# DNSSEC / Privacy

*CS 161: Computer Security*

**Prof. Vern Paxson**

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& Matthias Vallentin

*http://inst.eecs.berkeley.edu/~cs161/*

**April 5, 2011**

# Today's Lecture

- Finish discussion of DNSSEC
  - Ensuring that DNS results indeed match those from the corresponding authority
- A look at privacy
  - Mechanisms & practices that subvert it
  - Technical measures to obtain it

# Securing DNS Lookups

- How can we ensure that when clients look up names with DNS, they can trust the answers they receive?
- Idea #1: do DNS lookups over TLS
  - (assuming either we run DNS over TCP, or we use "Datagram TLS")
  - Issues?
    - Performance: DNS is very lightweight. TLS is not.
    - Caching: crucial for DNS scaling. But then how do we keep authentication assurances?
- Idea #2: make DNS results like certs
  - I.e., a verifiable signature that guarantees who generated a piece of data; signing happens **off-line**

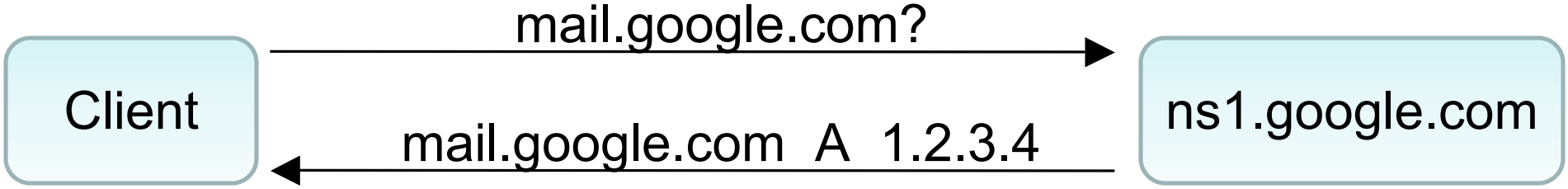
# Operation of DNSSEC

- DNSSEC = standardized DNS security extensions currently being deployed

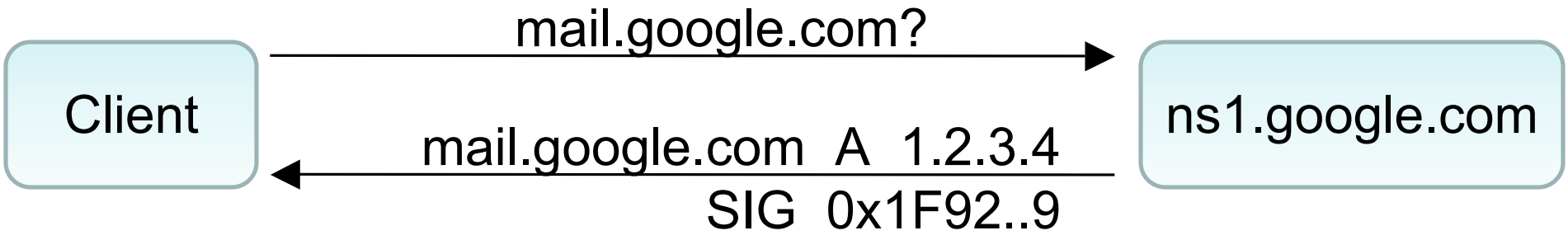
1. Suppose we look up `mail.google.com` (simplified)
   - We get an answer from `google.com` nameserver (NS)
   - Plus: signature for answer (in Additional section) purportedly signed by `google.com` NS
2. Look up public key for `google.com` NS
   - That answer is signed by `.com` NS
3. Look up public key for `.com` NS
   - That answer is signed by root (‘`.`’) NS
4. Root NS’s public key is wired into our resolver

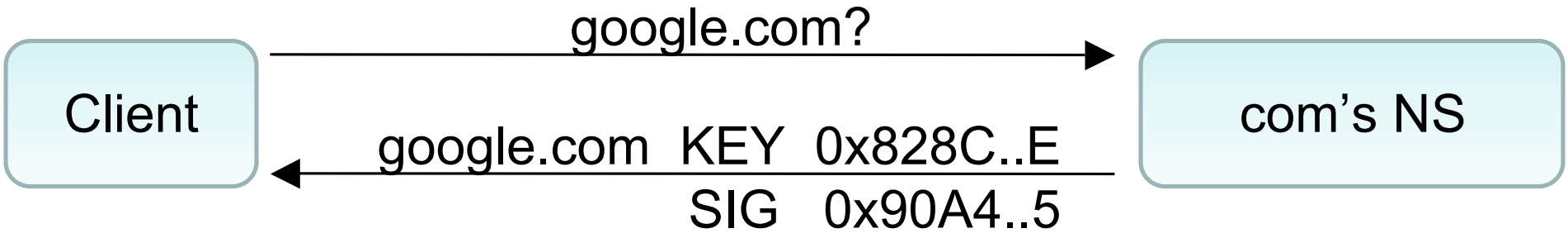
- All of these keys are *cacheable*

Ordinary DNS:




DNSSEC:

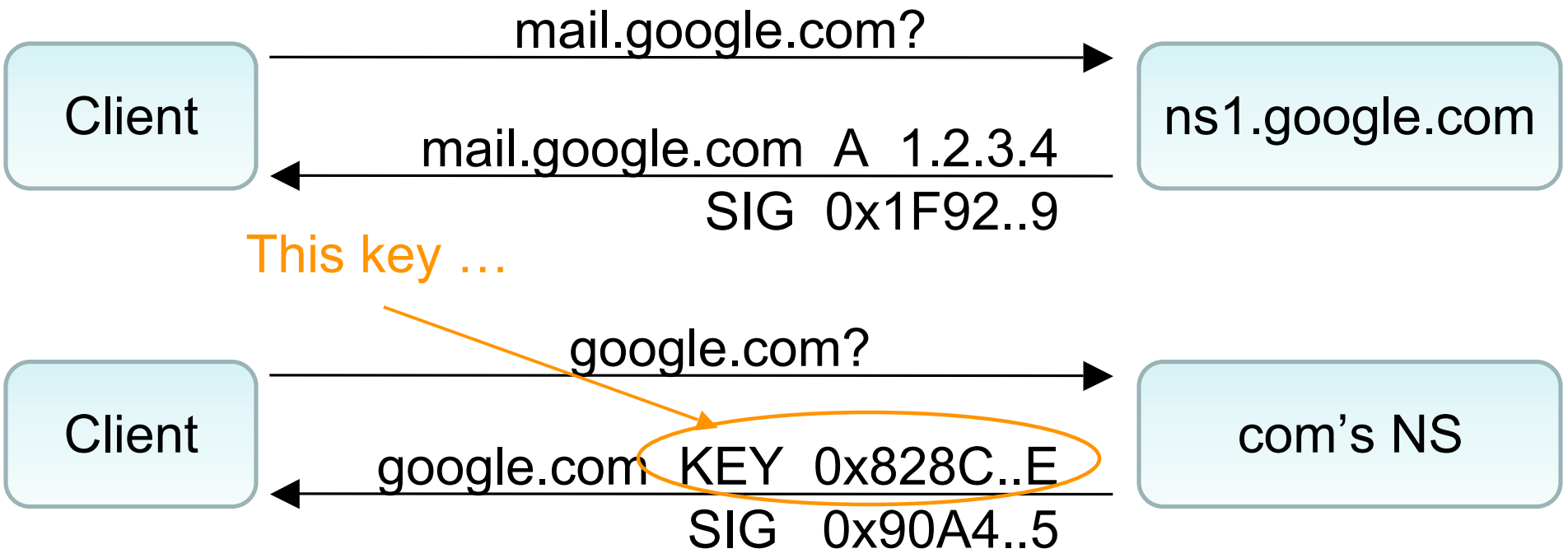


DNS:


mail.google.com?
Client
ns1.google.com
mail.google.com A 1.2.3.4

DNSSEC:


mail.google.com?
Client
ns1.google.com
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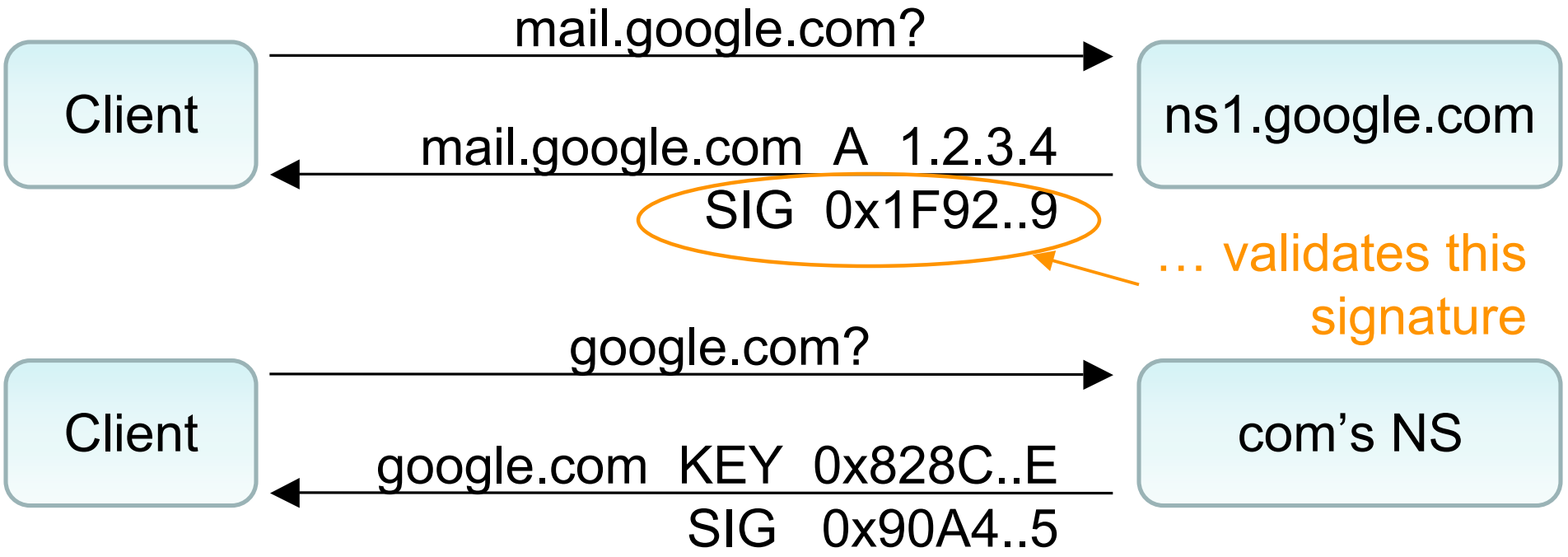
SIG 0x1F92..9
This key …
google.com?
Client
com's NS
google.com KEY 0x828C..E
SIG 0x90A4..5

