Deterring Online Advertising Fraud Through Optimal Payment in Arrears

Benjamin Edelman

February 23, 2009

Welcome to online advertising!

- We will pay you in US Dollars every month.
- We will not check on who you are, and we will not confirm that you are who you say you are.
- You can be located anywhere in the world.
- We will assume our monitoring systems catch all fraud. If our systems say you have earned a fee, we will pay you.

"A crime with few witnesses"

WIN $50000 BUCKS IN A TRADING CONTEST!!! - Microsoft Internet Explorer

Feb '09

File Edit View Favorites Tools Help

Back Search Favorites Media

Address http://www.mytoursinfo.com/ Go Links

Online Exclusive! Real Deal.

Get cool phones, Free WITH NEW 2YR ACTIVATION PER PHONE.

Free Overnight Shipping with online orders

verizon wireless

Learn More

The web's only free, real-time streaming stock challenge.

- SIGN UP Wall Street Survivor™ NOW FOR THIS **FREE CONTEST** FOR A CHANCE TO **WIN UP TO $50,000 DOLLARS!!!**
- Test your trading strategies and you could win your share of!
- **Over $20,000 in cash and prizes paid out monthly!**
- Play to Win $250,000 - Fantasy Stock Trading Game

REGISTER

Wall street Survivor™

Wall Street Survivor™ is a product of Stock-Trak Group, Inc. (**OTCBB: STKG**)

Wall Street Survivor™ is the Web's best fantasy stock trading game and investment contest portal where players can manage their own fantasy stock portfolios and

Sponsored

2 Rules To A Flat Stomach: (obey)

Done Unknown Zone (Mixed)

Start WIN $50000 BUCKS IN... 11:09 AM

→
```
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 src='http://www.ramblepace.com/denmark_travel.htm'>");
document.write("<iframe width=0 height=0 src='http://www.journeyidea.com/journey_tips.htm'>");
document.write("<iframe width=0 height=0 src='http://www.go-bay.com/search/cs_location.php'>");
document.write("<iframe width=0 height=0 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>
…
```

Relationships

advertisers

Ad-Flow Burst Icon Rubiconproject Tribalfusion
ValueClick / FastClick Yahoo / Right Media

