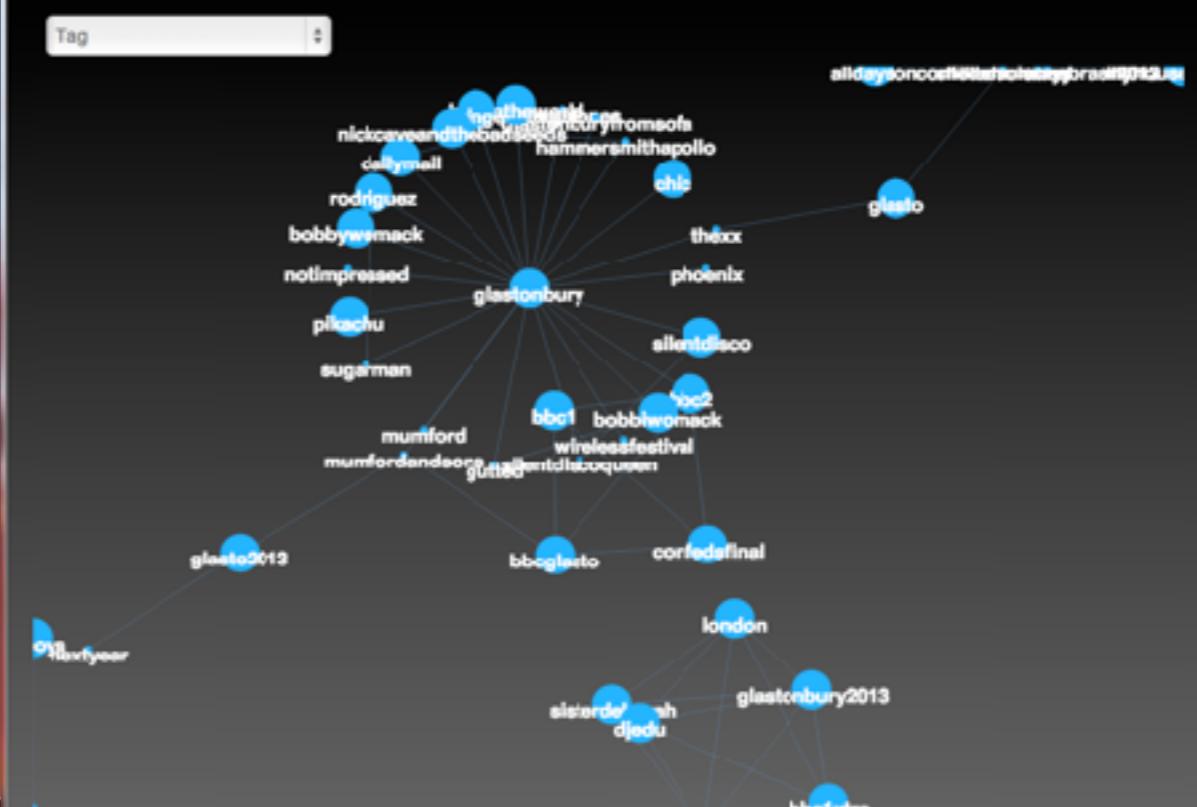
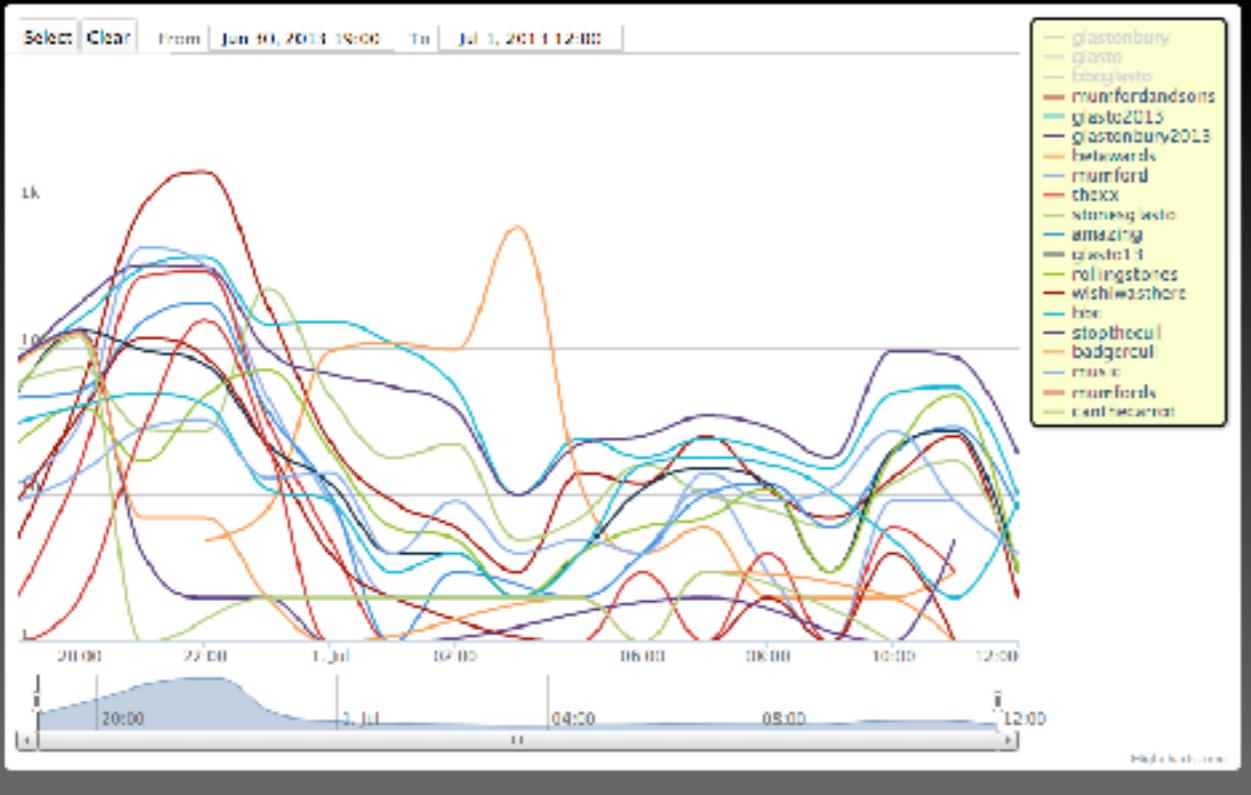


