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

WEEK 5

OSHER LIFELONG LEARNING INSTITUTE

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

- Dr. Farid Farahmand

A Quick Check-in…..

- Thank you for completing the survey

121 ⣿
TOTAL CLICKS

WEEK OF JAN 19   WEEK OF FEB 9

20
15
10
5

- Uploaded the slides
- Let's hold on to your questions for the first 45 min

What We Cover Today

- Quick review…..
  - Face Recognition Technology.
- IoT, Data Collection & Big Data
- Next week:
  - 5G
  - Cloud
  - Securing your computer
  - Discussion

Facial Recognition Technology

- A facial recognition system is a technology capable of identifying or verifying a person from a digital image or a video frame from a video source
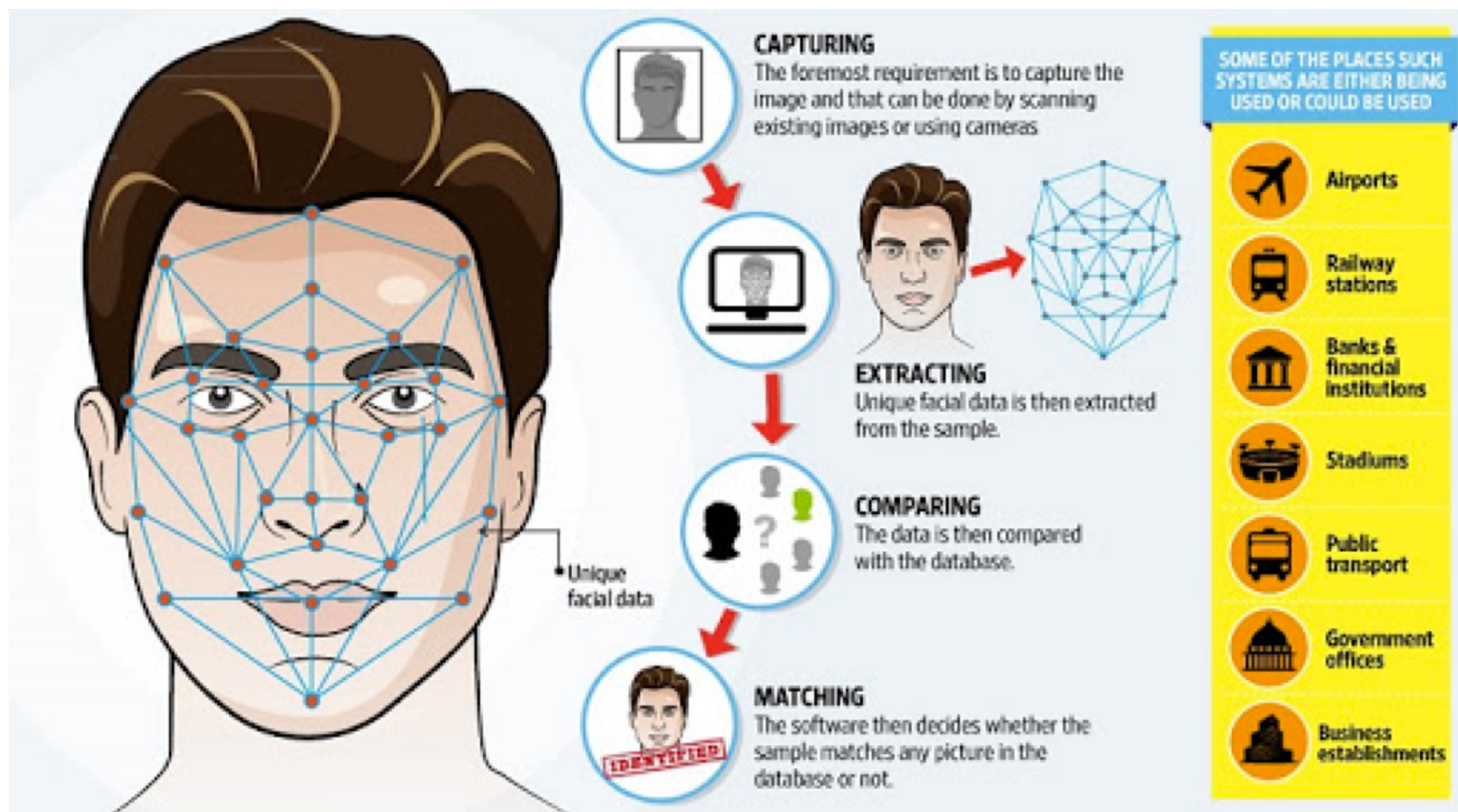
Facial Recognition Technology

- The algorithms came from a range of major tech companies and surveillance contractors

- The systems are developed by companies inside or outside the U.S.:
- Intel,
- Microsoft,
- IBM,
- Face++
- Panasonic,
- SenseTime,
- Vigilant Solutions,
- Amazon,
- And more….

Facial recognition can identify people by measuring dozens of distinguishable features on the face
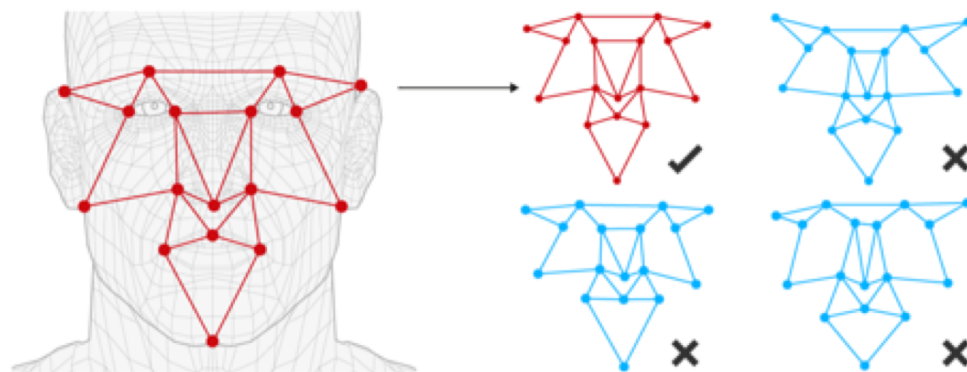
1
Facial recognition software reads the geometry of a face captured from a photo or video to create a unique code or 'faceprint'

2
Faceprints are compared with those on a watchlist and a computer ranks likely matches which are later verified by a human operator

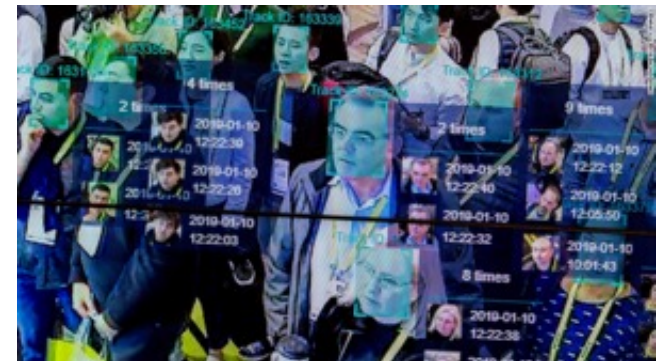Guardian graphic

Federal Governments and FR Systems

- Benefits and challenges of implementing the facial recognition systems

https://www.cnn.com/2019/07/17/tech/cities-ban-facial-recognition/index.html

Facial Recognition

- Amazon's most audacious attempt to shake up the retail world, the cashless, cashier-less Go store.
  - Mainly the system is made up of dozens and dozens of camera units mounted to the ceiling, covering and recovering every square inch of the store
  - https://www.youtube.com/watch?v=NrmMk1Myrxc

- More than 200 airports in China use facial recognition for passengers to check-in
  - Watch video: https://www.youtube.com/watch?v=IH2gMNrUuEY

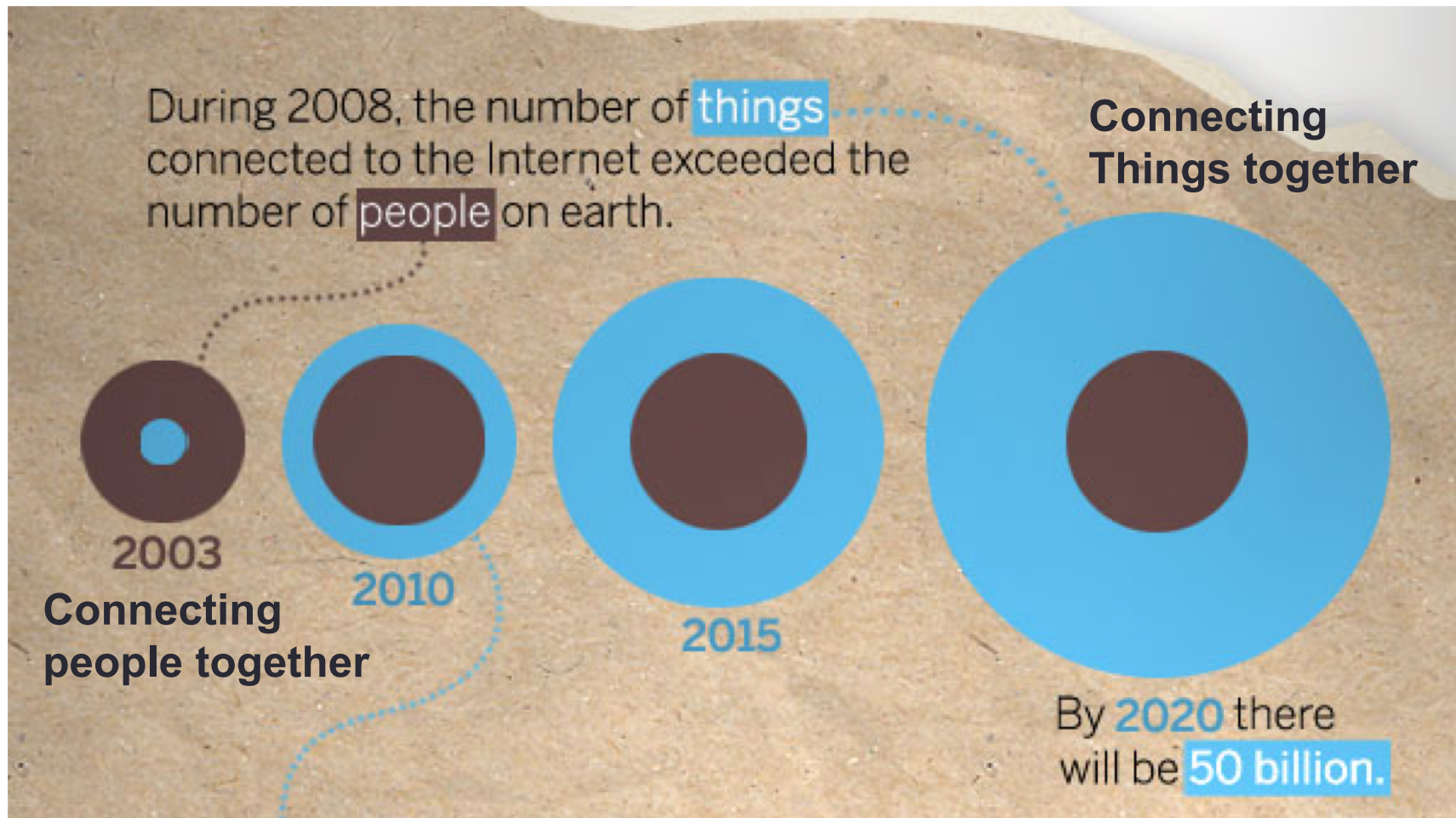# Issues with Facial Recognition Systems According to National Institute of Standards and Technology (NIST),

- The system is widely used by **law enforcement across the United States**.
- Facial-recognition systems **misidentified people of color** more often than white people, a landmark federal study has released
- Asian and African American people were up to **100 times more likely to be misidentified** than white men,
- **Native Americans had the highest false-positive rate** of all ethnicities, according to the study, which found that systems varied widely in their accuracy.
- Algorithms developed in the United States also showed high error rates for "one-to-one" searches of Asians, African Americans, Native Americans and Pacific Islanders.
- NIST said Amazon did not submit its algorithm for testing.

New Topics

Changing Trends in Communications

During 2008, the number of **things** connected to the Internet exceeded the number of **people** on earth.

