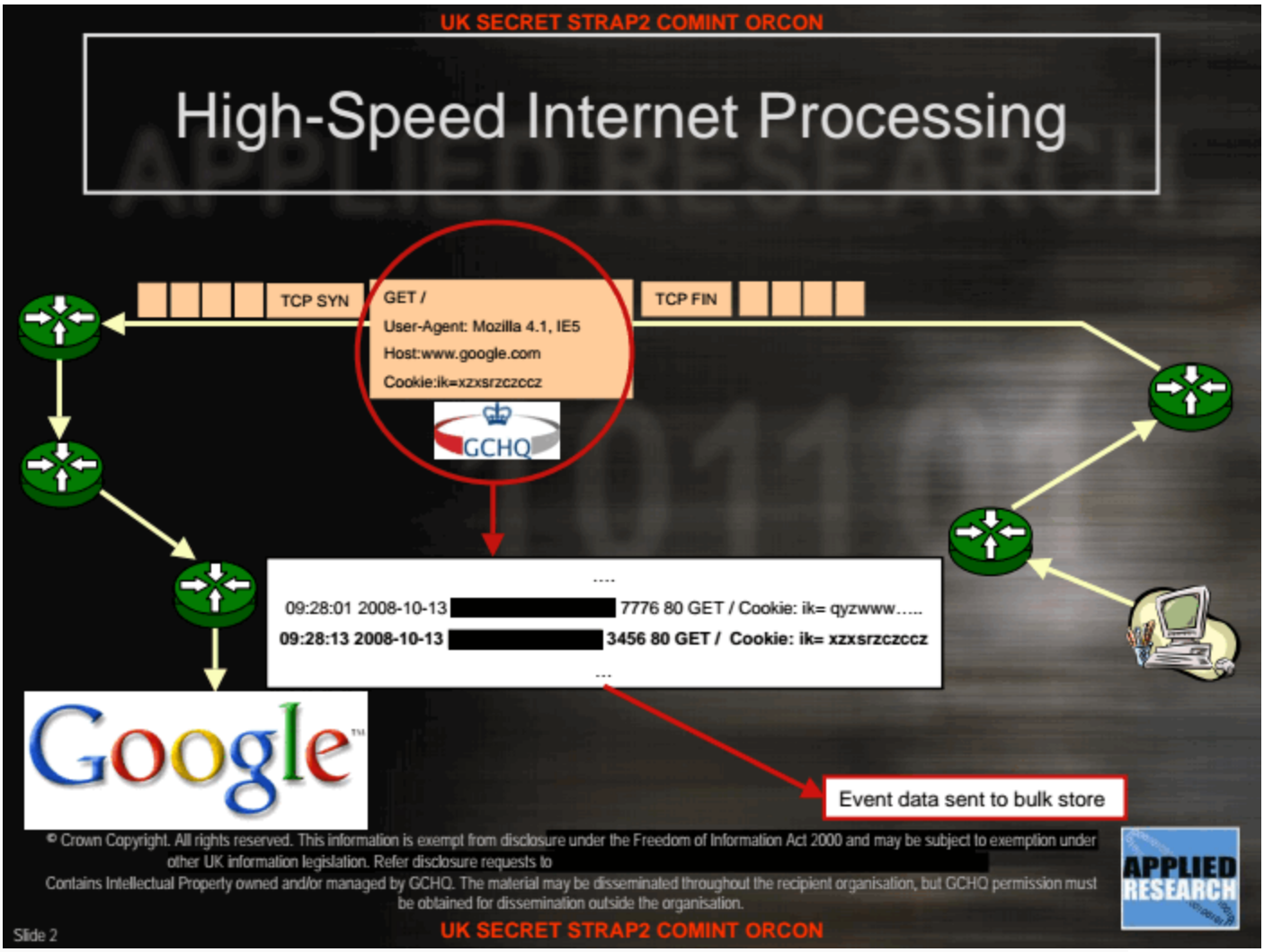
Target Detection Identifiers

[redacted]