3:22 London Ambulance issues pictures of casualties



# Dimension of Complexity

- The large amount of messages
  - 1.4 million tweets were analysed by the control room operators during 3 days
  - The peak: 49.13 tweets per second received by the control room operators
  - Over 100,000 tweets removed by the TRIDS spam filter
  - The system automatically removes tweets clearly porn and advertising related.
- The high level of noise
  - 99% of messages are either irrelevant or describing situation that are already known
- The pace of events:
  - some critical situations evolved in minutes



City of Sheffield

jgurjega, trevorjukka, uul, viliopari, 5, charlotteanne39, chlofortuna, fan1, georgebarclay94, in\_hannahs\_a\_mani, tsicdot, inccbbs-oliviamannxpedeman, sykesation96, legannbriem, iolHarbFest, DanielDovey, in\_NorthantsKatie\_BrooksNSJBea



# The 5 dimensions of Analysis

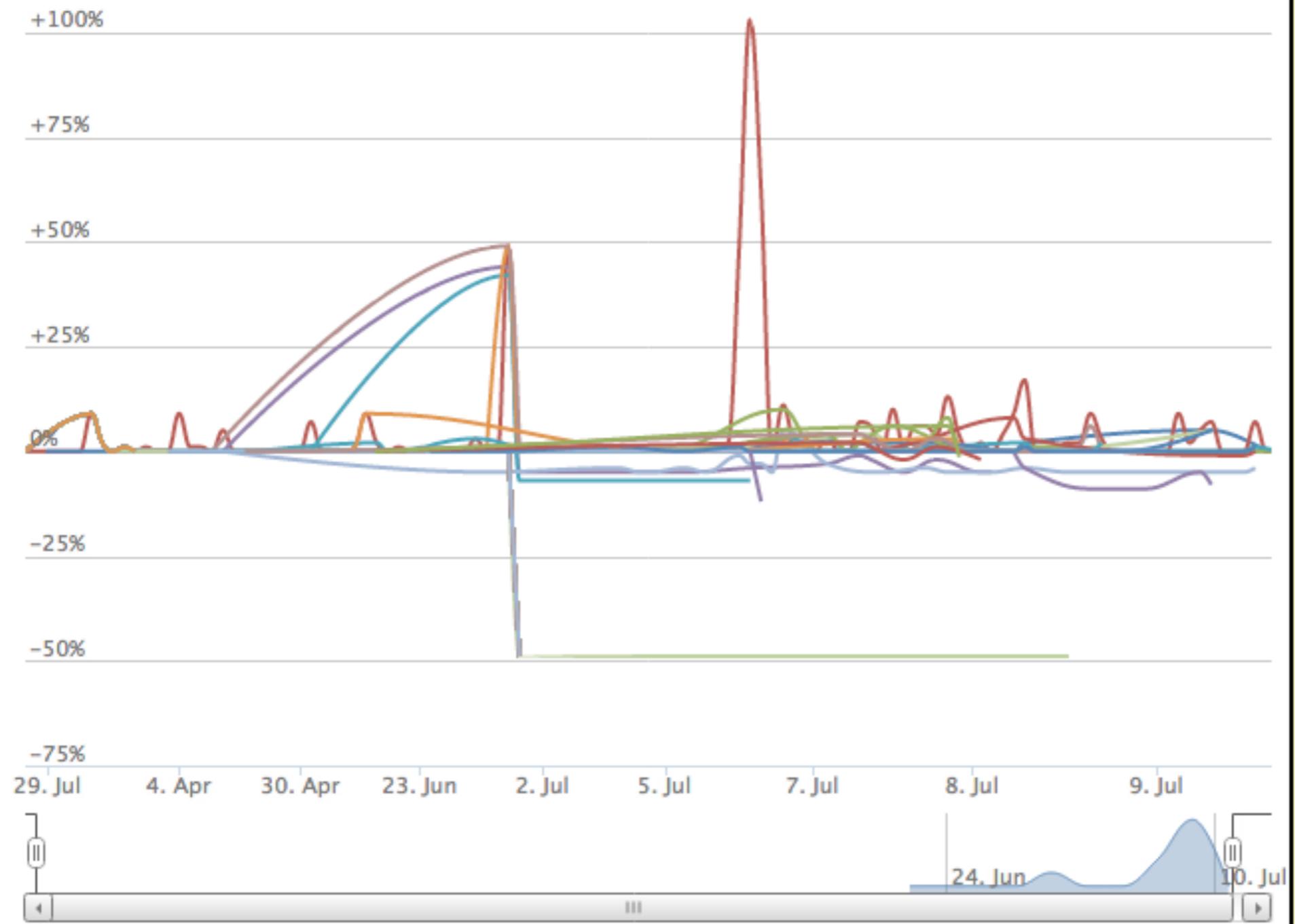
- What
  - What is (could be) happening? What is the problem? Why is it a problem?
- Who:
  - Who is involved? Who are they? What are their reasons? Who is reporting?
- Where
  - Where is it happening and what locations do people discuss about?
- When:
  - When is it happening? What are the temporal

# Complexity of event detection

- Major events (e.g. Flood) have sub-events
  - *River burst at location XY*
- Identification of Sub-Events
  - User/Domain dictionary of potentially interesting events
  - Clustering of messages around bursty terms (Pohl 2012)
- Reliability of events
  - Confirmation by reliable independent sources
    - 200 people looting D&S Alahan's on 15 Coronation Street!
  - Survive the test of time
  - Methods of detection
    - See spammers in the who section

Select

From: Dec 1, 1987 00:00 To: Jul 10, 2012 08:51



# What

# What?

- Identifying, classifying, clustering, ...
  - Events (and their sub-events)
  - Involved entities (including their URLs)
- Solutions in literature
  - Natural Language Processing
    - A daunting task
      - *jux lyk u do to myn...RT @qua\_benah: Damn!! He is gonna flood myTL with nonfa*
  - Shallow(er) statistical methods
    - A collection of terms:
      - Relevant Words (and their synonyms)
      - Relevant Tags (e.g. hashtags in Twitter)
      - Relevant References (e.g. proper names)
    - Relevant relations (generally shallow)



# Hello Chuck (it is never who you think!)

Charles, Prince of Wales

[en.wikipedia.org/wiki/Charles,\\_Prince\\_of\\_Wales](http://en.wikipedia.org/wiki/Charles,_Prince_of_Wales)



@hypnos164

Might get stuck in Hebden with Prince  
Chuck - some road and rail already closed  
[itv.com/news/calendar/...](http://itv.com/news/calendar/)

Reply Retweet Favorite



Danny Haslam @Dannyhaslam

@DeclanHeavican

RIP FERGIE!

