ONLINE TRACKING AND ZOMBIE COOKIES

TODAY

1. tracking mechanisms
2. prevalence: web
3. prevalence: mobile
4. consumer choice
5. existing incentives
6. what to do

BROWSERS

PRIVACY BY DESIGN

3rd Party

http://www.huffingtonpost.com/2011/01/2

Google

H Google Chrome, Firefox Adding 'D...

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FEBRUARY 2011

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White iPhone 4 Shelf Space Spotted

U.S. Has Secret Tools To Force Internet On Dictators

SEE WHAT Sprint HAS UP ITS SLEEVE

Sprint To Unveil Tablet-Like Phone?

Google Chrome, Firefox Adding 'Do Not Track' Tools

DANA WOLLMAN | 01/24/11 05:20 PM

Inspiring | Funny | Obsolete | Scary | Must-Have | Amazing | Innovative | Nerdy

Read More: Chrome Do Not Track, Firefox Do Not Track, Firefox Tracking, Google Chrome, Google Chrome Do Not Track, Google Chrome OS, Technology News

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anga

NEW YORK — The Firefox and Google Chrome browsers are getting tools to help users block advertisers from collecting information about them.

Alex Fowler, a technology and privacy officer for Firefox maker Mozilla, said the "Do Not Track" tool will be the first in a series of steps designed to guard privacy. He didn't say when the tool will be available.

Google Chrome users can now download a browser plug-in that blocks advertisers – but only from ad networks that already let people decline personalized, targeted ads. According to Google Inc., these include the top 15 advertising networks, as rated by the research group comScore, a group that includes AOL Inc., Yahoo Inc. and Google itself.

The next version of Microsoft Corp.'s Internet Explorer browser, which is still being developed, will include a similar feature, though people will have to create or find their own lists of sites they

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FEBRUARY 7, 2011
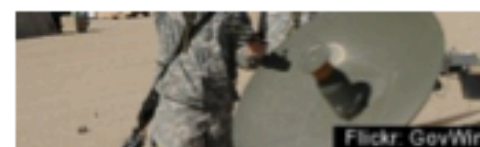
Be a part of the beta.   Free Download   Windows Internet Explorer

Comscore Beacon
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beacon

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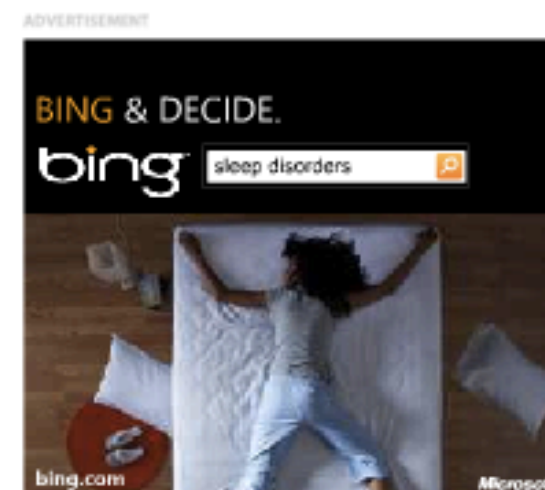| 14 | 39 | 3 | 13 |
| share | tweet | email | comment |

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HTTP

beacon

http://pixel.quantserve.com/seg/p-6fTutip1SMLM2.js

GET /seg/p-6fTutip1SMLM2.js HTTP/1.1
Host: pixel.quantserve.com
User-Agent: Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10.6; en-US; rv:1.9.2.13) Gecko/20101203 Firefox/3.6.13
Accept: */*
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip,deflate
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 115
Connection: keep-alive
Referer: http://www.huffingtonpost.com/2011/01/24/google-chrome-firefox-do-not-track_n_813189.html
Cookie: mc=4d441f48-a100a-1f66c-277f6; d=EM0BPAGBBoHxDBi6IlgwALhQnyAAiCD8sQmnDMQLEAC_UA

HTTP

observer   identifier   activity

http://pixel.quantserve.com/seg/p-6fTutip1SMLM2.js

GET /seg/p-6fTutip1SMLM2.js HTTP/1.1
Host: pixel.quantserve.com
User-Agent: Mozilla/5.0 (Macintosh; U; Intel Mac OS X 10.6; en-US; rv:1.9.2.13) Gecko/20101203 Firefox/3.6.13
Accept: */*
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip,deflate
Accept-Charset: ISO-8859-1,utf-8;q=0.7,*;q=0.7
Keep-Alive: 115
Connection: keep-alive
Referer: http://www.huffingtonpost.com/2011/01/24/google-chrome-firefox-do-not-track_n_813189.html
Cookie: mc=4d441f48-a100a-1f66c-277f6; d=EM0BPAGBBoHxDBi6IlgwALhQnyAAiCD8sQmnDMQLEAC_UA

PROFILE

Σ observer   +   identifier   +   activity   =
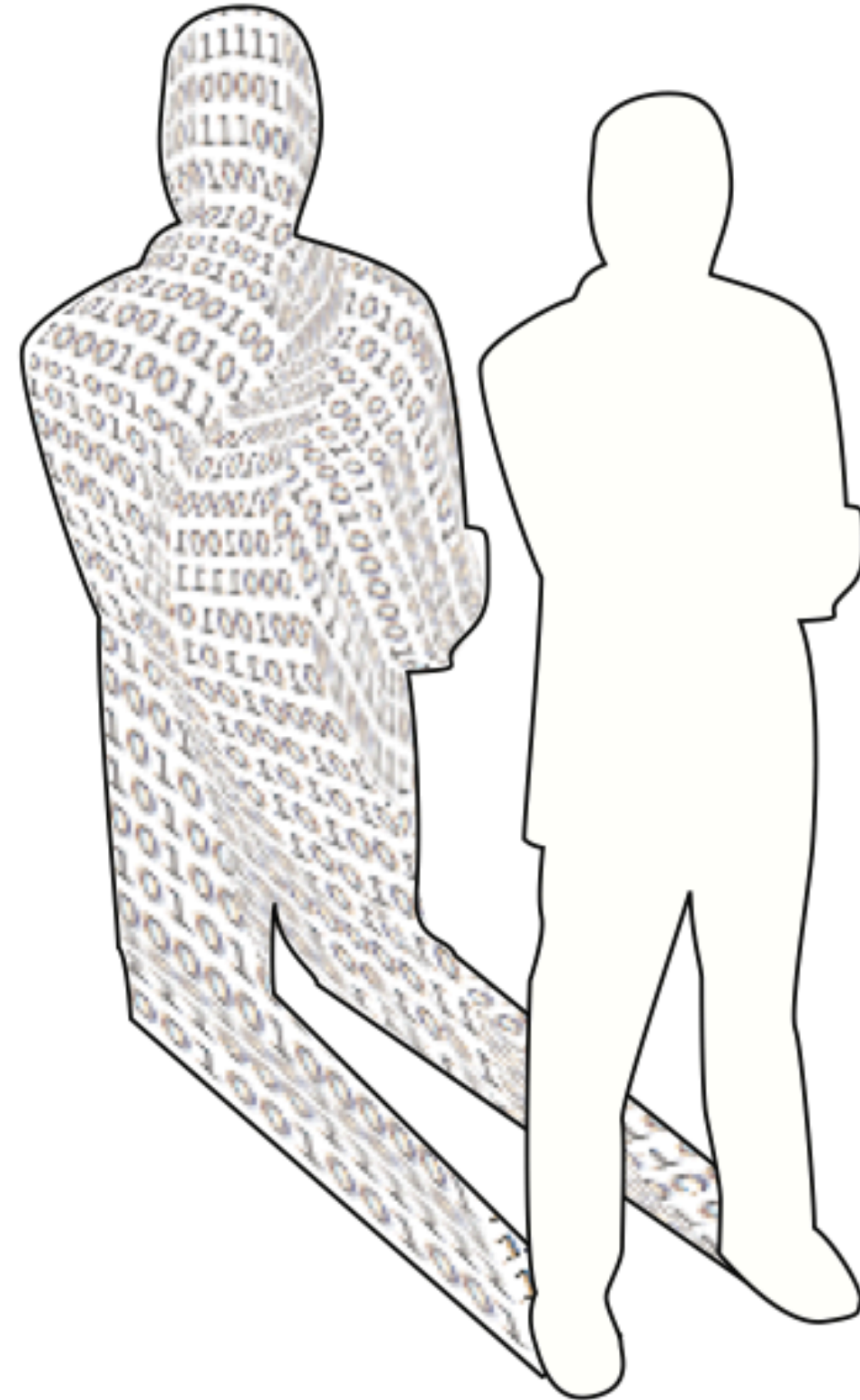
PROFILES

cobalt - - [3/Aug/2011:15:45:36 -0700] "GET http://www.google.com/search?sourceid=chrome&ie=UTF-8&q=artisan+hotel+las+vegas HTTP/1.1" - - "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebKit/535.1 (KHTML, like Gecko) Chrome/13.0.782.107 Safari/535.1"
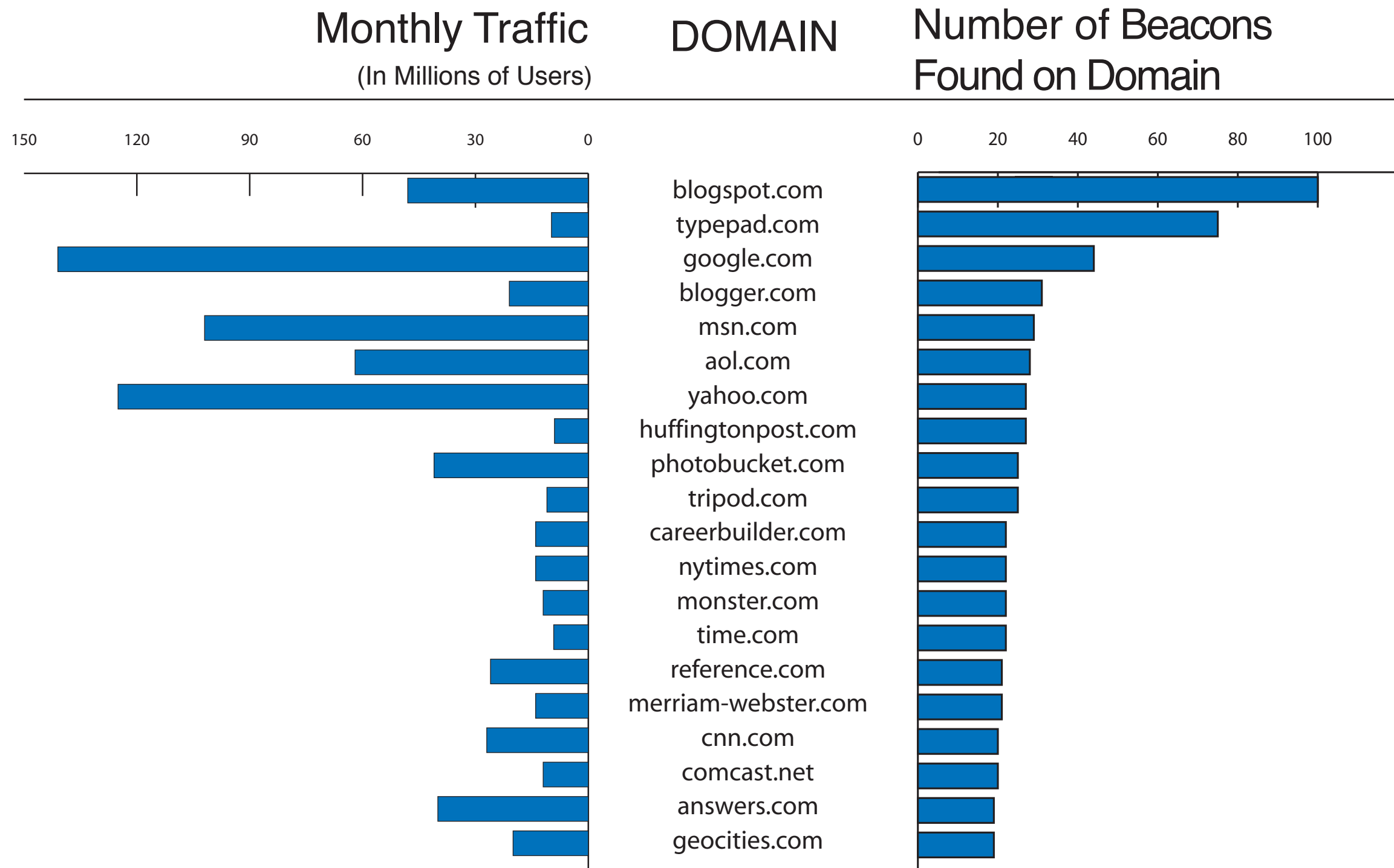
cobalt - - [3/Aug/2011:15:46:14 -0700] "GET http://twitter.com/ashk4n HTTP/1.1" - - "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebKit/535.1 (KHTML, like Gecko) Chrome/13.0.782.107 Safari/535.1"

cobalt - - [3/Aug/2011:15:47:28 -0700] "GET http://static.huluim.com/system/hulu_108321_0729114110_1.css HTTP/1.1" - - "http://www.hulu.com/the-big-gay-sketch-show" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebKit/535.1 (KHTML, like Gecko) Chrome/13.0.782.107 Safari/535.1"

cobalt - - [3/Aug/2011:15:48:25 -0700] "GET http://www.spearmintrhinolv.com/ HTTP/1.1" - - "http://www.google.com/search?sourceid=chrome&ie=UTF-8&q=spearment+rhino" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebKit/535.1 (KHTML, like Gecko) Chrome/13.0.782.107 Safari/535.1"

cobalt - - [3/Aug/2011:15:49:22 -0700] "GET http://static.howstuffworks.com/en-us/skins/health/white-arrow.png HTTP/1.1" - - "http://health.howstuffworks.com/wellness/natural-medicine/home-remedies/home-remedies-for-genital-herpes.htm" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_6_8) AppleWebKit/535.1 (KHTML, like Gecko) Chrome/13.0.782.107 Safari/535.1"

