The Darker Side of Online Advertising

Benjamin Edelman February 10, 2009

Banner ads



ARTS

Books Movies Music

Television Theater

STYLE

Dinina & Wine Fashion & Style Home & Garden Weddings/ Celebrations

TRAVEL

Blogs

Done

Cartoons / Humor Classifieds

Corrections Crossword/ Games

alternative energy.

- · Saturday Word: Obama Aims for 2.5 Million Jobs

NEWS ANALYSIS Obama Tilts to Center, Inviting a Clash of Ideas

By DAVID E. SANGER

President-elect Barack Obama's reported selections for two major cabinet jobs suggest a preference for pragmatists, not ideologues.

- · Clinton Is Said to Accept Secretary of State Position
- · Fed Official Is Said to Be Choice for Treasury



Eric Grigorian for The New York Times

Ry Cooder's American West

By LAWRENCE DOWNES

El Mirage Dry Lake sounds like a place one step from nonexistence, but it's a critical stop on a journey into the idiosyncratic world of the influential rock and blues artist.

■ Audio Slide Show: Journey to El Mirage Dry Lake

U.S. Strike in Pakistan Kills British Militant

By ISMAIL KHAN and JANE PERLEZ 4 minutes ago

The militant, who served as a liaison to Al Qaeda, was a key suspect in a plot to blow up trans-Atlantic airliners.

Shares Falling, Citigroup Talks to Government

By ANDREW ROSS SORKIN and LOUISE STORY

Options discussed included a public endorsement from the

Citi never sleeps



bankruptcy.

















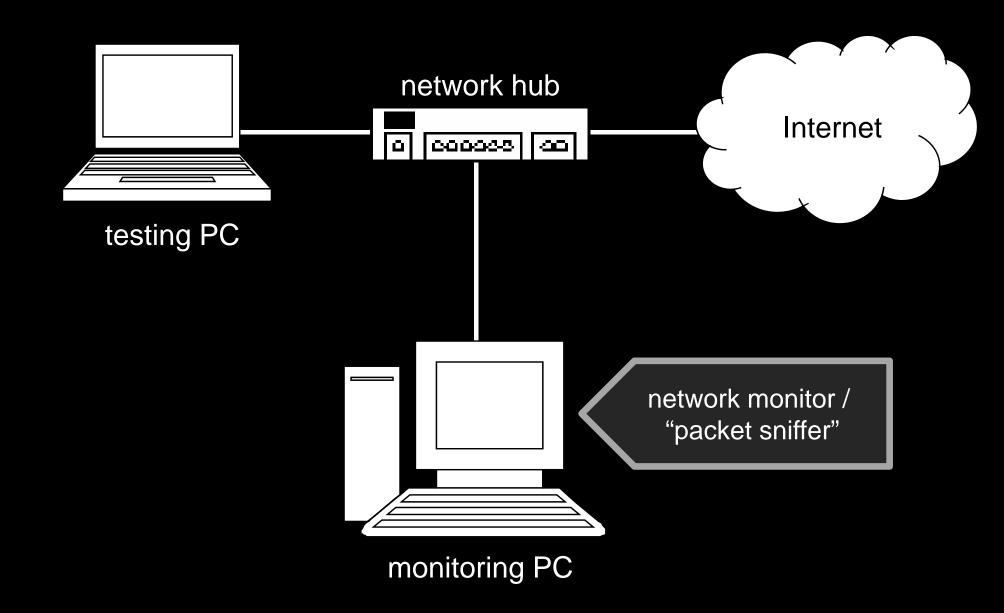


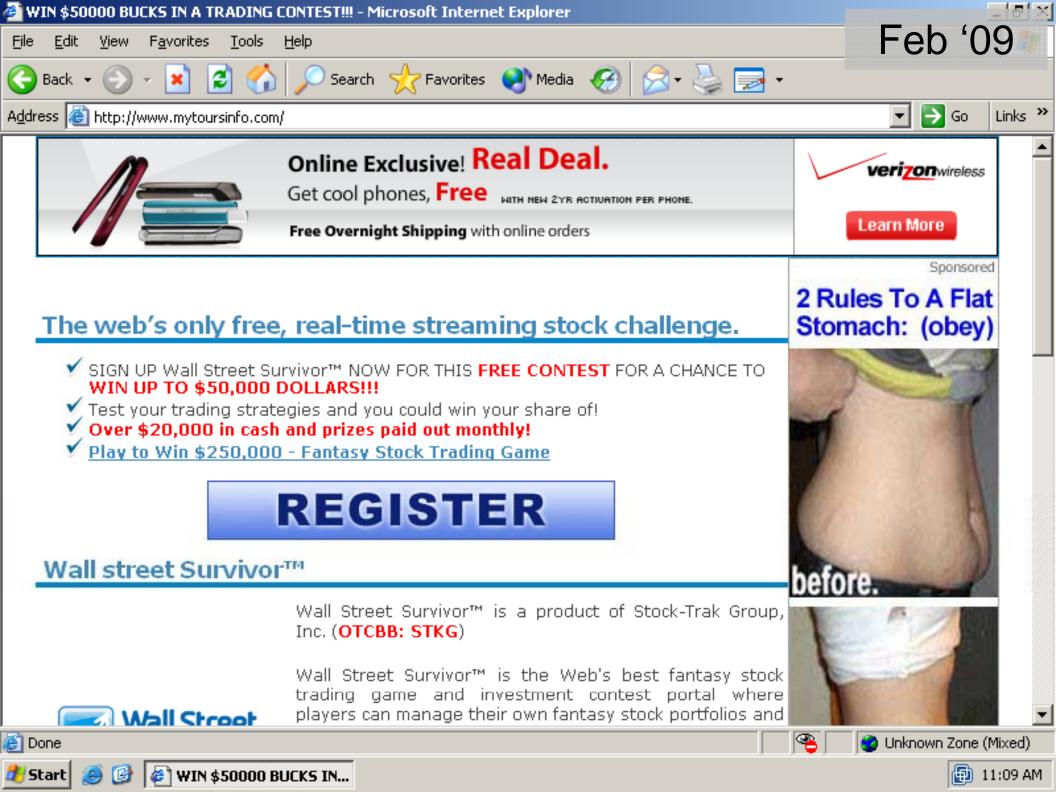
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<html>
<head>
<meta http-equiv="Refresh" content="9;</pre>
url=728x90.asp?jscode=...">
<body leftmargin=0 rightmargin=0 topmargin=0</pre>
bottommargin=0 >
<SCRIPT TYPE='text/javascript'</pre>
SRC='http://ad.yieldmanager.com/rmtag2.js'></S
CRIPT><SCRIPT language='JavaScript'>var
rm_host = 'http://ad.yieldmanager.com';var
rm_site_id = 2578; var rm_section_code
=4400; var rm_iframe_tags =
1;rmShowAd('728x90');</script>
</body>
</html>
```

Inqwire Ad Relationships

Universal Studios money traffic **Traffic Marketplace** money traffic **Right Media** money traffic Inqwire money traffic **Surf Sidekick**

Investigator's tools



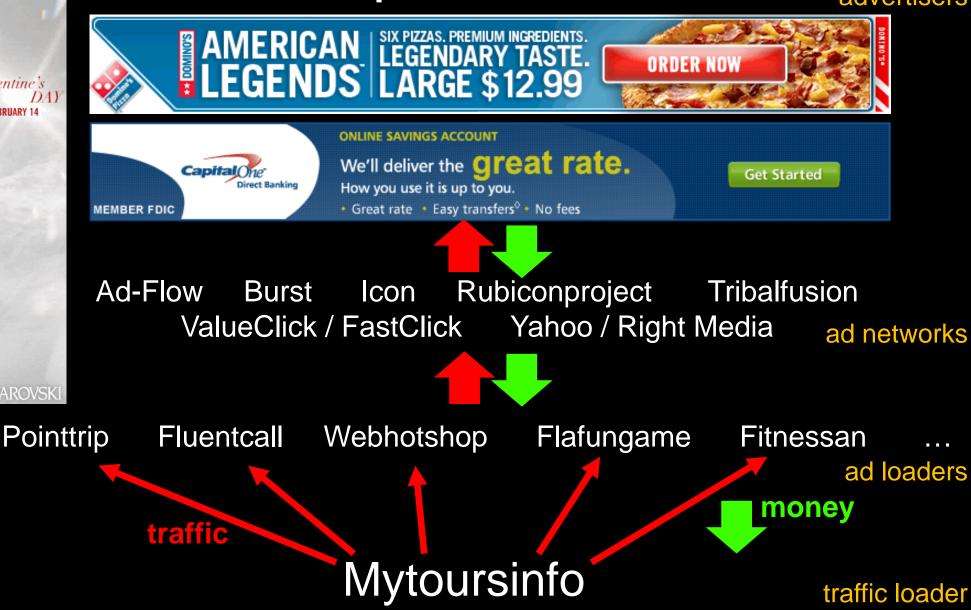