ad networks

Pointtrip Fluentcall Webhotshop Flafungame Fitnessan …

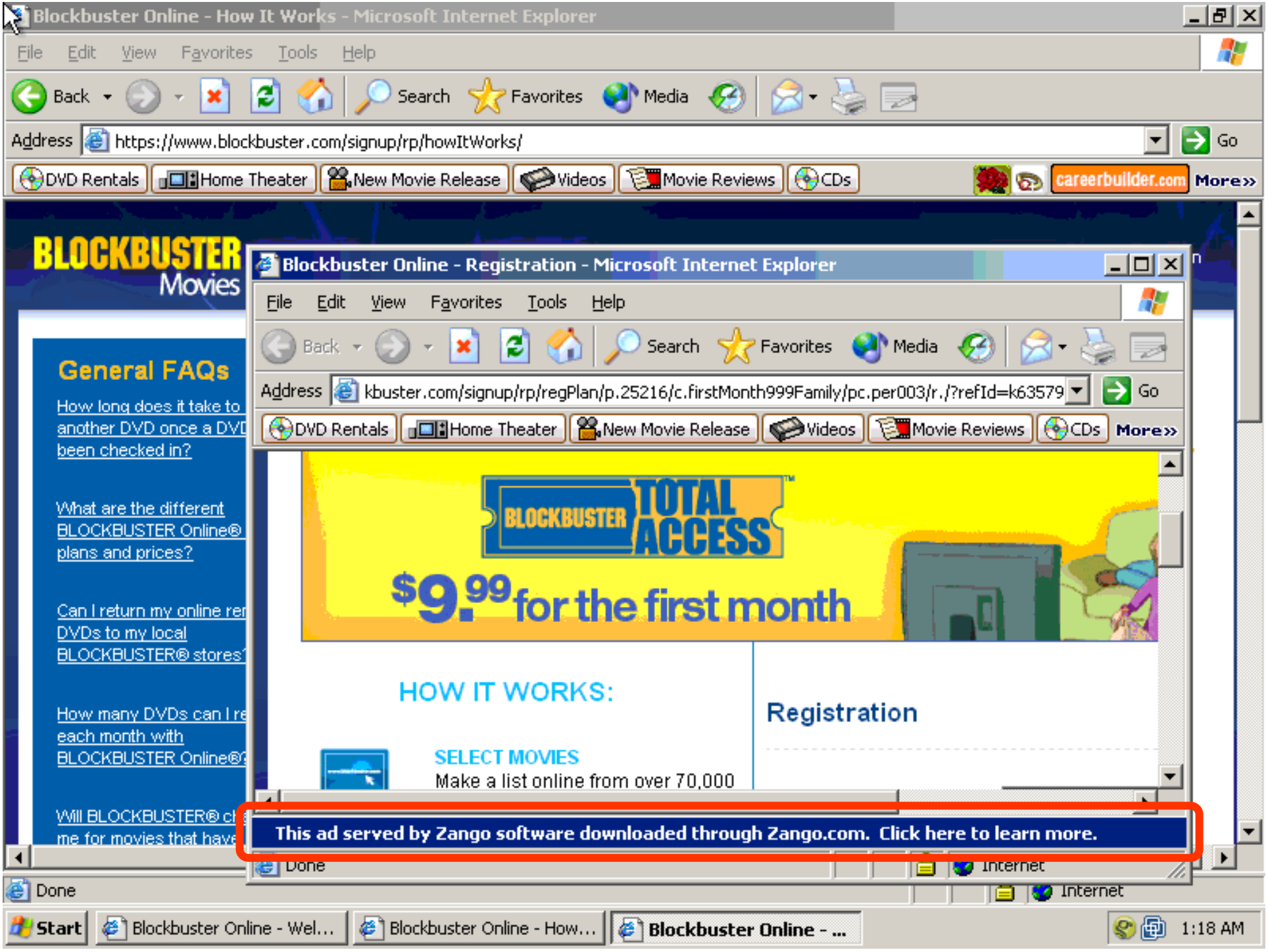
ad loaders

money

traffic

Mytoursinfo

traffic loader


Blockbuster Online - How It Works - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address https://www.blockbuster.com/signup/rp/howItWorks/
Go
DVD Rentals Home Theater New Movie Release Videos Movie Reviews CDs
careerbuilder.com More»
BLOCKBUSTER Movies
General FAQs
How long does it take to another DVD once a DVD been checked in?
What are the different BLOCKBUSTER Online® plans and prices?
Can I return my online ren DVDs to my local BLOCKBUSTER® stores?
How many DVDs can I re each month with BLOCKBUSTER Online®
Will BLOCKBUSTER® ch me for movies that have
Blockbuster Online - Registration - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address kbuster.com/signup/rp/regPlan/p.25216/c.firstMonth999Family/pc.per003/r./?refId=k63579
Go
DVD Rentals Home Theater New Movie Release Videos Movie Reviews CDs More»
BLOCKBUSTER TOTAL ACCESS
$9.99 for the first month
HOW IT WORKS:
SELECT MOVIES
Make a list online from over 70,000
Registration
This ad served by Zango software downloaded through Zango.com. Click here to learn more.
Done
Internet
Done
Internet
Start
Blockbuster Online - Wel...
Blockbuster Online - How...
Blockbuster Online - ...
1:18 AM