PROFILES

...tyles		
	• Affluent Baby Boomers	• High Spenders
	• Auto Enthusiasts	• Luxury Sports New Parents
	• Corporate Execs	• Outdoor Enthusiasts
	• Fashionistas	• Seniors
	• Female Small Appliance Shoppers	• Shopping Addicts
	• Foodies	• Soccer Moms
	• Frequent Travelers*	• Spa Mavens
	• Gadget Geeks	• Sportsmen
	• Green & Eco-Friendly	• Trendy Homemakers
	• Healthy & Fit	• Young & Hip
...ographics		
	• Age*	• Length of Residence*
	• Education*	• Median Home Value*
	• Estimated Credit Utilization*	• Number of Adults in Househ...
	• Estimated Household Income*	• Occupation*
	• Estimated Net Worth*	• Presence of Children*
	• Family Member Age*	• Type of Dwelling*
	• Gender*	• User Hobbies & Interests*
	• Home Owner or Renter*	

ECOSYSTEM

KNOWPRIVACY

- 2009 study at Berkeley

- examined top 100 most-visited websites

- sample from ~30,000-45,000 users

- examine prevalence of 3rd party cookies / beacons / etc

MANY OBSERVERS

Monthly Traffic (In Millions of Users)	DOMAIN	Number of Beacons Found on Domain
	blogspot.com	
	typepad.com	
	google.com	
	blogger.com	
	msn.com	
	aol.com	
	yahoo.com	
	huffingtonpost.com	
	photobucket.com	
	tripod.com	
	careerbuilder.com	
	nytimes.com	
	monster.com	
	time.com	
	reference.com	
	merriam-webster.com	
	cnn.com	
	comcast.net	
	answers.com	
	geocities.com	

Monthly Traffic scale: 150 120 90 60 30 0

Number of Beacons scale: 0 20 40 60 80 100

MANY OBSERVERS

100 different beacons reported on blogspot.com in Mar `09

MANY OBSERVATIONS

Google beacons reported on
92 of Top100 in Mar `09

~2.15 Billion Unique Visits/Mo

MANY OBSERVATIONS

google 'trackers' on 88% of websites we sampled

88.4%
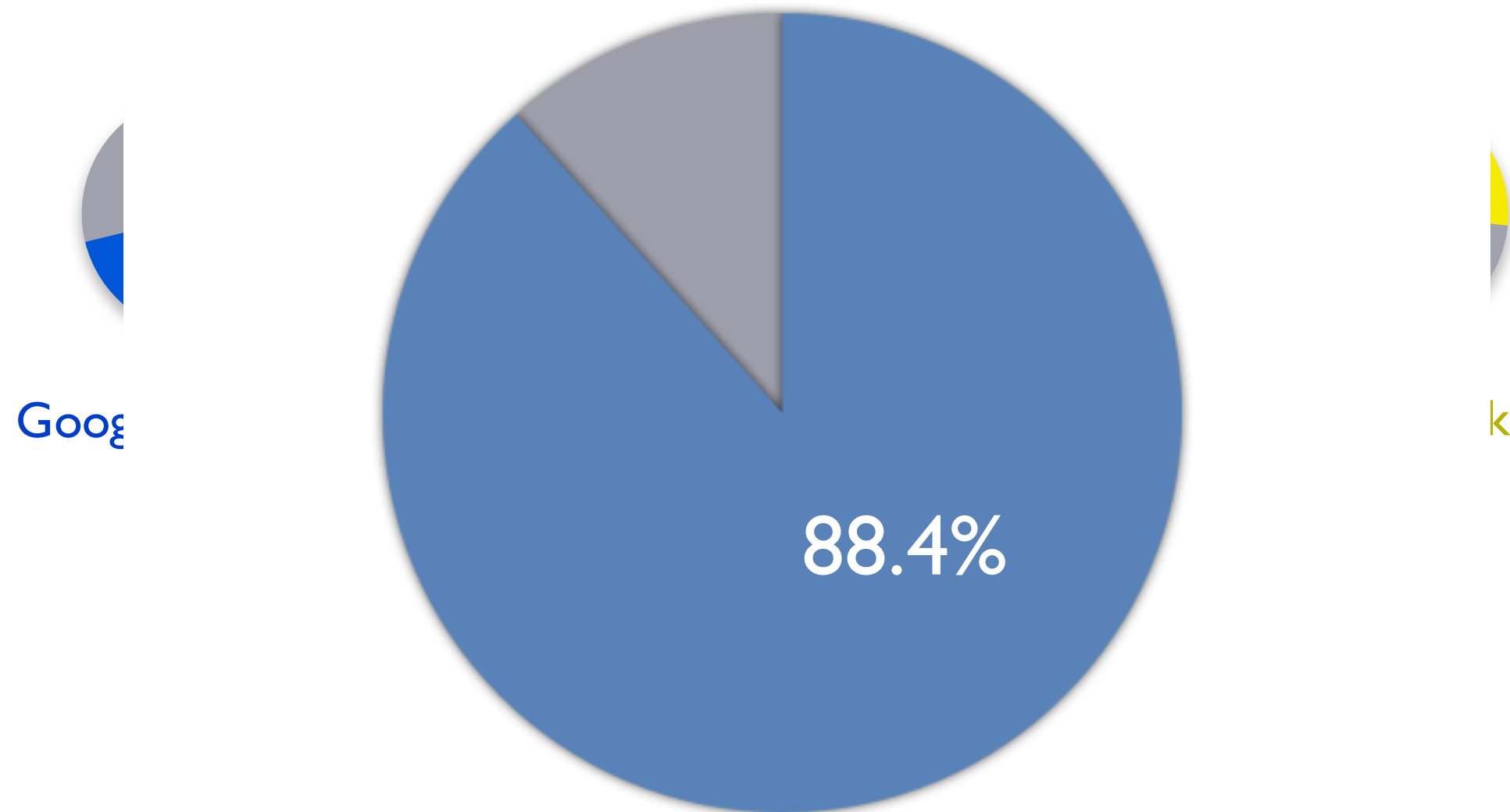
Google

Google FriendConnect   Google Widgets
(1,394)   (1,457)
(1,548,059 Unique Domains in Mar '09)

KNOWPRIVACY

MANY OBSERVATIONS

*"10,000 **new** websites integrate with Facebook every day"* Sheryl Sandberg - Facebook COO - Oct 2010
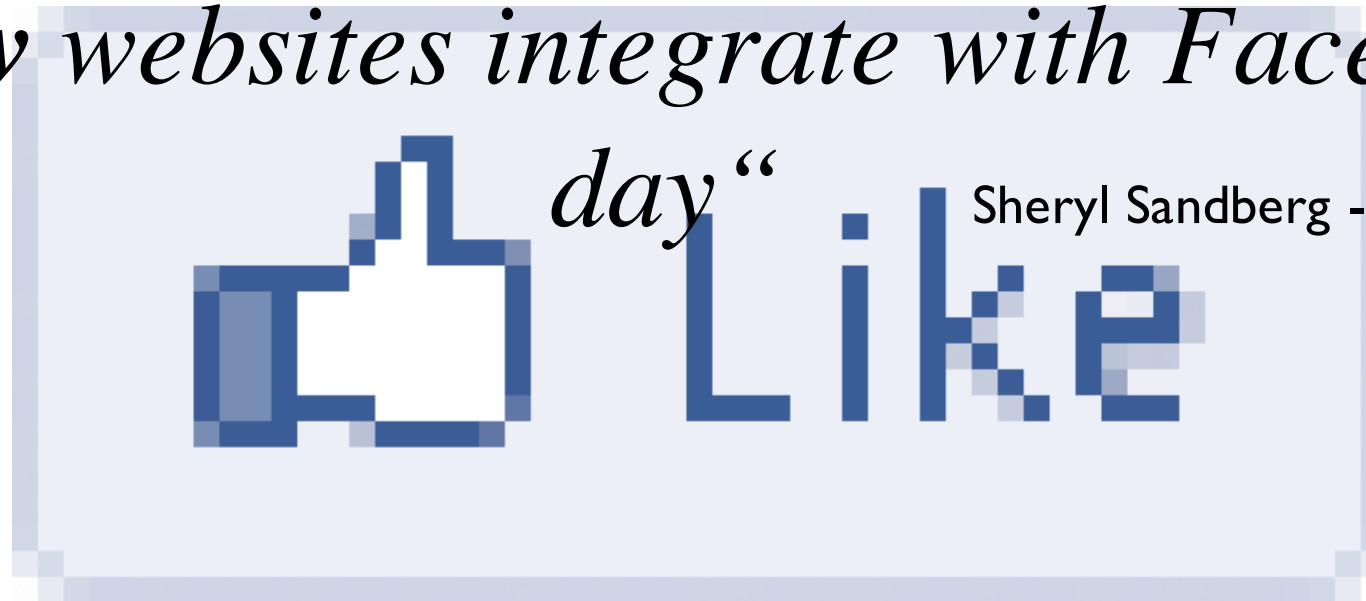
"Users submit about 650,000 comments every minute"

Ken Deeter on Live Commenting - Jan 2011

facebook.

ECOSYSTEM
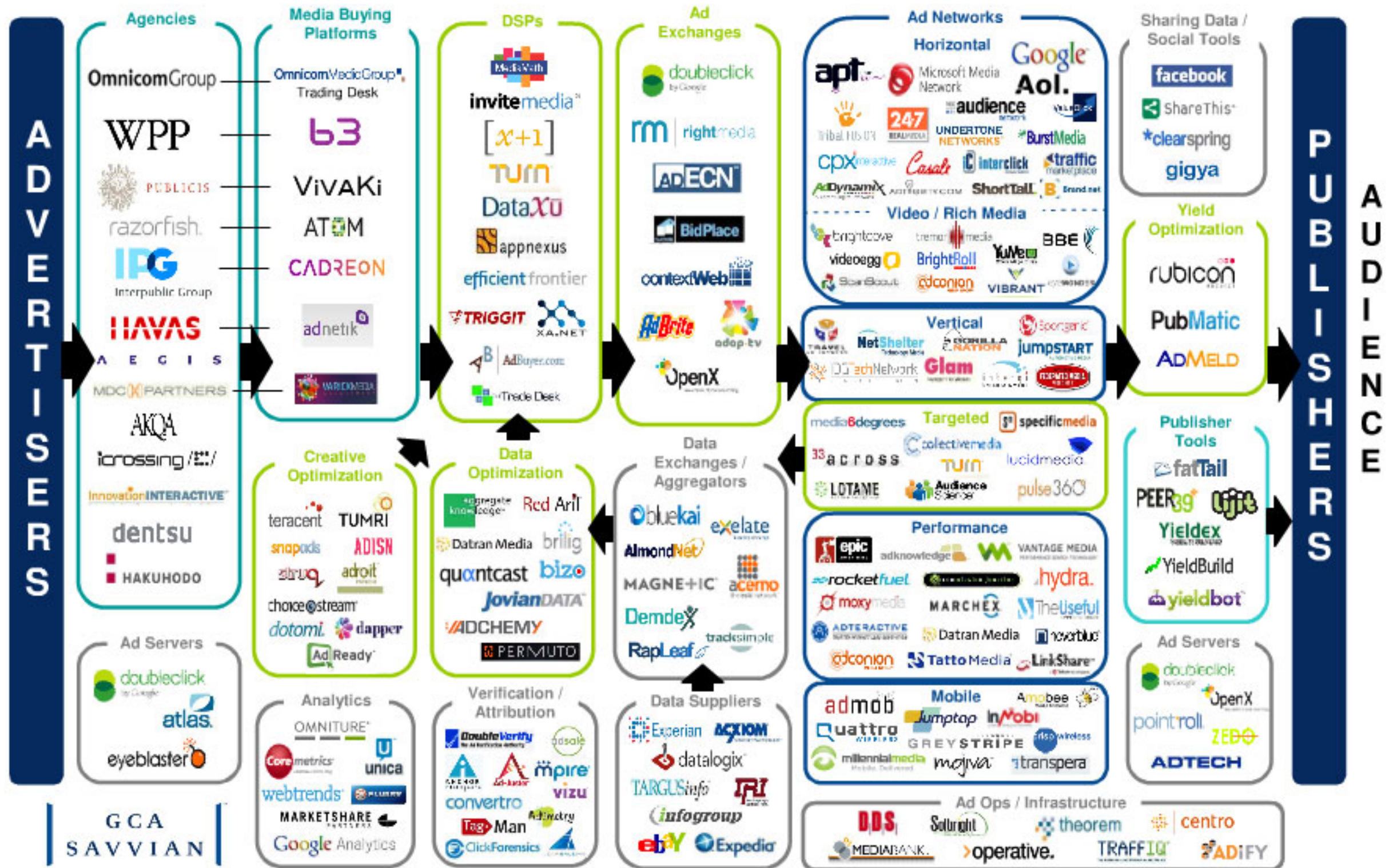
http://lumapartners.com/

ECOSYSTEM

MOBILE

SMARTPHONES

- 2010 study for the Wall Street Journal

- examined top 100 most popular 'apps'
(50 iPhone / 50 Android)

- looked for leakage of 'sensitive information'

- looked for transmission to 1st* and 3rd parties

- include SSL encrypted traffic*

SENSITIVE DATA

What w
on one

The iPhone version of music app
Pandora se
eight tracke
data to seve
phone ID to
demograph