Connecting Things together

2003

Connecting people together

2010

2015

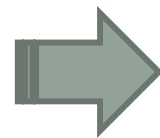By **2020** there will be **50 billion.**

Sources: Cisco IBSG, Jim Cicconi, AT&T , Steve Leibson, Computer History Museum, CNN, University of Michigan, Fraunhofer

Image Courtesy: : CISCO

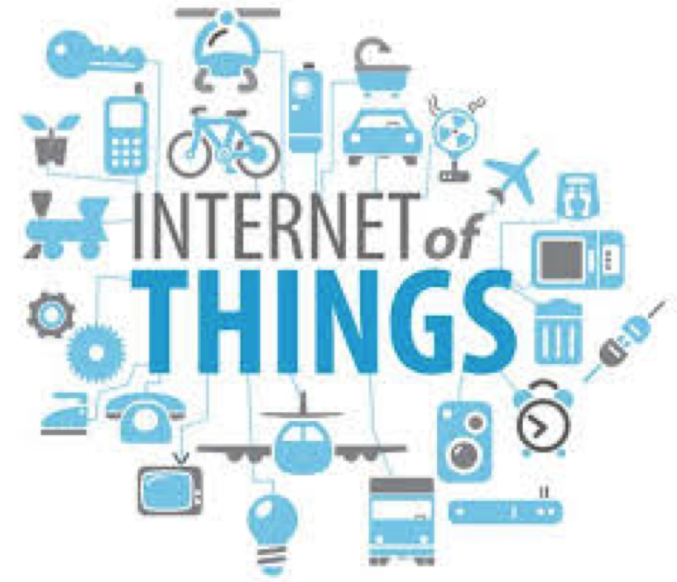# Today's Communication Systems: Connecting Machines Together

- Complex and heterogeneous resources and networks

Human-to-Things Communications! ➡ Things-To-Things Communications

Any TIME, Any PLACE + Any DEVICE

NO HUMAN, PLEASE!
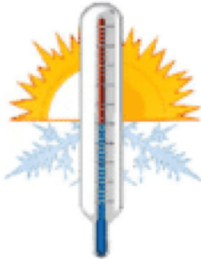
Internet-of-Things (IoT) – A Definition

The set of
technologies and solutions
that enable integration of
real world data and services
into the existing
information networking technologies

IoT is an evolution of the Machine to Machine (M2M) market.

Most Common Applications of IoT

Transport & Logistics	Utilities	Smart cities	Smart building
Fleet management, Goods tracking	Smart metering, Smart grid management	Parking sensors, Waste management, etc.	Smoke detector, Home automation

Consumers	Industrial	Environment	Agriculture
Wearables Kids/senior tracker	Process monitoring & control, Maintance monitoring	Food monitoring/alerts, Environmental monitoring	Climate/agriculture monitoring, Livestock tracking

Most Common Applications of IoT

Transport & Logistics

Utilities

Smart cities

Smart building

Wearables
Kids/senior tracker

Process monitoring &
control,
Maintance monitoring

Food monitoring/alerts,
Environmental monitoring

Climate/agriculture
monitoring,
Livestock tracking

Video…..
https://www.youtube.com/watch?time_continue=149&v=NjYTzvAVozo

Trends in IoT industry

Gathering **information** about everything everyone does: houses, transport, medicine, education and many other things

IoT and Big Data

IoT and Machine Learning

IoT and Blockchains

47% product and service quality improvement

45% workplace productivity improvement

44% operations reliability increase

37% asset productivity increase

35% cost of materials reduction

34% new customers engagement

33% customer satisfaction increase

26% development cost reduction

22% theft risk reduction

IoT
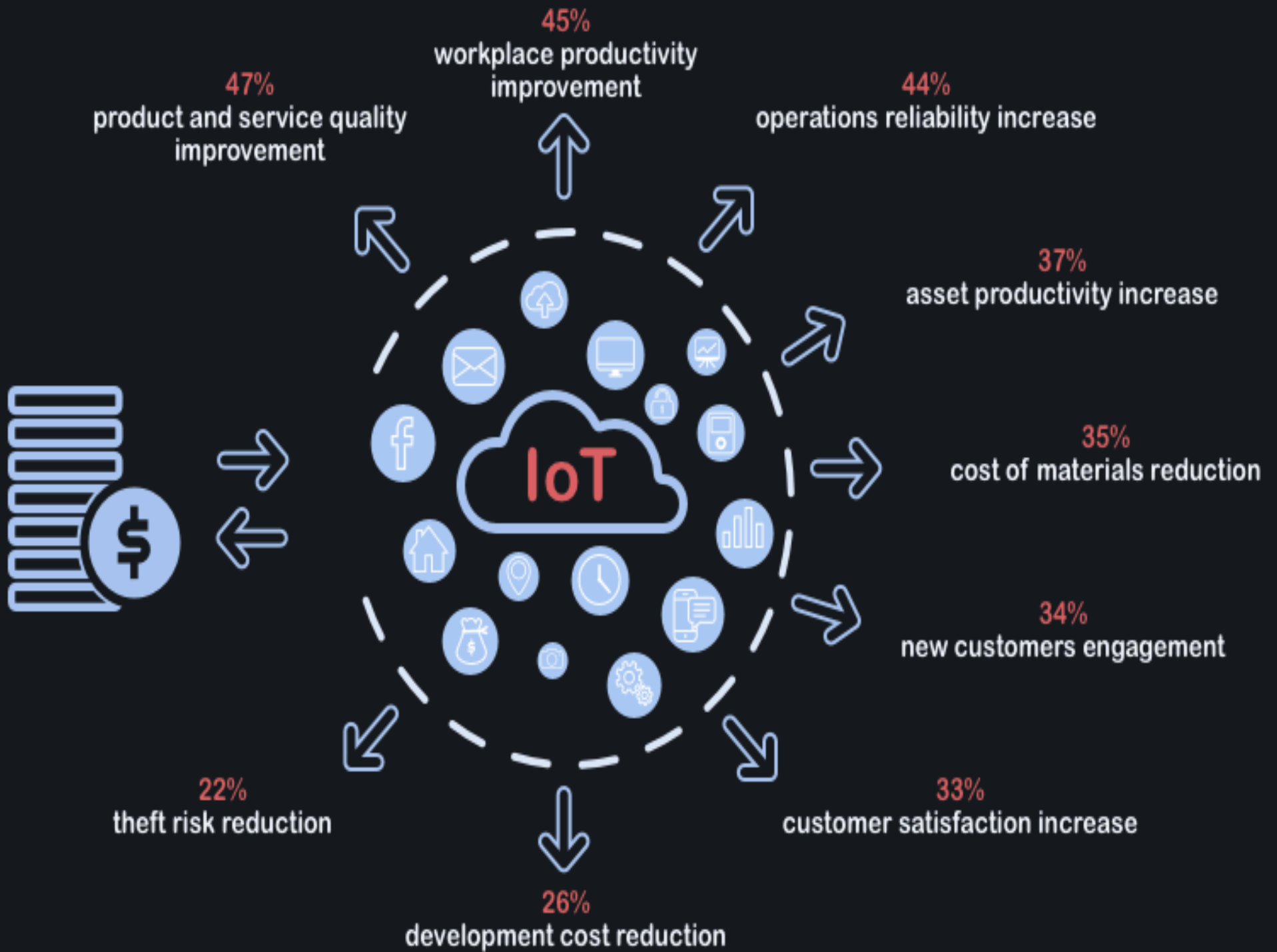
It is all about connectivity…..
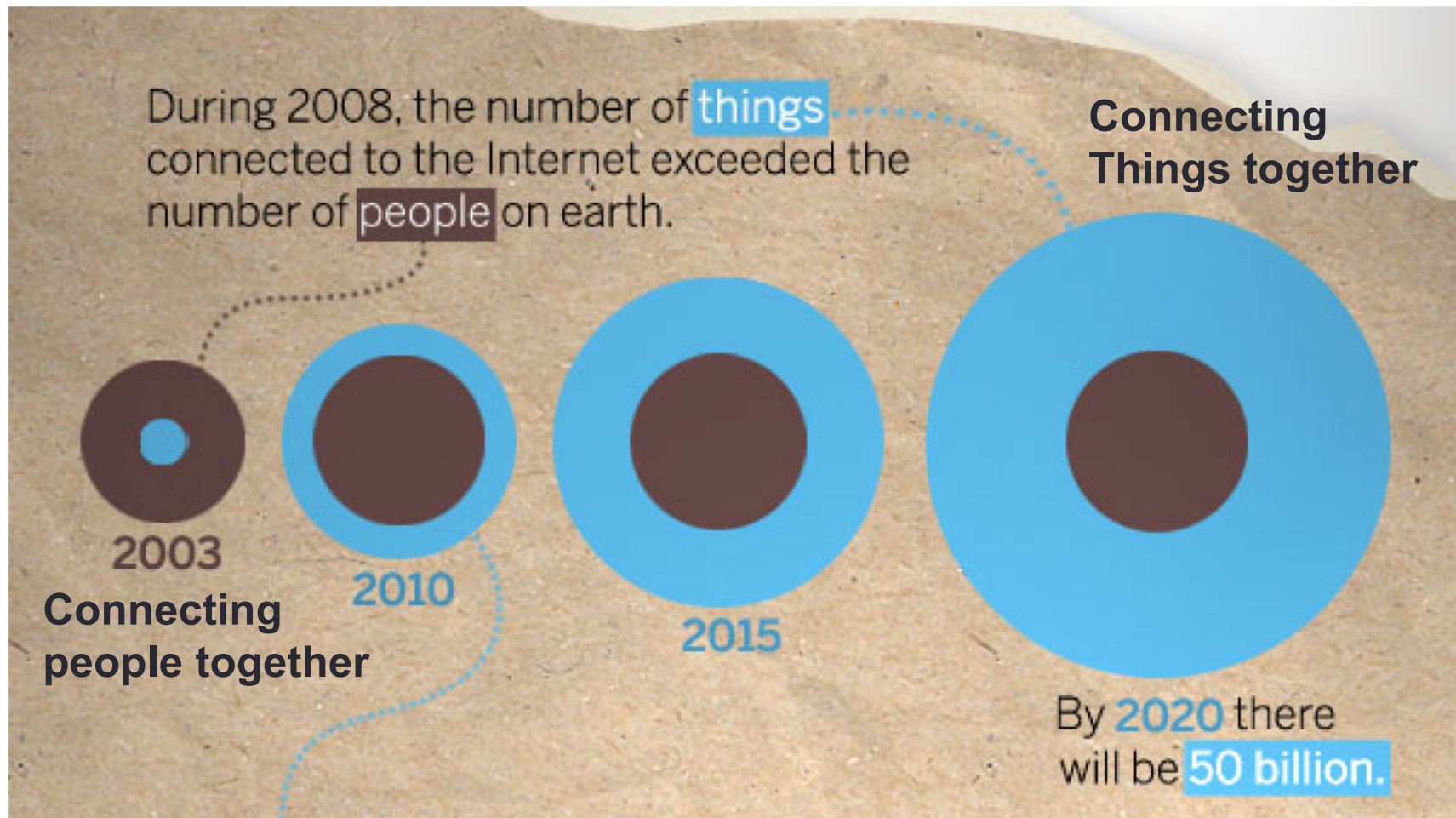
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By 2020 there will be 50 billion.

Sources: Cisco IBSG, Jim Cicconi, AT&T, Steve Leibson, Computer History Museum, CNN, University of Michigan, Fraunhofer

Image Courtesy: : CISCO

EVERY MINUTE OF THE DAY

PINTEREST USERS PIN 3,472 images.

YOUTUBE USERS UPLOAD 72 HRS. OF NEW VIDEO.

EMAIL USERS SEND 204,000,000 MESSAGES.

Google RECEIVES OVER 4,000,000 SEARCH QUERIES.

VINE USERS SHARE 8,333 VIDEOS.

FACEBOOK USERS SHARE 2,460,000 PIECES OF CONTENT.

SKYPE USERS CONNECT FOR 23,300 HOURS.

TINDER USERS SWIPE 416,667 TIMES.

YELP USERS POST 26,380 REVIEWS.

WHATSAPP — USERS SHARE — 347,222 PHOTOS.

APPLE USERS DOWNLOAD 48,000 apps.

PANDORA USERS LISTEN TO 61,141 HOURS OF music.

AMAZON MAKES $83,000 IN ONLINE SALES.

INSTAGRAM USERS » POST 216,000 NEW PHOTOS.

TWITTER USERS TWEET 277,000 TIMES.

Components Big Data

The Four V's of Big Data

The FOUR V's of Big Data

From traffic patterns and music downloads to web history and medical records, data is recorded, stored, and analyzed to enable the technology and services that the world relies on every day. But what exactly is big data, and how can these massive amounts of data be used?

As a leader in the sector, IBM data scientists break big data into four dimensions: Volume, Velocity, Variety and Veracity

Depending on the industry and organization, big data encompasses information from multiple internal and external sources such as transactions, social media, enterprise content, sensors and mobile devices. Companies can leverage data to adapt their products and services to better meet customer needs, optimize operations and infrastructure, and find new sources of revenue.

