

# THE GOOD & EVIL OF THE INTERNET AND WHY YOU SHOULD KNOW ABOUT THEM

WEEK 2

- **OLLI WINTER 2020 COURSES**
- **Mondays, January 27—March 2**
  - **9:30—11:30 a.m.**
  - **@Cooperage**
  - **Dr. Farid Farahmand**

OSHER  
LIFELONG  
LEARNING  
INSTITUTE

How

THE

INTERNET

Works

*In Five Minutes*

# Getting Connected....

- Internet Device (e.g., computer or cell phone)
  - Each device has a unique hardware address (called MAC address)
  - My phone Wi-Fi MAC: **18:87:00:bf:99:0f**
  - My MacBook: **f0:f4:79:50:df:b6**
- Internet Service Provider (ISP)
  - Examples: AT&T, Verizon, Netzero, etc.
  - They provide IP (Internet Protocol) address (e.g., **168.34.23.101**)
  - Also offer services such as email, web page, etc.
- Physical Connection (e.g., cable or phone)
  - Provided by the phone company or the ISP

# The Internet In Action

## What you need to have...

Internet Service Provider (ISP)



Internet-enabled Devices

Physical Connection



# The Internet In Action

## How Does it Work?

Internet Service Provider (ISP)



Physical Connection

Internet-enabled Devices



The Internet



# The Internet In Action

## Identifications.....

Internet Service Provider (ISP)



All your messages pass through the ISP

Internet-enabled Devices

- Serial Number Identifies your machine
- The IP address identifies who you are!

# The Internet In Action

Tracking your web activities....

Internet Service Provider (ISP)



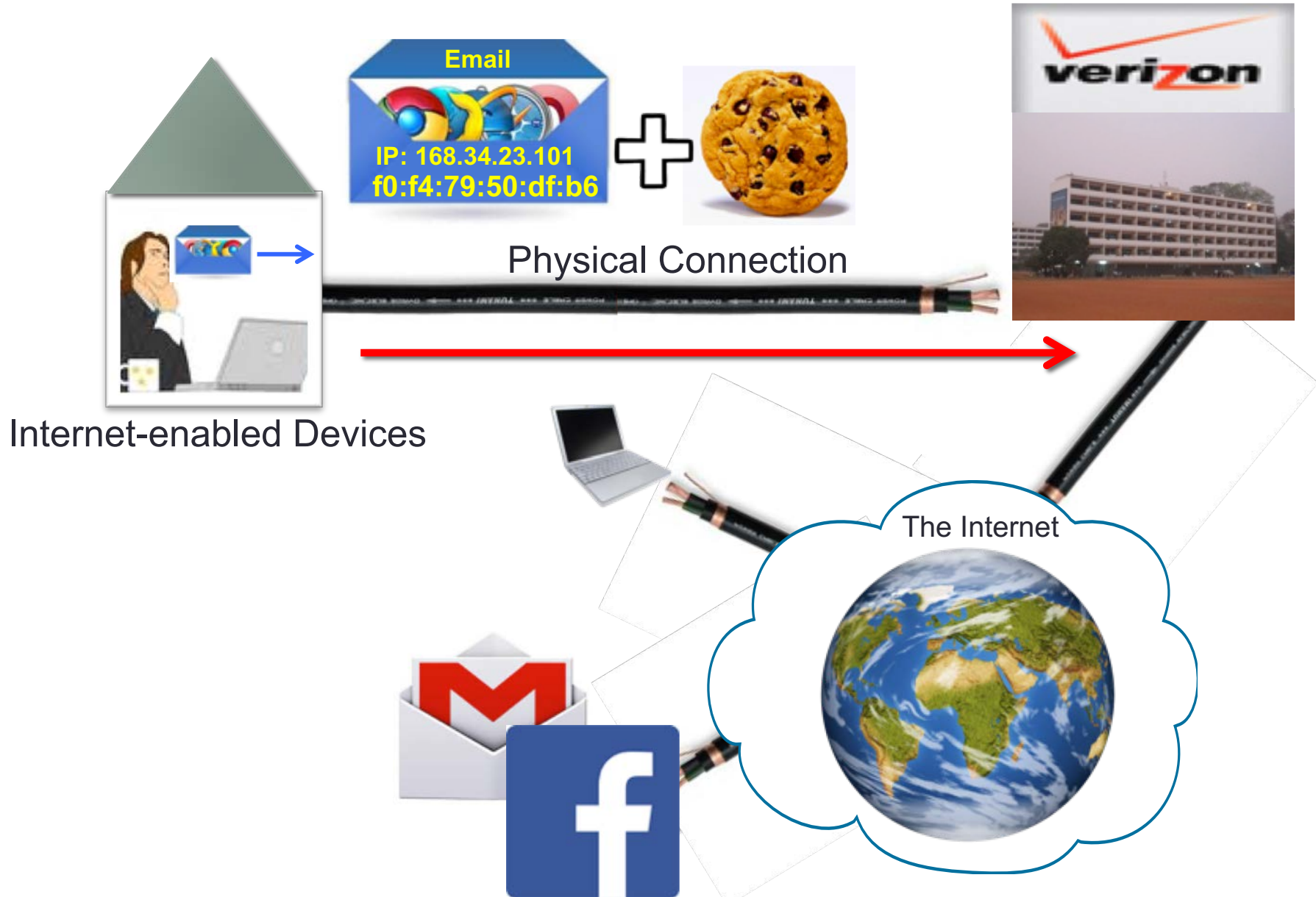
Internet-enabled Devices

Physical Connection



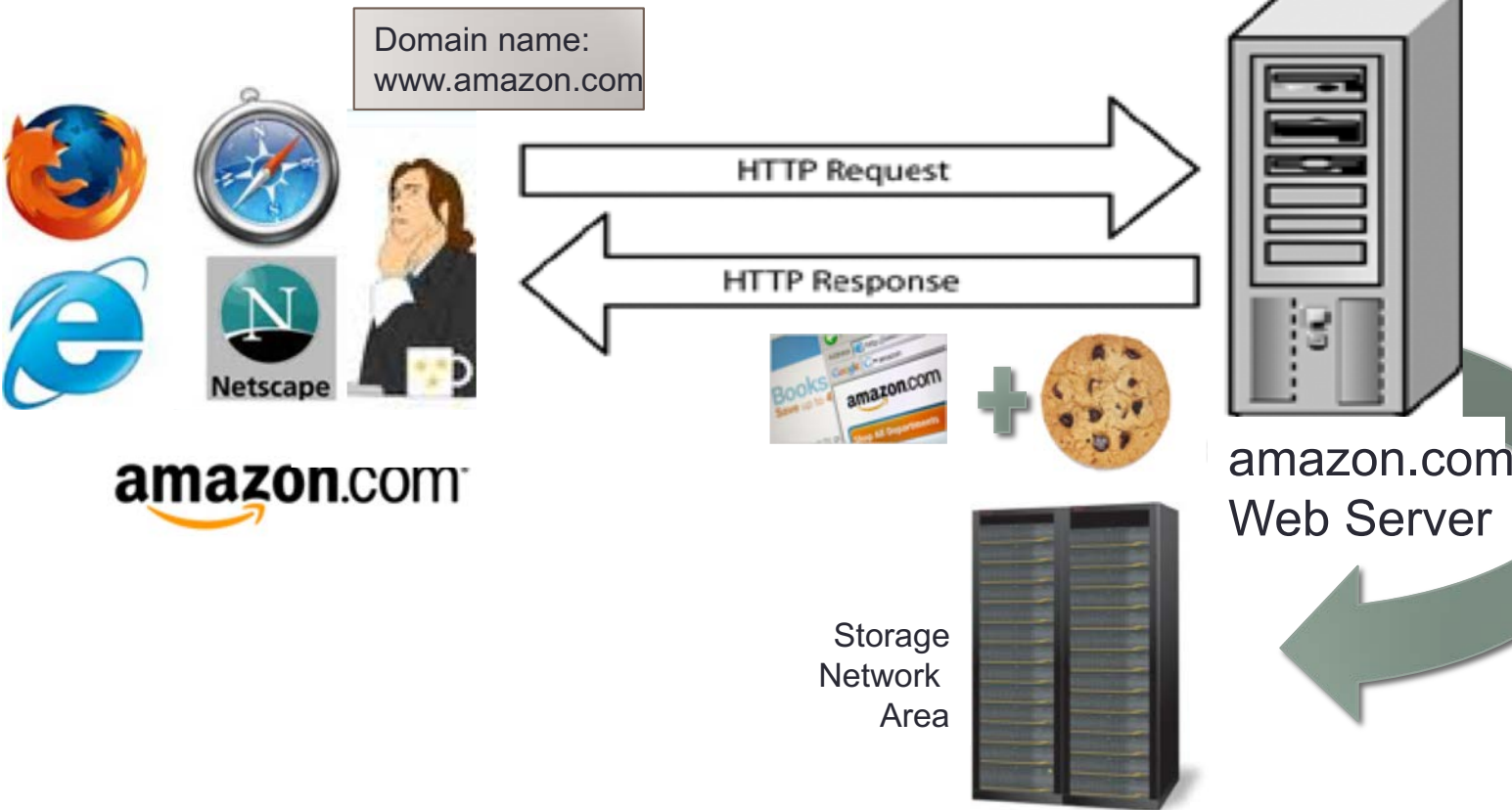
# The Internet In Action

Internet Service Provider (ISP)