Location

Phone ID

gories of data:

r, password

Contacts

e, gender

cation

 one ID

Phone number

Data being
sent

Click to explore data
on all the apps

PROFILE

$$\sum \text{observer} + \boxed{\text{Phone ID}} + \text{activity} =$$

persistent
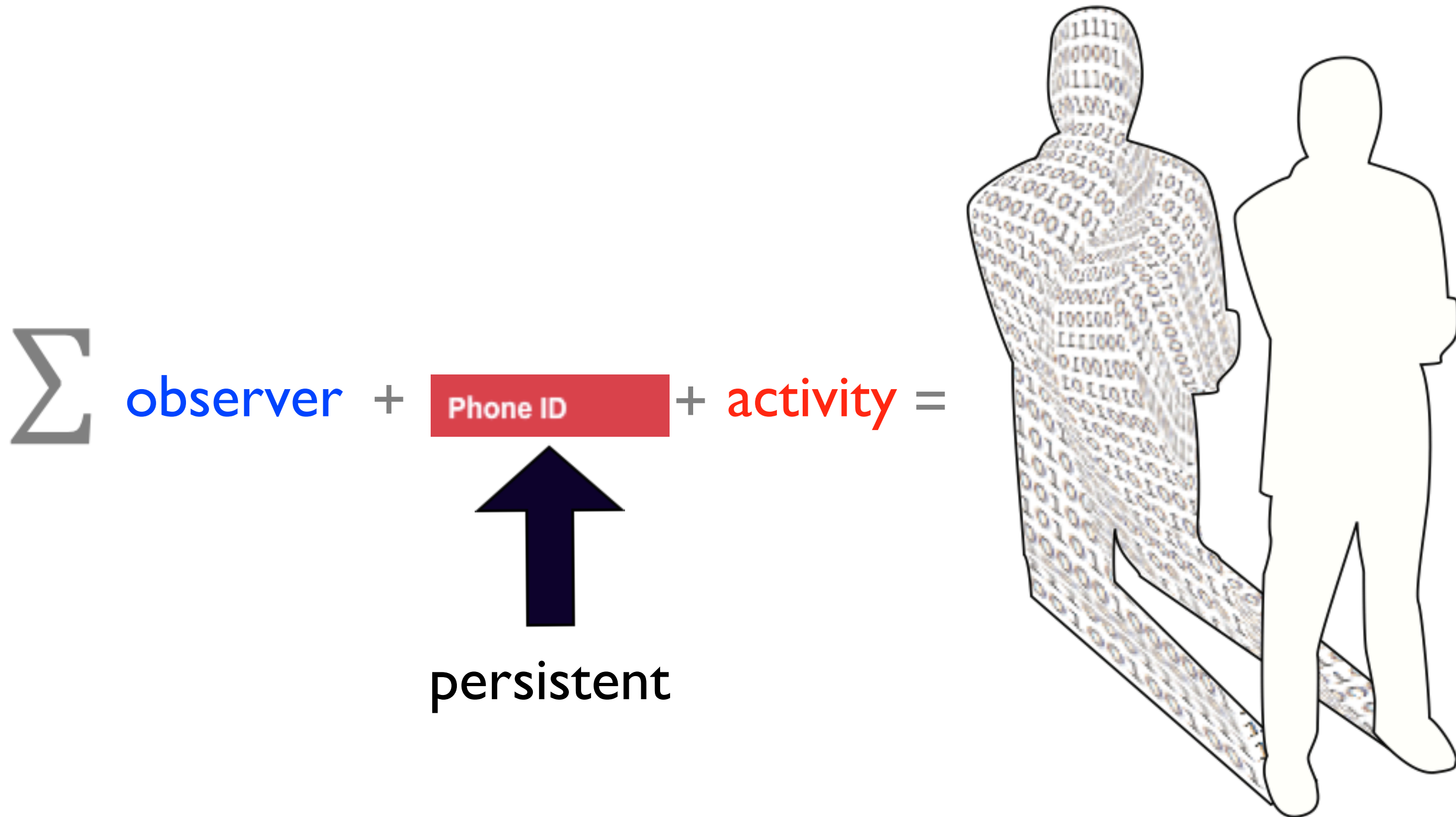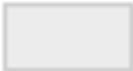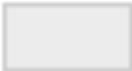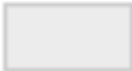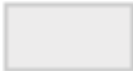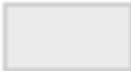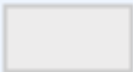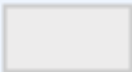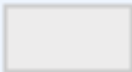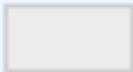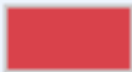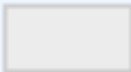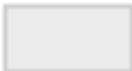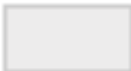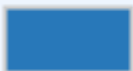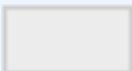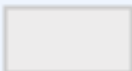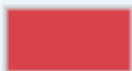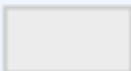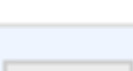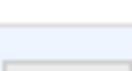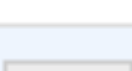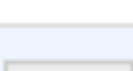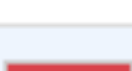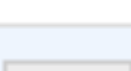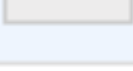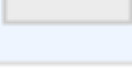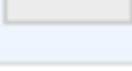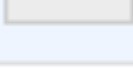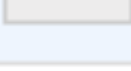
TRANSMISSION

- 47 apps sent location to 1 or more parties

- 56 transmit unique device id's

- phone numbers, (entire) address books, sms messages sometimes sent to 1st/3rd parties

LOCATION ECOSYSTEM

Location Provider
Google / Apple / Skyhook
(via cell triangulation, wifi, or IP)

LP

GPS
(via satellite)

Wireless Carriers
ATT / Verizon / Sprint / Tmobile
(via cell tower triangulation)

Location Aggregators
(Location Labs / TCS / Loc-Aid)
(via arrangements with carriers)

Cached Location Database
(via Location Provider)

Application
(Yelp / Pandora / Safari Browser)
(cached on device)

Third Party Website
Yelp.com / Pandora.com / Foursquare.com
(via application or location aggregator)

WWW

A

Mobile Advertiser
Google Admob / Apple iAds / Millenium
(via third party application)

$

Mobile Operating System
Google / Apple
(cached on device)

on device

off device

SURPRISING?

App name	Username, Password	Contacts	Age, Gender	Location	Phone ID	Phone number
0.03 Seconds Pro					■ (red)	
Age My Face					■ (red)	
Angry Birds	■ (blue)	■ (light blue)		■ (purple)	■ (red)	
Angry Birds Lite	■ (blue)			■ (purple)	■ (red)	
Aurora Feint II: Lite	▥ (striped blue)			■ (purple)	■ (red)	
Barcode Scanner (BahnTech)					■ (red)	
Bejeweled 2	■ (blue)					■ (pink)
Best Alarm Clock Free				■ (purple)	■ (red)	

Legend:
- Does not transmit data
- Transmits data to app owner
- Transmits data to third parties

iPhone **Android**

SURPRISE ?!

CHOICE

CHOICE

NAI OPT-OUT INTERFACE

Opt-Out Status

(Select all) (Clear) (Submit)

Member Company	Status	Opt-Out
aCerno More Information		Opt-Out ☐
AdBrite More Information		Opt-Out ☐
AdChemy More Information	**No Cookie** You have not opted out and you have no cookie from this network.	Opt-Out ☐
Adconion More Information		Opt-Out ☐
Adara Media More Information	**No Cookie** You have not opted out and you have no cookie from this network.	Opt-Out ☐
Adify Media More Information		Opt-Out ☐
AdMeld More Information		Opt-Out ☐
Advertising.com More Information		Opt-Out ☐
Aggregate Knowledge More Information		Opt-Out ☐
Akamai More Information	**No Cookie** You have not opted out and you have no cookie from this network.	Opt-Out ☐

CHOICE

Successfully Opted-Out

oo.apple.com/

| | Store | Mac | iPod | iPhone | iPad |

⊘ You have successfully opted-out.

A few things you should know:

- You may still see the same number of ads as before, but they may be less relevant because they will
- You may still see ads related to the content in an application or based on other non-personal informa
- If you use more than one Apple mobile device, you will have to opt-out from each device individually.
- This opt-out applies only to Apple advertising services and does not affect interest-based advertising

🍎 〉 Legal 〉 Privacy Policy

Copyright © 2010 Apple Inc. All rights reserved.   Terms of Use | Privacy Policy

settings

Notifications

Choose whether to be notified if there are updates to apps or games that you have downloaded

Notify me ▼

Google AdMob Ads Preferences

Choose whether to receive interest-based ads from Google and AdMob in mobile apps on this device. Learn more

Receive interest-based ads ☐

CHOICE

- consumers need to know about tracking
- opt-outs are brittle
- there's no mechanism to opt out of tracking

NO CHOICE?

OPT-OUT of TARGETING ≠ OPT-OUT of TRACKING

CHOICE

☑ Accept cookies from sites

☐ Accept third-party cookies

Third-party Cookies
○ Accept
⦿ Block
○ Prompt

Accept cookies: ○ Always
○ Never
⦿ Only from sites I visit
Block cookies from third parties and advertisers.

☑ Block all third-party cookies without exception

CHOICE

NO CHOICE?

• 2009 study at Berkeley on "Flash Cookies"

• identified 54 of the top 100 websites uses 'flash cookies'

• tracking mechanism outside the control of most consumers

• 31 sites had matching cookies to enable respawning' (circumvention)

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1446862

ZOMBIES STRIKE

You Deleted Your Cookies? Think Again

By Ryan Singel ✉ 🅖 August 10, 2009 | 7:39 pm | Categories: Advertising

🐦 Follow @rsingel · 2,331 followers

More than half of the internet's top websites use a little known capability of Adobe's Flash plug-in to track users and store information about them, but only four of them mention the so-called Flash cookies in their privacy policies, UC Berkeley researchers reported Monday.

Unlike traditional browser cookies, Flash cookies are relatively unknown to web users, and they are not controlled through the cookie privacy controls in a browser. That means even if a user thinks they have cleared their computer of tracking objects, they most likely have not.

Flash Cookies

NO CHOICE?
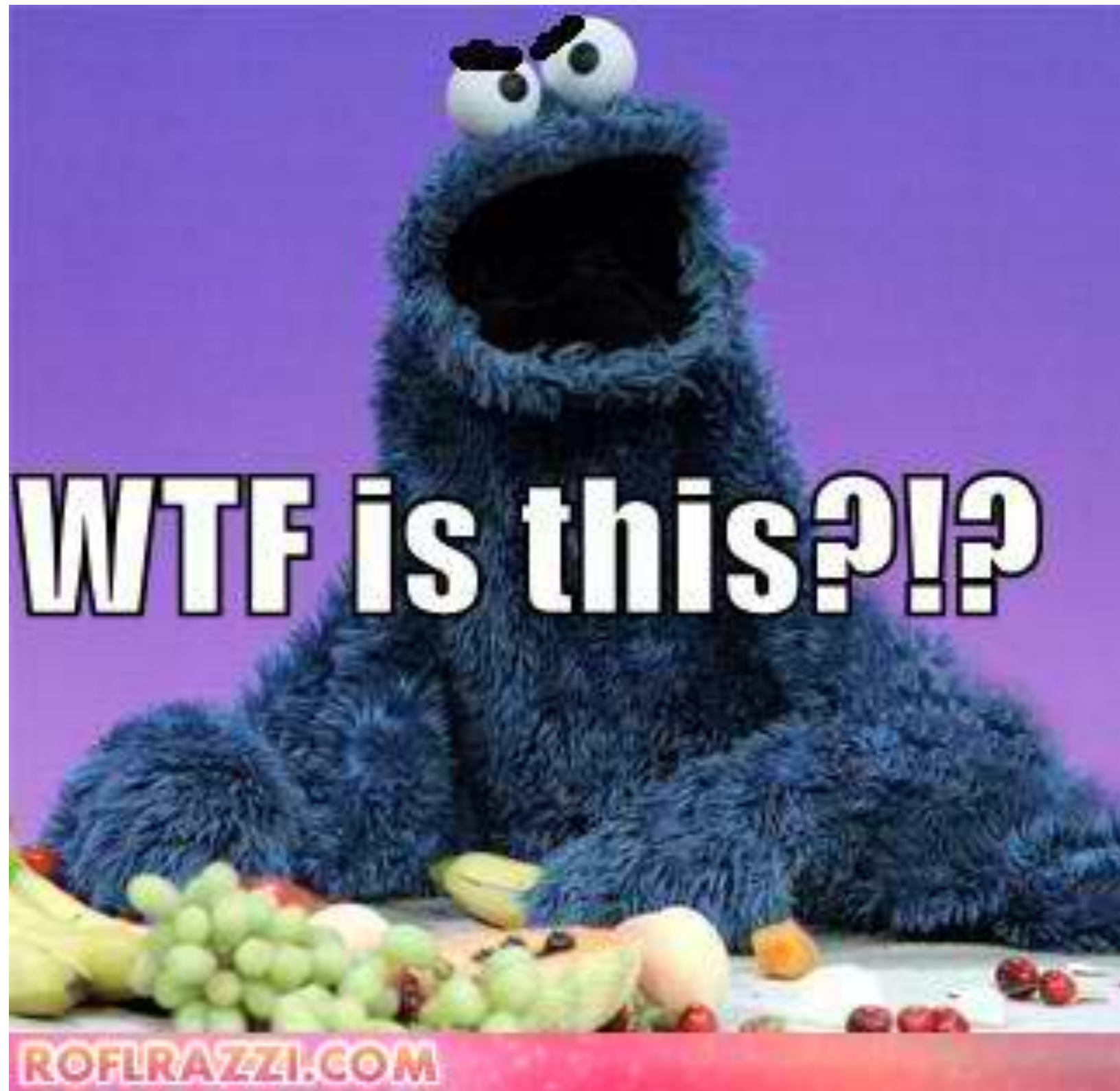
NO CHOICE? (V2)

