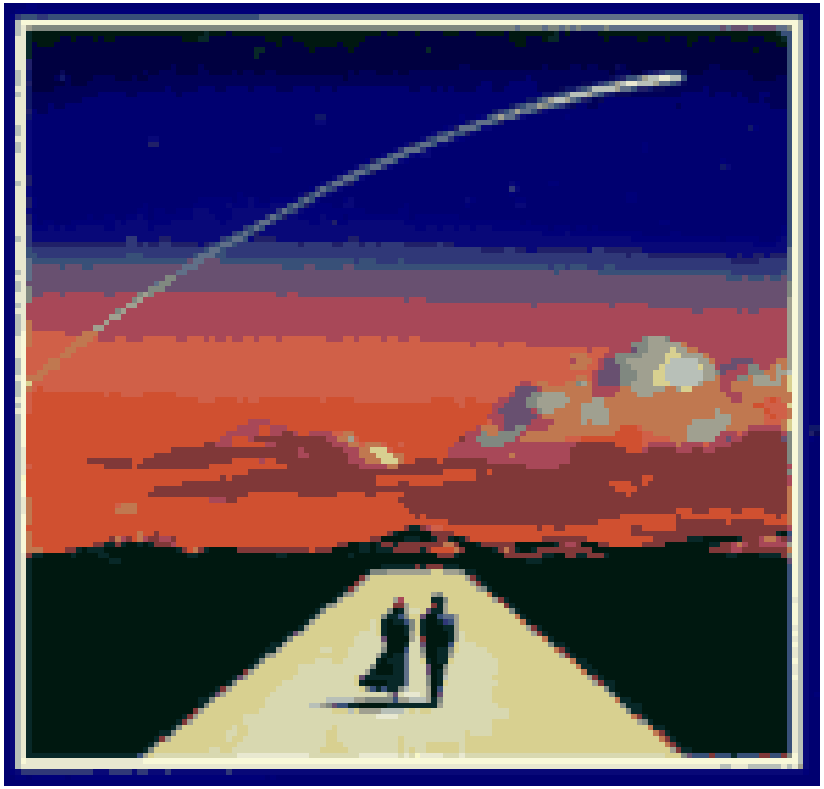
The IT Industry and the 2022 Market

William Favre Slater, III
PMP, CISSP, SSCP, CISA, CDCP. ITIL
October 2022

Six Numbers

- 16,436
- 26,500
- 30,000
- 2,300,000,000
- 3,000,000,000
- 168

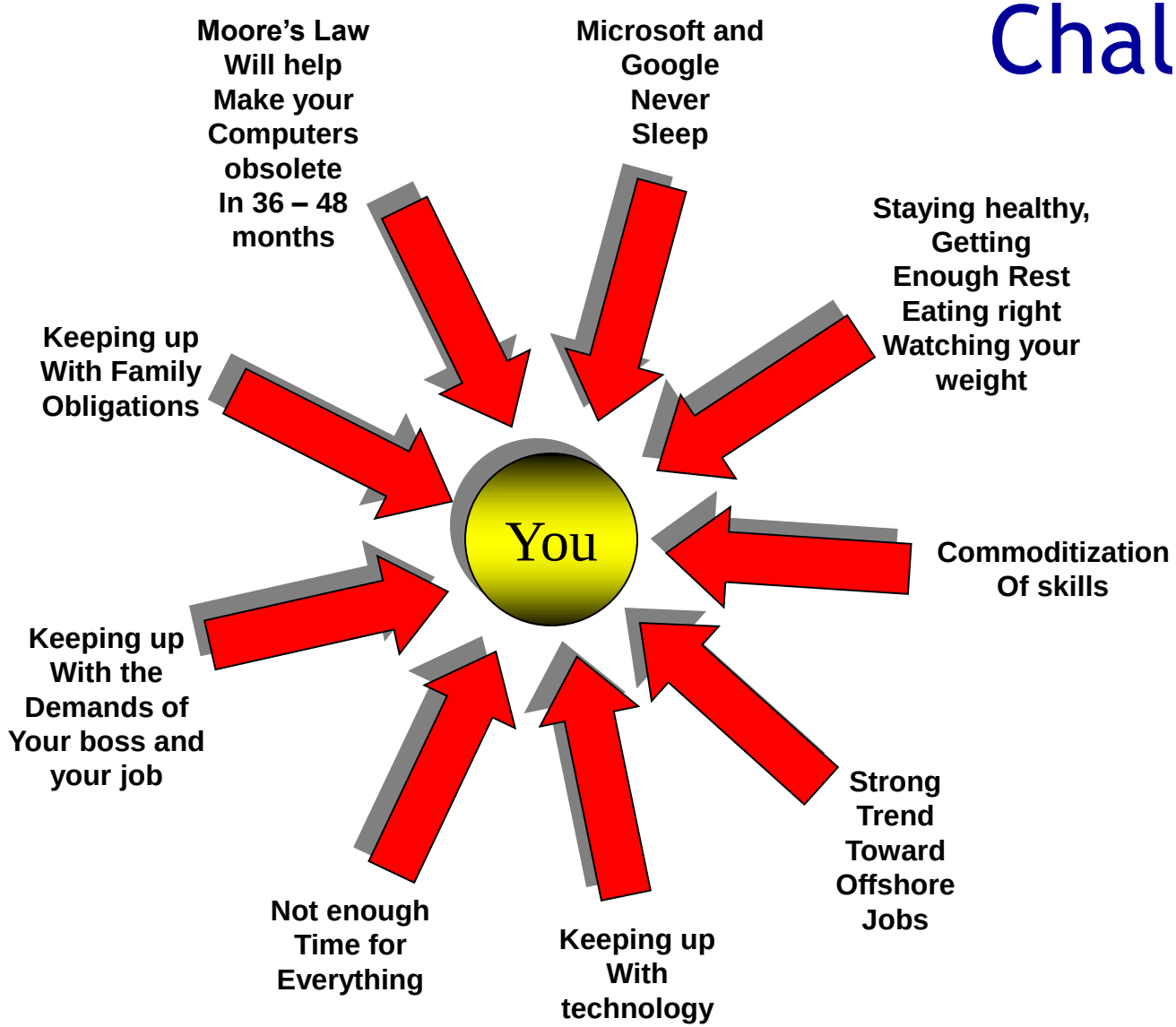
Career Planning 1960 - 2000



It used to be pretty simple…

Challenges

For All IT Professionals In 2022



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THE INTERNET IN 2022

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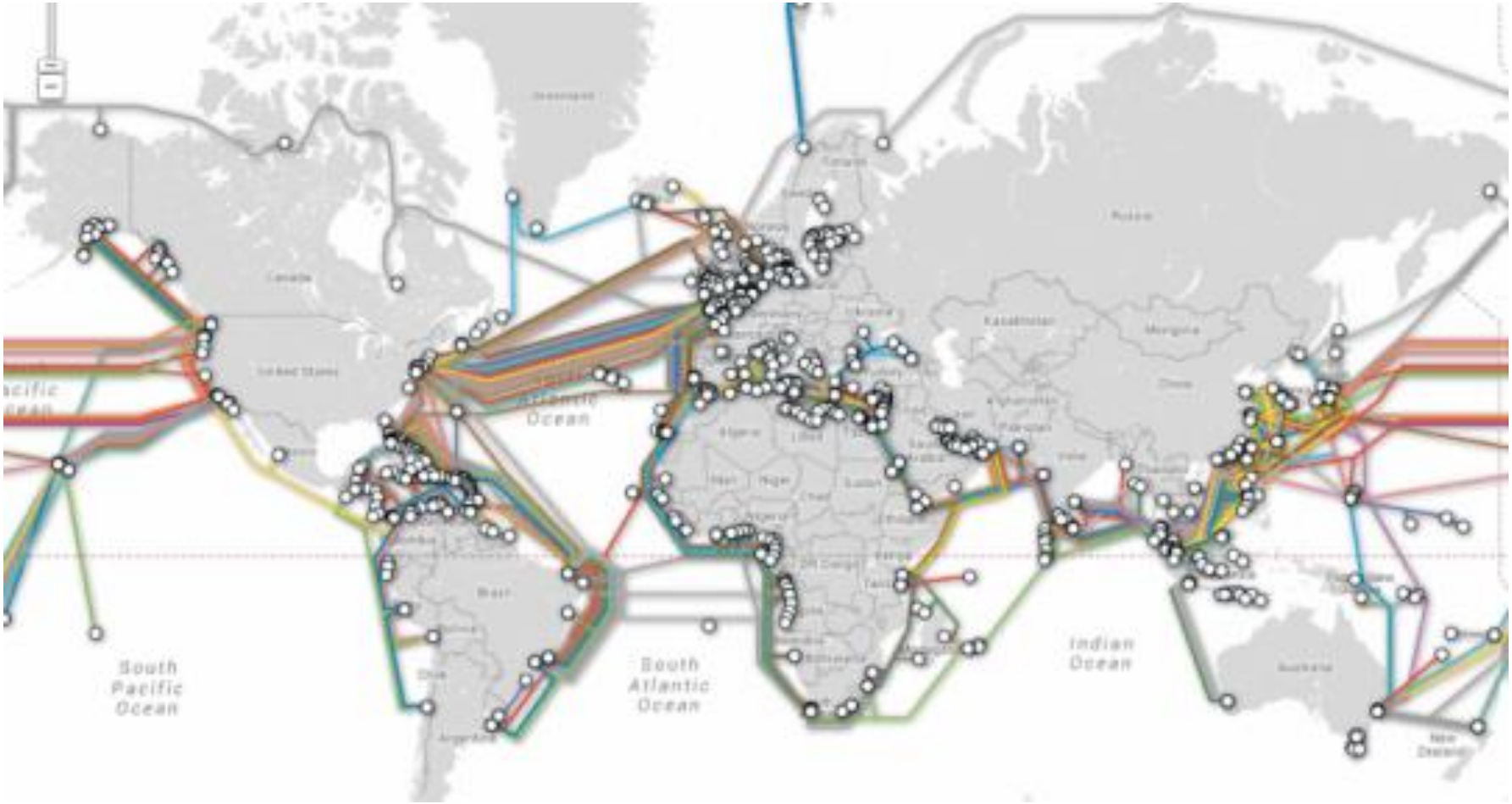
The Internet is a Huge and Global Place

Every Continent and Country Is Connected 24 x 7



Notes: 1) Satellite connections are omitted here. 2) Due to totalitarian policies, the governments of 23 countries did temporarily shut down the Internet for their Citizens this year.

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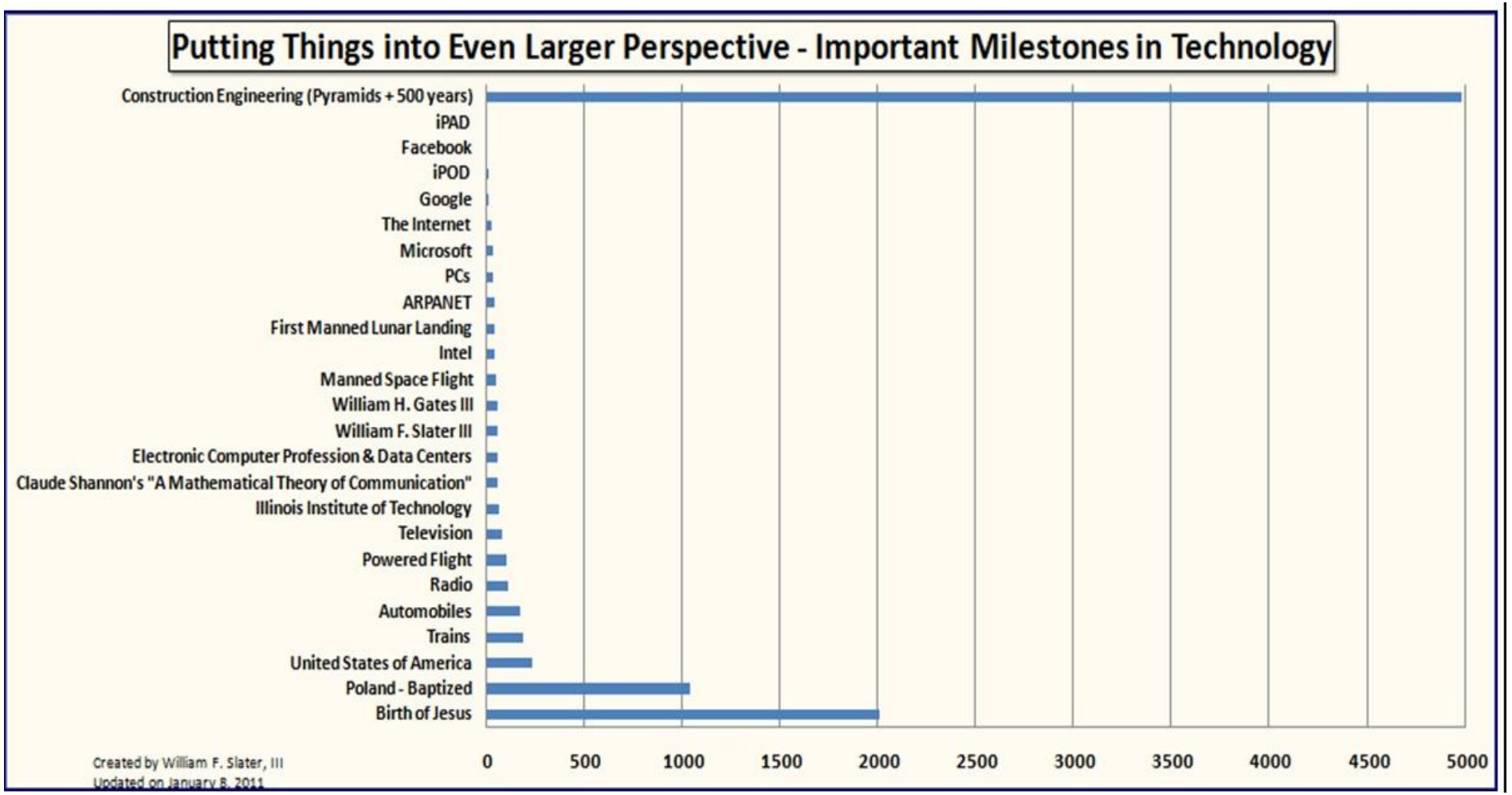
Relatively Speaking



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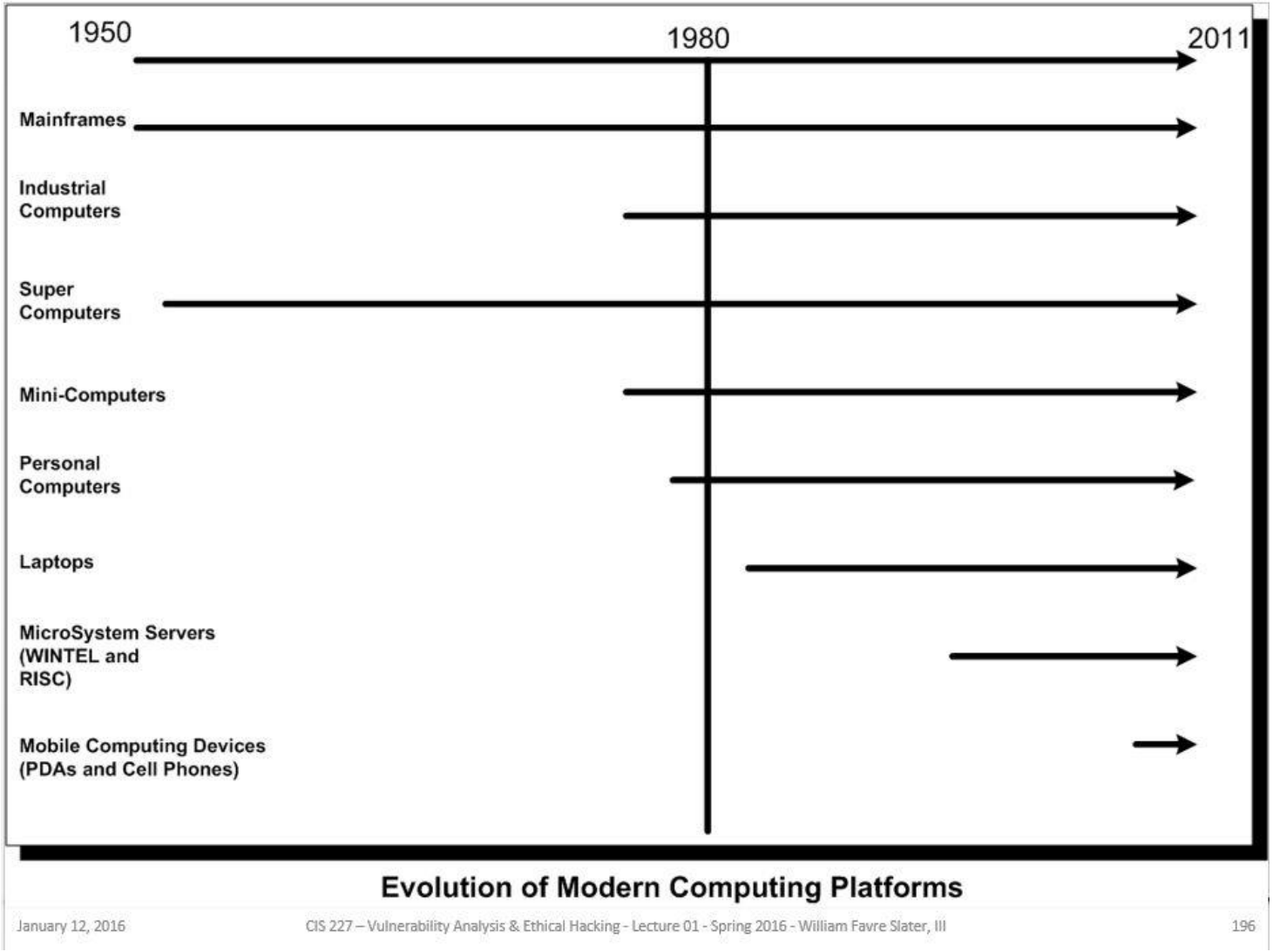
Relatively Speaking



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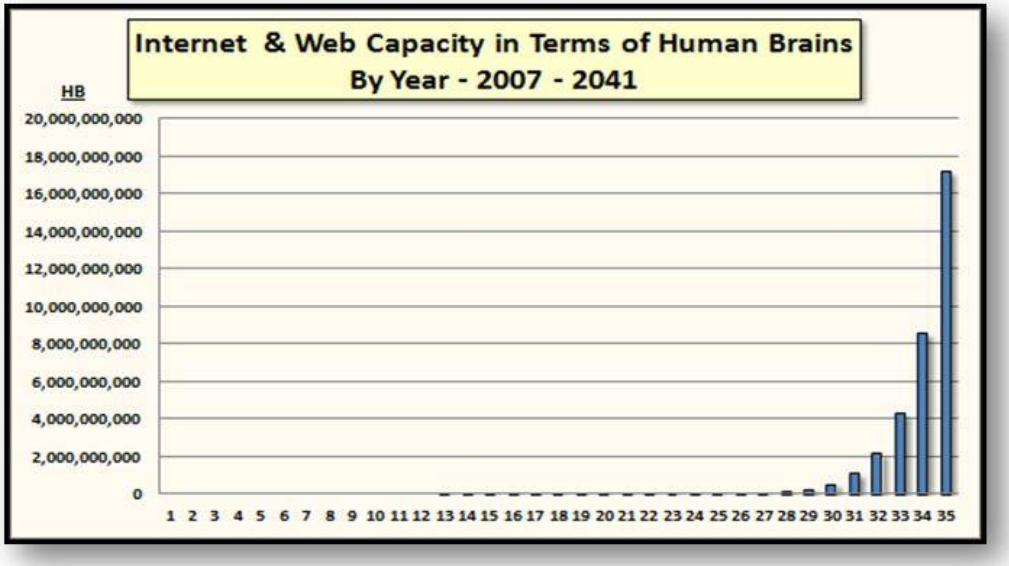
Relatively Speaking

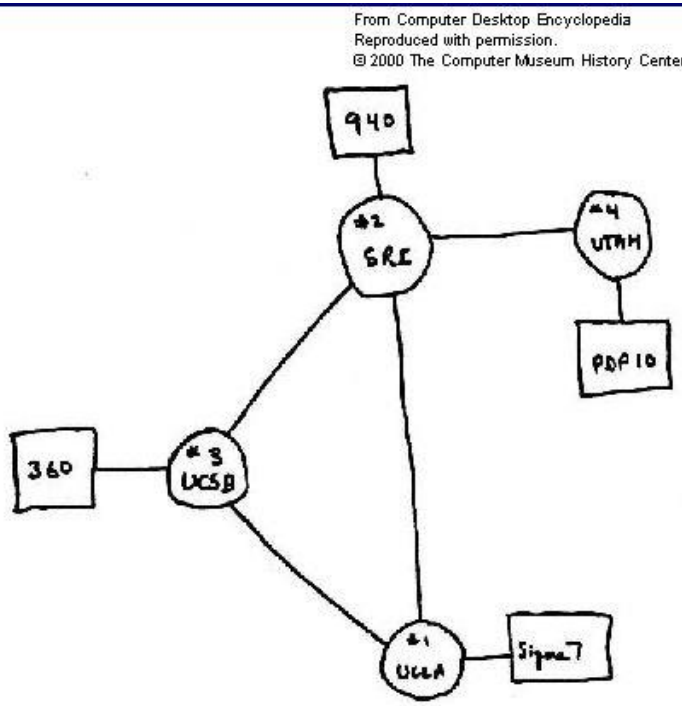
Capacity of the Internet and the Web



Count	Year	HB
1	2007	1
2	2008	2
3	2009	4
4	2010	8
5	2011	16
6	2012	32
7	2013	64
8	2014	128
9	2015	256
10	2016	512
11	2017	1,024
12	2018	2,048
13	2019	4,096
14	2020	8,192
15	2021	16,384
16	2022	32,768
17	2023	65,536
18	2024	131,072
19	2025	262,144
20	2026	524,288
21	2027	1,048,576
22	2028	2,097,152
23	2029	4,194,304
24	2030	8,388,608
25	2031	16,777,216
26	2032	33,554,432
27	2033	67,108,864
28	2034	134,217,728
29	2035	268,435,456
30	2036	536,870,912
31	2037	1,073,741,824
32	2038	2,147,483,648
33	2039	4,294,967,296
34	2040	8,589,934,592
35	2041	17,179,869,184

In the Beginning…

ARPANET September 1969



Humble Beginnings

Scrawled on this paper in 1969 were the first four nodes of the ARPANET. Little did they realize these four nodes would grow to millions. (Image courtesy of The Computer History Museum, www.computerhistory.org)

The Founding Fathers: Leonard Kleinrock, Paul Baran, and Larry Roberts
They were present at the creation. Baran, at the Rand Corporation in the late 1950s, conjured the idea of "packet switching." Roberts, chief computer scientist at the Pentagon's Advanced Research Projects Agency, oversaw the creation of the Arpanet in the late 1960s. In Kleinrock's laboratory at U.C.L.A., in 1969, this new digital way of transmitting data—precursor of today's Internet—came to life.