DNS:


mail.google.com?
Client
ns1.google.com
mail.google.com A 1.2.3.4

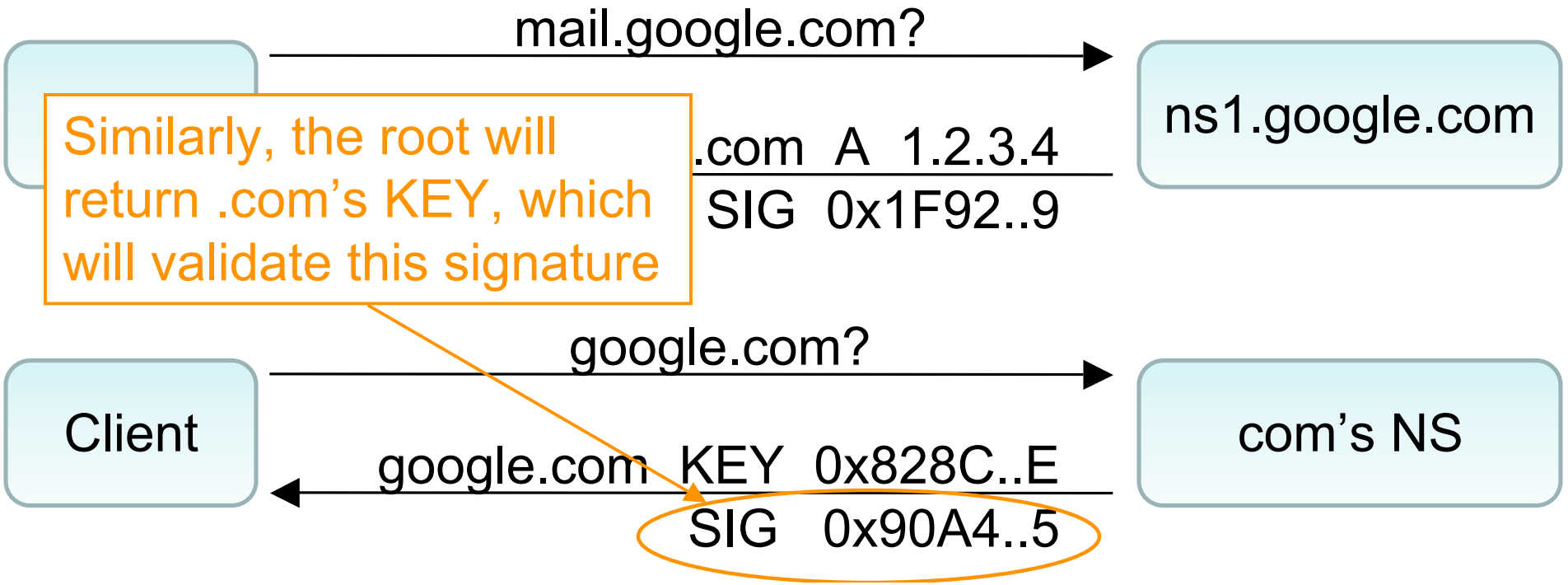
DNSSEC:


mail.google.com?
Client
ns1.google.com
mail.google.com A 1.2.3.4
SIG 0x1F92..9
… validates this signature
google.com?
Client
com's NS
google.com KEY 0x828C..E
SIG 0x90A4..5

DNS:


mail.google.com?
Client
ns1.google.com
mail.google.com A 1.2.3.4

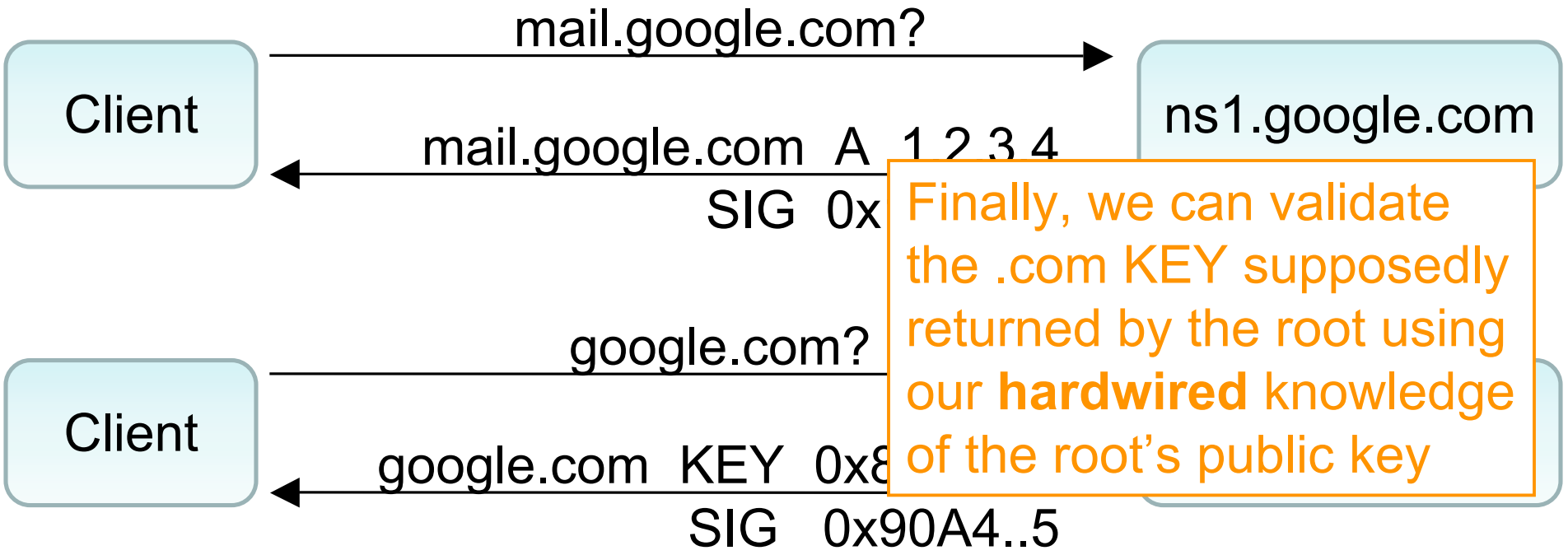
DNSSEC:


mail.google.com?
ns1.google.com
.com A 1.2.3.4
SIG 0x1F92..9
Similarly, the root will return .com's KEY, which will validate this signature
google.com?
Client
com's NS
google.com KEY 0x828C..E
SIG 0x90A4..5

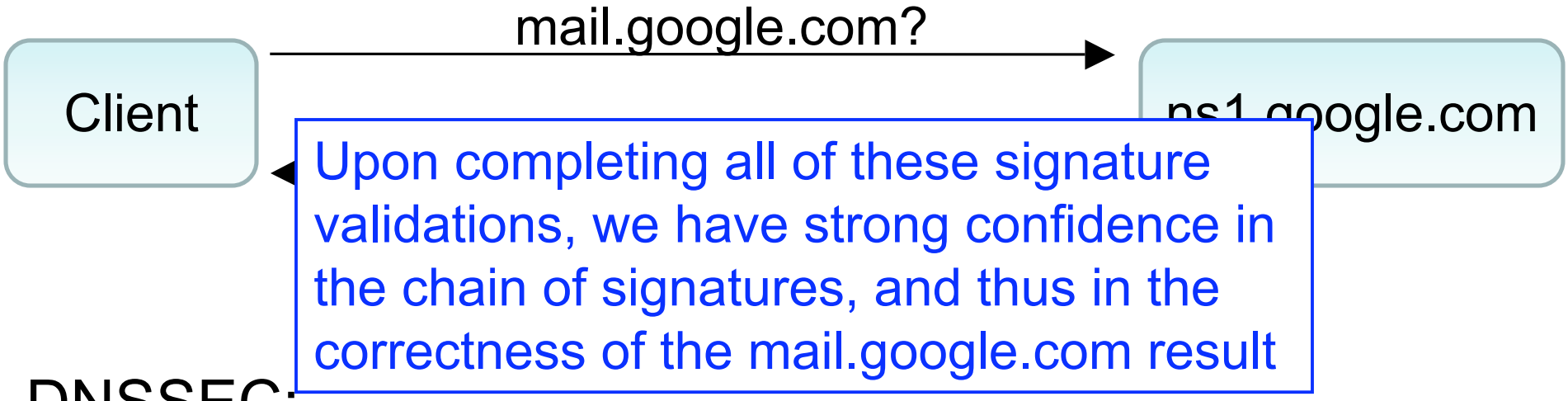
DNS:


mail.google.com?
Client
ns1.google.com
mail.google.com A 1.2.3.4

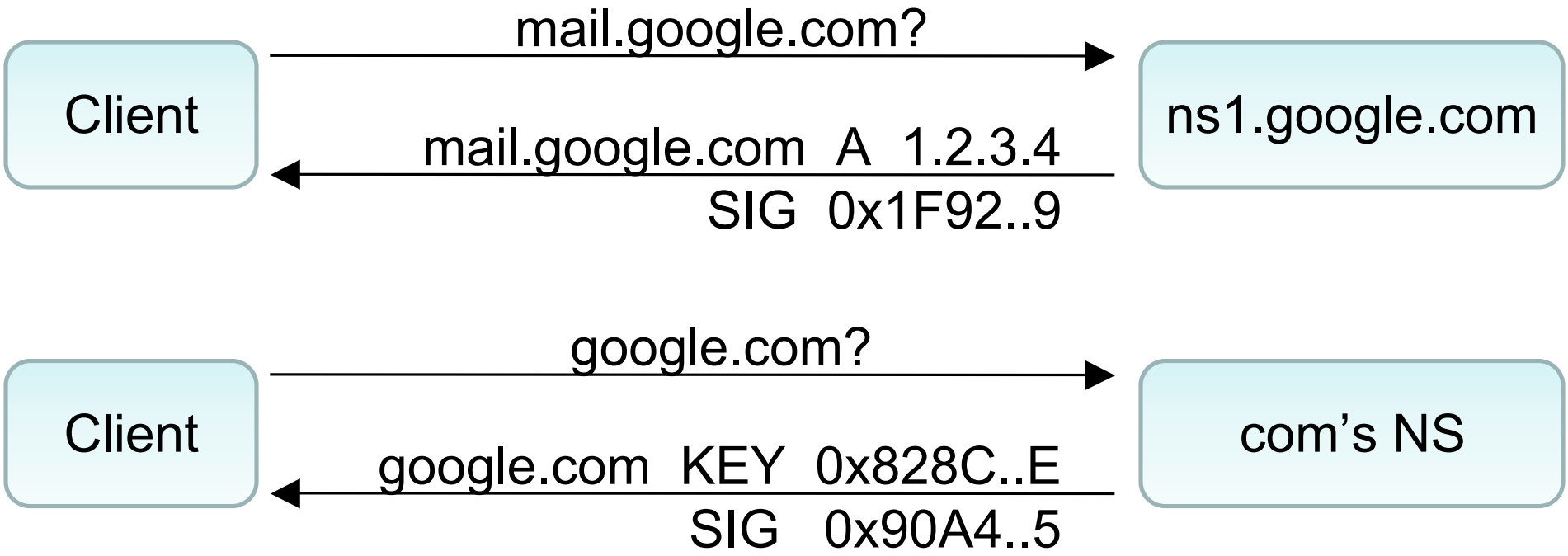
DNSSEC:


mail.google.com?
Client
ns1.google.com
mail.google.com A 1.2.3.4
SIG 0x
google.com?
Client
google.com KEY 0x8
SIG 0x90A4..5
Finally, we can validate the .com KEY supposedly returned by the root using our **hardwired** knowledge of the root's public key

DNS:


mail.google.com?
Client
ns1.google.com
Upon completing all of these signature validations, we have strong confidence in the chain of signatures, and thus in the correctness of the mail.google.com result

DNSSEC:


mail.google.com?
Client
ns1.google.com
mail.google.com A 1.2.3.4
SIG 0x1F92..9
google.com?
Client
com's NS
google.com KEY 0x828C..E
SIG 0x90A4..5

# Issues With DNSSEC ?

- Issue #1: Replies are Big
  - E.g., "`dig +dnssec berkeley.edu`" can return 2100+ B
  - DoS amplification
  - Increased latency on low-capacity links
  - Headaches w/ older libraries that assume replies < 512B

- Issue #2: *Partial deployment*
  - Suppose `.com` not signing, though `google.com` is
  - Major practical concern. What do we do?
  - Can wire additional key into resolver (doesn't scale)
  - Or: outsource to trusted third party ("lookaside")
    - Wire their key into resolver, they sign numerous early adopters

# Issues With DNSSEC, con't

- Issue #3: *Partial deployment*
  - What do you do with unsigned/unvalidated results?
  - If you trust them, weakens incentive to upgrade
  - If you don't trust them, a whole lot of things break
- Issue #4: Negative results ("no such name")
  - What statement does the nameserver sign?
  - If "`gabluph.google.com`" doesn't exist, then have to do dynamic key-signing (expensive) for any bogus request
    - DoS vulnerability
  - Instead, sign (off-line) statements about order of names
    - E.g., sign "`gabby.google.com` followed by `gabrunk.google.com`"
    - Thus, can see that `gabluph.google.com` can't exist
  - But: now attacker can enumerate all names that exist :-(

# Issues With DNSSEC, con't

- Issue #5: *Who do you really trust?*
  - For your laptop, say, who does all the "grunt work" of fetching keys & validating DNSSEC signatures?
- Convenient answer: your laptop's local resolver
  - … which you acquire via DHCP in your local coffeeshop
  - I.e., exactly the most-feared potentially untrustworthy part of the DNS resolution process!
- Alternatives?