```
GET / HTTP/1.1
Host: www.mytoursinfo.com
HTTP/1.1 200 OK ...
<html> ...
<script src="/js/counter.js" type="text/javascript"></script>
<script src="/js/stat.js" type="text/javascript"></script> ...
GET /js/stat.js HTTP/1.1 ...
HTTP/1.1 200 OK
document.write("<iframe_width=0 height=0 src='http://www.pointtrip.com/florida_tour.html'>");
document.write("<iframe width=0 height=0 src='http://www.fluentcall.com/pda_phones.html'>");
document.write("<iframe_width=0 height=0 src='http://www.webhotshop.com/shopping.htm'>");
document.write("<iframe_width=0_height=0_src='http://www.freebiespack.com/freebies_insider.htm'>...
document.write("<iframe width=0 height=0 src='http://www.onlinemoneytrading.net/forex_trading.ht...
document.write("<iframe_width=0 height=0 src='http://flafungame.com/top_fun_games.htm'>");
document.write("<iframe width=0 height=0 src='http://www.multimediasolutions.in/digital_multimed...
document.write("<iframe_width=0 height=0 src='http://www.bxbex.com/Featured_Schools/index.html'>...
document.write("<iframe width=0 height=0</pre>
                                          src='http://www.ramblepace.com/denmark travel.htm'>");
document.write("<iframe width=0 height=0</pre>
                                          src='http://www.journeyidea.com/journey_tips.htm'>");
document.write("<iframe width=0 height=0</pre>
                                          src='http://www.go-bay.com/search/cs_location.php'>");
document.write("<iframe width=0 height=0</pre>
                                          src='http://www.willhealthy.com/willhealthy.htm'>");
document.write("<iframe_width=0 height=0 src='http://www.fitnessan.com/bu.htm'>");
document.write("<iframe width=0 height=0 src='http://www.investdady.com/vc.htm'>");
document.write("<iframe width=0 height=0 src='http://www.9truck.com/semitrucks.htm'>");
document.write("<iframe_width=0 height=0 src='http://www.healthykey.com/Bacteria-Improves-Your-I...
document.write("<iframe width=0 height=0 src='http://www.volcars.com/hybrid.htm'>");
GET /bu.htm HTTP/1.1
Host: www.fitnessan.com
HTTP/1.1 200 OK ...
<iframe ... width=728 height=90 src=http://www.fitnessan.com/code 728 90.htm>
```

Valentine's SWAROVSKI

Relationships

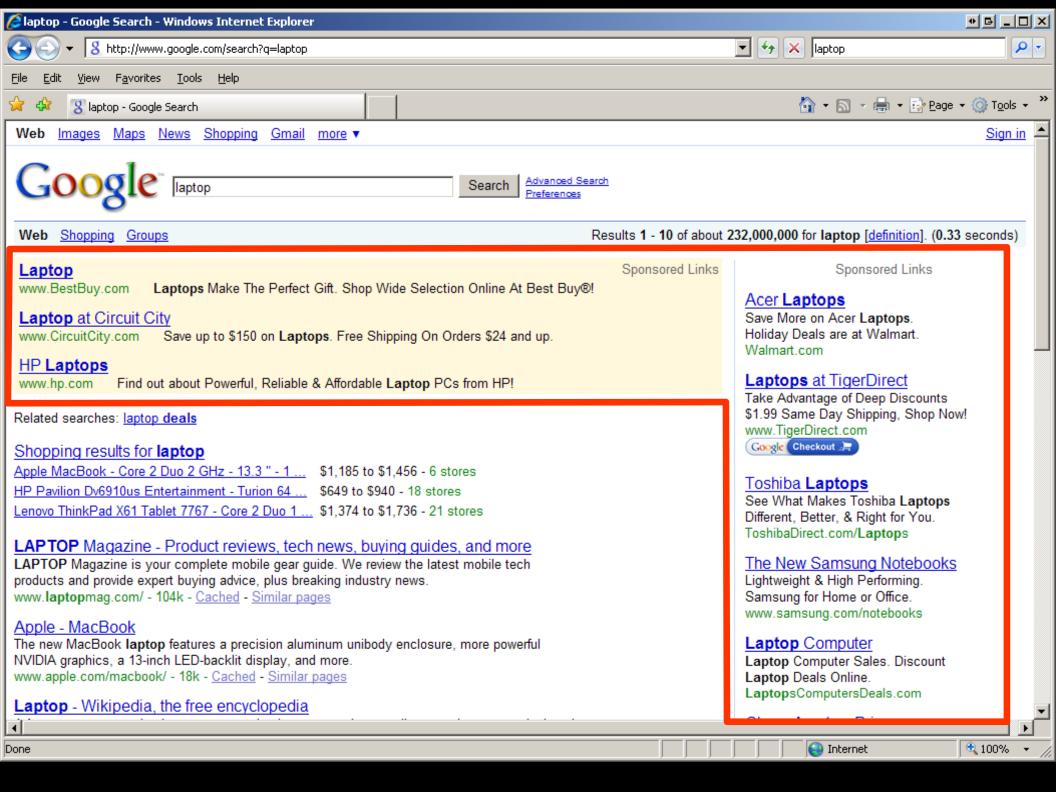
advertisers

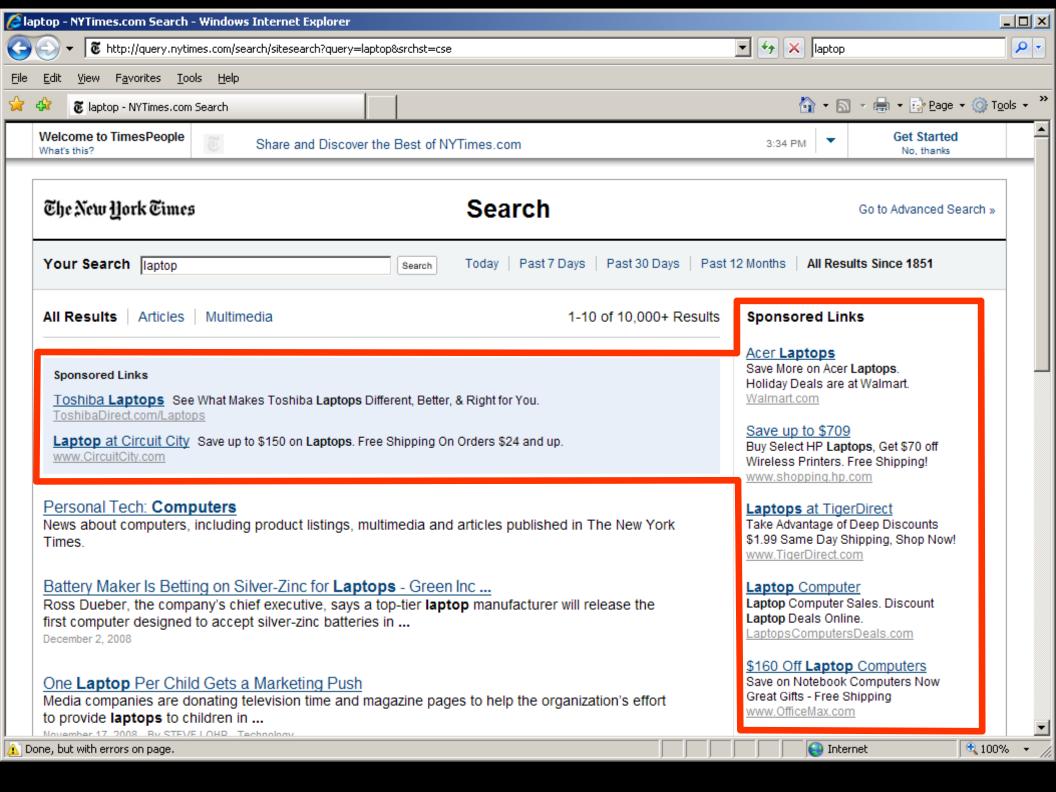


Solutions to Banner Fraud

- Limit where ads may appear.
 - But networks prefer not to say.
- Enforce IAB standards on reload frequency.
 - Imprecise. AJAX-style apps challenge norms.
 Publishers can push the limits.
- Don't pay per impression.

Paying per click



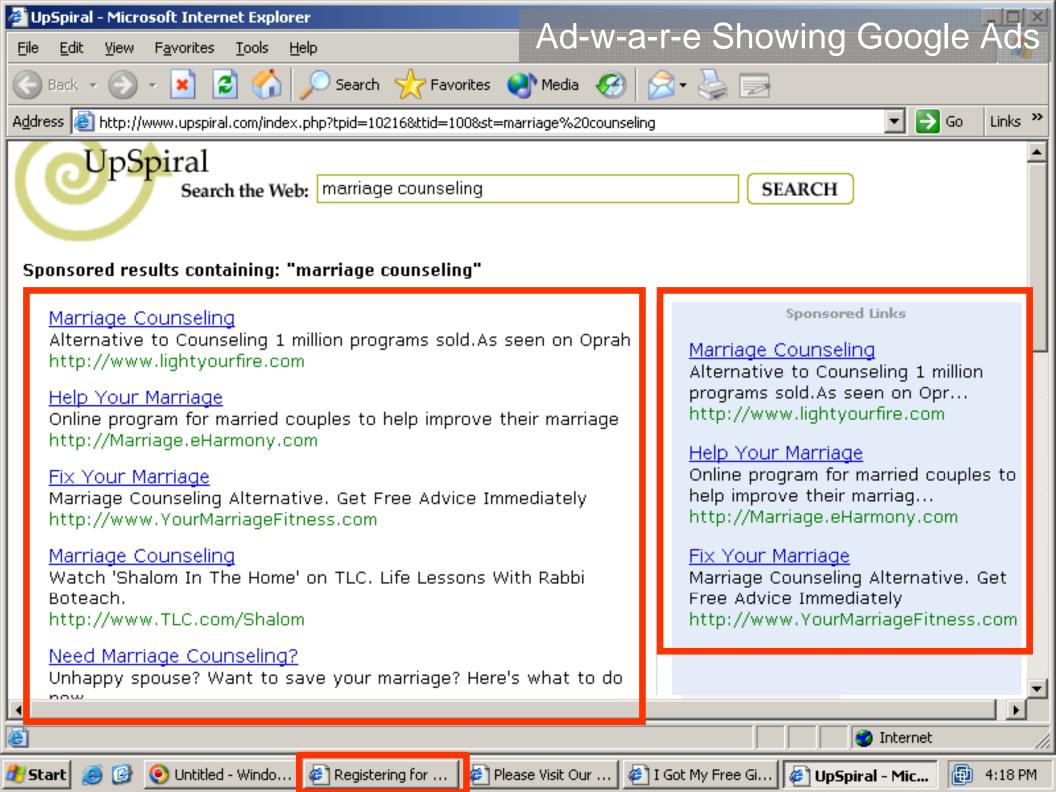


CPC gone wrong

Click fraud