Volume
SCALE OF DATA

40 ZETTABYTES
[43 TRILLION GIGABYTES]
of data will be created by 2020, an increase of 300 times from 2005

6 BILLION PEOPLE
have cell phones

WORLD POPULATION: 7 BILLION

It's estimated that
2.5 QUINTILLION BYTES
[2.3 TRILLION GIGABYTES]
of data are created each day

Most companies in the U.S. have at least
100 TERABYTES
[100,000 GIGABYTES]
of data stored

Velocity
ANALYSIS OF STREAMING DATA

The New York Stock Exchange captures
1 TB OF TRADE INFORMATION
during each trading session

Modern cars have close to
100 SENSORS
that monitor items such as fuel level and tire pressure

By 2016, it is projected there will be
18.9 BILLION NETWORK CONNECTIONS
– almost 2.5 connections per person on earth

By 2015
4.4 MILLION IT JOBS
will be created globally to support big data, with 1.9 million in the United States

Variety
DIFFERENT FORMS OF DATA

As of 2011, the global size of data in healthcare was estimated to be
150 EXABYTES
[161 BILLION GIGABYTES]

30 BILLION PIECES OF CONTENT
are shared on Facebook every month

By 2014, it's anticipated there will be
420 MILLION WEARABLE, WIRELESS HEALTH MONITORS

4 BILLION+ HOURS OF VIDEO
are watched on YouTube each month

400 MILLION TWEETS
are sent per day by about 200 million monthly active users

Veracity
UNCERTAINTY OF DATA

1 IN 3 BUSINESS LEADERS
don't trust the information they use to make decisions

27% OF RESPONDENTS
in one survey were unsure of how much of their data was inaccurate

Poor data quality costs the US economy around
$3.1 TRILLION A YEAR

Big Data: A By-Product

Facebook

Google

Online Services

Browser

WWW

Internet Technology

By- Product

BIG DATA

- As we use the digital technology we generate data
- The more we interact with our devices, the more data we generate → Lots of Data → **Big Data**

Generating Big Data (personal data)

Analyzed Data
Targeted Advertising/
Sell to advertisers
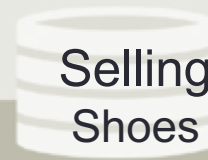
Selling TV

Selling Shoes

Advertising Companies

Facebook is likely the **largest database of people** ever built, and contains more personal data than any other source.

g Big Data

Targeted Advertising/
Sell to advertisers

$

Selling
TV

Selling
Shoes

Advertising Companies

DIGITAL ADVERTISING ALLIANCE
POWERED BY YOURADCHOICES

USER'S CURRENT IBA STATUS

The companies participating in the WebChoices tool provide transparency and choice under the DAA Principles. We are evaluating this browser's compatibility with the WebChoices tool and verifying its opt-out status.

Your connection speed and browser configuration may affect the success of your opt-out requests. Please stand by as WebChoices checks whether your browser can set opt out requests. You may see additional windows open and close as these checks are performed and as your opt-out choices are requested.

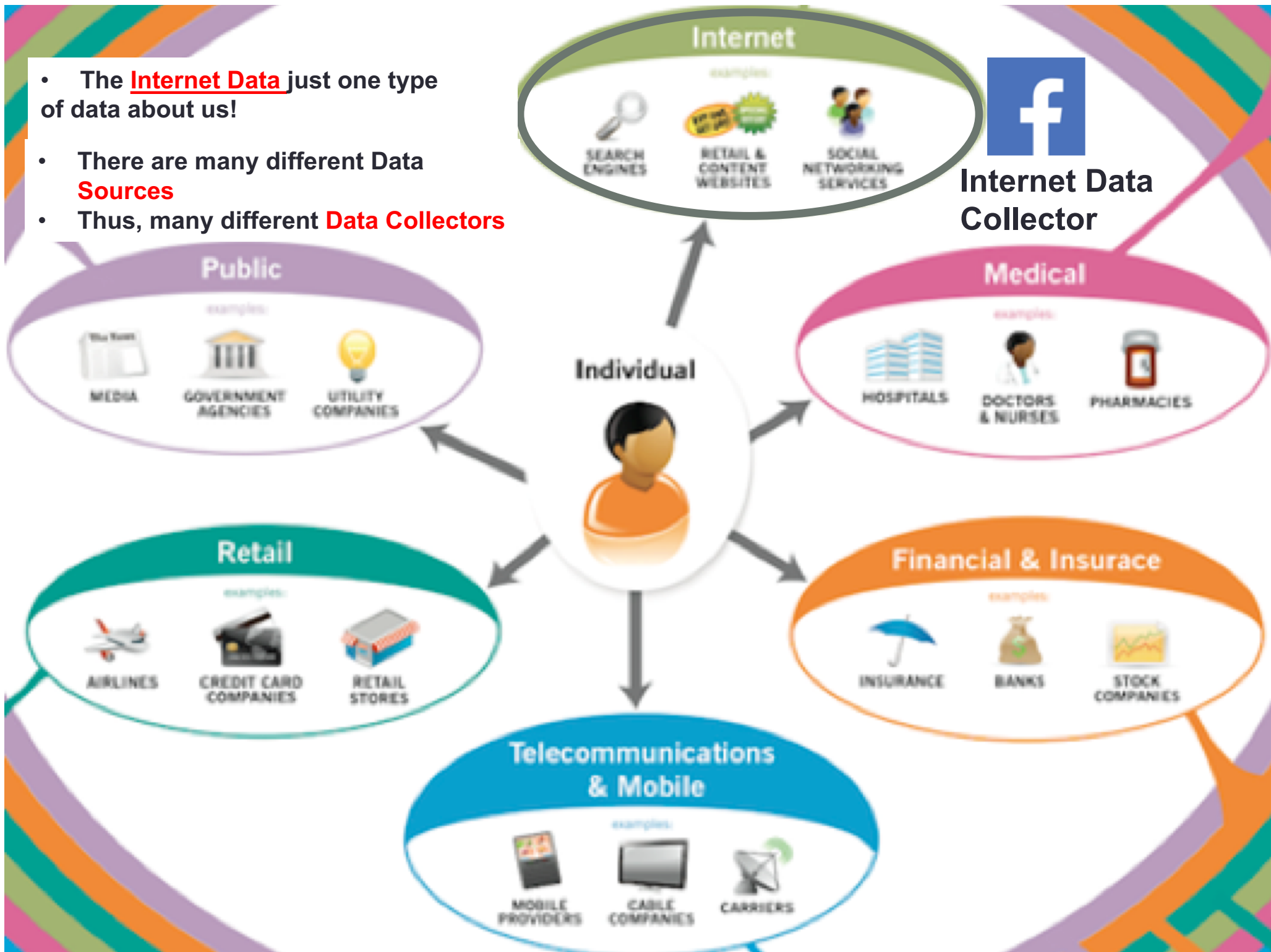| Javascript Check	Network Quality Check	First-Party Cookie Check	Third-Party Cookie Check
✓	✓	✓	✓

100%

134 Companies Participating to Provide Transparency!

- The **<u>Internet Data</u>** just one type of data about us!

- There are many different Data **Sources**
- Thus, many different **Data Collectors**

Internet Data Collector

Internet
examples:
SEARCH ENGINES · RETAIL & CONTENT WEBSITES · SOCIAL NETWORKING SERVICES

Public
examples:
MEDIA · GOVERNMENT AGENCIES · UTILITY COMPANIES

Individual

Medical
examples:
HOSPITALS · DOCTORS & NURSES · PHARMACIES

Retail
examples:
AIRLINES · CREDIT CARD COMPANIES · RETAIL STORES

Financial & Insurace
examples:
INSURANCE · BANKS · STOCK COMPANIES

Telecommunications & Mobile
examples:
MOBILE PROVIDERS · CABLE COMPANIES · CARRIERS

Personal Data Categories -
A detailed list – each revealing different piece of information about us

Sensitive Identifying Data

- Social Security Number
- Driver's License Number
- Birth Date
- Birth Dates of Each Child in Household
- Birth Date of Family Members in Household

General Interest Data

- Apparel Preferences
- Attendance at Sporting Events
- Charitable Giving
- Gambling – Casinos
- Gambling – State Lotteries
- Thrifty Elders
- Life Events (e.g., Retirement, Newlywed, Expectant Parent)
- Magazine and Catalog Subscriptions
- Media Channels Used
- Participation in Outdoor Activities (e.g., Golf, Motorcycling,
- Participation in Sweepstakes or Contests
- Pets

Court and Public Record Data

- Bankruptcies
- Criminal Offenses and Convictions
- Judgments
- Liens
- Marriage Licenses
- State Licenses and Registrations (e.g.,Hunting, Fishing, Professional)

Identifying Data

- Name
- Previously Used Names
- Address
- Address History
- Longitude and Latitude
- Phone Numbers
- Email Address

Social Media and Technology Data

- Electronics Purchases
- Friend Connections
- Internet Connection Type
- Internet Provider
- Level of Usage
- Heavy Facebook User
- Heavy Twitter User
- Twitter User with 250+ Friends
- Is a Member of over 5 Social Networks

Financial Data

- Ability to Afford Products
- Credit Card User
- Presence of Gold or Platinum (
- Credit Worthiness
- Recent Mortgage Borrower
- Pennywise Mortgagee
- Financially Challenged
- Owns Stocks or Bonds
- Investment Interests
- Discretionary Income Level
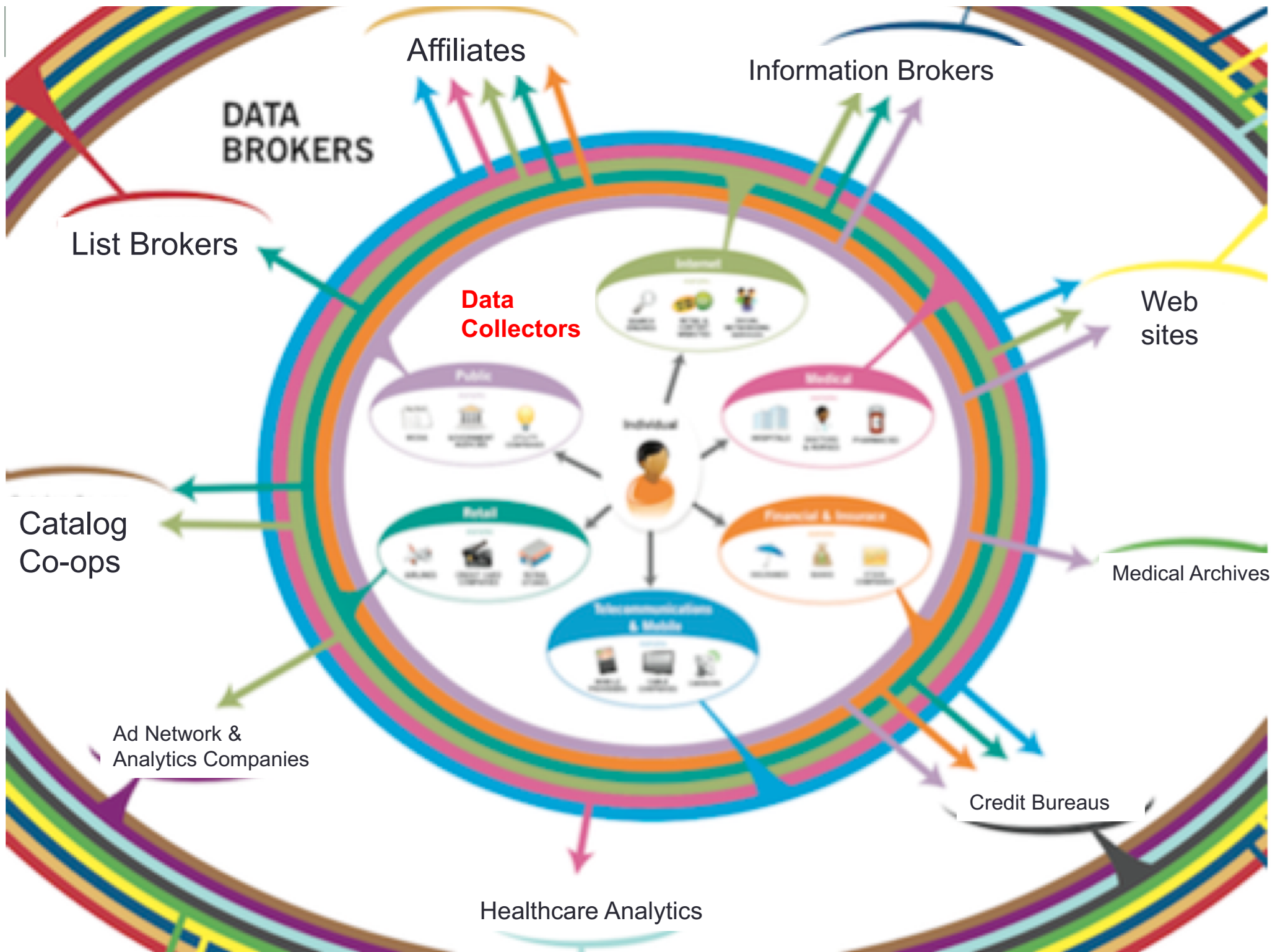- Credit Active

