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# Effectively Managing Events using Social and Organisational Data

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# Event Monitored From Control Room

- Glastonbury: Largest Music Festival in the World, June 2013 and 2014
  - User: Organisers and Silver Command, 200,000 participants
- 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 Carnival July 2011 and 2013 and 2014
  - 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





# Our Approach To Event Management

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- Real time monitoring of social media for situation awareness
- Digital incident management via mobile phones



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**TRACKING REAL TIME INTELLIGENCE IN DATA STREAMS**

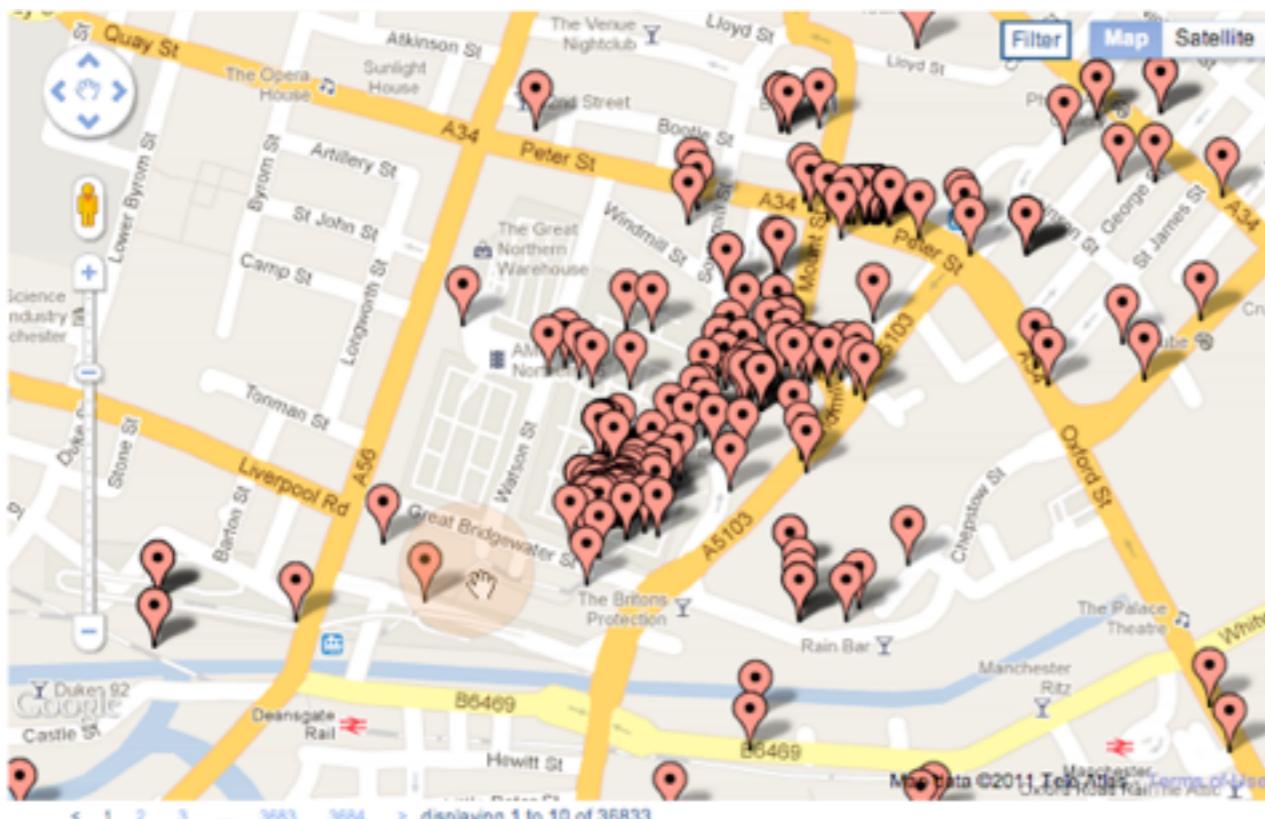


# Situation Awareness For Event Managers

- 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



# Conservative Party Conference



twitter: DaveMorgan25

2011-10-08 20:19:23

cpc11 twitter

@MrJacHart yep. Waiting for my LibDem bf to get #cpc11 Conference Flu

twitter: MarioDunn1

2011-10-08 20:07:37

foxsongs cpc11 twitter

Tories bin Laden problem - a Env and a cat. Damn those animal rights people! #Inverness #cpc11

- Manchester, UK, October 2011
- User: Emergency service control room
  - Gold Command

## — Current Selection

(x) tag\_s:cpc11

## — Text

## — Document Types

rss (1)  
twitter (36832)

## — Users

no items found in current selection

## — Tag Cloud

backboris bbcdp bbcnews bigsociety boris c4news cameron cameronsspeech caredebates catflap catgate coint1 conservative conservatives cpc11 cuts dailystigma disabled dontbenmadradison extradition fb freegary health healthdebate hs2 hsr humanrights ids ipo lab11 labour lansley localgov manchester mckinnon newshight nhs no2eu npf occupymcr osborne osbonespeech outoftouch pensions reshuffle rfringe rsaconf saysorrytowomen skynews squeezedbritain thatcher theresamay tories tory tory11 torycon tuc uk ukpolitics youthzone2011