→ 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 …

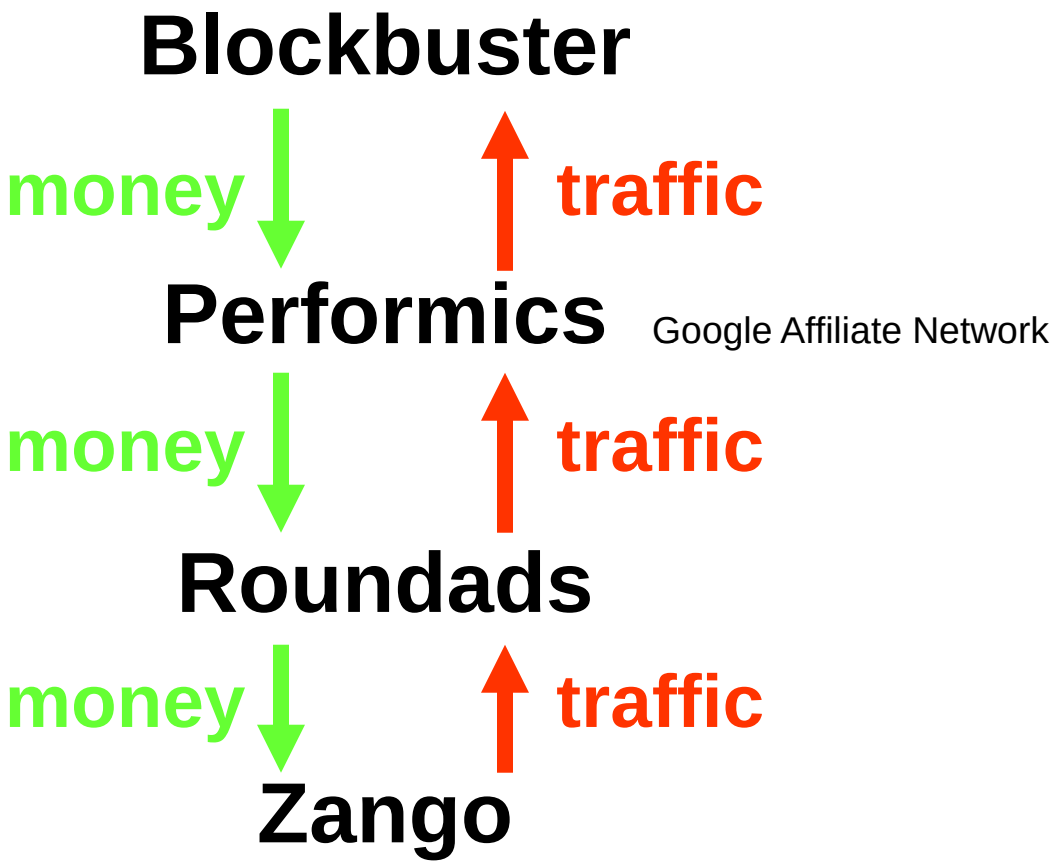
Performics / Google Affiliate Network

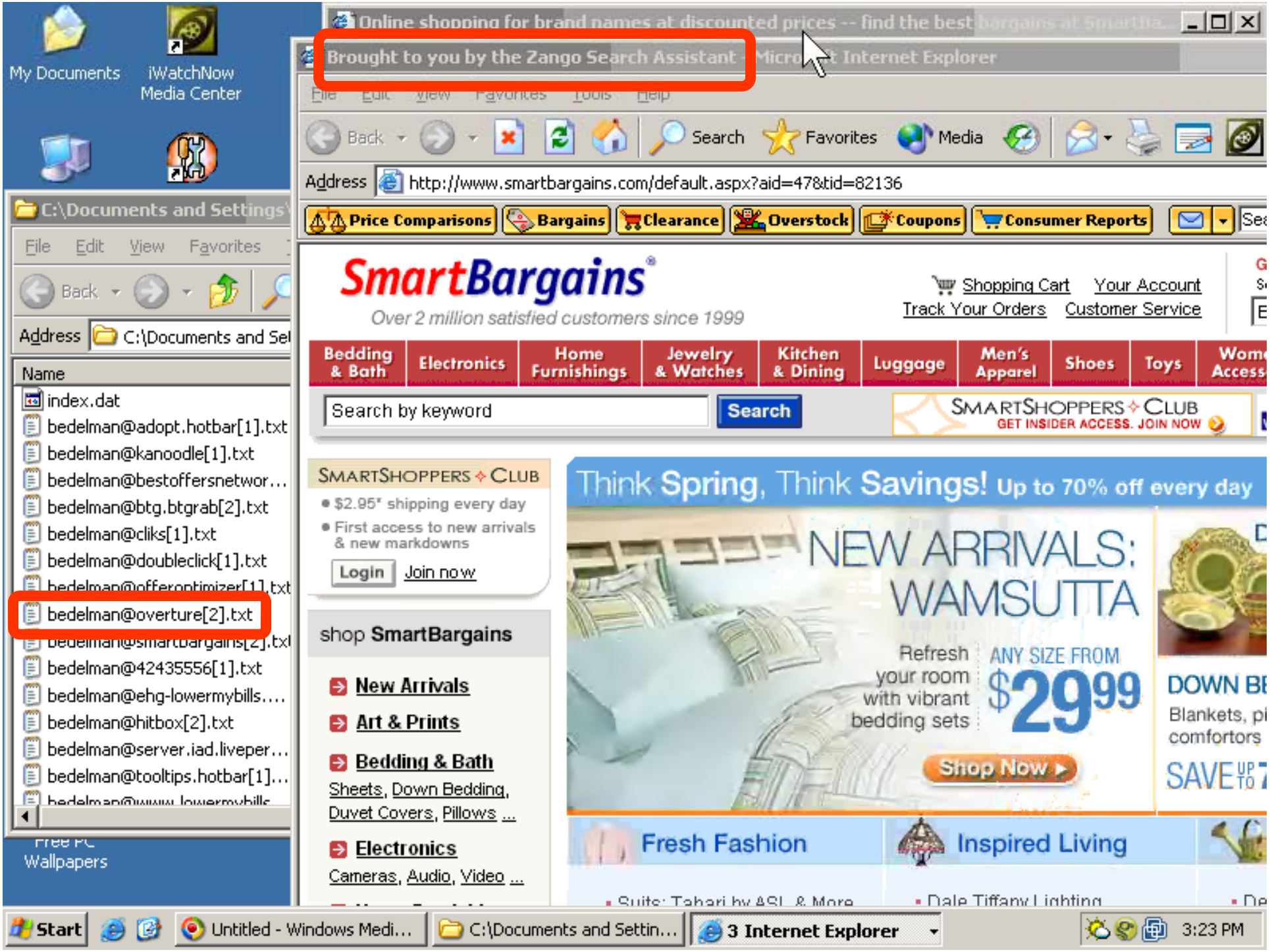
← HTTP/1.1 301 Moved Permanentl
Location: http://clickserve.cc-dt.com/link/tplclick?
lid=41000000005307215&pubid=21000000000063579&mid=…