Demographic Data

- Age
- Height
- Weight
- Gender
- Race & Ethnicity
- Country of Origin
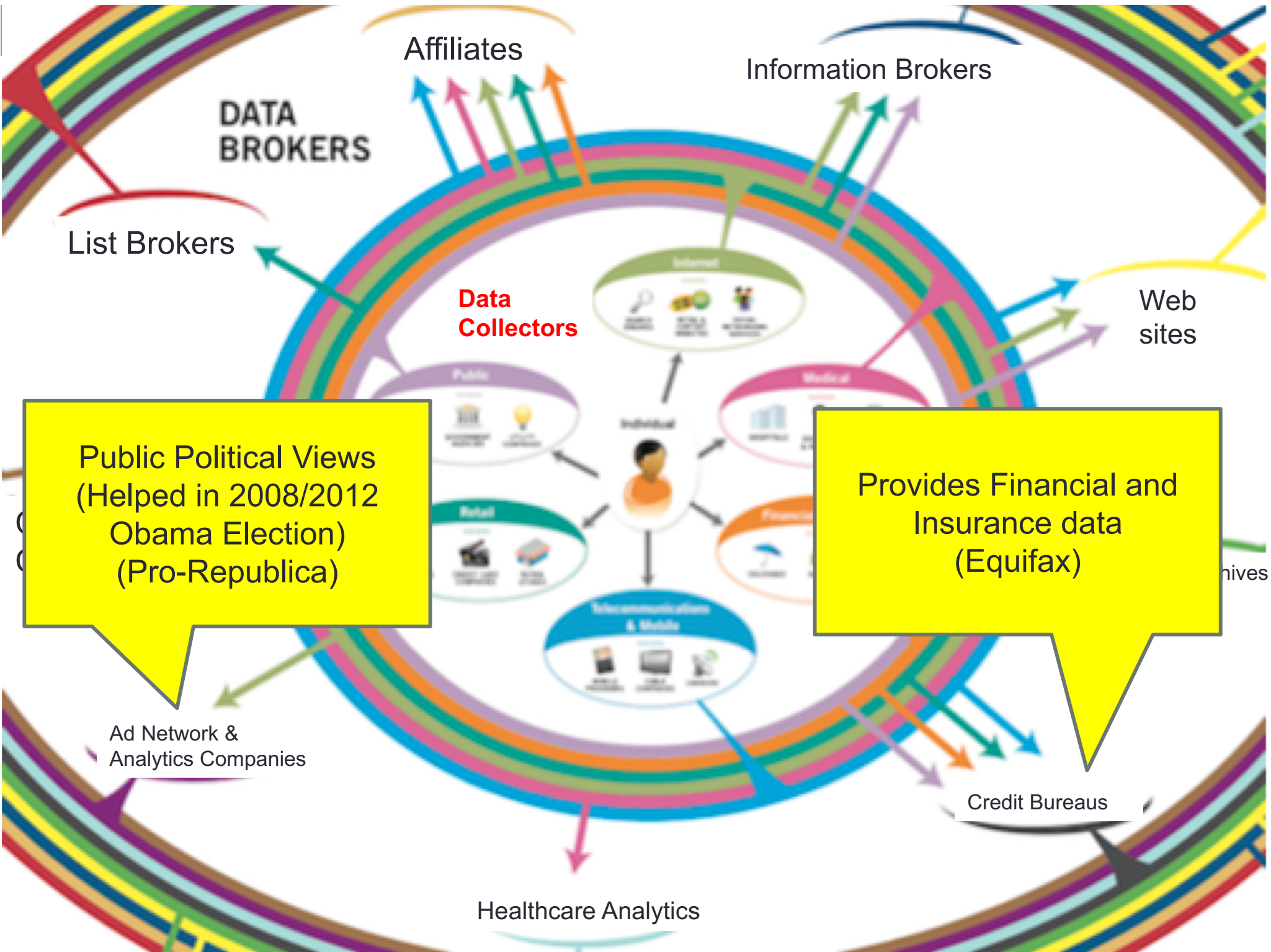- Religion (by Surname at the Hou
- Language

Vehicle Data

- Brand Preferences
- Insurance Renewal
- Make & Model
- Vehicles Owned
- Vehicle Identification Numbers
- Vehicle Value Index
- Propensity to Purchase a New or Used Vehicle
- Propensity to Purchase a Particular Vehicle Type (e.g., SUV, Coupe, Sedan)
- Motor Cycle Owner (e.g., Harley, Off-Road Trail Bike)
- Motor Cycle Purchased 0-6 Months Ago
- Boat Owner

Home and Neighborhood Data

- Census Tract Data
- Address Coded as Public/Government Housing
- Dwelling Type
- Heating and Cooling
- Home Equity
- Home Loan Amount and Interest Rate
- Home Size
- Lender Type
- Length of Residence
- Listing Price

Affiliates

DATA BROKERS

Information Brokers

List Brokers

Data Collectors

Web sites

Internet

Public

Medical

Individual

Catalog Co-ops

Retail

Financial & Insurance

Medical Archives

Telecommunications & Mobile

Ad Network & Analytics Companies

Credit Bureaus

Healthcare Analytics

Affiliates

DATA BROKERS

Information Brokers

Data Collectors

List Brokers

Web sites

Public Political Views (Helped in 2008/2012 Obama Election) (Pro-Republica)

Provides Financial and Insurance data (Equifax)

Ad Network & Analytics Companies

Credit Bureaus

Healthcare Analytics

Data Collection and Data Analytics can Save Lives….

- Watch video

Understanding the depth and volume of the data the data brokers have on us!

- **DATA DROKERS** mine, refine and sell OUR data to the highest bidder, usually without OUR knowledge –
- They keep the data as long as they want
- Companies that most people rarely even know exist

acxiom Third Party Brokers

Acxiom, one of the largest data brokering companies, has:

- 23K servers collecting and analyzing consumer data
- Data for 500 million consumers worldwide
- 1.5K data points per person

38% of employed Americans' pay stub information is available on **EQUIFAX**
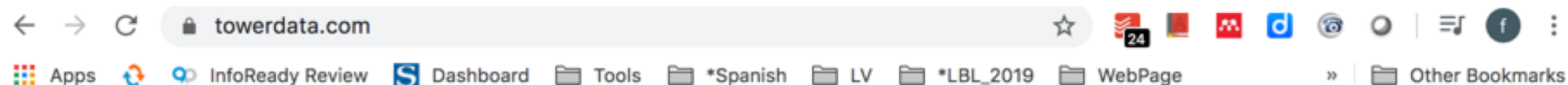
80% of U.S. email addresses are on file on **towerd@ta**

https://www.towerdata.com/

Databases like **Campaign GRID** and **PRO PUBLICA** have political information including party affiliation and campaign contributions for **80%** of registered American voters

VOTE!

Services offered by
https://www.towerdata.com/

Personal Data Ecosystem
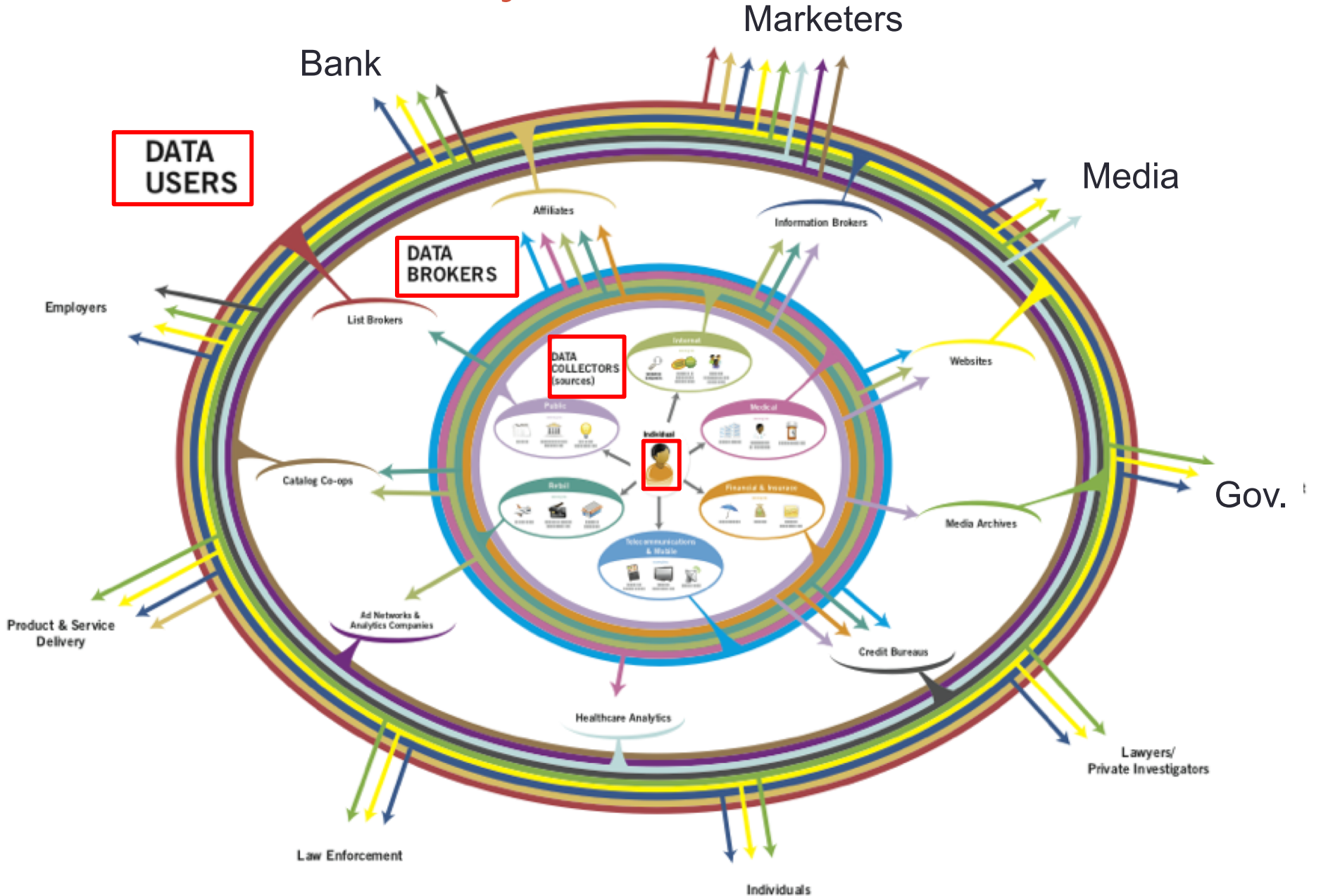
Personal Data Ecosystem –
A Corporate View