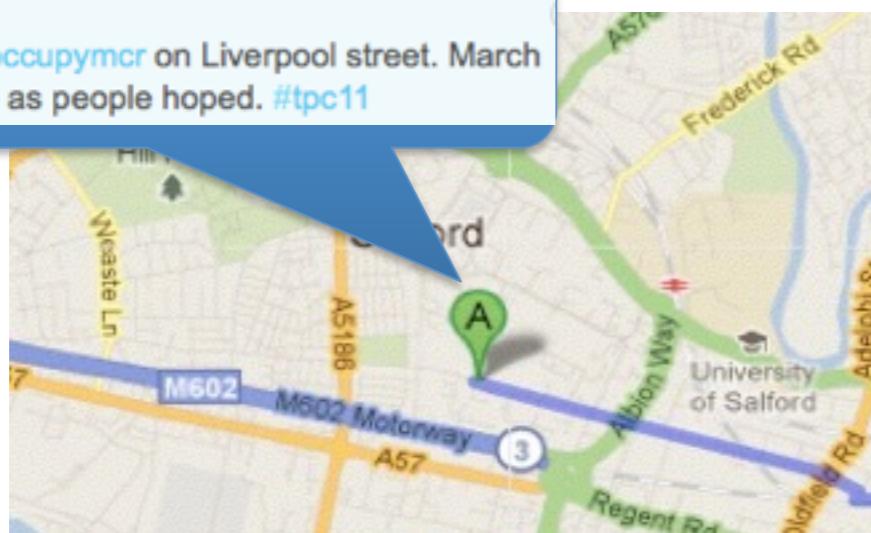




# Tracking Protester Movements

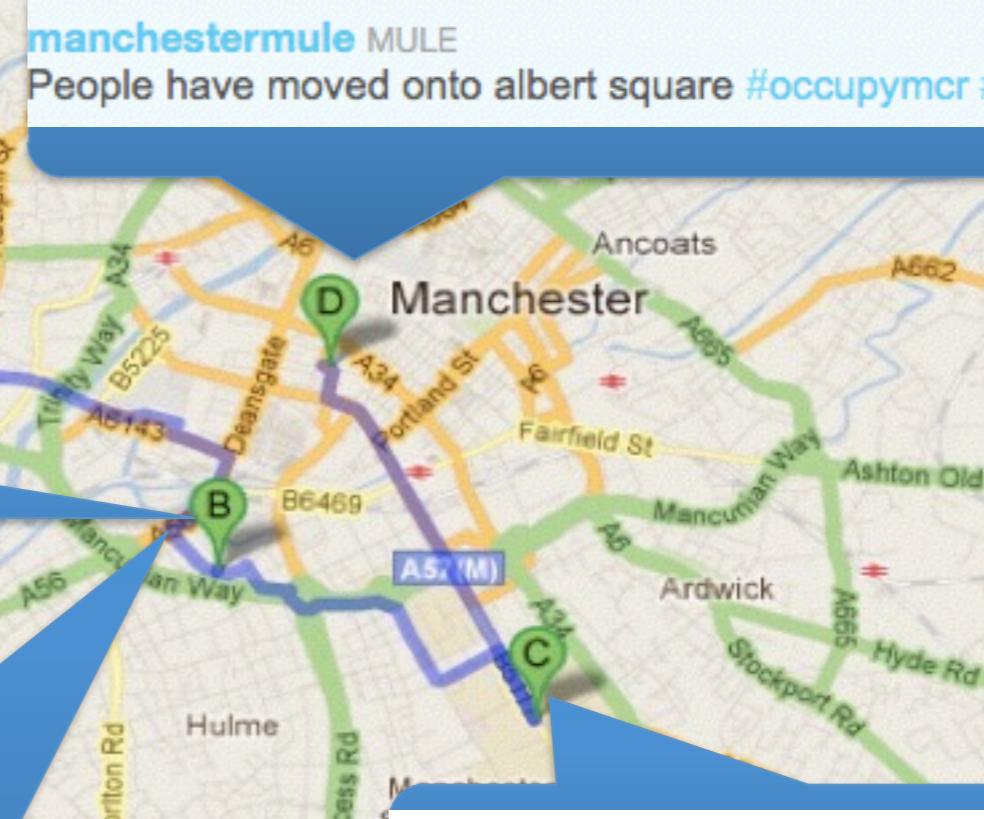
**manchestermule MULE**

Lots of people flyering for #occupymcr on Liverpool street. March still static. Not as many here as people hoped. #tpc11



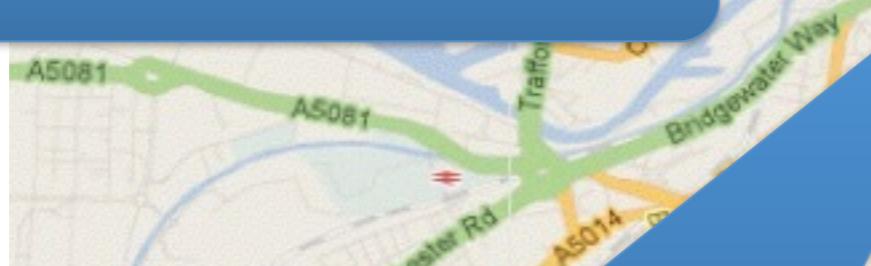
**manchestermule MULE**

People have moved onto albert square #occupymcr #tpc11



**manchestermule MULE**

Student feeder approaching Castlefields #occupymcr #con11  
[twitpic.com/6u0eze](http://twitpic.com/6u0eze)