  ⇒ Your laptop needs to do all the validation work itself

# Privacy

# Defining Privacy

- Privacy = right to control who knows certain aspects about you / your communications / your activities
  - Control over disclosure
  - And ideally over subsequent use

- How much of an issue is this?
  E.g., how much information about you do web sites learn as you surf?

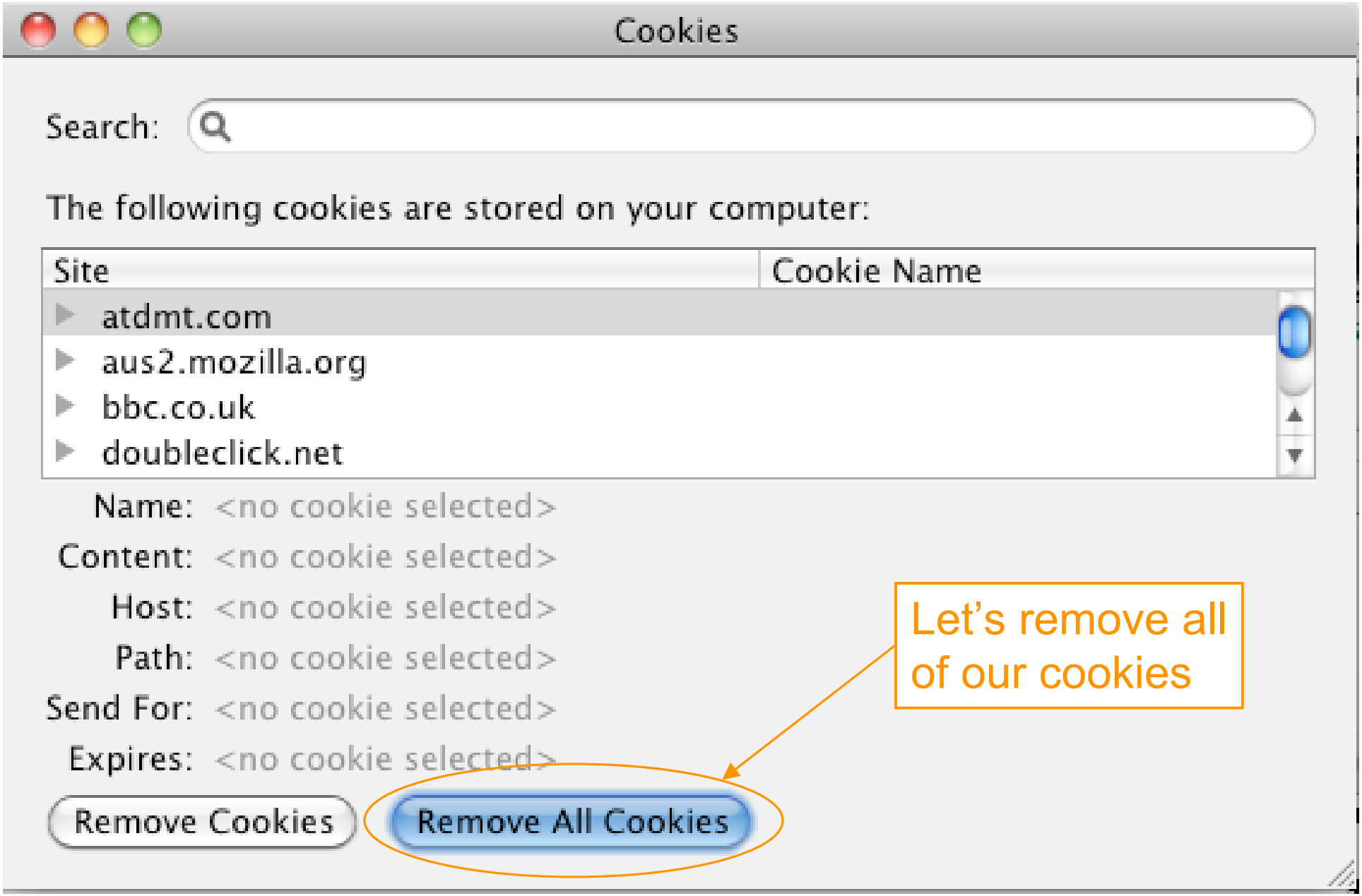
# Privacy & Web Surfing

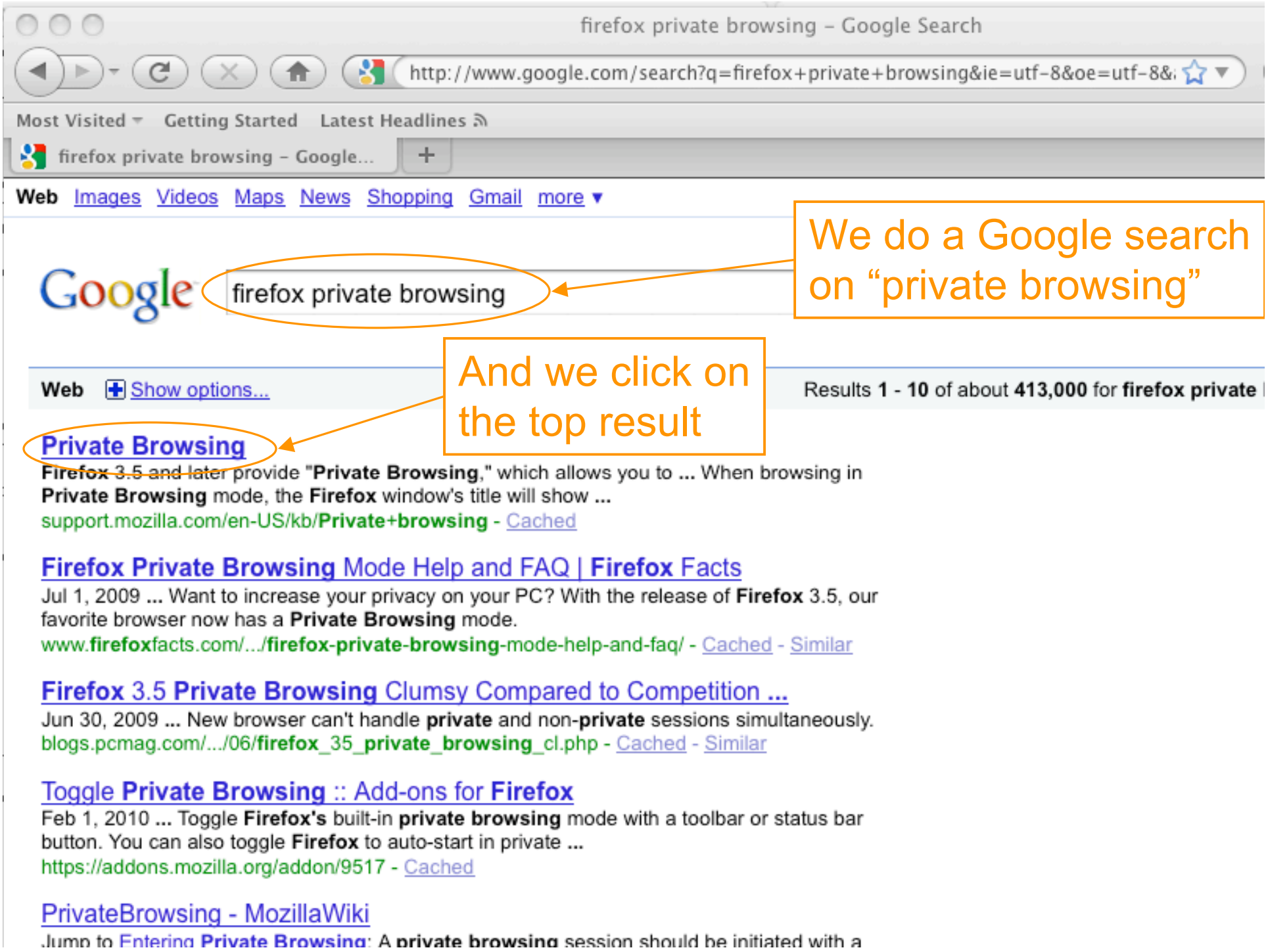
- The sites you visit learn:
  - The URLs you're interested in
    - Google/Bing also learns *what you're searching for*
  - Your IP address
    - Thus, your service provider & geo-location
    - Can often link you to other activity including at other sites
  - Your browser's capabilities, which OS you run, which language you prefer
  - Which URL you looked at that took you there
    - Via "`Referer`" header

# Privacy & Web Surfing, con't

- Oh and also cookies.
- Cookies = state that server tells browser to store locally
  - Name/value pair, plus expiration date
- Browser returns the state any time visiting the same site

- Where's the harm in that?
  And are these used much anyway?