- 2011 followup Berkeley Study

- 37 of the top 100 websites uses 'flash cookies'

- 15 of the top 100 uses HTML5 storage (ala ringleader)

- ~5000 third party cookies set from just using top100 websites

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1898390

ZOMBIES STRIKE AGAIN

EPICENTER
MIND OUR TECH BUSINESS
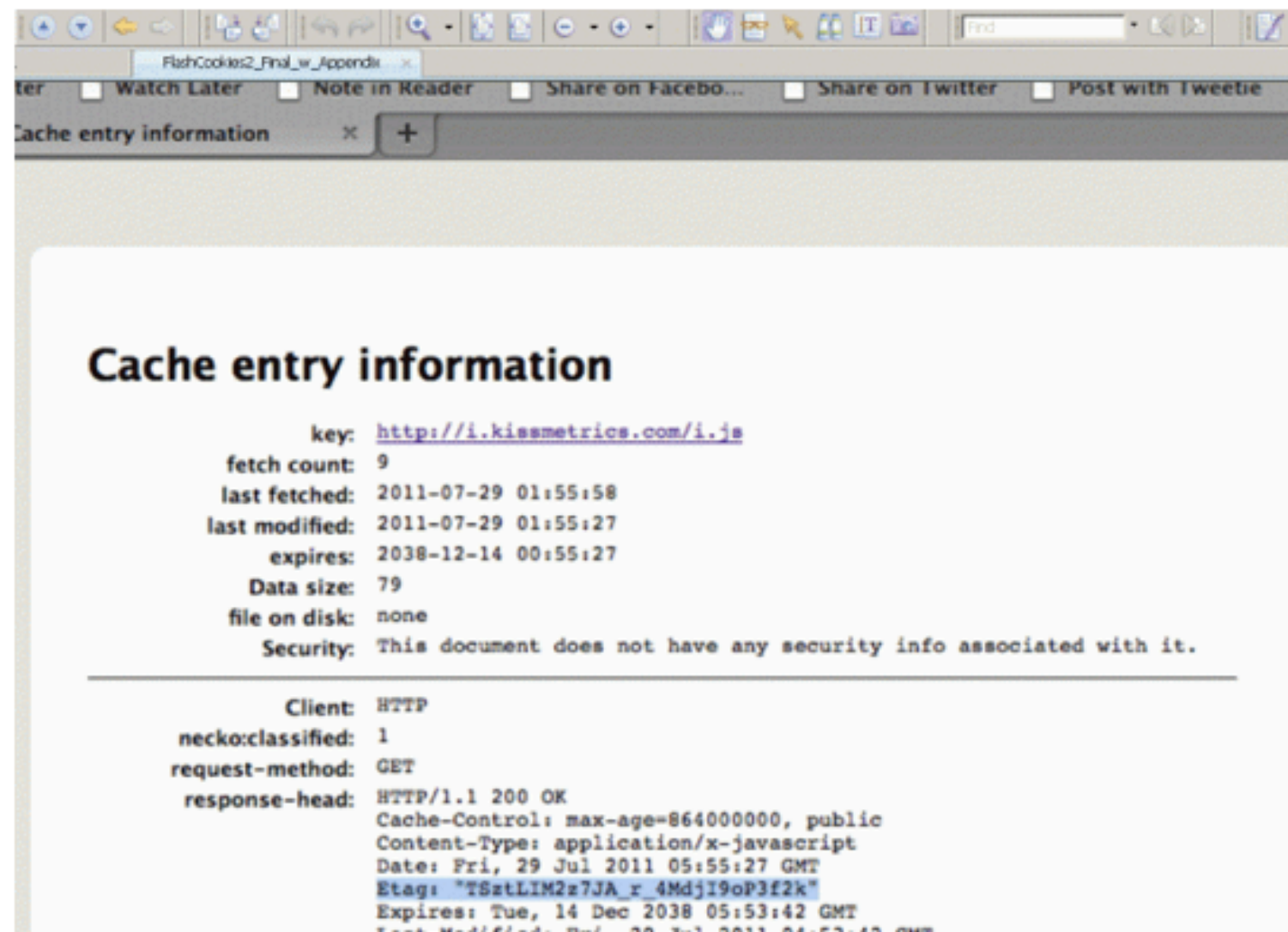
Researchers Expose Cunning Online Tracking Service That Can't Be Dodged

By Ryan Singel ✉ 📧   July 29, 2011 | 6:24 pm | Categories: Privacy
✓ Follow @rsingel · 2,971 followers

FlashCookies2_Final_w_Appendix ×

ter ☐ Watch Later   ☐ Note in Reader   ☐ Share on Facebo...   ☐ Share on Twitter   ☐ Post with Tweetie

Cache entry information ×   +

Cache entry information

```
            key:  http://i.kissmetrics.com/i.js
    fetch count:  9
   last fetched:  2011-07-29 01:55:58
  last modified:  2011-07-29 01:55:27
        expires:  2038-12-14 00:55:27
      Data size:  79
   file on disk:  none
       Security:  This document does not have any security info associated with it.

         Client:  HTTP
 necko:classified: 1
 request-method:  GET
  response-head:  HTTP/1.1 200 OK
                 Cache-Control: max-age=864000000, public
                 Content-Type: application/x-javascript
                 Date: Fri, 29 Jul 2011 05:55:27 GMT
                 Etag: "TSztLIM2z7JA_r_4MdjI9oP3f2k"
                 Expires: Tue, 14 Dec 2038 05:53:42 GMT
```

TECH

HULU RESPAWN

Initially using 3rd party Flash code from Quantcast

quantcast
It's your audience. We just find it.™

but...

Lawsuit Hits Companies Using 'Zombie' Flash Cookies

Posted by **kdawson** on Tuesday July 27 2010, @09:43PM
from the brains-for-a-filling dept.

A privacy activist has filed a lawsuit targeting eight corporate users of Quantcast's "zombie" Flash cookies, in addition to Quantcast itself. The suit alleges that MTV, ESPN, MySpace, Hulu, ABC, Scribd, and others used Quancast's Flash-based cookies to recreate browser tracking cookies that users had taken the trouble to delete.

HULU DIY
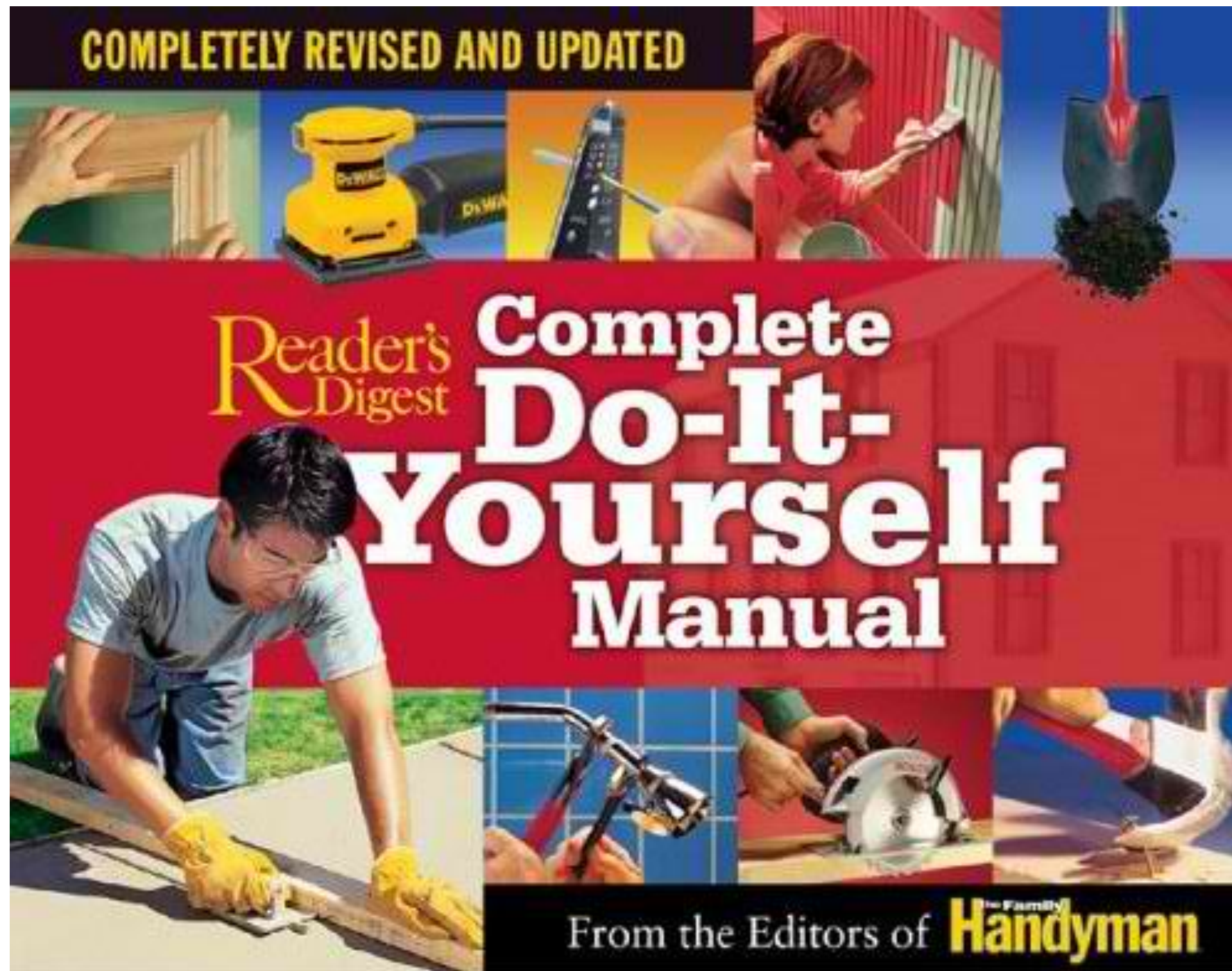
HULU RESPAWN V2

Via Flash in http://www.hulu.com/guid.swf?v2
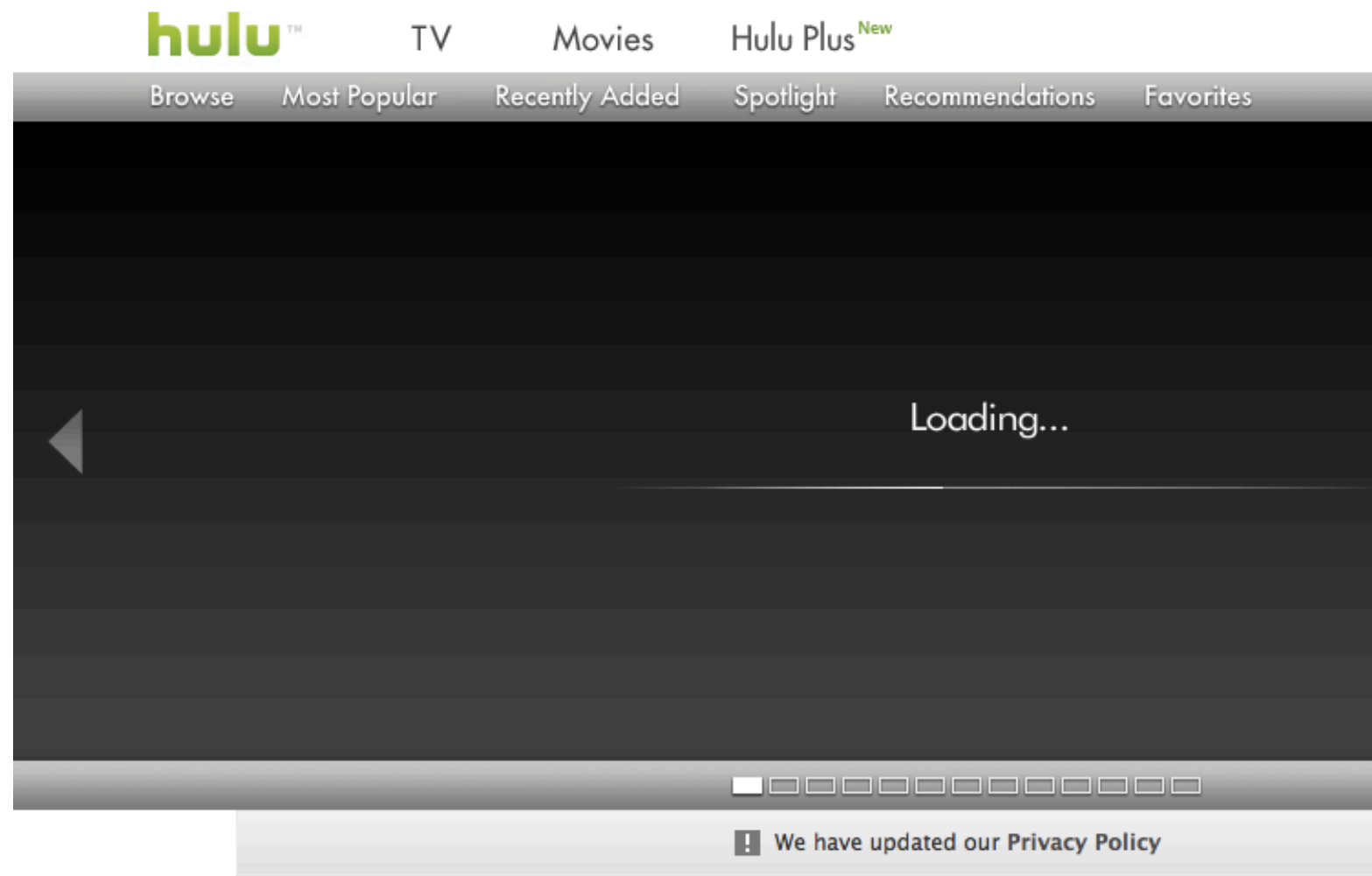
```
function setComputerguidInFSO(value) {
        com.ns.utils.ConsoleLogger.getInstance().debug("setComputerguidInFSO: Start");
        _globalFSO = SharedObject.getLocal("BeaconService", "/");
        _globalFSO.data.computerguid = value;
        _globalFSO.flush();
        com.ns.utils.ConsoleLogger.getInstance().debug("setComputerguidInFSO: Done");
}
```