**manchestermule MULE**

Student feeder on the move down oxford road #occupymcr  
#con11 [twitpic.com/6u01vk](http://twitpic.com/6u01vk)



**manchestermule MULE**

Joining up with the main march in seconds... #occupymcr #cpc11  
#con11 [twitpic.com/6u0onh](http://twitpic.com/6u0onh)





# Critical information identification

## Police targeted

**inmywindow** Emily

Fit team just hanging about Black Bloc (@fitwatcher) #occupymcr

[yfrog.com/klyxlzyj](http://yfrog.com/klyxlzyj) @fitwatcher @Emily\_James this it's the best pic I got of them



**Fitwatcher** Fitwatch

And if you are there, remember no comment if arrested, don't give details if stopped and searched. and disrupt the FIT/EGTs.

#OccupyMCR

**Fitwatcher** Fitwatch

Stay safe if your in Manchester. Remember to mask up and no comment if nicked. #solidarity #occupymcr



# Critical information (2)

- Directly targeted individuals
- Protestor networking police positions and movements
- Encouraged direct action

This intelligence allowed securing targeted policemen's wellbeing

**NPOIU / NETCU 'INTELLIGENCE'**  
THESE COPS ARE THOUGHT TO WORK SPECIFICALLY FOR THE NATIONAL PUBLIC ORDER INTELLIGENCE UNIT (NPOIU)



The NPOIU is a sister organisation to the similarly secretive NETCU (National Extremism Tactical Co-ordination Unit). They are not part of the police force, but are run by ACPO as a private company - though funded by public money. They have access to all police databases, and employ officers seconded from various police forces. They get funded to the tune of millions of pounds a year to keep tabs on 'domestic extremists' (like climate campers) and 'liaise' with the corporations that are targets of protest. They are unaccountable, unregulated and no-one knows quite what happens to the data they collect.

**WE'D LOVE MORE INFO ON THESE GUYS.**  
**All info received in confidence.**  
**defycops@yahoo.co.uk**



# Understanding - Rumours

Erm, snipers. #occupyMCR [yfrog.com/o0o2brj](http://yfrog.com/o0o2brj)



**aaronjohnpeters** Aaron Peters

The real face of #cpc11. Shooters primed at a crowd of 20,000+  
**#occupymcr** [yfrog.com/nt27492989j](http://yfrog.com/nt27492989j)

Yep, that's a police sniper above the protest march route [yfrog.com/kh6m6cnj](http://yfrog.com/kh6m6cnj)



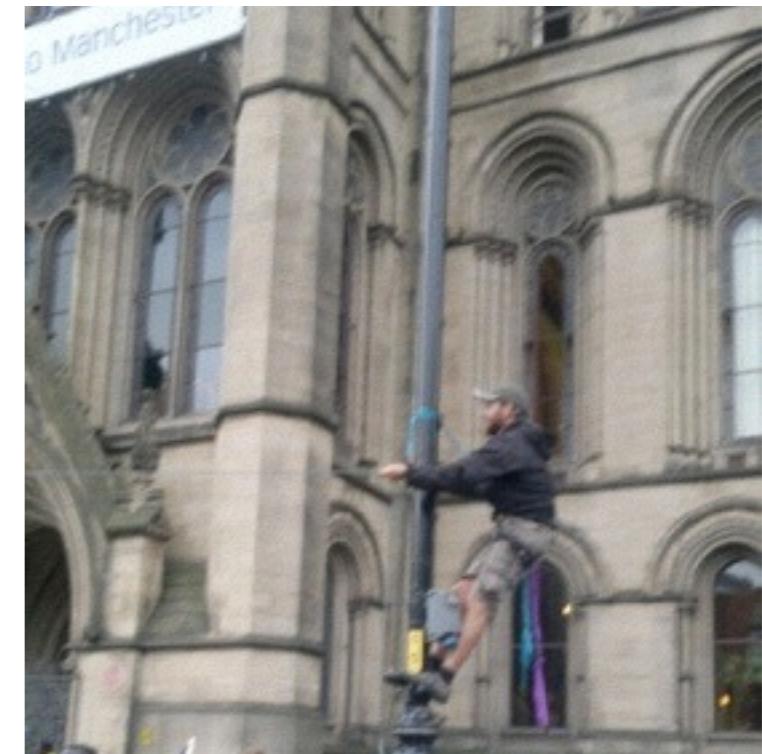
This intelligence allowed avoiding rumour spreading and the press to get hold of the news



# Discovering & understanding - Unexpected activities

**WildeJunkie** Katie Treacy

Just won a mini-battle with the police about tying up banners & tarpaulin in Albert Sq **#occupymcr**

