

# Adtech Shenanigans in 2015

Benjamin Edelman

# About me

- Associate Professor, Harvard Business School
  - Teaching: starting and running .COM's
  - Research: Internet architecture and business opportunities, especially vis-à-vis law and regulation
- Consulting: advertising fraud, privacy, compliance
  - Clients: Advertisers, ad networks, regulators, publishers, investors.
  - My standard terms: I can share information derived from public sources. All my material today is from public sources.
- I speak only for myself.

# Plan for today

- Blinkx update
- Other adware
- The broader adtech ecosystem

# Why is the Internet a wild west?

- New, fast-changing
  - Cheat where no one is looking
  - Exploit others' perpetual optimism
- Long chains of intermediaries
  - When each step only charges a few percent...
  - Lots of finger-pointing when something goes wrong
- Doing business at a distance
  - Can be hard to find the perpetrator's location
  - Perpetrators can create new identities if caught
  - Law enforcement interest when victims are distant?

**What ads does Blinkx adware show?**

<http://my-uq.com/rdr/e3c8fe9bd28142b7137713ac59863ac7/browser/108/?cd=browser&i=eyJ0JjoxNDAYNjExNDM5OTA2NDcwNTk5LCJlJjoiNTM4ZWQwNzhi>

## Recommended Download!

My Version - **Internet Explorer 7**

Please Install the Recommended Software to Confirm You are Using the Recommended Version.



### Recommended Download!

It is recommended that you install the software to confirm your browser is the recommended version.

OK

Accept and Install

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~~Modified Installer:~~ This website is distributing custom installers which are different from the originally available distribution. These new installers comply with the

This ad served by Severe Weather Alerts. [Click here to learn more.](#)

Recommended Download

**You are just one click away from starting the download...**

### Requirements and Specs

License:	Freeware
Size / Time:	1,09 Mb / 30 Seconds
Requirements:	No special requirements
OS:	Windows 7, Vista, XP, 2000
Last Updated:	Dec 2nd, 2013

### The player is available for download and it Recommended to view multimedia content

- Richer, more immersive user experiences
- Experience the web at its fullest
- Beautiful HD video, faster graphics rendering, and high performance
- Bug fixes and security enhancements

**Install****Download**

updateplugins.com is distributing an install manager that will manage the installation of your selected software. In addition to managing selected software, this install manager will make recommendations for additional free software that you may be interested in. Additional toolbars, browser add-ons, game applications, anti-virus applications and other types of applications. You are not required to install



## Customers Who Bought This Item Also Bought



MPERO Coll  
of Clear Screen  
Protectors for Samsung  
Galaxy S4 mini

★★★★★  
\$1.49

## Technical Details

Cellular Band - Q  
Cellular Band 3G -  
> See more technical details

## Product Details

Product Dimensions  
Shipping Weight  
ASIN: B00DMRRR72  
Item model number  
Average Customer Review  
Amazon Best Sellers Rank  
#20 in Cell Phones & Accessories

Prime Instant Video

<http://www.amazon.com/gp/video/primesignup?tag=wwwweasysho01b-20>

amazon Prime instant video

Enjoy unlimited instant streaming of movies and TV shows. Anywhere, anytime.

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Ad by Fast Media Converter. Click here to learn more.

Did we miss any?

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**How do Blinkx adware programs get onto users' computers?**



### Install Your Software

## Flash

**Click "Accept" now to continue your installation**

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☒ Express Install (Recommended) ☐ Custom Install (Advanced)

Thank you for considering the installation of the following products. With the Express option you'll get the following apps for free: CheckmeUp, **StormWatch**, BubbleDock, Pro PcCleaner & OneSoftPerDay.

By clicking "Accept" you confirm that you have read and agree to [CheckmeUp](#), **StormWatch**, [BubbleDock](#), [Pro PcCleaner](#), [OneSoftPerDay](#).

**Accept**

**Continue (required)**

Player Update.  
Restart is







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ORE

-friendly Version

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TORRENT NAME		SIZE	FILES	AGE	SEED	LEECH
 <b>Marvels Agents of S H I E L D S02E16 HDTV x264-KILLERS[ettv]</b>	 103	284.85 MB	3	11 hours	21189	9072
 <b>iZombie S01E04 HDTV x264-LOL[ettv]</b>	 59	228.69 MB	4	11 hours	8965	6545
 <b>The Mindy Project S01E04 HDTV x264-LOL[ettv]</b>	 01	228.69 MB	4	11 hours	8965	6545



# The wider world of modern adware



EN ▾

Menu ☰

ironSource

# Delivering digital products across all devices

ironSource is the world leading platform for software discovery, distribution and delivery, connecting people and apps across platforms and devices.