March 2009

High-Speed Internet Processing



APPLIED RESEARCH

High-Speed Internet Processing

- Bulk events key to SIGINT success on Internet
- Event types that are valuable for Intelligence change (quickly)
  - 2000 SMTP/POP3
  - 2001 Webmail
  - …
  - 2007 vBulletin
  - 2008 Social Networks,…,?
- GCHQ's Applied Research are pioneering ways of dealing with this:
  - Presence Events (TDI)
  - Very large scale high speed flat file storage to bulk store TDIs
  - Just enough data marts

IP Packet Information

- Many possible types of information
- Many techniques available
- HTTP Get requests dominate cutting edge techniques
- To get Intelligence value Information must relate to a person or device… a TDI

TDI ...?

TDI ...?

APPLIED RESEARCH

TDI

Target

Detection

Identifier

TDI

Target

Detection

Identifier

Who
When
Where
(doing) What

TDI

Target

Detection

Identifier

Who
When
Where
(doing) What

Fundamental atom of the Internet age.

Target Detection Identifiers

- DEFINITION
  - TDIs are **definite** indicators of presence, that are **unique** and **persistent** for a user/machine.
- Built on the familiar
  - Telephony +44 [redacted] – international phone code
  - Signalling tells us this phone user is 'online'
- Target Detection Identifiers
  - Started with the Internet, mobile networks too.
  - TDI is a 'SIGINT standardised code'.
  - Not a standard managed by the ITU/ETSI.
  - Extraction from packets much more complex.