[View conversation](#)

Sarah Ferguson ?

[http://en.wikipedia.org/wiki/Sarah,\\_Duchess\\_of\\_York](http://en.wikipedia.org/wiki/Sarah,_Duchess_of_York)

# Sarcasm

- Look for word combinations with opposite polarity, e.g. “rain” or “delay” plus “brilliant”

Going to the dentist on my weekend home.  
Great. I'm totally pumped

- Inclusion of world knowledge / ontologies can help
  - e.g. knowing that people typically don't like going to the dentist,
  - that people typically like weekends better than weekdays
- It's an incredibly hard problem and an area where we expect not to get it right that often



# Dimensions of Complexity

- Short sentences
- Implicit context
- Alternative Language
- Negatives
- Conditional statements
- Hope/prayer statements
- Use of irony/sarcasm
- Ambiguity
- Unreliable capitalisation
- Data sparsity



QuàBéñä  
@qua\_benah



Dont bring yurself dis faithful day wai  
@niimoffat: jux lyk u do to myn...RT  
@qua\_benah: Damn!! He is gonna flood my  
TL with nonfa

[Reply](#) [Retweet](#) [Favorite](#)

10:25 PM - 10 Jul 12 via iHerSocial for iPhone · Embed this Tweet



Amber Rose Dainty.  
 @\_daintyrose



Meadowhall best not flood whilst I'm at  
work, don't really fancy swimming home if  
I'm honest.

[Retweeted by Sarah Newbold](#)

[Reply](#) [Retweet](#) [Favorite](#)

10:47 AM - 6 Jul 12 via web · Embed this Tweet



Danielle Hamilton  
@Danielle182



there are flood warnings where I live. I've  
never experienced a flood... I wouldn't know  
how to dress for the occasion

[Reply](#) [Retweet](#) [Favorite](#)



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# Noise



Tamara Vaifanua @TamaraVaifanua

21m

Headed to #Ogden on a report of a house fire. Stay tuned to #GDU for updates.

[Expand](#)



KRLD @KRLD

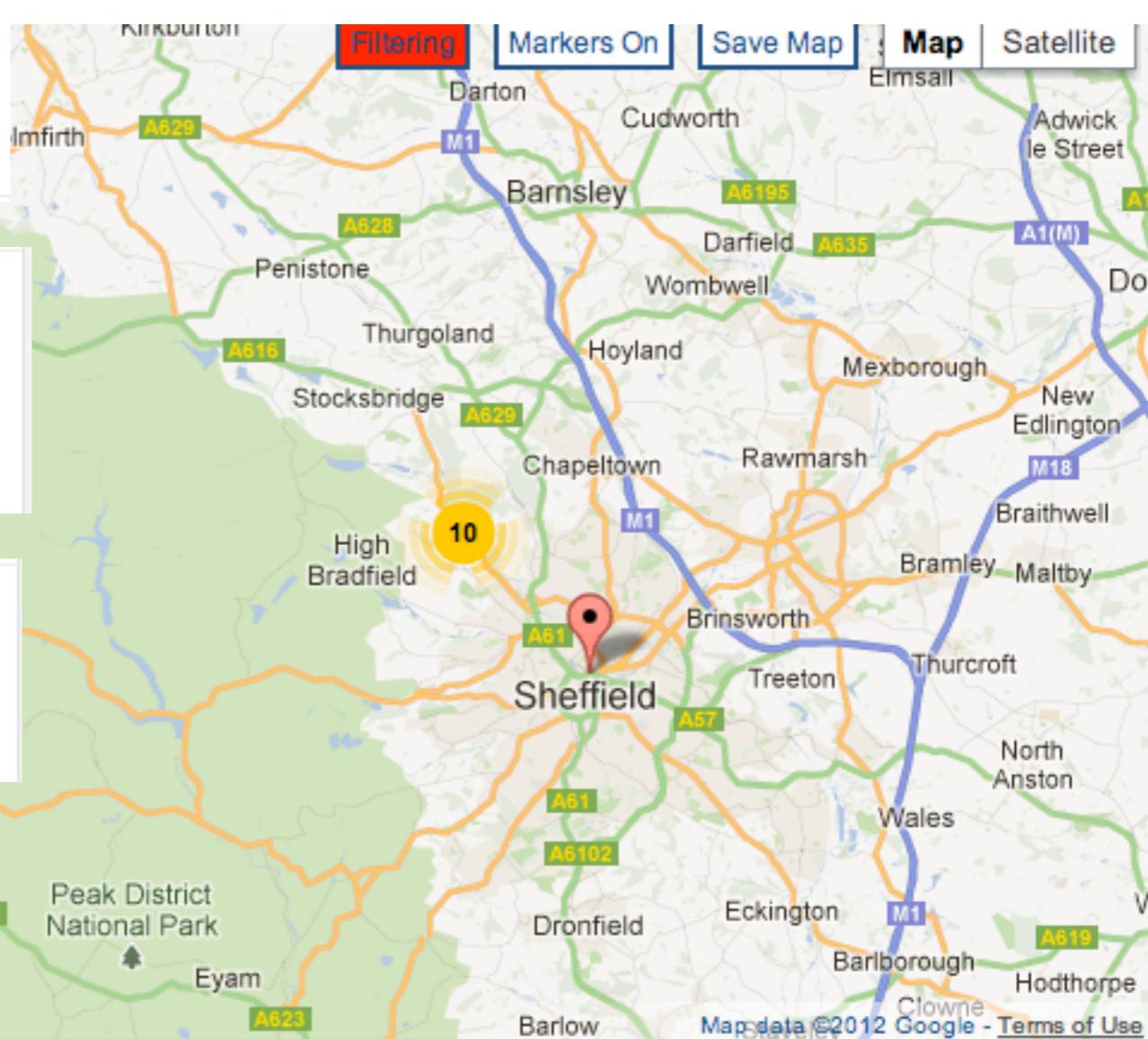
#BREAKING - 1 person injured, careflited after house fire in Frisco.