HULU RESPAWN V2+

Via HTML5 / IE LocalStorage in
http://static.huluim.com/system/hulu_107336_0728135042_1.js

Safari/Mozilla/Chrome

```
params = Object.extend(params, {
        user_id: Behaviors.getUserId(),
        history: UserHistory.get_history(),
        watched_history: UserHistory.get_watched_history(),
        guid: Beacon.computerGUID()
        });


var store = window.localStorage;


this.set = function(k, v) {
    if (store)
        store.setItem(k, v);
}
```

Internet Explorer

```
var userData = backend.create(function(
        return !! window.ActiveXObject &&
    }, function() {


var store = appendDiv(function(div) {
        div.id = '_cram_userData';
        div.style.display = 'none';
        div.addBehavior('#default#userDa
    });
    store.load("_cram");
```

KISSMETRICS RESPAWN

Via Flash, HTML5, AND Cache ETag in
http://doug1izaerwt3.cloudfront.net/5a68d120b211c810289fc36493663648821d58aa.1.js

FLASH:
ifc = initializeFlashCookie
fsc = flashSaveCookie
fgc = flashGetCookie

HTML5 LocalStorage:
ils = initializeLocalStorage
lss = localStorageSave
lsg = localStorageGet

Cache ETags: KM_CID

IE UserData:
iud = initializeUserData
uds = userDataSave
udg = userDataGet

http://pastebin.com/FhUYuRsb

ETAGS

via http://i.kissmetrics.com/i.js

INITIAL REQUEST:
 GET /i.js HTTP/1.1
 Host: i.kissmetrics.com

RESPONSE:
 Etag: "Z9iGGN1n1-zeVqbgzrlKkl39hiY"
 Expires: Sun, 12 Dec 2038 01:19:31 GMT
 Last-Modified: Wed, 27 Jul 2011 00:19:31 GMT
 Set-Cookie: _km_cid=Z9iGGN1n1-zeVqbgzrlKkl39hiY;expires=Sun, 12 Dec 2038 01:19:31
 GMT;path=/;

SUBSEQUENT REQUEST:
 GET /i.js HTTP/1.1
 Host: i.kissmetrics.com
 If-None-Match: "Z9iGGN1n1-zeVqbgzrlKkl39hiY"

CONTENTS:
 VAR KMCID='Z9iGGN1n1-zeVqbgzrlKkl39hiY'; if(typeof(_kmil) == 'function')_kmil();

CACHED ETAG

Cache entry information

|	
key:	http://i.kissmetrics.com/i.js
fetch count:	8
last fetched:	2011-07-26 22:03:36
last modified:	2011-07-26 21:59:12
expires:	2038-12-11 20:19:31
Data size:	79
file on disk:	none
Security:	This document does not have any security info associated with it.

Client:	HTTP
necko:classified:	1
request-method:	GET
response-head:	HTTP/1.1 200 OK
	Cache-Control: max-age=864000000, public
	Content-Type: application/x-javascript
	Date: Wed, 27 Jul 2011 01:19:31 GMT
	Etag: "Z9iGGN1n1-zeVqbgzrlKkl39hiY"
	Expires: Sun, 12 Dec 2038 01:19:31 GMT
	Last-Modified: Wed, 27 Jul 2011 00:19:31 GMT
	P3P: CP="NOI CURa ADMa DEVa TAIa OUR IND UNI INT"
	Server: nginx
	Content-Length: 79
charset:	ISO-8859-1

```
00000000:  76 61 72 20 4b 4d 43 49 44 3d 27 5a 39 69 47 47   var KMCID='Z9iGG
00000010:  4e 31 6e 31 2d 7a 65 56 71 62 67 7a 72 6c 4b 6b   N1n1-zeVqbgzrlKk
00000020:  6c 33 39 68 69 59 27 3b 69 66 28 74 79 70 65 6f   l39hiY';if(typeo
00000030:  66 28 5f 6b 6d 69 6c 29 20 3d 3d 20 27 66 75 6e   f(_kmil) == 'fun
00000040:  63 74 69 6f 6e 27 29 5f 6b 6d 69 6c 28 29 3b       ction')_kmil();
```

MATCHING 1ST PARTY COOKIES
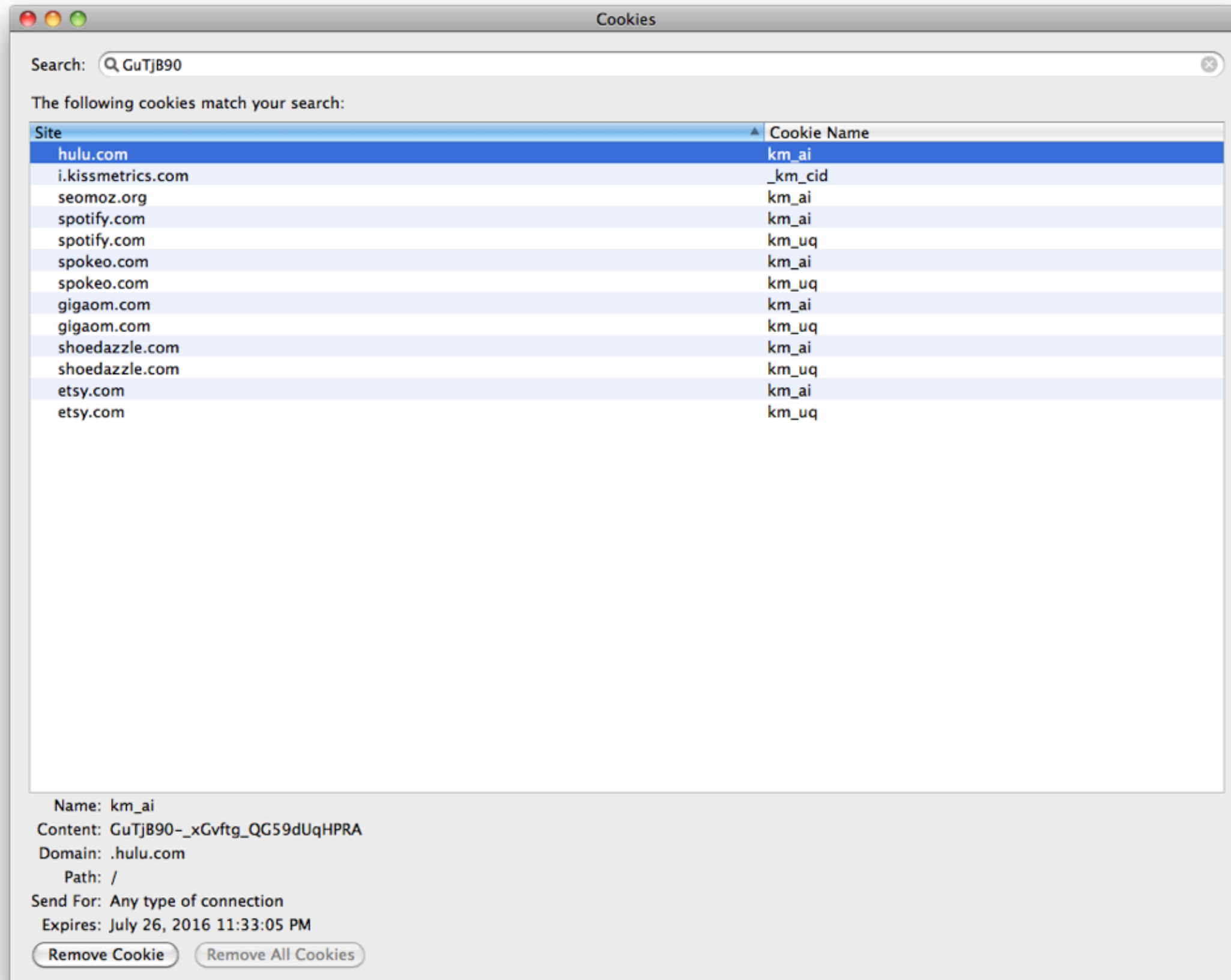
PRIVATE
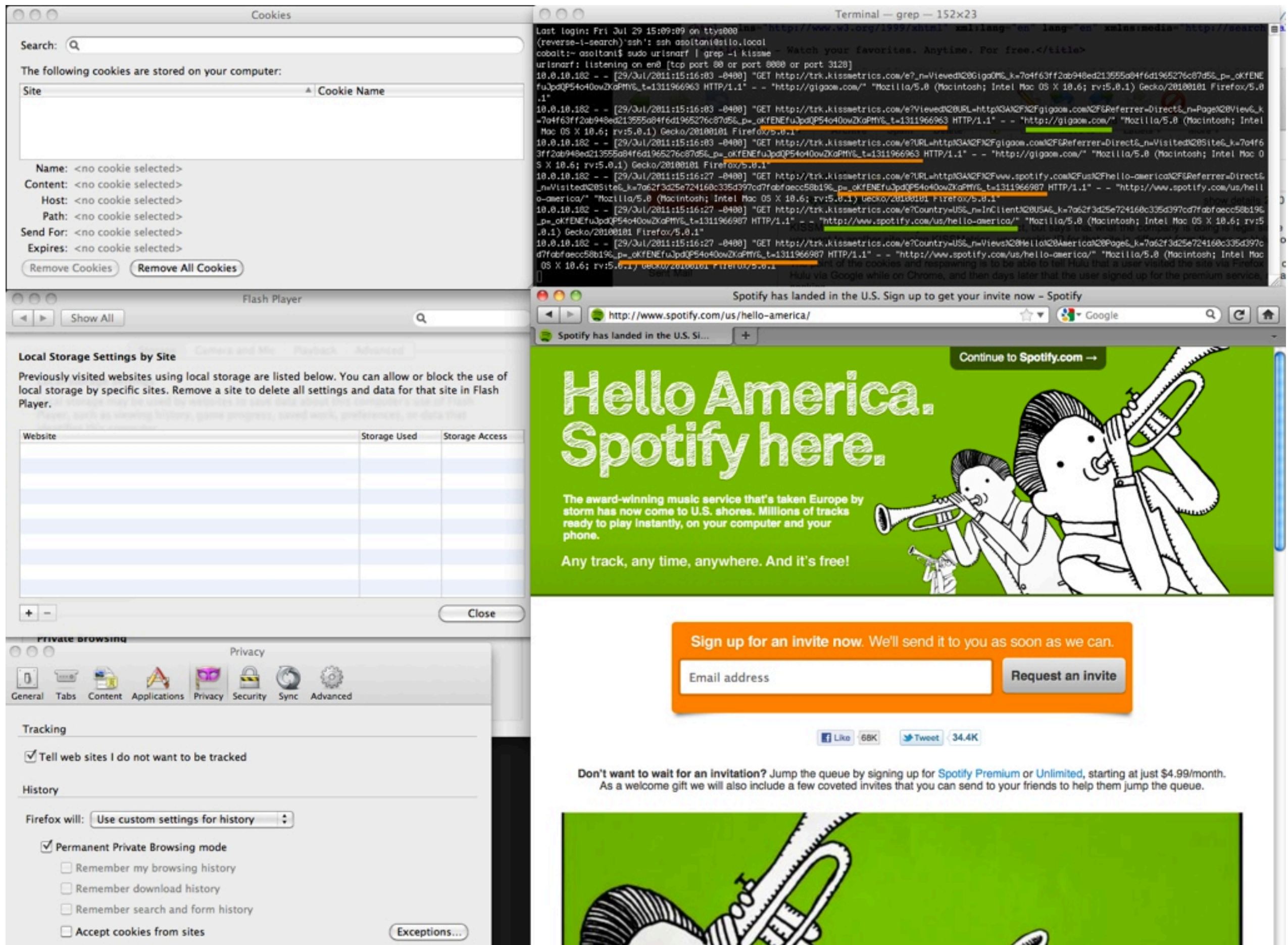
KISSMETRICS API

Multiple People/Same Computer (Advanced)

What happens if someone in the same household uses the same computer and you call `identify` again? KISSmetrics will automatically detect this and **will not** alias the two named identities together (it will recognize them as separate people). However, it should be noted that any activity before you call `identify` for the second user will be attributed to the first user. Let's see how this works:

1. Bob comes to your site and is assigned the anonymous identity `qFq2LweZugFNE4o49hLhmRPBW34`
2. Bob then logs in and you call `identify` telling us that the identity is now `bob@site.com`. The activity from before Bob logs in (when we knew him as `qFq2LweZugFNE4o49hLhmRPBW34`) is automatically tied to `bob@site.com`.
3. All activity continues to be attributed to `bob@site.com`, even after Bob logs out.
4. Now Bob's brother Bill comes in to use the computer and visits your site. All activity will continue to be attributed to `bob@site.com`. KISSmetrics has no way to know that it is a different person sitting at the keyboard automatically.
5. Bill logs in and you call `identify` telling us that the identity is now `bill@site.com`. KISSmetrics **does not** alias `bill@site.com` and `bob@site.com` - it treats these as two separate people.
6. All activity from this point on is attributed to `bill@site.com` (until you call `identify` again)

MANY TECHNIQUES

Lawsuit Targets Mobile Advertiser Over Sneaky HTML5 Pseudo-Cookies

By David Kravets ✉ 🅑 September 16, 2010 | 6:18 pm | Categories: Surveillance, privacy

▶ Follow @dmkravets · 1,486 followers

Facebook Like button tracks you, even if you don't click

May. 19, 2011 (10:14 am) By: Lee Mathews

f Like 86

Race Is On to 'Fingerprint' Phones, PCs

| **Article** | Video | Comments (82) |

✉ Email   🖨 Print   **Save This** ▼   f Like 2K 🅑 in + More   + Text −

By JULIA ANGWIN And JENNIFER VALENTINO-DEVRIES

IRVINE, Calif.—David Norris wants to collect the digital equivalent of fingerprints from every computer, cellphone and TV set-top box in the world.