About IronSource

**iS** mobileCore

**Distribution and monetization for mobile apps**

**iS** installCore

**Installer-based platform for desktop products**

**iS** displayCore



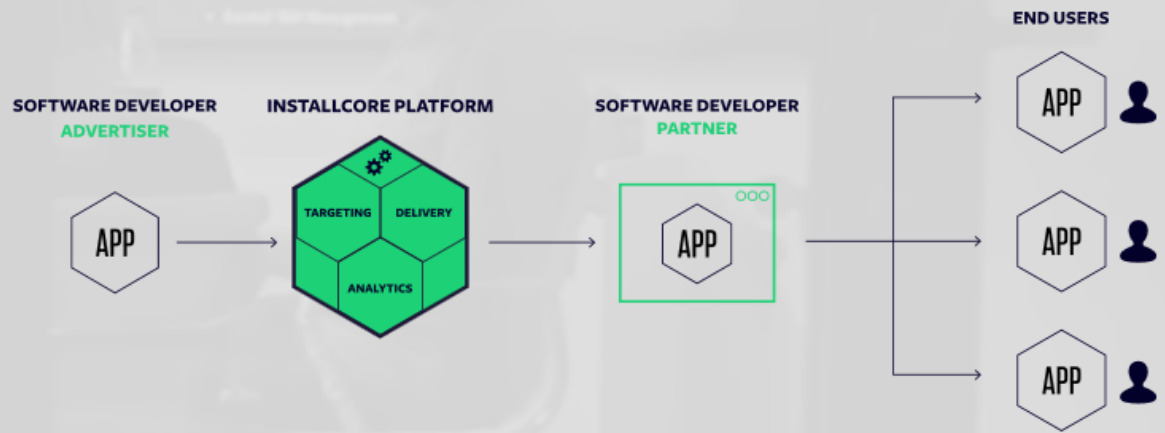
installCore

# World's leading software installation platform for premium publishers

Employing cutting edge technologies covering a wide range of fields, the installCore platform offers an optimal solution for the distribution, delivery and monetization of software.

[installCore Website](#)

## installCore Eco System





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About 37,000,000 results (0.28 seconds)

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Chrome for free on your computer**Get Chrome for Mobile**Browse fast on your tablet & phone  
by downloading Chrome for mobile**Chrome Apps & Extensions**Discover great apps, games,  
extensions & themes for Chrome**Features**Learn more about the fast, simple,  
& secure browser built for the web**Download Google Chrome® - Downloadb.net****Ad** [google-chrome-install.downloadb.net/](http://google-chrome-install.downloadb.net/) ▾New **Google Chrome® 35 Version**. **Google Chrome® 2014**. Install Today!Chrome is still fast and loaded with new standard support. – **PCMag**[Download the New Version](#) - [Get the Latest Chrome®](#) - 100% Free Installation**Chrome - Google**[www.google.com/chrome/](http://www.google.com/chrome/) ▾ Google ▾A browser that combines a minimal design with new technology designed to improve  
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Google Chrome

## Welcome to the Downloadb Download Manager

This will download and install the software on your computer.  
Click "Next" to continue.

### Quick Specs

File Name: ChromeSetup.exe

Version: latest

File Size: 860000

Date Added: -

Google Chrome Browser

Step 1 of 4

Downloadb

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Next



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Make your selection to continue...

Get Astromenda new-tab add-on for easy access to your favorite sites & Astromenda games app to play games. If you choose to install the add-on, it will be installed on all browsers and will set your homepage (s) and default search to it, and we will perform the necessary adjustments to carry out your choices, and will protect your browsers from unauthorized changes.

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[Last updated December 31, 2013]

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Framed Display software provides helpful content and tools to enhance your web browsing experience. Framed Display administers the following: exclusive offers, coupons, website ratings, reviews, multi-site searching, related search results, and comparison shopping.

Additional features may be auto-enabled after installing. Framed Display content includes advertisements and is not affiliated with any underlying websites.