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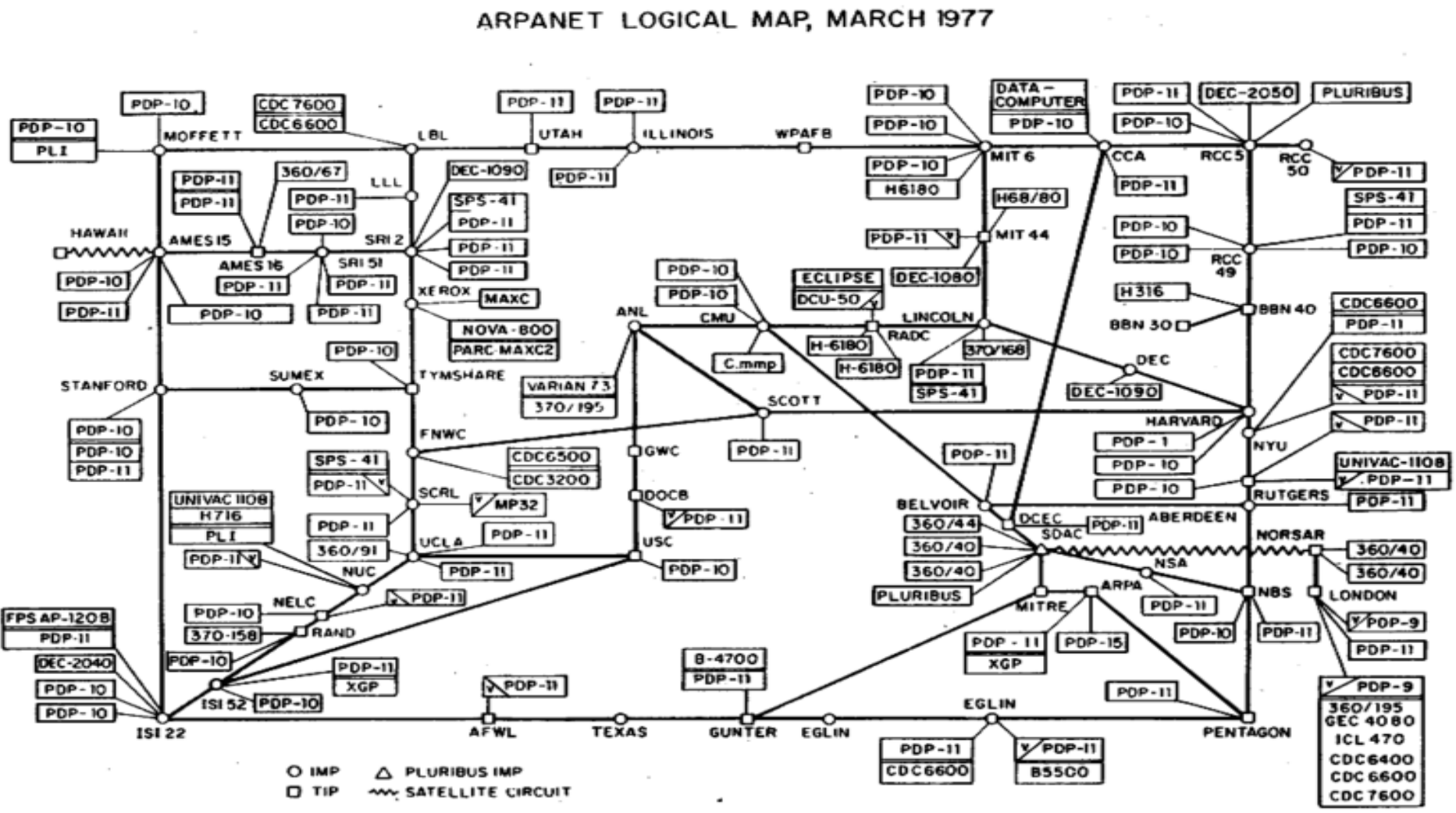
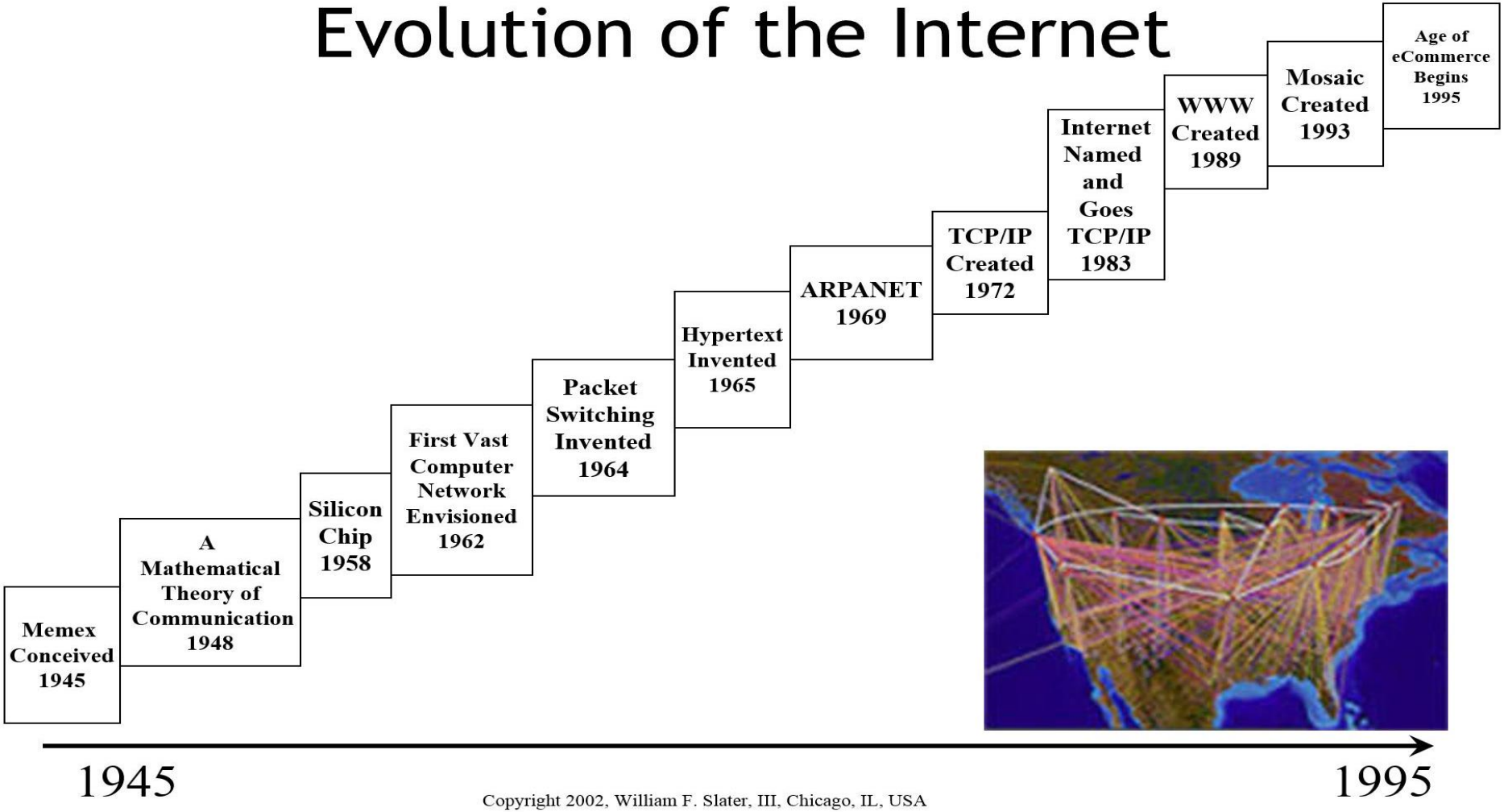
ARPANET, March 1977



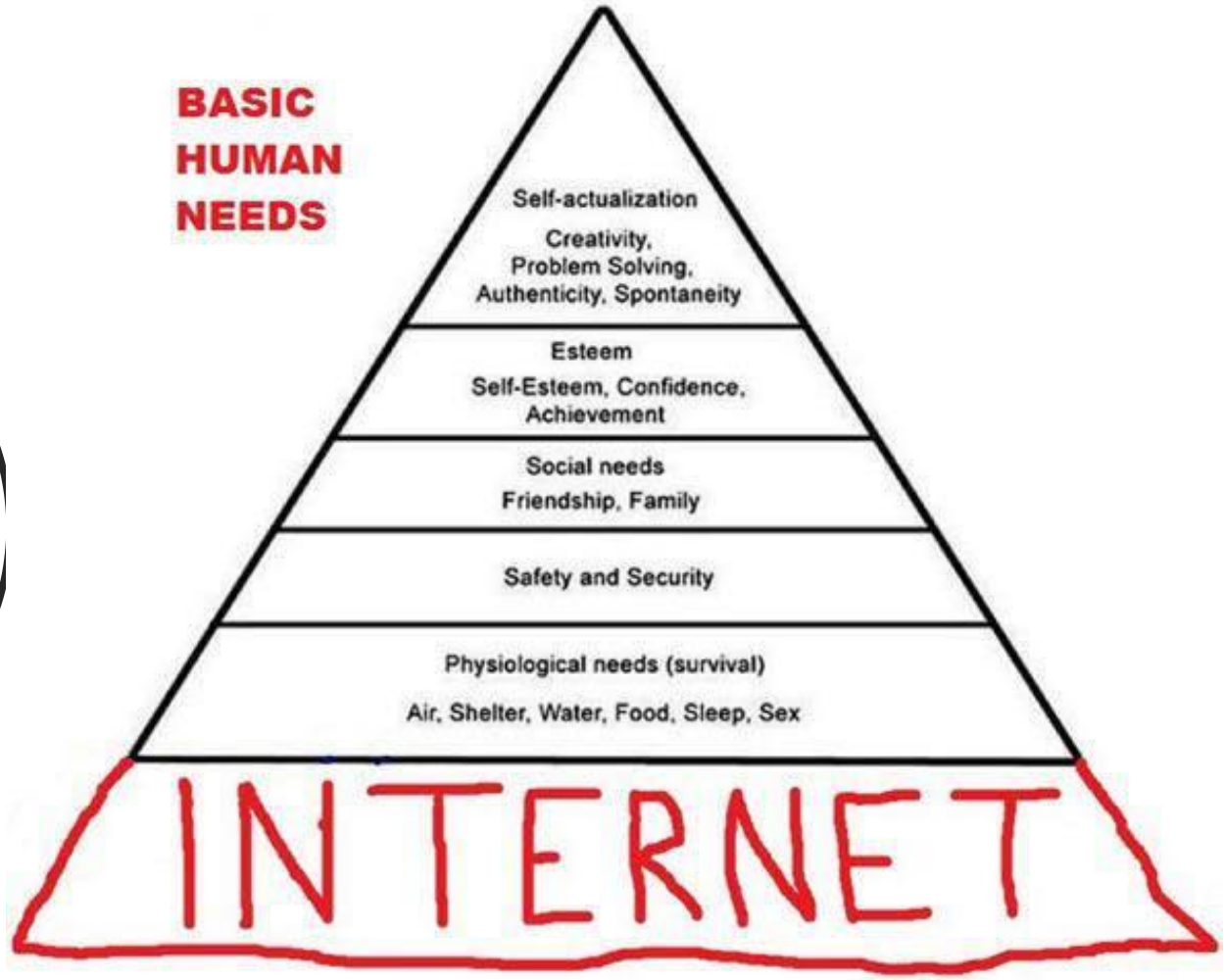
Innovations that led to the Modern Internet

A Brief Summary of the Evolution of the Internet



Copyright 2002, William F. Slater, III, Chicago, IL, USA

Modern Version of Maslow's Hierarchy of Needs



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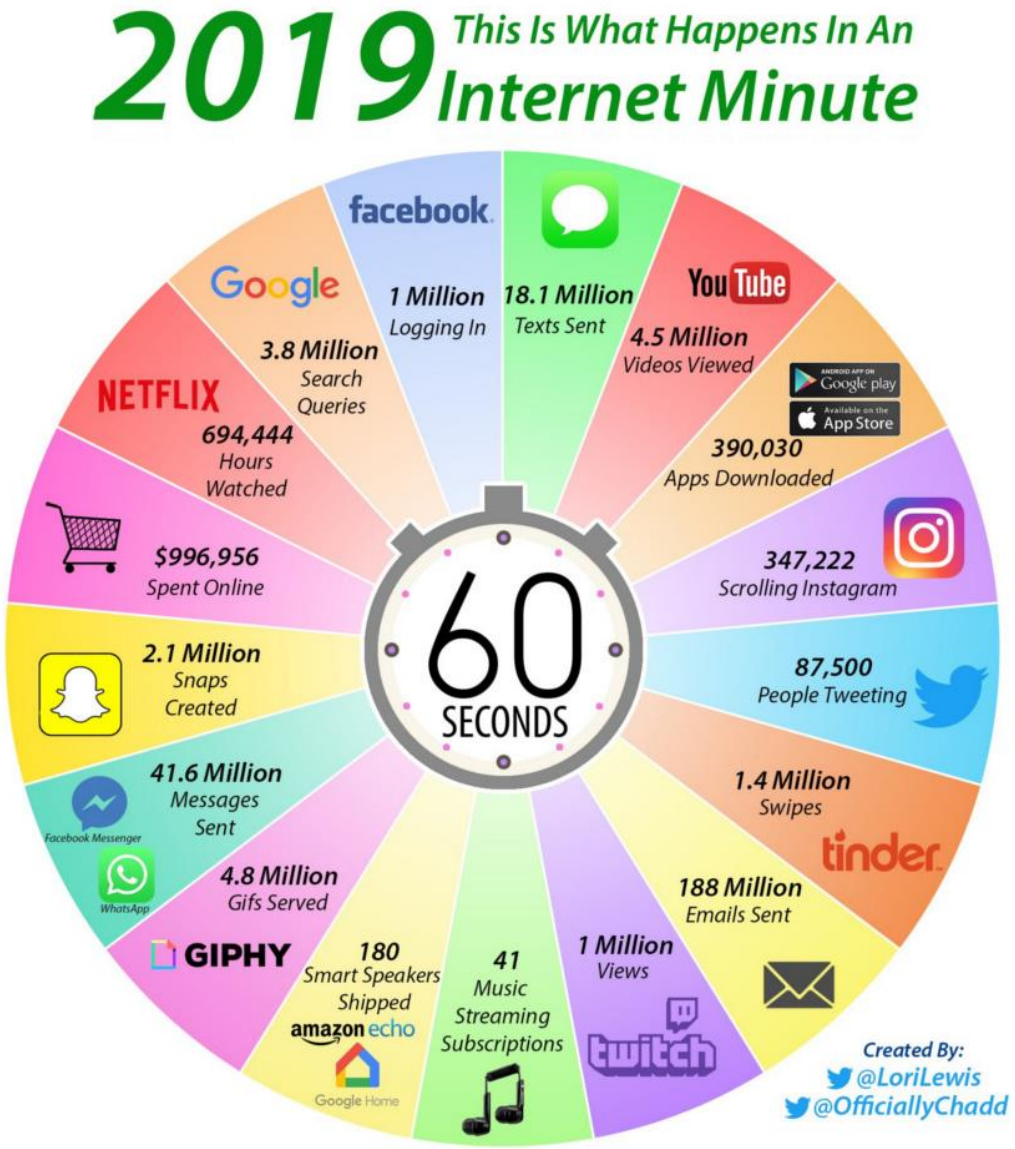
2019 - What Happens on The Internet in 60 Seconds?



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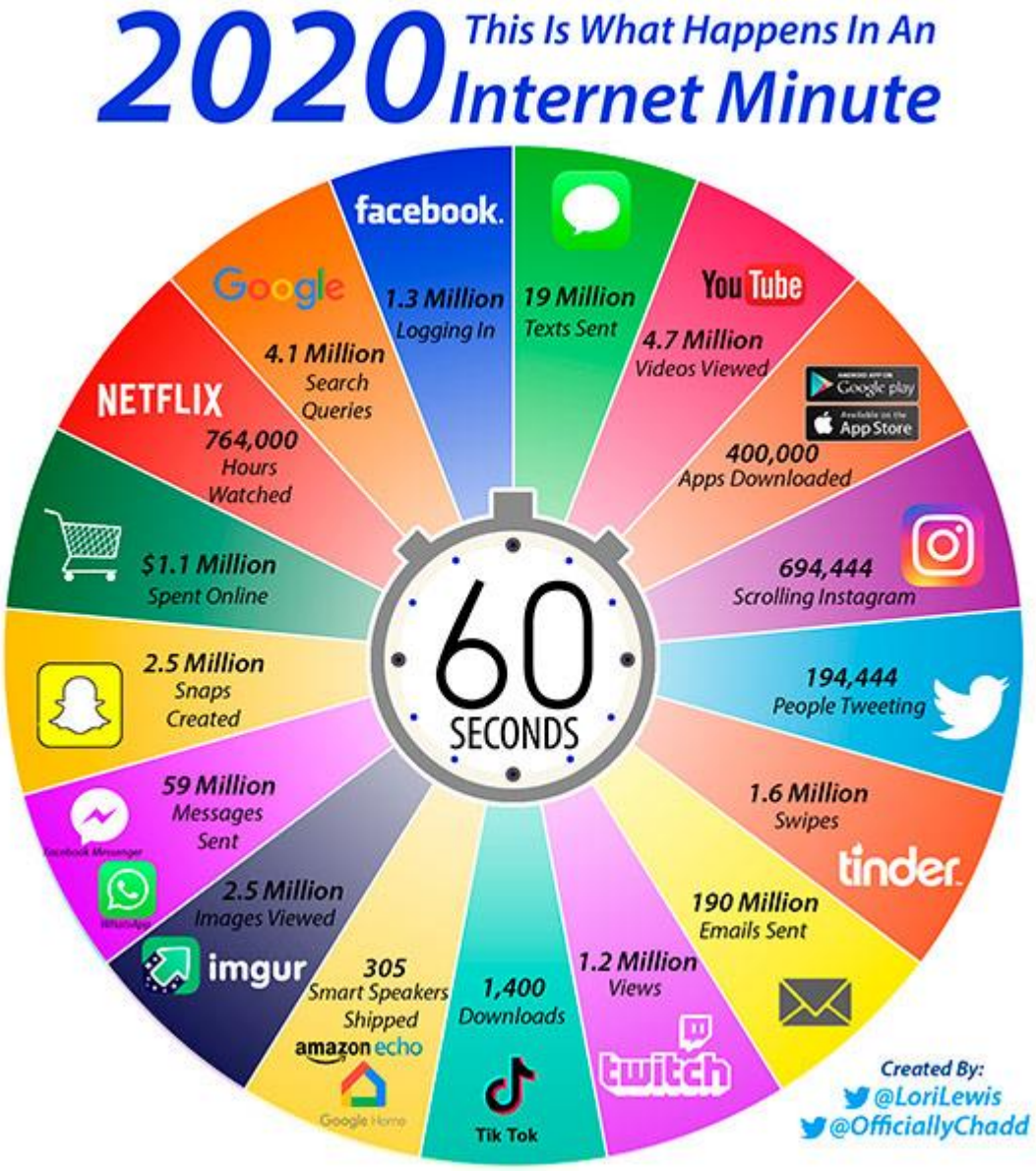
2020 - What Happens on The Internet in 60 Seconds?



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2021 - What Happens on The Internet in 60 Seconds?

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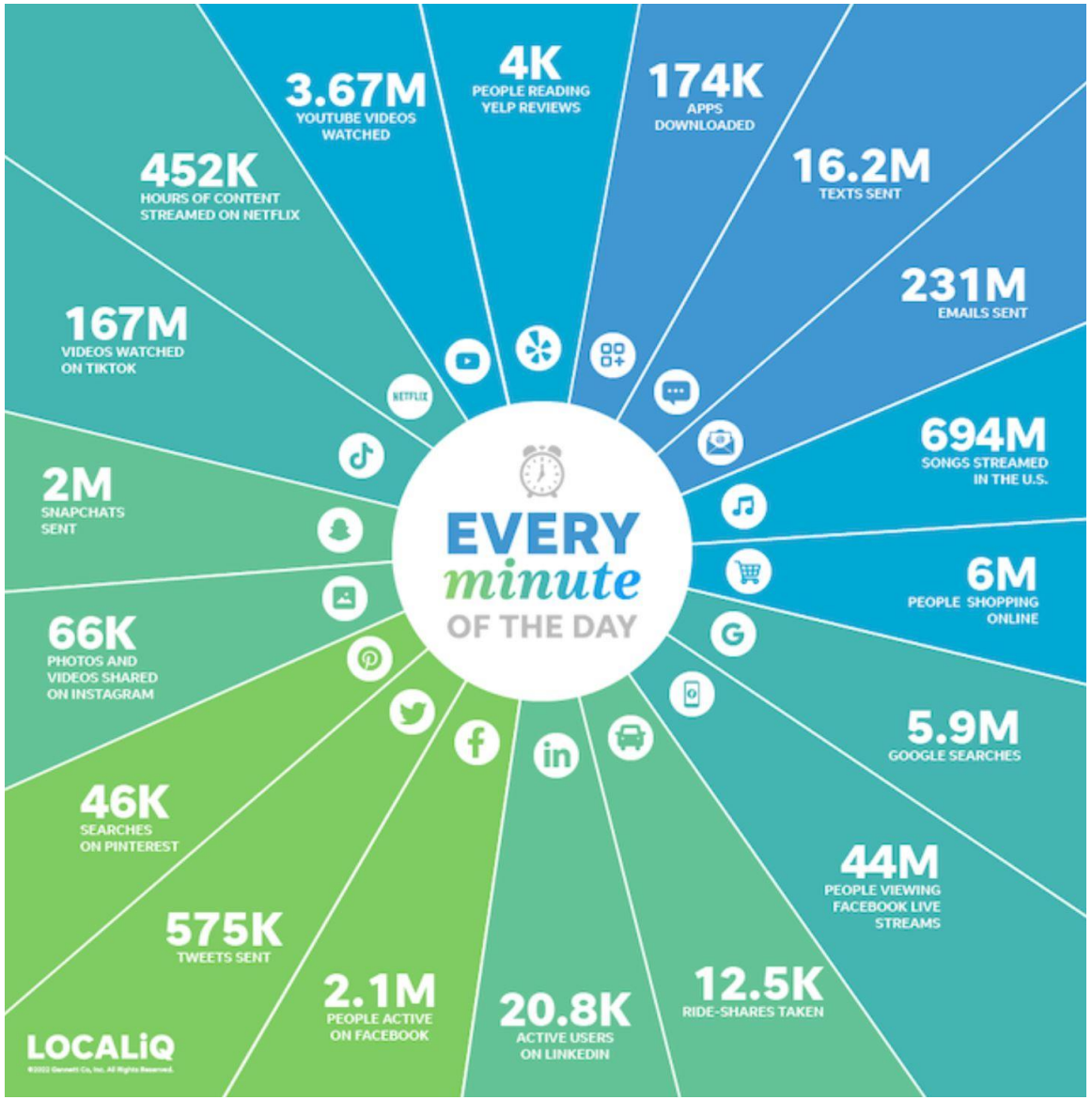
2022 - What Happens on The Internet in 60 Seconds?



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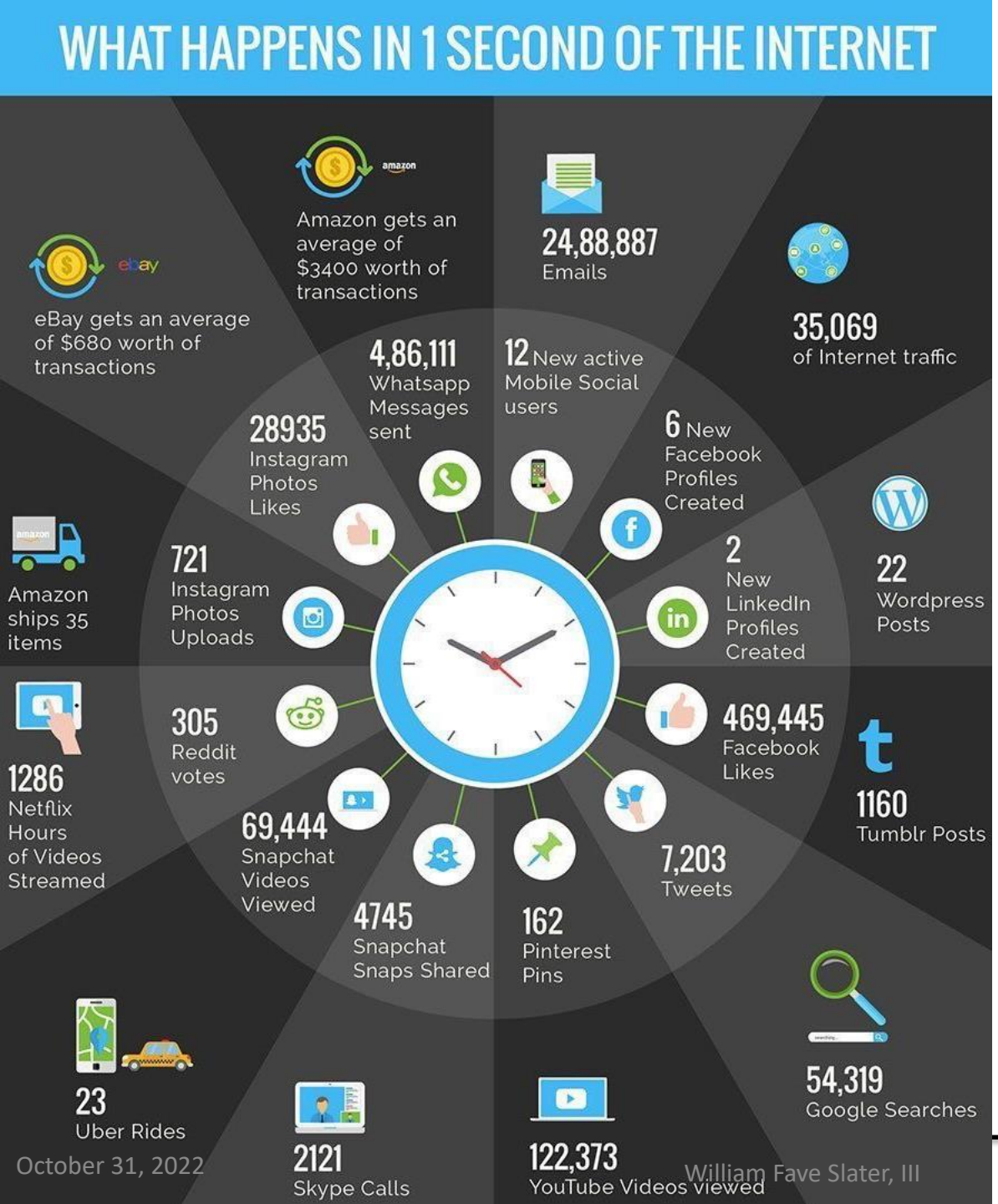

What Happens on The Internet in One Second?