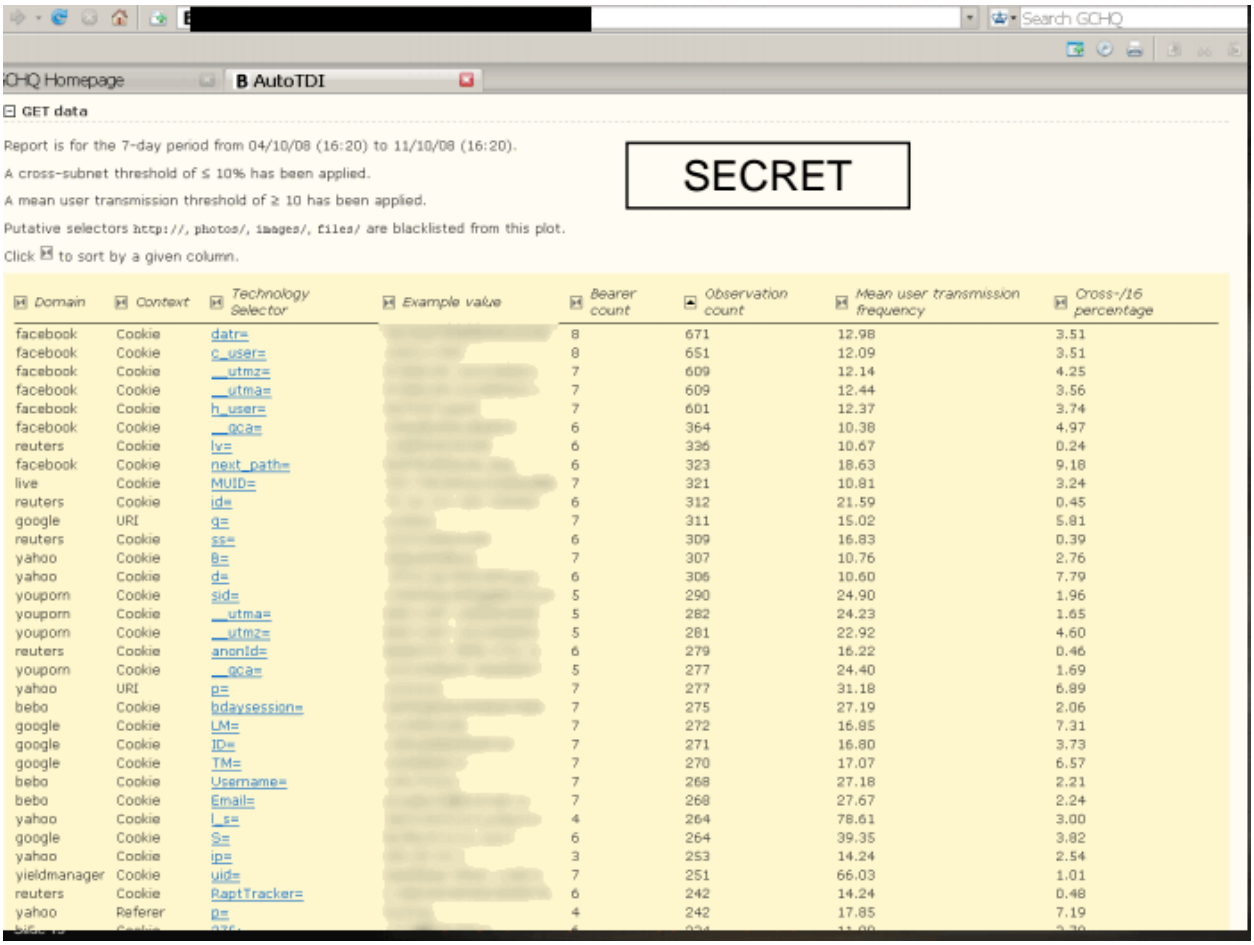
TDI sources

UK SECRET STRAP2 COMINT ORCON

Target Detection Identifiers

- 70 distinct TDI types discovered.
- 2500 TDIs/sec (GET, de-duplicated)
- => 200 Million per day per 10Gbps
- De-dupe rate ???
- Cost – 250 hours per TDI
- Automated discovery prototype