FREE

Facebook

Google

YOU

Data Collection

DATA BROKERS

DATA BROKER

DATA USERS

OBSERVATIONS
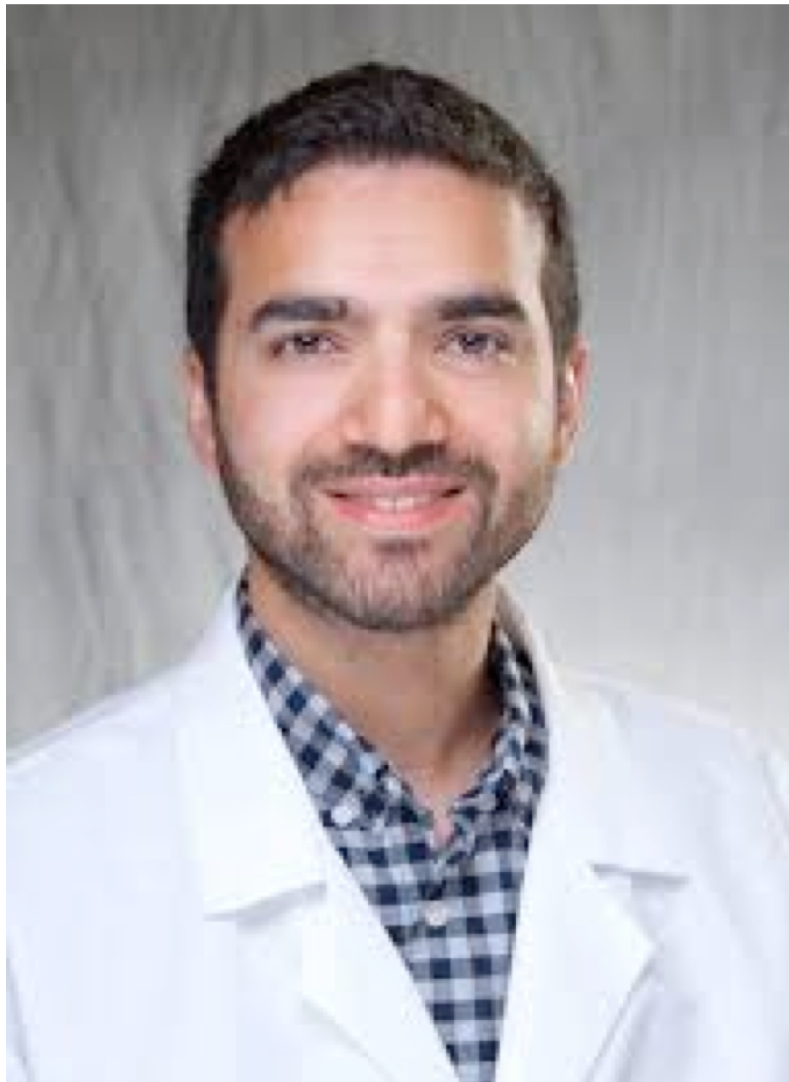
$$ $

Control / Manipulate
Use's choices & opinions
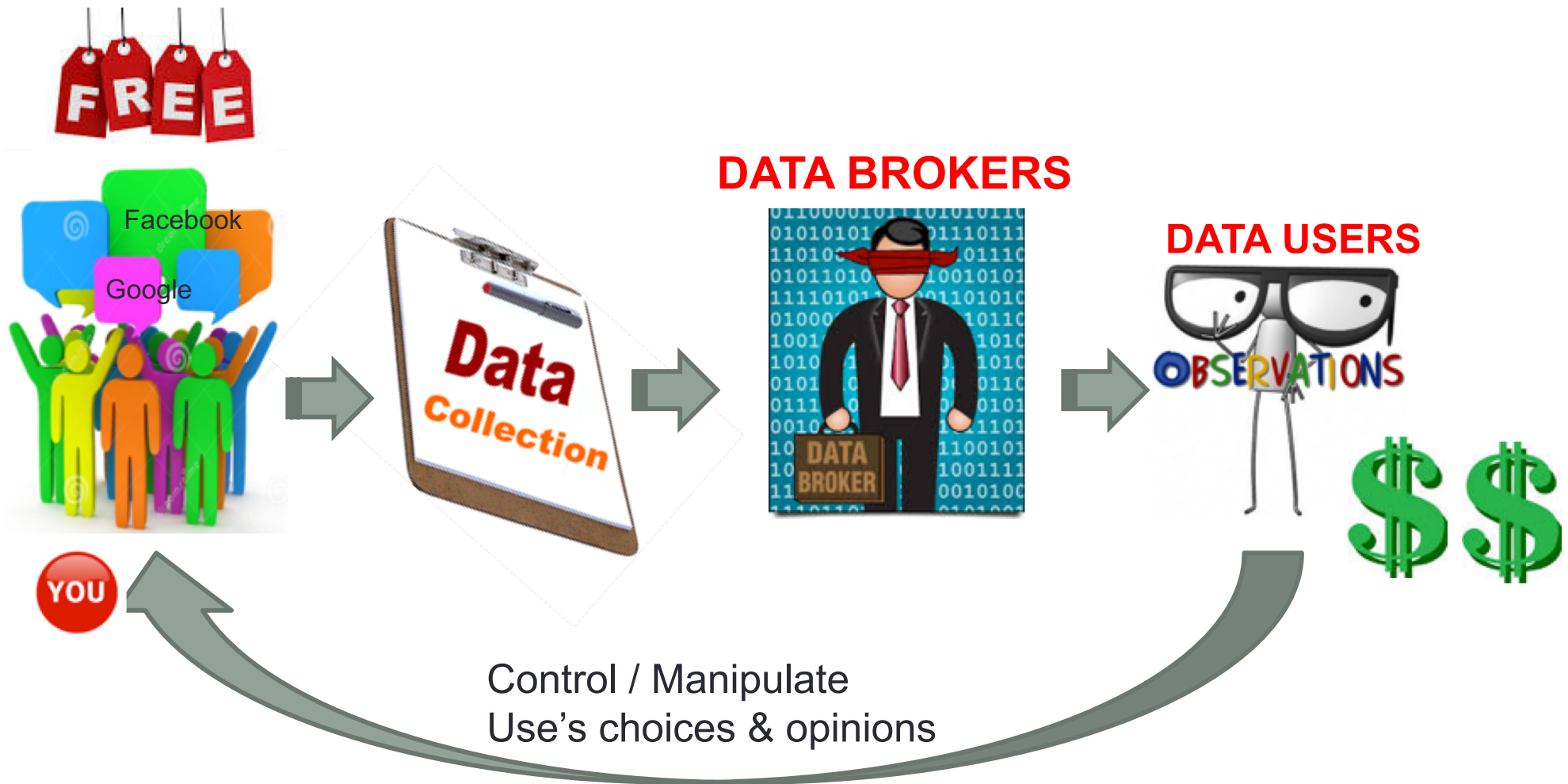
Power of Data
A True Story…….

My Brother
Physician, Lives alone in a small Apt. in Dallas TX

My Light Sensor
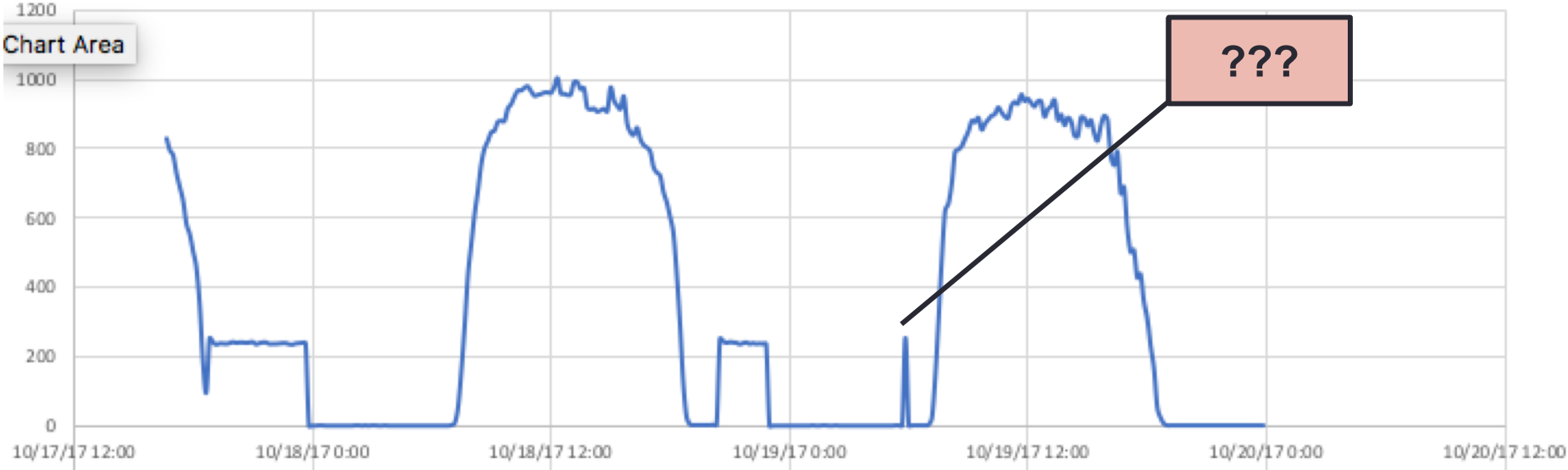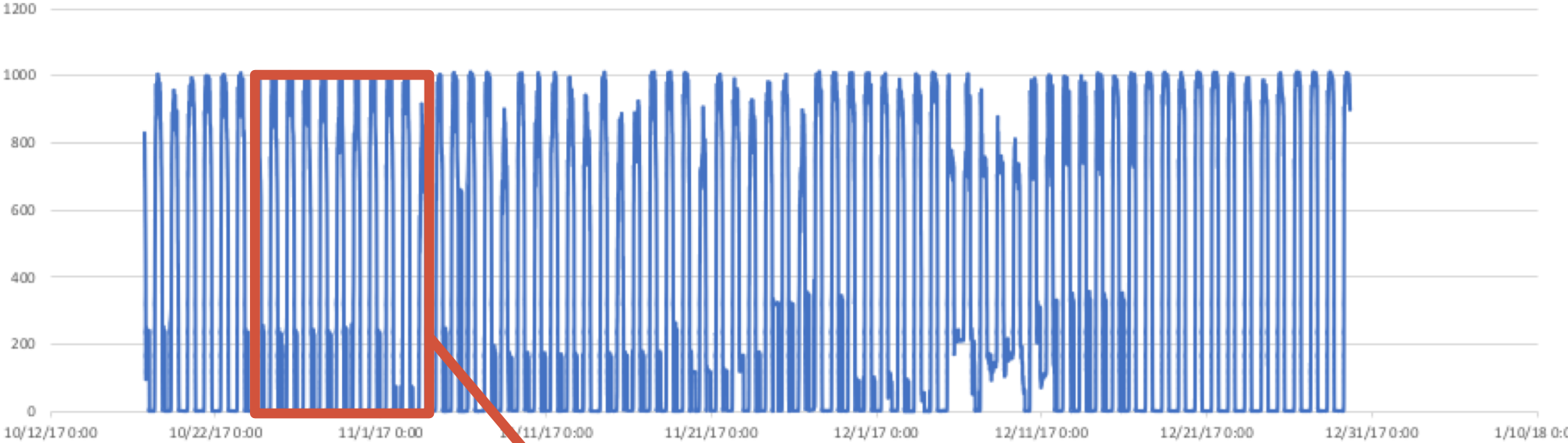Cheap & portable

Anyone interested?
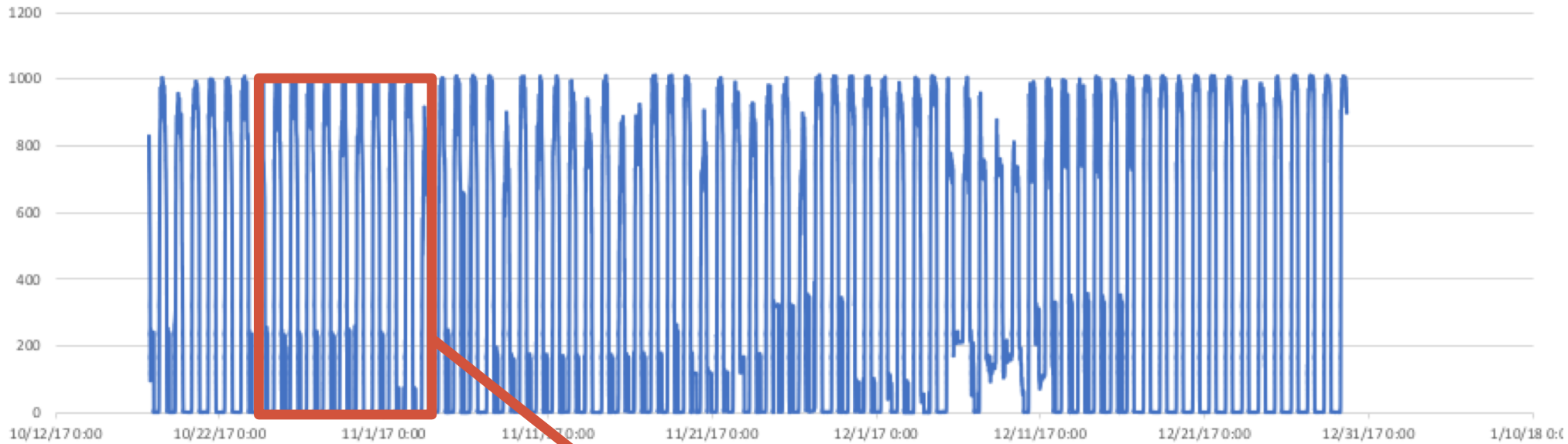
Light Detector Results