Hear the latest @KRLD @CBS11 @CBSDFW Listen Live [bit.ly/z4JI7H](http://bit.ly/z4JI7H)

[Expand](#)



49m



WVEC 13NEWS @13News

1h

Woman, toddler injured in Hampton house fire: HAMPTON -- A woman and toddler were injured when fire starte... [bit.ly/OVzxP6](http://bit.ly/OVzxP6)

#hrva

[Expand](#)



1h



WLTX - On Your Side @WLTX

1h

Firefighters on scene of house fire near intersection of Piney Grove Rd & Broad River Rd., 1 burn victim reported, find alternate route

[Expand](#)



1h





# Draconian filtering



**jeanette** @jeanett26261894

But I set fire to the rain Watched it pour as I touched your face  
Well,it burned while I cried 'Cause I heard it screaming out your  
name

## Expand

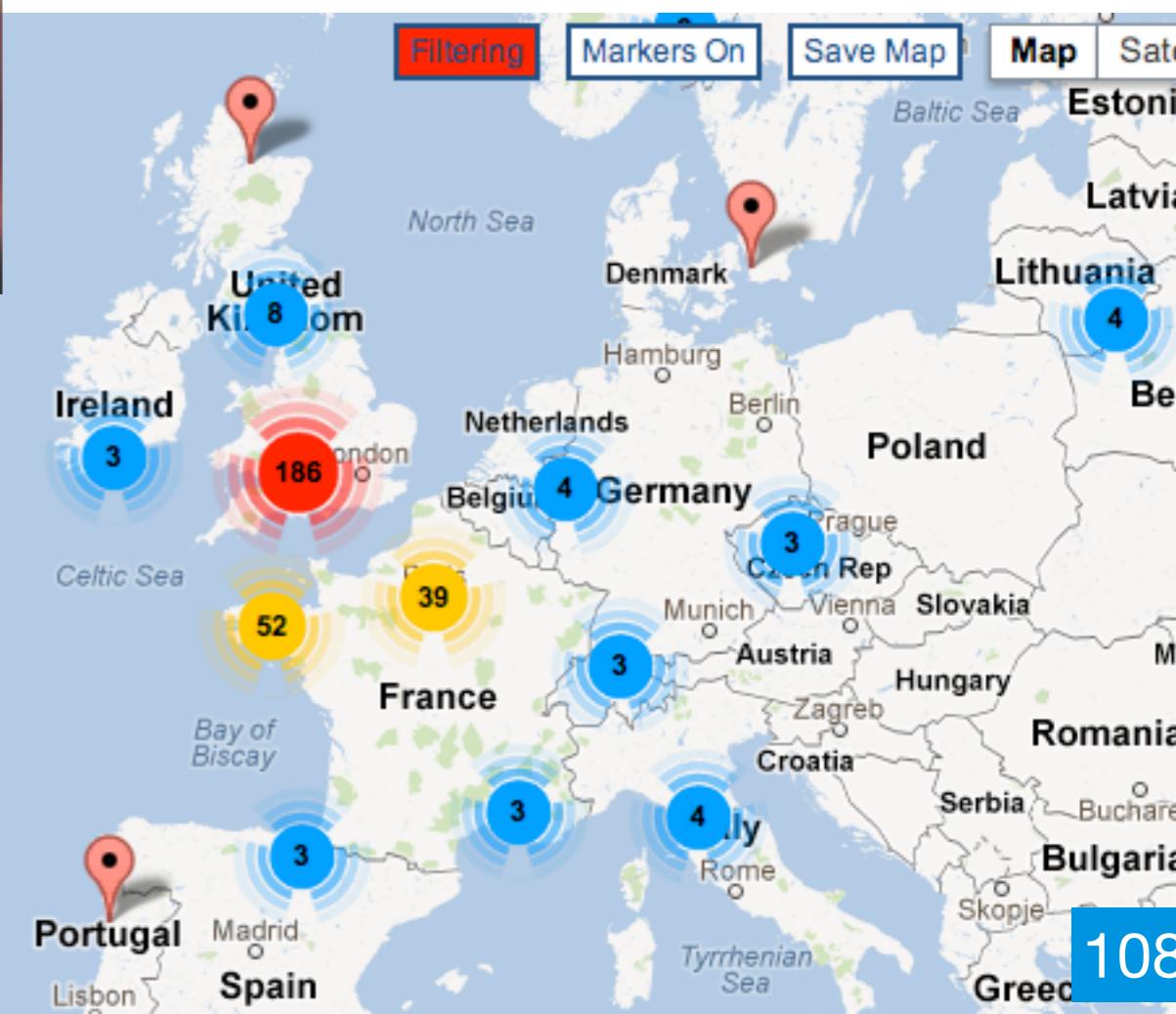
- Huda Alzahrani ❤️ @I\_HUDA\_C

But I set fire to the rain, Watched it pour as I touched your face, Well, it burned while I cried 'Cause I heard it screaming out your name. ♪♪