Cookies
Search:
The following cookies are stored on your computer:
Site
Cookie Name
atdmt.com
aus2.mozilla.org
bbc.co.uk
doubleclick.net
Name: <no cookie selected>
Content: <no cookie selected>
Host: <no cookie selected>
Path: <no cookie selected>
Send For: <no cookie selected>
Expires: <no cookie selected>
Remove Cookies
Remove All Cookies
Let's remove all of our cookies


firefox private browsing - Google Search
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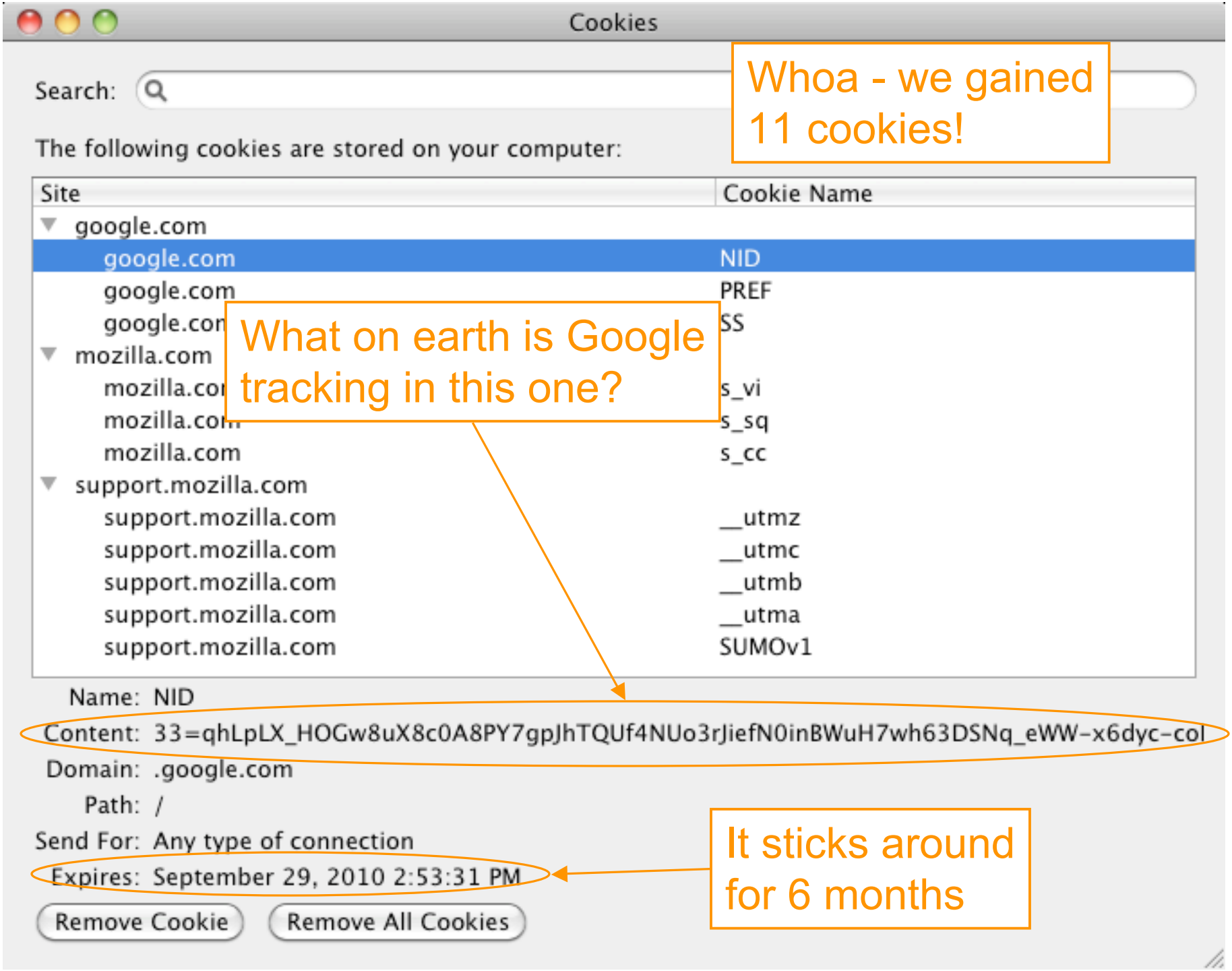
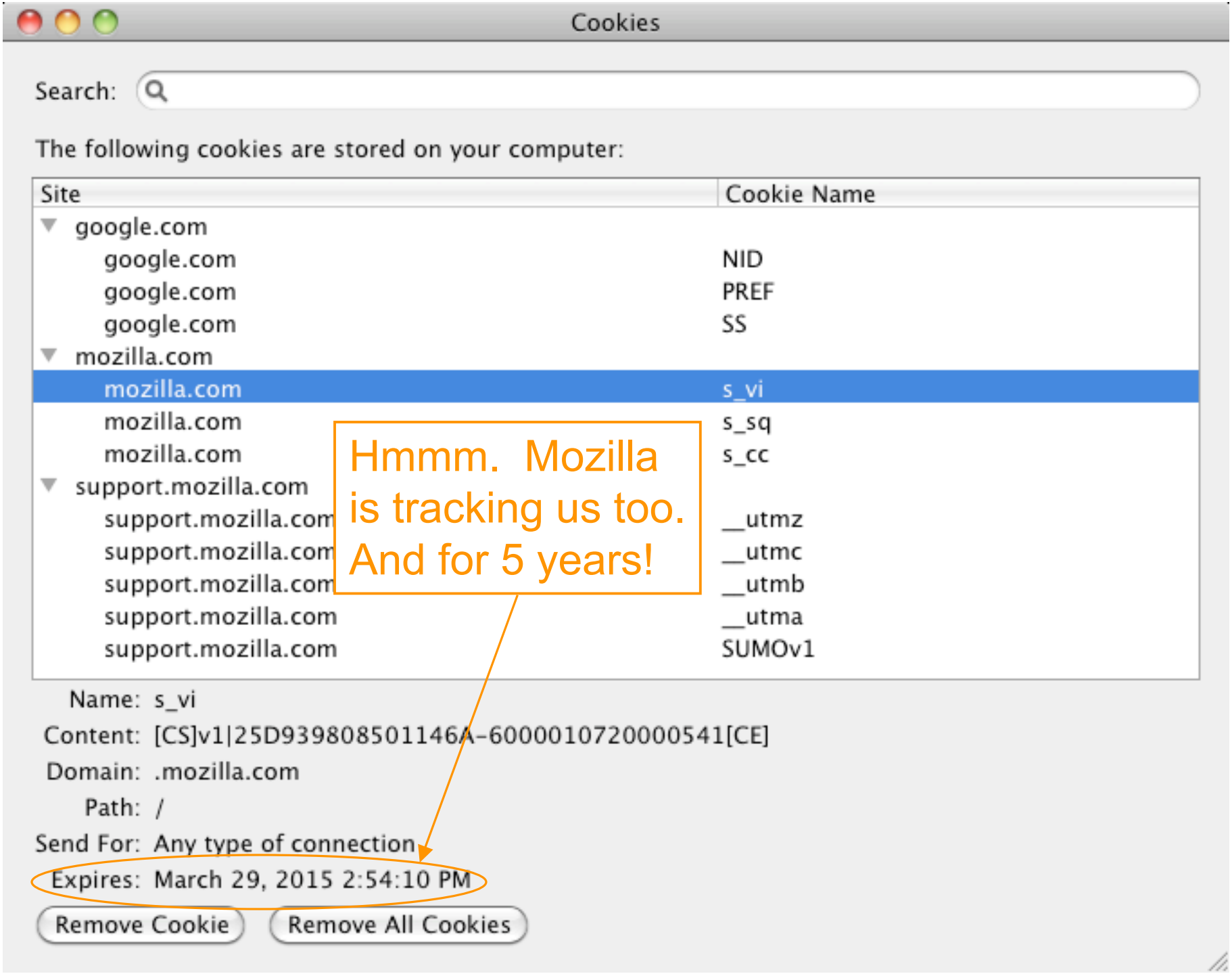
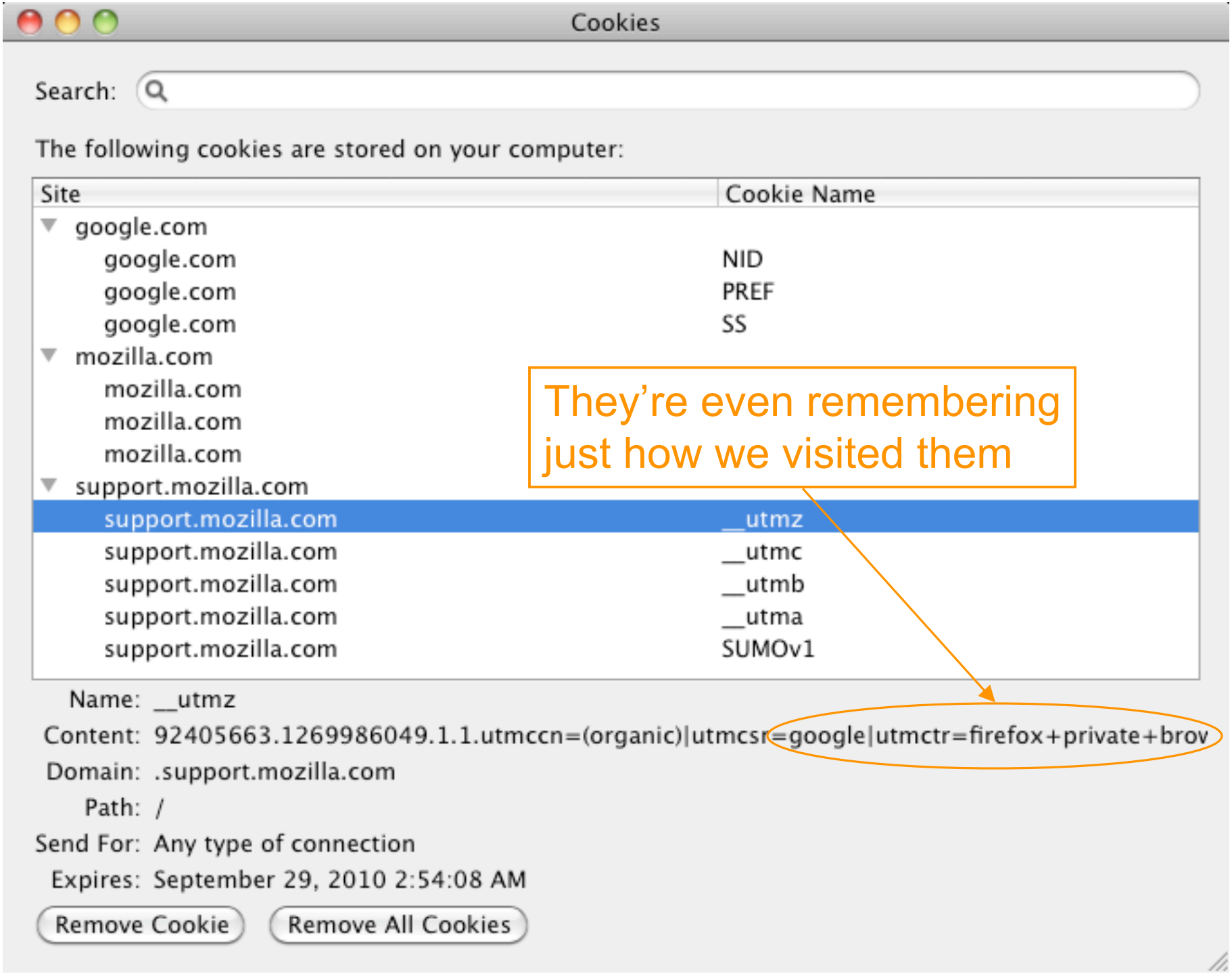
Getting Started
Latest Headlines
firefox private browsing - Google...
Web
Images
Videos
Maps
News
Shopping
Gmail
more
Google
firefox private browsing
We do a Google search on “private browsing”
And we click on the top result
Web
Show options...
Results 1 - 10 of about 413,000 for firefox private
Private Browsing
Firefox 3.5 and later provide "Private Browsing," which allows you to ... When browsing in Private Browsing mode, the Firefox window's title will show ...
support.mozilla.com/en-US/kb/Private+browsing - Cached
Firefox Private Browsing Mode Help and FAQ | Firefox Facts
Jul 1, 2009 ... Want to increase your privacy on your PC? With the release of Firefox 3.5, our favorite browser now has a Private Browsing mode.
www.firefoxfacts.com/.../firefox-private-browsing-mode-help-and-faq/ - Cached - Similar
Firefox 3.5 Private Browsing Clumsy Compared to Competition ...
Jun 30, 2009 ... New browser can't handle private and non-private sessions simultaneously.
blogs.pcmag.com/.../06/firefox_35_private_browsing_cl.php - Cached - Similar
Toggle Private Browsing :: Add-ons for Firefox
Feb 1, 2010 ... Toggle Firefox's built-in private browsing mode with a toolbar or status bar button. You can also toggle Firefox to auto-start in private ...
https://addons.mozilla.org/addon/9517 - Cached
PrivateBrowsing - MozillaWiki
Jump to Entering Private Browsing: A private browsing session should be initiated with a