→ 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…

Blockbuster self-targeting adware fraud




My Documents
iWatchNow Media Center
Online shopping for brand names at discounted prices -- find the best bargains at SmartBa...
Brought to you by the Zango Search Assistant
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.smartbargains.com/default.aspx?aid=47&tid=82136
Price Comparisons Bargains Clearance Overstock Coupons Consumer Reports
C:\Documents and Settings\
File Edit View Favorites
Back
Address C:\Documents and Sel
Name
index.dat
bedelman@adopt.hotbar[1].txt
bedelman@kanoodle[1].txt
bedelman@bestoffersnetwor...
bedelman@btg.btgrab[2].txt
bedelman@cliks[1].txt
bedelman@doubleclick[1].txt
bedelman@overture[2].txt
bedelman@42435556[1].txt
bedelman@ehg-lowermybills....
bedelman@hitbox[2].txt
bedelman@server.iad.liveper...
bedelman@tooltips.hotbar[1]...
Free PC Wallpapers
SmartBargains
Over 2 million satisfied customers since 1999
Shopping Cart Your Account
Track Your Orders Customer Service
Bedding & Bath Electronics Home Furnishings Jewelry & Watches Kitchen & Dining Luggage Men's Apparel Shoes Toys
Search by keyword Search
SMARTSHOPPERS CLUB
GET INSIDER ACCESS. JOIN NOW
SMARTSHOPPERS CLUB
$2.95* shipping every day
First access to new arrivals & new markdowns
Login Join now
shop SmartBargains
New Arrivals
Art & Prints
Bedding & Bath
Sheets, Down Bedding, Duvet Covers, Pillows ...
Electronics
Cameras, Audio, Video ...
Think Spring, Think Savings! Up to 70% off every day
NEW ARRIVALS: WAMSUTTA
Refresh your room with vibrant bedding sets
ANY SIZE FROM $29.99
Shop Now
DOWN BE
Blankets, pi
comfortors
SAVE UP TO
Fresh Fashion
Inspired Living
Start
Untitled - Windows Medi...
C:\Documents and Settin...
3 Internet Explorer
3:23 PM

Tracing the redirects

```
→POST /showme.aspx?keyword=%2esmartbargains%2ecom+...
 Host: tv.180solutions.com
←ad_url: ... value=http://popsearch.nbcsearch.com/metricsdomains
 .php?search=smartbargains.com
```