```
GET /?1143930576 HTTP/1.1 ...
Host: search.improvingyourlooks.com
HTTP/1.1 200 OK ...
<html> ... <body onload='document.forms[0].submit()'>
<form action='http://64.14.206.59/cgi-bin/feedred' method='GET'>
<input type='hidden' name='c' value='2188'>
<input type='hidden' name='p' value='2068'>
<input type='hidden' name='d' value='1'>
<input type='hidden' name='nr' value='search.improvingyourlooks.com'>
<input type='hidden' name='q' value='lasik%20eye%20surgery'>
<input type='hidden' name='des' value='GxqGGx5FChkRDqcTSqEBQ0EwB...'>
<input type='hidden' name='des2' value=''>
</form></body></html>
GET /cqi-bin/feedred?c=2188&p=2068&d=1&nr=search.improvingyourlooks.
com&g=lasik%20eye%20surgery&des=GxqGGx5FChkRDqcTSqEBO0EwBh4XRUcFSE...
Host: 64.14.206.59
HTTP/1.1 302 Found ...
Location: http://www10.overture.com/d/sr/?xargs=15KPjg17hS%2DZXyl%...
```

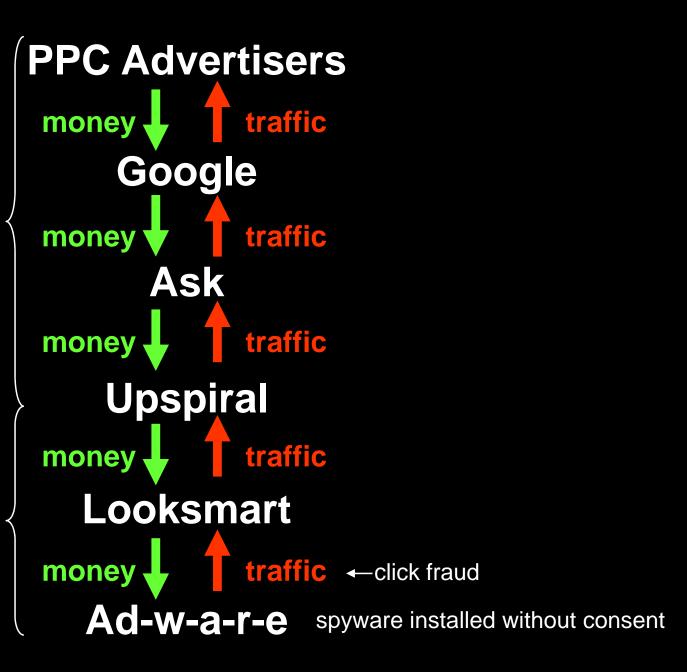
Syndication fraud



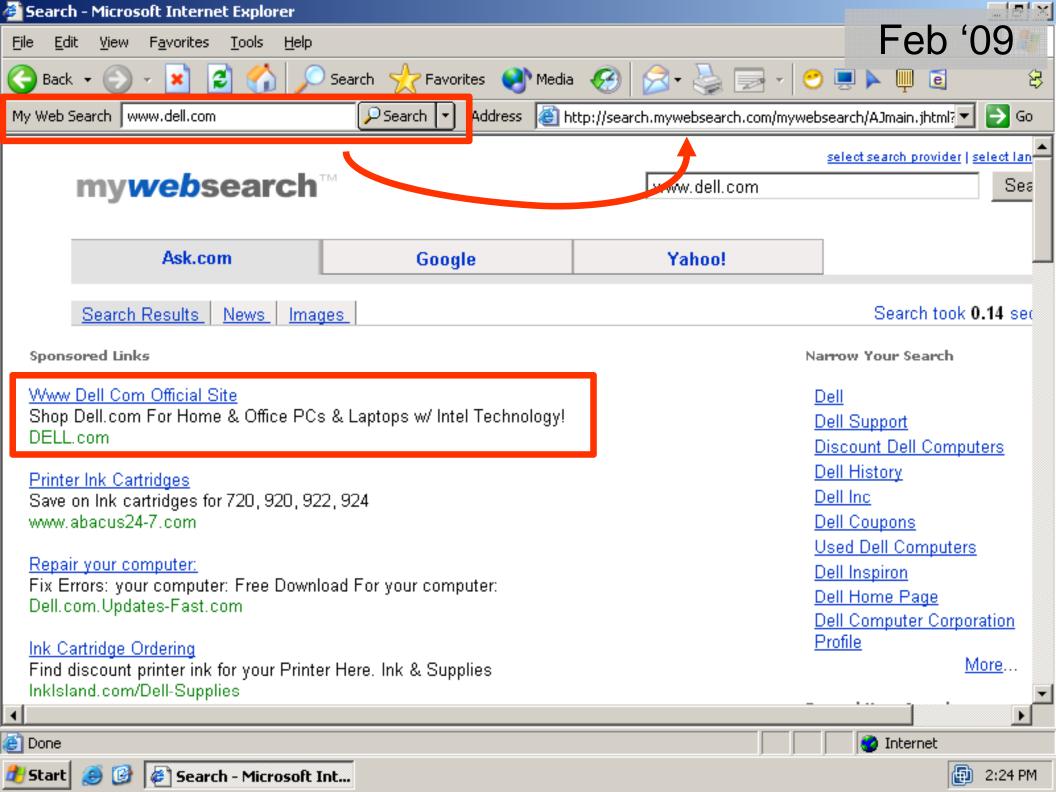
Ad-w-a-r-e Showing Google Ads

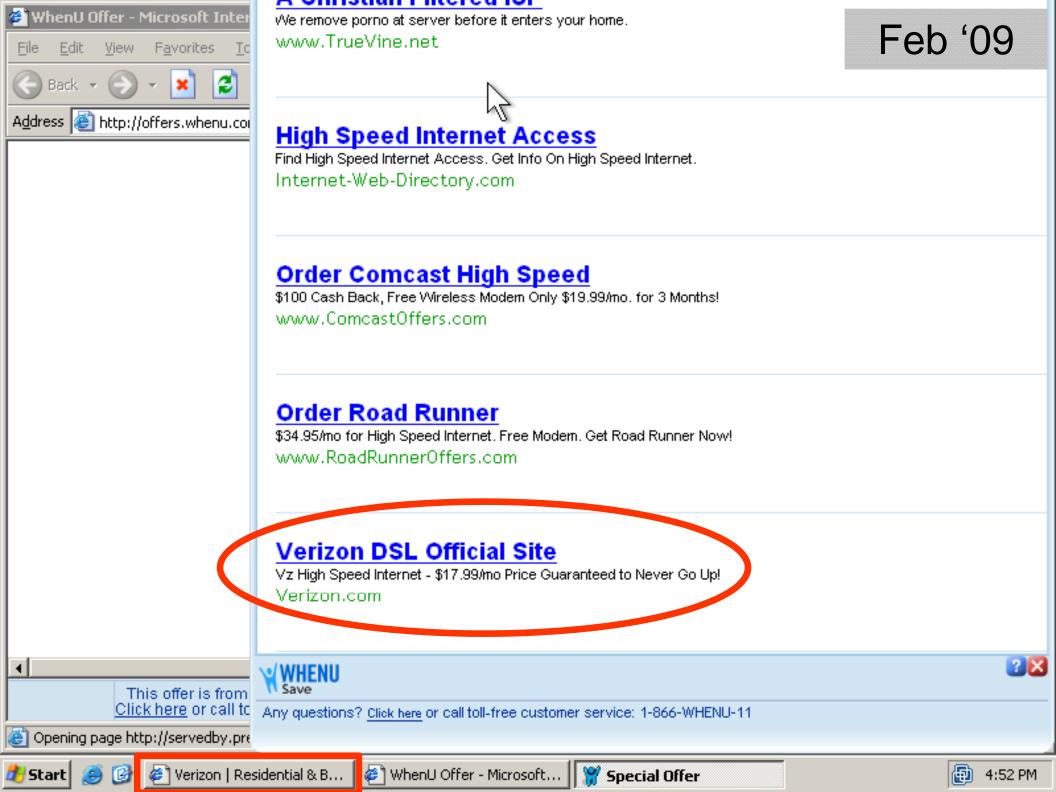
How Upspiral gets paid for showing the ads

How Upspiral gets ads onto users' screens



Inflating CPC conversion rates





WhenU-Google Relationship

Google Advertisers e.g. Verizon money traffic Google traffic money 1 Infospace Idearc Media / Superpages traffic money _ Localpages traffic money 1 WhenU

AdWords Terms & Conditions

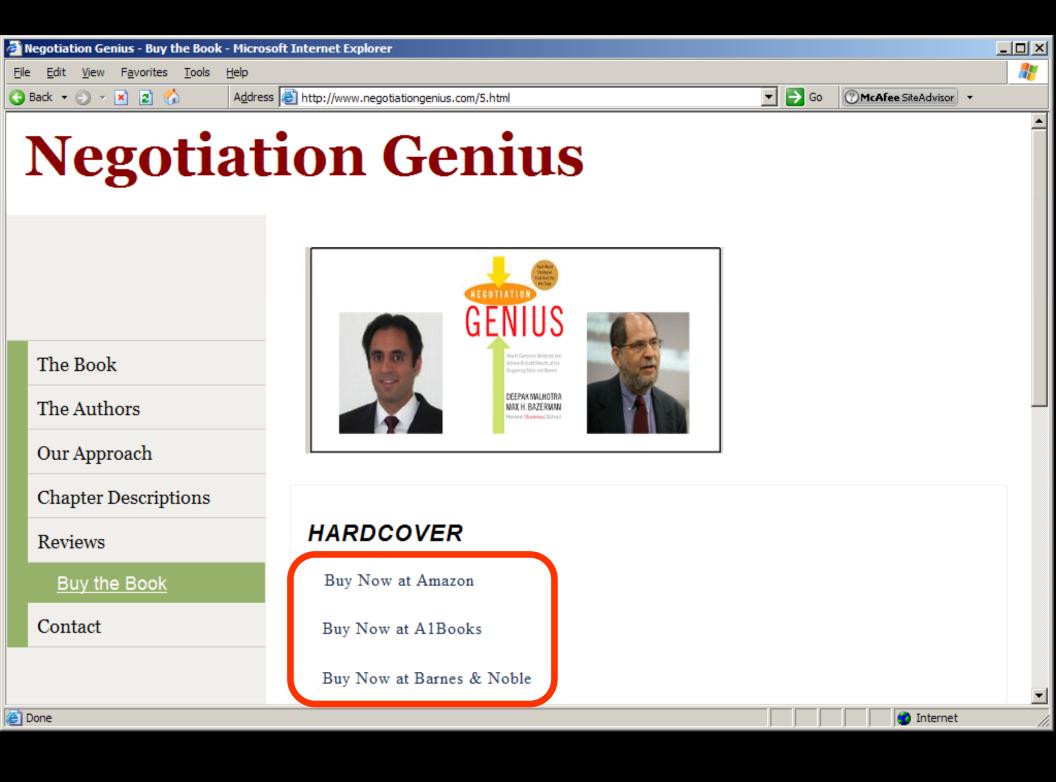