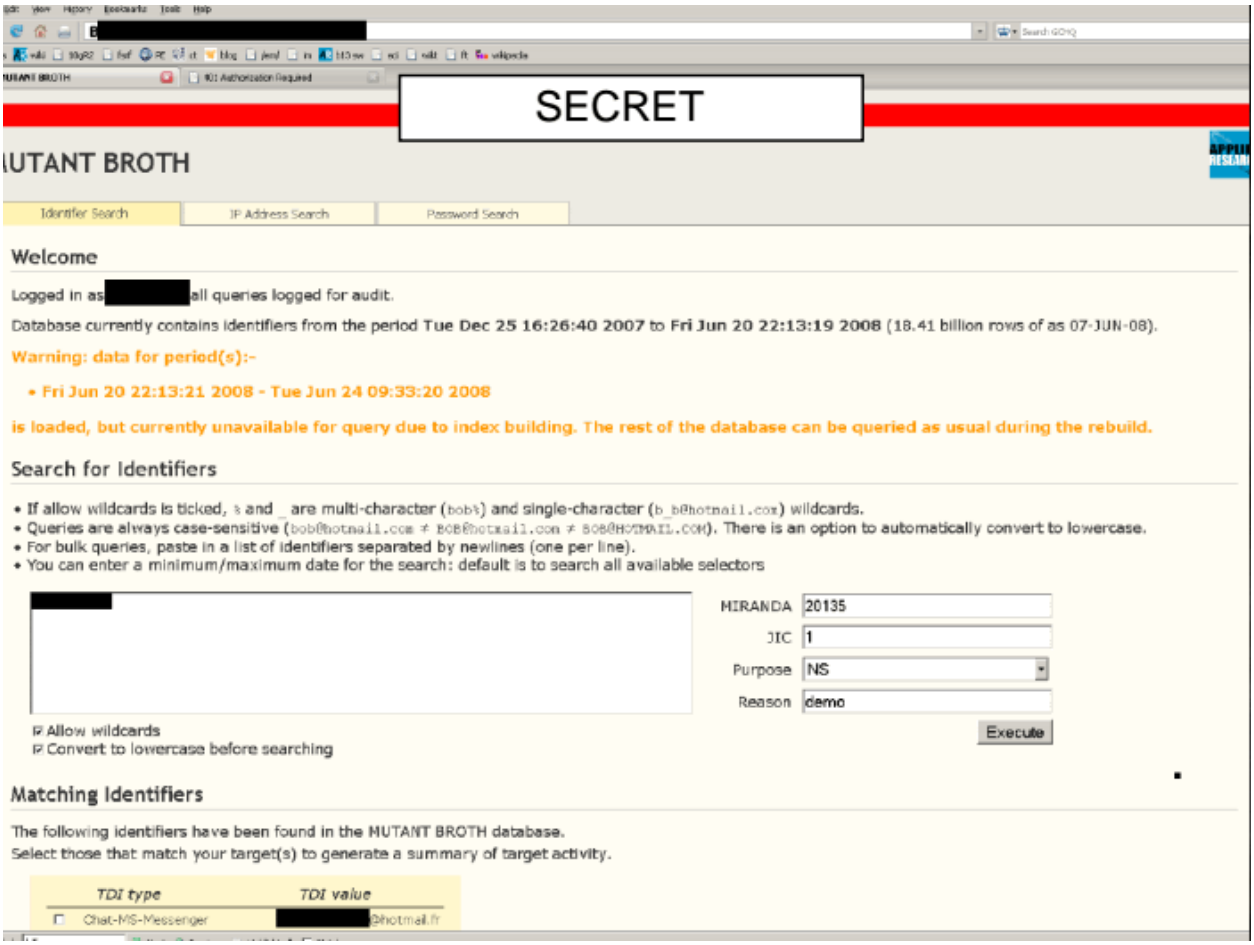
TDI Type	TDI Location	User/Machine
Yahoo-Y-Cookie	Cookie	User
Yahoo-B-Cookie	Coookie	Machine
Google-IK	Request-URI	User
Paltalk-Nickname	Request-URI	User
MS-MUID-Cookie	Cookie	Machine
Google-SID-Cookie	Cookie	Machine
Maktoob-MEUser-Cookie	Cookie	User
Orkut-PREFID-Cookie	Cookie	User
Cloob-Username	Cookie	User