He's off to a good start. So far, Mr. Norris's start-up company, BlueCava Inc., has identified 200 million devices. By the end of next year, BlueCava says it expects to have cataloged one billion of the world's estimated 10 billion devices.

TECH

History Sniffing: How YouPorn Checks What Other Porn Sites You've Visited and Ad Networks Test The Quality of Their Data

Nov. 30 2010 - 6:23 pm | 79,931 views | 2 recommendations | 5 comments

MANY ACTORS

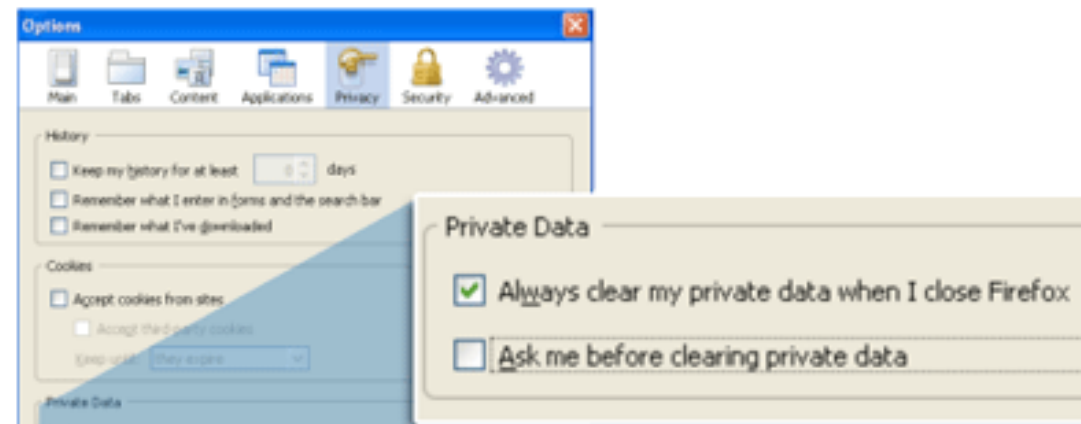**Clear Browsing Data**

Obliterate the following items:

Solution: The Convertro Visitor Tracking Code completely eliminates the issues of cookie dependency. This means that a visitor can clear his/her browser cookies and cache or toggle between browsers and still appear as a unique visitor. We also have at least a 50% success rate tracking the same visitor across machines if they do end up converting. The result is a very rich set of conversion data that most accurately represents the true sources that drove any particular conversion.

Clear Browsing Data   Close
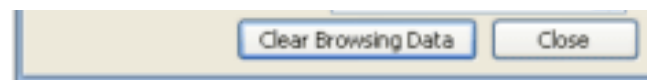
2. On average, visitors use 1.5 browsers to surf the internet. Since cookies are browser specific, when the customer switches between browsers, conventional methods duplicate these visitors.

Options

Main   Tabs   Content   Applications   Privacy   Security   Advanced

History
☐ Keep my history for at least [ ] days
☐ Remember what I enter in forms and the search bar
☐ Remember what I've downloaded

Cookies
☐ Accept cookies from sites
☐ Accept third party cookies
Keep until: [they expire]

Private Data

3. Increasingly strict browser default privacy and security settings can result in the blocking of third party cookies and, in some cases, first party cookies. Cookie-dependent methods would be ineffective under these scenarios.

Private Data
☑ Always clear my private data when I close Firefox
☐ Ask me before clearing private data

4. If a customer visits a site via two different machines prior to a conversion event, the visitor sessions will not be linked, causing traditional analytics software to report two different visitors – one that purchased and one that didn't.
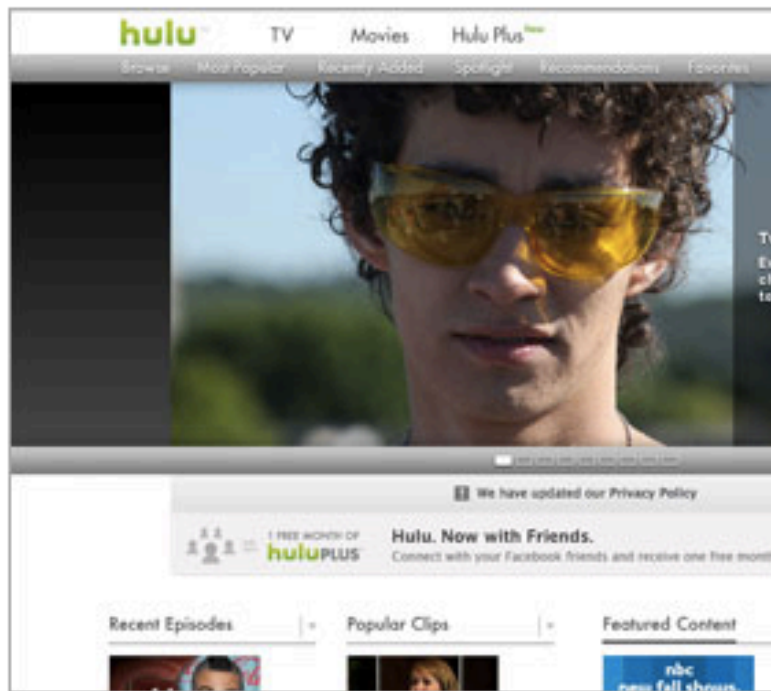
1   2

MANY LAWSUITS

KISSmetrics, Hulu Sued Over New Tracking Technology
by Wendy Davis, Yesterday, 5:19 PM

Article ▼ | Comments (2) ▼

Two major Web companies, Hulu and Spotify
KISSmetrics' analytics service after it emerge
the company was using "ETag" technology to
they delete their cookies.

Dozens Of Web Companies Sued For 'ETag' Tracking
by Wendy Davis, 16 minutes ago

Article ▼ | Comments ▼

Two California residents have
brought a privacy lawsuit against
KISSmetrics and 25 separate Web
companies, including iVillage,
Spotify and GigaOm, for allegedly
using KISSmetrics' analytics to track
visitors.

The case, filed by John Kim and Dan Schutzman, is the second major
lawsuit stemming from KISSmetrics' technology, which relies on
ETags for tracking. Last week, two different Web users sued
KISSmetrics and Hulu for allegedly violating federal and state laws
with ETags. The technology is controversial because ETags can be
used to track consumers even when they delete their cookies.

Be the first to recommend this article.

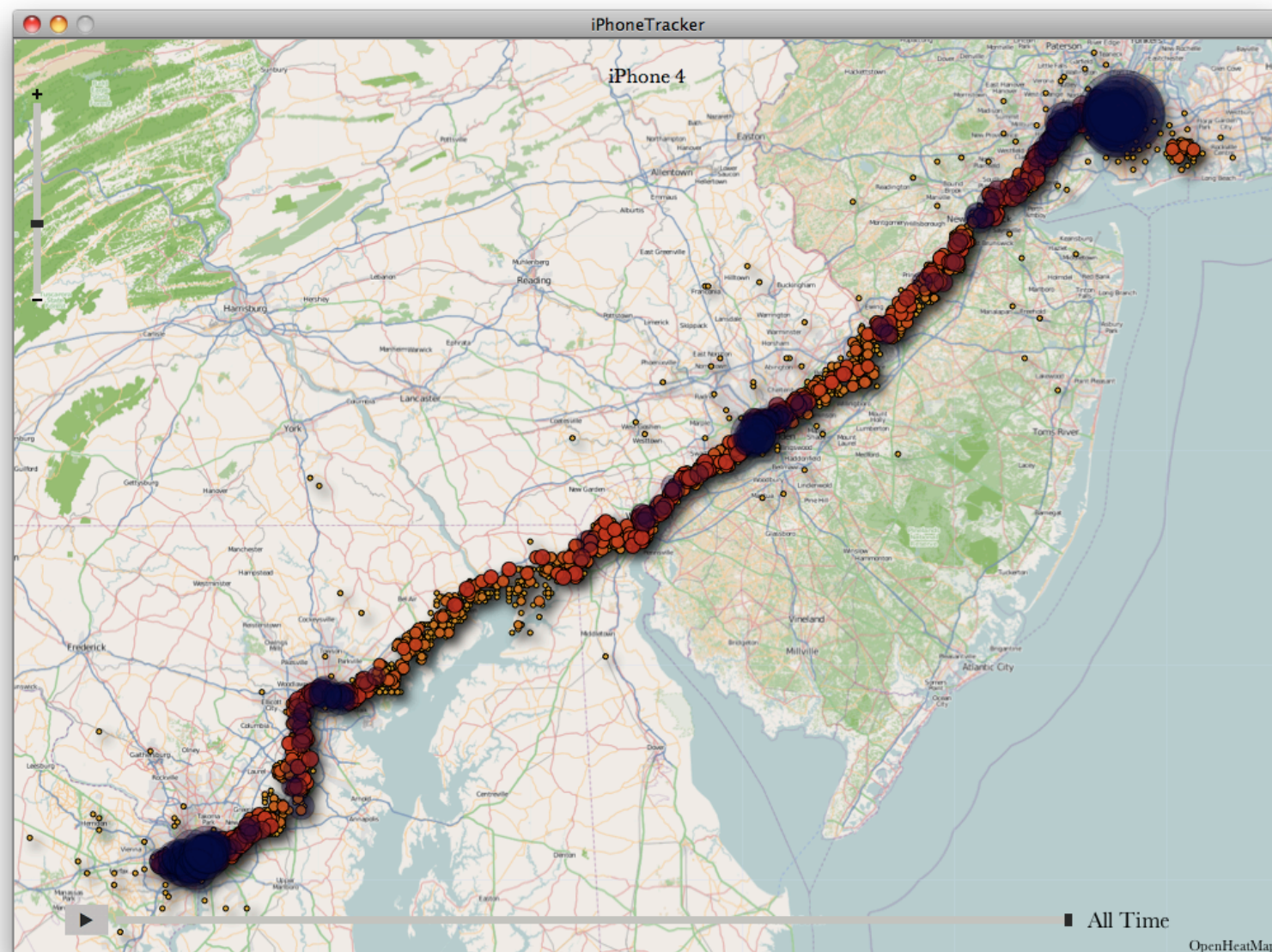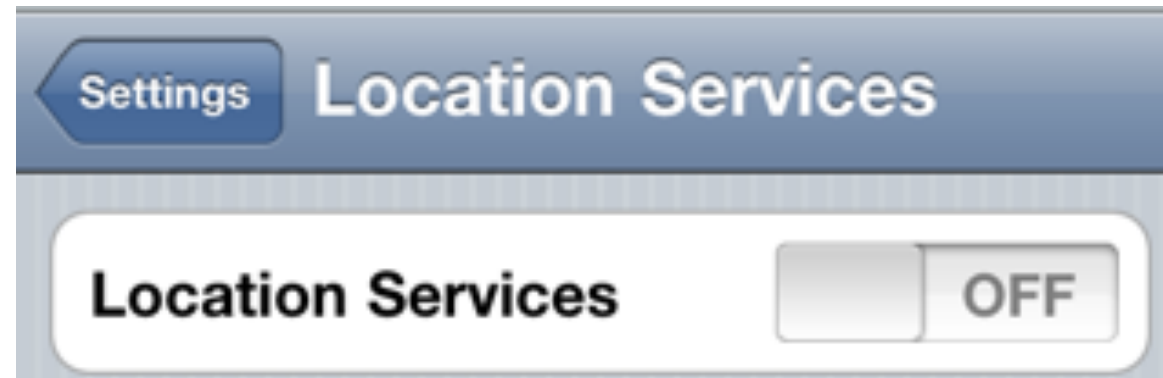Like   Be the first of your friends to like this.

SHARE

TOOLS

PRINT   SUBSCRIBE
COMMENT   RSS

CHOICE?

SURPRISE ?!

THE LOVESTORY

DEFAULTS

Accept cookies from sites
Accept third-party cookies

Third-party Cookies
- Accept
- Block
- Prompt

Accept cookies:
- Always
- Never
- Only from sites I visit
  Block cookies from third parties and advertisers.

Block all third-party cookies without exception

only browser that
blocks 3rd party
cookies by default

INCENTIVE$
(PLATFORMS <3 ADS)

Google

YAHOO!