Customer understands and agrees that ads may be placed on any other content or property provided by a third party ("Partner") upon which Google places ads ("Partner Property"). Customer agrees that all placements of Customer's ads shall conclusively be deemed to have been approved by Customer unless Customer produces contemporaneous documentary evidence showing that Customer disapproved such placements in the manner specified by Google.

Customer understands that third parties may generate impressions or clicks on Customer's ads for prohibited or improper purposes, and Customer accepts the risk of any such impressions and clicks. Customer's exclusive remedy, and Google's exclusive liability, for suspected invalid impressions or clicks is for Customer to make a claim for a refund in the form of advertising credits for Google Properties within the time period required under Section 7 below. To the fullest extent permitted by law, refunds (if any) are at the discretion of Google and only in the form of advertising credit for only Google Properties. Nothing in these Terms or an IO may obligate Google to extend credit to any party.

Protecting CPC advertisers

- Click-fraud detection services
- Contract & insertion order specificity
 - Limit syndication and subsyndication
 - Identify and reject improper placements
- Pay per conversion, not per click

Paying per conversion

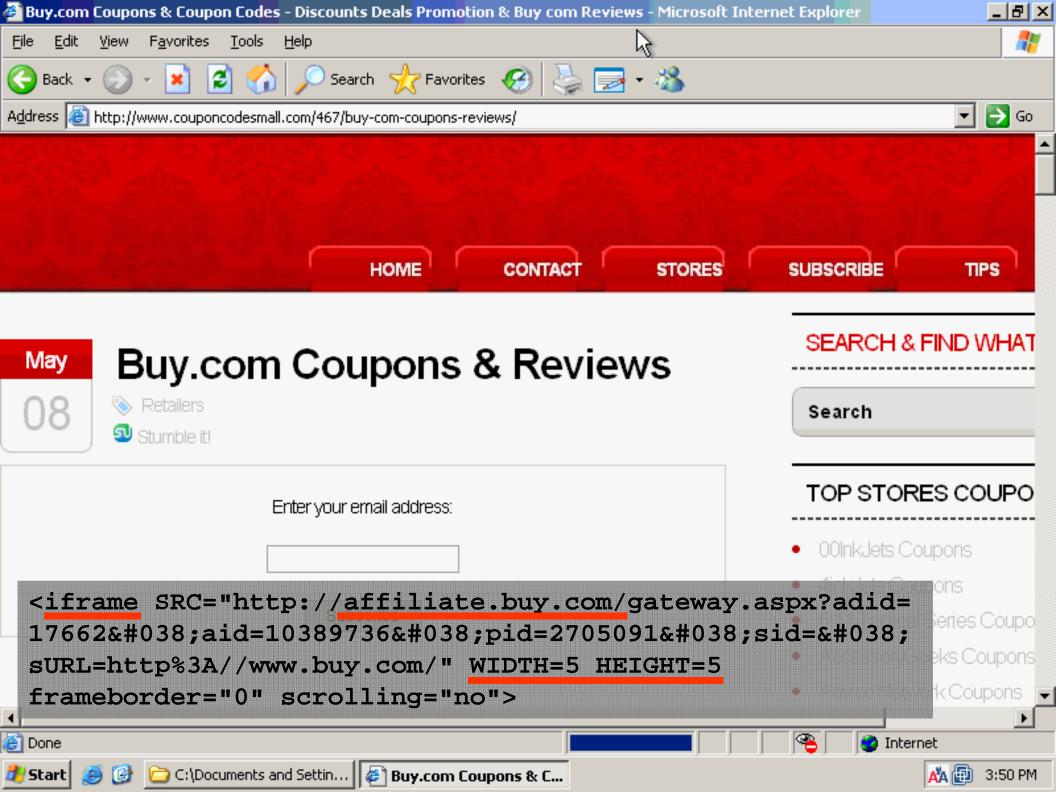


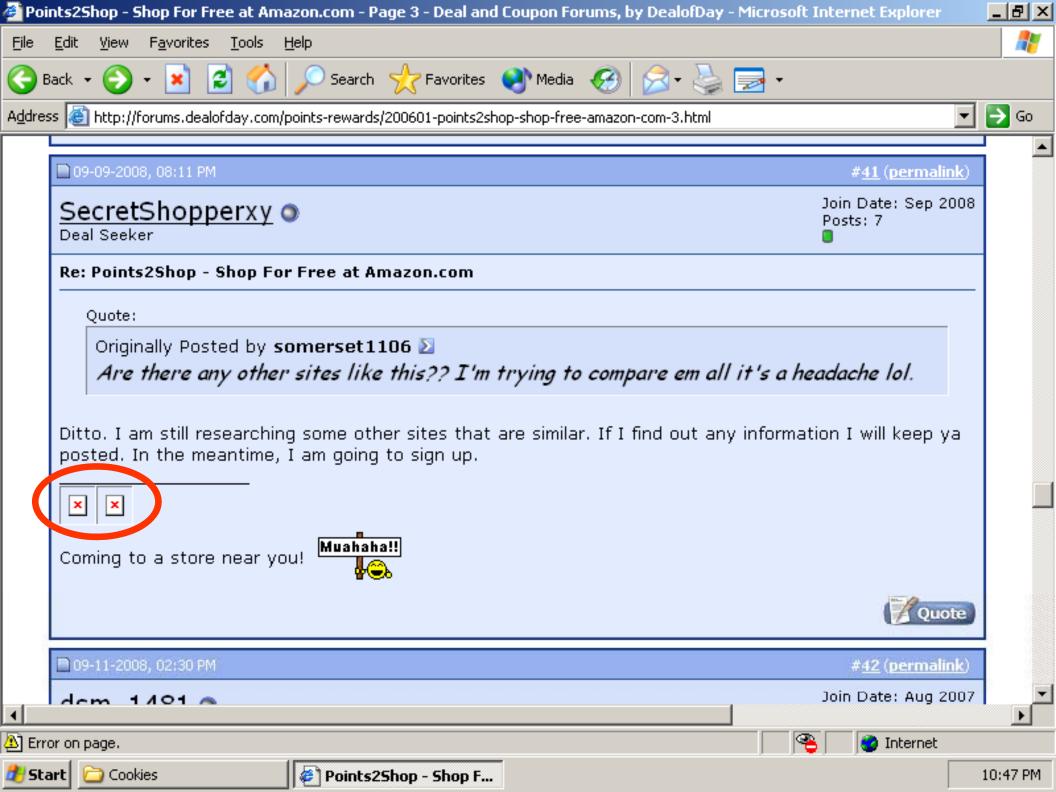
Affiliate earns commission if ...

- User requests affiliate web site
- User clicks affiliate's link to merchant /and/
- User makes a purchase

→ Merchant can safely partner with <u>anyone</u>?

CPA / affiliate fraud