Private Browsing
http://support.mozilla.com/en-US/kb/Private+browsing
firefox
Most Visited
Getting Started
Latest Headlines
Private Browsing
mozilla
Products
Add-ons
Support
Community
About
Firefox Support / Knowledge Base / Private Browsing
Note that this mode is privacy from your family, not from web sites!
Private Browsing
History is used by the browser to enhance your experience on the Internet. When the browser remembers a website you previously visited or the username and password for your favorite web site, this information is considered your history.
However, there may be times when you do not want other users of your computer to see or access such information. For example, if a friend or family member shares your computer, you might prefer for them not to be able to see what websites you've visited or what files you've downloaded.
Firefox 3.5 and later provide "Private Browsing," which allows you to browse the Internet without Firefox saving any data about which sites and pages you have visited.
Note: Private Browsing prevents information from being recorded on your computer. It does not make you anonymous on the Internet.
Actions
Edit this page
Translate this page
Show content customized for:
Windows | Linux | Mac OS
Firefox: 3.0 | 3.5/3.6
Firefox Supp
Knowledge Base
Support Forum
Ask a Question
Other Firefox Support
How to Contribute
Log In
Search Fire
Related Articl
Problems using Faceb
Firefox crashes when v
Youtube videos
Websites say cookies a
Firefox crashes when l
pages


Cookies
Search:
Whoa - we gained 11 cookies!
The following cookies are stored on your computer:
Site
Cookie Name
google.com
google.com
NID
google.com
PREF
google.com
SS
mozilla.com
mozilla.com
s_vi
mozilla.com
s_sq
mozilla.com
s_cc
support.mozilla.com
support.mozilla.com
__utmz
support.mozilla.com
__utmc
support.mozilla.com
__utmb
support.mozilla.com
__utma
support.mozilla.com
SUMOv1
What on earth is Google tracking in this one?
Name: NID
Content: 33=qhLpLX_HOGw8uX8c0A8PY7gpJhTQUf4NUo3rJiefN0inBWuH7wh63DSNq_eWW-x6dyc-col
Domain: .google.com
Path: /
Send For: Any type of connection
Expires: September 29, 2010 2:53:31 PM
It sticks around for 6 months
Remove Cookie
Remove All Cookies


Cookies
Search:
The following cookies are stored on your computer:
Site
Cookie Name
google.com
google.com
NID
google.com
PREF
google.com
SS
mozilla.com
mozilla.com
s_vi
mozilla.com
s_sq
mozilla.com
s_cc
support.mozilla.com
support.mozilla.com
__utmz
support.mozilla.com
__utmc
support.mozilla.com
__utmb
support.mozilla.com
__utma
support.mozilla.com
SUMOv1
Hmmm. Mozilla is tracking us too. And for 5 years!
Name: s_vi
Content: [CS]v1|25D9398085011 46A-6000010720000541[CE]
Domain: .mozilla.com
Path: /
Send For: Any type of connection
Expires: March 29, 2015 2:54:10 PM
Remove Cookie
Remove All Cookies


Cookies
Search:
The following cookies are stored on your computer:
Site
Cookie Name
google.com
google.com
NID
google.com
PREF
google.com
SS
mozilla.com
mozilla.com
mozilla.com
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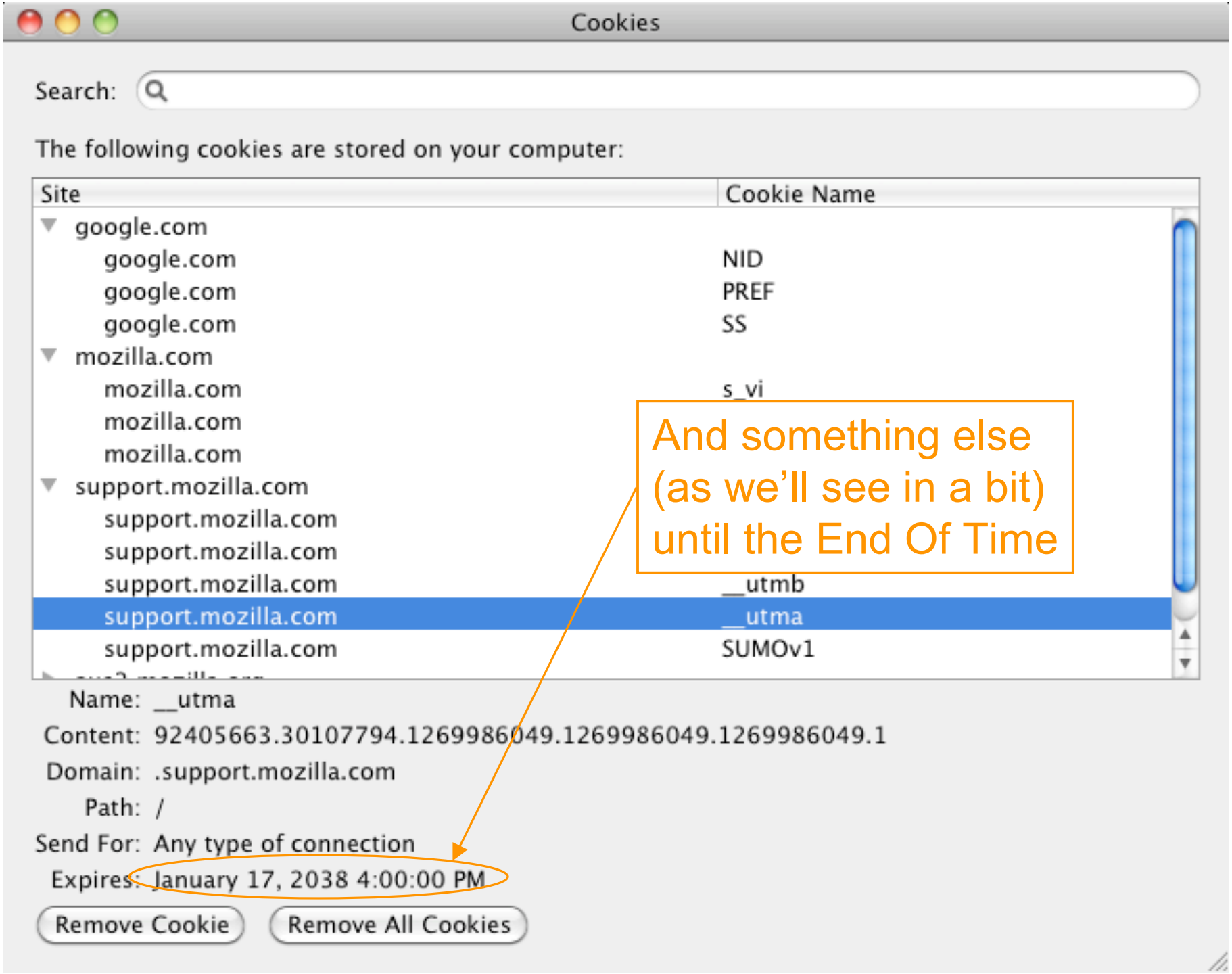
support.mozilla.com
support.mozilla.com
__utmz
support.mozilla.com
__utmc
support.mozilla.com
__utmb
support.mozilla.com
__utma
support.mozilla.com
SUMOv1
They're even remembering just how we visited them
Name: __utmz
Content: 92405663.1269986049.1.1.utmccn=(organic)|utmcsr=google|utmctr=firefox+private+brov
Domain: .support.mozilla.com
Path: /
Send For: Any type of connection
Expires: September 29, 2010 2:54:08 AM
Remove Cookie
Remove All Cookies


Cookies
Search:
The following cookies are stored on your computer:
Site
Cookie Name
google.com
google.com
NID
google.com
PREF
google.com
SS
mozilla.com
mozilla.com
s_vi
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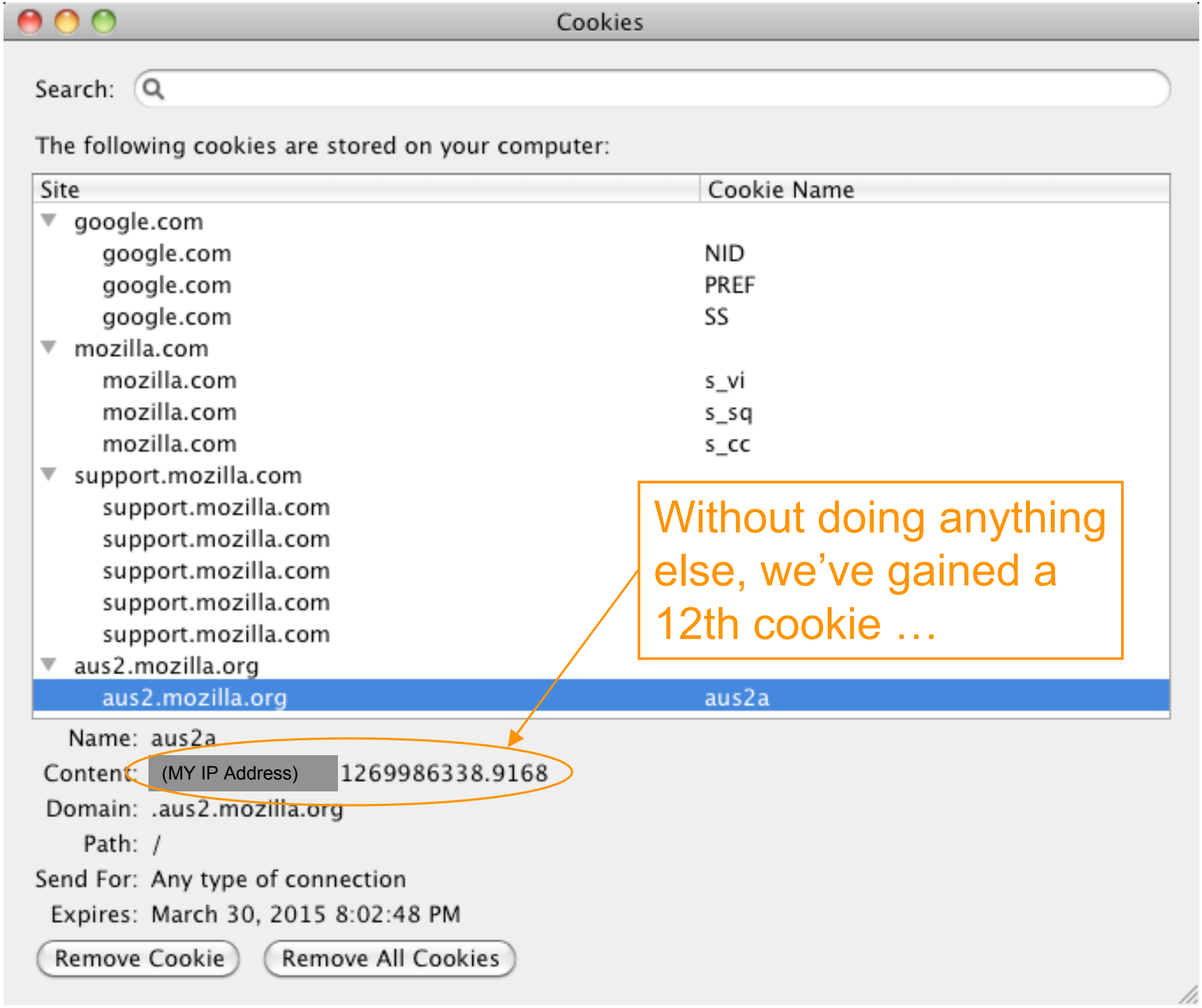
mozilla.com
support.mozilla.com
support.mozilla.com
support.mozilla.com
support.mozilla.com
__utmb
support.mozilla.com
__utma
support.mozilla.com
SUMOv1
And something else (as we'll see in a bit) until the End Of Time
Name: __utma
Content: 92405663.30107794.1269986049.1269986049.1269986049.1
Domain: .support.mozilla.com
Path: /
Send For: Any type of connection
Expires: January 17, 2038 4:00:00 PM
Remove Cookie
Remove All Cookies