Browser settings will be adjusted at install. User info is collected and shared for ad relevance and other purposes. Uninstall Framed Display with Add/Remove Programs. Please review all terms before installing.

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## RegClean Pro

Registry is a critical part of Windows. Since the registry is in constant use due to regular PC usage, it can get cluttered over time. Installing and removing software regularly and even moving and accessing data on the PC creates more and more registry entries, thereby increasing its size and deteriorating the systems performance.

RegClean Pro cleans such invalid registry entries using its advanced scan engine. It not only fixes invalid registry entries, it also defragments the registry, keeping it streamlined for smoother system performance. You don't have to be a computer expert to use this RegClean Pro. Reg Clean Pro also includes Advanced System Protector for complete data protection.

By clicking "Accept" you agree to install RegClean Pro and to its End User License Agreement and Privacy Policy. This product is compatible with your Windows operating system and can be removed anytime via the Add/Remove programs utility.

Step 2 of 4

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DriverSupport

Whether you just plugged in a printer, webcam or other device, if you are in the process of re-installing Windows, or just plain troubleshooting a device-related issue, we can help find the correct device driver for your system. Driver Support provides an innovative way to diagnose issues with your PC, resolve those issues through support and driver matching technology, and optimize your PC's performance. Driver Support's access to a robust, industry leading database makes it the most accurate driver and software matching system available. Our matching technology means you never have to worry about whether your driver is the correct one for your device.

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Highly recommended

## Update Windows Drivers

Install missing or out of date Windows Drivers for improved PC performance.

Update Drivers 

Your Software is downloading...

# 24%

Step 3 of 4

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myPCBackup.com

Backing up your computer doesn't need to be complicated! MyPCBackup uses a small desktop application to backup all of your computers to the cloud. Your files are constantly backed up and you can access them at any time from any device in the world. Click 'Play' on the video to see what MyPCBackup can do for you. MyPCBackup will back up the files and folders hat you choose. Once the initial backup is complete, MyPCBackup will automatically save any changes to the files or any new files added. You can set your backup schedule and MyPCBackup will run in the background, without you having to do anything.

By clicking "Accept", you agree to install MyPCBackUp and to its End User License Agreement and Privacy Policy. This product is compatible with your Windows operating system and can be removed anytime via the Add/Remove programs utility.

Step 2 of 4

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Update your PC  
with the correct  
Windows Drivers

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2:44 am ET  
Aug 11, 2014

EUROPE

## IronSource Closes Pre-IPO Investment Round of Up to \$100 Million

ARTICLE

COMMENTS

[EUROPE](#) [IPO](#) [IRONSOURCE](#) [SOFTWARE](#)By [ORR HIRSCHAUGE](#) [CONNECT](#)

Israel-based IronSource closed an investment round of \$80 million to \$100 million from a consortium of American, European and Asian investors, according to a person familiar with the matter, ahead of an initial public offering slated for the second quarter of 2015.

The software company, founded in 2009, has hired [JP Morgan](#) [JPM +0.10%](#) and [Morgan Stanley](#) as [MS +0.03%](#) its advisers for the IPO, which is estimated to have a valuation \$1.5 billion.

IronSource's software manages downloads and optimizes the process to create a better installment success rate. The company's annual revenue totaled around \$260 million. Alongside its PC-based business, the company has expanded its mobile offerings in the last year and its mobile business now generates tens of millions of dollars a year in revenue.

IronSource currently employs 370. The company plans to expand its offering and revenue streams through acquisitions before the planned IPO, the person said.

[Company overview](#)[Who we are](#)[Our culture](#)[Locations](#)[Management team](#)[What we believe](#)[What we do](#)

## Unwanted Software Policy

At Google, we believe that if we focus on the user, all else will follow. In our [Software Principles](#), we provide general recommendations for software that delivers a great user experience. The policy below expands upon those general recommendations by providing a list of basic criteria for user-friendly software on the web. Software that violates these principles is potentially harmful to the user experience, and we will take steps to protect users from it.

We've found that most unwanted software displays one or more of the same basic characteristics:

- It is deceptive, promising a value proposition that it does not meet.
- It tries to trick users into installing it or it piggybacks on the installation of another program.
- It doesn't tell the user about all of its principal and significant functions.
- It affects the user's system in unexpected ways.
- It is difficult to remove.
- It collects or transmits private information without the user's knowledge.
- It is bundled with other software and its presence is not disclosed.