```
<img src="http://www.avxf.com/img16.jpg" border="0"</pre>
alt="" /><img src="http://www.avxf.com/img17.jpg"</pre>
border="0" alt="" />
GET /img16.jpg HTTP/1.1 ...
Host: www.avxf.com
HTTP/1.1 302 Found ...
Location: http://secure.hostgator.com/cgi-bin/
affiliates/clickthru.cgi?id=dsplcmnt01 ...
GET /img17.jpg HTTP/1.1 ...
Host: www.avxf.com
HTTP/1.1 302 Found ...
Location: http://www.amazon.com/?...&tag=qufrho-20
```

```
All @ Brands
                                               FIND ALL BRANDS IN ONE SHOP.
Host: ad.yieldmanager.com ...
Date: Mon, 29 Sep 2008 05:36:02 GMT
<iframe src="http://allebrands.com/allebrands.jpg"</pre>
GET /allebrands.jpg HTTP/1.1 ...
<a href='http://allebrands.com'>
                                              McAfee
<img src='images/allebrands.JPG'></a>
<iframe src = 'http://click.linksynerg</pre>
click?id=Ov83T/v4Fsq&offerid=144797.1 Microsoft OneCare 3&
subid=0' width = '0' height = '0'>
<iframe src = 'http://www.microsoftaffiliates.net/t.</pre>
aspx?kbid=9066&p=http%3a%2f%2fcontent.microsoftaffil
iates.net%2fWLToolbar.aspx%2f&m=27&cid=8' width='0'
<iframe src ='http://send.onenetworkdirect.net/z/41/</pre>
CD98773' \text{ width = '0' height = '0'>}
```

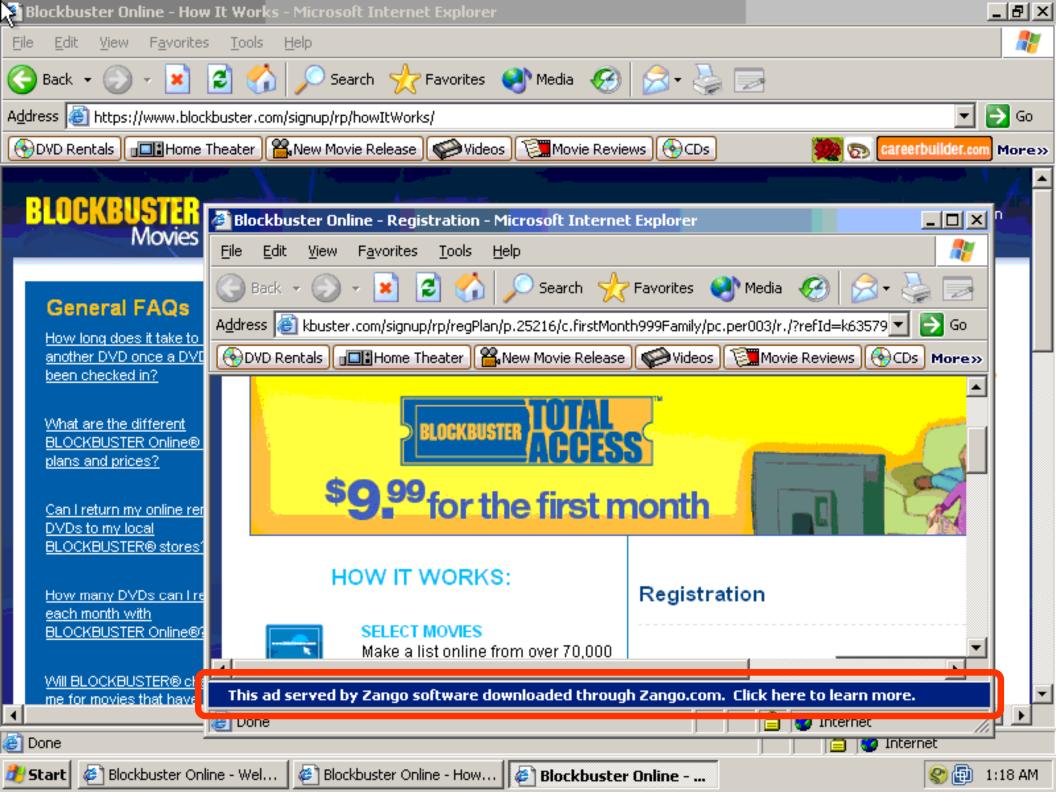
Symantec

GET /iframe3? ...

Host: allebrands.com ...

"HTTP/1.1 200 OK

height='0'>