Light Detector Results

Light Detector Results
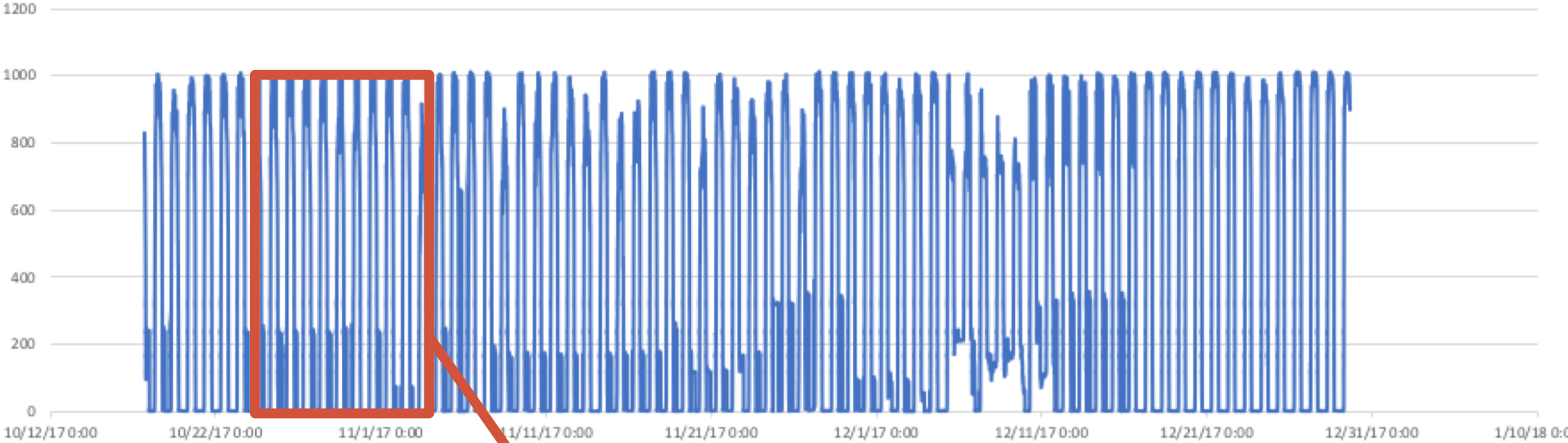
3:40 AM &
3:43 AM
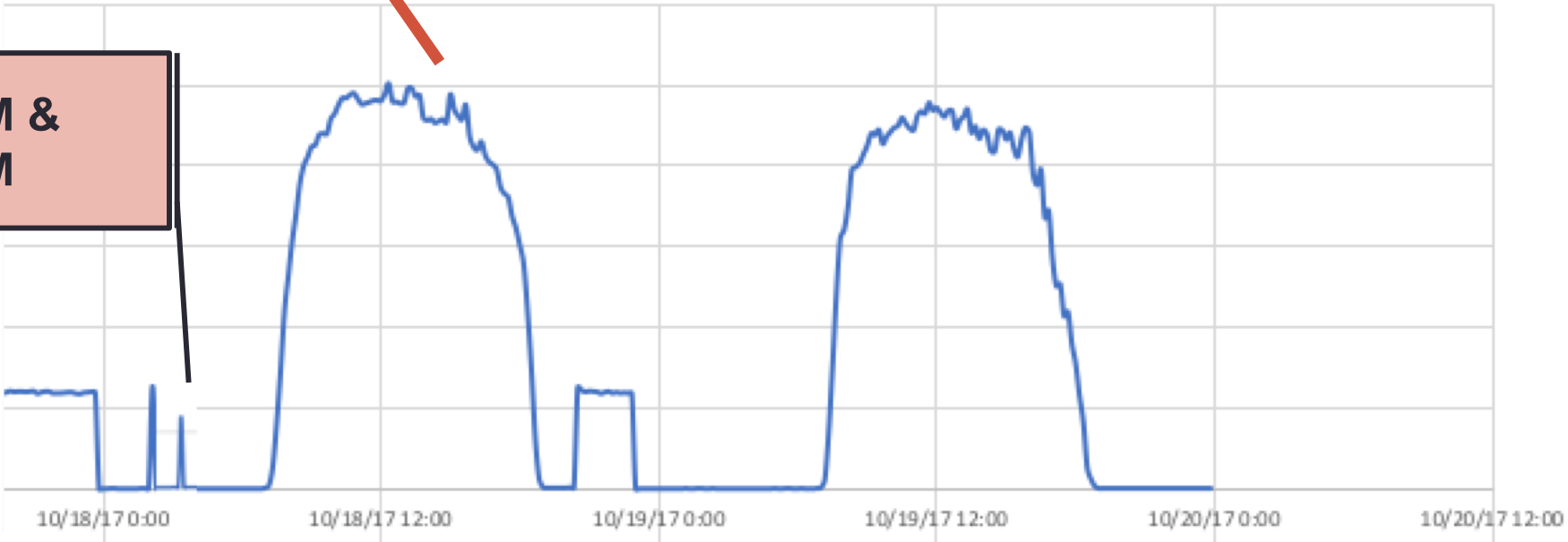
Light Detector Results
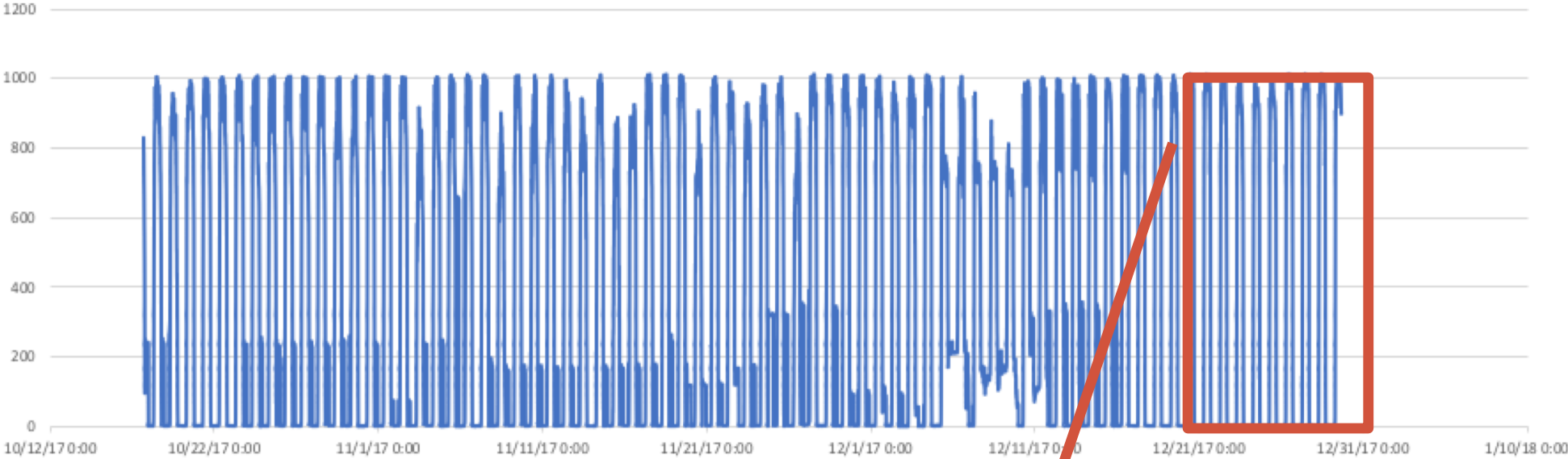
Last Year A Week After Thanksgiving!

Light Detector Results

What we can tell:

When he usually gets up

When he usually sleeps

When he usually comes home

Is he alone or not

…

If he has overactive bladder at night

Azo Bladder Control - 54 Capsules

$31.58 from 50+ stores

★★★★☆ 248 product reviews

Dietary Supplement. Go less. Worry less. Help

Azo · Sleep Support · Supplements · Capsule ·

Other options: 72 Capsules ($16)
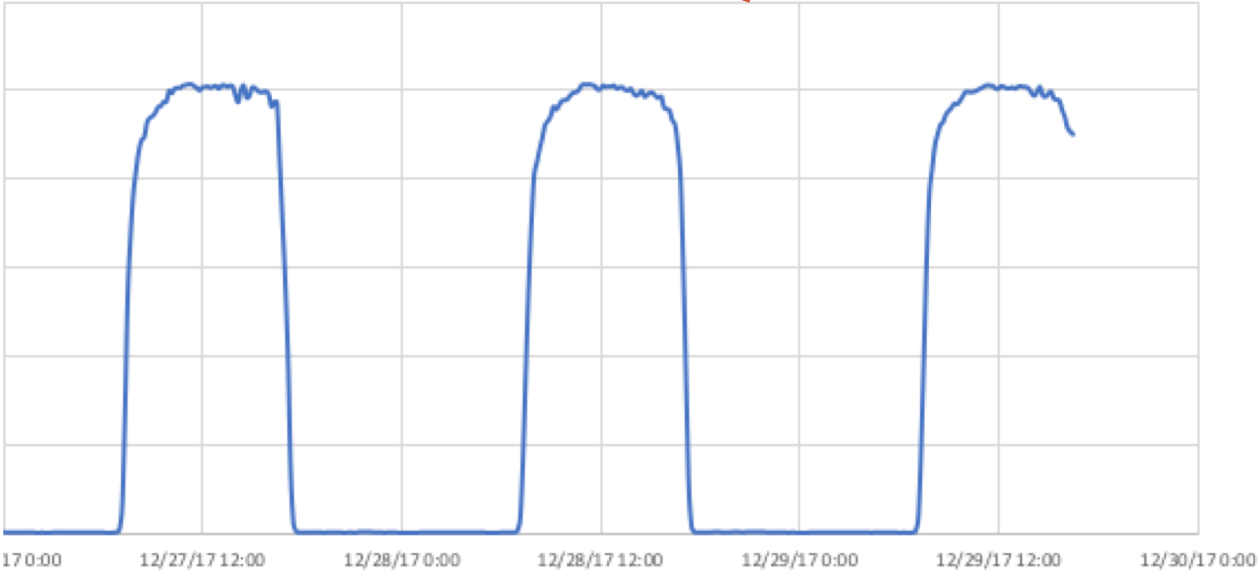
Back to Our Topic.….

THE NEW DATA ECONOMY

DATA is the NEW OIL!
....Just not being traded
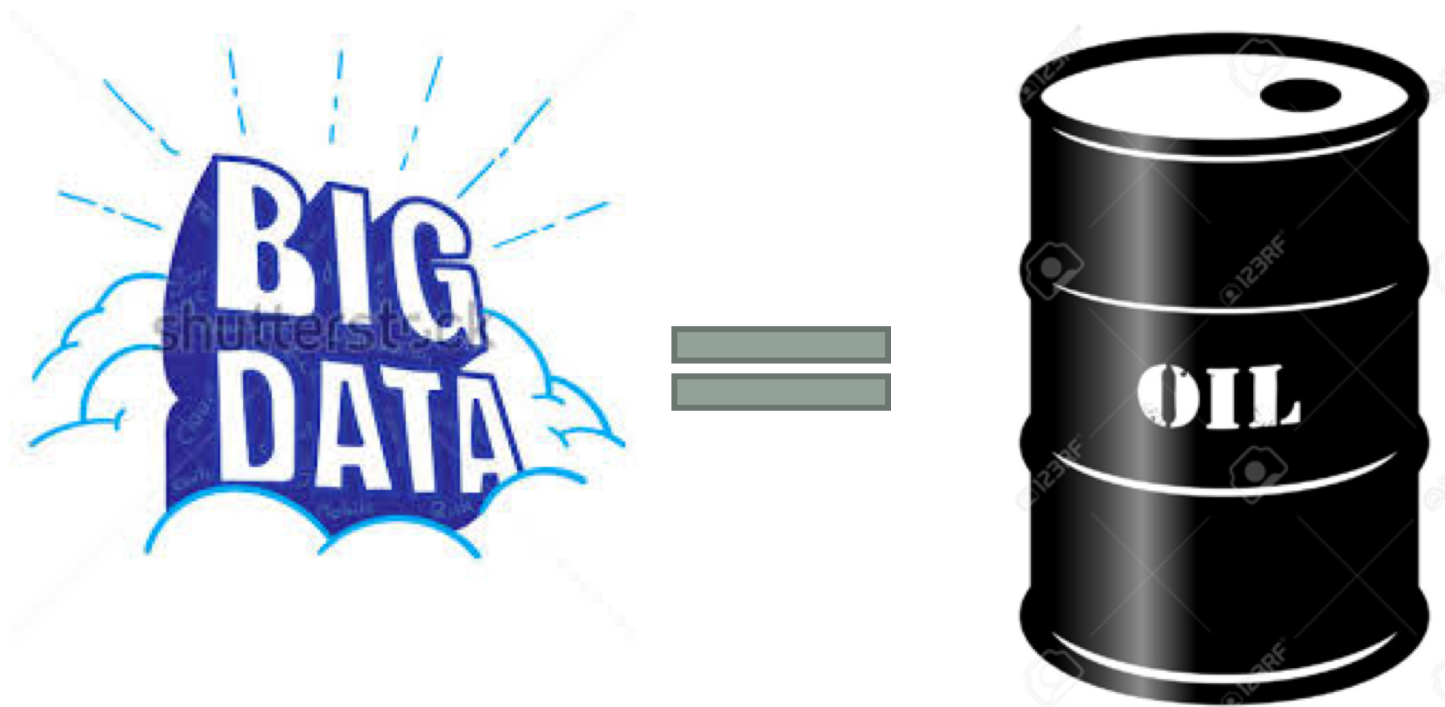
What Does Facebook Have On You?