**Expand**

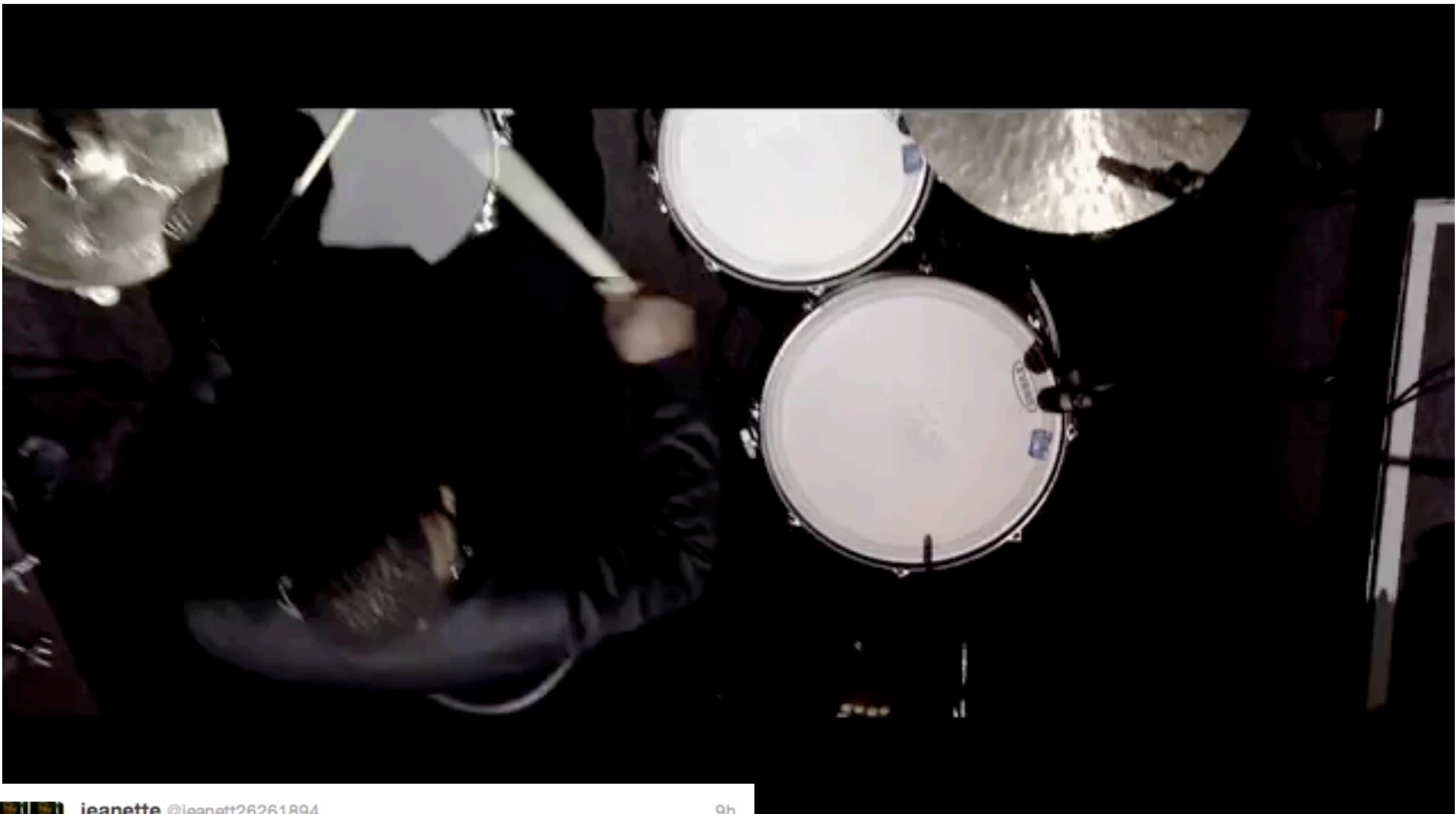
A Complicada @cm\_98maik

9 July





The  
University  
Of  
Sheffield.



 jeanette @jeanett26261894

9h

But I set fire to the rain Watched it pour as I touched your face  
Well, it burned while I cried 'Cause I heard it screaming out your  
name  
[Expand](#)