```
POST /showme.aspx?&SID=XEHON...&CD=www.blockbuster.com &keyword=%2eblockb%2aster%2ecom+%2eblockbu%2ater%2e... Host: tvf.zango.com ...
```

- HTTP/1.1 200 OK ...

 ad_url: ... http://ads.roundads.com/ads/clickcash.aspx
 keyword=.blockbuster.com>
 ...
- GET /ads/clickcash.aspx?keyword=.blockbuster.com ...
 Host: ads.roundads.com ...
- Performics / Google Affiliate Network HTTP/1.1 301 Moved Permanentl,
 Location: http://clickserve.cc-dt.com/link/tplclick? lid=41000000005307215&pubid=21000000000063579&mid=...
- GET /link/tplclick?lid=41000000005307215&pubid=2100...
 Host: clickserve.cc-dt.com ...
- HTTP/1.1 302 Found ...
 Location: https://www.blockbuster.com/signup/rp/reg...

Affiliate earns commission if ...

- User requests affiliate web site
- User clicks affiliate's link to merchant /and/
- User makes a purchase sometime after
 - Visiting a web page
 - Visiting a discussion forum
 - Seeing a banner ad /or/
 - Becoming infected with spyware/adware

Guarding CPA campaigns

- Know your affiliates.
- Question your affiliate network.
 - Hold your network accountable for its shortfalls.
- Do not assume perfection or infallibility.

Every payment system is targeted

- Pay per impression
- Pay per click
- Pay per sale / ad valorem

Why advertising fraud?

- Strong financial incentives
 - Pay is in USD
- Easy pseudonymity
- Limited investigations of partners
- Limited incentives to uncover fraud
 - Ad agencies
 - Ad networks

"10% of spend"

Affiliate managers

"10% of year-over-year growth"

Limited actions to obtain restitution

What is being done

- Nothing / cost of doing business
- Revising Terms & Conditions rules
- Auditing
- Litigation
- Compare ad networks based on quality

What more could be done

- Demand repayment. Sue. (Feasible?)
- Push back on ad networks' one-sided T&C's.
- Pay more slowly -> penalties when caught

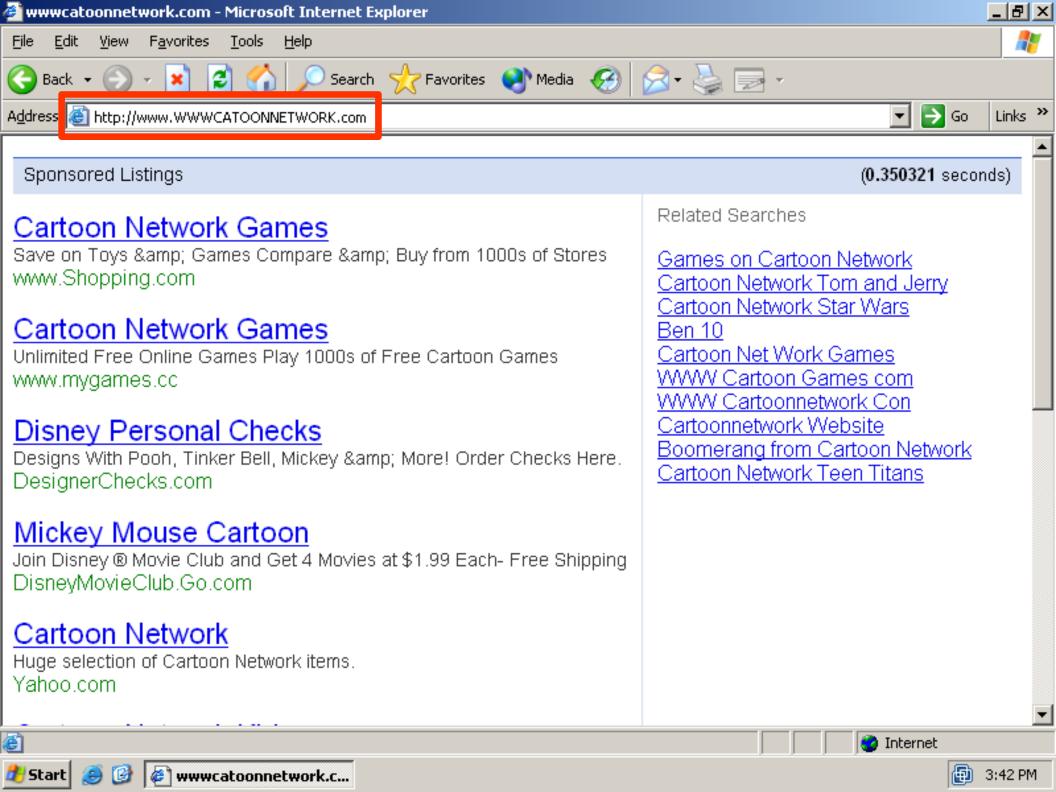
Typosquatting

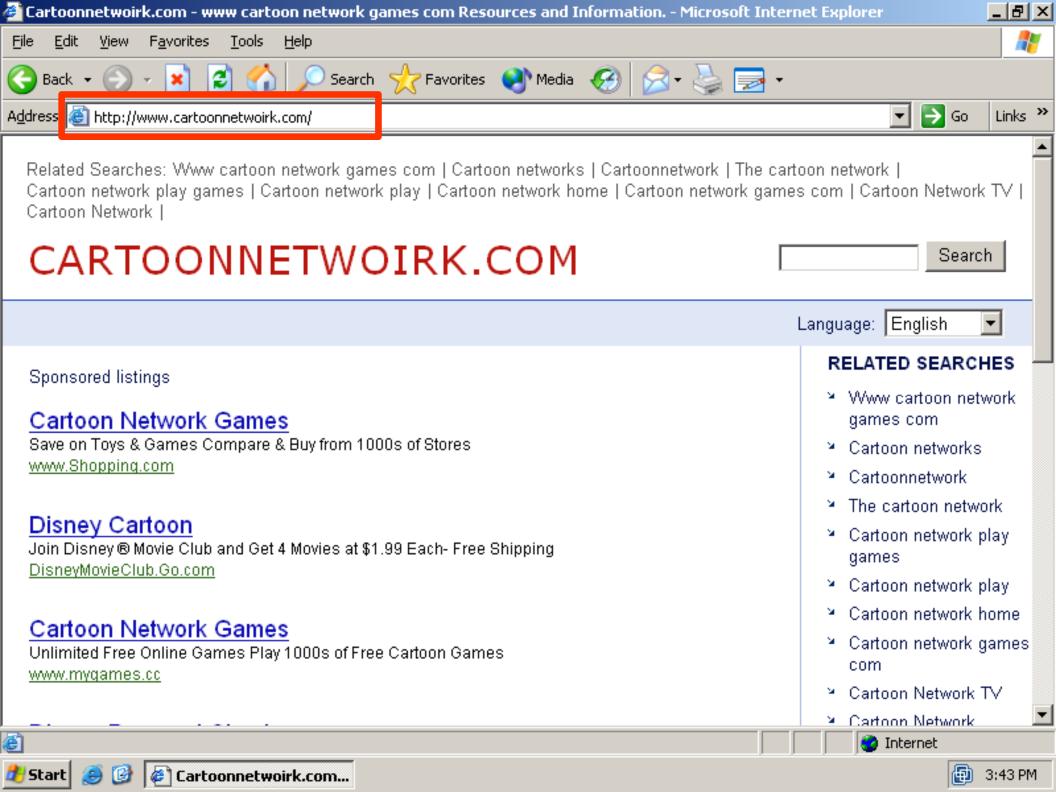
Exploring typosquatting

- Start with top .COM's.
- Compute Levenshtein distance between top .COM's and all registered domains.

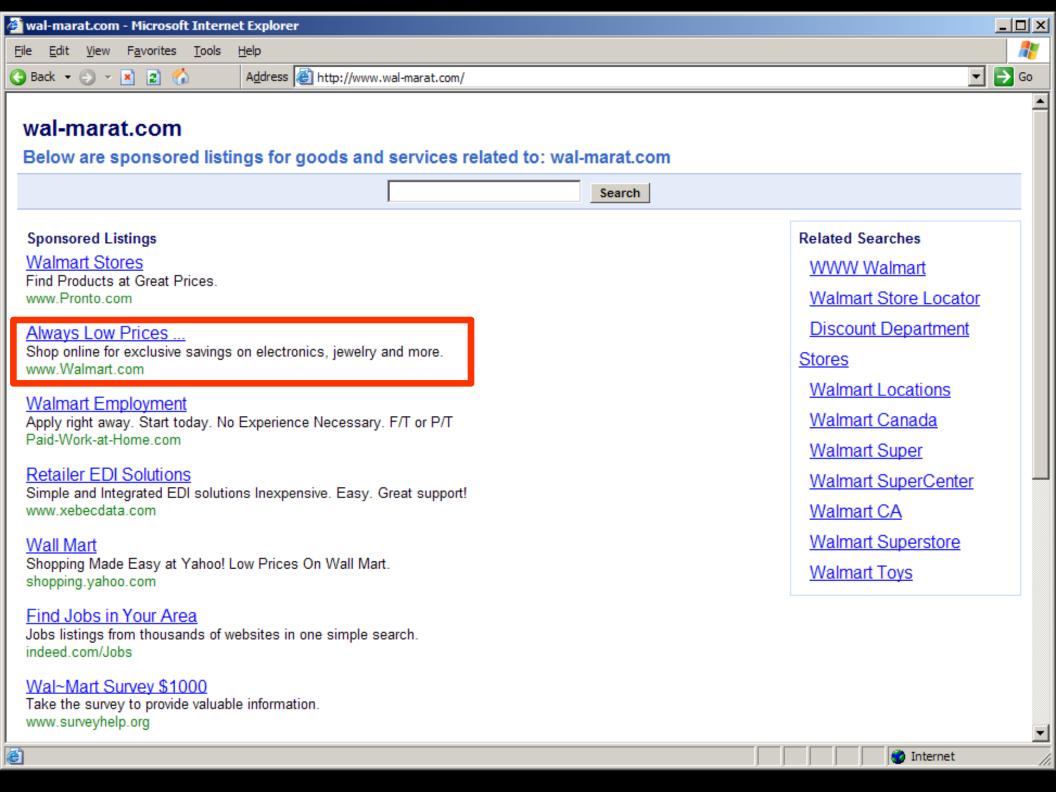
(with Tyler Moore, postdoctoral fellow, Harvard Center for Research on Computation and Society)

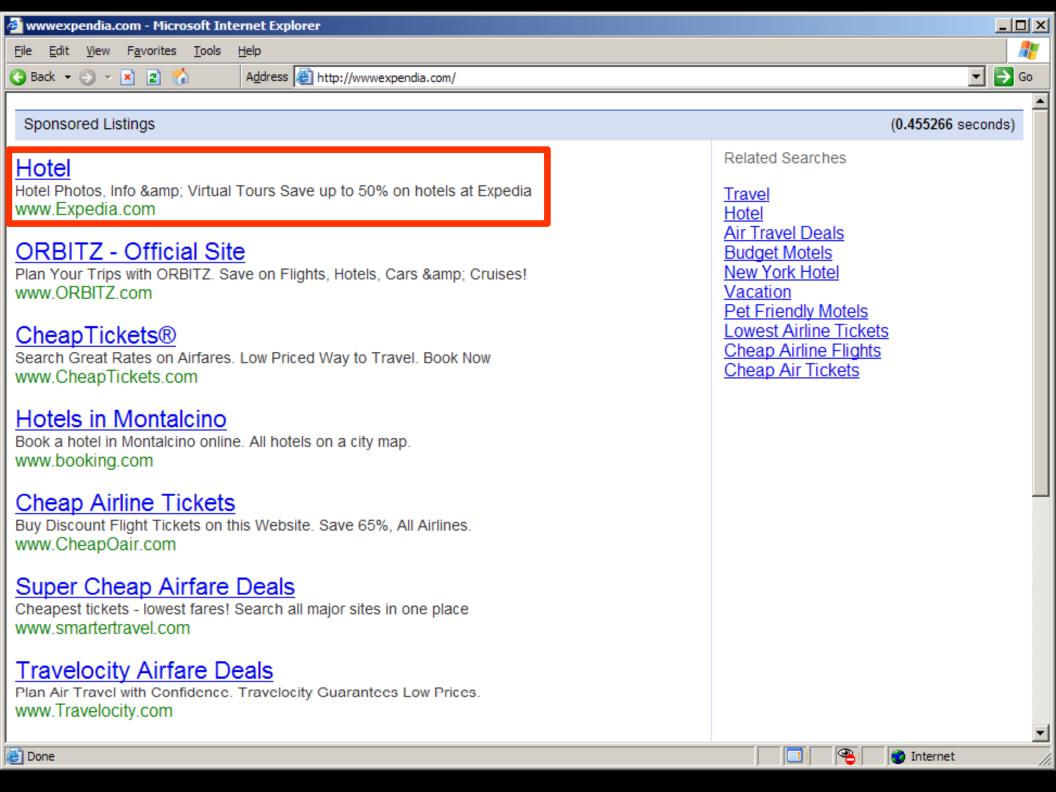
- Count insertions, deletions and substitutions.
- CARTOONNETWORK CARTOONNECTWORK
 - Levenshtein distance: 1 (one insertion)
- CARTOONNETWORK CARTOON-NETWOTK
 - Levenshtein distance: 2 (one insertion, one substitution)