1

```
→GET /metricsdomains.php?search=smartbargains.com
 Host: popsearch.nbcsearch.com
←HTTP/1.1 302 Found
 Location: http://ww2.ditto.com/red.php?mc=T%2FgSdHBNM%2Bg2%2...
```

2

```
→GET /red.php?mc=T%2FgSdHBNM%2Bg2%2B3AyiyVWsqV5cRprOptbkiRRrZ...
 Host: ww2.ditto.com
←HTTP/1.1 302 Found
 Location: http://ww2.ditto.com/click.php?mc=T%2FgSdHBNM%2Bg2...
```

3

```
←Location: http://www24.overture.com/d/sr/?xargs=15KPjg1%2DpS...
```

```
→GET /d/sr/?xargs=15KPjg1%2DpSgJXyl%5FruNLbXU6TFhUBPycz2tpk%5...
 Host: www24.overture.com
←HTTP/1.1 302 Found
 Location: http://www.smartbargains.com/default.aspx?aid=47&t...
```

5

```
→GET /iframe3? ...
 Host: ad.yieldmanager.com ...
←HTTP/1.1 200 OK
 Date: Mon, 29 Sep 2008 05:36:02 GMT
 ...
 <iframe src="http://allebrands.com/allebrands.jpg"
 ...

→GET /allebrands.jpg HTTP/1.1 ...
 Host: allebrands.com ...
←...
 <a href='http://allebrands.com'>
 <img src='images/allebrands.JPG'></a>
 <iframe src ='http://click.linksynergy.com/fs-bin/
 click?id=Ov83T/v4Fsg&offerid=144797.1[illegible]3&
 subid=0' width ='0' height = '0'>
 <iframe src ='http://www.microsoftaffiliates.net/t.
 aspx?kbid=9066&p=http%3a%2f%2fcontent.microsoftaffil
 iates.net%2fWLToolbar.aspx%2f&m=27&cid=8' width='0'
 height='0'>
 <iframe src ='http://send.onenetworkdirect.net/z/41/
 CD98773' width ='0' height = '0'>
```

McAfee

Microsoft OneCare

Symantec

How to deter this fraud?

- Database analysis
- Crawlers
- Know your partners
- Ex post penalties

} intermediaries' incentives

advertisement

For the latest news on your mobile
and the chance to win a top of the range laptop

text UCG to 84477 Your standard mobile network charges apply.

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Adware maker sues naughty affiliates

But it's still adware, warns researcher

Written by Tom Sanders in California
vnunet.com, 18 Aug 2005

Advertising software maker 180solutions has filed a lawsuit against seven distributors of its software for illegally installing the product on computers they had hacked.

The company alleges that the individuals installed the software without the user's consent on computers that were under their control in so-called botnets. Such networks of hacked computers are often used to send spam or to launch distributed denial of service attacks.

One of the defendants is Imran Patel from the UK, the others are from Australia, Canada, Lebanon, Slovenia and two reside in The Netherlands.

Of the other defendants, 19-year-old Dutchman Eric de Vogt was sentenced to a 38-day jail term and 240 hours of

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BusinessWeek

NEWS ANALYSIS December 4, 2006, 12:00AM EST

The Vanishing Click-Fraud Case

Why was a seemingly slam-dunk case against an alleged click-fraudster who attempted to extort Google quietly dismissed?

By Ben Elgin

A detective novelist might call it *The Mystery of the Vanishing Click-Fraud Case*.

It began on Mar. 10, 2004, when a computer programmer from Oak Park, Calif., named Michael Anthony Bradley arrived at Google's (GOOG) offices for a prearranged meeting with the company's engineers, according to a criminal indictment filed two years ago in the U.S. District Court in San Jose. Bradley, then 32, proceeded to demonstrate new software, dubbed "Google Clique," designed to generate false clicks on Google ads. Bradley claimed his program could force Google to pay millions of dollars on false clicks and threatened to release it to others unless Google paid him approximately $150,000, according to the indictment.

Law enforcement, tipped off earlier, taped the meeting from the room next door and soon arrested Bradley. It appeared Bradley would become the first person criminally prosecuted for charges related to click fraud, the Achilles heel of the Internet-advertising industry, which costs marketers as much as $1 billion a year (see BusinessWeek, 10/2/06, "Click Fraud").