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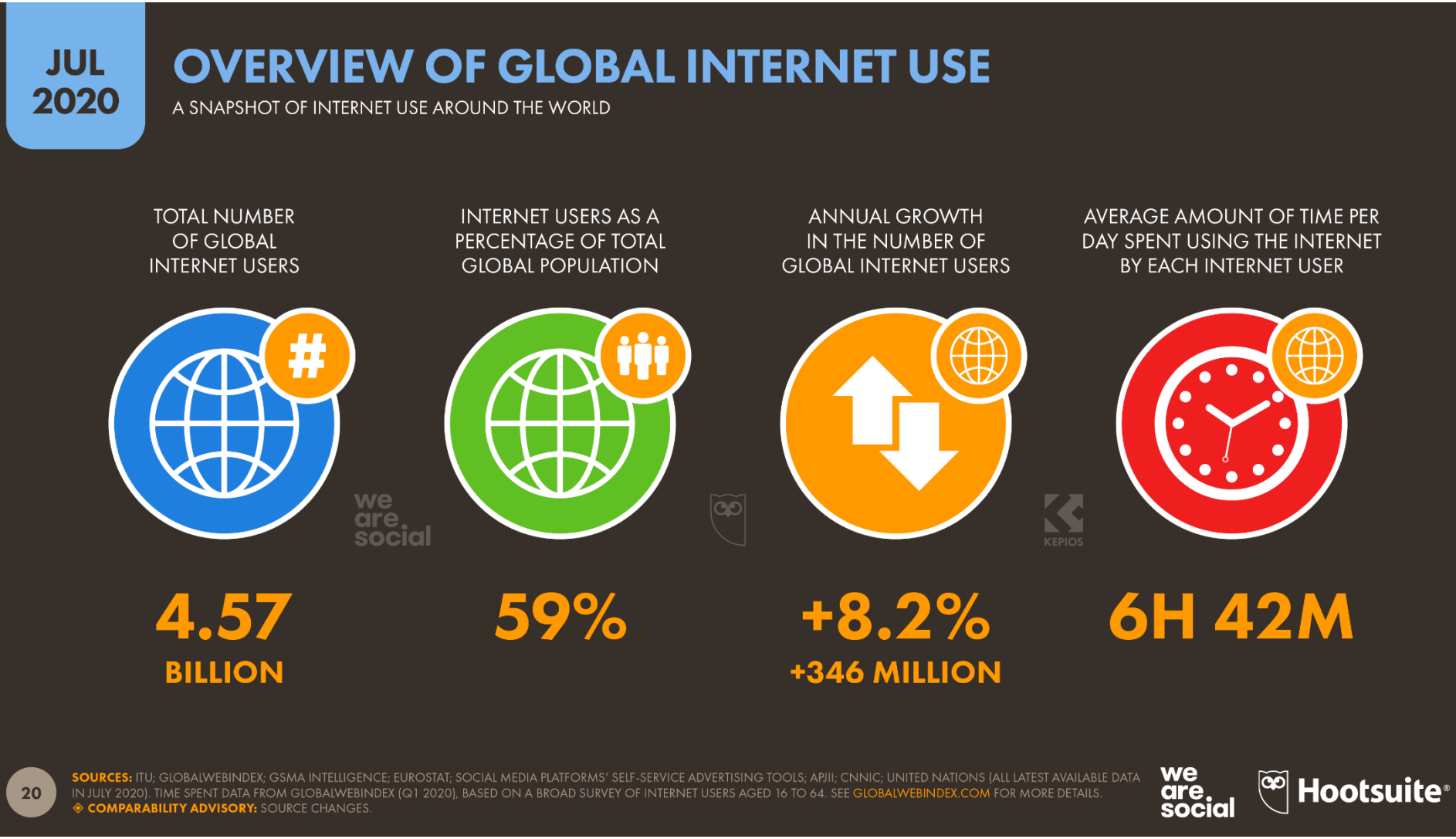
Digital Around the World - 2020



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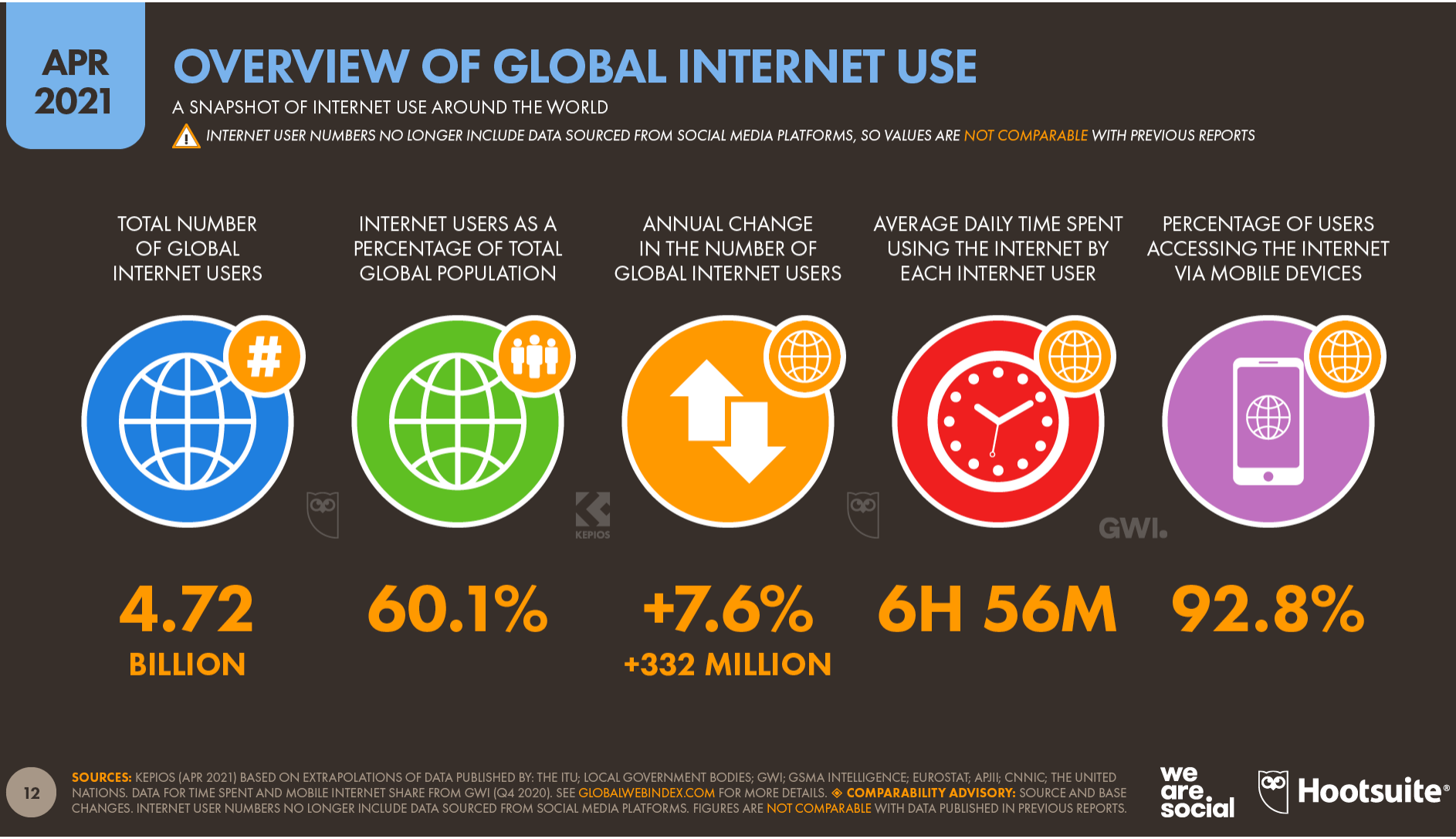
Digital Around the World - 2021



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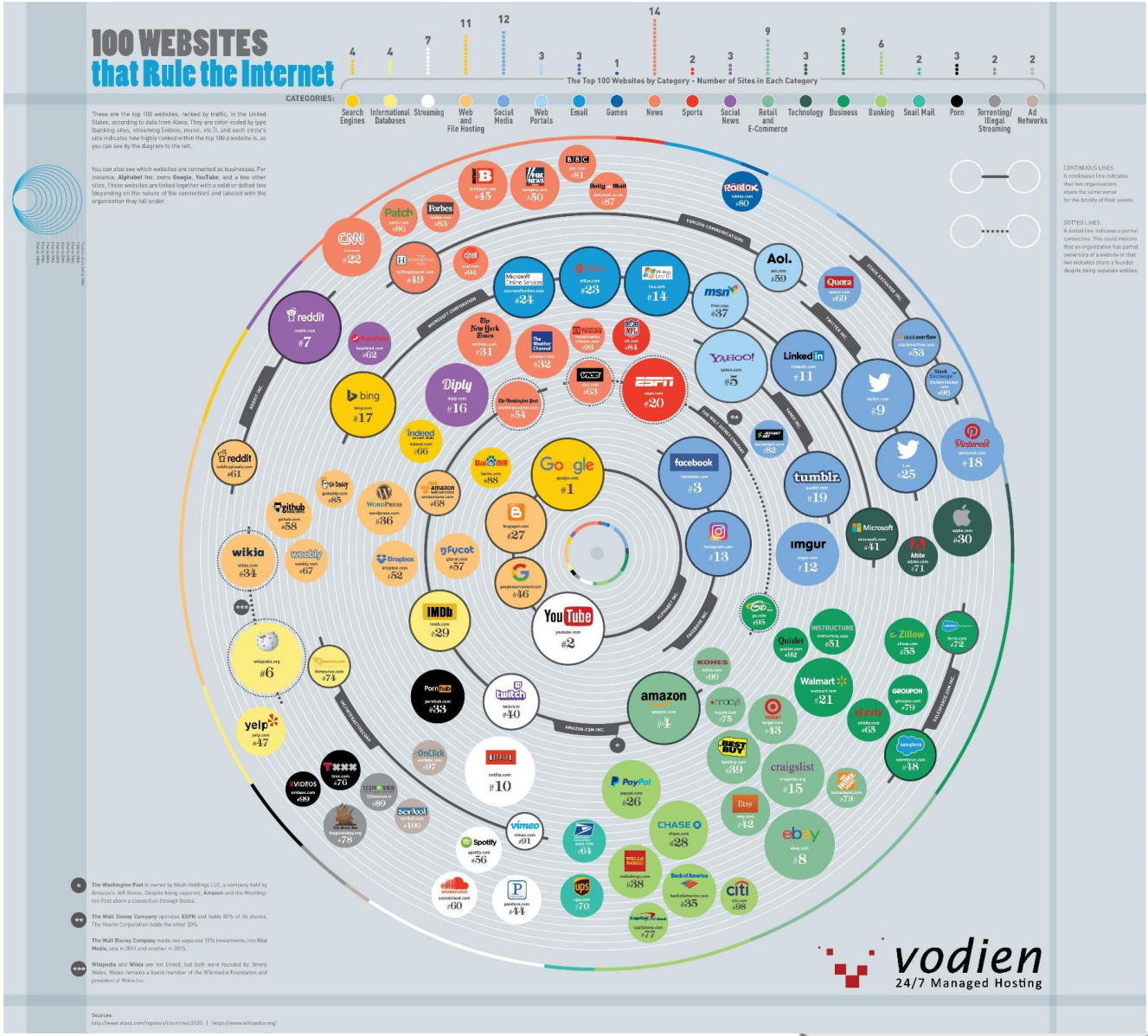
The 100 Biggest Websites on the Internet



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How People Use the Internet

Internet users say they spend about 6.5 hours a day online. What do they do there?

They have fun:

Netflix has **125m** subscribers, about 55% of whom are international.

About **1m** people are always watching Twitch.

2018 data

They send information and updates to friends and colleagues:

269bn emails are sent and received each day.

They run errands:

According to one survey **42%** of global respondents say they paid a bill using their mobile device.

They pursue education:

Online education is worth **$165bn** and is projected to reach **$275bn** by 2022.

They keep in touch with old friends and make new ones:

2.2bn people are monthly active users on Facebook.

Source: Business Insider; Global Web Index; Nielsen; Recode; Reuters; Statista.

World101

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CYBERSECURITY

ACFTI

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SECURITY – WHAT IS IT EXACTLY?

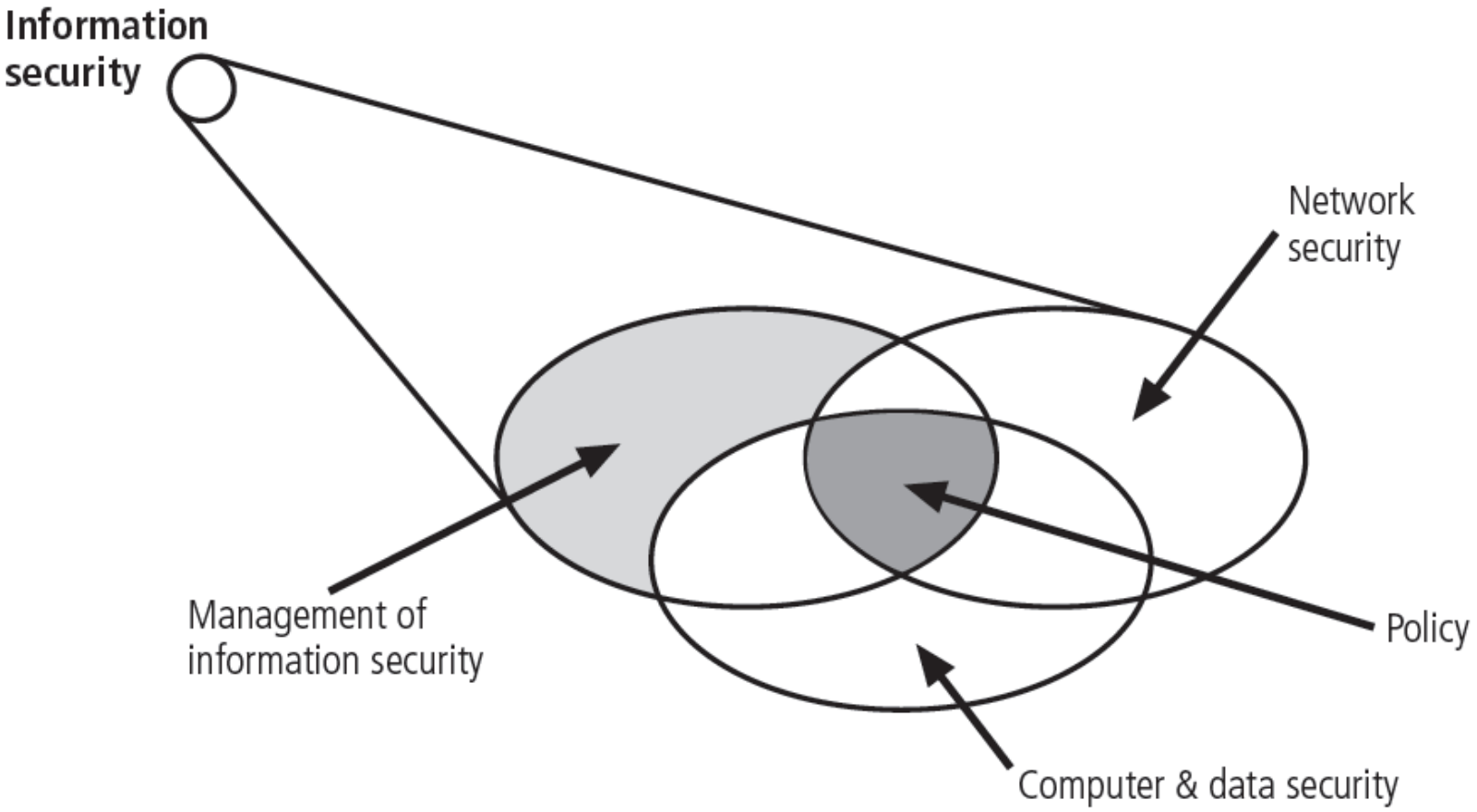
What Is Security?

- Definitions
  - Security is defined as “the quality or state of being secure—to be free from danger”
  - Security is often achieved by means of several strategies undertaken simultaneously or used in combination with one another
- Specialized areas of security
  - Physical security, operations security, communications security, and network security

What Is Security? (cont'd.)

- Information security
  - The protection of information and its critical elements (confidentiality, integrity and availability), including the systems and hardware that use, store, and transmit that information
    - Through the application of policy, technology, and training and awareness programs
- Policy, training and awareness programs and technology are vital concepts

CNSS Security Model



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Key Concepts of Information Security

- Confidentiality
  - The characteristic of information whereby only those with sufficient privileges may access certain information
- Measures used to protect confidentiality
  - Information classification
  - Secure document storage
  - Application of general security policies
  - Education of information custodians and end users

Key Concepts of Information Security (cont'd.)

- Integrity
  - The quality or state of being whole, complete, and uncorrupted
- Information integrity is threatened
  - If exposed to corruption, damage, destruction, or other disruption of its authentic state
- Corruption can occur while information is being compiled, stored, or transmitted

Key Concepts of Information Security (cont'd.)

- Availability
  - The characteristic of information that enables user access to information in a required format, without interference or obstruction
  - A user in this definition may be either a person or another computer system
  - Availability does not imply that the information is accessible to any user
    - Implies availability to authorized users

Key Concepts of Information Security (cont'd.)

- Privacy
  - Information collected, used, and stored by an organization is to be used only for the purposes stated to the data owner at the time it was collected
  - Privacy as a characteristic of information does not signify freedom from observation
    - Means that information will be used only in ways known to the person providing it

Key Concepts of Information Security (cont'd.)

- Identification
  - An information system possesses the characteristic of identification when it is able to recognize individual users
  - Identification and authentication are essential to establishing the level of access or authorization that an individual is granted
- Authentication
  - Occurs when a control proves that a user possesses the identity that he or she claims

Key Concepts of Information Security (cont'd.)

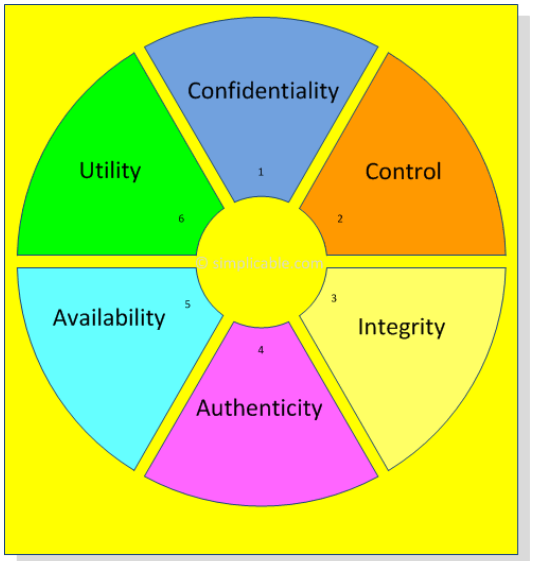
- Authorization
  - Assures that the user has been specifically and explicitly authorized by the proper authority to access, update, or delete the contents of an information asset
  - User may be a person or a computer
  - Authorization occurs after authentication

Key Concepts of Information Security (cont'd.)

- Accountability
  - Exists when a control provides assurance that every activity undertaken can be attributed to a named person or automated process

Parkerian Hexad

- Confidentiality
- Integrity
- Availability
- Control
- Authenticity
- Utility



Elements of Information Security Management
© simplicable.com

Donn B. Parker
1929 - 2021

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What's Wrong with Information Security and How to Fix It

- Video Lecture by Donn B. Parker
  - http://www.youtube.com/watch?v=RW9hOBCSy0g

Donn B. Parker
1929 - 2021

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CYBERCRIME

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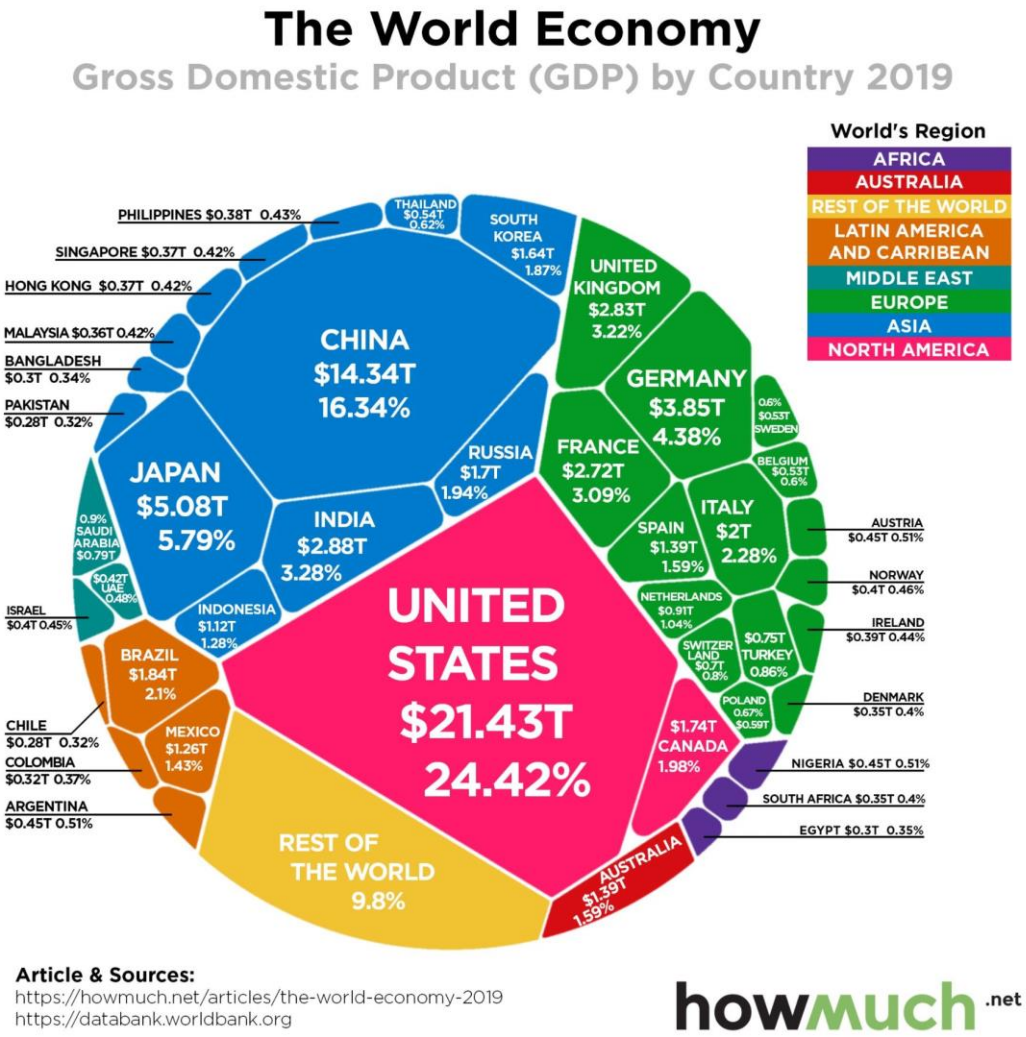
2019 Annual GDPs By Country



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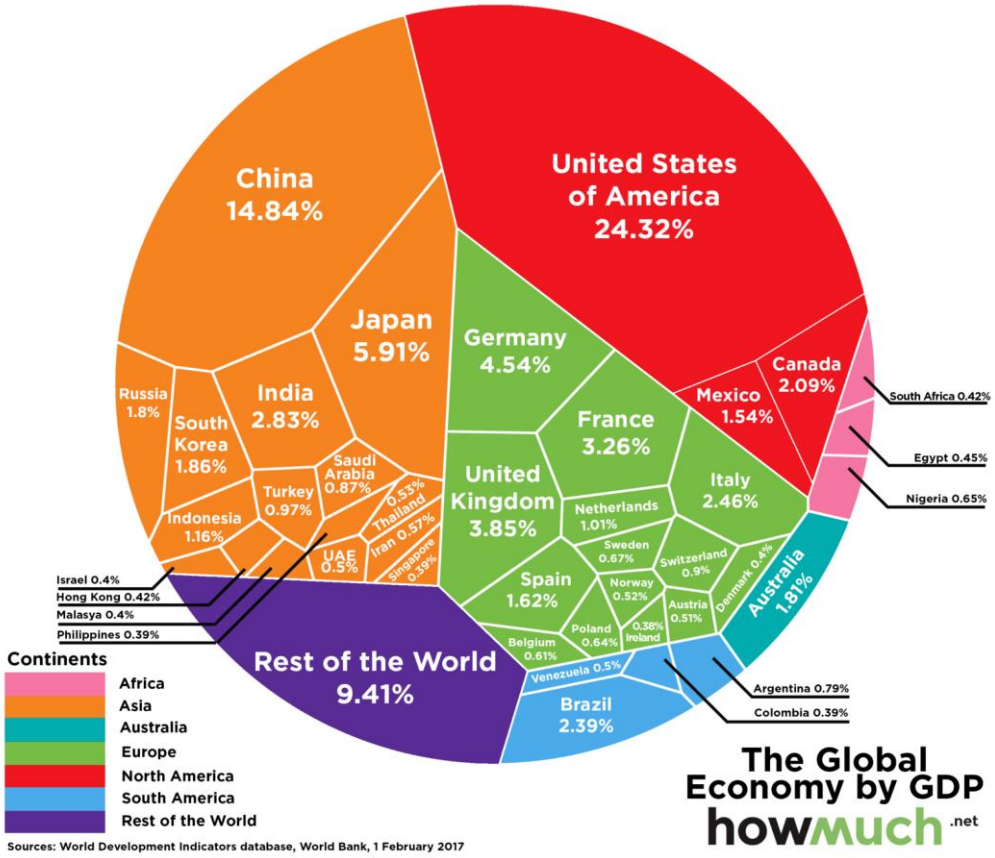
2021 Annual GDPs By Country