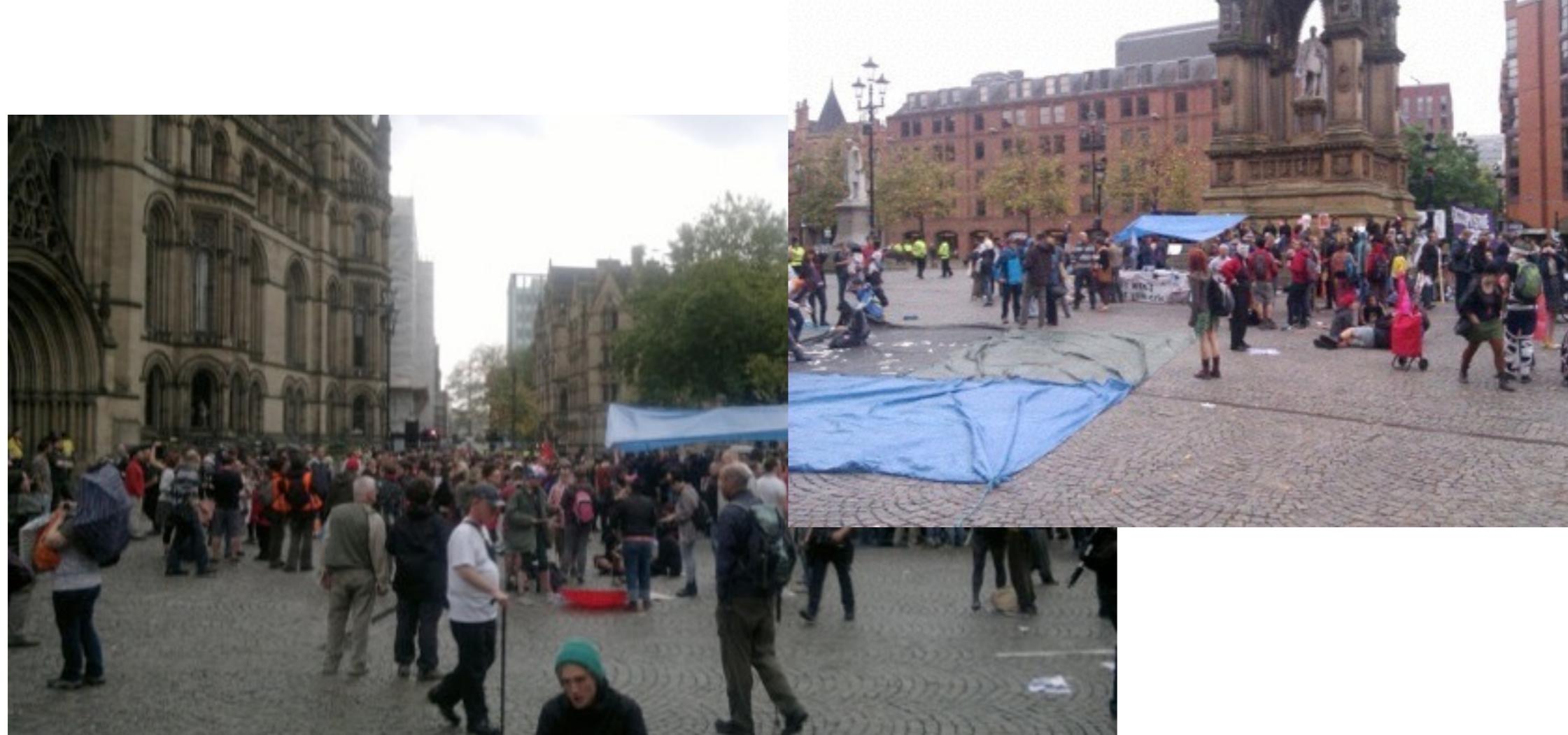


Cops tried to stop us tying one of the ropes from the tarp to a lamp post. Didn't last long  
[yfrog.com/nuj3rsrj](http://yfrog.com/nuj3rsrj)



# Discovering & understanding - Unexpected activities

**Shelter gradually going up, more people gradually coming to Albert Sq  
#occupymcr #con11 #occupymanchester #cpc11**



This intelligence avoided police intervention to stop an irregular (but innocuous) activity



# Forward Defensive Exercise



- Tasked to “listen for events” over 72 hours
- User: Metropolitan Police
- 21st, 22nd and 23rd of February 2012
- Operators
  - Three operators analysing the data streams in real time, focussing their analysis on specific events and their evolution, these analysts were working at different physical locations;
  - An operator working on the collected data to do post-event analysis
- 3 screens each
- Next slides: the timeline we created in real time for them

Source	Number of messages
Twitter	1,504,983
Facebook	54,731
Flickr	73
RSS feeds	288