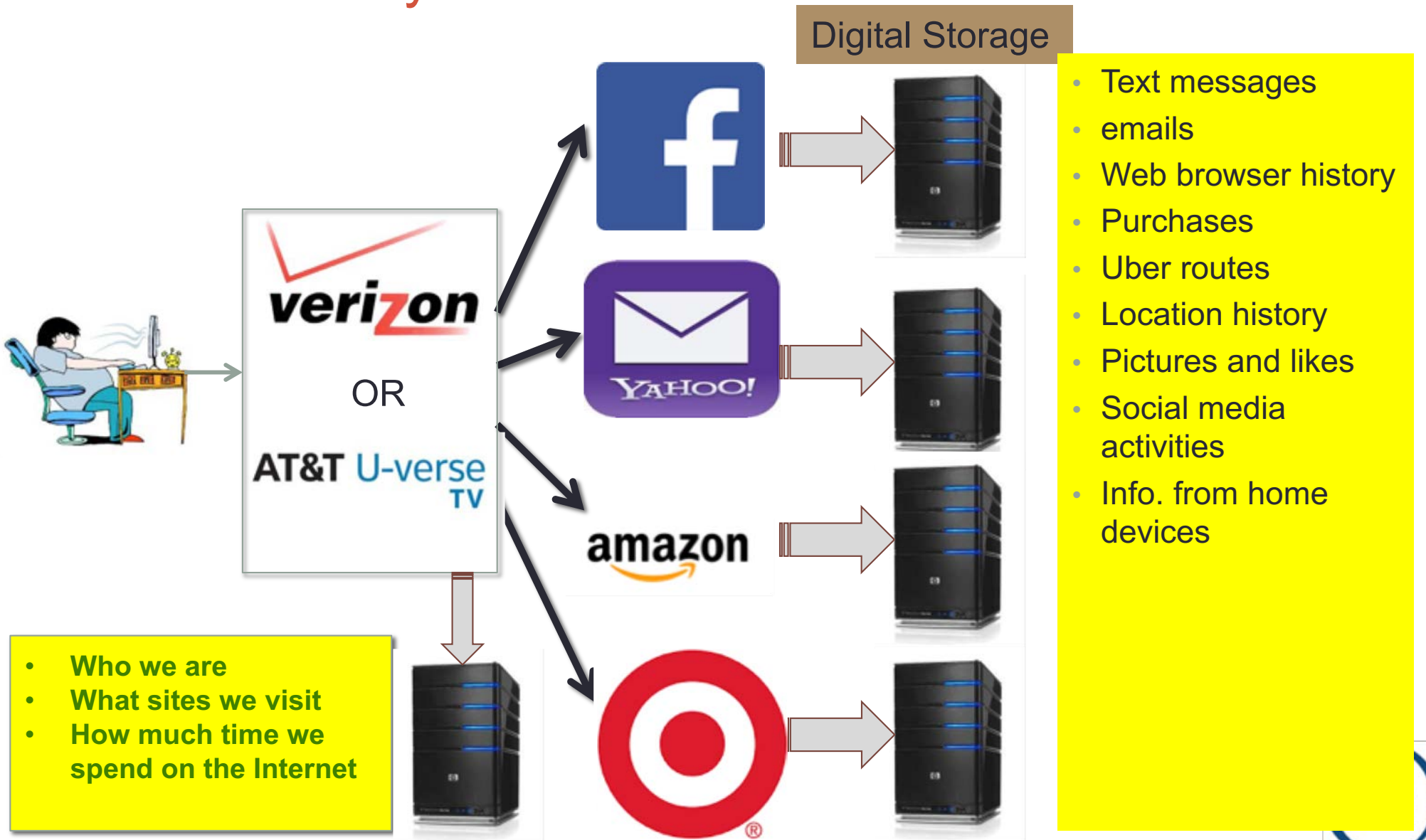


# Checking Out a Web Page...

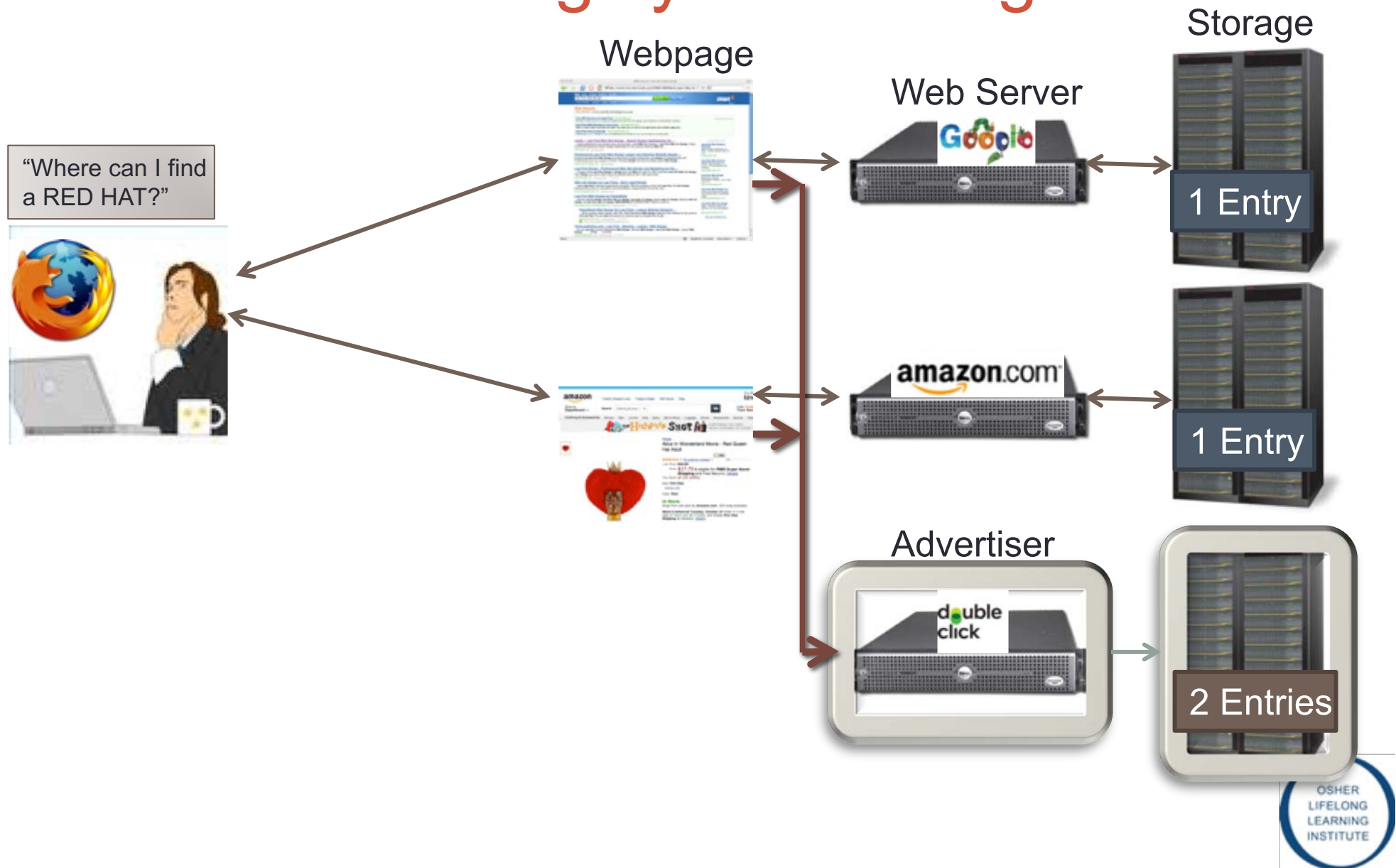


# The Big Picture

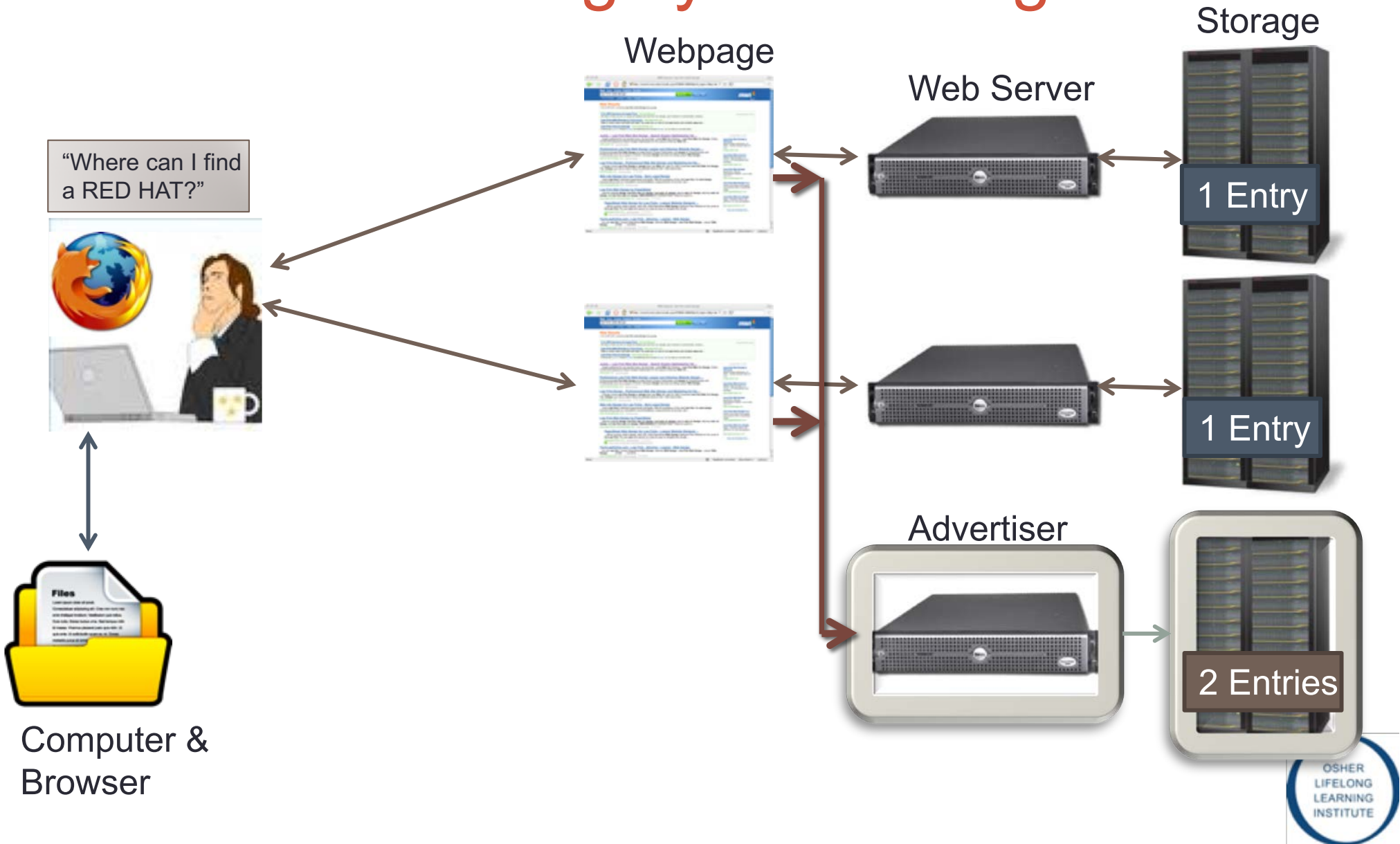
Users are clearly identifiable...