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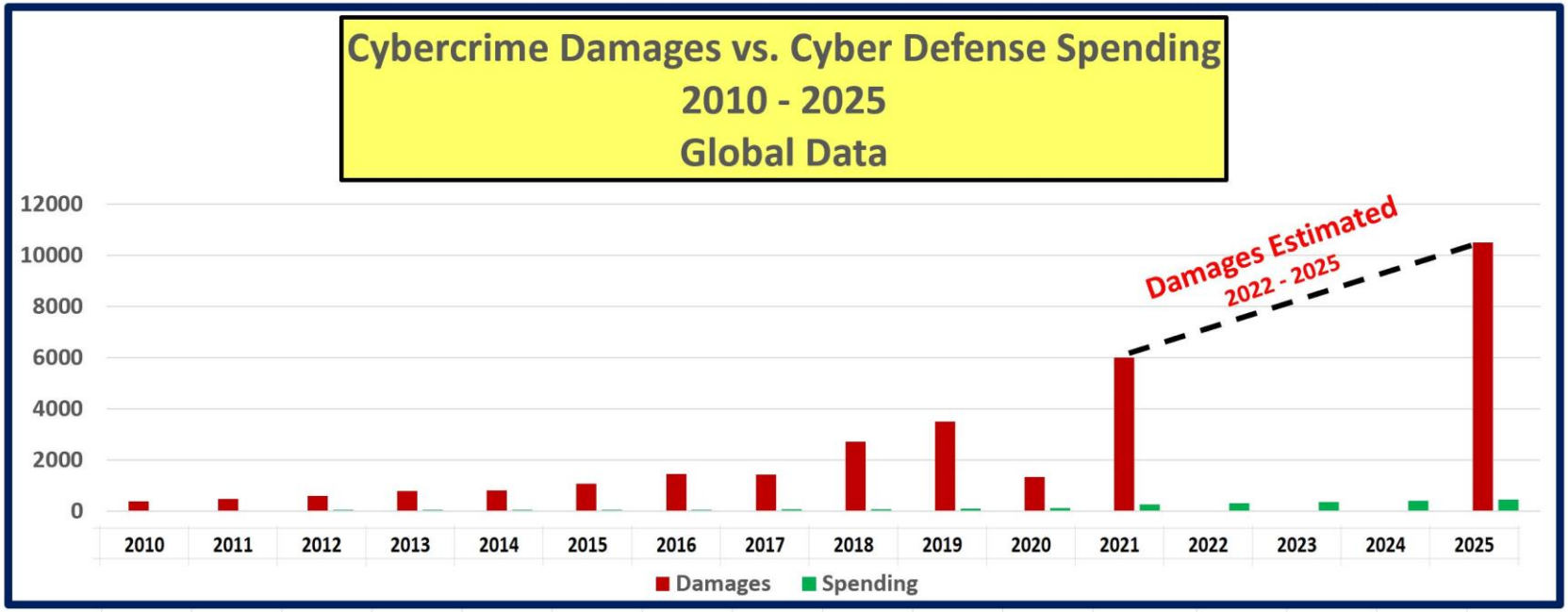
Cybercrime



Damages	388	485.25	581.44	781.84	800.49	1070.71	1450.7	1418.7	2700	3500	1330	6000				10500
Spending	27.4	30.5	34.5	40	43.5	49	54.8	60.4	66	103	123	262.4	301.8	347	399	458.9
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025

Notes: Damages - 2001 - 2017 - US DoJ
Spending - 2010 - 2018 - TIA and Statista
Spending - 2021 - 2025 - Cybersecurity Ventures

Chart created by:
William Favre Slater, III, Chicago, IL, USA
williamslater@gmail.com
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10/20/22

Cybercrime

Global Cybercrime Damage Costs:

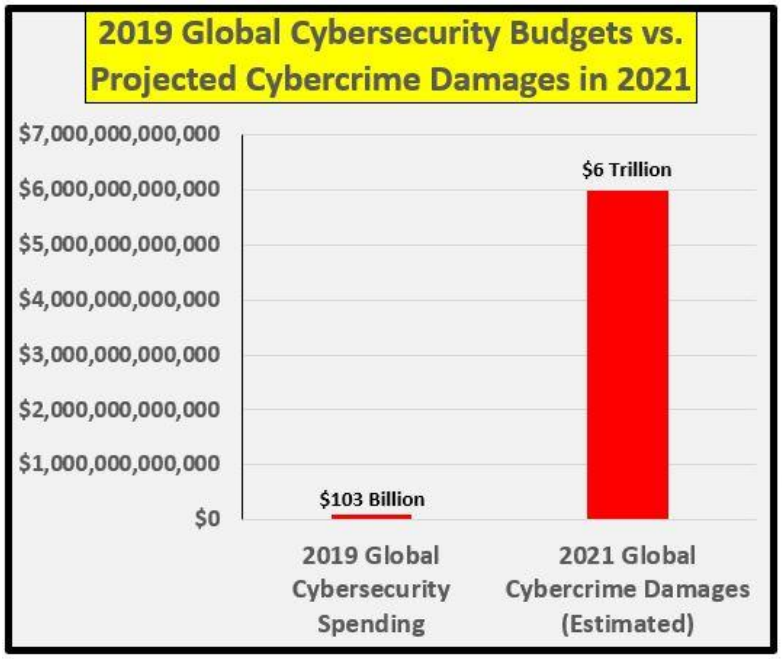
- $6 Trillion USD a Year. *
- $500 Billion a Month.
- $115.4 Billion a Week.
- $16.4 Billion a Day.
- $684.9 Million an Hour.
- $11.4 Million a Minute.
- $190,000 a Second.

ALL FIGURES ARE PREDICTED BY 2021

* SOURCE: CYBERSECURITY VENTURES

CYBERSECURITY VENTURES

Cybercrime



Sources:
2017 Cybercrime Report by the Herjavic Group - https://www.herjavecgroup.com/resources/the-2017-cybercrime-report/
ZDNet - https://www.zdnet.com/article/global-security-spending-to-top-103-billion-in-2019-says-idc/

Graphics:
William Favre Slater, III
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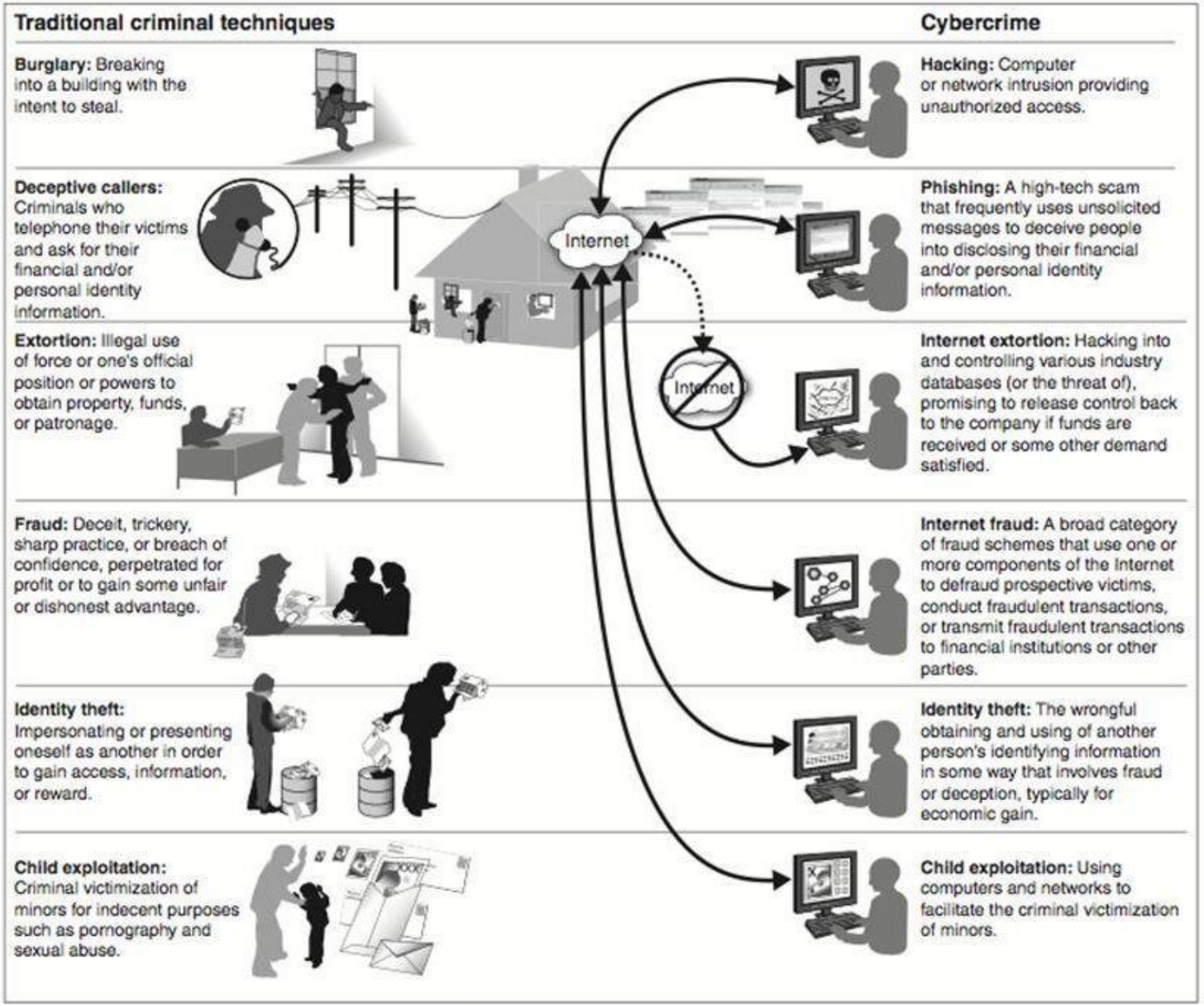
Figure 1: Comparison between Traditional Criminal Techniques and Cybercrime



Source: GAO

Comparing Traditional Crime and Cybercrime

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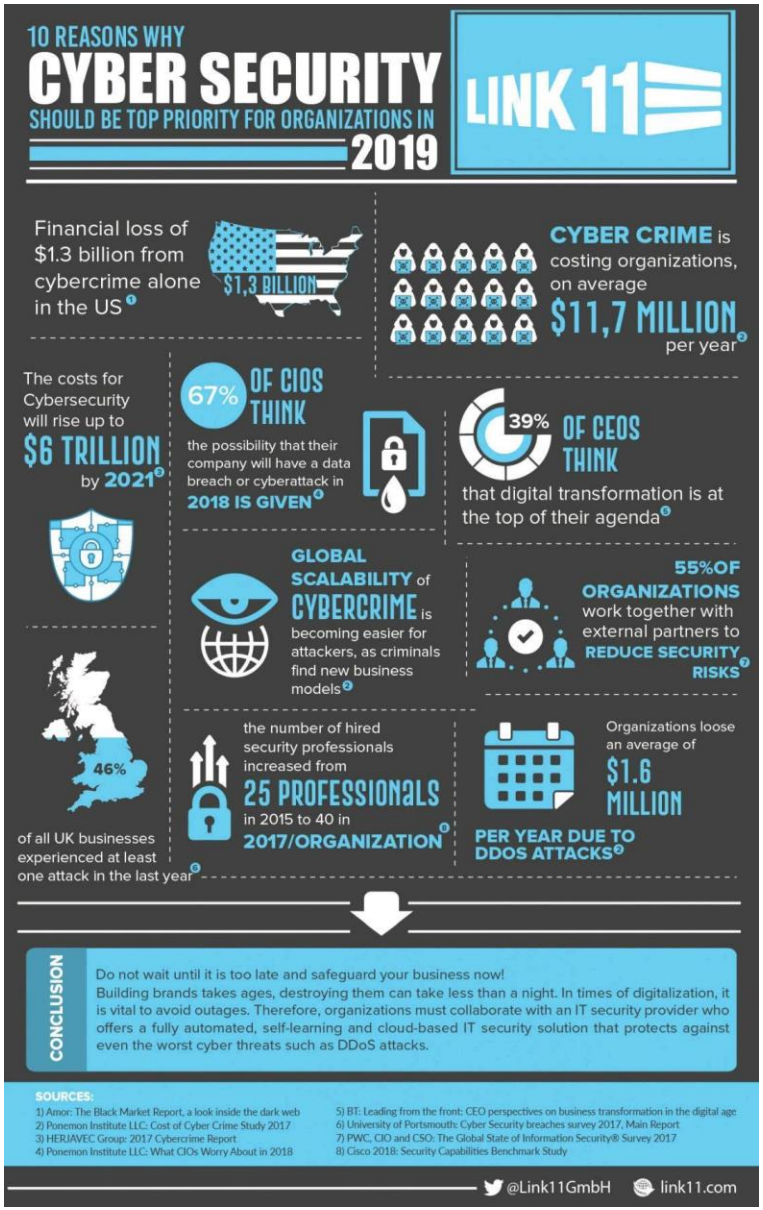
10 Reasons Why Cybersecurity Should Be Your Top Priority in 2019



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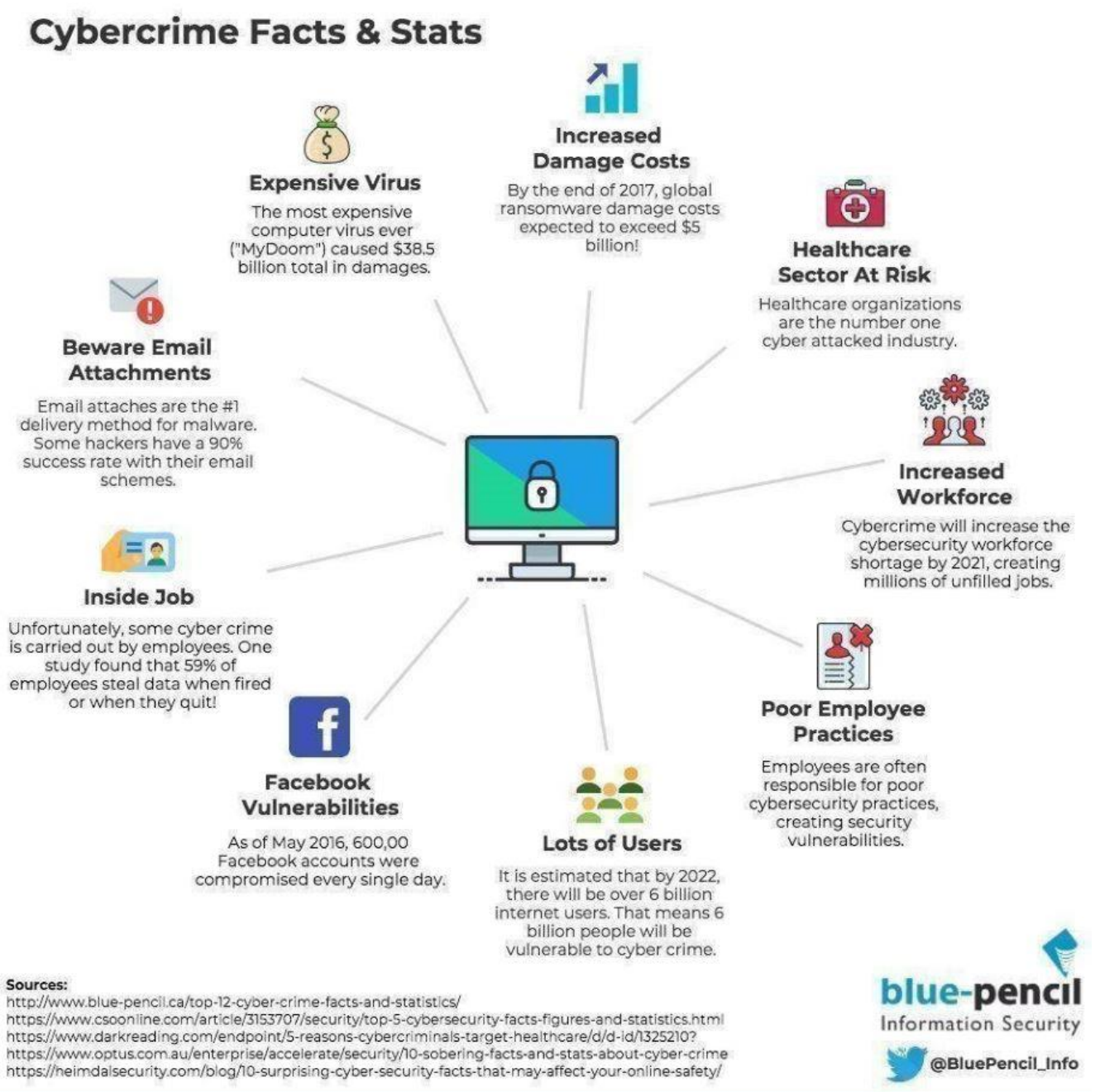

Cybercrime Facts & Statistics

2018 Cybercriminal Shopping List

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6 Ways Cybercriminal Get Your Information

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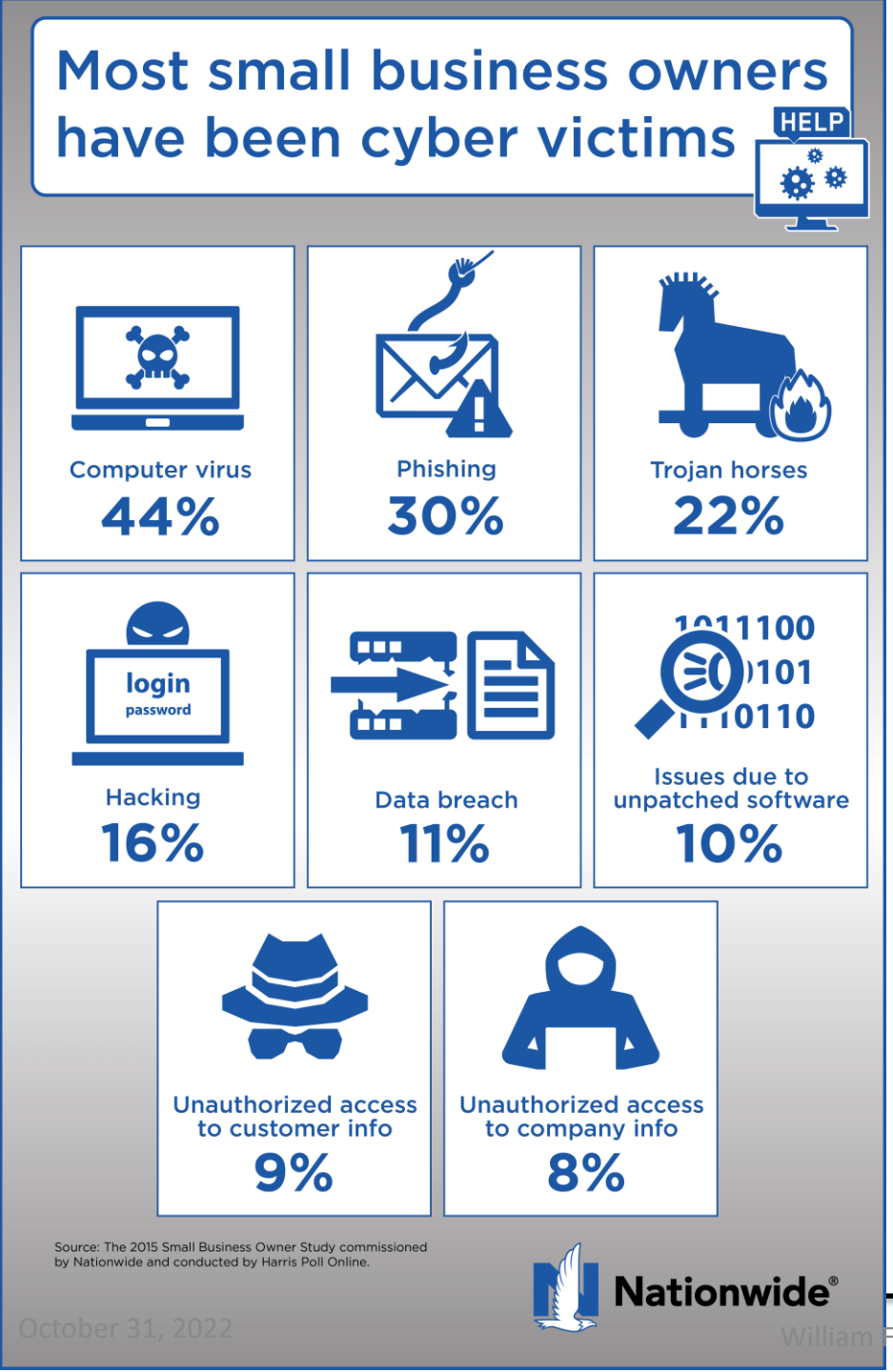

Most Small Businesses Have Been Cybercrime Victims

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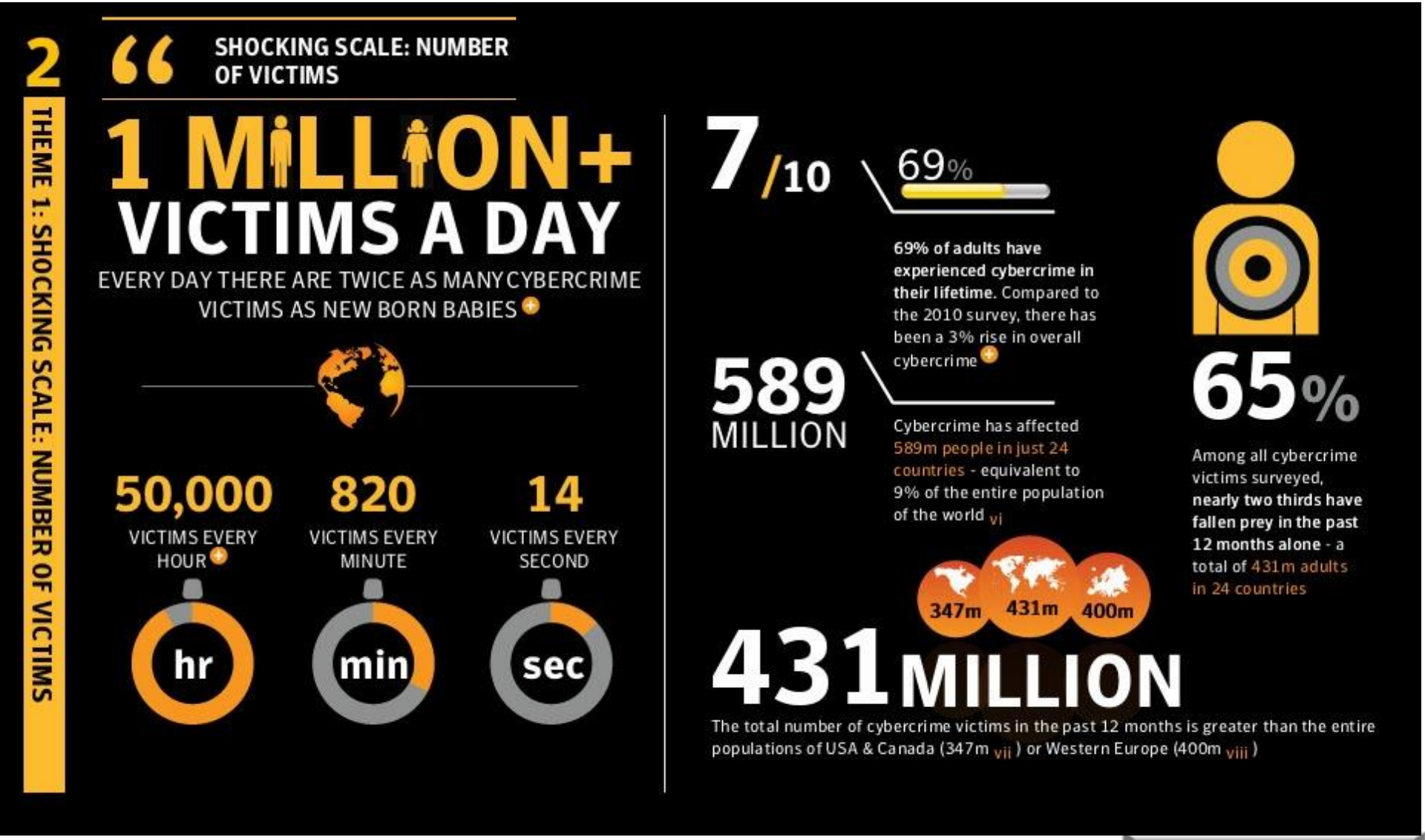
Numbers of Cybercrime Victims