- Facebook makes the vast bulk of its money from ads, and by default, it uses your **profile information**
- Facebook knows your interests, friends, buying habits, and location, among other things
- Facebook can follow your every move on the Web
- Facebook can track what you buy when you're offline

What Does Apple Have on You?

- **Everything you say to Siri**
- **All your locations**
- **All your moves and searches on the web**
- All your iMessages
- Medical records
- And more….

Data Surveillance
Has been around for many decades….

- Corporations:
  - Credit cards (1934 – American Airline)
  - Keeping record of customers → Purchase history
  - Direct marketing → Customer survey
  - Credit Bureaus → Banks → Loan?
- Governments:
  - Public records
  - Phone tapping
  - Mail interception
  - Spying & Espionage

What Has Changed?

Data Surveillance
So what's changed?

- The depth, breadth, and volume of the data being collected! (**Big Data Surveillance**)
  - Not only historical but **behavioral**
  - **Massiveness** of the new surveillance (covers every aspect)
- The nature of the data collection process
  - Free / Volunteer / Limitless / Cheap / Automatic!
  - Hidden (your pictures are geotagged)
  - Relational (three degrees of separation)

Number of friends:	1			f Login to Facebook ⑦
1ST DEGREE: FRIENDS		**2ND DEGREE:** FRIENDS OF FRIENDS		**3RD DEGREE:** FRIENDS OF FRIENDS OF FRIENDS
1		163		26,634
or more than no friends		or more than the capacity of a Concorde		or more than the capacity of Madison Square Garden
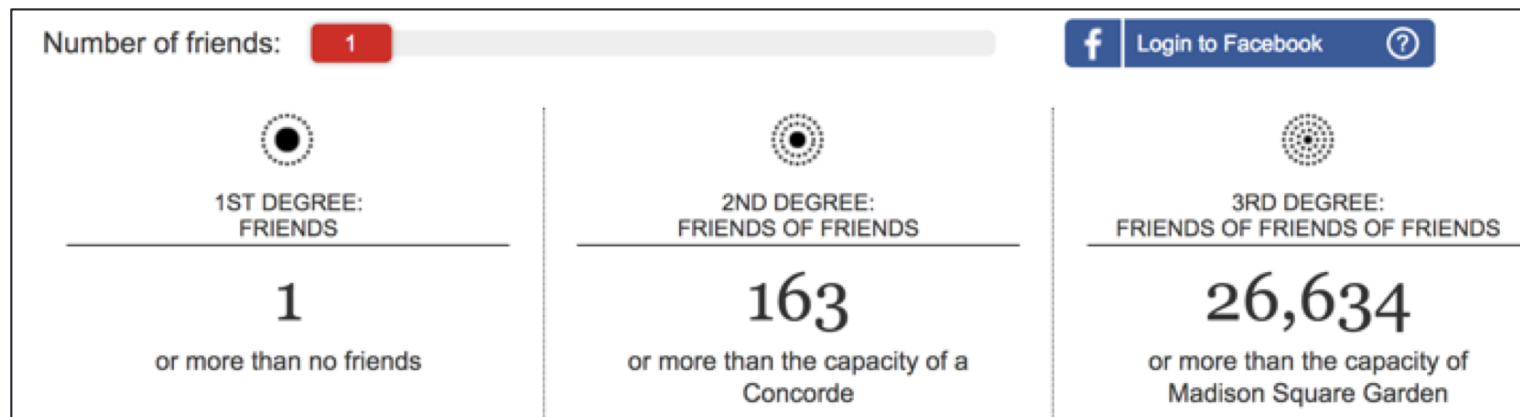
Big Data Surveillance
So what's changed?

"collect it all" &
"all forms of communications"

Gen. Keith Alexander, former director the NSA (Obama Administration),
"collect it all" surveillance approach originally **directed at Iraqis in the middle of a war**, and thereafter transferred it so that it is now directed at the US domestic population as well as the global one

NSA's Approach to "Collect it All"
Utah Data Center

- The $2 Billion facility where the NSA stores & analyzes **our communications.**

- The center processes "**all forms of communication**", the complete contents of private emails, cell phone calls, and Internet searches, as well as all types of personal data trails—parking receipts, travel itineraries, bookstore purchases, etc.

1.5 mil. Sq. feet data center
$2 Billion cost
$36,000 water bill/mon
66 mil. gallon of water
$1 mil+ electricity bill/mon
Has 1.25 million 4-TB HD

Before Trump Administration….

- It is important to understand that the current electronic surveillance was built by Bush and Obama administration with the full cooperation of the congress

Internet has changed our lives!

Yet,
It is increasingly
becoming a tool to monitor & control!

So What Can We Do?

PERSONAL DATA BELONGS TO THE INDIVIDUAL!

- There must be **transparency**
  - Consumers have to be **clear** about the services and what kind of data they are giving away
- Customers must **have alternative choices**
- The user must be **allowed to remove** the data
  - Giving data **voluntarily** is not an issue
  - **Our personal data** is saved and analyzed to learn even more about us!
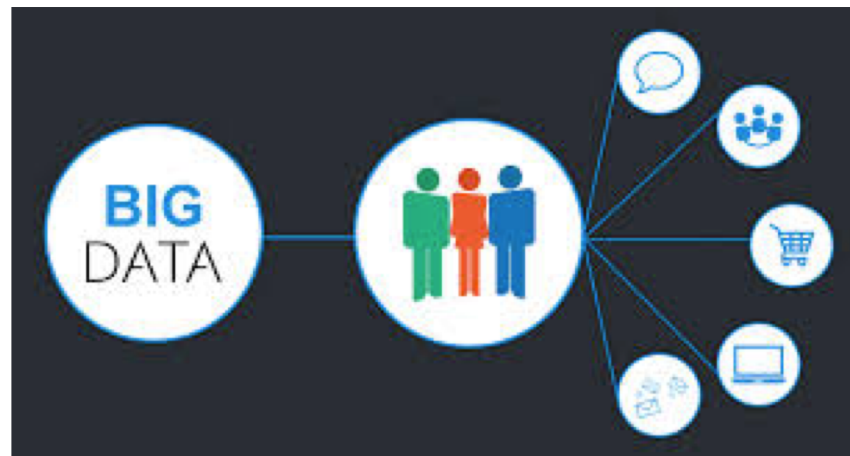
PERSONAL DATA BELONGS TO THE INDIVIDUAL!

Regardless of whether state or federal law governs the situation, it is almost always **illegal** to **record** a phone call or **private conversation** to which you are not a party, do not have consent from at least one party, and could not naturally overhear….. **Illegal** tape **recording** can have both criminal and civil penalties

GDPR:
General Data Protection Regulation

- Compared to the USA, Europe has proved to be much more proactive in protecting consumers
- The **GDPR** is a regulation in EU law on data protection and privacy for all individuals within the EU (May 25, 2018)
- GDPR Protects privacy data:
  - Basic identity information such as name, address and ID numbers
  - Web data such as location, IP address, cookie data and RFID tags
  - Health and genetic data
  - Biometric data
  - Racial or ethnic data
  - Political opinions
  - Sexual orientation
- Any business handling the data of EU citizens – whether customers, employees or other stakeholders – must comply, no matter where the business is located
- Businesses that do not comply with GDPR will be fined €20 million or 4% of their annual turnover – whichever is the larger sum

GDPR Customer Benefits

- **Marketing Consent:** Many firms including banks, insurance companies, retailers and others will have to send explicit consent requests written in plain English. Perhaps most notable: a lack of a response from the consumer does not indicate consent. **(agree)**

- **Right to be forgotten/erasure:** This allows individuals to request that personal data be deleted or removed in certain circumstances, such as withdrawal of consent, or when that data is no longer accurate. **(erase)**

- **Right to change data:** Consumers can also demand organizations change and/or update any details that are inaccurate. **(change)**

- **Right to portability:** Consumers will be able to demand that organizations provide them with all the personal data they hold on them, in order to transfer it easily to another provider. **(hand over)**

- **Right to access:** Consumers will be able to demand any organization provide them with access to their personal data and relevant "supplementary info." **(access)**

Final Remarks…..

- Technology certainly <u>facilitates</u> our lives but we should not be blind to it and just accept it!
  - Don't take it as granted!
  - We should educate ourselves
- The <u>tracking technologies</u> are part of our communication systems; advertisers and governments exploit these technologies
  - Be aware
  - Understand the risks
- Learn about technology
  - Be a part of the discussion
  - We need to have multidisciplinary groups designing our tools…

Final Remarks…..
Remember…..

We shape our tools, and thereafter our tools shape us.

- Marshall McLuhan

#MNIT5

Any Questions?

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Internet: Enabling Technology of Control

Corporate Control of The Internet ⟷ **Government Control of The Internet**

Consumers		Employees	Other Gov.		Citizens
Monitoring Purchasing Patterns	⟷	Monitoring Employees	Espionage	⟷	Monitoring Activities
Blocking Our Activity	⟷	Intruding Privacy	Cyber War & Attacks	⟷	Censorship
Impacting Our Action	⟷	Intensive Work Env.	Pro-poganda	⟷	Imposing Ideology
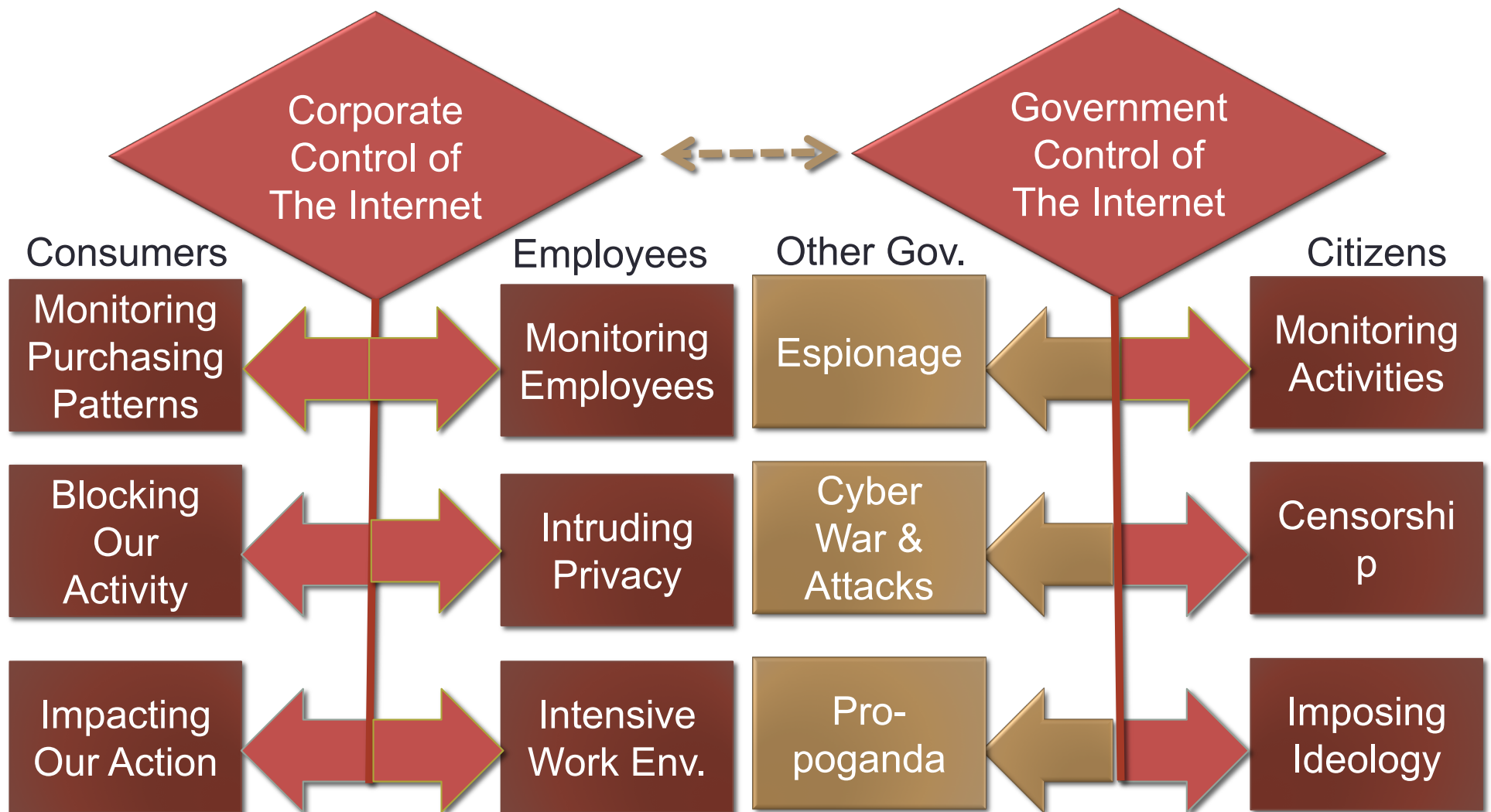
Internet: Enabling Technology of Control
…for very good reasons!