Cookies
Search:
The following cookies are stored on your computer:
Site
Cookie Name
google.com
google.com
NID
google.com
PREF
google.com
SS
mozilla.com
mozilla.com
s_vi
mozilla.com
s_sq
mozilla.com
s_cc
support.mozilla.com
support.mozilla.com
support.mozilla.com
support.mozilla.com
support.mozilla.com
support.mozilla.com
aus2.mozilla.org
aus2.mozilla.org
aus2a
Without doing anything else, we've gained a 12th cookie …
Name: aus2a
Content: (MY IP Address) 1269986338.9168
Domain: .aus2.mozilla.org
Path: /
Send For: Any type of connection
Expires: March 30, 2015 8:02:48 PM
Remove Cookie
Remove All Cookies

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AUTOS
ALL CLASSIFIEDS

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N.Y./REGION
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HEALTH
OPINION
ARTS
Books
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Television
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Dining & Wine
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Blogs

## Insurers to Comply With New Rules for Children

By ROBERT PEAR 3:33 PM ET

Under pressure from the White House, health insurance companies said o Tuesday that they would co children with pre-existing conditions.

- Special Section: Health Care

MORE ON HEALTH CARE

- **The Last Piece in Place** 1:45 PM ET
- **Obama Says Law Took a Moderate Approach** 10:16 AM ET
- **Obama Highlights Student Loan Provision** 58 minutes ago

## Russia Mourns Attack Victims and Considers Response

By ELLEN BARRY 3 minutes ago

Jessica A. Woolf for The New York Times

## Wondering Who's a Vagrant in Key West

By DAMIEN CAVE 11:35 AM ET

Stimulus money is paying for quality-of-life policing, but not everyone agrees on who is an offender. Jay Barber, above, has been homeless on and off for 10 years.

- Slide Show: Homeless in Paradise

## Technology Coalition Seeks Stronger Privacy Laws

By MIGUEL HELFT 4:19 PM ET

Microsoft, Google and other companies are pushing to protect private information from government access.

## Minor Drug Cases, Major Trouble for Immigrants

We now do just one more operation, opening the home page of www.nytimes.com

OPINION »

**All-Nighters: Counting Insomnia's 'Blessings'**

- Brooks: The Bullock Trade Comments (319)
- Herbert: Magic Potion
- Cohen: Mideast Moves
- Editorial: President Obama in Kabul
- Kristof Blog: In Kigali, a Rwandan Seder

**Island With Wilder Shores**

Sant'Antioco is home to unspoiled beaches.

**Arts Oasis in Charlotte**

In North Carolina, new museums create a cultural oasis.

- Slide Show



MARKETS » At close 03/30/2010

| S&P. 500 | Dow | Nasdaq |
|---|---|---|
| 1,173.27 | 10,907.42 | 2,410.69 |
| +0.05 | +11.56 | +6.33 |
| +0.00% | +0.11% | +0.26% |

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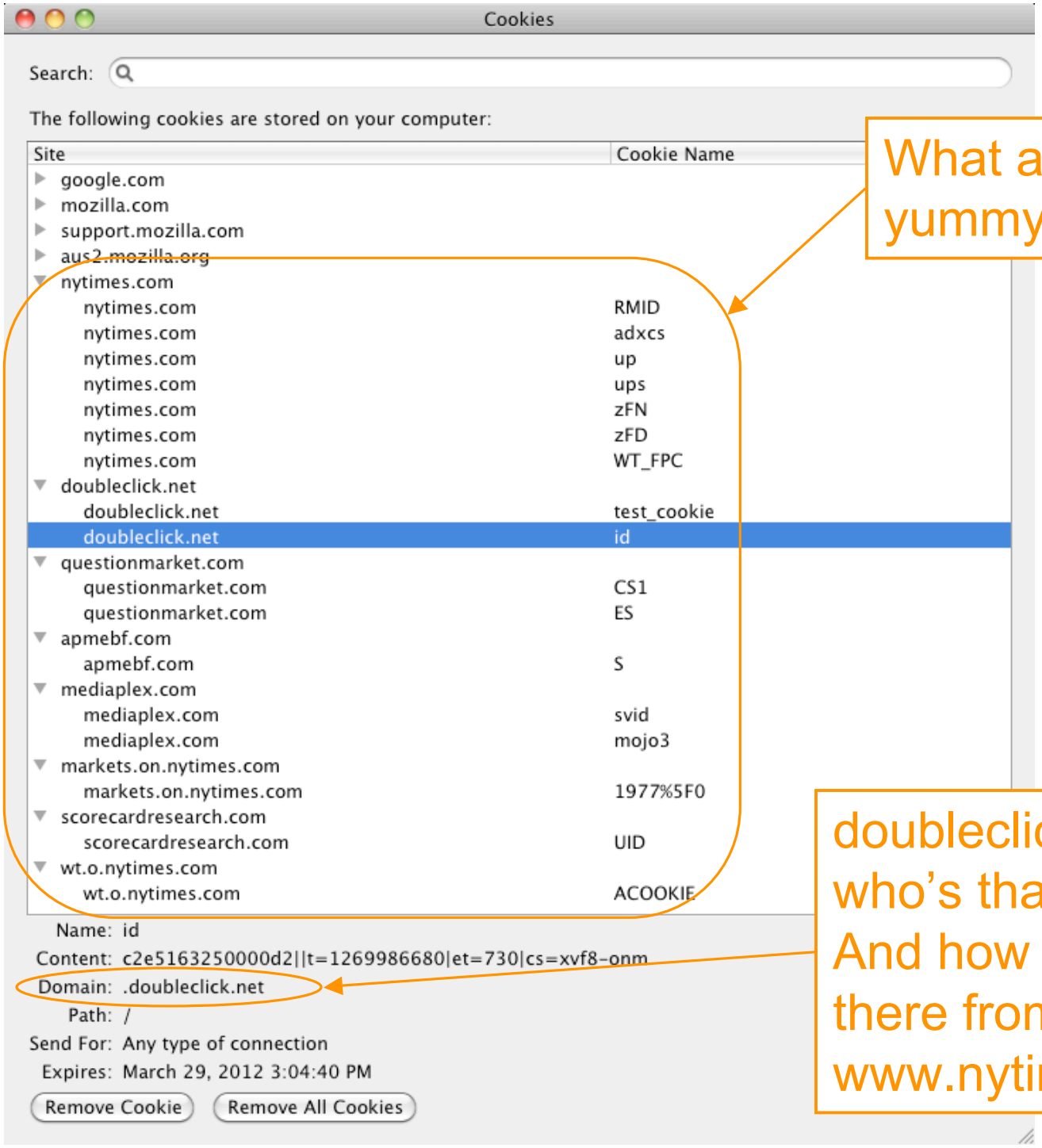
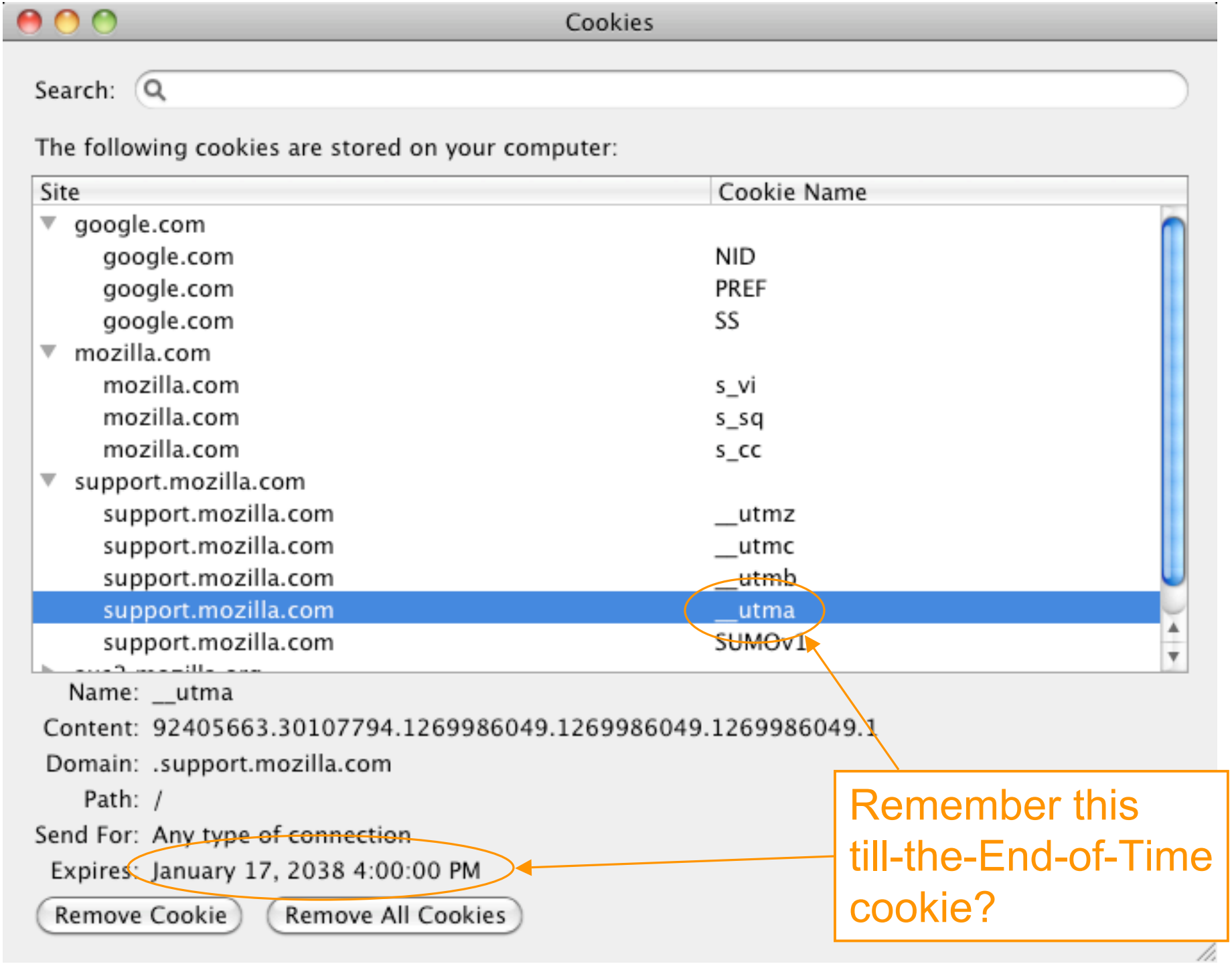

Cookies
Search:
The following cookies are stored on your computer:
Site
Cookie Name
google.com
mozilla.com
support.mozilla.com
aus2.mozilla.org
nytimes.com
nytimes.com RMID
nytimes.com adxcs
nytimes.com up
nytimes.com ups
nytimes.com zFN
nytimes.com zFD
nytimes.com WT_FPC
doubleclick.net
doubleclick.net test_cookie
doubleclick.net id
questionmarket.com
questionmarket.com CS1
questionmarket.com ES
apmebf.com
apmebf.com S
mediaplex.com
mediaplex.com svid
mediaplex.com mojo3
markets.on.nytimes.com
markets.on.nytimes.com 1977%5F0
scorecardresearch.com
scorecardresearch.com UID
wt.o.nytimes.com
wt.o.nytimes.com ACOOKIE
Name: id
Content: c2e5163250000d2||t=1269986680|et=730|cs=xvf8-onm
Domain: .doubleclick.net
Path: /
Send For: Any type of connection
Expires: March 29, 2012 3:04:40 PM
Remove Cookie
Remove All Cookies
What a lot of yummy cookies!
doubleclick.net - who's that?
And how did it get there from visiting www.nytimes.com?