# Cross-Site Tracking by Advertising Network



# Cross-Site Tracking by Advertising Network

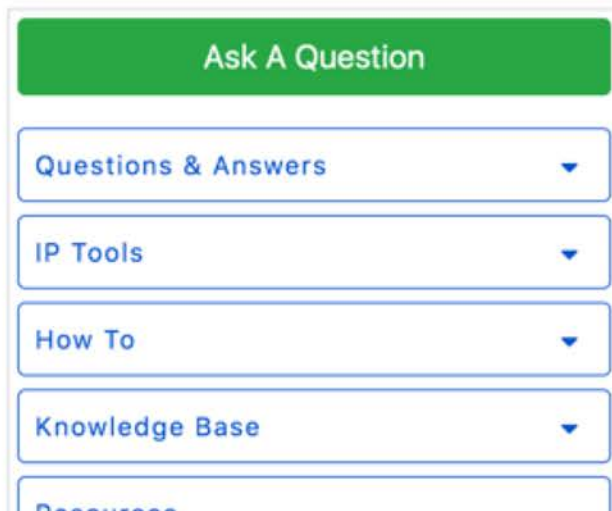
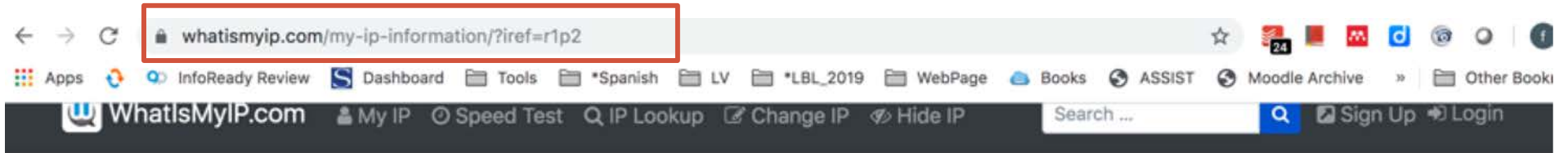




Facts:  
 In U.S. 23 ISPs control 75% of the Market

# What type of information we give away when we use the Internet

# What is your IP Address?



## My IP Information

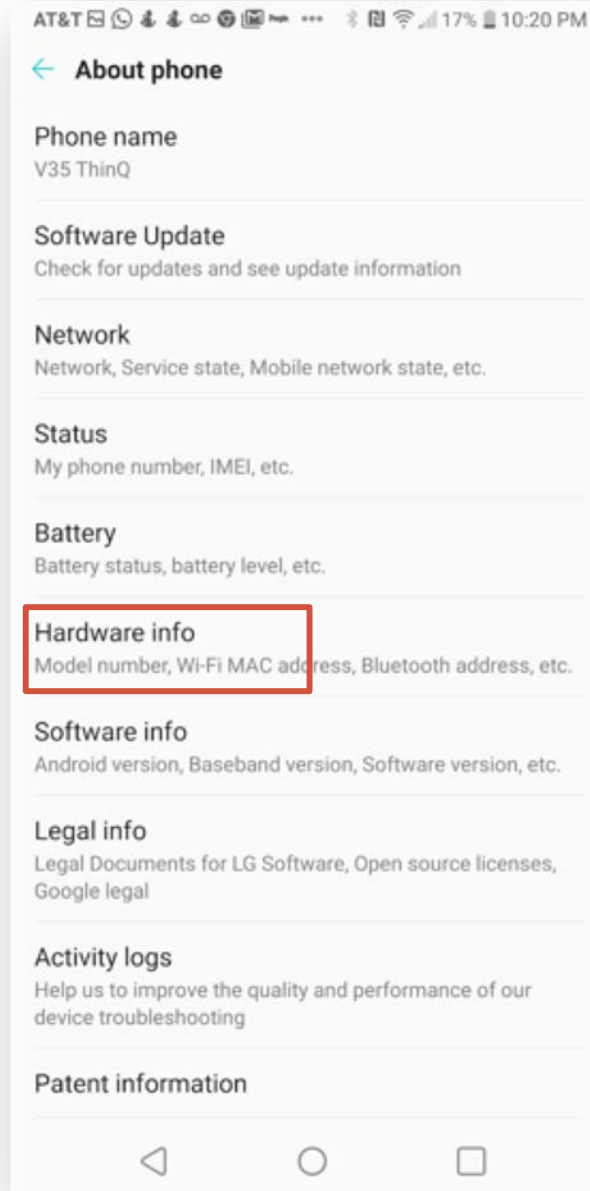
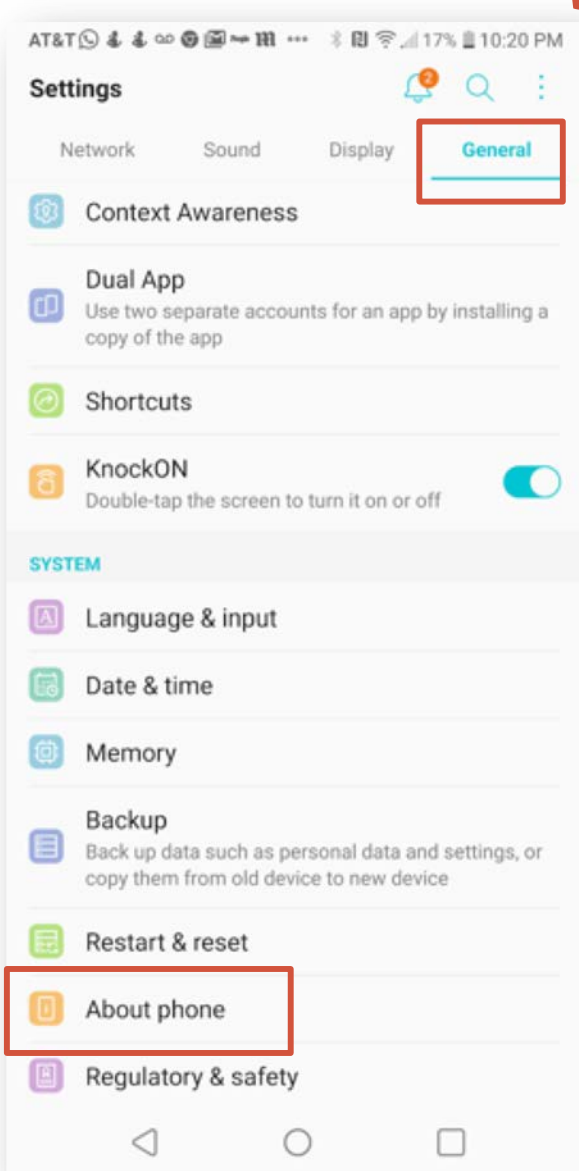
**Fast IP Scanner**  
Scan All IP Addresses in Your Network

**Get Started**  
Lansweeper

Your IPv6 Address Is:  
**2601:645:402:4490:fd8b:79d3:62c3:acc9**

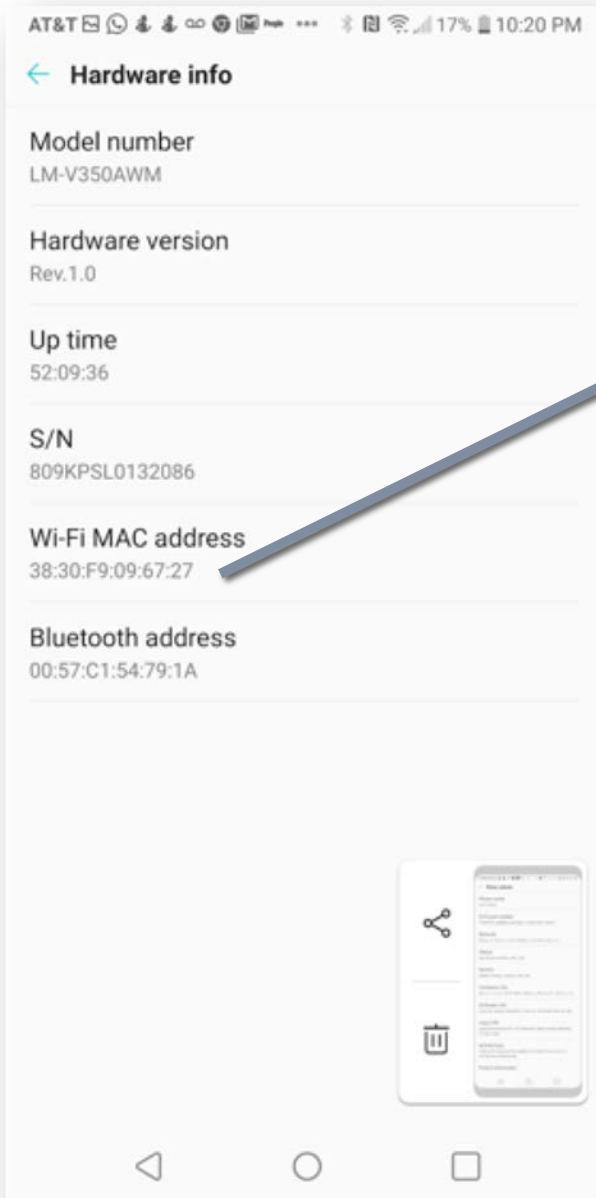
Your IPv4 is: 73.202.123.129

# What is my Phone's MAC address?





# Tracking the MAC address



aruljohn.com/mac/3830F9096727

Apps InfoReady Review Dashboard Tools \*Spanish LV

Check your IP Address

**NETWORK**

- IP address tracker
- telephone tracker
- wireless network key
- which webserver
- MAC address lookup
- IP/CIDR subnet
- IP to hostname
- hostname to IP
- view HTTP headers

**TEXT/STRING/MATH**

- JSON sort
- text case convert
- aquarium calculator
- timestamp to date

## MAC Address and OUI Lookup

This program displays the name of the company that can also do a reverse lookup and find the MAC address

ENTER MAC ADDRESS OR OUI (FIRST 6 DIGITS)

SELECT LOOKUP TYPE:  LOOKUP MAC  LOOKUP VENDOR

example: 00:0B:14

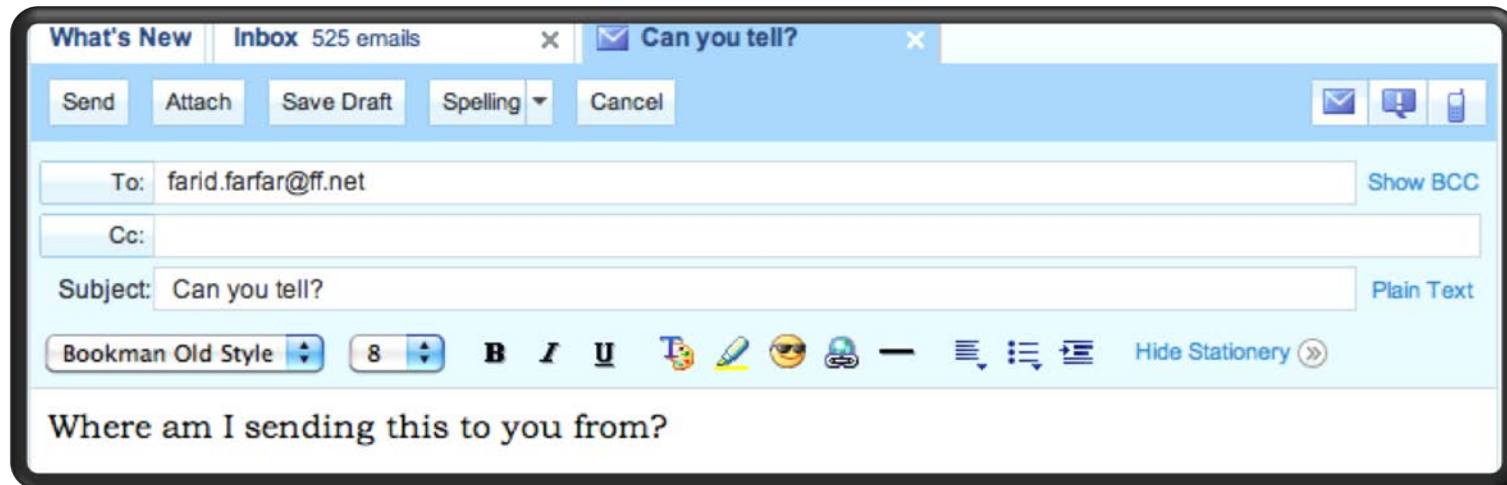
*This database was last updated on Sun, 25 September 2019*

**Results for MAC address 38:30:F9**

Found 1 results.