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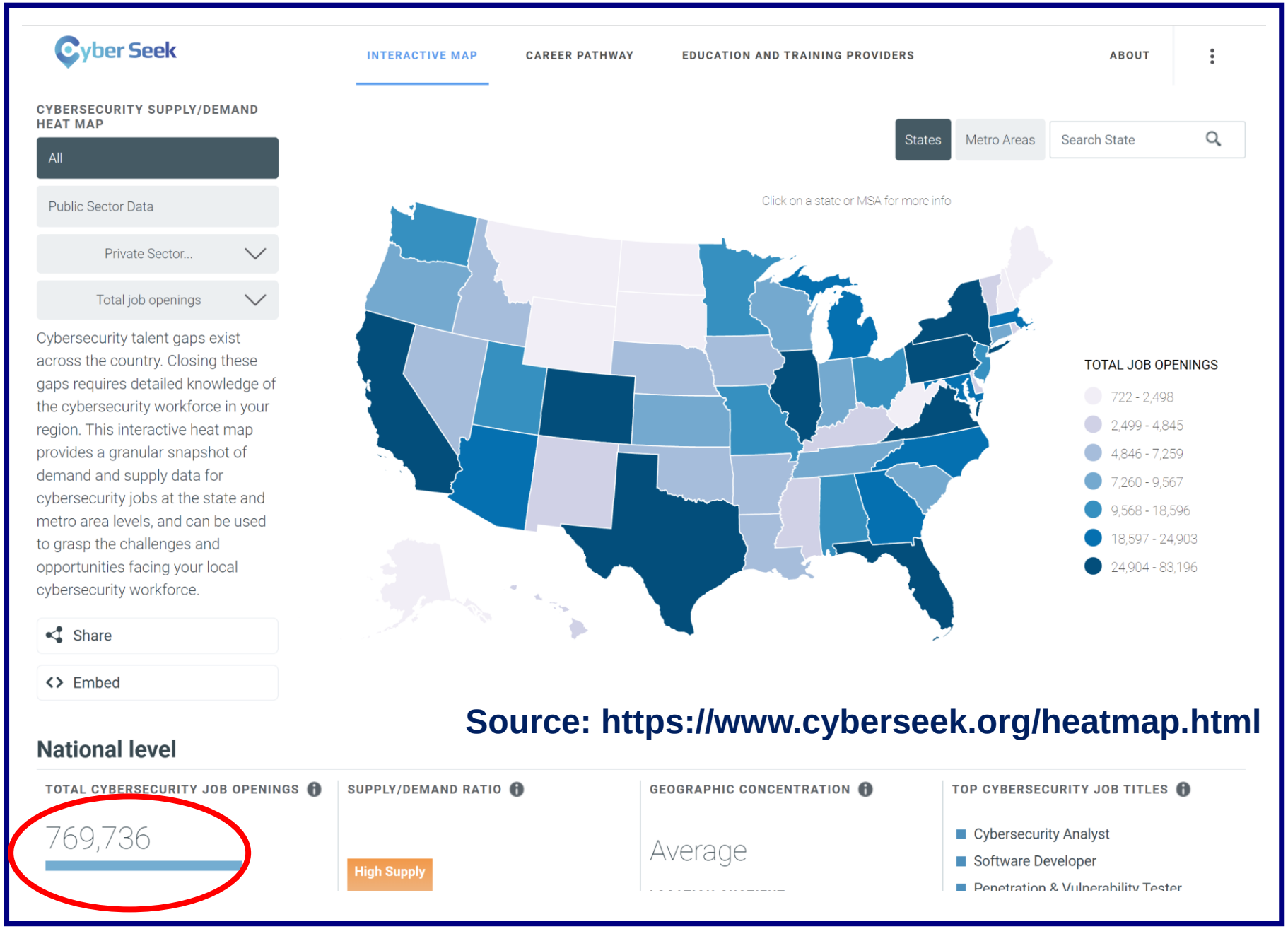
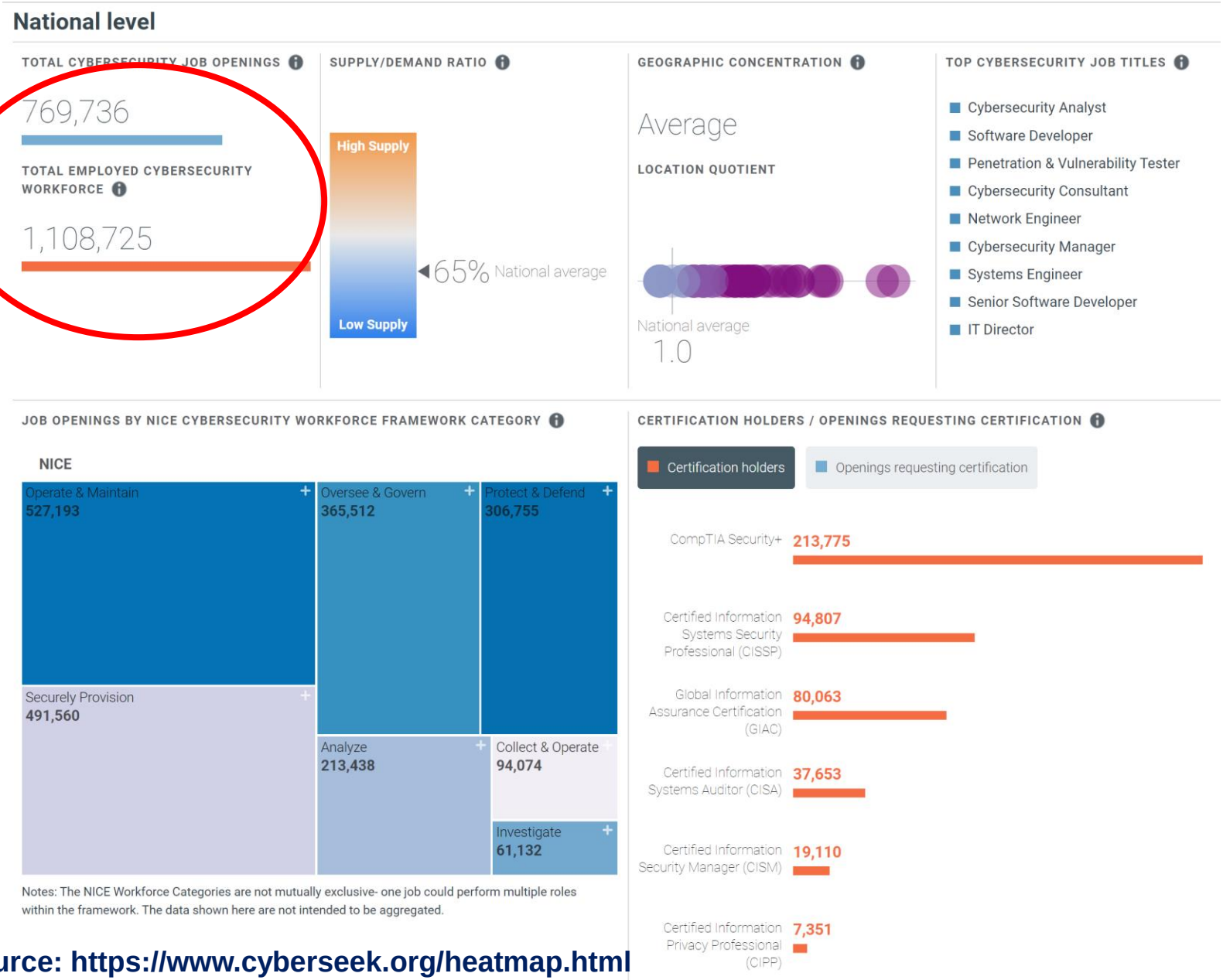
Cybersecurity Jobs in the U.S.A.



Source: https://www.cyberseek.org/heatmap.html

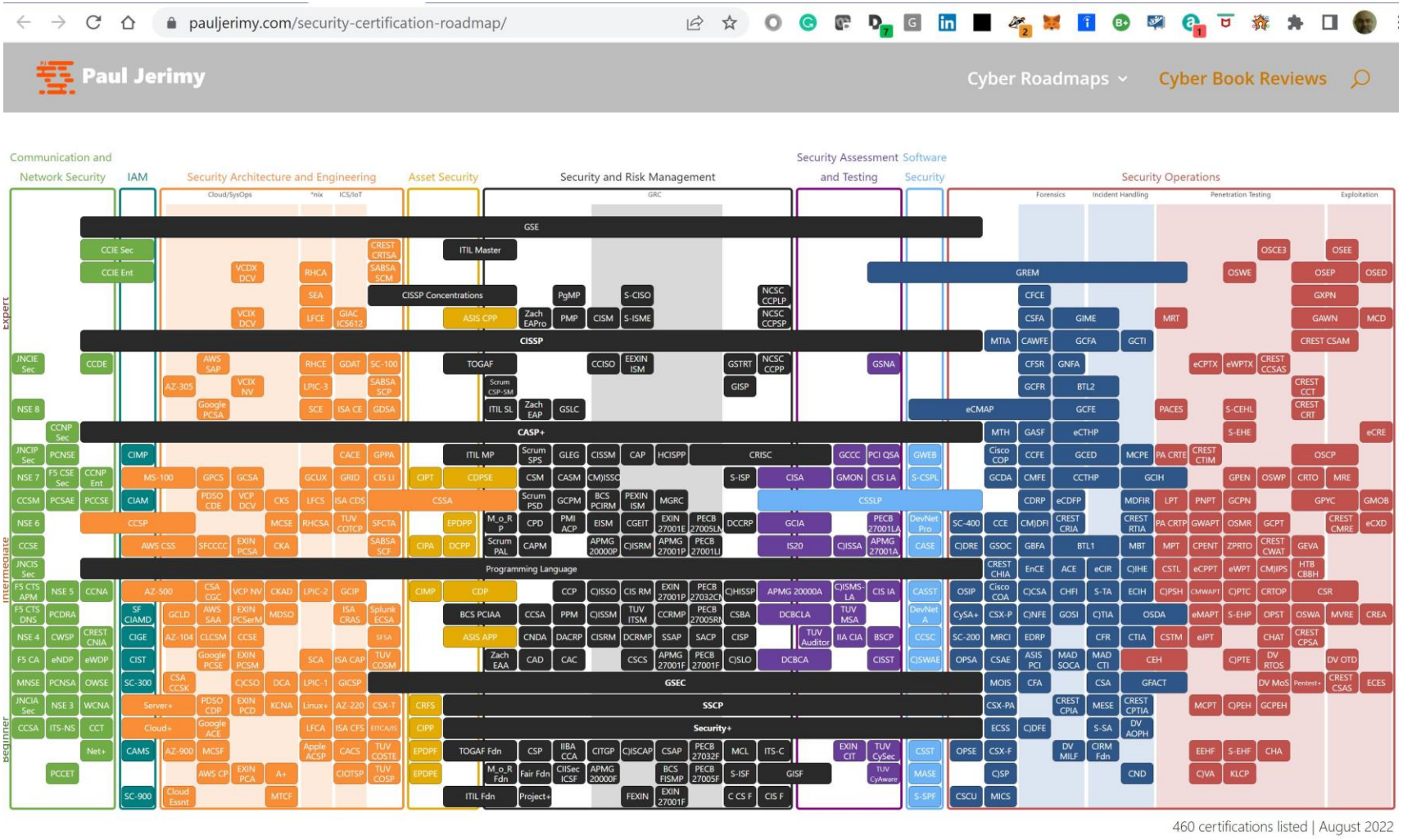


Source: https://www.cyberseek.org/heatmap.html

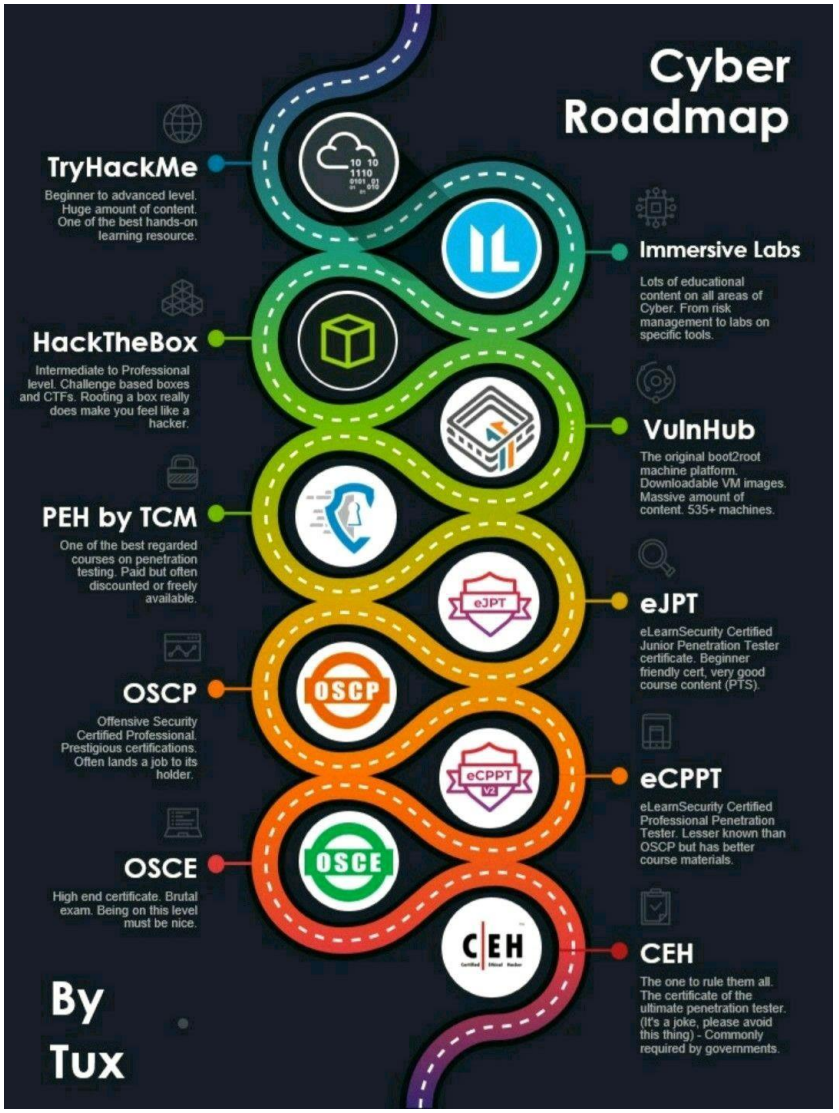
Certifications

Cybersecurity and Related Certifications

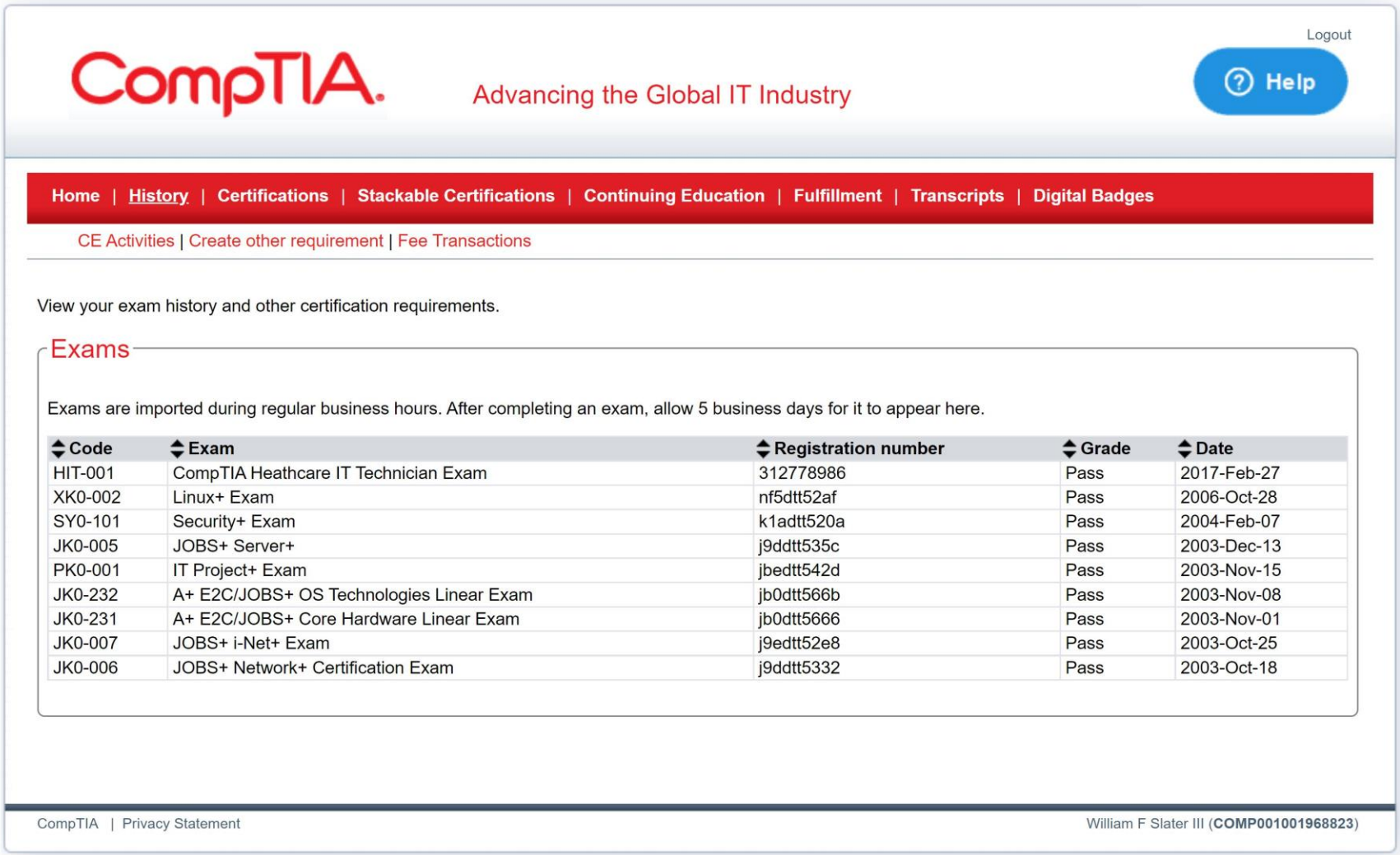
Cybersecurity and Related Certifications



Cybersecurity and Related Certifications



Cybersecurity and Related Certifications



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Exams

Exams are imported during regular business hours. After completing an exam, allow 5 business days for it to appear here.

Code	Exam	Registration number	Grade	Date
HIT-001	CompTIA Heathcare IT Technician Exam	312778986	Pass	2017-Feb-27
XK0-002	Linux+ Exam	nf5dtt52af	Pass	2006-Oct-28
SY0-101	Security+ Exam	k1adtt520a	Pass	2004-Feb-07
JK0-005	JOBS+ Server+	j9ddtt535c	Pass	2003-Dec-13
PK0-001	IT Project+ Exam	jbedtt542d	Pass	2003-Nov-15
JK0-232	A+ E2C/JOBS+ OS Technologies Linear Exam	jb0dtt566b	Pass	2003-Nov-08
JK0-231	A+ E2C/JOBS+ Core Hardware Linear Exam	jb0dtt5666	Pass	2003-Nov-01
JK0-007	JOBS+ i-Net+ Exam	j9edtt52e8	Pass	2003-Oct-25
JK0-006	JOBS+ Network+ Certification Exam	j9ddtt5332	Pass	2003-Oct-18

CompTIA | Privacy Statement

William F Slater III (**COMP001001968823**)

Cybersecurity and Related Certifications
CompTIA Stackable Certifications

Cybersecurity
CompTIA Secure Infrastructure Specialist – CSIS

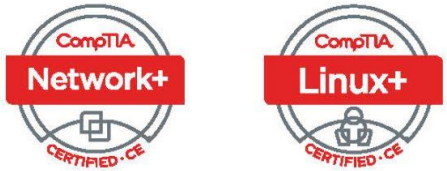
Infrastructure
CompTIA Linux Network Professional - CLNP
CompTIA Systems Support Specialist – CSSS
CompTIA Network Infrastructure Professional – CNIP
CompTIA IT Operations Specialist – CIOS

Cybersecurity and Related Certifications
CompTIA Stackable Certifications

CompTIA
IT Operations Specialist

CompTIA IT
Systems Support Specialist

CompTIA
Linux Network Professional



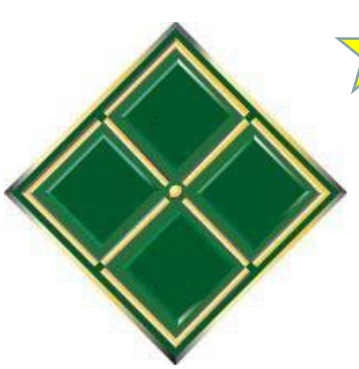
CompTIA
Network Infrastructure Professional

CompTIA
Secure Infrastructure Specialist

Important FREE Certification
IPv6 by Hurricane Electric

Visit https://ipv6.he.net

Other Professional Certifications That Are High-Value

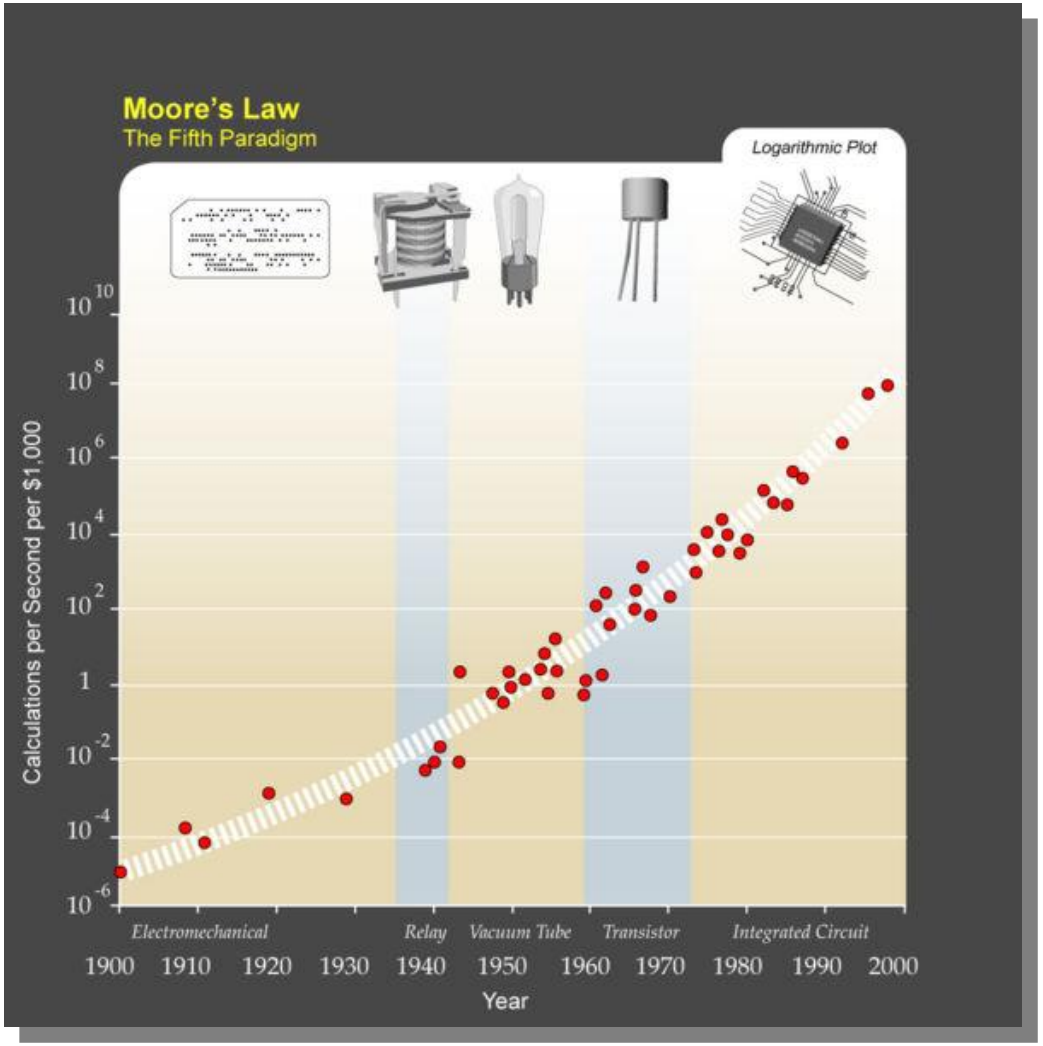


ITIL

More Information at https://billslater.com/certifications

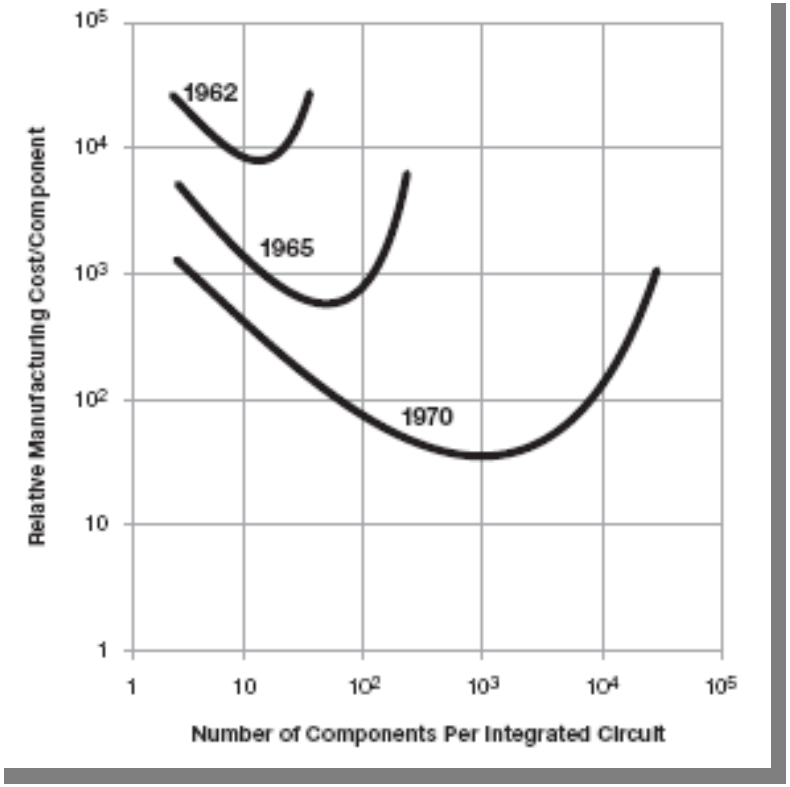
What's Driving the Industry?