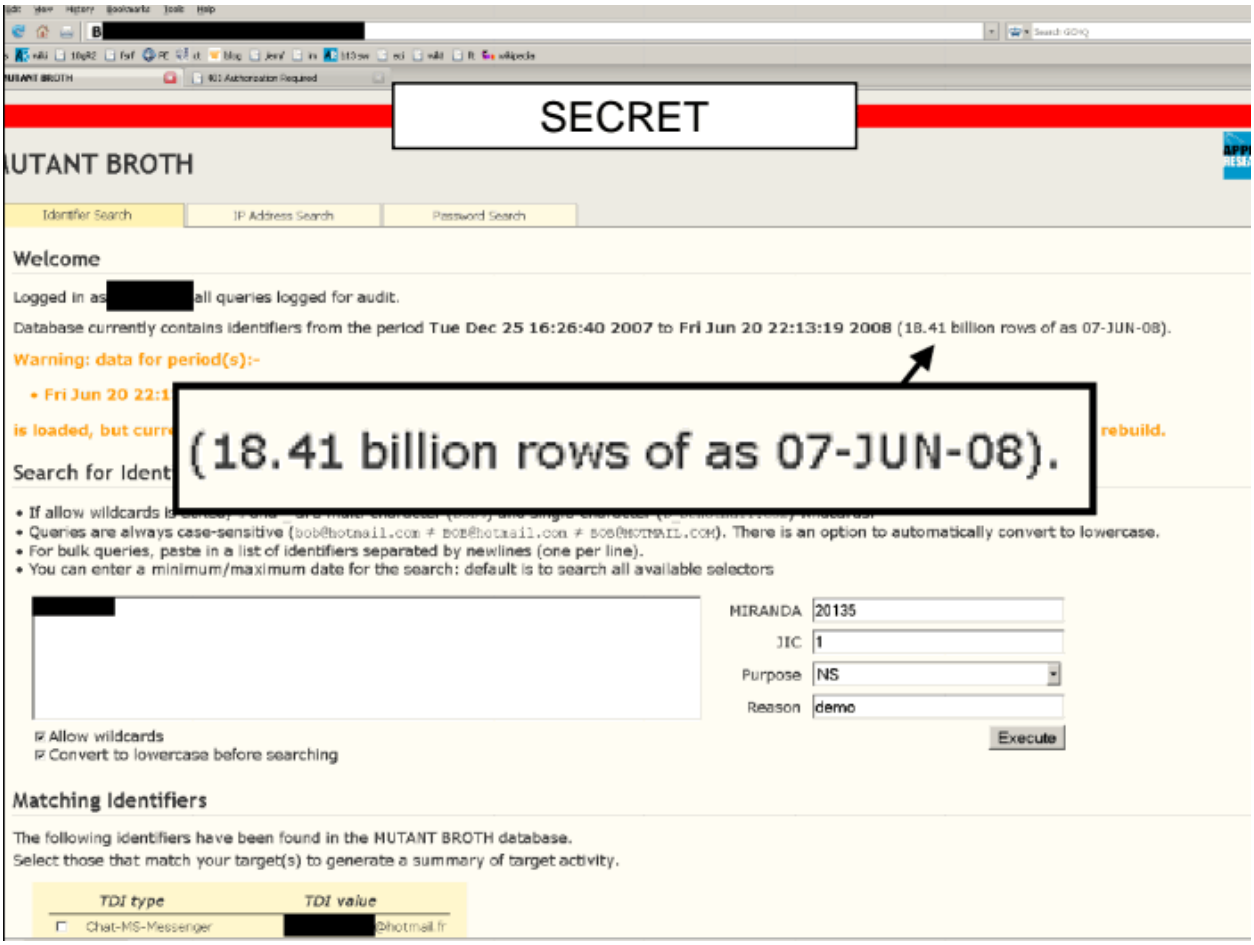


Domain	Context	Technology Selector	Example value	Bearer count	Observation count	Mean user transmission frequency	Cross-/16 percentage
facebook	Cookie	datr=		8	671	12.98	3.51
facebook	Cookie	c_user=		8	651	12.09	3.51
facebook	Cookie	__utmz=		7	609	12.14	4.25
facebook	Cookie	__utma=		7	609	12.44	3.56
facebook	Cookie	h_user=		7	601	12.37	3.74
facebook	Cookie	__qca=		6	364	10.38	4.97
reuters	Cookie	lv=		6	336	10.67	0.24
facebook	Cookie	next_path=		6	323	18.63	9.18
live	Cookie	MUID=		7	321	10.81	3.24
reuters	Cookie	id=		6	312	21.59	0.45
google	URI	q=		7	311	15.02	5.81
reuters	Cookie	ss=		6	309	16.83	0.39
yahoo	Cookie	B=		7	307	10.76	2.76
yahoo	Cookie	d=		6	306	10.60	7.79
youporn	Cookie	sid=		5	290	24.90	1.96
youporn	Cookie	__utma=		5	282	24.23	1.65
youporn	Cookie	__utmz=		5	281	22.92	4.60
reuters	Cookie	anonId=		6	279	16.22	0.46
youporn	Cookie	__qca=		5	277	24.40	1.69
yahoo	URI	p=		7	277	31.18	6.89
bebo	Cookie	bdaysession=		7	275	27.19	2.06
google	Cookie	LM=		7	272	16.85	7.31
google	Cookie	ID=		7	271	16.80	3.73
google	Cookie	TM=		7	270	17.07	6.57
bebo	Cookie	Username=		7	268	27.18	2.21
bebo	Cookie	Email=		7	268	27.67	2.24
yahoo	Cookie	l_s=		4	264	78.61	3.00
google	Cookie	S=		6	264	39.35	3.82
yahoo	Cookie	ip=		3	253	14.24	2.54
yieldmanager	Cookie	uid=		7	251	66.03	1.01
reuters	Cookie	RaptTracker=		6	242	14.24	0.48
yahoo	Referer	p=		4	242	17.85	7.19