MAC Address/OUI	Vendor {Company}
38:30:F9	LG Electronics (Mobile Communications)


# Tracing A Simple Email From YAHOO!



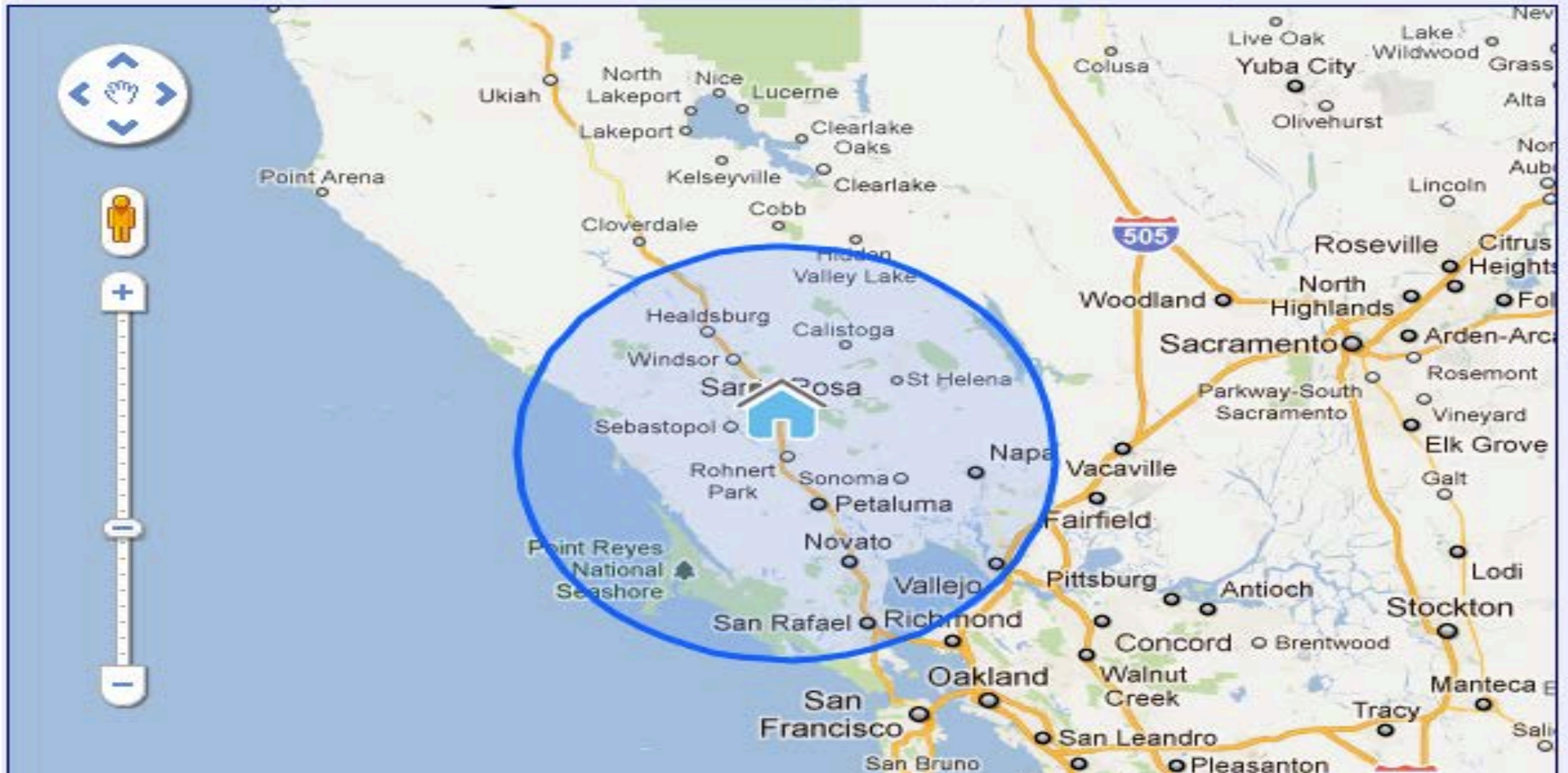
```
X-Mailer: YahooMailRC/574 YahooMailWebService/0.8.113.315625
Message-Id: <1316149525.30665.YahooMailRC@web180114.mail.gq1.yahoo.com>
Date: Thu, 15 Sep 2011 22:05:25 -0700 (PDT)
From: Farid farfar <farid.farfar@ff.net>
Subject: Can you tell?
To: farfar Farid <farid.farfar@ff.net>
Mime-Version: 1.0
Content-Type: multipart/alternative; boundary="0-924320724-1316149525=:30665"
Message Body: --0-924320724-1316149525=:30665 Where am i sending this to you from? --0-924320724-1316149525=:30665 <html><head>
<style type="text/css"><!--div {margin:0px;} --></style></head><body><div style="font-family:'bookman old style','new york',times,serif;font-size:12pt;color:#000000;"><div>Where am i sending this to you from?</div><div style="position:fixed;"></div></div></body></html> --0-924320724-1316149525=:30665--
Content-Type: text/plain; charset=us-ascii
Content-Type: text/html; charset=us-ascii
```

**HEADER-----**  
**IP: 168.34.23.101**  
**MAC: f0:f4:79:50:df:b6**  
**ISP & Location**

## Email Header Analysis

**IP Address:** 130.157.158.211  
**Hostname:** village-158-211.sonoma.edu  
**IP Address Country:** United States   
**IP Continent:** North America  
**IP Address City Location:** Rohnert Park  
**IP Address Region:** California  
**IP Address Latitude:** 38.3433,  
**IP Address Longitude:** -122.7041  
**Organization:** Sonoma State University  
**ISP:** Sonoma State University

## Email Lookup Map (show/hide)



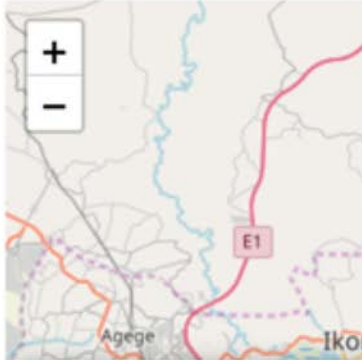
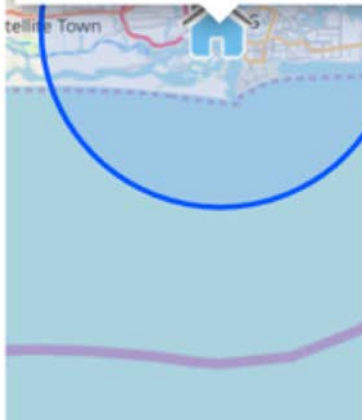
# Where is the email coming from?

The screenshot shows a web browser at the URL [whatismyip.com/email-header-analyzer/](https://whatismyip.com/email-header-analyzer/). The left sidebar contains navigation links: IP WHOIS Lookup, Server Headers Check, Email Header Analyzer, Blacklist Check, User Agent Info, DNS Lookup, Reverse DNS Lookup, Proxy Check, Port Scanner, How To, Knowledge Base, and Resources. The main content area displays the 'Email Source IP Info' results, which are highlighted with a red box. The results are as follows:

Field	Value
The email source IP address is:	154.120.103.2
The email source IP host name is:	154.120.103.2
Country:	Nigeria
City:	Lagos
Area Code:	-
Latitude:	6.4474
Longitude:	3.3903
ISP:	Spectranet Limited
Organization:	Spectranet

# IP Tracker

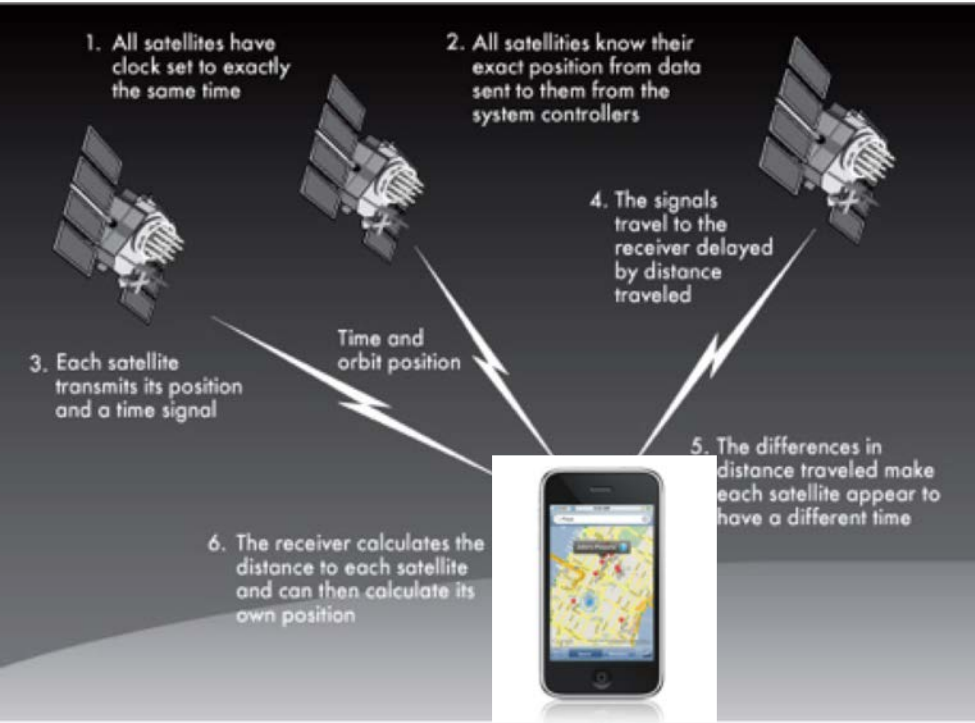
<https://www.ip-address.org/lookup/ip-locator.php?track=154.120.103.2>