...

## Transparent Installation and Upfront Disclosure

...

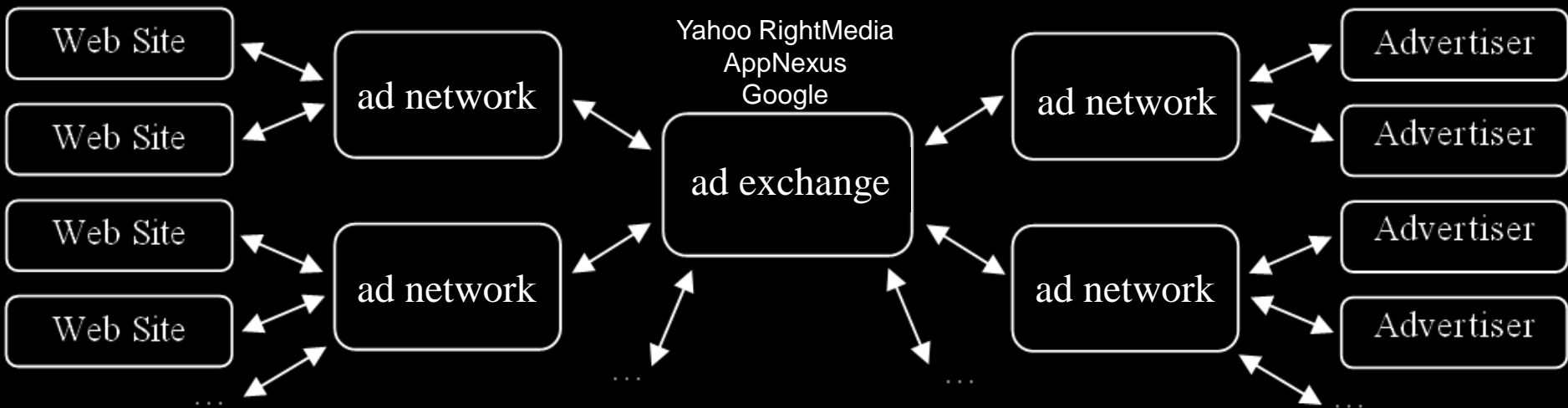
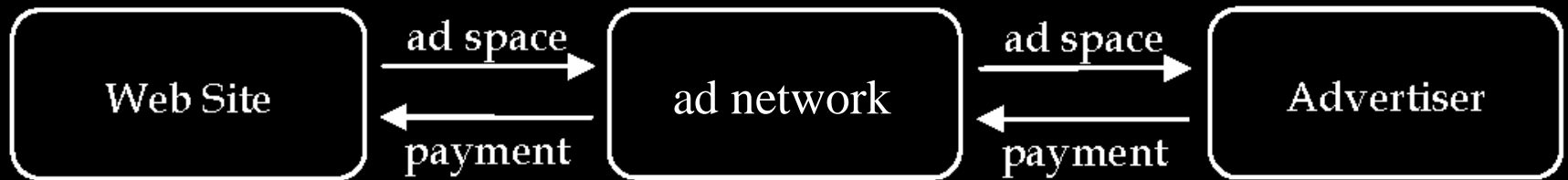
- As part of the install flow, any bundled software must be clearly disclosed. No software should be installed silently without the user's permission. The name and principal and significant functions of every piece of software that will be installed should be visible to the user, and the user should be able to skip the entire bundled software or offer as well as individual components of the bundle.
- ...
- Before and during the install process, the software must not engage in any deceptive behaviors. Some examples of deceptive behaviors include:
    - Making false or misleading claims about the state of the user's system. For example, misleading claims related to antivirus protection, system performance, system optimization, a new version of a plugin, etc.
    - Claiming or implying to be official software from a company or a partner of the company if that is not the case.

...

## Keeping Good Company

- If any program includes any third-party software, the author is responsible for obtaining proper bundling authorization from the third party.
- If software is offered as part of a bundle, all programs included in the bundle must follow the guidelines above.