# Third-Party Cookies

- How can a web site enable a third party to plant cookies in your browser & later retrieve them?
  - Answer: using a “web bug”
  - Include on the site’s page (for example):
    - `<img src="http://doubleclick.net/ad.gif" width=1 height=1>`
- Why would a site do that?
  - Site has a business relationship w/ DoubleClick*
  - Now DoubleClick sees all of your activity that involves their web sites (each of them includes the web bug)
    - Because your browser dutifully sends them their cookies for any web page that has that web bug
    - Identifier in cookie ties together activity as = YOU

* Owned by Google, by the way


Cookies
Search:
The following cookies are stored on your computer:
Site
Cookie Name
google.com
google.com
NID
google.com
PREF
google.com
SS
mozilla.com
mozilla.com
s_vi
mozilla.com
s_sq
mozilla.com
s_cc
support.mozilla.com
support.mozilla.com
__utmz
support.mozilla.com
__utmc
support.mozilla.com
__utmb
support.mozilla.com
__utma
support.mozilla.com
SUMOv1
Name: __utma
Content: 92405663.30107794.1269986049.1269986049.1269986049.1
Domain: .support.mozilla.com
Path: /
Send For: Any type of connection
Expires: January 17, 2038 4:00:00 PM
Remove Cookie
Remove All Cookies
Remember this till-the-End-of-Time cookie?

# Google Analytics

- Any web site can (anonymously) register with Google to instrument their site for *analytics*
  - Gather information about who visits, what they do when they visit
- To do so, site adds a small Javascript snippet that loads http://www.google-analytics.com/ga.js
  - You can see sites that do this because they introduce a "__utma" cookie
- Code ships off to Google information associated with your visit to the web site
  - Shipped by fetching a GIF w/ values encoded in URL
  - Web site can use it to analyze their ad “campaigns”
  - Not a small amount of info …

http://www.google-analytics.com/__utm.gif?utmwv=4.9.1&utmn=40849343 1&utmhn=www.sidereel.com&utme=8(userType)9(LoggedOut)11(2)&utmcs=UTF-8&utmsr=1680x1050&utmsc=24-bit&utmul=en-us&utmje=1&utmfl=10.2 r153&utmdt=Watch Online | American Idol Episodes - American Idol ep 23 - via videobb.com - SideReel&utmhid=72439433&utmr=0&utmp=/American_Idol/season-10/episode-23/links/6541441&utmac=UA-1471387-3&utmcc=__utma=108050432.2066052302.1287459230.1291684208.1291691628.9;+__utmz=108050432.1287459230.1.1.utmcsr=(direct)|utmccn=(direct)|utmcmd=(none);&utmu=QqAAE

http://pubads.g.doubleclick.net/gampad/ads?correlator=1291905478049&output=json_html&callback=GA_googleSetAdContentsBySlotForSync&impl=s&client=ca-pub-7758644218383495&slotname=wlv_728x90_atf&page_slots=wlv_728x90_atf&cust_params=title=American%20Idol&state=loggedout&noautoplay=&cookie=ID=75911ff51976ad00:T=1287459230:S=ALNI_ZMQH1Jqg7Of_neADngl5OGa4VbuCg&url=http://www.sidereel.com/American_Idol/season-10/episode-23/links/6541441&ref=http://www.sidereel.com/American_Idol/season-10/episode-23/search&lmt=1291905477&dt=1291905478069&cc=100&biw=830&bih=772&ifi=1&adk=1569465027&u_tz=-420&u_his=5&u_java=true&u_h=1050&u_w=1680&u_ah=1000&u_aw=1680&u_cd=24&u_nplug=10&u_nmime=88&flash=10.2.153&gads=v2&ga_vid=2067052302.1287459230&ga_sid=1291691698&ga_hid=72439433&ga_fc=true

http://googleads.g.doubleclick.net/pagead/adview?ai=B2b9cRoCZTfuHCtDaqQGpkZXqC_mq7IgCmdXb2CWBvtvXQwAQARgBIMe9rBc4AGDJltGGyKOgGbIBEHd3dy5zaWRlcmVlbC5jb226AQk3Mjh40TBfYXPIAQnaAUhodHRwOi8vd3d3LnNpZGVyZWVsLmNvbS9BbWVyaWNhbl9JZG9sL3NlYXNvbi0xMC9lcGlzb2RlLTIzL2xpbmtzLzY1NDE0NDGYAoAKuAIYwAIByALhm54b4AIA6gIKNDI4NTU5MjM0OJADrAKYA6wCqAMB6AOjCegDmQjoA-YC9QMAAABE4AQB&sigh=1xAuEwn3fOw

# Values Reported via Google Analytics

Affiliation
Billing City
Billing Country
Billing Region
Browser Lang.
Complete URL
Cookie Values
Current Page
Event Tracking
Flash Version
Grand Total
Host Name
Java-enabled
Language Encoding
Order ID
Page Title
Product Code
Product Name
Profile Number
Repeat Campaign Visit
Quantity
Screen Color Depth
Screen Resolution
Shipping Cost
Special Event
Start Campaign Sess.
Tax
Tracking Code Version
Unique GIF ID
Unit Price
User Defined Var
Variations on an Item

# Still More Tracking Techniques …

- Any scenario where browsers execute programs that manage persistent state can support tracking by cookies
  - Such as …. *Flash ?*

http://www.macromedia.com/support/documentation/en/flashplayer/help/settings_manager06.html

Home / Support / Documentation / Flash Player Documentation /

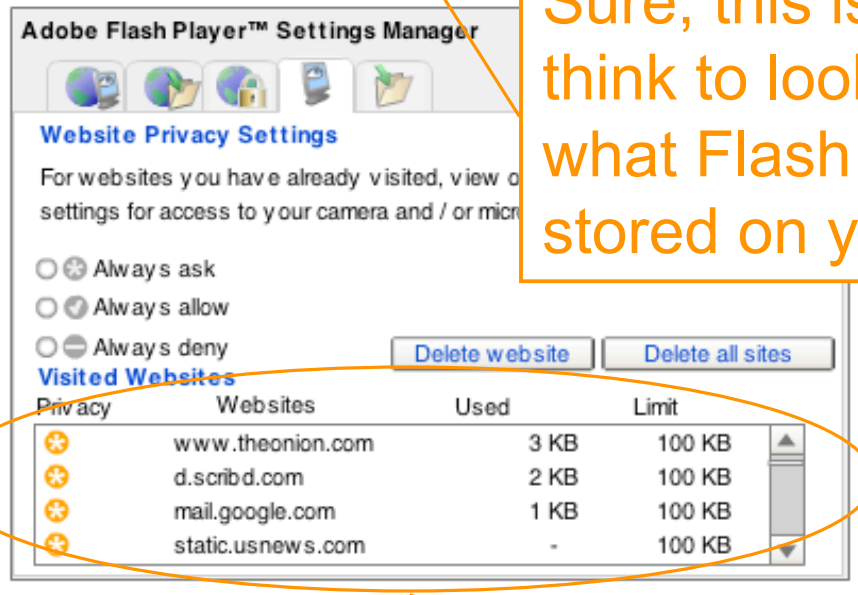
# Flash Player Help

## Website Privacy Settings panel

TABLE OF CONTENTS


Flash Player Help
Settings Manager
- Global Privacy Settings Panel
- Global Storage Settings Panel
- Global Security Settings Panel
- Global Notifications Settings Panel
- Website Privacy Settings Panel
- Website Storage Settings Panel

Display Settings
Local Storage Settings
Microphone Settings
Camera Settings
Privacy Settings
Local Storage Pop-Up Question
Privacy Pop-Up Question
Security Pop-Up Question
About Updating Adobe Flash Player


**Note:** The Settings Manager that you see above is not an image; it is the actual Settings Manager. Click the tabs to see different panels, and click the options in the panels to change your Adobe Flash Player settings.

The list of websites above is stored on your computer o
or change your privacy settings or local storage settings
to this list, or to any of the information that the websites
your computer.

Use this panel to specify privacy settings for any of the
requested permission to use your camera or microphone or to store information on your computer.

Sure, this is where you'd think to look to analyze what Flash cookies are stored on your machine

My browser had Flash cookies from 67 sites!

Some Flash cookies "respawn" regular browser cookies that you previously deleted!

# Still More Tracking Techniques …

- Any scenario where browsers execute programs that manage persistent state can support tracking by cookies
  - Such as …. *Flash ?*

- Surely though something as innocuous as cut-and-paste is safe though, right?

  (demo)


# tynt® publisher tools

Leverage the benefit of copy/paste

Make link-backs to your content effortless for readers and gain new insight into user engagement with Tynt Publisher Tools.

FREE! Get Started ▶

### Keep Your Users

tynt keywords

Find out what outbound keywords are causing your users to leave.

### Improve Search Rank

tynt seo (*formerly* insight)

Generate more search engines visible links back to your content.

### Measure Social Impact

tynt social

Understand what social channels are most effective.

## tynt® labs / api

See how Tynt is showcasing the most engaging content on the web. ...more –>

# I Can Stalk U

**Raising awareness about inadvertent information sharing**

Home How Why About Us Contact Us

## Who have we stalked recently?

ICanStalkU was able to stalk RangeLifeEnt at 51 Great Jones St New York NY
1 minute ago · Map Location · View Tweet · View Picture · Reply to RangeLifeEnt

ICanStalkU was able to stalk lnicklasson at http://maps.google.com/?q=57.1344444444,12.7141666667
2 minutes ago · Map Location · View Tweet · View Picture · Reply to lnicklasson

ICanStalkU was able to stalk Welerson13 at http://maps.google.com/?q=-15.7380555556,-47.8986111111
2 minutes ago · Map Location · View Tweet · View Picture · Reply to Welerson13

ICanStalkU was able to stalk BritBangert at 920 Hawley St Taylorville IL
1 minute ago · Map Location · View Tweet · View Picture · Reply to BritBangert

ICanStalkU was able to stalk jiggy_Owla at http://maps.google.com/?q=13.7830055879,100.518500685
4 minutes ago · Map Location · View Tweet · View Picture · Reply to jiggy_Owla

ICanStalkU was able to stalk gcolony at http://maps.google.com/?q=37.7851666667,-122.404166667
4 minutes ago · Map Location · View Tweet · View Picture · Reply to gcolony

## Links

- Mayhemic Labs
- PaulDotCom
- SANS ISC
- Electronic Frontier Foundation
- Center for Democracy & Technology

## How did you find me?

Did you know that a lot of smart phones encode the location of where pictures are taken? Anyone who has a copy can access this information.
read more

## Help me fix this!

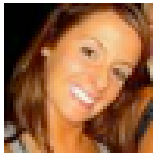
Disabling Geo-Tagging on your phone is easy.

twitter

Login Join Twitter!