TDI Applications

- Bulk store of all TDIs seen in last 6 months [MUTANT BROTH]
- Bulk store TDI correlations (6 months) [AUTO ASSOC]
- Bulk store TDI <-> website correlations (6 months) [KARMA POLICE]
- Bulk store TDI vBulletin activity [INFINITE MONKEYS]
- Bulk store TDI Social Networking Site activity [SOCIAL ANIMAL]
- Bulk store web search requests [MEMORY HOLE]
- Bulk store Google Earth requests [MARBLED GECKO]
- Bulk store of Host:Referer references [HRMAP]


SECRET
UTANT BROTH
Identifier Search
IP Address Search
Password Search
Welcome
Logged in as [redacted] all queries logged for audit.
Database currently contains identifiers from the period Tue Dec 25 16:26:40 2007 to Fri Jun 20 22:13:19 2008 (18.41 billion rows of as 07-JUN-08).
Warning: data for period(s):-
• Fri Jun 20 22:13:21 2008 - Tue Jun 24 09:33:20 2008
is loaded, but currently unavailable for query due to index building. The rest of the database can be queried as usual during the rebuild.
Search for Identifiers
• If allow wildcards is ticked, % and _ are multi-character (bob%) and single-character (b_b@hotmail.com) wildcards.
• Queries are always case-sensitive (bob@hotmail.com ≠ BOB@hotmail.com ≠ BOB@HOTMAIL.COM). There is an option to automatically convert to lowercase.
• For bulk queries, paste in a list of identifiers separated by newlines (one per line).
• You can enter a minimum/maximum date for the search: default is to search all available selectors
[redacted]
MIRANDA 20135
JIC 1
Purpose NS
Reason demo
Execute
Allow wildcards
Convert to lowercase before searching
Matching Identifiers