# Ad networks and exchanges



# So much that can go wrong...

- Invisibility
- Inventory counterfeiting
- Injection
- Laundering

[ad farm creates 14 ads and zero content]

```
GET http://intadserver101.info/adsidu.php?size=300x250&pub_url=
HTTP/1.1 ...
```

```
Referer: [ad farm URL]
```

```
HTTP/1.1 200 OK ...
```

double-serving

```
<iframe src="http://ib.adnxs.com/tt?id=3807703&size=300x250&referrer=
http://facebook.com" ... width="300" height="250"></iframe>
```

1

```
<iframe src="http://ib.adnxs.com/tt?id=3807703&size=300x250&referrer=
http://facebook.com" ... width="300" height="250"></iframe>
```

2

referer faking

```
GET http://ib.adnxs.com/tt?id=3807703&size=300x250&referrer=http://
facebook.com HTTP/1.1 ...
```

```
HTTP/1.1 302 Found
```

```
...
```



## Under Pressure From Buyers, Fraud-Plagued AppNexus Girds For Battle

by [Zach Rodgers](#) // Wednesday, October 15th, 2014 - 8:30 am

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The digital ad sector has made some tangible progress in the war on fraudulent ad impressions, thanks to new detection methods and improved hygiene from many sell-side platforms. But one of the biggest exchanges has added rather than subtracted invalid impressions, and buyers are complaining.



AppNexus brokering obvious counterfeit traffic



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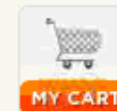


*Shoes, Clothing, Bags, etc.*

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## SHOES

## CLOTHING

## BAGS & HANDBAGS

## ACCESSORIES

## SHOP BY...

WOMEN'S

**MEN'S**

**KIDS'**

## ALL DEPARTMENTS



SKU 8488333

Revizer (Tel Aviv)

## Nanette Lepore Bollywood Caftan Cover-Up

nanette lepore

**\$144.00**

**Ships Free!**

Multi

DEALS

**\$144**

Women's Nanette Lepore  
'Bollywood' Cafta...

**NORDSTROM**

**\$144**

Women's Nanette Lepore  
'Bollywood' Cafta...

NORDSTROM

**\$146**

Nanette Lepore Flora  
Fiesta Embroidered ...