Corporate Control of The Internet

Government Control of The Internet

1-National Security
- Terrorism
- Preserve sovereignty

2-National Laws
- cyber crime
- child porn.,
- Gambling,
- Intel. property rights,
- etc.)
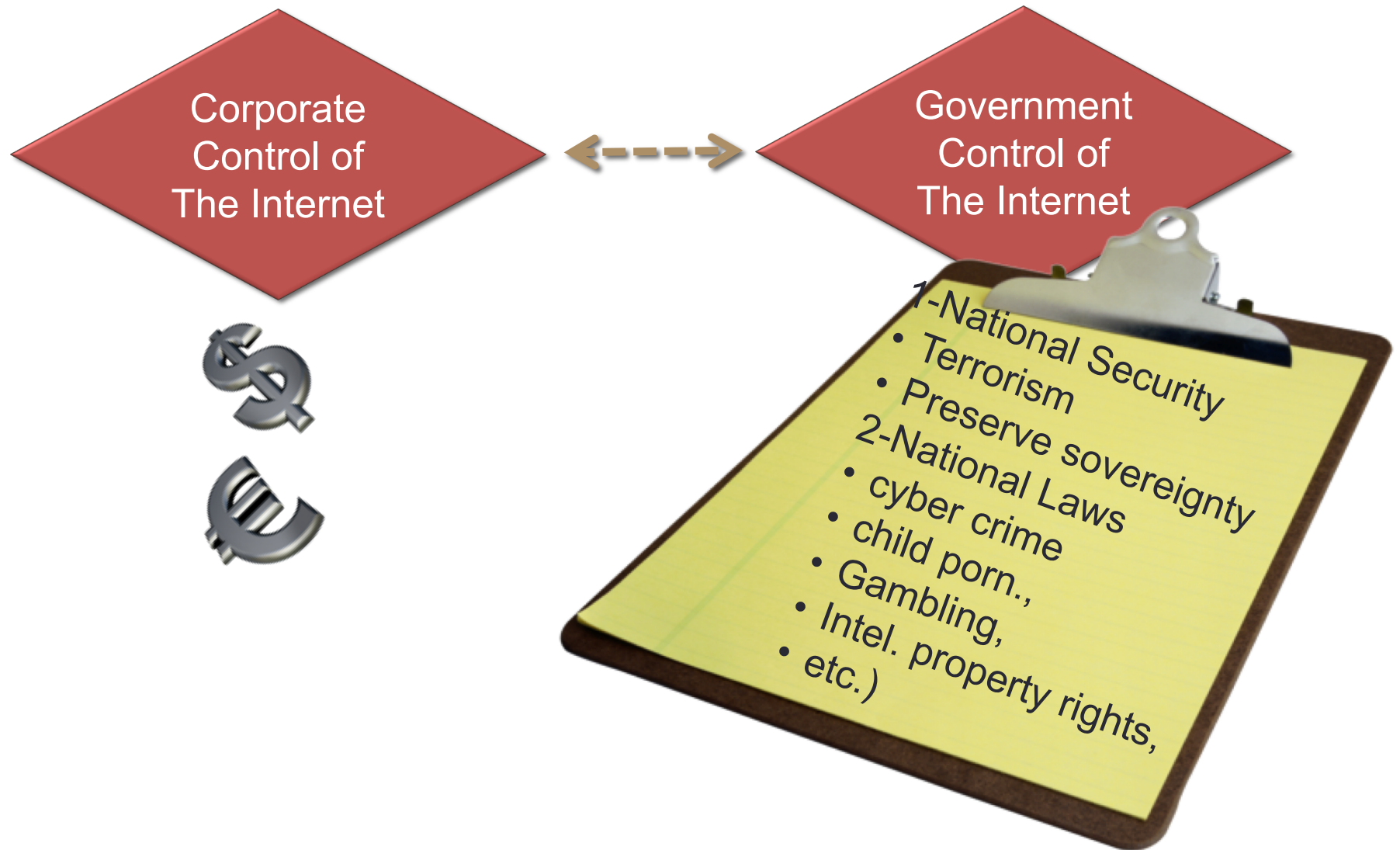
Examples of Government Censorship…
(2011)

- In the second half of 2011 the total number of government requests to Google jumped by 103 percent
  - Google complied with 63 percent of the requests
- Spain: requested removal of 270 search results that linked to **improper** blogs and sites
- Canada: ordered removal of a YouTube clip **disfiguring** a public document (a man urinating on his Canadian passport)
- Thailand: requested blocking local users from viewing more than 100 videos **insulting** the monarchy
- Turkey: ordered restricting access to videos **insulting** the founder of modern Turkey (Ataturk)
- France: forced Google to filter its auto-complete feature violating its **copyrights Law**

Government Control

- U.K.:
  - Seeking a **kill-switch** to shut down the Internet during major demonstrations
    - "…we are working with the police…. to look at whether it would be right to stop people communicating via these websites and services when we know they are plotting violence, disorder and criminality." – U.K. Prime Minister David Cameron
  - In July 2012, the parliament introduced a new data communication bill requiring all ISPs to keep tabs on their users (cost=$1.8bn over 10 years)
- Denmark:
  - Wikileaks has released the list containing 3863 sites blocked by Danish ISPs (voluntarily) as of February 2008
  - In March, 2012, a "human error" carried out by the police resulted in 8000 websites being completely blocked at the DNS level – marked as sites offering child pornography

Watch What You Say…..
(2012)

- **Saudi Arabia:** The government filters any topics related to drugs, bombs, alcohol, gambling - authorities receive over 1,200 requests everyday to have web pages blocked

Dear User, عزيزي المستخدم،

Sorry, the requested page is unavailable. عفواً، الموقع المطلوب غير متاح.

If you believe the requested page should not be blocked please <u>click here</u>. إن كنت ترى أن هذه الصفحة ينبغي أن لا تُحجب تفضل <u>بالضغط هنا.</u>

For more information about internet service in Saudi Arabia, please click here: www.internet.gov.sa

لمزيد من المعلومات عن خدمة الإنترنت في المملكة العربية السعودية، يمكنك زيارة الموقع التالي: www.internet.gov.sa

Watch What You Say…..
(2012)

- Saudi Arabia: The government filters any topics related to drugs, bombs, alcohol, gambling - authorities receive over 1,200 requests everyday to have web pages blocked
- Kuwait: A 20 year-old blogger got 10 years in prison for defaming the Saudi & Bahraini government
- Bahrain: Nabeel Rajab, president of the Bahrain Center for Human Rights was sentenced on July 10 to three months in prison for a tweet
- Oman: Four young men received 3-6 months in prison for posting on social networks
- U.K.: A 17 year-old was detained after sending a malicious tweet to British Olympic Diver: "You let your dad down, I hope you know it!"
- Israel: "Facebook posts and Twitter feed" matter of state security – "We [the censors] try to operate within the internet only in terms of elements related to us."

Remember London Uprising? (August 6-11, 2011)

- "…a number of BlackBerry users reported receiving instant messages that suggested future riot locations."

- Research in Motion, which makes Blackberry phones, issued a statement in which it promised to work with the authorities.

  - "Like other telecoms companies, it complies with the Regulation of Investigatory Powers Act (RIPA) allowing law enforcement to gain access to private messages when they relate to the commission of a crime!

BBC: http://www.bbc.co.uk/news/technology-14442203

In the U.S. …..

- In October 2010 the Electronic Frontier Foundation discovered the US Department of Homeland Security (DHS) had set up a "Social Networking Monitoring Center" to collect and analyze social media and other online communications

- Currently, the U.S. government claims that it doesn't need to go to a judge and get a full probable cause warrant before tracking cell phones
  - A California student was being secretly tracked by FBI

- U.S. Justice Department indicted 11 Web site operators selling illegal devices including bongs, holders for marijuana cigarettes, water pipes, roach clips, chillums, and small spoons used with cocaine
  - They called it *Operation Pipe Dreams*

By application of the United States Drug Enforcement Administration, the Web site you are attempting to visit has been restrained by the United States District Court for the Western District of Pennsylvania pursuant to Title 21, United States Code, Section 853 (e)(1)(a)."

Government Monitoring in U.S.

- National Security Agency (NSA)
  - AT&T's regional switching center in San Luis Obispo, 611 Folsom Street, Seventh floor
  - 80 percent of all communications from Asia enters the United States
  - In 2003 NSA mirrored all the cables carrying domestic and international calls entering the seventh floor and rerouted them to a secret room one floor below

PBS: NOVA: http://www.pbs.org/wgbh/nova/military/spy-factory.html

Authoritarian Governments & the Internet

"Once the Internet reaches a country it is an unstoppable liberating force"

- Color Revolutions of the former Soviet Union, it was mobile phones
- Saffron Revolution in Burma, it was YouTube
- Green Movement in Iran, it was Twitter

- Over the time these governments have become more powerful to control their Domestic Internet!
  - Sophisticated filtering technology
  - Subtle removal of Web requests
  - Arresting bloggers
  - Tracing emails
  - Creating Intranet (Chinternet)

"The Great (Digital) Wall of China is Being Made by American Bricks! – Thanks to Cisco"

The Internet – A New War Zone

CYBER-WAR CONTINUES

- **U.S. & Iran**: A computer virus created to sabotage Iran's nuclear program and stop Tehran developing an atomic bomb was designed by American and Israeli experts (Stuxnet & Flame)
- American designed Chinese made ACTEL chip (PA3 FPGA) was shown to have a backdoor deliberately built in it
- **U.S. & China:** Chinese made laptops reportedly have pre-installed viruses, according to Microsoft
- **Egypt & Israel:** Israeli sabotage was behind the nationwide crippling of Egypt's Internet in 2008, according to an alleged Mossad agent
- **India & Bangladesh**: "Bangladesh Black Hat Hackers (BBHH) , Bangladesh Cyber Army (BCA) and Expire Cyber Army (3xp1r3) have fighting with Indian Cyber Army and ashell from Indishel . In last two days , Bangladeshi hackers hacked hundreds of government websites and more then 20,000 other websites of their rival countries and Indian hackers hacked 50 government websites and upto 3,000 other websites . In Facebook , the groups and pages of those hackers groups have also mentioned the link of the sites they have had hacked."

Final Remarks…..

- Combination of digital/information technology continue to provide smaller and smarter devices
  - They do everything for us!
- They have created powerful tools with potentially diverse consequences
  - They empower us, yet they can control us!
- Any technology can only fit within the socio-economic structure of the society
  - Technology in a country with oppressive government will turn into tool of oppressor
- Become more active, participate, and demand public monitoring
  - Know what you are disclosing
  - Use privacy tools and filtering
  - Protect your network address
  - Promote Net Neutrality, Public Broadcasting, Internet Freedom
- Ask the right questions!
  - How is your privacy protected?
  - How can we preserve public access?
  - Who is monitoring?

Further Research

- Why is Net-neutrality so important?
- What are examples of technologies that protect public interest?
- How educated are we when it comes to protecting our privacy over the Internet?
- Why is public broadcasting important?
- Investigating teens' attachment to their cell phones

References

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- How TCP works:
  - http://www.tech-faq.com/understanding-microsoft-tcp-ip.html
- TOR Project
  - https://www.torproject.org/about/overview
- AOL Scandal
  - http://aolscandal.com/
- Book: What Google Has on you
- Book: The Big Switch

Any Questions?

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