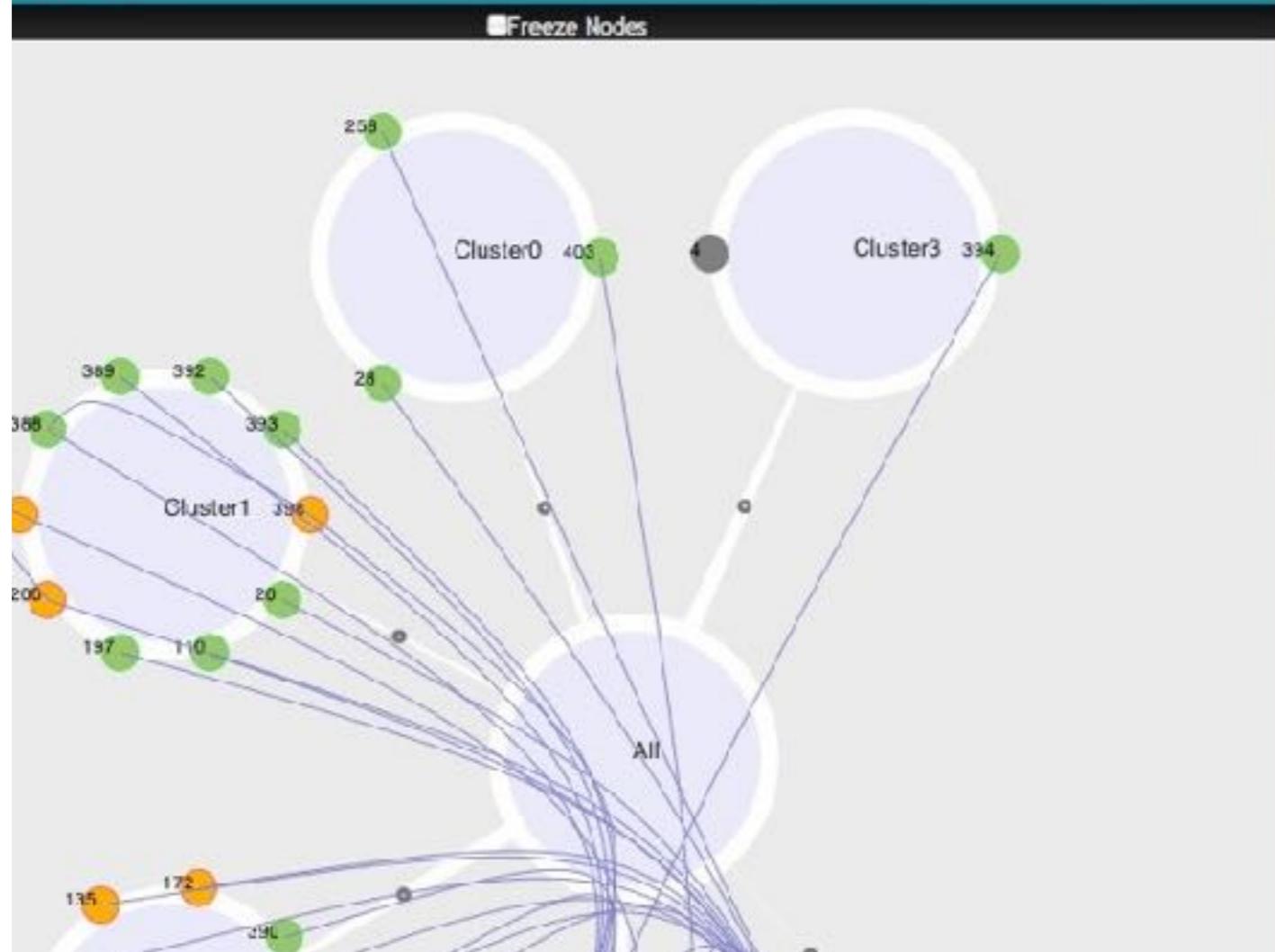


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# Draconian filtering



## Results



### ▲ Current Selection

Viewing all documents!

### ▲ Search

(press ESC to close suggestions)

### ▲ Document Types

document (1)  
mail (63)  
person (36)

### ▲ Tag Cloud

2221 3307 3471 3524 4609 box circumferential compressor intermediate case end filter end le mail nick ogv ogvz person surface tip treat 1000

### ▲ Date Search

Start:   
Finish:

# Who

# Research Questions

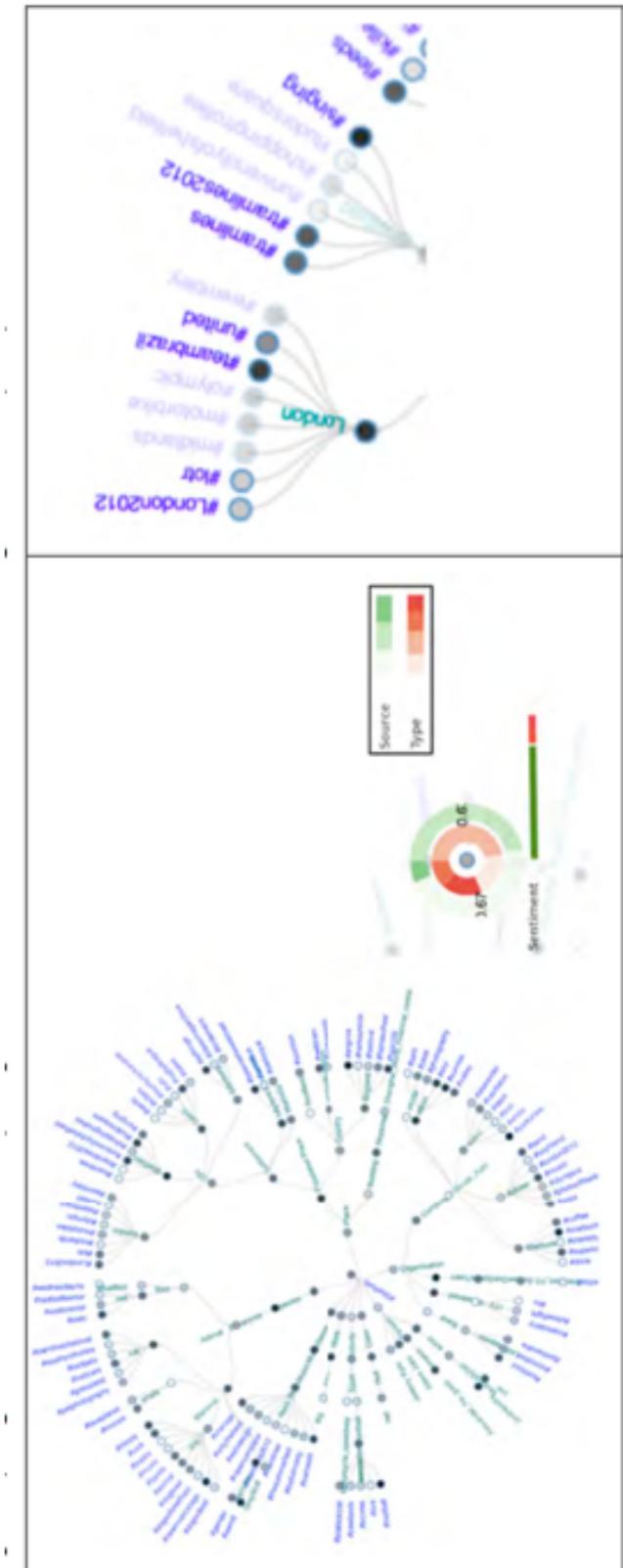
- Who:
  - Why is someone reporting a specific fact?
    - concerned citizens
    - professional journalists
    - interested parties
    - ...
- How to discover in real time?
  - No time to follow someone over time - instant decision required
    - During events new social ties are created - cashing partially working
    - Who is communicating with whom?

# Who

- Research questions:
  - Build user profiles using:
    - Geographic location, age, interests, groups and social connections (i.e. metadata)
    - Intentions and objectives
    - Users' real nature (i.e. are they really what they claim to be?)
- Our focus:
  - Enriching user profile with content and **behavioural** information
  - Characterisation of users
    - By keywords, locations, interactions, history, etc.
  - Spammers and bots

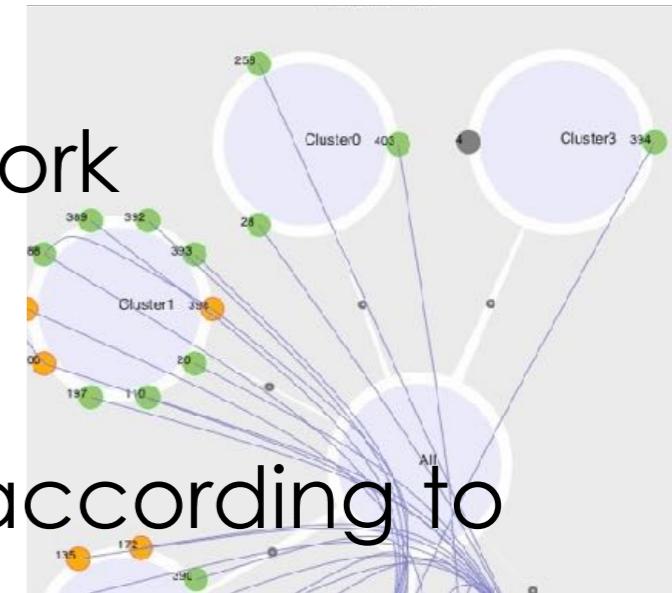
# Social Influence Analysis

- We identify top rank influential users on the Twitter graph, given topics and/or an entities
- We use semantic trails left as side effect of tweeting, i.e.
  - the social relationship between a user retweeting a post and the author of the post
  - the relationship between a user and the topic of the post he retweeted
  - the relationship between a user and the entities (e.g. person, products) mentioned on the content of his posts or retweets