Moore’s Law – The Fifth Paradigm



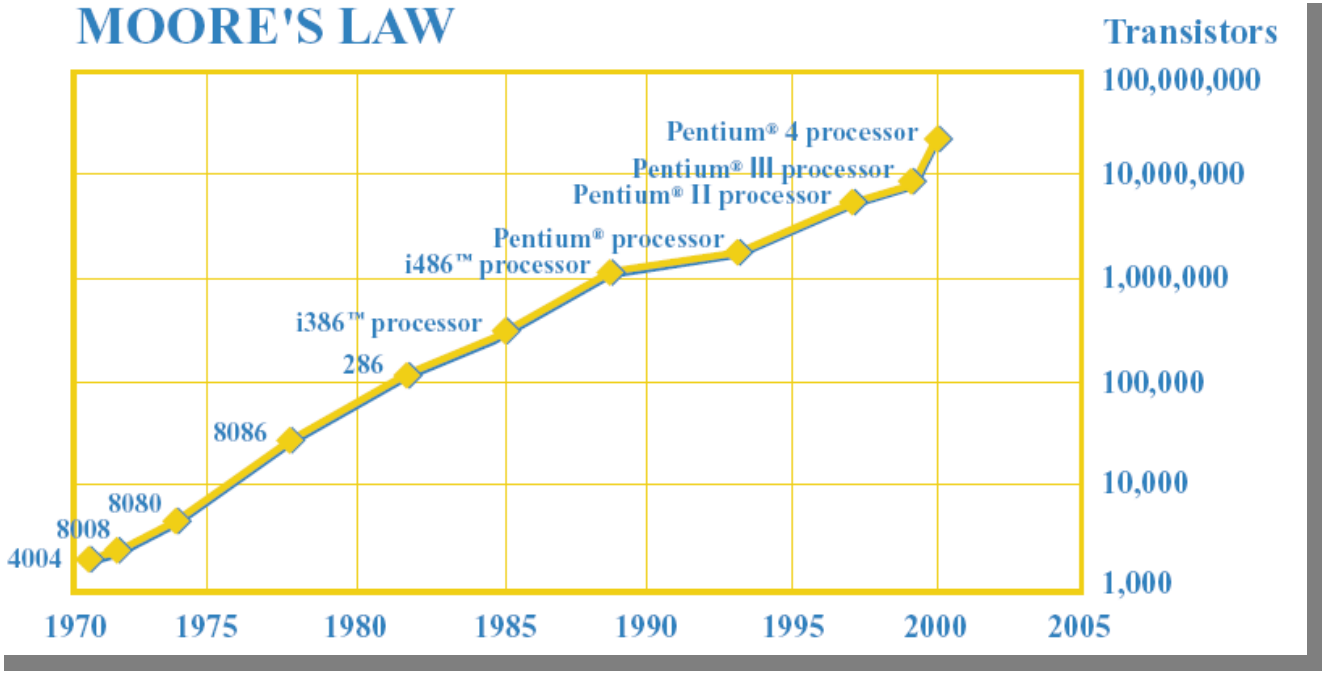
Kurzweil expansion of Moore's Law from integrated circuits to earlier transistors, vacuum tubes, relays and electromechanical computers.

Moore's Law

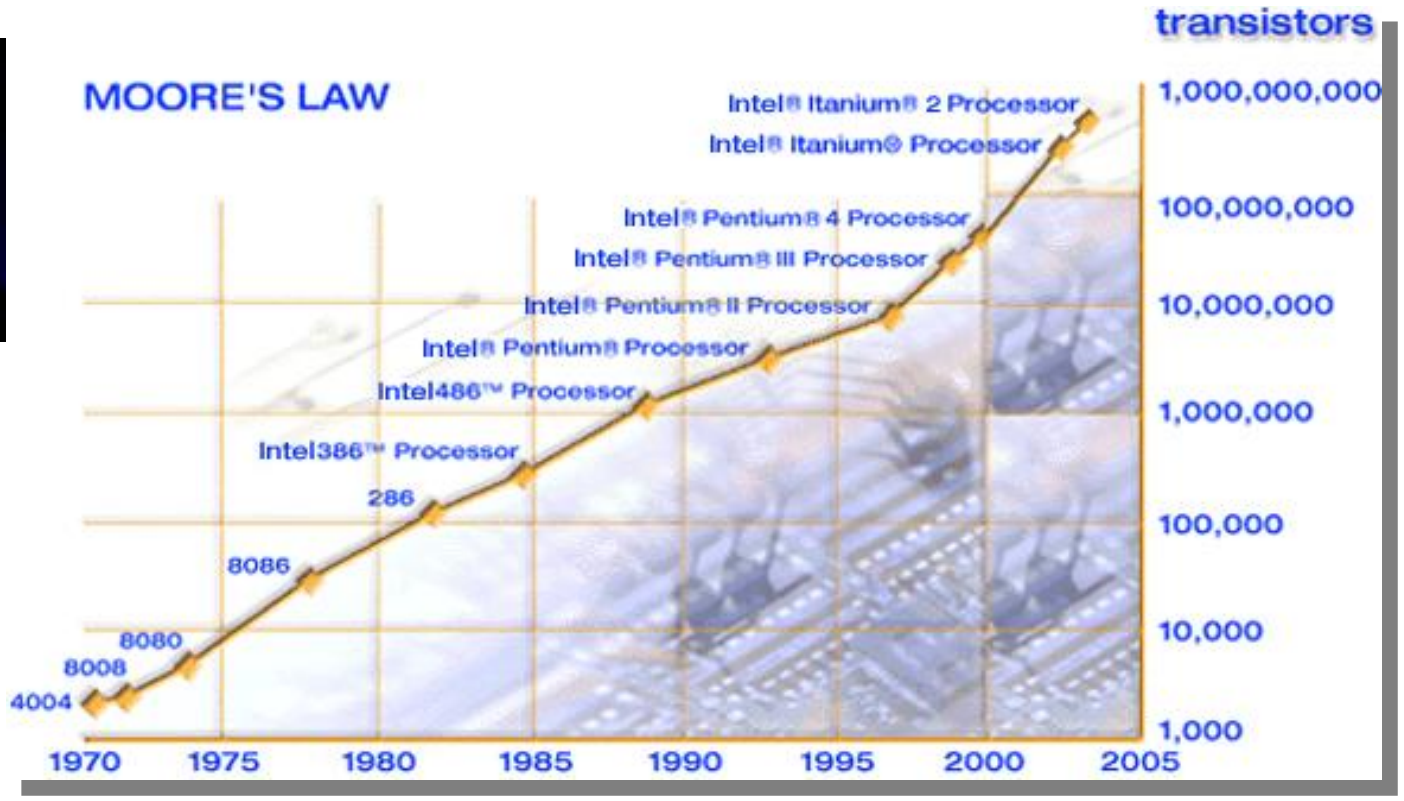


- The number of transistors on a piece of silicon will double every 18 months for the same or cheaper cost
- First published by Gordon Moore of Intel Corporation on April 19, 1965 in Electronics magazine, Vol. 38, No. 8
- It has held true since it was published

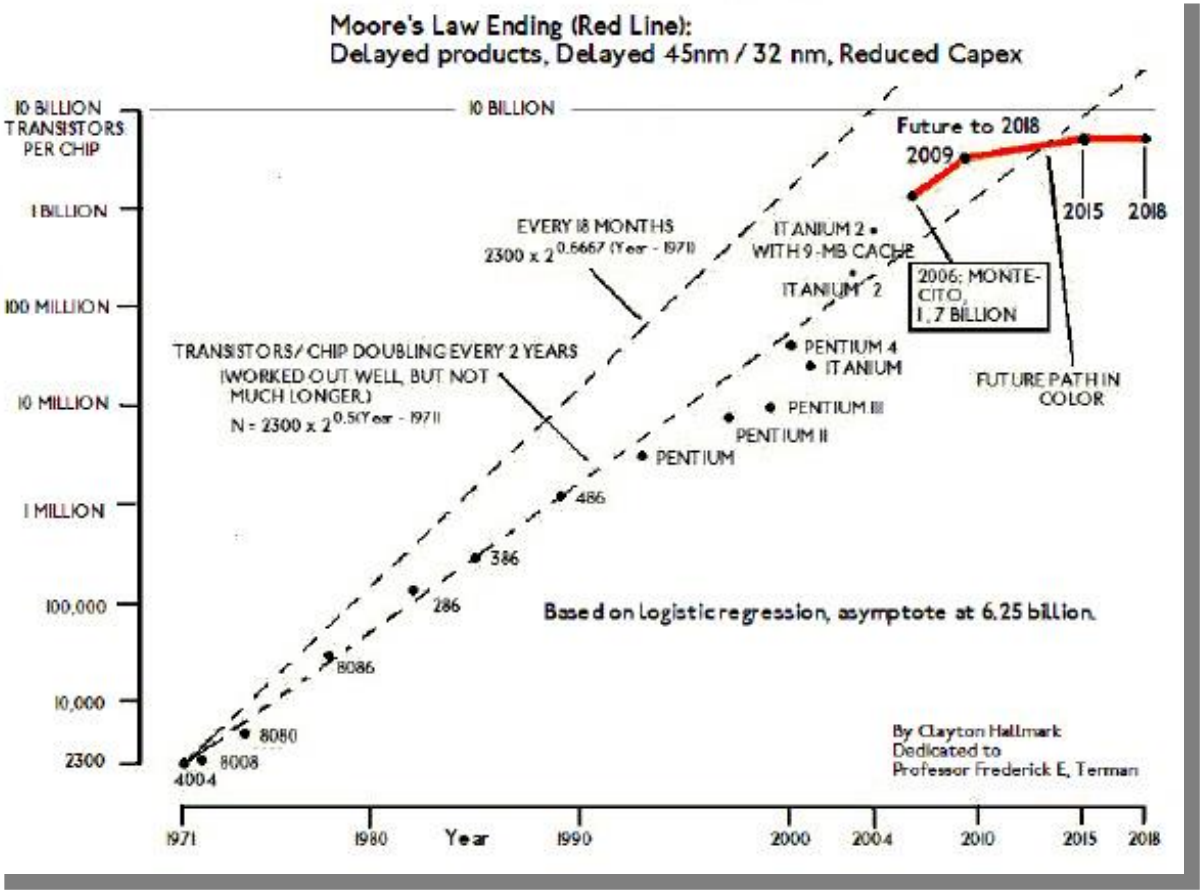
Moore’s Law – Applied to CPUs



Moore's Law – Applied to CPUs



Moore's Law – The Future



- Because of Moore's Law, computers get cheaper and more powerful, constantly.

Moore's Law – The Future

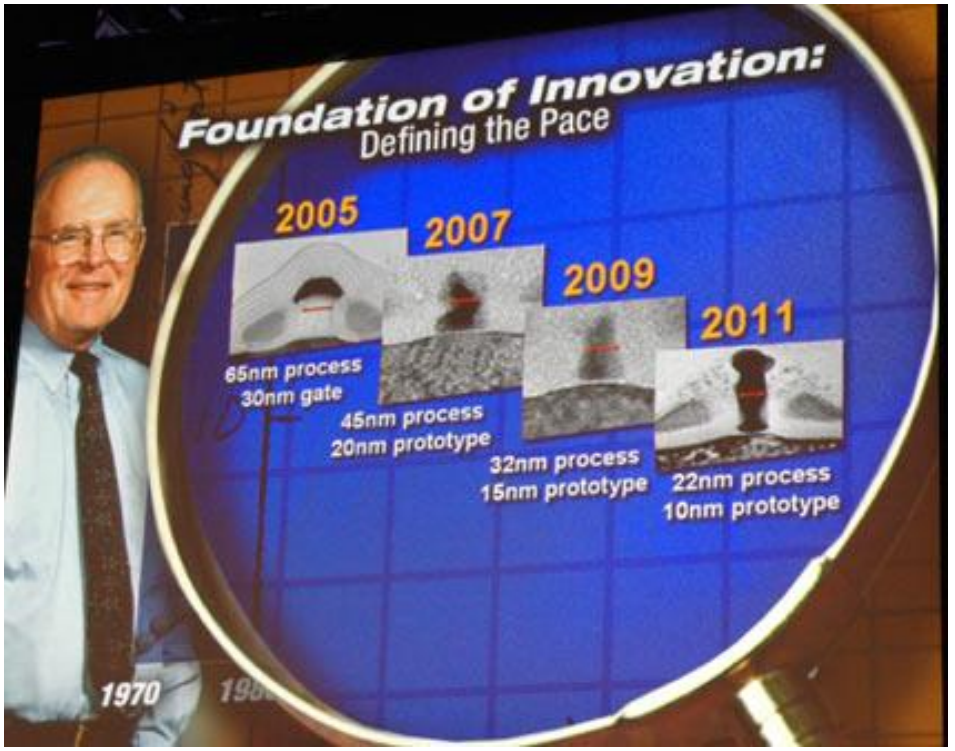
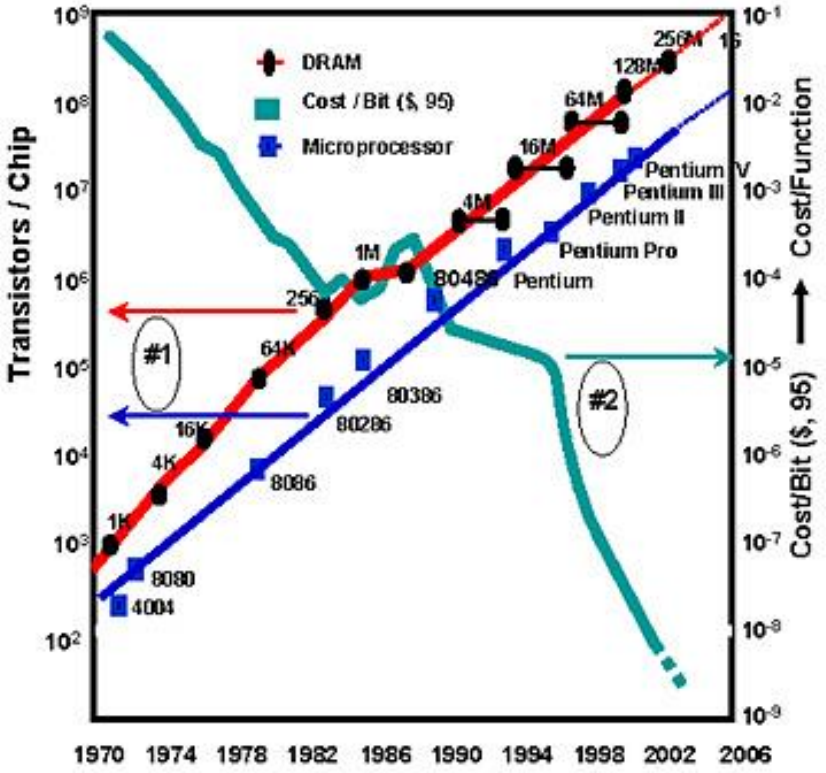


Image Credit: Intel. From the Intel Developer Forum Spring 2005

The Economic Impact of Moore's Law on CPUs and Memory

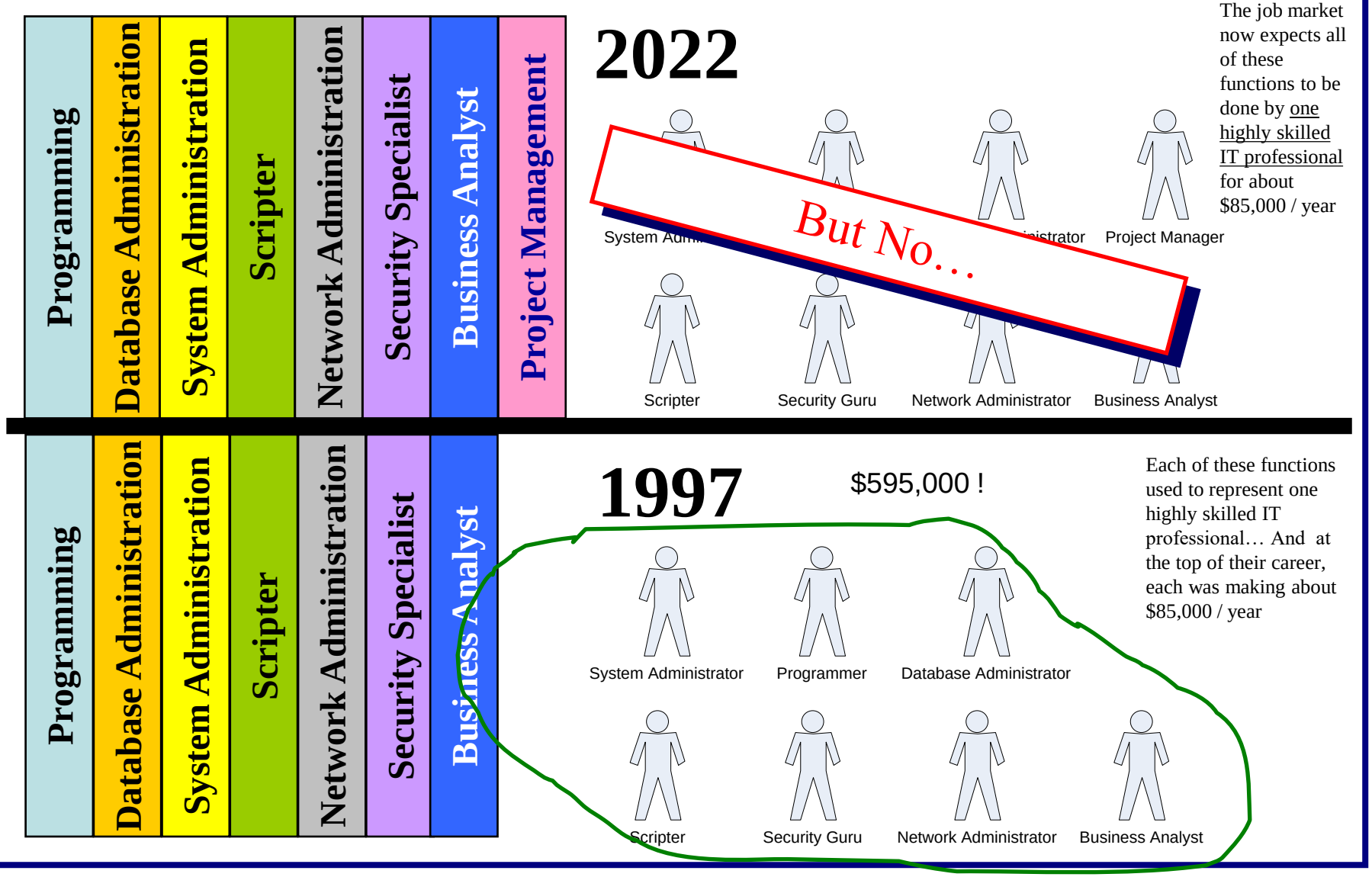


Source: http://blogs.business2.com/business2blog/hardware_itchips/index.html

Does Moore's Law Apply to Anything Else?

- Yes – People!
- Employers in 2022 want many more skills for the same or less amount of money!

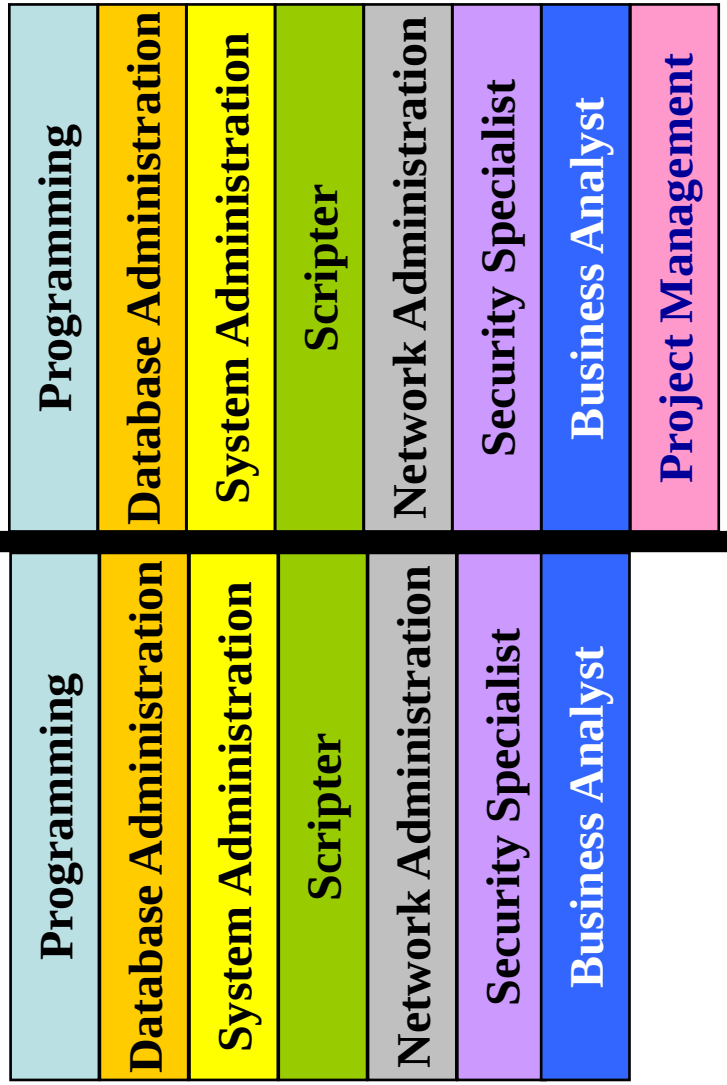
1997 and 2022



The job market now expects all of these functions to be done by <u>one highly skilled IT professional</u> for about $85,000 / year

Each of these functions used to represent one highly skilled IT professional… And at the top of their career, each was making about $85,000 / year

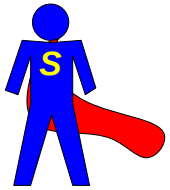
1997 and 2022



2022

They want…

Planet Earth



Superman

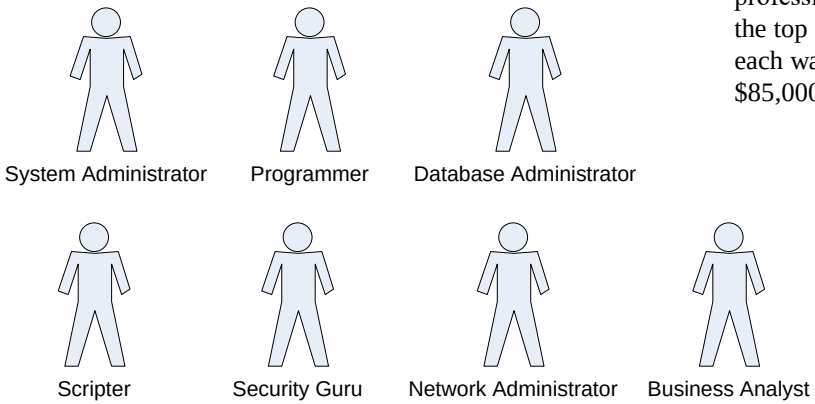
$85,000 !

The job market now expects all of these functions to be done by one highly skilled IT professional for about $85,000 / year

Note: $85,000 in 2007 USD = $62,000 in 1997 USD

1997

$595,000 !



System Administrator, Programmer, Database Administrator, Scripter, Security Guru, Network Administrator, Business Analyst

Each of these functions used to represent one highly skilled IT professional… And at the top of their career, each was making about $85,000 / year

Back to Moore's Law and Hardware

What Happens When Moore's Law Hits the Brick Wall *?

(*) "The brick wall refers to the smallest possible building blocks for these transistors--atoms and molecules." Beebe

What Happens When Moore's Law Hits the Wall?

- No more faster processors… for a while
- To be competitive, software developers will have to develop programs that are optimized to this last fastest processor
- Efforts will be accelerated to use technologies like nanotechnology, light switching, biotechnologies, etc., in order to bring about the next paradigm of powerful, inexpensive, ubiquitous computing.