# My baby girl.... http://t.co/5qLfLV6

2 minutes ago via Twitter for Android



BritBangert
Brittany Bangert

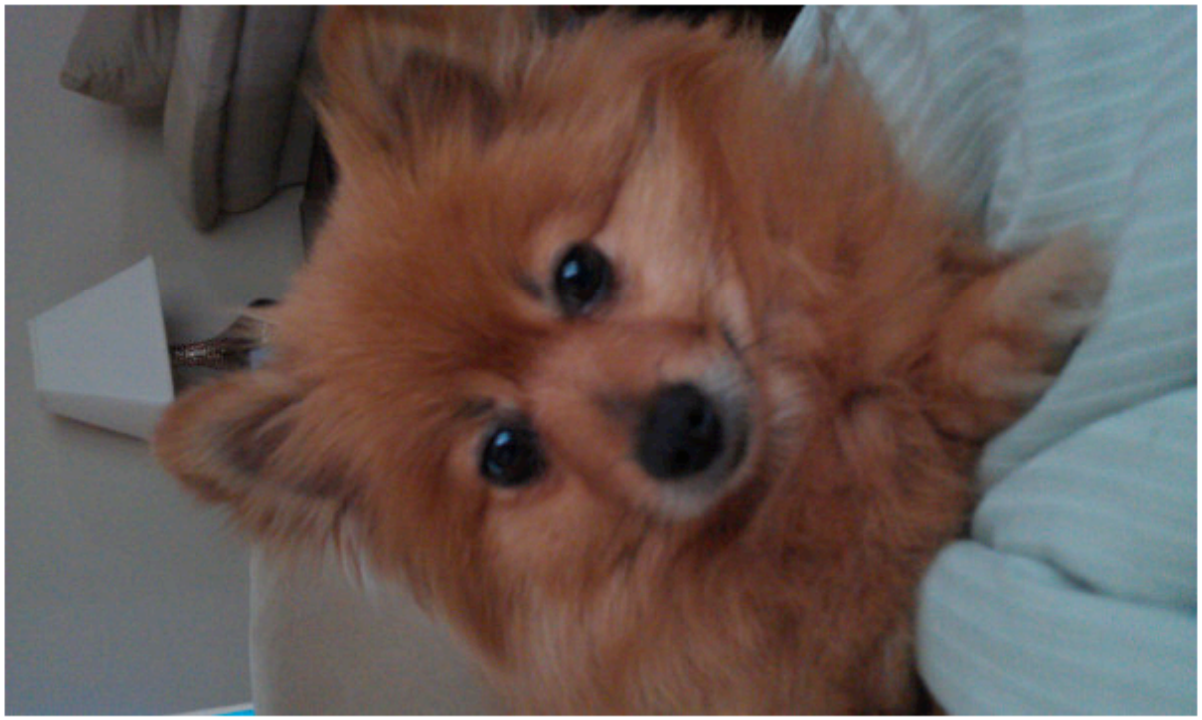
twitpic

Click here to login or create an account ›

Sign in with Twitter

@BritBangert

Brittany Bangert April 5, 2011



Login to leave a comment





Share this photo

Put this photo on your website

**Views** 11

**Events**

**Tags**

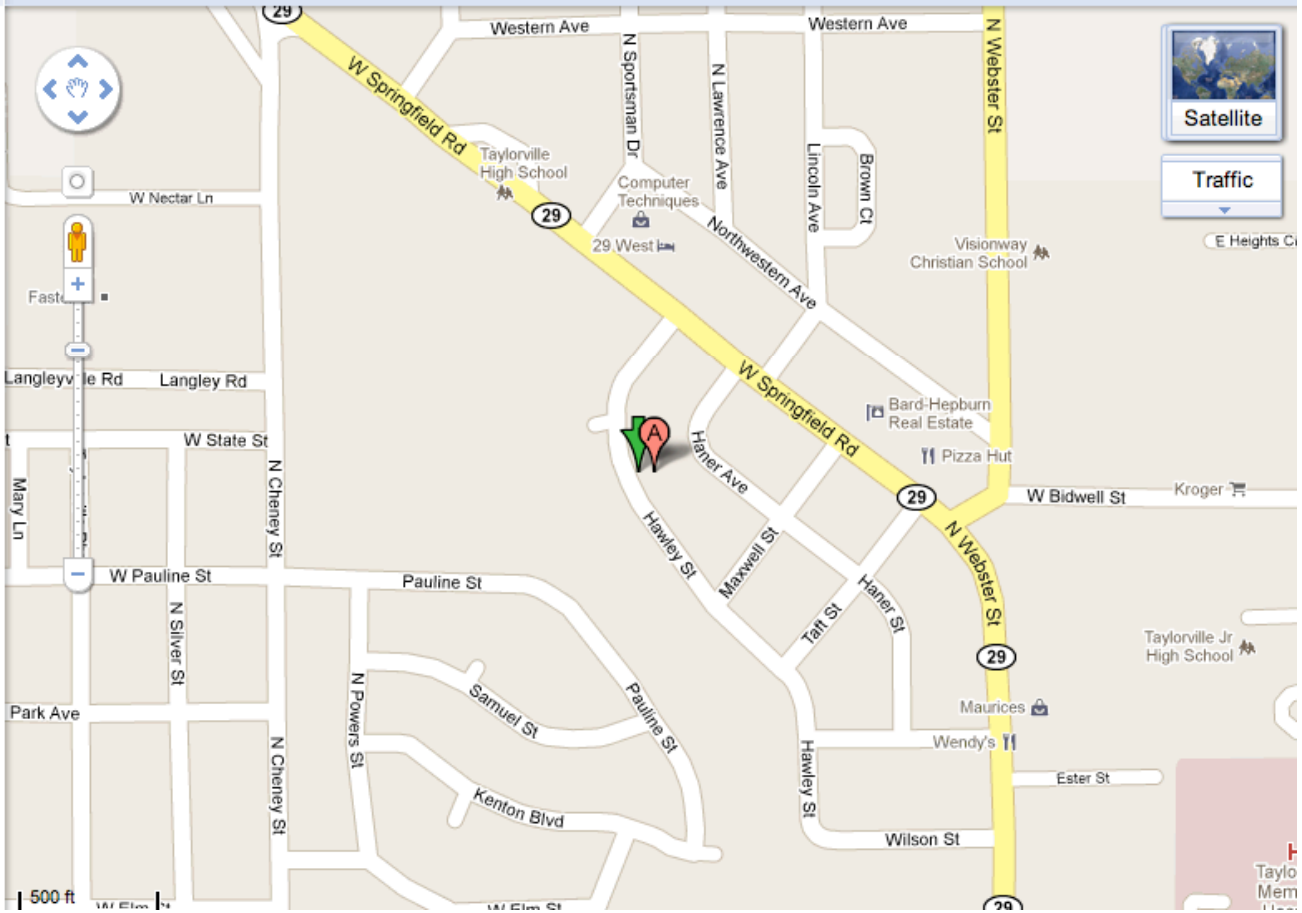
Web Images Videos **Maps** News Shopping Gmail more Sign in

Google maps 39.5591,-89.3022 Search Maps

Get Directions My Maps

**920 Hawley St**
Taylorville, IL 62568

Directions Search nearby more



# Privacy - What's the Big Deal?

- Cookies etc. form the core of how Internet advertising works today
  - Without them, arguably you'd have to pay for content up front a lot more
    - (and payment would mean you'd lose anonymity anyway)
  - A "better ad experience" is not necessarily bad
    - Ads that reflect your interests; not seeing repeated ads
- But: ease of gathering so much data so easily ⇒ concern of losing control how it's used
  - Mission creep …
    - Consider how ordering a pizza in the near future might work (http://www.aclu.org/ordering-pizza)
  - Content shared with friends doesn't just stay with friends …

careerbuilder.com

# More Employers Screening Candidates via Social Networking Sites

*Five tips for creating a positive online image*

**Rosemary Haefner, Vice President of Human Resources at CareerBuilder**

When you interview, they Know What You've Posted

Gone are the days when all job seekers had to worry about were their résumés and cover letters. Today, those documents remain a staple of the job-search process, but they are joined by a growing phenomenon: social networking.

Forty-five percent of employers reported in a June 2009 CareerBuilder survey that they use social networking sites to screen potential employees, compared to only 22 percent of employers last year. Eleven percent of employers plan to start using social networking sites for the screening process. More than 2,600 hiring managers participated in the survey.

**Why employers disregard candidates after screening online**

Thirty-five percent of employers reported they have found content on social networking sites that caused them not to hire the candidate, including:

- Candidate posted provocative or inappropriate photographs or information -- 53 percent
- Candidate posted content about them drinking or using drugs -- 44 percent
- Candidate bad-mouthed their previous employer, co-workers or clients -- 35 percent
- Candidate showed poor communication skills -- 29 percent
- Candidate made discriminatory comments -- 26 percent
- Candidate lied about qualifications -- 24 percent
- Candidate shared confidential information from previous employer -- 20 percent

# How To Gain Better Privacy?

- Force of law
  - Example #1: web site privacy policies
    - US sites that violate them commit false advertising
    - But: policy might be "*Yep, we sell everything about you, Ha Ha!*"

# THE NEW YORKER's Privacy Policy (when you buy their archives)

7. *Collection of Viewing Information. You acknowledge that you are aware of and consent to the collection of your viewing information during your use of the Software and/or Content. Viewing information may include, without limitation, the time spent viewing specific pages, the order in which pages are viewed, the time of day pages are accessed, IP address and user ID. This viewing information may be linked to personally identifiable information, such as name or address and shared with third parties.*

# How To Gain Better Privacy?

- Force of law
  - Example #1: web site privacy policies
    - US sites that violate them commit false advertising
    - But: policy might be "*Yep, we sell everything about you, Ha Ha!*"
  - Example #2: SB 1386
    - *Requires an agency, person or business that conducts business in California and owns or licenses computerized 'personal information' to disclose any breach of security (to any resident whose unencrypted data is believed to have been disclosed)*
    - Quite effective at getting sites to pay attention to securing personal information

Security

May 8, 2009 1:53 PM PDT

# UC Berkeley computers hacked, 160,000 at risk

by Michelle Meyers



*This post was updated at 2:16 p.m. PDT with comment from an outside database security software vendor.*

Hackers broke into the University of California at Berkeley's health services center computer and potentially stole the personal information of more than 160,000 students, alumni, and others, the university announced Friday.

At particular risk of identity theft are some 97,000 individuals whose Social Security numbers were accessed in the breach, but it's still unclear whether hackers were able to match up those SSNs with individual names, Shelton Waggener, UCB's chief technology officer, said in a press conference Friday afternoon.