# Modelling the Social Network

- Semantically Enriched Communication Network
  - A formal representation of individuals and their communication exchanges
    - User profiles: a set of topics, weighted according to relevance to the user
    - Similarities between users based on their profiles
- A SECN is a typed, weighted graph:
  - Typed: nodes and edges within the graph are of several different types
  - Weighted: types of edges can be assigned a weight to boost importance of one type of connection or another





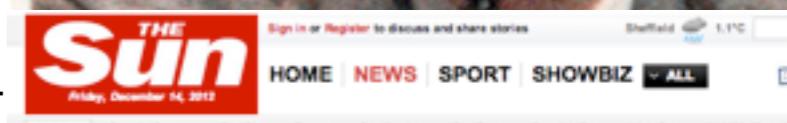
# Aggressive campaigning

News > UK news > North Wales care home scandal

- False rumours
- Spamming
  - Coordinated actions to promote products and web sites [2011, Benvenuto 10]
- Astroturfing
  - Political campaigns orchestrated to create appearance of widespread support for candidates or opinions [Ratkiewicz et al., 2011]
- Crowdtrurfing
  - Masses of cheaply paid humans crowd-sourced to ast [2013]
- Smear campaigns
  - Campaigns that can harm an individual or group's reputation

Lord McAlpine's statement – full text  
Tory peer calls reports linking him to north Wales child abuse allegations 'wholly false and seriously defamatory'

The Guardian, Friday 9 November 2012 11.05 GMT



**Paedo tweet blunder: Sally Bercow sued for £50k**



THE Sun



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# Meet @Jane23

**Jane Twenty-three**  
@jane23

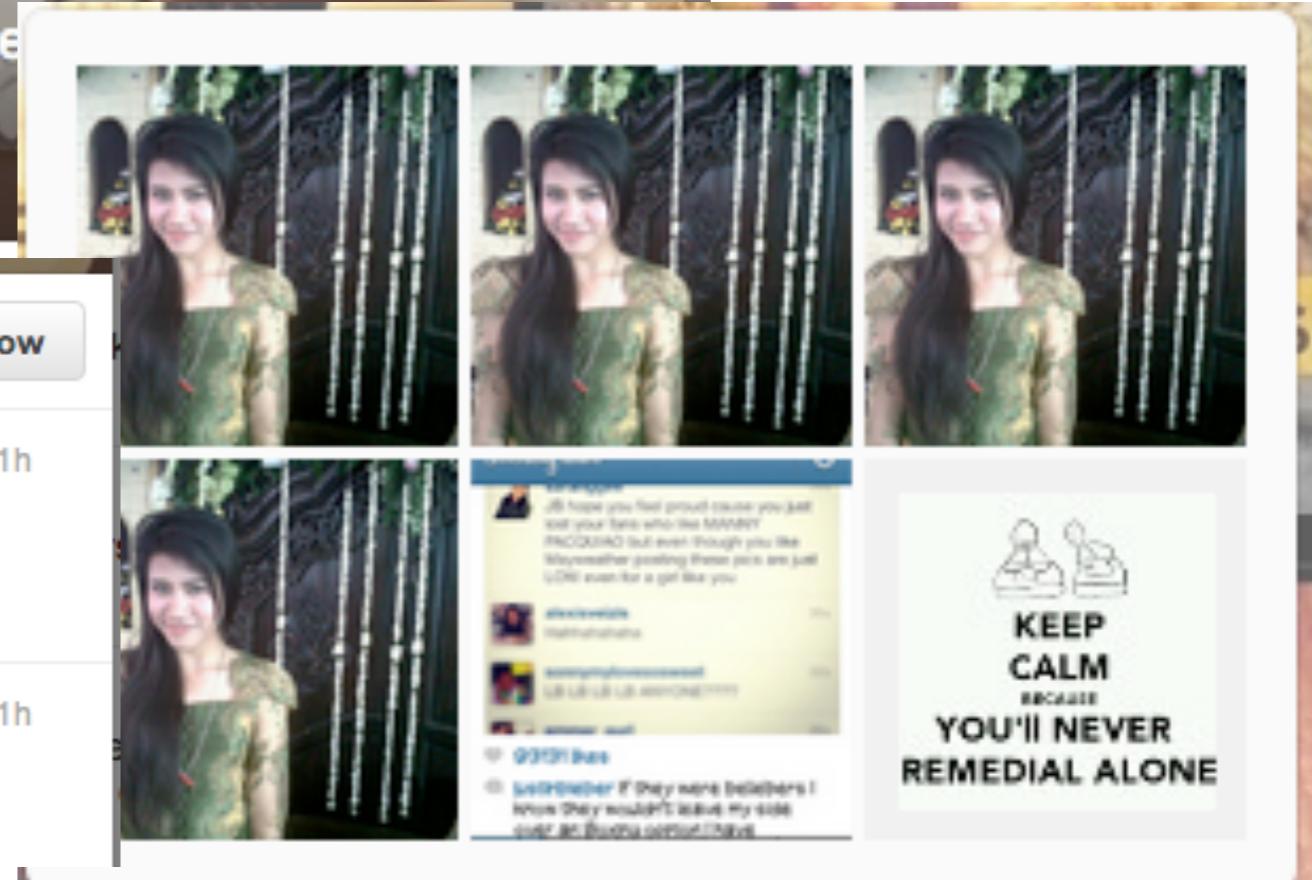
**SWIMMER.** What an Aries wants an Aries gets. Follow my boyfriend -  
@justinbieber #muchlove thanks| lulus UN o:)