Offshore – The Problem

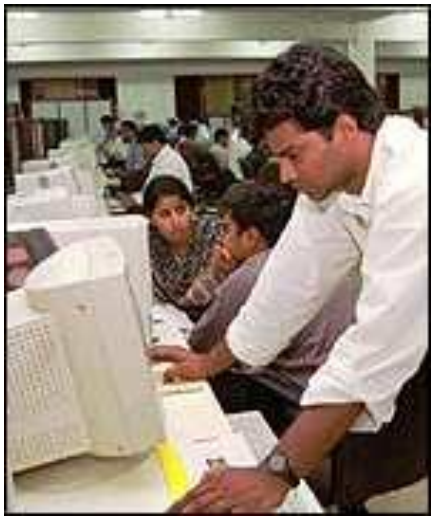
Philippines

Jamaica

Jamaica

Aims to be the "Bill Gates" of Jamiaca

Offshore – The Problem



India

India

India

Russia

Offshore – The Problem

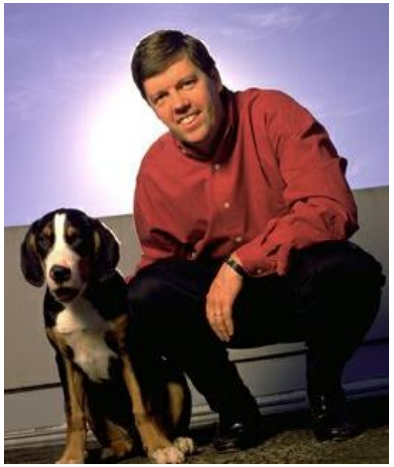
Bill Gates

Carly Fiorina

Larry Ellison

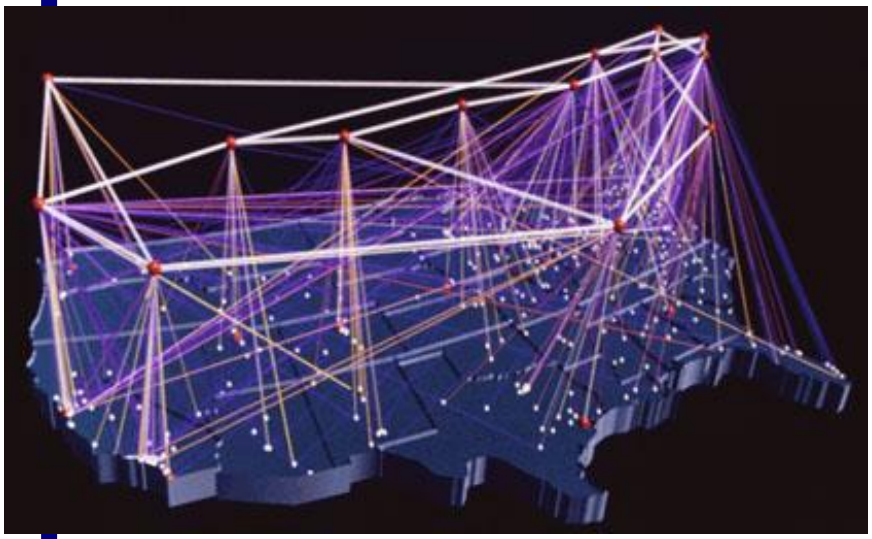
Bill Clinton

U.S. Congress

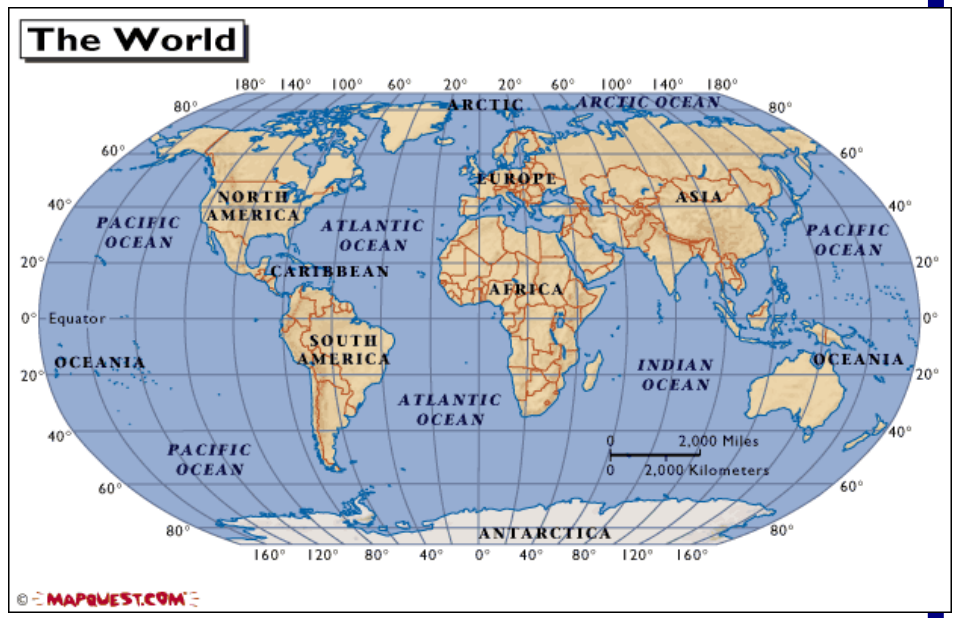


Scott McNealy

Offshore – The Problem



The Internet



Globalization

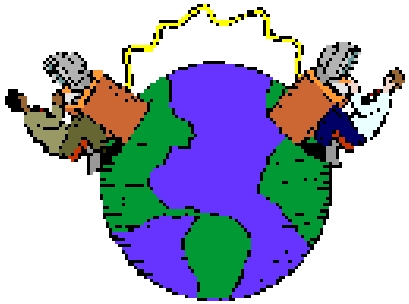
Rewards

For your hard work, you will either find a job or get to keep your present job.

William F. Slater, III – Copyright 2003

Keeping Your IT Job - 2022

- Keep your skills up
  - Buy and read good technology books
  - Create a network at home
  - Attend IT seminars
  - Join and participate in professional organizations
- Don’t specialize, be strong in several areas
- Get a mentor (https://billslater.com/mentoring)
- Develop strong people and communication skills
- Seek jobs where you get to interface with the customer directly, to assure them that you are helping make them happy
- Do regular status reports
- Keep the Team website updated with your work
- Cheerfully volunteer for additional responsibilities
- Work hard at making your boss look good and the customer happy
- Be ultra-reliable: Never miss work.



(Graphic from UI Springfield)

Sage Advice:

The IT career field treats Stagnated IT workers the same way it treats old Computers: It gets rid of them. So keep busy honing your skills and adding new skills outside of the work place!

If Keeping Your Skills Up to Date Is Too Much to Ask…

- There are other career alternatives…

IT Career Alternatives

CNN.com /US

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updated 4:20 p.m. EDT, Mon July 16, 2007

Commentary: U.S. workers will pick that lettuce – for $1,000 a week

Next Article in U.S. »

Ruben Navarrette Jr.
Special to CNN

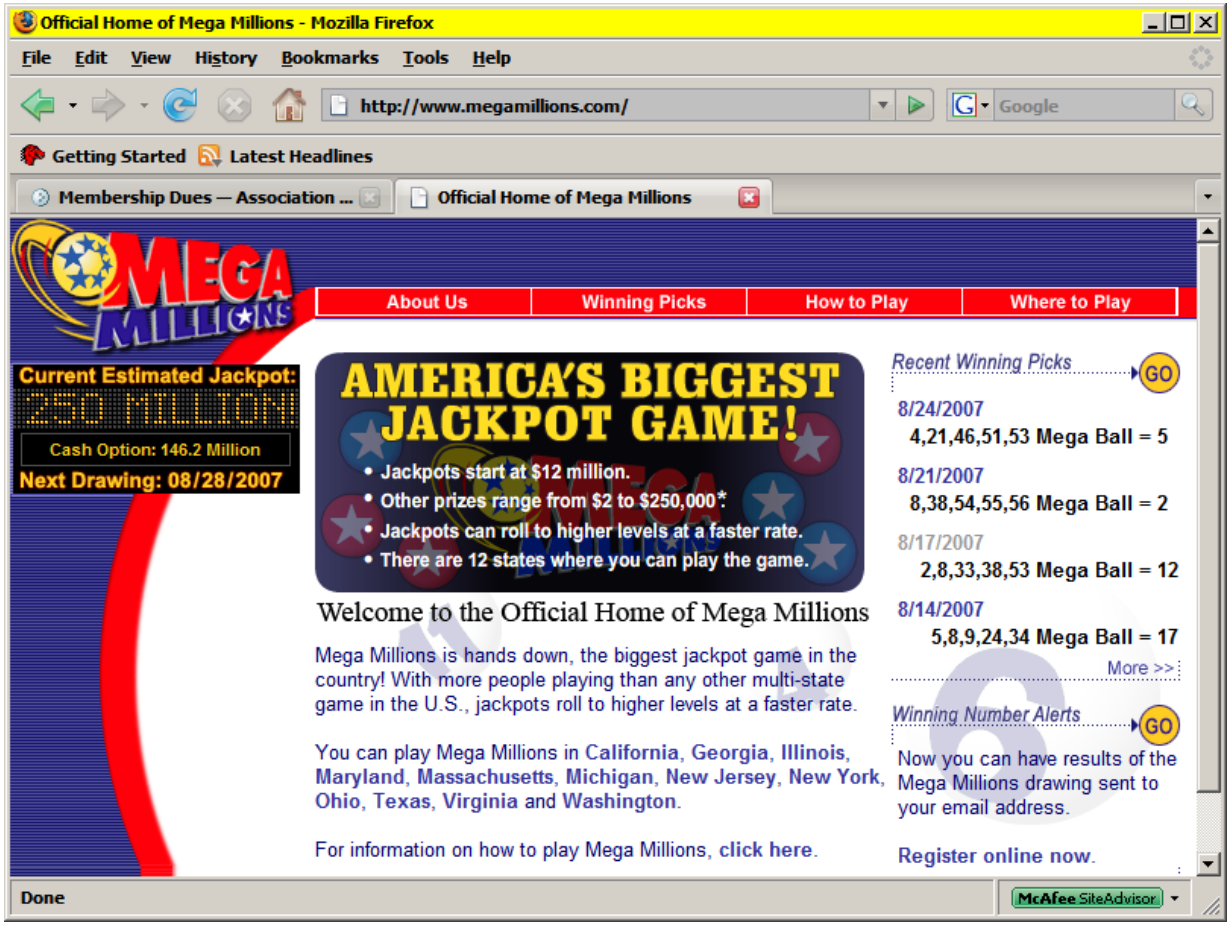
Fresno, CALIFORNIA (CNN) -- There is nothing like coming home, and I got the chance to do that today thanks to an invitation to join in a lunch forum hosted by the Kenneth L. Maddy Institute at California State University, Fresno, which sets out to train new leaders.

Ruben Navarrette Jr.: Workers' sense of entitlement opens jobs for immigrants.

I like the sound of that. We need new leaders. Just look at the recent shoving match over immigration reform, which happens to be the topic that we'll be discussing over lunch. I'm told that many in the audience will have some connection to agriculture.

Big surprise. Everyone in Fresno is connected to agriculture, whether they realize it or not. That's the whole point. While many Americans tell themselves that they don't benefit in the least from illegal immigration, my friends in the San Joaquin Valley don't have that luxury. They're up to their necks in benefit. Oh, there are costs, too -- to schools, hospitals, jails, etc. But, after it's all said and done, Fresno and other agri-cities come out way ahead.

IT Career Alternatives



IT Career Alternatives

Car Salesperson

Fast Food Worker

IT Career Alternatives

Health Care Worker

IT Career Alternatives

Construction Worker

Assembly Line Worker

IT Career Alternatives

As wages fall, workers slip from middle class

Amid the demise of manufacturing jobs, the birthright of a nice home, college for the kids is under siege

By Tim Jones | Tribune national correspondent
July 25, 2007

DAYTON, Ohio - No job lasts forever, especially a $30-an-hour assembly line job. Cheryl Seaton recognized that a long time ago, which is why she went back to college to pick up a degree that would insulate her from the economic wreckage she sensed was coming.

It didn't help. When the end neared for her auto parts assembly plant last year, Seaton, 52, walked off the loading dock, armed with a bachelor's degree. In January she began work as a mental health caseworker for a third less money.

Seaton is paid $9.45 an hour, less than what her 21-year-old daughter earns as a truck dispatcher.

"I got a four-year degree, and that and a dollar will get me a cup of coffee at McDonald's," Seaton said.

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Center for Union Facts
Facts That Union Leaders Don't Want You To

IT Career Alternatives

“Would you like to swing on a Star?
"Carry MoonBeams Home In A Jar?
And be better off than you are?

"If you're not happy with what you are,"
"You could always be a fish!"

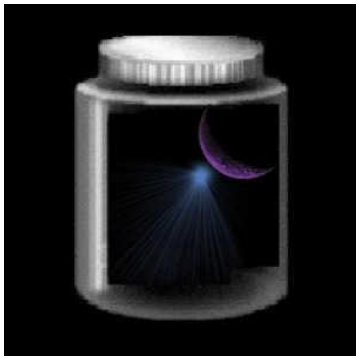

Image source: www.thebiskybatz.co.uk/html/order_.html

Image Source: www.scri8e.com/stars/moonz/MoonBeamsInJar/

CONCLUSION

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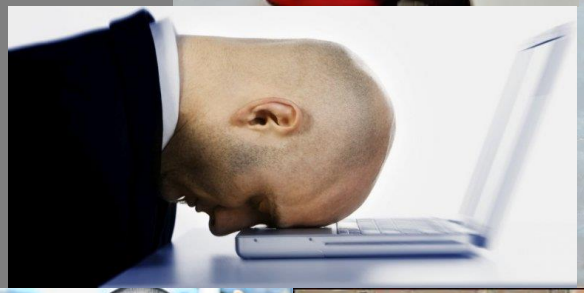
In Conclusion

- **We covered:**
  - The Internet in 2022
  - Cybersecurity
  - Cybercrime
  - IT Industry Career
  - IT Certifications
  - Observations and Tips



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QUESTIONS AND ANSWERS

Slater Technologies

Questions and Answers

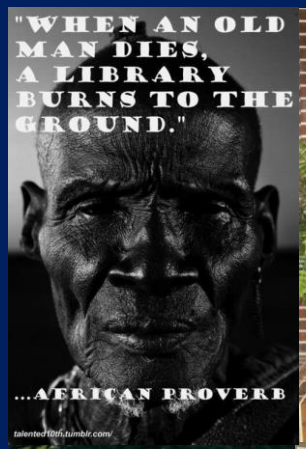
Slater Technologies

Dedication & Thanks

Dedication

This work is dedicated with love, admiration, gratitude, and great respect to Mr. ***James P. Jarnagin*** (January 25, 1935 – December 2, 2018), the Man who was my Mentor and Father-figure since March 1985. He is one of the biggest reasons for my career success and personal success. What I owe him can never be repaid.

We'll meet again, Jim. You can count on it…



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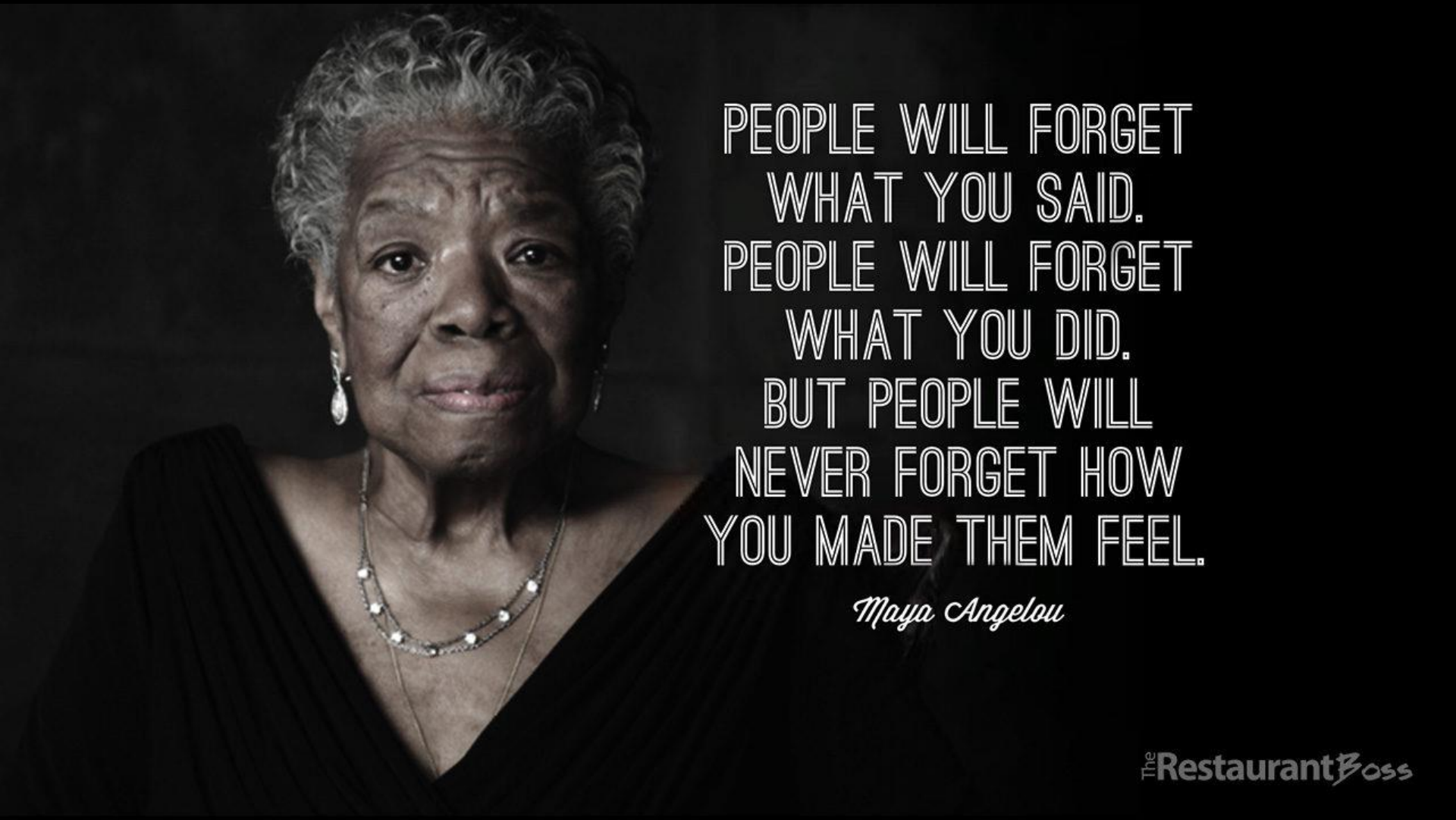
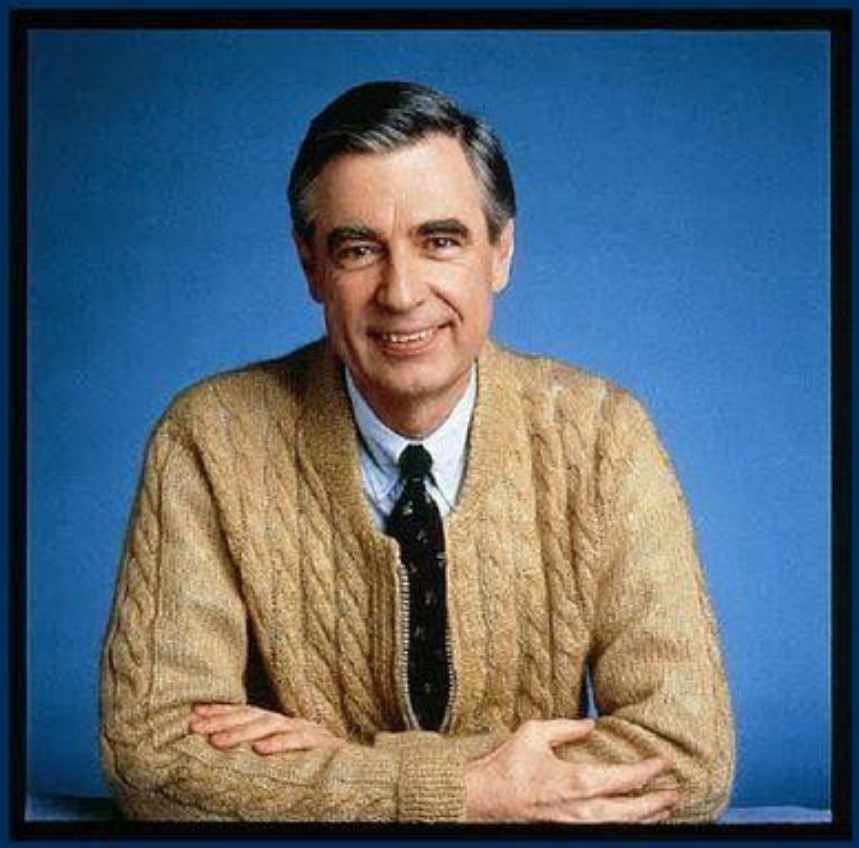

PEOPLE WILL FORGET
WHAT YOU SAID.
PEOPLE WILL FORGET
WHAT YOU DID.
BUT PEOPLE WILL
NEVER FORGET HOW
YOU MADE THEM FEEL.
Maya Angelou
TheRestaurantBoss

Those who say
it cannot be done
shouldn't interrupt
the people doing it

Always dream and shoot higher than you know you can do. Don't bother just to be better than your contemporaries or predecessors. Try to be better than yourself.

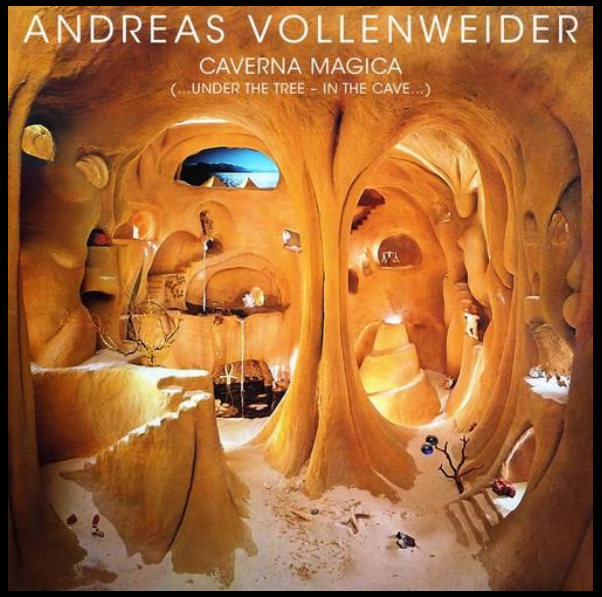
~~~~~~~~~~ William Faulkner
~~~~~~~~~~

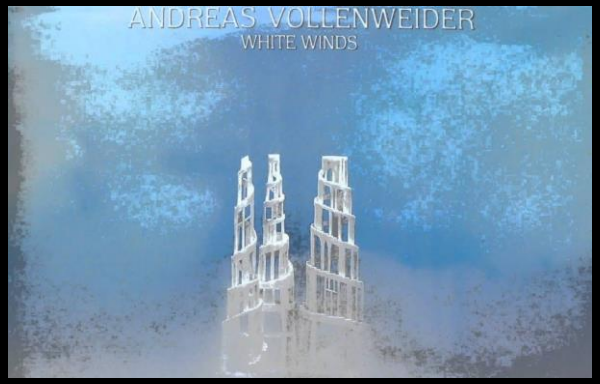


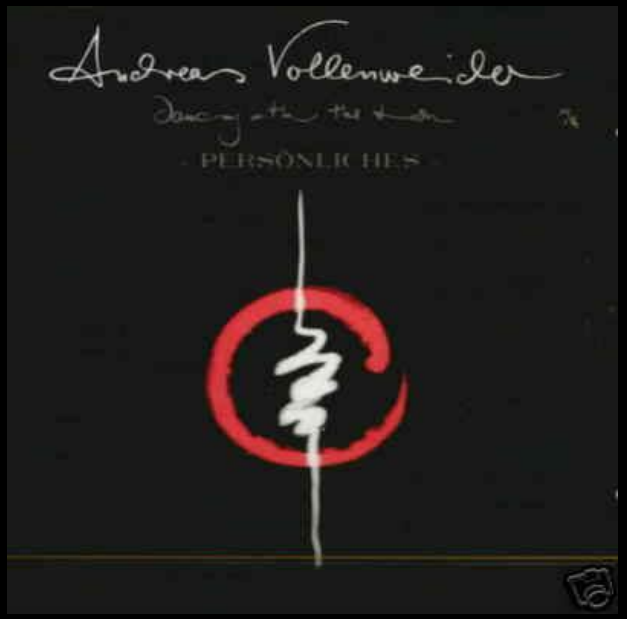
There are three ways to ultimate success:
The first way is to be kind.
The second way is to be kind.
The third way is to be kind.

Fred Rogers

Andreas Vollenweider
Milwaukee, Wisconsin
October 1998
Photo by John Owrey







Bill Slater Welcomes Andreas Vollenweider
to his 1998 United States Tour

Thank You, South Carolina!

Presenter Bio:
William Favre Slater, III

- **Lives and Works in Chicago; Cybersecurity professional by day**
- **Current Position – CIO, CISO, Project Manager / Sr. IT Consultant at Slater Technologies, Inc.** Working on projects related to
  - Security reviews and auditing
  - DNS Security
  - Pentesting
  - Blockchain consulting
  - ISO 27001 Project Implementations
  - Providing subject matter expert services to Data Center product vendors and other local businesses.
  - Designing and creating a blockchain database application that streamlines program management, security management, risk management and reporting activities, for management of teams of IT workers and developers in teleworking environments. It will first be a Windows application and then be ported to the web.
  - Developing and presenting technical training materials for in the areas of Blockchain and Blockchain development, Data Center Operations, Data Center Architecture, Cybersecurity Management, and Information Technology hardware and software.
  - Happily married since 2000, to Ms. Joanna Roguska, a smart, beautiful, Sr. Web Developer from Warsaw, Poland, and she is my Best Friend & Soul Mate
  - A Certified Judo Instructor in Kodokan Judo, and holds a Nidan, a second degree Black belt in Judo.