IP Address Locator: What Is My IP Address - 154.120.103.2	Advertisements	Find IP Location on IP Location Map
<b>IP Address:</b> 154.120.103.2 <b>IP Host:</b> 154.120.103.2 <b>Find IP Address Location for 'My IP' 154.120.103.2</b>	Ad closed by Google <a href="#">Report this ad</a> <a href="#">Why this ad? ▾</a>	
<b>Continent:</b> Africa (AF) <b>Country:</b> Nigeria 🇳🇮 (NG) <b>State:</b> Lagos <b>City:</b> Lagos		<b>IP Address Lookup</b> Domain / IP Address: 154.120.103 IP Location: Lagos (Lagos) in Nigeria 🇳🇮
<b>ISP:</b> Spectranet Limited <b>Organization:</b> Spectranet <b>Time zone:</b> Africa/Lagos <b>IP Address Lookup related for 'My IP' 154.120.103.2</b>		
<b>Continent</b> 7.18805 / <b>Lat/Lon:</b> 21.09361 <b>Country</b> <b>Lat/Lon:</b> 10 / 8 <b>City Lat/Lon:</b> (6.4474) / (3.3903) <b>IP Language:</b> English, Hausa, Igbo, Yoruba, Languages of Nigeria <b>IP Currency:</b> Nigerian naira (NGN) <b>IDD Code:</b> +234		

# Tracking Your Cell Phone

- Following September 11, the federal government mandated that by the end of 2005, all cell phones must include the capability of being traced within 100 meters
- Advantages
  - Alzheimer patients
  - Child abduction
  - Marital tracking
- Disadvantages
  - Government spying
  - Lack of adult privacy

# Cell Phone Tracking

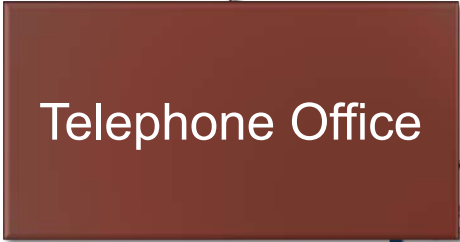


Locking your Location

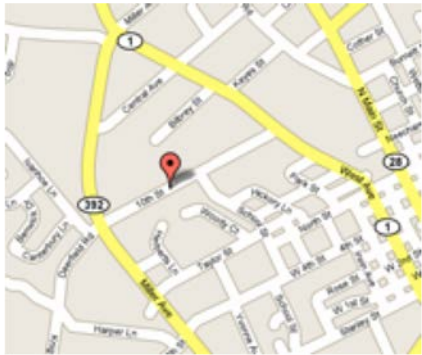


GPS Location

Cell Tower



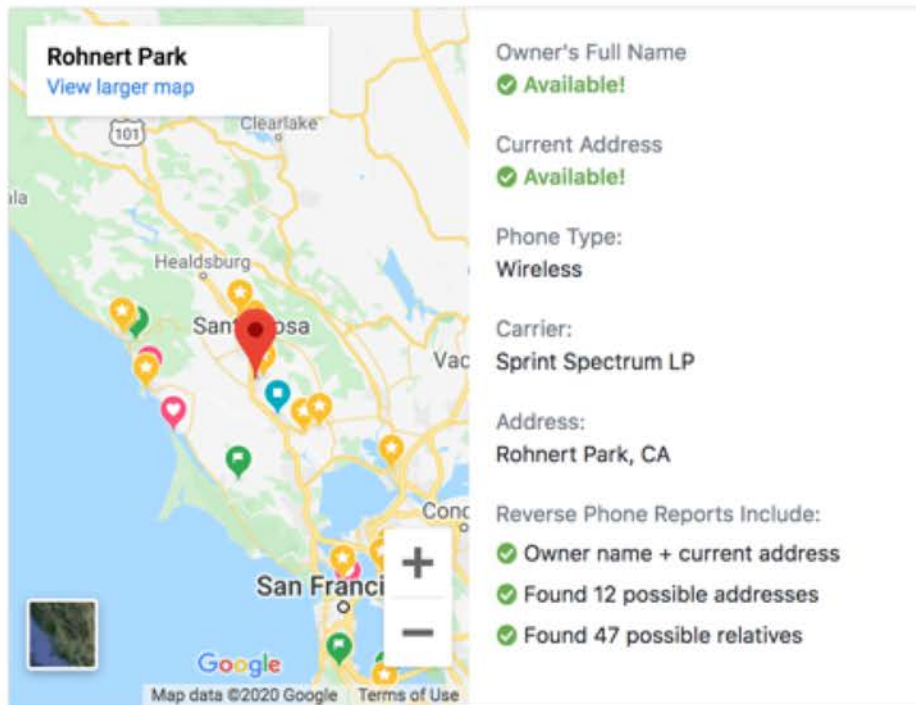
Telephone Office



Cell Location

# Track any Phone.....

<https://www.peoplefinders.com/phone/>



**Rohnert Park**  
View larger map

Owner's Full Name  
✓ Available!

Current Address  
✓ Available!

Phone Type:  
Wireless

Carrier:  
Sprint Spectrum LP

Address:  
Rohnert Park, CA

Reverse Phone Reports Include:  
✓ Owner name + current address  
✓ Found 12 possible addresses  
✓ Found 47 possible relatives

## Unlock Phone Report

### Reverse Phone Reports Include:

- ✓ Current and Past Contact Info
- ✓ Reverse Phone Lookups
- ✓ Addresses and Phone Numbers
- ✓ AKAs, Age / Birth Month & Year
- ✓ Relatives and Associates

Special Offer with PeopleFinders Trial Membership\*

**BEST DEAL**

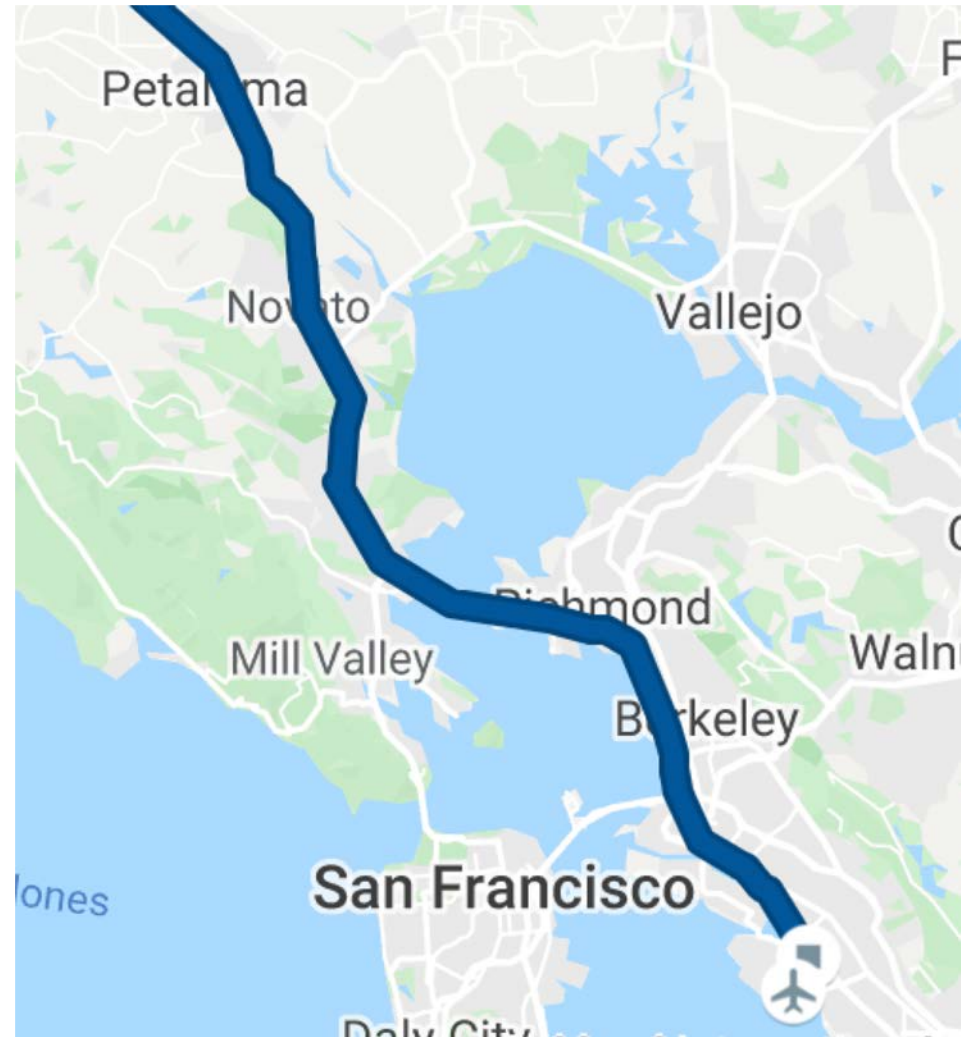
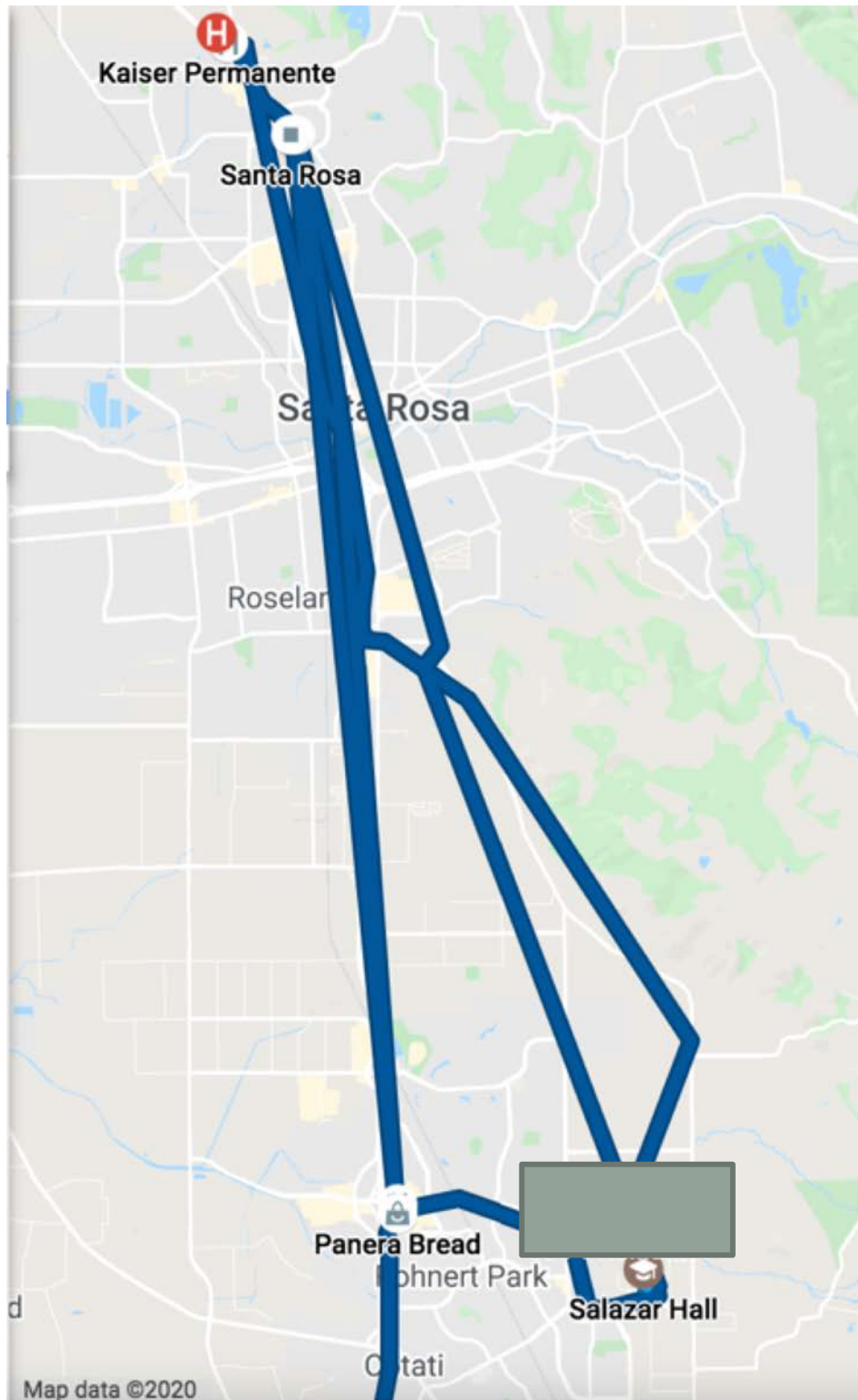
Special Offer