Time	Event	Focus
21.2.2012		
10.02	<p>The live exercise is announced on Twitter.</p> <p>twitter: KeirSimmonsITV 17:42:30 on 2012-02-21 6 days ago #999exercise twitter</p> <p>→ <a href="#">@btp_uk : We're taking part in #999exercise tomorrow testing emergency response to terrorist incident on tube http://t.co/ogsHcBzP"</a></p> <p>twitter: lanpuddick 22:02:24 on 2012-02-21 6 days ago #MetPolice #Olympic #AntiTerrorism #HUGE #Aldwych #Tube twitter</p> <p>→ <a href="#">#MetPolice #Olympic #AntiTerrorism #HUGE 'live' exercise commences 2moro from 10:00 &amp;thursday at disused #Aldwych #Tube Surrey Street WC2</a></p>	<p>Twitter, by monitoring all the messages related to London and Olympics.</p> <p>At this point in time a new screen was opened by the operator to monitor "Aldwych" as a location (using the improved geocoding service).</p> <p>The tag 999exercise was added to the list of tags to monitor and a separate screen was dedicated to monitor 999exercise.</p> <p>Btp_uk was added to the list of users to monitor.</p>
17.47	<p>News organisation start commenting or retweeting news about the exercise.</p> <p>twitter: AboutLondonNews 17:47:11 on 2012-02-21 6 days ago #London twitter</p> <p>→ <a href="#">Tomorrow: Major exercise in central #London outside the disused Aldwych underground station in Surrey Street to test... http://t.co/2lUm3RuW</a></p>	<p>Twitter, by monitoring all the messages related to Aldwych.</p>
22.04	<p>More citizens are commenting about tomorrow's exercise. The common hashtag 999exercise is not widely spread.</p> <p>twitter: lanpuddick 22:02:24 on 2012-02-21 6 days ago #MetPolice #Olympic #AntiTerrorism #HUGE #Aldwych #Tube twitter</p> <p>→ <a href="#">#MetPolice #Olympic #AntiTerrorism #HUGE 'live' exercise commences 2moro from 10:00 &amp;thursday at disused #Aldwych #Tube Surrey Street WC2</a></p>	<p>Twitter, by monitoring all the messages related to Aldwych in one screen and London and Olympics in a</p>





01.00- 07.00 Citizens spread the exercise news and warn everyone to not panic

twitter: 13milepost 02:49:53 on 2012-02-22 6 days ago  
huge emergency service drill at closed aldwyche tube today 7am >7pm dont panic

twitter: mickeyscoose 05:30:19 on 2012-02-22 6 days ago  
#emergency services dealing with a mock #terror attack @ the disused #aldwyche station preparing for the real thing which is not if but when

twitter: williams\_sascha 04:31:20 on 2012-02-22 6 days ago  
If you're anywhere near the old Aldwyche tube station in London and hear sirens today - don't panic! <http://t.co/tztxt4XJ>

twitter: julesmattsson 05:58:18 on 2012-02-22 6 days ago  
@RizwaanSabir yes is olympic one by the strand at Aldwyche stn, only a pool camera underground but above ground part will be visible

Twitter, by monitoring all the messages related to Aldwyche in one screen and London and Olympics in a second screen.

A relevant was identified in Jules Mattsson, as he was revealing details about the operation. We decided to follow this user.

7:18 Surrey Street closed

twitter: TfLTrafficNews 07:16:18 on 2012-02-22 6 days ago  
#CentralLondon CentralLondon twitter  
#CentralLondon Surrey Street closed between Strand and Temple today until 7pm due to an event. Diversions in place.

twitter: metpoliceuk 07:18:53 on 2012-02-22 6 days ago  
999Exercise #999Exercise twitter  
Surrey St (nr the Strand) now closed ahead of today's emergency services exercise <http://t.co/a1puJPk4> #999Exercise

By focusing on the Aldwyche area using the advanced geocoding service we were able to spot the emerging of messages related to Surrey Street.

#### Locations

**Aldwyche** Surrey Street

08:14 Citizens use twitter to ask more information about the exercise. Again the official hashtag is not used.

twitter: SLShead 08:14:54 on 2012-02-22 6 days ago  
Anyone know what time emergency services are running terrorist attack test at the disused Aldwyche station?

08.40 The exercise is further discussed on twitter

twitter: Grey\_fox36 08:40:48 on 2012-02-22 6 days ago  
What is the point of holding a security test in Aldwyche when the Olympic headache will be in Stratford.

By focusing on Aldwyche and 999exercise. London Ambulanbce is fast



### 10:03 Citizens opinions on the exercise are starting to spread

facebook: Sean McKenna

10:03:10 on 2012-02-22 6 days ago

facebook

Nice to see that the police and every other form security are running "practice exercises" for the London 2012 olympics. Is it the same type of practice exercises they did before 7/7/05.....?

twitter: Inde44

09:04:27 on 2012-02-22 6 days ago

twitter

I wanna be involved in todays mock terror attack at aldwyche , I might pop down with an ak and mix it up a bit ....yeah it'll be fine x

Facebook and Twitter. Again note #999exercise is not used as hashtag by the public, these messages are retrieved just by focusing on Aldwych and London

### 10:08 BBC interviews Jason Killens, head of operations

twitter: Ldn\_Ambulance

10:08:06 on 2012-02-22 6 days ago

#999exercise twitter

@BBCLondon949 is interviewing Jason Killens, deputy director of ops, about the #999exercise

Twitter

### 10:15 The actors involved in the exercise have gone underground

twitter: JasonRosam

10:15:06 on 2012-02-22 6 days ago

twitter

Scene of the staged terror attack at Aldwych/Strand tube station - the actors have just gone underground... <http://t.co/LN173OIO>



Twitter, again this message was obtained by focusing on Aldwych as a location, as no relevant hashtags were used.