GOOGLE BACKS DOWN

But on Nov. 22, the U.S. Attorney's Office quietly dismissed charges against Bradley. The prosecutors, who had announced the arrest and indictment of Bradley in press releases, refused to discuss why they dropped the case. Defense attorney Jay Rorty declined to comment or make his client available. Attempts to reach Bradley weren't successful. A Google spokesman issued a vague statement: "We continue to work closely with law enforcement in many areas, including click fraud. Individual cases may or may not be pursued by law enforcement at their discretion."

How to deter this fraud?

- Crawlers
- Database analysis
- Know your partners

} intermediaries' incentives

- Ex post penalties → sue
- Economic incentives

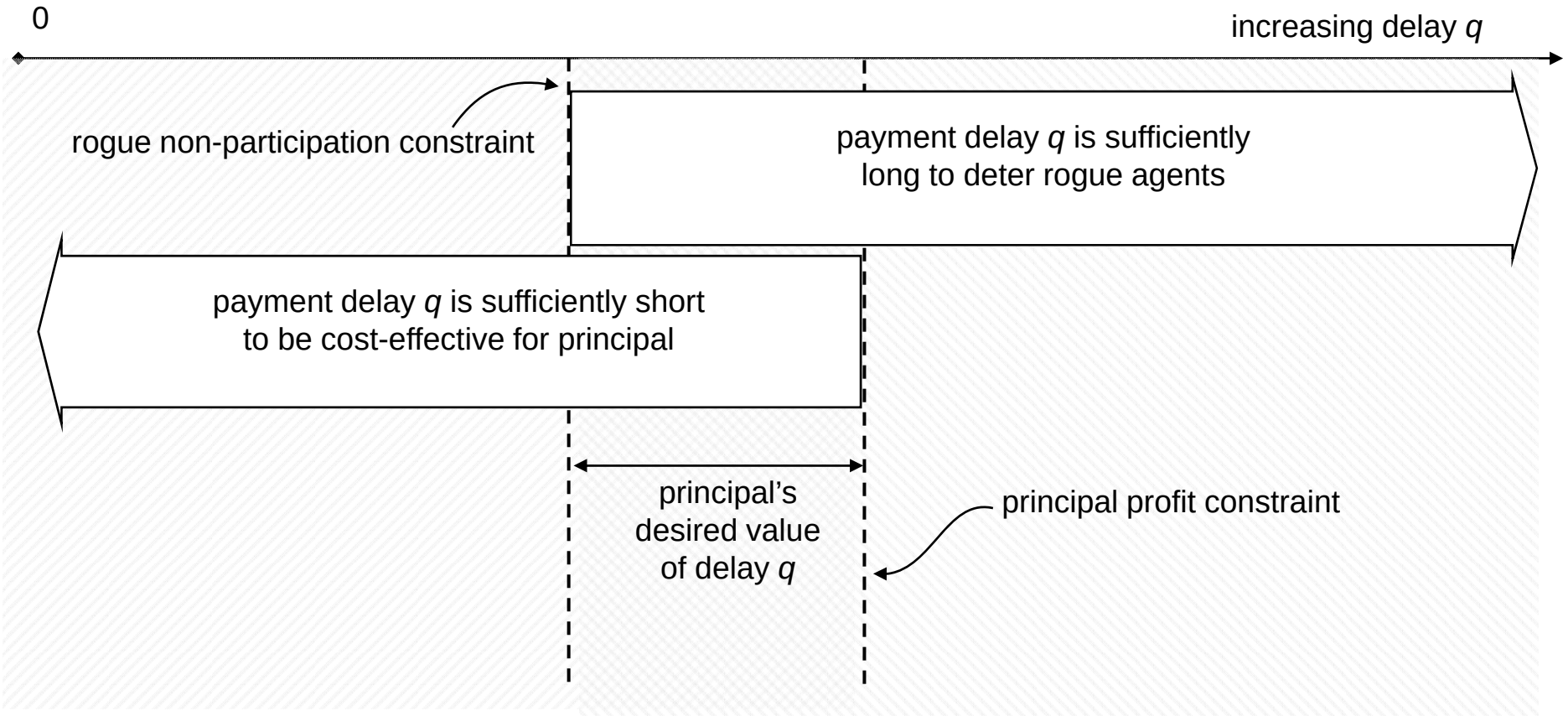
Incentives wishlist

- Take existing detection technology as given
- Effective at deterrence
  - No more cat-and-mouse
- Undercut incentives for use of pseudonyms and multiple identities