\$0.95

Continue



























# Google Timeline



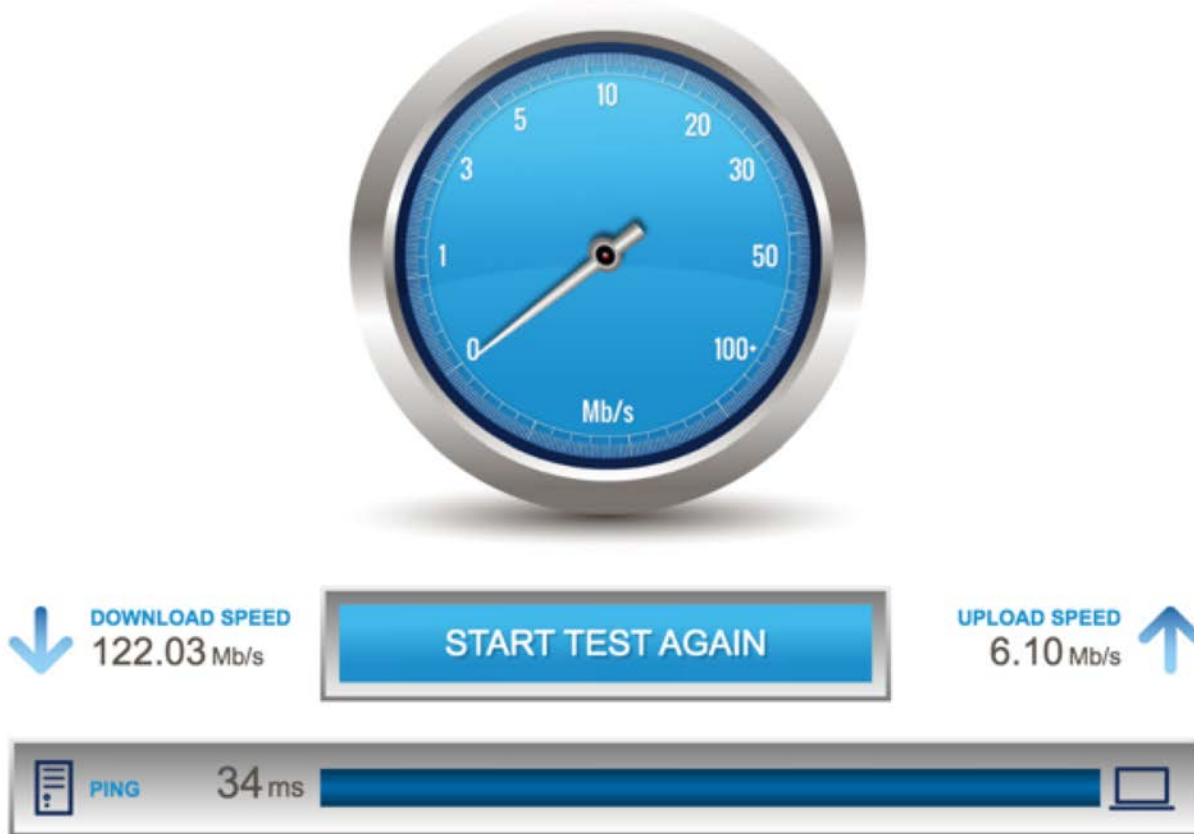
# What can your browser reveal?

Found 30 search results for 'arthri'

- Jan 11, 2020  <https://www.arthritis.org/health-wellness/detail?content=aboutarth...> www.arthritis.org
- Jan 11, 2020  Search | **Arthritis** Foundation www.arthritis.org
- Jan 11, 2020  Anti-Inflammatory Diet www.arthritis.org
- Jan 11, 2020  Causes of Inflammatory Joint Pain | **Arthritis** Foundation www.arthritis.org
- Jan 11, 2020  Explaining JIA to Your Child | **Arthritis** Foundation www.arthritis.org
- Jan 11, 2020  inflammatory **arthritis** - Google Search www.google.com
- Jan 11, 2020  Psoriatic **arthritis** and fatigue: Lifestyle tips and treatm... www.medicalnewstoday.com
- Jan 11, 2020  Psoriatic **arthritis** and fatigue: Lifestyle tips and treatm... www.medicalnewstoday.com
- Jan 11, 2020  Psoriasis and psoriatic **arthritis**: What's the link? www.medicalnewstoday.com
- Jan 11, 2020  Psoriasis and psoriatic **arthritis**: What's the link? www.medicalnewstoday.com
- Jan 11, 2020  Psoriasis and psoriatic **arthritis**: What's the link? www.medicalnewstoday.com
- Jan 11, 2020  Psoriasis and psoriatic **arthritis**: What's the link? www.medicalnewstoday.com
- Jan 11, 2020  Psoriasis and psoriatic **arthritis**: What's the link? www.medicalnewstoday.com
- Jan 11, 2020  Psoriasis and psoriatic **arthritis**: What's the link? www.medicalnewstoday.com
- Jan 11, 2020  Psoriasis and psoriatic **arthritis**: What's the link? www.medicalnewstoday.com
- Jan 11, 2020  psoriasis and psoriatic **arthritis** - Google Search www.google.com
- Jan 11, 2020  Rheumatoid **Arthritis** Diagnosis & Tests: How Doctors Diagnose RA www.webmd.com
- Jan 11, 2020  Rheumatoid **Arthritis** Diagnosis & Tests: How Doctors Diagnose RA www.webmd.com
- Jan 11, 2020  test for rheumatoid **arthritis** - Google Search www.google.com
- Jan 11, 2020  gout **arthritis** - Google Search www.google.com
- Jan 11, 2020  Rheumatoid **arthritis** - Diagnosis and treatment - Mayo Clinic www.mayoclinic.org
- Jan 11, 2020  how to treat rheumatoid **arthritis** - Google Search www.google.com
- Jan 11, 2020  Yoga Benefits for **Arthritis** www.arthritis.org
- Jan 11, 2020  yoga for rheumatoid **arthritis** patients - Google Search www.google.com

# Is your Internet fast enough?

<https://www.whatismyip.com/internet-speed-test/>



# AOL Scandal ([www.aolscandale.com](http://www.aolscandale.com) )

- On August 4, 2006, AOL Research released a compressed text file on one of its websites
  - The file contained twenty million search keywords for over 650,000 users over a 3-month period
  - The file was intended for research purposes
  - AOL pulled the file from public access by the 7<sup>th</sup>

# So How Much Information Do We Reveal?

people search	→	www.whowhere.com
high school records santa rosa california	←	www.santarosa.edu
high school credit records santa rosa ca	→	www.santarosa.edu
piner high school santa rosa california	→	www.worldbadminton.c
high school records santa rosa ca	→	www.santarosa.edu
santa rosa junior collage santa rosa ca	→	www.santarosa.edu
win free money	→	www.freecenter.com
free photo contest	→	www.picture.com
montgomery high santa rosa california	→	www.greatschools.net
disposable wages	→	www.cccsintl.org
disposable earnings	→	www.dol.gov
car insurance age brakes	→	googolplex.cuna.org
stinger car audio	→	stingerelectronics.com
heart shaped diamonds	→	www.diamondgrading.c
heart shaped diamond rings	→	shopping.yahoo.com
heart shaped pink diamond engagement rings	→	www.nextag.com
heart diamond engagement rings	→	www.nextag.com
heart engagement rings	→	www.nextag.com
newly diagnosed tumor a patient's story	→	www.mskcc.org
tumor	→	hope.abta.org
pacific northwest	→	www.gonorthwest.com
stanley morgan	→	www.morganstanley.c
how to rebuild ram	→	mmd.foxtail.com
tumor by the brain		
rebuild hydraulic ram	→	www.thomasnet.com
meritplan insurance	→	wwwapps.tdi.state.tx.
celecox pills	→	www.pharmaexpressr

AOL user #3558174 searched for:

Keyword	Found site
las vegas discounts	← → www.tripreservations.com
comopare best travel deals las vegas	→ compareairfare.1x16.org
las vegas entertainment	→ www.sunfinder-vacations.com
sick feeling in body	→ www.cancerhelp.org.uk
burning pains in the body	→ www.wrongdiagnosis.com
low energy	→ thyroid.about.com
writting letter	→ esl.about.com
writting a finance letter to customers	→ www.amazon.com
travel discounts	→ www.traveldiscounts.com
uc davis cancer treatment center	→ cancer.ucdmc.ucdavis.edu
uc davis medical center	← → www.dcn.davis.ca.us
uc davis cancer center	→ daviswiki.org
las vegas	→ www.vegas.com
new cancer drug santa rosa california	← → www.nih.gov
smart travel deals	→ www.statesman.com
advance travel deals	→ ww2.aaa.com
richie brothers	→ www.rbauction.com
travel	→ www.fodors.com
astelin	
concrete trucks	→ www.dir.qld.gov.au
las vages coupon offers	→ uk.holidaysguide.yahoo.com
peterbilt mixer trucks	→ www.springfield.net
kenworth semi mcneilus sliding trailer mixer	→ www.rockanddirt.com
kenworth mixer	→ tannerequipment.com
fifteen yard concrete trucks for sale	→ www.gulf-times.com
burning feeling in arm	→ www.orthopedicquestions.com
vegas casino coupons	→ www.lasvegas-nv.com
pretty	→ www.imdb.com
public record death search free	→ searchenginez.com
public records	→ www.publicrecordfinder.com

# So How Much Information Do We Reveal?

AOL user #3558174 searched for:

Keyword	Found site
las vegas discounts	→ www.tripreservations.com
comopare best travel deals las vegas	→ compareairfare.1x16.org
las vegas entertainment	→ www.sunfinder-vacations.com
sick feeling in body	→ www.cancerhelp.org.uk
burning pains in the body	→ www.wrongdiagnosis.com
low energy	→ thyroid.about.com
writting letter	→ esl.about.com
writting a finance letter to customers	→ www.amazon.com
travel discounts	→ www.traveldiscounts.com

- Conclusion:**
- The user faces serious medical concerns (possibly long cancer)
  - Searching for cure in UC Davis;
  - Planning a trip to Las Vegas;
  - Searching for some old friends!