### 10:49 The calm before the storm



YankeeBadger  
(Twitter)



11:10 Motorcycle paramedic from @Ldn\_Ambulance first on scene at Aldwych station. Twitter

twitter: c4marcus

11:10:23 on 2012-02-22 6 days ago

#999Exercise #999Exercise twitter

Mock Motorcycle paramedic from @Ldn\_Ambulance first on scene at Aldwych station. #999Exercise

11:13 First casualties emerging

twitter: julesmattsson

11:13:13 on 2012-02-22 6 days ago

#999Exercise #999Exercise twitter

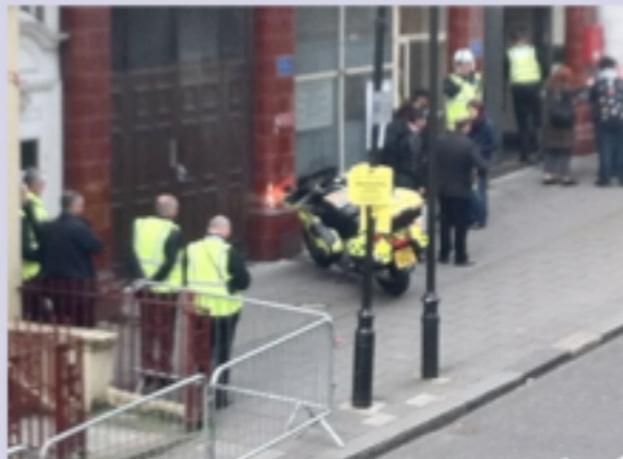
Mock Mock casualties stumbling out of Aldwych tube, emergency services arriving #999Exercise

twitter: c4marcus

11:15:01 on 2012-02-22 6 days ago

#999Exercise #999Exercise twitter

'Passengers' beginning to emerge from station entrance, coughing, as first @LondonFire appliance arrives: <http://t.co/EbDfc6wc> #999Exercise



twitter: GordonFarquhar

11:25:32 on 2012-02-22 6 days ago

twitter

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



Passengers leaving station confirmed by MET at 11:29

twitter: metpoliceuk

11:29:40 on 2012-02-22 6 days ago

#999Exercise #999Exercise twitter

Jules Mattsson  
(Twitter)



11:15 Helicopter arrives; confirmation of presence of @Ldn\_Ambulance and @LondonFire Brigade

Jason Rosam  
(Twitter)

twitter: JasonRosam

11:15:51 on 2012-02-22 6 days ago

#999exercise #999exercise twitter

re: The @Ldn\_Ambulance response bike has arrived - first passengers out of tube - helicopter above - @LondonFire Brigade here too #999exercise

11:21 Explosive search dogs arrive at the scene

twitter: c4marcus

11:21:50 on 2012-02-22 6 days ago

#999Exercise #999Exercise twitter

re: Explosives search dogs from @btp\_uk just arrived. #999Exercise http://t.co/PBmov1Yb



Marcus Edwards  
(@c4marcus): (Twitter)  
(Home Affairs producer  
for Channel 4)

11:36 Problem highlighted about cluttering road with vehicles

Marcus Edwards  
(Twitter)

twitter: c4marcus

11:36:30 on 2012-02-22 6 days ago

#999Exercise #999Exercise twitter

re: First issue is that with emergency vehicles parked either side of road, getting others through is tricky  
http://t.co/W1Wknb8X #999Exercise



The issue will be repeated by several citizens later on, among them paramedicSA



11:58 First patients coming out on stretchers

twitter: LBC\_Declan

11:58:51 on 2012-02-22 6 days ago

#999exercise #999exercise twitter

At #999exercise we're seeing the first patients coming out on stretchers. @lbc973 http://t.co/HQXpDWFQ



Declan Harvey  
(Twitter)

12:01 Picture feed from Aldwyck station becomes available from Right Now I/O feed (via Twitter)

[http://www.rightnow.io/  
breaking-  
news/999exercise-  
aldwych\\_bn\\_13299120  
74406.html](http://www.rightnow.io/breaking-news/999exercise-aldwych_bn_1329912074406.html)

12:02 Blog covering the news with pictures

[http://london-  
underground.blogspot.c  
om/2012/02/aldwych-  
tube-in-mock-terrorist-  
attack.html](http://london-underground.blogspot.com/2012/02/aldwych-tube-in-mock-terrorist-attack.html)

12:06 Survivor reception point

twitter: Ldn\_Ambulance

12:06:18 on 2012-02-22 6 days ago

#999exercise #999exercise twitter

EXERCISE: Pictures from scene at #999exercise in Aldwych. (Actors) Survivor reception point.  
@metpoliceuk on scen http://t.co/JSATMcZb



12:09 London Ambulance declares number of patients

Ldn Ambulance



12:46 Pictures of casualties

Met police (via Twitter)



13:04 BBC Feature announced

London Ambulance (via Twitter)

twitter: Ldn\_Ambulance 13:04:56 on 2012-02-22 6 days ago  
#999exercise #999exercise twitter

#999exercise is featured on @BBCLondonNews at 1pm. Find out more about the emergency services exercise with @metpoliceuk @LondonFire

1:13 Flickr stream becomes available showing casualties



Jules Mattsson on Flickr

<http://www.flickr.com/photos/julesmattssonphoto/6920341089/in/set-72157627264076204>

1:16 Citizens voice concern over exercise as unrealistic

Twitter



twitter: metpoliceuk 15:03:06 on 2012-02-22 7 days ago  
999Exercise #999Exercise Twitter

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

3:22 London Ambulance issues pictures of casualties

London Ambulance (via  
Twitter and Web site)



15:46 London Ambulance makes available pictures on Facebook

<https://www.facebook.com/media/set/?set=a.25>



- 4:20 Police blog feed from the Netherlands posts pictures from the day (source unknown mostly taken from different Twitter feeds) including videos from BBC and Al Jazeera. <http://hulpverlening.nl/forum/index.php/topic,6923.msg68606.html#msg68606>

- 17:05 British Transport Police makes available pictures on Flickr

[British Transport Police - Sets](#)

**BTP Exercise Forward Defensive**

Thumbnails Detail Comments

A major exercise to test the emergency service and Government response to a terrorist incident on the London Underground during the Olympic and Paralympics Games period was held in central London on 22 February 2012.