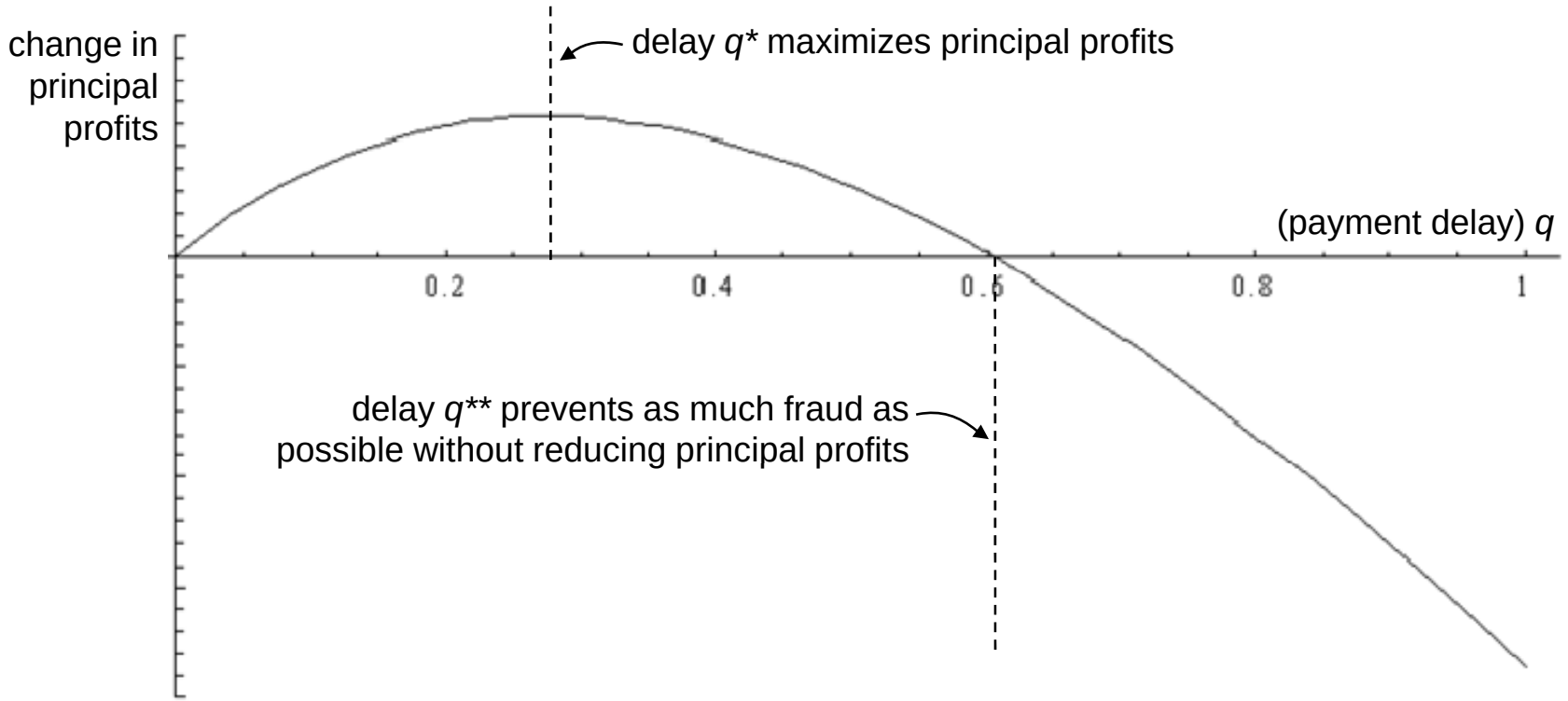
Payment delay

- Pay more slowly.
- If uncover a fraud, don’t pay.
- Pay a bonus to make good agents indifferent.
  - Compensate good agents for having to wait.

Resulting incentives



Calibration



What does this fix?

- Sequential pseudonymity
- Fraud unredressable due to litigation costs
- Detection systems with low effectiveness

But not...

- Networks' incentives to allow fraud

"10% of spend"

- Ad buyers' incentives to allow fraud

"10% of year-over-year growth"