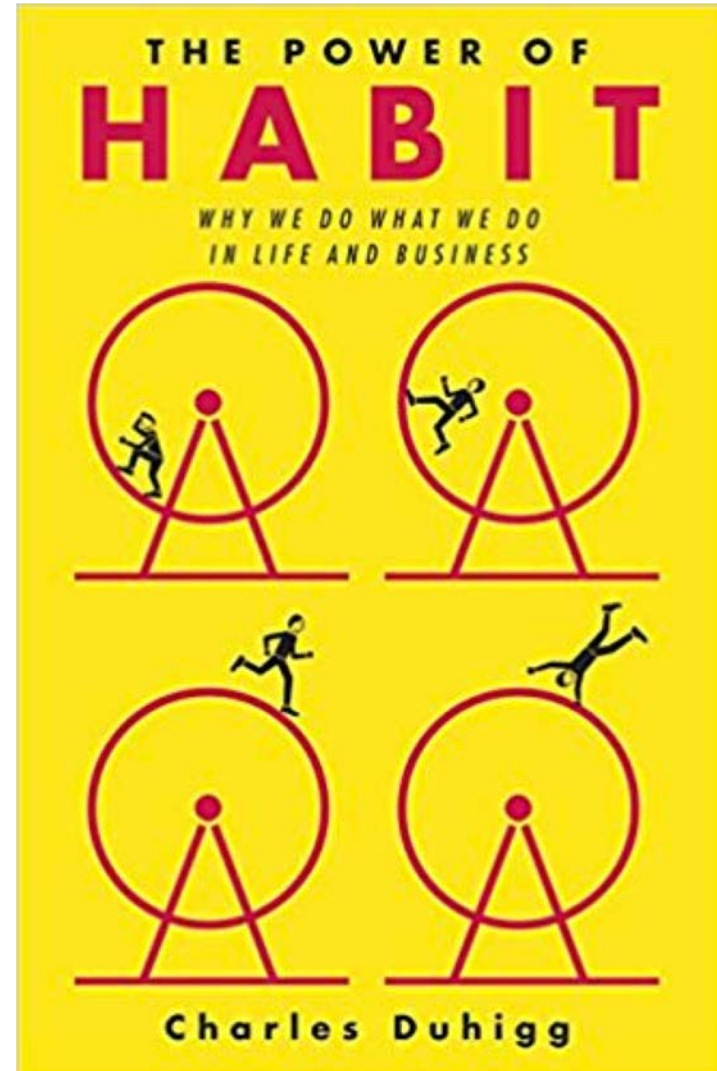
people search	→ www.whoohere.com
high school records santa rosa calif	
high school credit records santa rosa	
piner high school santa rosa californi	
high school records santa rosa ca	
santa rosa junior collage santa rosa c	
win free money	
free photo contest	
montgomery high santa rosa californi	
disposable wages	
disposable earnings	
car insurance age brakes	
stinger car audio	
heart shaped diamonds	
heart shaped diamond rings	→ shopping.yahoo.com
heart shaped pink diamond engagement rings	→ www.nextag.com
heart diamond engagement rings	→ www.nextag.com
heart er	
newly d	
tumor	
pacific r	
stanley	
how to r	
tumor b	
rebuild	
meritplan insurance	→ wwwapps.tdi.state.tx.u
celecox pills	→ www.pharmaexpressr

ucdmc.ucdavis.edu	
n.davis.ca.us	
ci.org	
gas.com	
.gov	
atesman.com	
a.com	
uction.com	
lors.com	
www.qld.gov.au	
las vages coupon offers	→ uk.holidaysguide.yahoo.com
peterbilt mixer trucks	→ www.springsfield.net
public records death search free	→ searchenginez.com
public records	→ www.publicrecordfinder.com

Can you imagine what GOOGLE has on you?

# What do retail stores have on us?

Watch the video.....



# The Internet In Action – Metadata Monitoring



Metadata –  
NOT Encrypted)

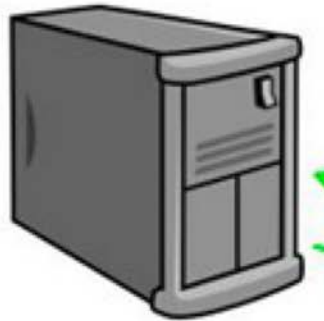
Data Content (Payload) –  
Maybe Encrypted