6 photos | 1,000 views

[http://www.flickr.com/photos/btp\\_uk/sets/72157629064195044/](http://www.flickr.com/photos/btp_uk/sets/72157629064195044/)

- 5:31 Mirror.co.uk runs an article on their web site including several pictures of casualties and emergency forces as well as a video (examples below)

<http://www.mirror.co.uk/news/uk-news/london-2012-terror-attack-drill-739789>



17pm – Several comments from citizens pro- and against the exercise, some onwards arguments heated (“you twat...”), mostly in favour. [Twitter](#)



# Turin, Italy, December 2013

- Demonstration activity for the local authorities
- Tracking protesters across the city
- Identification and tracking of
  - Path taken
  - Mini battle with other protester groups on Castle Square
  - Joint attack by the two groups against the police
    - Throwing paint bombs
    - Tear gas reaction

# Torino 14.12.2013

Map showing the route of the protest from Piazza Statuto to Piazza Castello. A green dot at point A marks the start of the protest in Piazza Statuto. A blue arrow indicates the direction of the march towards Piazza Castello.

10:49	Torino	a Torino parte il corteo contro Cota, studenti in piazza via @OlivieroAlotto: #cotarimborsaci #Torinoèaperta <a href="http://t.co/bBnPadfdT5">http://t.co/bBnPadfdT5</a>	
#studenti in corteo a #Torino verso piazza Castello @GiornalePiem <a href="http://t.co/XqLRy1phoT">http://t.co/XqLRy1phoT</a>			

Map showing the route of the protest from Via Cernaia to Piazza Castello. Blue arrows indicate the movement along Via Cernaia, Via Pietro Micca, and Via Pietro Micca towards Piazza Castello.

11:03	Torino	Intanto il corteo studentesco, con Arci e altre associazioni, si ferma in via Cernaia. #torino <a href="http://t.co/OSqLWpTjk">http://t.co/OSqLWpTjk</a>	
11:01	Torino	@uncronista: Mentre la coda è ancora in piazza Vittorio Veneto, la testa si ferma in piazza Castello, alle spalle di palazzo Madama. #torino	
11:31	Torino	Messaggio chiaro del corteo studentesco, che risale via Pietro Micca. #torino #cota <a href="http://t.co/DrZA95g6aC">http://t.co/DrZA95g6aC</a>	

11:51	Torino	Piccolo presidio sindacale sotto la Regione, intanto gli studenti entrano in piazza tra i fumogeni. #torino <a href="http://pic.twitter.com/zHEkY9yrL0">pic.twitter.com/zHEkY9yrL0</a>	
11:57	Torino	@uncronista: Corteo studentesco che presidia la regione, gli studenti chiedono di togliere le bandiere di Rif.Comunista. #torino...	
11:58	Torino	@uncronista: Lancio di vernice contro Polizia e Regione. #torino	
11:58	Torino	RT @uncronista: La Polizia spinge i manifestanti a centro piazza. #torino <a href="http://t.co/GFAkNV7VWP">http://t.co/GFAkNV7VWP</a>	
12:01	Torino	Ecco il "bombardamento". #torino #vernice #studenti <a href="http://t.co/XWleTY0GQm">http://t.co/XWleTY0GQm</a>	

© WeSense



# Evacuation Of 30,000 People

- City of Vicenza, April 2014
- Defuse of a 4,000 pound world world II bomb
- User: gold and Silver control room
  - City council and Civil Protection

VICENZATODAY

NOTIZIE ZONE E...

ZONE Centro Storico Montecchio Maggiore Stadio Torri di Quartesolo Isola Vicentina