BROWSERS

<3

atlas.   bing

Google
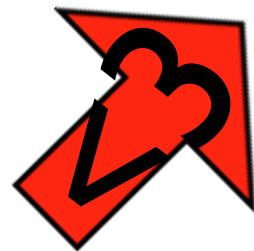
only browser that
doesn't have web
advertising business

INCENTIVE$
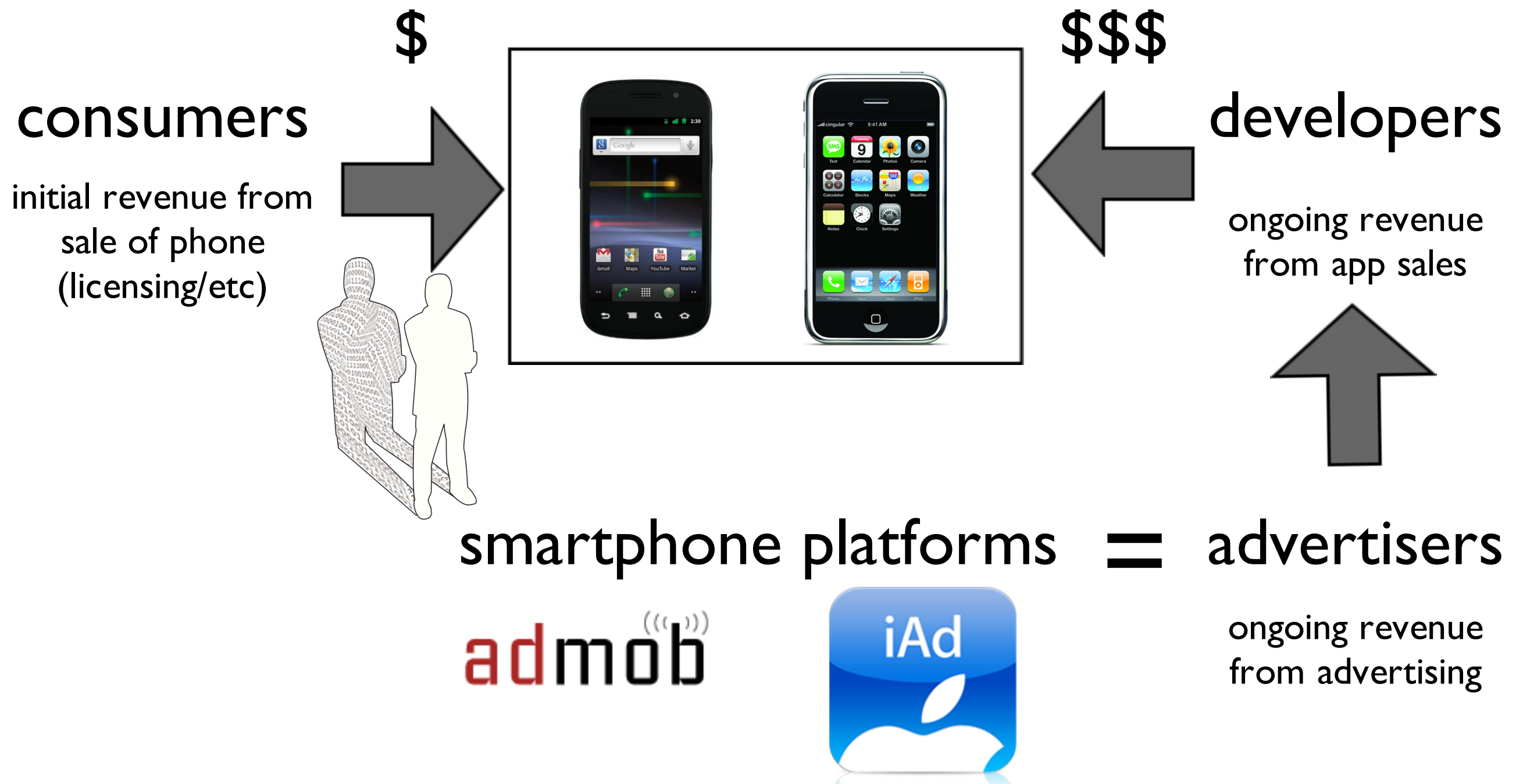
$

consumers

initial revenue from
sale of phone
(licensing/etc)

$$$

developers

ongoing revenue
from app sales

smartphone platforms = **advertisers**

ongoing revenue
from advertising

FACEBOOK: APPS

FACEBOOK: INCENTIVES

Fields

The `User` object has the following fields:

Name	Description	Permissions	Returns
id	The user's Facebook ID	No access_token required	string
name	The user's full name	No access_token required	string
first_name	The user's first name	No access_token required	string
middle_name	The user's middle name	No access_token required	string
last_name	The user's last name	No access_token required	string
gender	The user's gender	No access_token required	string
locale	The user's locale	No access_token required	string containing the ISO Language Code and ISO

PERCEPTIONS

our browsers are our 'user agent'

we 'buy' our mobile devices

facebook is for us to connect to 'our friends'

"if you're not paying for it, you're the product being sold"

WHAT TO DO?

THE WALL STREET JOURNAL. | WHAT THEY KNOW

TOP STORIES IN
Technology

1 of 12

Rare Headwinds in
Mexico Buffet Slim

The Year's
Highest-Paid CE

WHAT THEY KNOW | DECEMBER 18, 2010

What Can You Do? Not Much

Article | **Video** | **Comments (1)**

✉ Email   🖨 Print   **Save This** 🔽   📧 in + More   ± Text −

By JENNIFER VALENTINO-DEVRIES

It's nearly impossible to prevent cellphone "apps"—games and other software—from transmitting information about a phone and its owner.

Turning off the phone's location services can restrict tracking by location. But it can limit some phone features like maps.

ADD-ONS

Add-ons for Firefox > Extensions > Targeted Advertising Cookie Opt-Out (TAC...

Targeted Advertising Cookie Opt-Out (TACO) *4.0*
by **Abine**

Settings   **Location Services**

🧭	**Safari**	ON
⏱️	**Speed Test** ↗	ON
Ⓛ	**Sports Bet**	ON
🔷 TESCO	**Tesco Finder**	ON
✅	**Toodledo**	ON
🔴	**UK**	ON
🌤️	**Weather+**	OFF
🎵	**WunderRadio**	ON

An app that has requested your location within the last 24 hours will show the location services icon next to its name.

Left screen:

Handcent SMS — handcent_admin — FREE — ★★★★★

⚠ **System tools**
change network connectivity, modify global system settings, prevent phone from sleeping, read system log files, retrieve running applications

⚠ **Your messages**
edit SMS or MMS, read SMS or MMS, receive MMS, receive SMS

⚠ **Services that cost you money**
directly call phone numbers, send SMS messages

⚠ **Storage**
modify/delete SD card contents

⚠ **Your personal information**
read contact data, write contact data

OK   Cancel

Right screen:

llpapers — Hello — FREE — ★★★★☆
IceskYsl@1sters!

This application has access to the following:

⚠ **Network communication**
full Internet access

⚠ **Phone calls**
read phone state and identity

⚠ **Storage**
modify/delete SD card contents

⌄ **Hide**

○ **Network communication**

OK   Cancel

http://mobilescope.net

MobileScope: demo

electricalchemy

MobileScope: primary concepts

- use handset agnostic network inspection to detect patterns

- applications for both security & privacy

- toggle on/off as needed to analyze new or suspect applications

electricalchemy

mobilescope: current capability

- traffic inspection for any handset capable of PPTP VPN

- SSL inspection for iOS devices

- rudimentary self-service enrollment

- basic signatures for mobile malware and PII leaks

electricalchemy

mobilescope: next steps

- bulletproof / easy self-enrollment
- optional auto-detection of unique identifiers
- SSL VPN: better NAT traversal
- SSL inspection for Android devices?
- autoconfiguration for Android?
- enhanced signatures for mobile malware and PII leaks
- better visualization / communication of results

electricalchemy

mobilescope: technical concerns

- VPN API's are private and/or immature

- proxy architecture creates latency

- storing "dossiers" on end users makes us a target

- egress filtering/fraud detection on our network

electricalchemy

🔒 MobileScope - What is your smartphone lea...

dev.mobilescope.net/s... ↻   Google

MobileScope

What is your smartphone leaking today?

Register

All we need is your email address and a password to get started

eMail Address

you@domain.ext

Your eMail address is your username

Password

Up to 50 characters

Confirm Password

Please re-enter your password to confirm

Device ⦿ iOS ◯ Android

Choose the type of device you will be testing with this account

SSL Inspection ☑

Supported on iOS only presently.

Sign up

Cancel   **Install Profile**

MobileScope
dev.mobilescope.net

✅ **Verified**   **Install**

Description   This profile configures a VPN connection to the MobileScope cloud and also installs a private trusted root certificate that allows MobileScope to inspect SSL traffic sent to or from your device.

Signed   dev.mobilescope.net (466870-Q7lWcHYC1368cFaK)

Received   Jul 21, 2011

Contains   Certificate
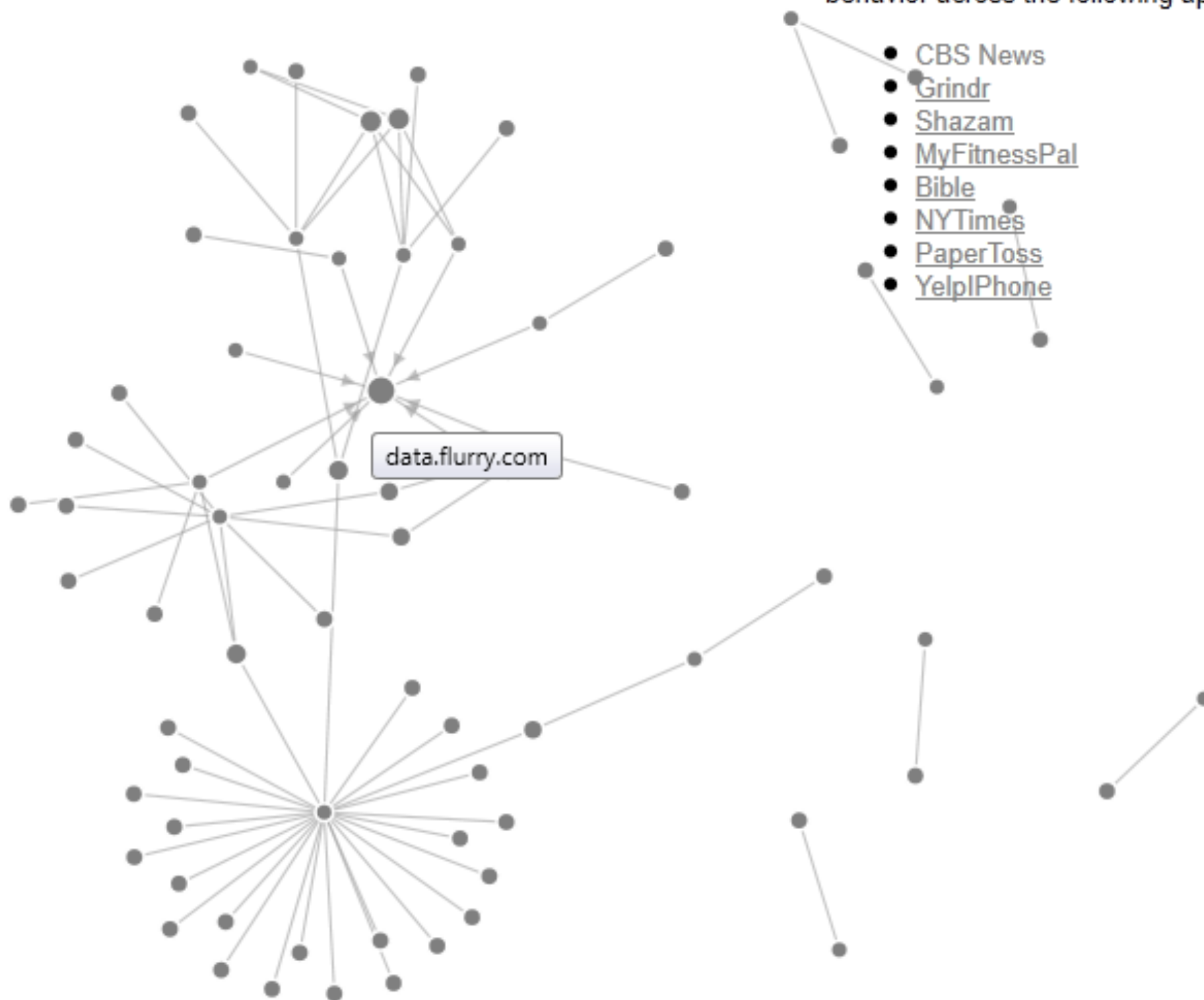VPN Settings

More Details   ›

MobileScope Collusion

Each dot represents an app or a website which has received a canary hit

data.flurry.com

The host data.flurry.com tracks your
behavior across the following apps.

- CBS News
- Grindr
- Shazam
- MyFitnessPal
- Bible
- NYTimes
- PaperToss
- YelpIPhone

data.flurry.com

```
# This Ruleset is EmergingThreats Open optimized for snort-2.8.4.
#
alert tcp $HOME_NET any -> $EXTERNAL_NET 8080 (msg:"ET MOBILE_MALWARE Android Trojan Command and Control Communication"; flow:established,to_server; content:"POST "; nocas

#
#alert tcp $HOME_NET any -> $EXTERNAL_NET $HTTP_PORTS (msg:"ET MOBILE_MALWARE Google Android Device HTTP Request"; flow:established,to_server; content:"|0d 0a|User-Agent|3

#
#alert tcp $HOME_NET any -> 184.105.245.17 8080 (msg:"ET MOBILE_MALWARE DroidDream Android Trojan info upload"; flow:to_server,established; uricontent:"/GMServer/GMServlet"

#
alert tcp $HOME_NET any -> $EXTERNAL_NET $HTTP_PORTS (msg:"ET MOBILE_MALWARE Android Trojan HongTouTou Command and Control Communication"; flow:established,to_server; cont

#
alert tcp $HOME_NET any -> $EXTERNAL_NET 8118 (msg:"ET MOBILE_MALWARE Android Trojan MSO.PJApps checkin 1"; flow:established,to_server; content:"/push/androidxml/"; depth:

#
alert tcp $HOME_NET any -> $EXTERNAL_NET 9033 (msg:"ET MOBILE_MALWARE Android Trojan MSO.PJApps checkin 2"; flow:established,to_server; content:".log"; depth:200; nocase;

#
alert tcp $HOME_NET any -> $EXTERNAL_NET 8080 (msg:"ET MOBILE_MALWARE Android Trojan DroidDream Command and Control Communication"; flow:established,to_server; content:"PO

#
alert tcp $HOME_NET any -> $EXTERNAL_NET 81 (msg:"ET MOBILE_MALWARE Android Trojan Fake10086 checkin 1"; flow:established,to_server; content:"POST "; nocase; depth:5; cont

#
alert tcp $HOME_NET any -> $EXTERNAL_NET 9033 (msg:"ET MOBILE_MALWARE Android Trojan Fake10086 checkin 2"; flow:established,to_server; content:"req.php"; nocase; depth:200
```

Home › Business Security ›

July 12, 2011, 12:29PM

Zeus Banking Trojan Comes to Android Phones

by Paul Roberts   Share   💬 Comment

The Zeus banking Trojan has jumped the bridge to the large and growing ecosystem of mobile devices powered by Google's Android operating system, according to security researchers at Fortinet.