SWIMOUTLET

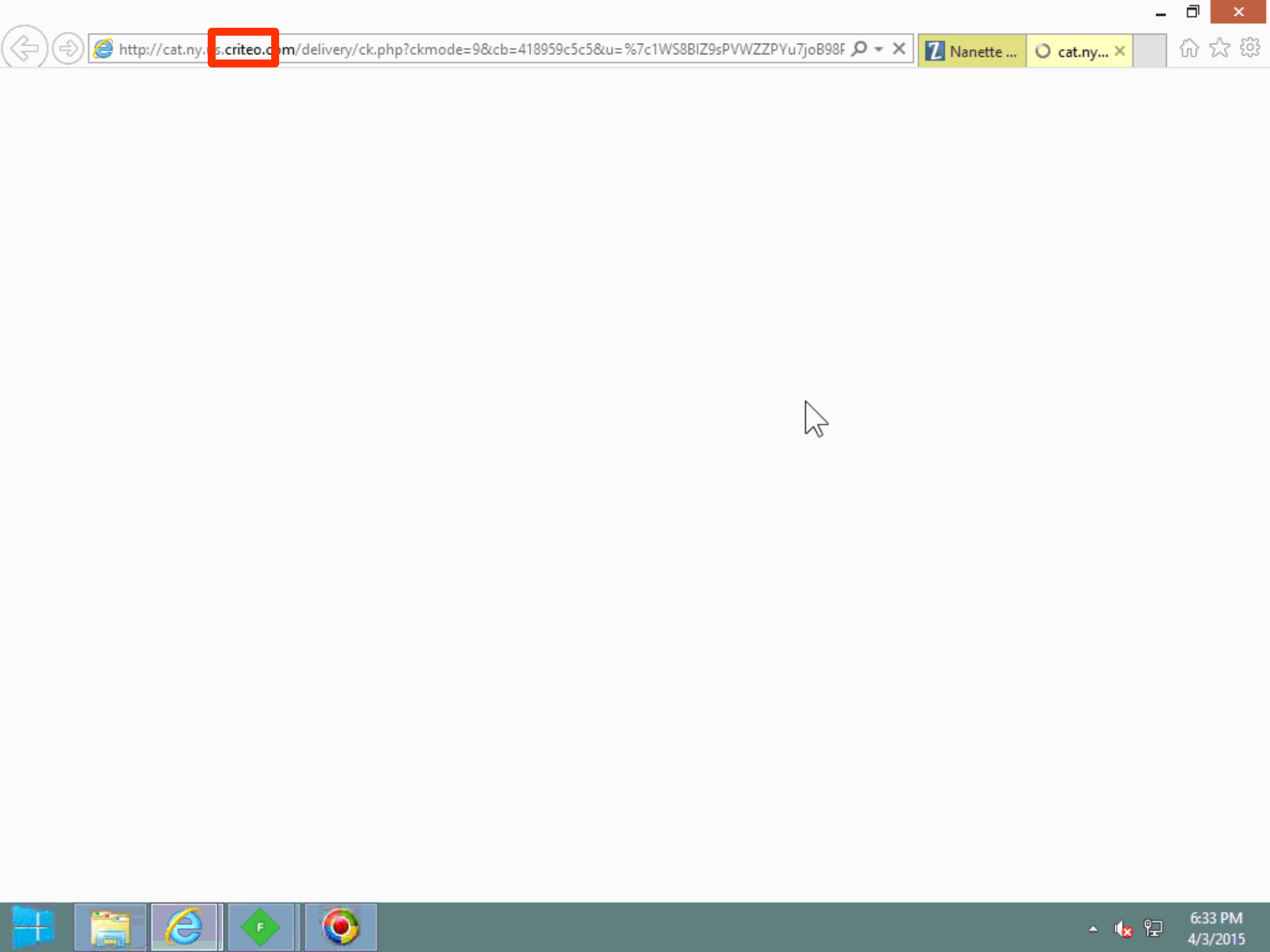
**\$176**

Nanette Lepore Playa  
Tropical Cover-Up T...

**SWIMOUTLET**

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ACCESSORIES

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MEN'S

KIDS'

ALL DEPARTMENTS

« Back | Shoes > Loafers > Donald J Pliner

SKU 84

## Donald J Pliner Derrik



DONALD J PLINER

**\$185.00**

**Ships Free!**

Navy

Choose Men's Size

Width: M

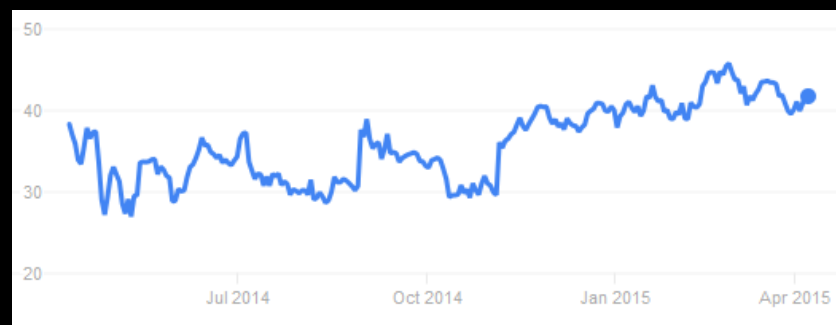
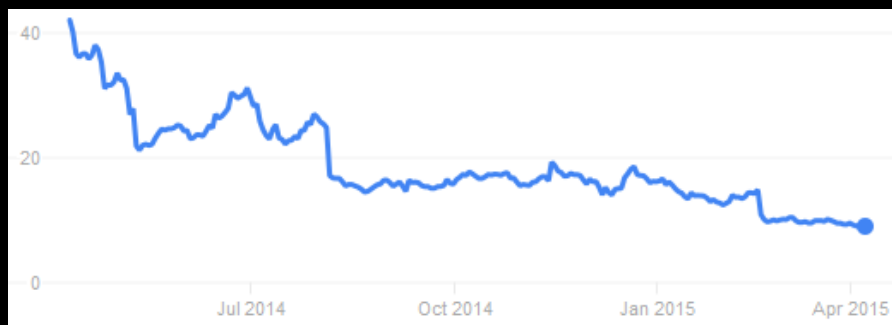
[Don't see your size?](#)

Add to Cart

Add to Favorites

[Notify Me of New Styles](#)

Criteo charging advertisers for traffic they already had



```
GET http://c.ztstatic.com/youtube_728x90_Layers_274.htm?clientId=24e079e0-9501-40d0-9c48-  
edf6002f88e9&l=http%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3D6AIdXisPgHc&r=http%3A%2F%2Fwww.youtube.com%2Fvideos  
HTTP/1.1
```