WWWCATOONNETWORK	CARNTOONNETWORK	CARTONNNETWORD	CARTOONNECWORCK	CORTOONNETWR 206
CARTOONNETWOUK	CARTOONNETWAORK	CARTONNETHORK	CARTOONETUORK	CATOONNETWOR
CARTOONNBETWORK	CARTOONNEIWORK	CATOONNEWORK	CARTOONNEWORKS	CARTOONNETWREK
CARTOONNETTORK	CARTO0ONNETWORK	CATOONNERWORK	CARTOONEWTWORK	CARTOONNETWORKNY
CARTOONNECWORK	CZRTOONNETWORK	CARTOONNECWORT	CARTOONNETWUOR	CARTANNETWORK
CARTOONNECTWORK	CARTOONNETWURK	COURTOONNETWORK	CATOOONNETWORK	CARTOON-NETWORLK
CARTOOWNETWORK	CXARTOONNETWORK	CARTOONNTWOR	CARTOON-NETEWORK	CARTOONNAPWORK
CARTOONNCTWORK	CARLOONNETWORK	CARTOONNETWOON	KARTOONNETUORK	YACARTOONNETWORK
CARTOONNETWORKS	CARTOONOETWORK	CARTONNNETWOR	CARTOONNEDWORCK	CARTOON-NWTWORK
CARTOONNETWORKR	CAWTOONNETWORK	CARTOONNETWORKER	CARTOONNEWRK	CARTOONNECTWOR
CARTOONNETWORKQ	CARTOONNETVORK	CARTTOONNEKWORK	CATOONENETWORK	CARTOONNEKWERK
CARTOONNETWORK0	CAUTOONNETWORK	CARTOONETWORD	CARTONNETWORS	CARTTOONNETWOR
TARTOONNETWORK	CARTOONNETKORK	CARTOONETWORS	CARTOONETWOTRK	CARTTOONNETWOK
CARTOONNETWOOK	CARTOONNETWOCK	CARTOONNEWARK	CARTTONNETWOORK	CERTOONNETWERK
CARTOONNEKWORK	CALTOONNETWORK	CARTOOONNETWORD	CARTONNETEWORK	CRTOONNETWOK
CARTOOUNETWORK	CAROTOONNETWORK	CARTOONNETWO	CATOONNETVORK	CATOONNETWORW
CARTOONNEBWORK	CARTOONNEKVORK	CARTOONNEWOTK	CARCHOONNETWORK	CATOONNETWORD
CARTOONNETXWORK	COATOONNETWORK	CARTOONNETWORKFR	CARTOONNETWORKPL	CORTOONNETWORD
CARTOONRETWORK	CARTONBETWORK	CERTOONETWORK	CATYOONNETWORK	CATNOONNETWORK
CARTOONNETWOTRK	CSRTOONETWORK	CARTOONENETWORKE	COTOONNETWORK	KARTOONNETWOORK
WWWCARTOONNETWOR	CORTOONNECWORK	KARTONNETWORK	CARTOON-NEWORK	CARTONNETWORKL
CVARTOONNETWORK	CARTOONNEWWOR	CARTOONNEDWORT	CARTOONNETWOM	CARTOONENWORK
CARTOONNETWOTK	CATOONNETORK	CARTOONNEDWORC	CARTOONNETWOC	CARTOONNETWERT
CARTOOTNNETWORK	CARTONNETGORK	CARTOONNEDWORD	CARTOOMNETWORCK	CARTOONNOKWORK
CARTOONNETGORK	CARTOONNECWORD	CARTOONNAKWORK	CARTOONNEKWARK	CARTTOONNETWORD
CARBOONNETWORK	CARTOONNETVOR	CARTTOONMETWORK	CORNTOONNETWORK	CARTOONNETROWK
CARTWOONNETWORK	CARTOONNATVORK	CORTOONNETWOR	CARTOONNETORG	CATOONNNETWORK
CARTOONNETWIORK	CARTONNWTWORK	CORTOONNETWOK	CARTTOOONNETWORK	CARTOON-NETWOTK
CARDOONNETWORK	CORTOONNRTWORK	CARONNETWORK	ACRTOONNETWORK	CARTOONNETOK
WWWICARTOONNETWORK	CARTONNETORK	CARTONNETLORK	CARTOONETORK	CARTONNETWRK
CAPTOONNETWORK	CARTOONUTWORK	CARTTTONNETWORK	CARNTOONNETWERK	CARTOONNETWORKIT
CARTOONDNETWORK	CARTOONNETUORD	CAROONTNETWORK	CAARTONNETWORK	CARTOOETWORK
CARTOONSNETWORK	CARTOONNETUORC	ACARTOONETWORK	CARTONNTWORK	CARTOON-NITWORK