# How Do We Access A Web Page?



**DNS Server**



**User with Web browser**

# How Do We Access A Web Page?



# How Do We Access A Web Page?



DNS Server

10.1.0.1



User with Web browser

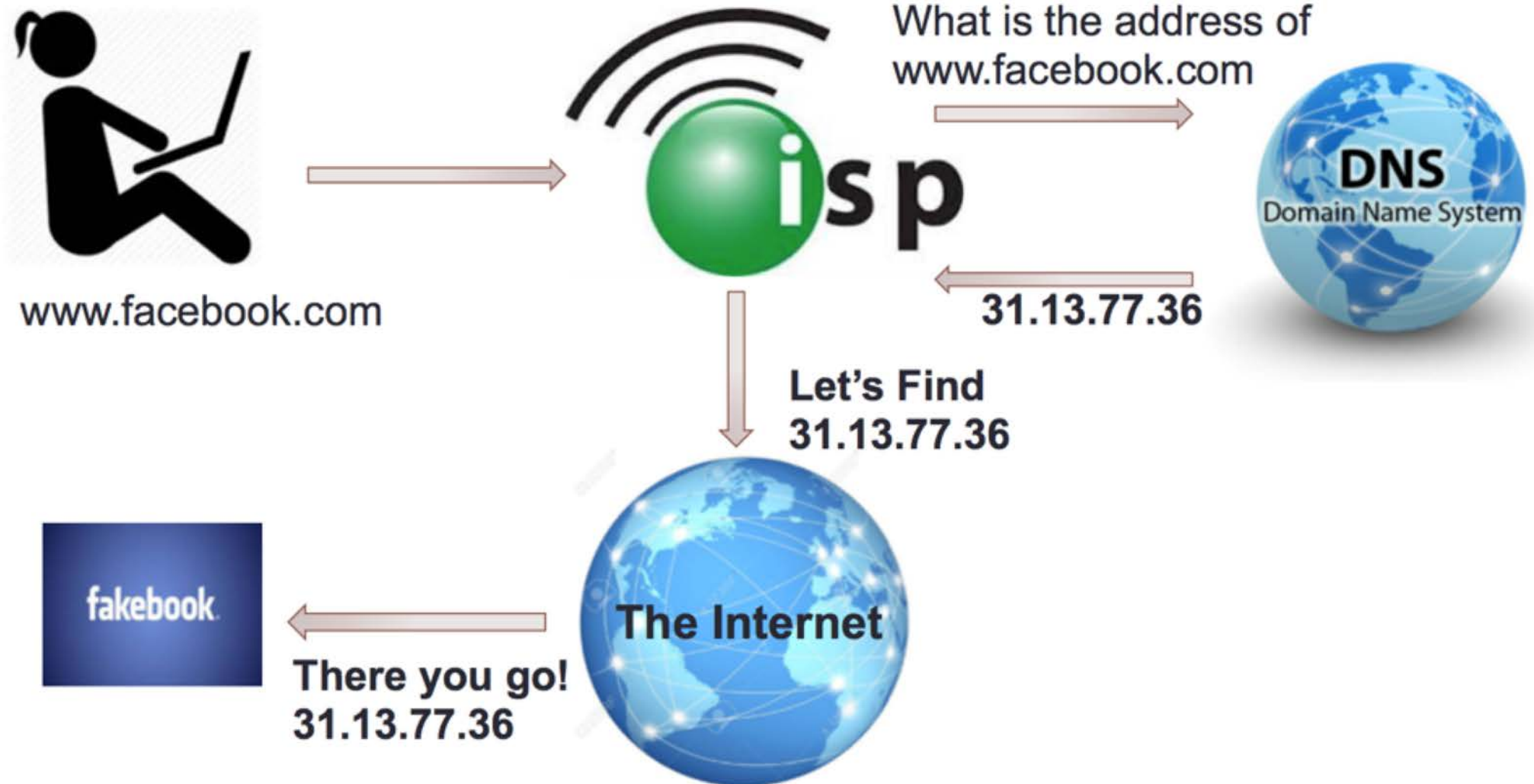


4. HTTP Response



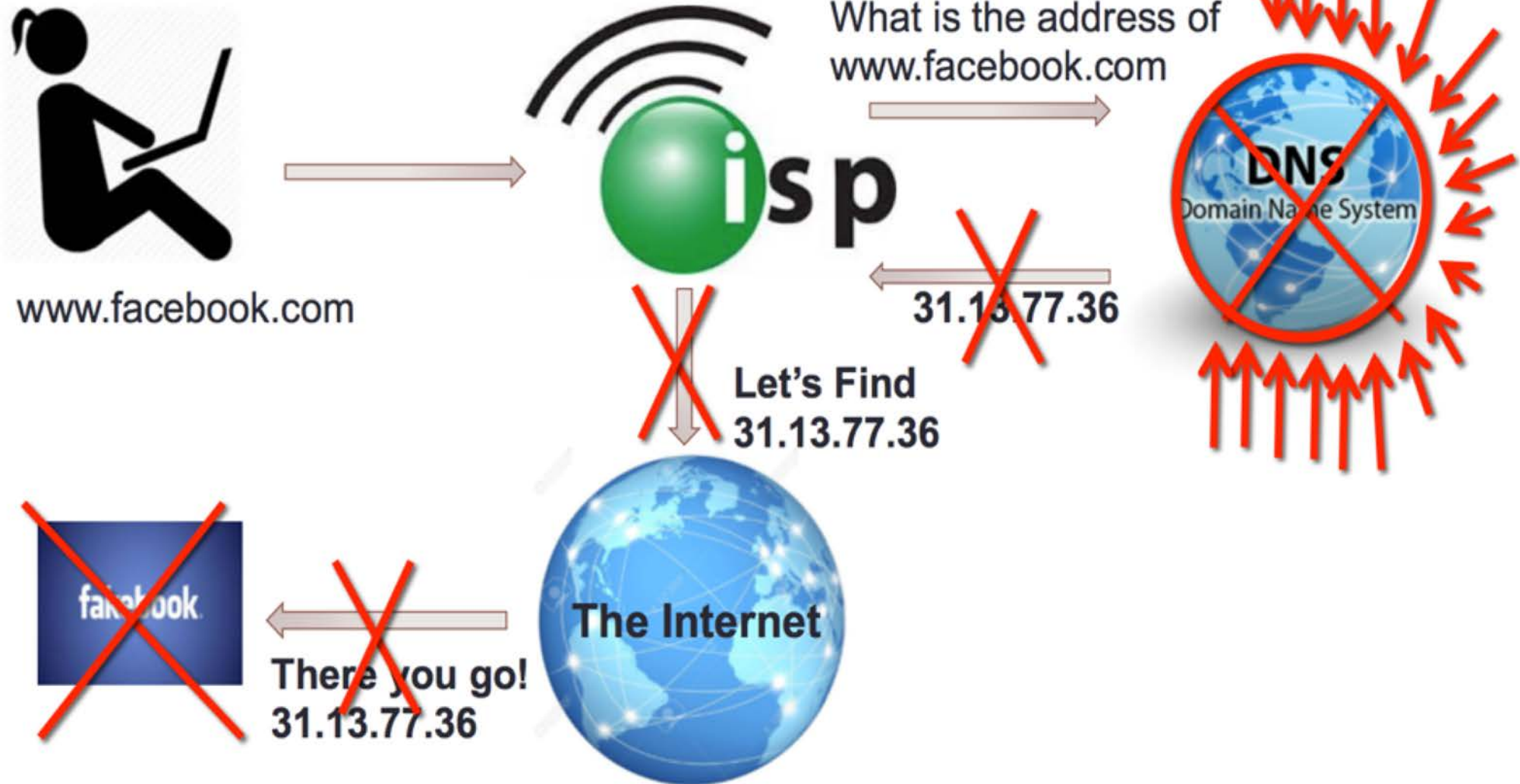
# The Internet In Action

## Getting Connected to a Site Needs Name Resolution



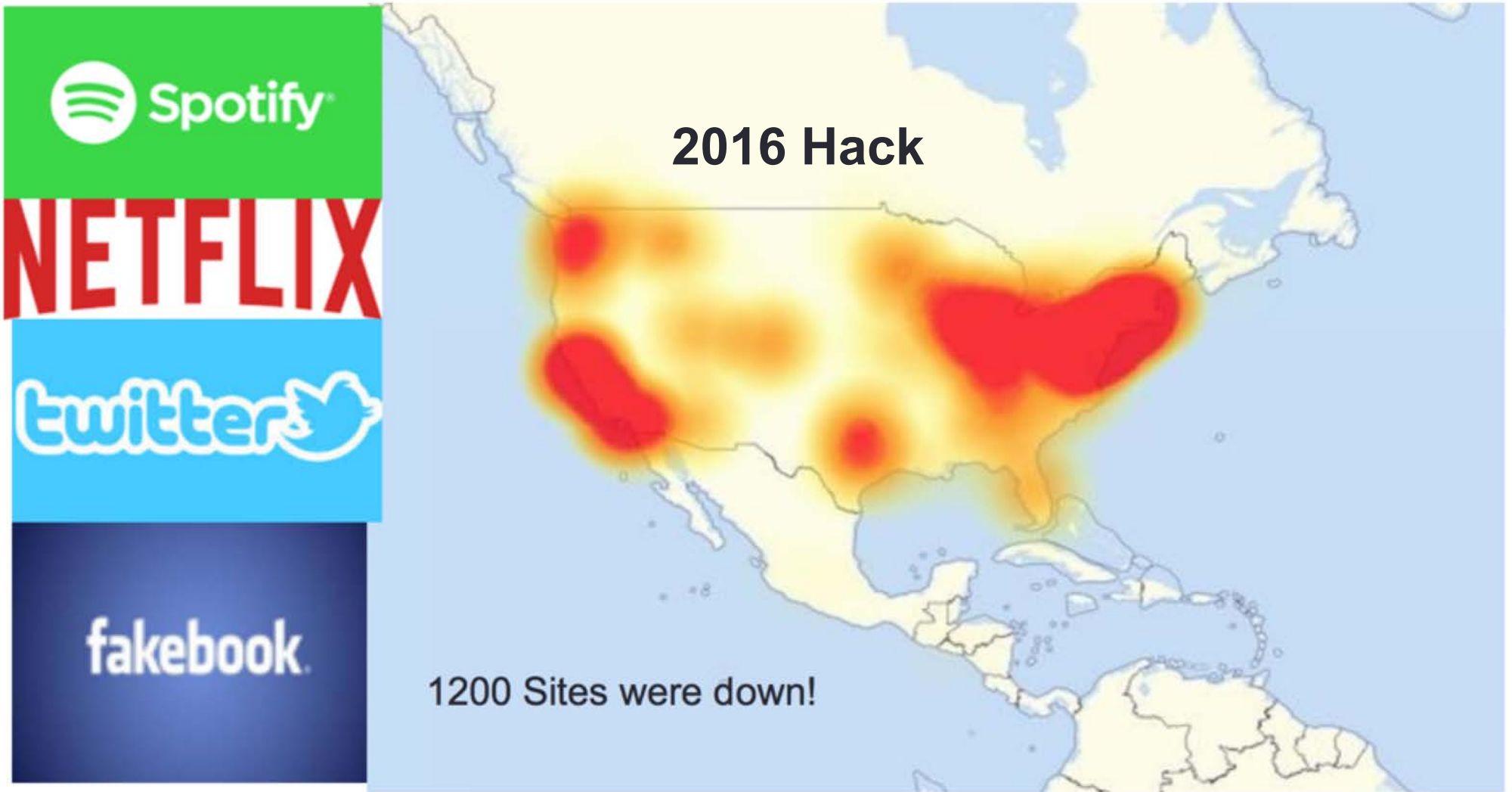
# The Internet In Action

## Recent Attack on DNS in East Cost!



# The Internet In Action

## DNS Hacked!



# Connecting to the Internet

1



IP Address:  
130.118.23.100



Let's have a BLOG!  
130.118.23.100  
www.stopbailout.org

2

Register with a domain name registrar



Domain name:  
www.stopbailout.org

**BLOG**



Why do we bailout BANKs  
& not ordinary people?

3

Internet Corporation for  
Assigned Names and  
Numbers





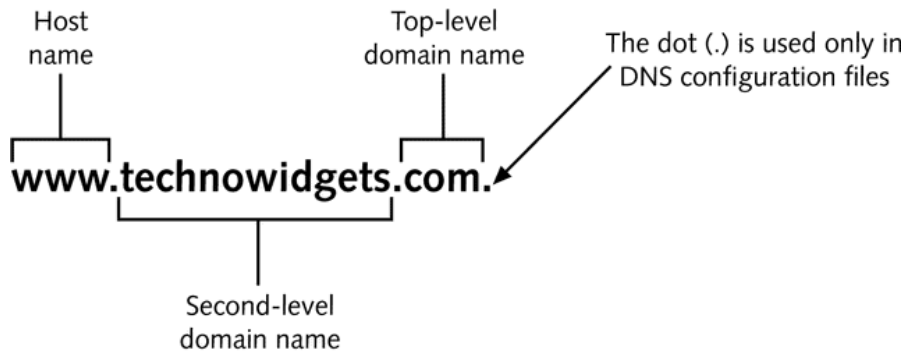
# ICANN Organization



- The Internet Corporation for Assigned Names and Numbers (ICANN)
  - ICANN is a non-profit organization
  - It was under a contract with DoC (U.S. department of commerce)
    - The United States Department of Commerce who must approve all changes requested to addressing (Zone files) by ICANN.
  - Responsible for coordinating the Internet's systems of unique identifiers, including the systems of domain names and numeric addresses that are used to reach computers on the Internet
- ICANN assigns address blocks to regional Internet registries (RIR)
- In 2016 the ICANN contract was handed over to the UN



# Domain Names



Domain Name	Assigned To
aero	Air transport industry
arpa	Infrastructure domain
asia	For or about Asia
biz	Businesses
com	Commercial organizations
coop	Cooperative associations
edu	Educational institutions
gov	United States Government
info	Information
int	International treaty organizations
jobs	Human resource managers
mil	United States military
mobi	Mobile content providers
museum	Museums
name	Individuals
net	Major network support centers
org	Non-commercial organizations
pro	Credentialed professionals
travel	Travel and tourism
country code	A sovereign nation

# Seized Web Sites



This domain name associated with the website Megaupload.com has been seized pursuant to an order issued by a U.S. District Court.

A federal grand jury has indicted several individuals and entities allegedly involved in the operation of Megaupload.com and related websites charging them with the following federal crimes:

*Conspiracy to Commit Racketeering (18 U.S.C. § 1962(d)), Conspiracy to Commit Copyright Infringement (18 U.S.C. § 371), Conspiracy to Commit Money Laundering (18 U.S.C. § 1956(h)), and Criminal Copyright Infringement (18 U.S.C. §§ 2, 2319; 17 U.S.C. § 506).*



seized by the F.B.I. pursuant to an Arrest Warrant in Rem obtained by the Office for the Southern District of New York and issued by the United States District Court for the Southern District of New York.

Managing, supervising, directing, or owning all or part of an illegal gambling business is a federal crime. (18 U.S.C. § 1955)

For persons engaged in the business of betting or wagering, it is also a federal crime to knowingly accept, in connection with the participation of another person in unlawful Internet gambling, credit, electronic fund transfers, or checks. (31 U.S.C. § § 5363 & 5366)

Violations of these laws carry criminal penalties of up to five years' imprisonment and a fine of up to \$250,000.

Properties, including domain names, used in violation of the provisions of 18 U.S.C. § 1955 or involved in money laundering transactions are subject to forfeiture to the United States.

(18 U.S.C. § § 981 & 1955(d))