The following identifiers have been found in the MUTANT BROTH database.
Select those that match your target(s) to generate a summary of target activity.
TDI type
TDI value
Chat-MS-Messenger
[redacted]@hotmail.fr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rebuild.
Search for Ident
• If allow wildcards
• Queries are always case-sensitive (bob@hotmail.com ≠ BOB@hotmail.com ≠ BOB@HOTMAIL.COM). There is an option to automatically convert to lowercase.
• For bulk queries, paste in a list of identifiers separated by newlines (one per line).
• You can enter a minimum/maximum date for the search: default is to search all available selectors
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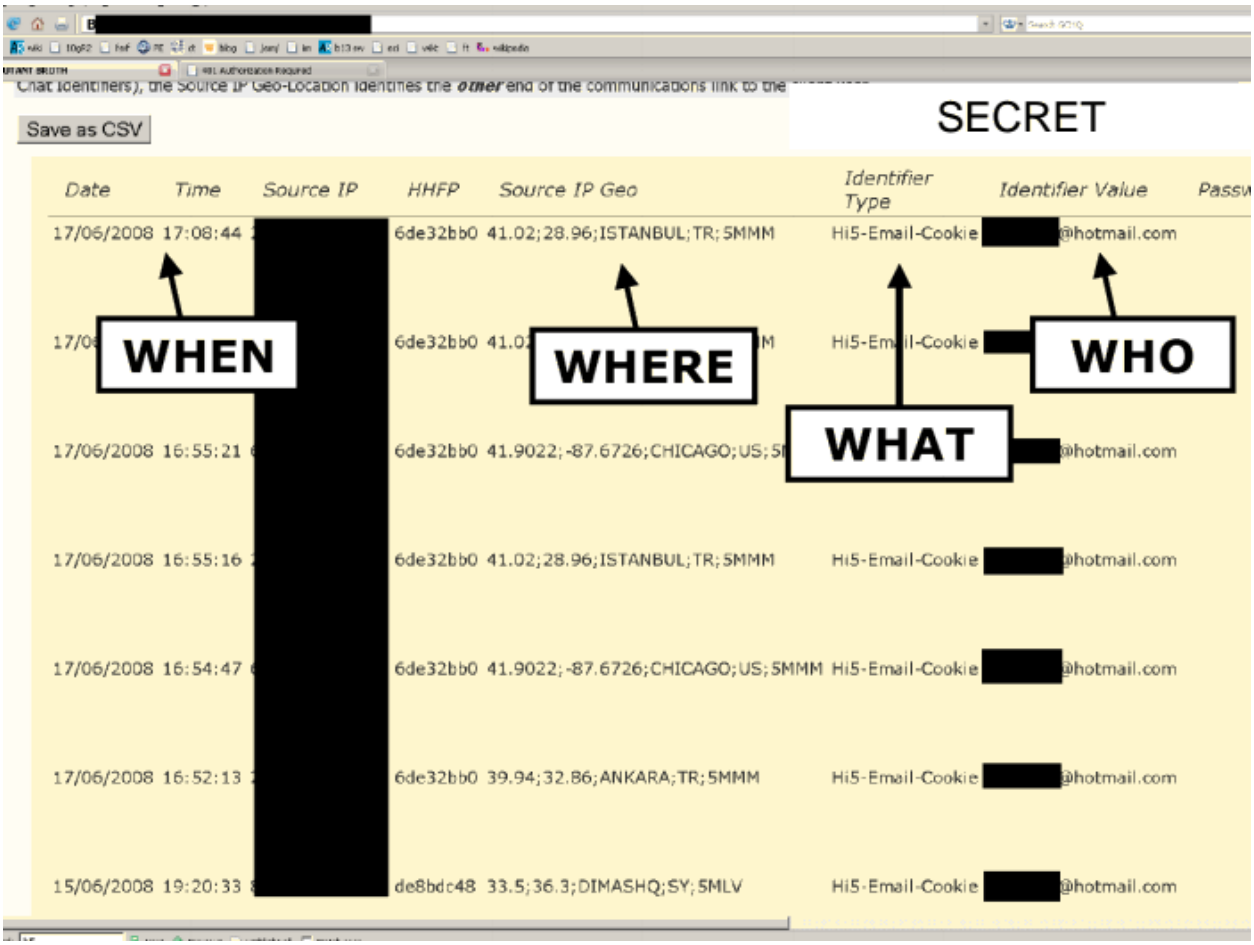
Save as CSV
SECRET
Date
Time
Source IP
HHFP
Source IP Geo
Identifier Type
Identifier Value
17/06/2008 17:08:44 6de32bb0 41.02;28.96;ISTANBUL;TR;5MMM Hi5-Email-Cookie @hotmail.com
17/06/2008 16:55:21 6de32bb0 41.9022;-87.6726;CHICAGO;US;5 @hotmail.com
17/06/2008 16:55:16 6de32bb0 41.02;28.96;ISTANBUL;TR;5MMM Hi5-Email-Cookie @hotmail.com
17/06/2008 16:54:47 6de32bb0 41.9022;-87.6726;CHICAGO;US;5MMM Hi5-Email-Cookie @hotmail.com
17/06/2008 16:52:13 6de32bb0 39.94;32.86;ANKARA;TR;5MMM Hi5-Email-Cookie @hotmail.com
15/06/2008 19:20:33 de8bdc48 33.5;36.3;DIMASHQ;SY;5MLV Hi5-Email-Cookie @hotmail.com
WHEN
WHERE
WHAT
WHO

Other Bulk Event Applications

- Most events that can be associated back to TDIs:
- File Transfer Signature (eg proof of life videos)
- Detection by Internet profile – eg 'Dead Letter Drop'.
- Yahoo webcam images
- Airline reservation confirmation emails