Purwakarta, West Java • <http://adorable-bieber.tumblr.com>

48,932 TWEETS    1,144 FOLLOWING    4,241 FOLLOWERS    [Follow](#)

1h ago  @QonySenja RT @TeenagerShawty: You think been belieber is easy? No. Imagine constantly been judge, blamed, and criticized for supporting your idol.  
[Details](#)

1h ago  @QonySenja RT @jdbbeadlesbride somebody to love:  
[Details](#)



1h ago  @QonySenja RT @TeenagerShawty: You think been belieber is easy? No. Imagine constantly been judge, blamed, and criticized for supporting your idol.  
[Details](#)

1h ago  @QonySenja RT @jdbbeadlesbride somebody to love:  
[Details](#)

KEEP CALM  
BECAUSE  
YOU'LL NEVER  
REMEDIAL ALONE

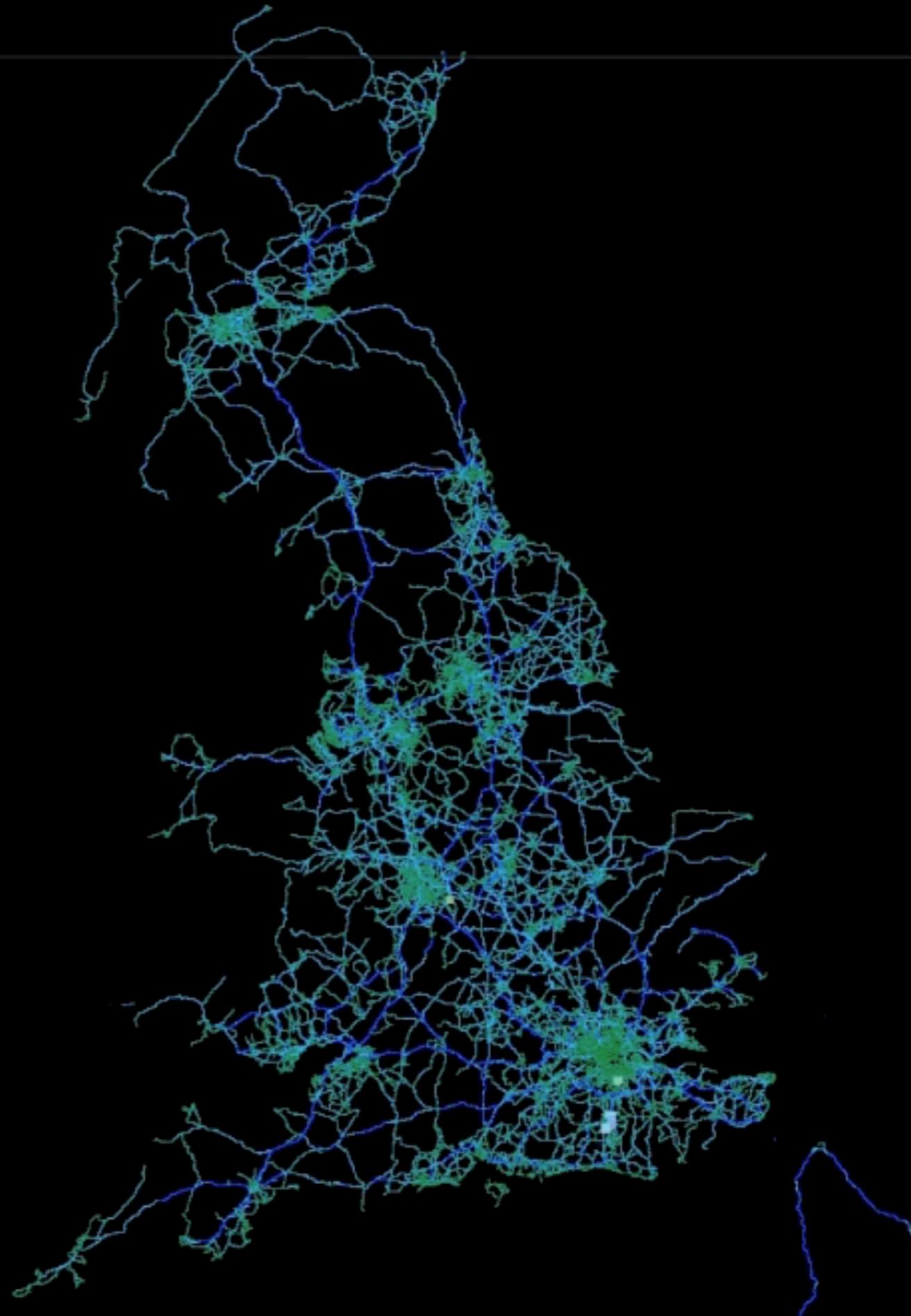


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Time: Thu Aug 02 02:06:51 BST 2012

Drivers: 3

# Conclusions



# Privacy

- Location is an obvious issue
  - But activity and timing are equally a problem
    - this is often surprising
- Examples of issues for timing
  - Leaving Work Early
  - Late Night Activity
- Geolocation
  - Identity and stalking
  - Geographic privacy

Daniel A. Epstein, Alan Borning, James Fogarty  
Fine-Grained Sharing of Sensed Physical Activity:  
A Value Sensitive Approach, UbiComp'13,

# Dangers: privacy and legality

- My ethical committee is in despair
  - surveillance has never been an easy topic...
- Legality has many shades
  - X: Can you follow people?
  - Y: Yes but it is against the law
  - X: This is our problem, not yours. We respect all the legislation of the countries we keep our data in
- Y: Where do you keep your data about the UK?
- X: Saudi Arabia

Data can be kept everywhere.  
What legislation does it apply?

UK World Business Football UK politics Environment Education Science Tech Global development Cities Obituaries

**Facebook**

# Facebook moves 1.5bn users out of reach of new European privacy law

Company moves responsibility for users from Ireland to the US where privacy laws are less strict

Alex Hern

@alexhern

Thu 19 Apr 2018

12.03 BST



5208



A lit sign at the entrance to Facebook's corporate headquarters in Menlo Park, California. Photograph: Josh Edelson/AFP/Getty Images

**Facebook** has moved more than 1.5 billion users out of reach of European privacy law, despite a promise from Mark Zuckerberg to apply the “spirit” of the legislation globally.

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# Questions?

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