## adware injection into YouTube

```
HTTP/1.1 200 OK ...
```

```
d.write('<scr' + 'ipt type="text/javascript" src="//serviceama-a.akamaihd.net/js/showads_p.js">'); ...
```

```
GET http://service.amasvc.com/creative.jsonp?...&rfr=http%253A%252F%252Fwww.youtube.com%252Fvideos... HTTP/1.1 ...
```

```
HTTP/1.1 200 OK ...
```

```
renderCreative({"creativeTypeId":3,"imageUrl":null,"clickUrl":null,"impressionUrl":"//service.amasvc.com/i?token=  
583c81e90b274d0aaa1b7fec913f6bc3&e=MQA1ADgAfAAzADkAOAAwADIAMgA1ADcANAB8ADIANQA1AHwAMgA5ADIAMgB8ADIANAB1ADAANwA5AG  
UAMAAAtAdkANQAwADEALQA0ADAAZAAAwAC0AOQBjADQAOAAAtAGUAZABmADYAMAAwADIAZgA4ADgAZQA5AA&z=1","html":"<!-- BEGIN TAG - DO  
NOT MODIFY -->\n<script type=\"text/javascript\">\n//<![CDATA[\n\nnepom key =  
\"b70f8869af12aadd5be6c60b47ba2eef\";\n\nnepom channel = \"\";\n\nnepom code format = \"ads\";\n\nnepom ads host =  
\"//www.adshost2.com\";\n\nnepom click = \"\";\n\nnepom custom params = {};\n\nnepom width = \"728\";\n\nnepom height =  
\"90\";\n\nndocument.write(\"<script type='text/javascript' src='"+(location.protocol == 'https:' ? 'https:' :  
'http:') + \"//www.adshost2.com/js/show_ads.js'></script>\");\n\n]]>\n</script>\n<!-- END TAG --  
>\n","campaignId":2922,"adId":4896,"rootToken":"583c81e9-0b27-4d0a-aalb-7fec913f6bc3","sv":null});
```

```
GET http://www.adshost2.com/ads?key=82e86dab897d417b709aa36e56d4dc3d HTTP/1.1 ...
```

```
HTTP/1.1 200 OK ...
```

```
<iframe src="http://www.healthiwoman.com/content/category/v2/lifestyle-rmb.html" width="300" height="250"  
style="background-color:000000;padding:0px 0px 0px 0px;" frameborder="0" marginheight="0" marginwidth="0"  
scrolling="no"></iframe>
```

## IFRAME'ing Healthiwoman

```
GET http://www.healthiwoman.com/content/category/v2/lifestyle-rmb.html HTTP/1.1 ...
```

```
HTTP/1.1 200 OK ...
```

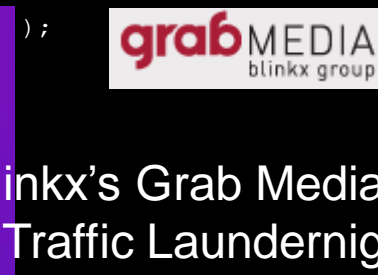
```
<meta http-equiv="refresh" content="60;url=http://www.soyouthinkyoucangame.com/cdn/cdn300s1.html">  
<iframe src="http://www.healthiwoman.com/content/category/player/lifestylerrmb.html?utm_source=rmb&utm_medium=  
wlifestyle1" height="250" width="300" frameborder="0" marginwidth="0" marginheight="0" scrolling="no"></iframe>
```

## auto reload after 60 seconds

```
GET http://www.healthiwoman.com/content/category/player/lifestylerrmb.html?utm_source=rmb&utm_medium=wlifestyle1  
HTTP/1.1 ...
```

```
HTTP/1.1 200 OK ...
```

```
<script language="JavaScript" type="text/javascript" src="http://player.grabnetworks.com/js/Player.js"></script>  
<script language="JavaScript" type="text/javascript">
```



# Why such a mess?

- Long supply chains
- Plausible deniability
- Ad network complacency
- Ad buyer complacency
- Excessive trust in (mis)measured performance

# Adtech Shenanigans in 2015

Benjamin Edelman

more examples: <http://www.benedelman.org>