CARTOONNETWOKK	CRTOONNEKWORK	CATOORNETWORK	CATTOONNETWARK	WWWCARTOONNETWORHQ
CARTOONNETWOYK	CARTOPONETWORK	CARTOONNECWOK	CARTOON-NETWORKK	CROTOONNETWORK
CARTOPNNETWORK	CARTOONETWOARK	CORTOONNETWERK	CARTOON-NETWORKE	CARTONNETWERK
CURTOONNETWORK	CARTOOONNETWOORK	COARTOONETWORK	CARTOON-NETWORKS	CARTOONECWORK
CARTOONNETYWORK	CARTOON-NERTWORK	CARTOONNEETWORT	WWWCARTOONNETWORLA	CARTOONNETGUORK
CARTOONNET5WORK	CARTOONETWOR	CARTOOONETWOK	CARTOONNEWORS	CARTOOMMETWORK
CARTOONNETWOARK	WWW-CARTOONNETWOR	CARTOON-NETWOR	CARTOONNTORK	CARTONNERTWORK
CARTOONNETUWORK	CARTOONNEXWOR	CARTONNEDWORK	CARTOONNEDWOR	VARTOONETWORK





Exploring typosquatting

 Of typosquatting domains showing syndicated PPC ads, 75.9% were monetized through Google.

Self-targeted advertising is widespread.

% of Google-monetized typosquatting domains showing self-targeting ads

Expedia 22%

Microsoft 11%

Adultfriendfinder 53%

Walmart 13%

Vulcan Golf et al. v. Google et al.

- Plaintiffs: Trademark holders who suffered from typosquatting
- Defendants: Oversee, Sedo, Dotster, Internet Reit, Google

Decision on Motion to Dismiss

- Refused to dismiss ACPA claims
 - even as against Google
 - "registered, trafficked in, or used"
- Refused to dismiss Lanham Act claims
 - knowledge
 - innocent infringer
- Other claims kept in: False designation of origin, dilution, contributory infringement, vicarious infringement

Decision on class certification

- Denied
 - Question of ownership of the marks at issue
 - Question of presumption of distinctiveness of class members' marks
- We are proceeding with the case on behalf of the four named plaintiffs on an individual basis.

Fighting typosquatting

- Where does litigation go from here?
- Research (with Tyler Moore, postdoctoral fellow, Harvard Center for Research on Computation and Society)
 - Which kinds of sites are targeted?
 - Kids sites
 - E-commerce sites
 - Hard-to-spell sites
 - Which registrars?
 - Which nameservers?
 - How much churn/tasting?
 - Which parkers are worst?
 - Which ad services? How much self-targeting?

My bottom line

- You have what they want.
 - Reputation == traffic == money
 - Ad spending == money
- Limited incentives to prevent fraud.
 - Intermediaries create diffusion of responsibility.
 - Many perpetrators hard to know where to start.
 - Small harm to many victims (even corporate victims).
 - Mixed internal/staff incentives.
- Easy to look the other way.
- Growing problem as economy worsens and fraudsters get more sophisticated.