Researchers say they have obtained a Zeus variant, dubbed "Zitmo," that can run on Android phones and that has the ability to intercept one time pass codes sent to mobile phones as an added, "two factor" security measure.

BUT

WHACK-A-MOLE?

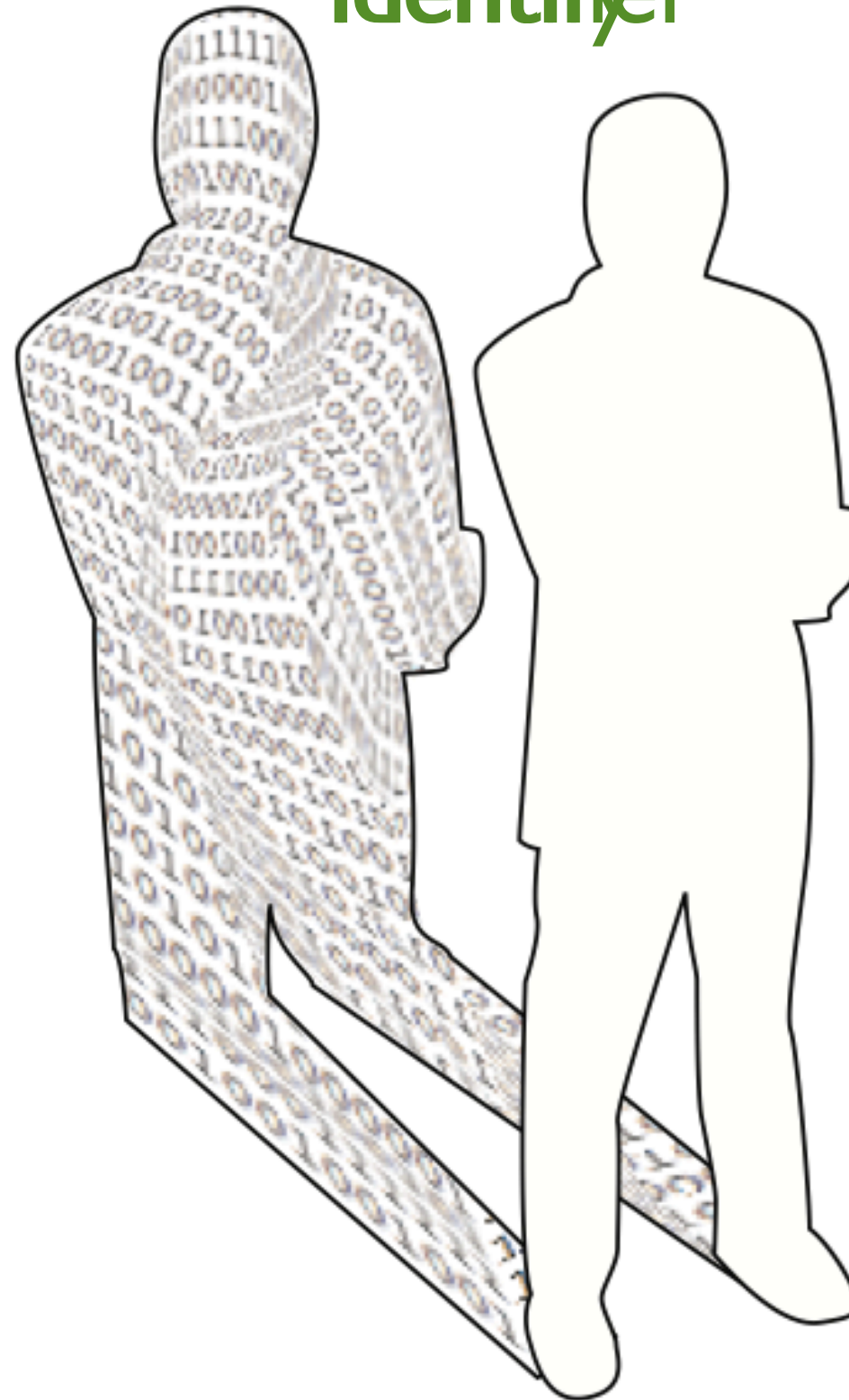*we need policy AND technology working in tandem*

DO NOT TRACK

IDEA: create a reliable signal to companies that a given user does not wish to be tracked
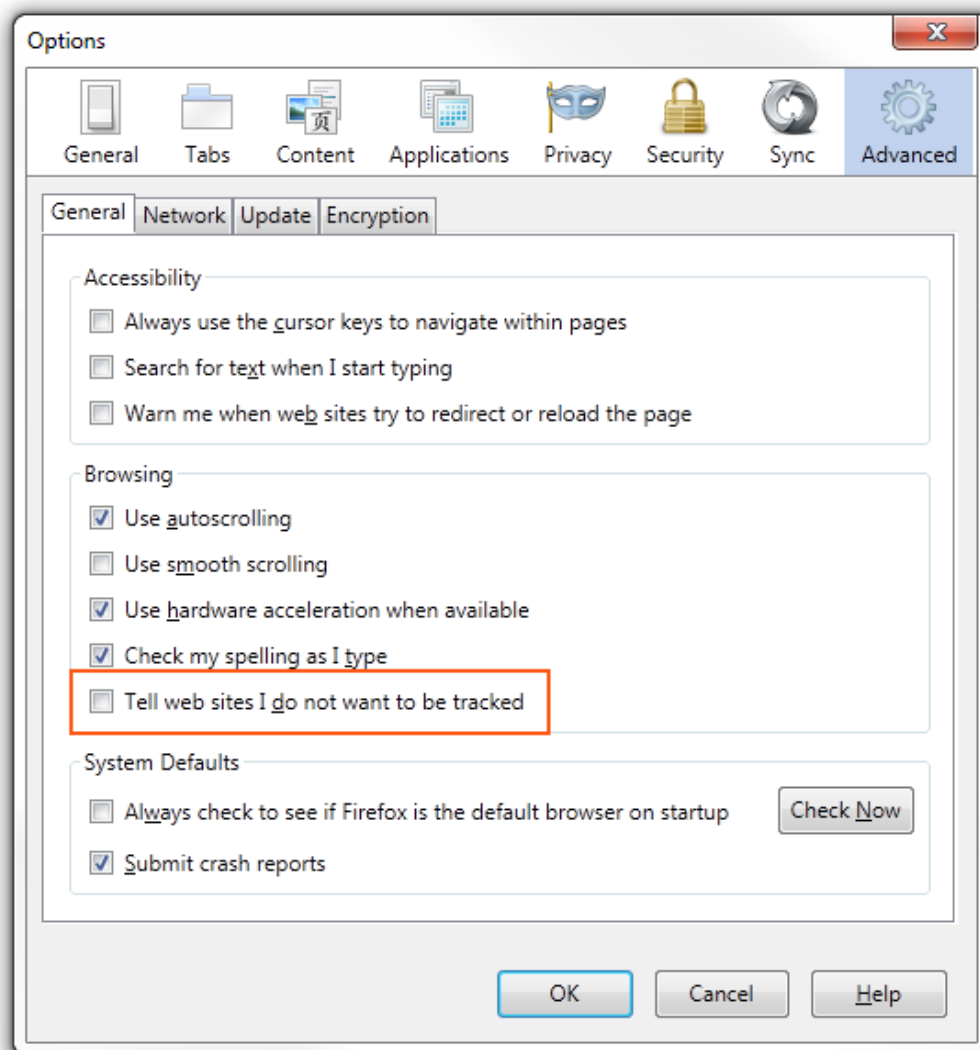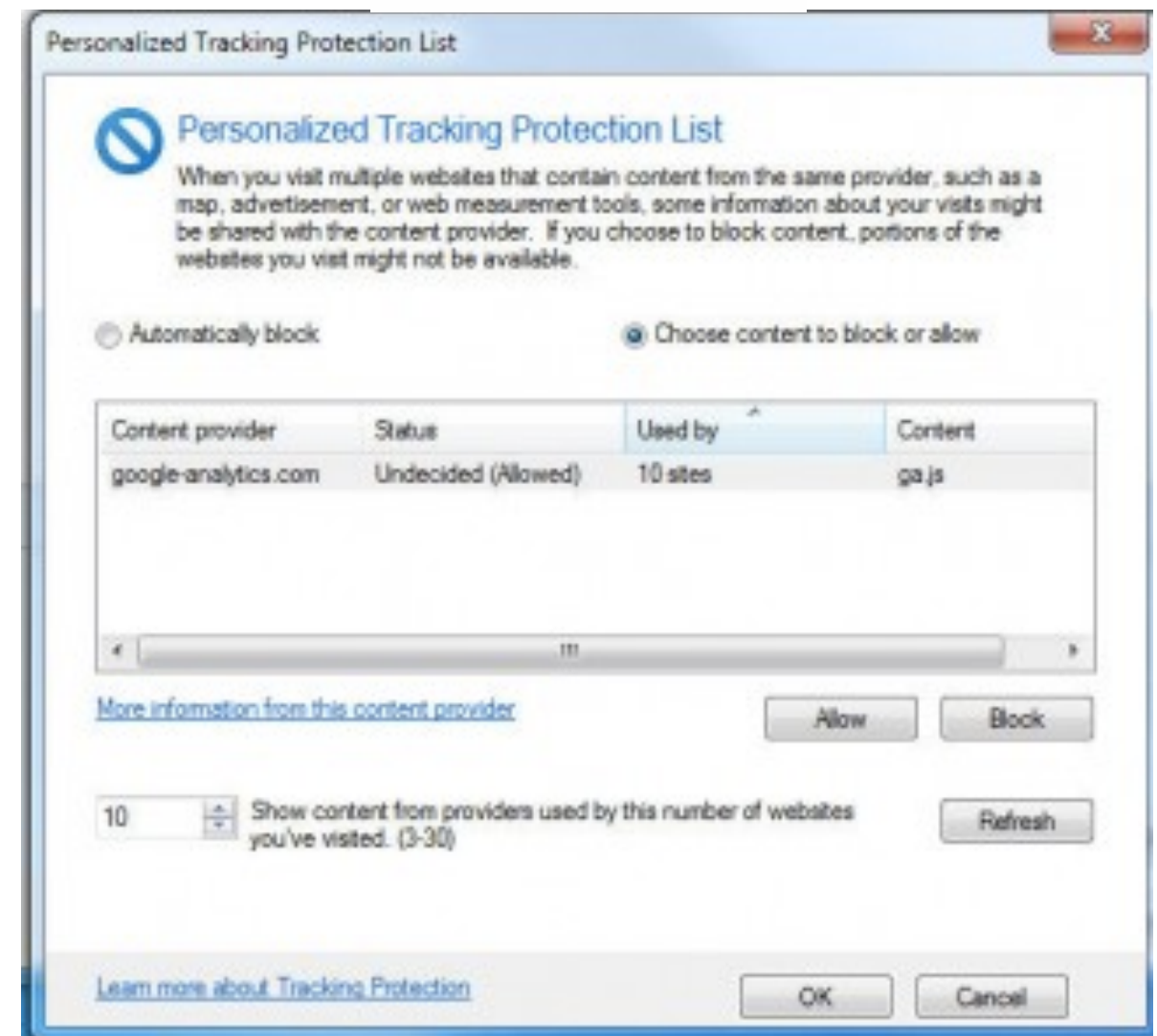
DEFINITION

IMPLEMENTATIONS

header based signal

blocking collection

OPEN QUESTIONS

OPEN QUESTIONS

- what should the *default* be? (what's the right balance?)

- can consumers reasonably judge risk?

- will control mechanism enable even more invasive collection? (affirmative consent = worse practices)

- does this paradigm favor certain players? (i.e those with 1st party relationships)

- how will international compliance be enforced?

OVERLOAD

Confirm setting cookie

Confirm setting cookie

Confirm setting cookie

The site www.yahoo.com wants to set a cookie.

☐ Use my choice for all cookies from this site

| Hide Details | Allow | Allow for Session | Deny |

REASONABLE RISK?

BACKUPS?

BEHAVIORAL ECONOMICS

hyperbolic discounting / availability heuristic

- what should the *default* be? (what's the right balance?)

- can consumers reasonably judge risk?

- will control mechanism enable even more invasive collection? (affirmative consent = worse practices)

- does this paradigm favor certain players? (i.e those with 1st party relationships)

- how will international compliance be enforced?

QUESTIONS?

ashkan.soltani@gmail.com
twitter: ashk4n

http://knowprivacy.org
http://blogs.wsj.com/wtk-mobile/
http://ashkansoltani.org/img/location_ecosystem.jpg
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1446862