LIFECLASS HOTELS & SPA

Vieni a Portorose, Vivi LifeClass

WELLNESS RE PORTOROŽ

Città di **Vicenza** | CITTÀ PATRIMONIO UNESCO

Cittadino Impresa - SUAP Servizi online Uffici Amministrazione ViviVicenza

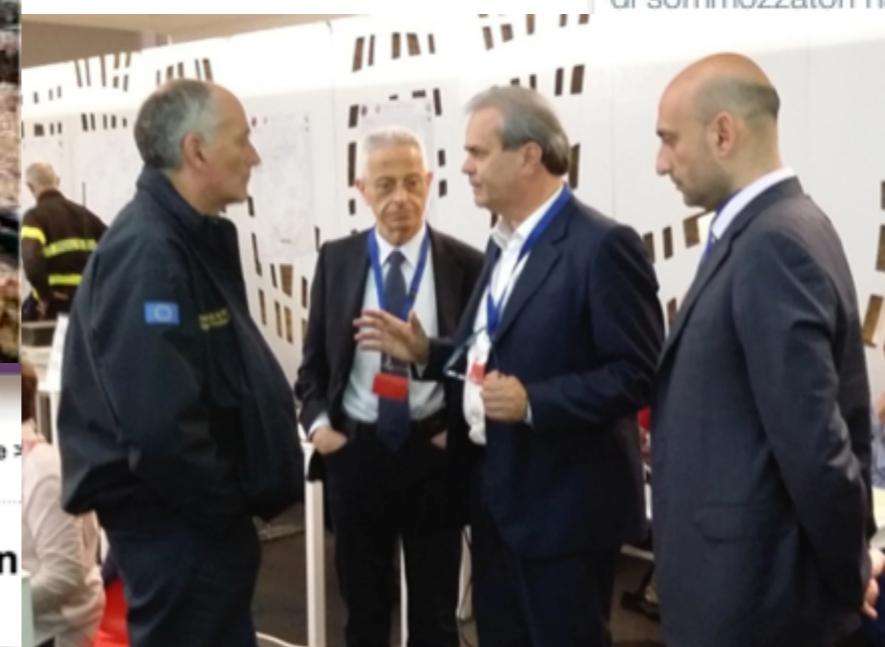
**Bomba Day**

**Evacuazione per disinnesco**  
venerdì 25 aprile 2014



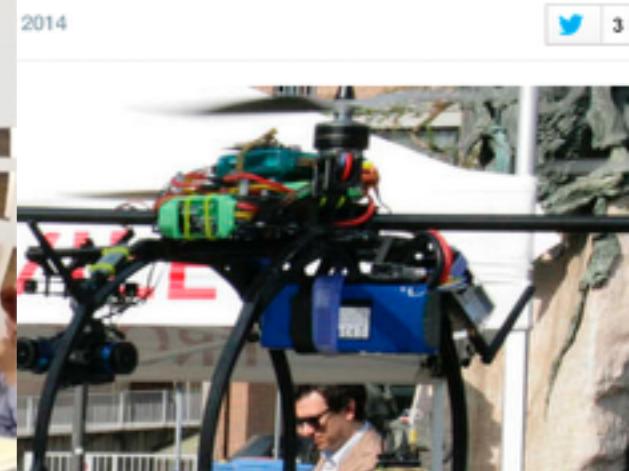
> Uffici > Dipartimento territorio > Settore Infrastrutture, Gestione Urbana e Protezione Civile > Protezione Civile > Bomba Day - Evacuazione per disinnesco

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



## 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 un sommozzatore ha simulato il recupero di una persona caduta





# Command and Control Technology

- Real time detailed reporting of issues from the ground to the control room
  - Submission of reports with pictures and videos
- Real time tracking of location and staff
- Ability to assign tasks to staff to address open issues
- Tracking of tasks accomplishment
- Full record for auditing and lesson learning
- Used in
  - Leeds Festival 2013 (80,000 participants)
  - Civil protection exercise in Vicenza, Italy (500 volunteers, all teams monitored and coordinate through app), March 2014
  - Bomb defuse Vicenza - evacuation of 30000 people
    - used to coordinate all the teams in charge of evacuation and sealing off danger area
  - To be used at Glastonbury 2014

# For Event Managers

- Mobile app for
  - Real-time location tracking
  - Report submission
  - Task management



# For Event Managers

- Web app for
  - Real-time location tracking
  - Report visualisation
  - Task management

StageTrak   Incidents ▾   Tracking ▾   Admin ▾   Hi, admin ▾

**Events**

Map Satellite

Map Data Terms of Use Report a map error

**Troublemaker** gfuchchcg

Reported by: Rodrigo F. Carvalho at 07:28, 29-November-2013  
Status: In Progress (Rodrigo F. Carvalho)

**EventFilters**

Filter map markers:

- ★ Staff
- 🔥 Incidents

Type: Other  
Cleanup  
Theft  
Substance Abuse  
Violence  
Troublemaker  
Break-in  
Parking  
Press

Status: ⚠ New  
👤 Assigned  
✳️ In Progress  
⌚ Closed

Show all

# Tracking Of Members Of Staff

- Web app for
  - Real-time location tracking
  - Report visualisation
  - Task management

StageTrak Incidents ▾ Tracking ▾ Admin ▾ Hi, admin ▾

**LocationHistory**

Rodrigo F. Carvalho's Location History

Map Satellite

Move the slider to replay where Rodrigo F. Carvalho went.

**Start:** First point recorded at 2-December-2013 07:49

**End:** Last point recorded at 2-December-2013 07:49

**LocationHistoryFilter**

StaffName	Number of history points
Rodrigo F. Carvalho	15
jonathan	17

We'll show up to 3000 location points or 24 hours worth of history at any one time.

## EXAMPLES OF EVENTS



**Very active crowd. The control room could visually understand and send more staff.**



**Arena at the Relentless stage. Rain and mud made it unsafe for the audience.**



**Pit area at the Relentless stage. The control room closed the stage due to health and safety.**



**Need more wood chipping! Getting very muddy and unsafe out here.**

We cannot share important events identified



# Contacts

**Prof Fabio Ciravegna, Neil Ireson**  
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