Slater Technologies

William Favre Slater, II

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- http://billslater.com/writing
- Slater Technologies, Inc.
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  Chicago, IL 60642
  United States of America

William Favre Slater, III

Slater Technologies

Supplemental Slides

HOW TO BE ANONYMOUS ONLINE

Slater Technologies

Presentation Abstract

- In the day and age of big Data Breaches and loss of privacy, many people wonder how they can do a better job of guarding their privacy and their data, and possibly even attempting to be invisible or anonymous when they use the Internet. This presentation will cover the challenges of privacy, and the methods and tools that can be used to allow Internet users become anonymous and do a better job of guarding their digital privacy.

How to Be Anonymous Online Agenda

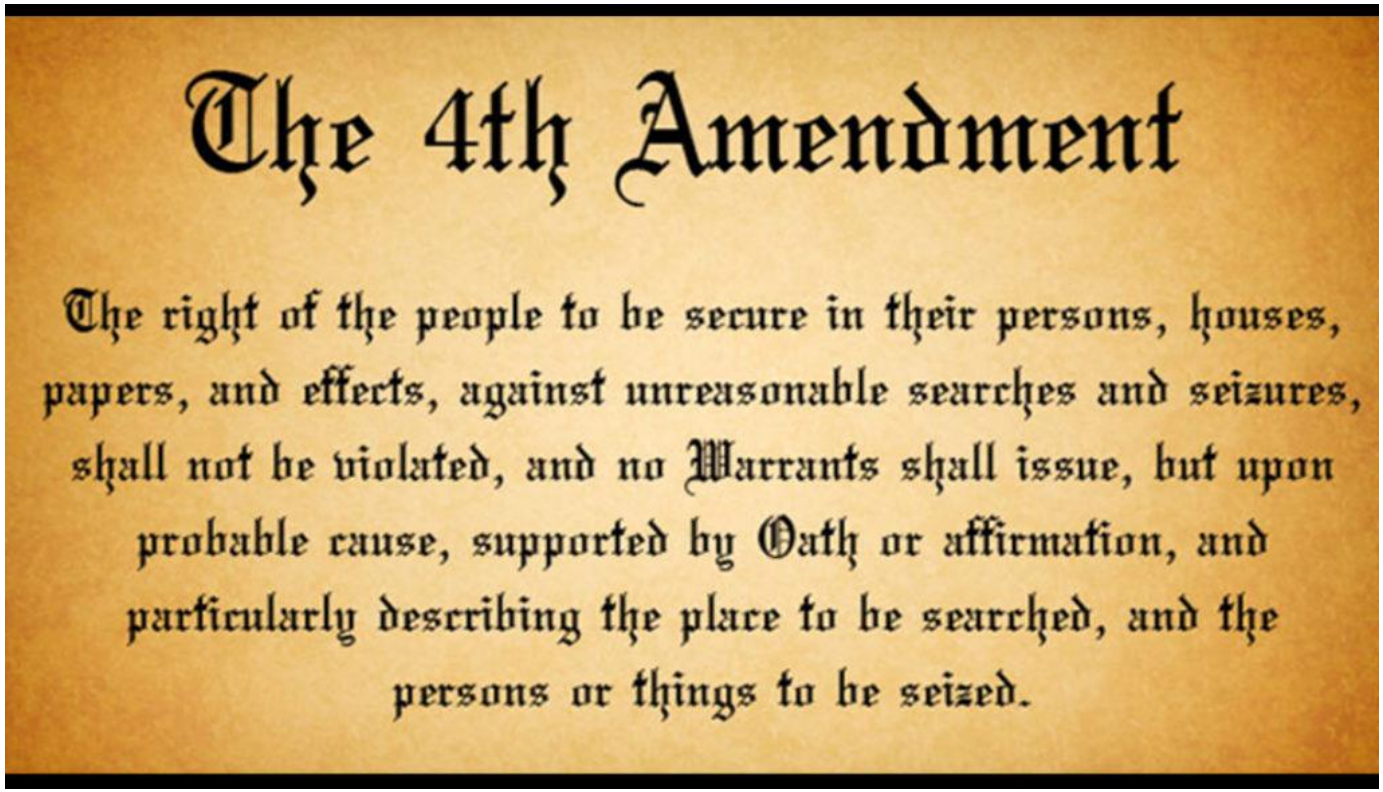
- Introduction
- Legal Stuff
- The Problem
- Why Would You Want to Be Anonymous Online?
- 17 Steps to Being Completely Anonymous Online
- 17 Essential Tools to Protect Your Online Identity, Privacy
- Other Threats to Your Privacy and Identity – Life in The Surveillance Society
- Other Forms of Accomplishing Anonymity in Your Daily Life
- 10 Tips for Data Privacy in Businesses
- Advantages and Disadvantages
- Parting Thoughts
- Conclusion
- Questions
- References

Introduction

- The creators of the ARPANET (1969) which evolved into the Internet (1983) created something that was designed to be simple, reliable, platform-independent, and perform well. The Internet population had 50 million users in less than four years, and today there are over 2.5 billion on the Internet. Since the Internet went "business critical" in 1997, lack of security and loss of privacy have been constant issues, and every year it has continued to get worse, leading to serious crimes involving hacking, identity theft, stalking, harassment, etc. It is no wonder then that many Internet users are pondering the idea of going online as anonymous users to protect their privacy. This presentation will address the problems related to lack of privacy, and how to plan and implement methods and tools to protect privacy. While many of these tools and techniques are free, it still requires regular efforts and knowledge to stay abreast of the threats, as well as the selecting the right tool at the right time to meet each threat. Suffice it to say that privacy protection must become a new way of operating on the Internet and using your smartphone, if it is to be done successfully.

LEGAL STUFF

4th Amendment
U.S. Constitution – Bill of Rights

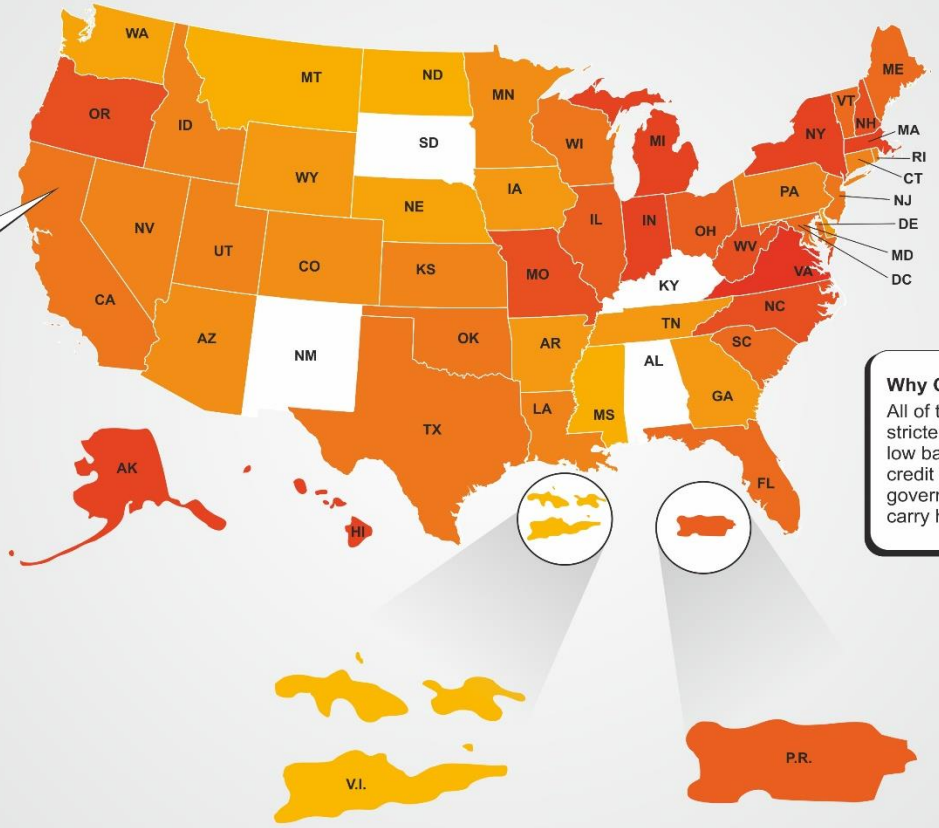


Data Privacy Laws by State

Why Storing and Protecting Data Is Important: Evaluating State Data Breach Notification Laws

Holding Out
Four states have yet to enact a data breach notification law: Alabama, Kentucky, New Mexico and South Dakota.

The Original Standard
California was the first state to enact data breach notification legislation. The law went into effect on July 1, 2003. Outside the scope used in this analysis, California's laws include provisions specifically for credit reporting agencies and for businesses owning or maintaining medical data. Other states carry these provisions as well.



Why Certain States Stand Out
All of the laws are strict, but the stricter laws include a relatively low bar triggering notification to credit reporting agencies and government entities. They also carry higher maximum fines.

Less strict — More strict

Key: The darker the state, the more strict the law

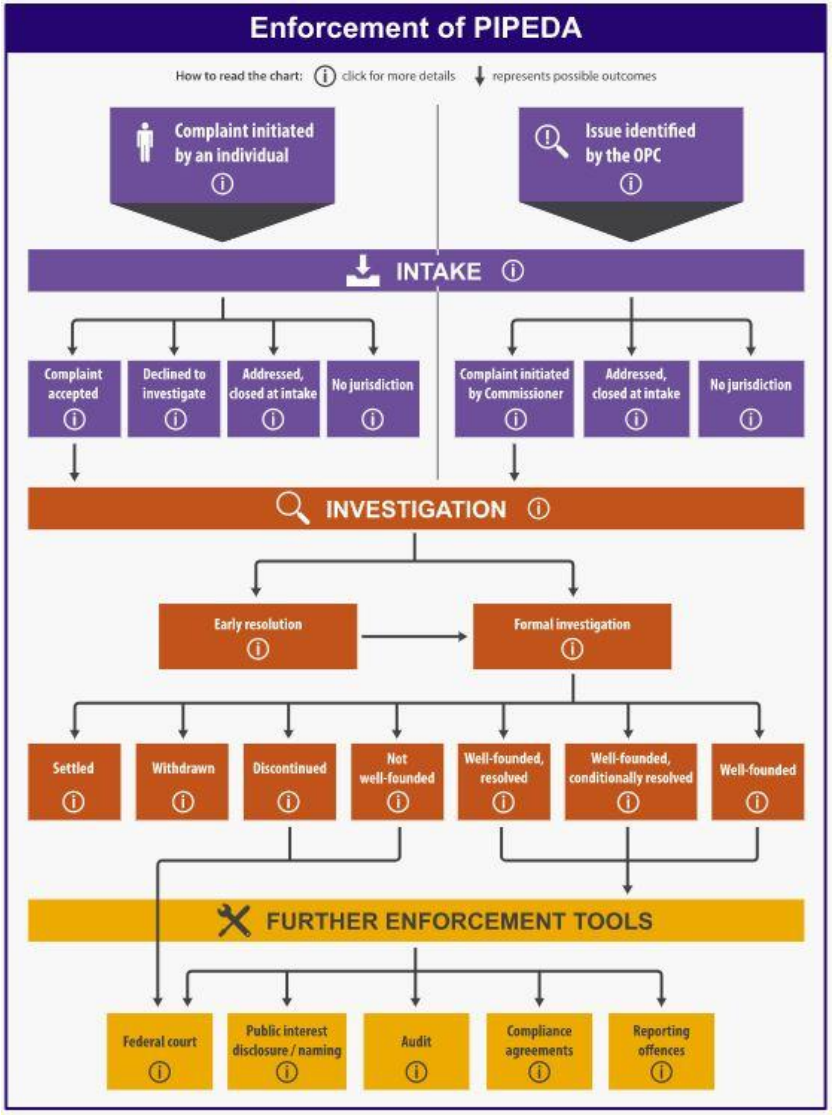
*Note: A score of zero means a data breach notification law does not exist in that state.

State	Score
AL	0
KY	0
NM	0
SD	0
V.I.	5
ND	6
MS	7
MT	7
NE	7
WA	7
AR	8
DE	8
GA	8
IA	8
TN	8
WY	8
AZ	9
CO	9
MN	9
CT	10
ID	10
KS	10
LA	10
NV	10
PA	10
RI	10
UT	10
CA	11
NJ	11
OK	11
TX	11
WI	11
DC	12
FL	12
MD	12
ME	12
SC	12
VT	12
IL	13
OH	13
P.R.	13
MO	14
NC	14
NH	14
OR	14
WV	14
AK	15
HI	15
IN	15
MA	15
MI	15
NY	15
VA	16

imation

SOURCE: Imation Corp. based on evaluation of individual state laws obtained via National Conference of State Legislatures website and evaluations available publicly online from various law firms.
NOTE: This information should not be considered legal advice and is not based on a legal analysis of the laws. Check with your attorney regarding laws applicable to your business.
As of July 2, 2012.
Imation is a global scalable storage and data security company. For more information, visit: www.imation.com/compliancemap

Personal Information Protection and Electronic Documents Act (PIPEDA)



Canadian Federal
Data Privacy
Law Enforcement

PIPEDA has established 10 privacy principles for the collection, use, disclosure, and retention of personal information. These are good standards to follow in any province.

- Accountability
- Identifying purpose
- Consent
- Limiting collection
- Limiting use, disclosure, retention
- Accuracy
- Safeguards
- Openness
- Individual access
- Challenging compliance

Office of the Privacy Commissioner of Canada

Commissariat à la protection de la vie privée du Canada

March 6, 2018

- State of Illinois Attorney General Lisa Madigan noted that the number one consumer crime that was reported in 2017 was Identity Theft, and this surge was largely due to data breaches like the Equifax Data Breach of 2017.

1. Identity Theft (credit cards, data breaches, utilities, government document fraud) -- 2,511 complaints
2. Education (student loan debt, loan counseling, for-profit schools) -- 2,399 complaints
3. Consumer Debt (collection agencies, mortgages, banks) -- 2,395 complaints
4. Construction/Home Improvement (remodeling, roofs and gutters, heating and cooling, plumbing) -- 2,113 complaints

5. Telecommunications (cable and satellite TV, telemarketing, cell phones, phone service and repairs) -- 2,031 complaints
6. Promotions/Schemes (phone scams, lottery scams, investment schemes, phishing) -- 2,004 complaints
7. Used Auto Sales (as-is used cars, financing, advertising, warranties) -- 1,728 complaints
8. Internet/Mail Order Products (internet and catalog purchases, TV and radio advertising) -- 1,071 complaints
9. Motor Vehicle/Non-Warranty Repair (collision, engines, oil changes and tune-ups) -- 656 complaints
10. New Auto Sales (financing, defects, advertising) -- 629 complaints

Why Would You Want to Be Anonymous Online?

- Self-Preservation
- Reputation Protection
- You're a private person
- The massive amount of news on Data Breaches and Hack Attacks is sinking in
- You want to take back control of your online life
- Paranoia

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Biggest Threats to Your Online Privacy

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The NSA – The Only Branch Of Government That Really Listens to You

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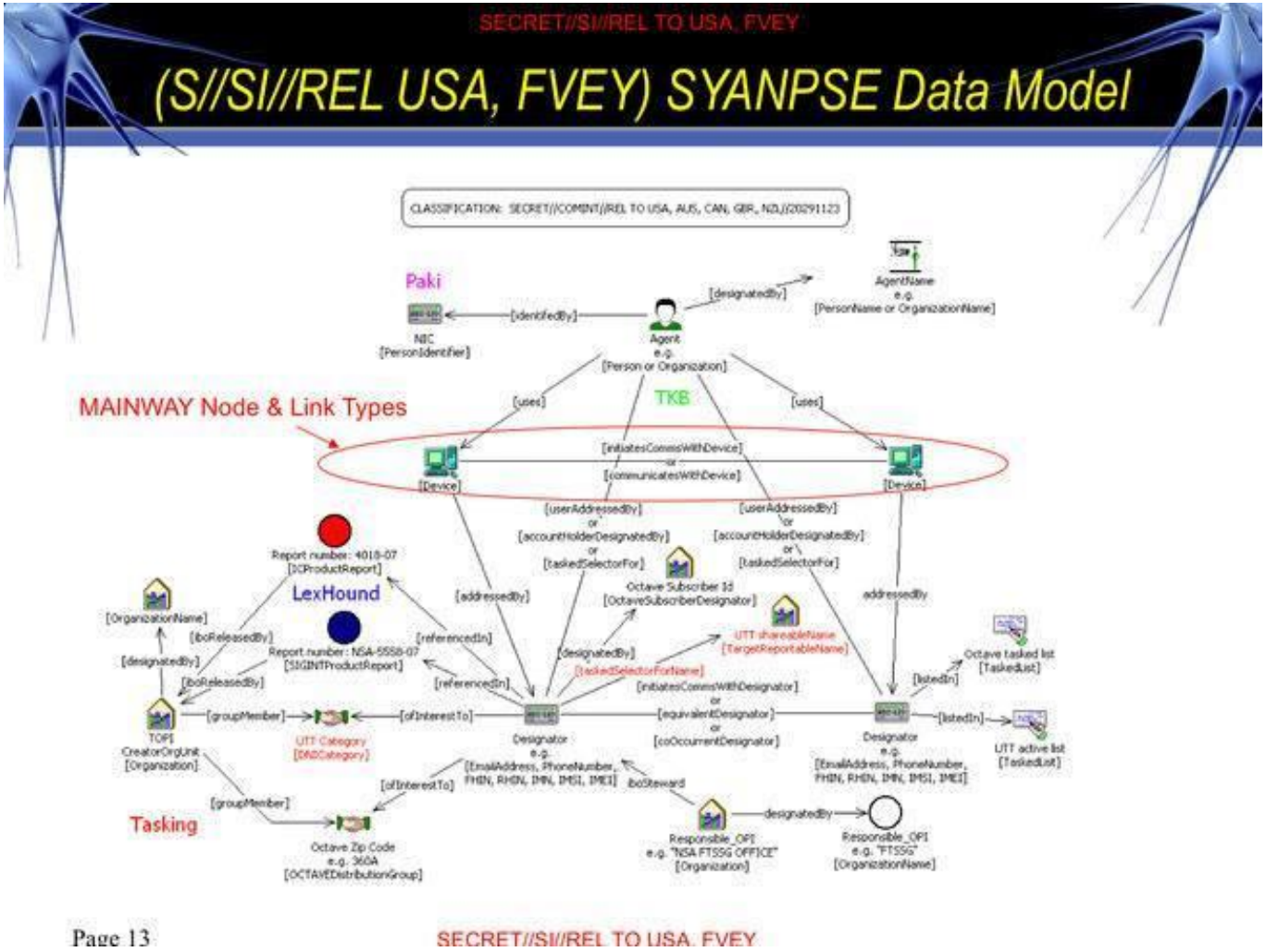
NSA



Page 13

SECRET//SI//REL TO USA, FVEY

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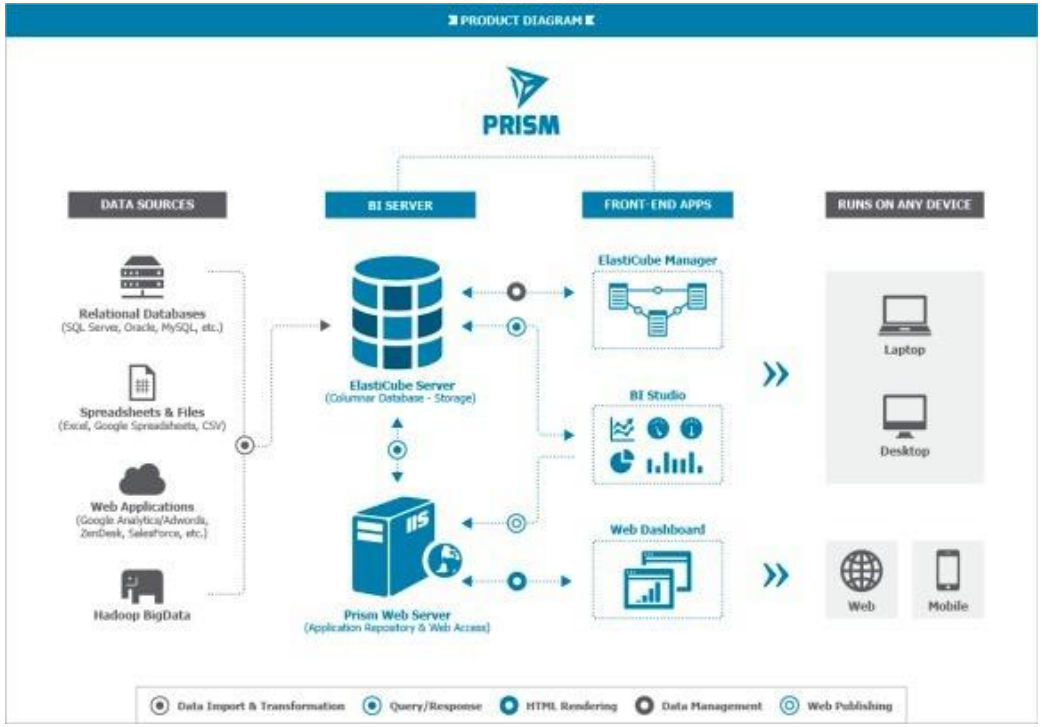
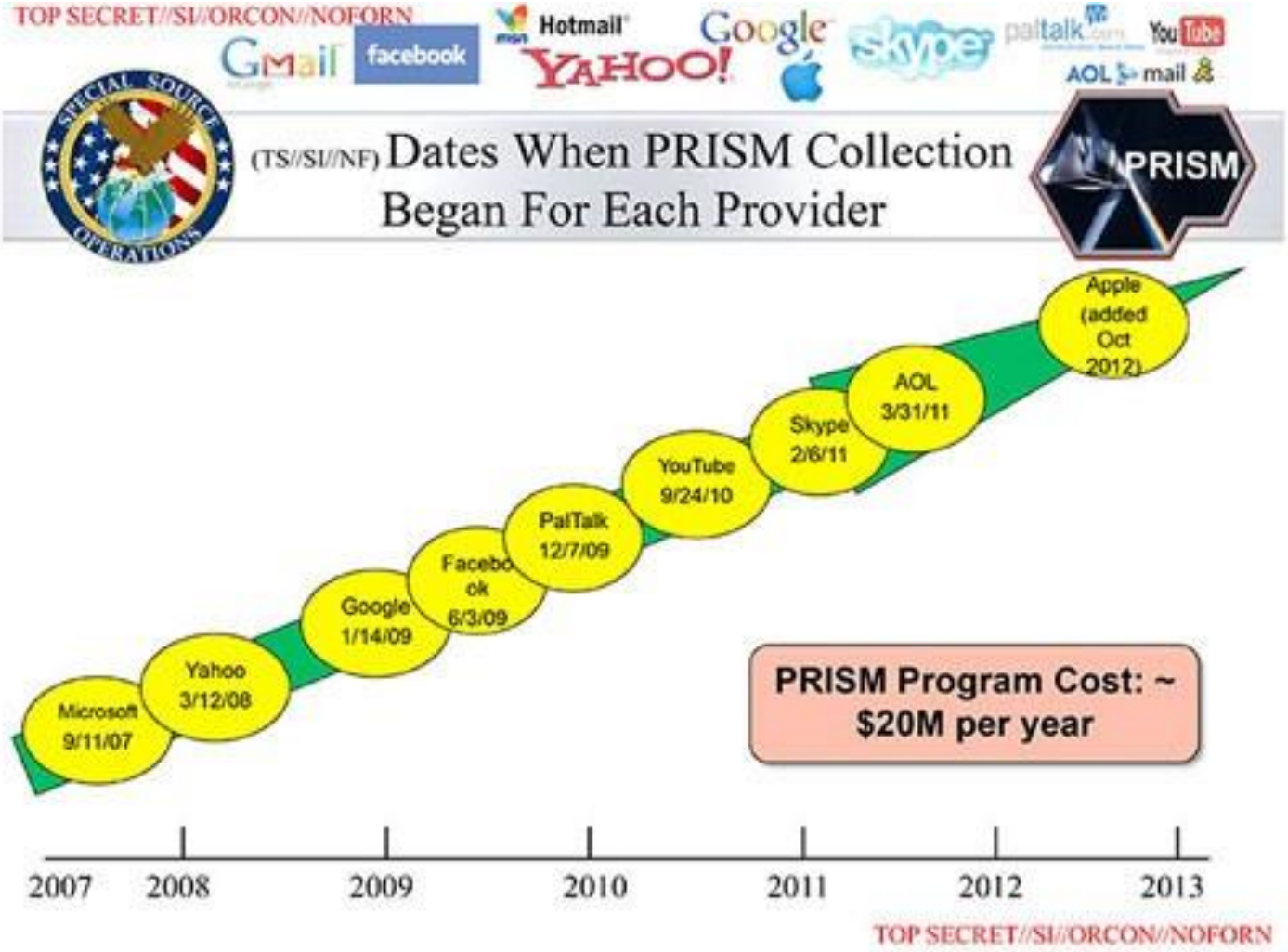
NSA


PRODUCT DIAGRAM
PRISM
DATA SOURCES
BI SERVER
FRONT-END APPS
RUNS ON ANY DEVICE
Relational Databases
(SQL Server, Oracle, MySQL, etc.)
Spreadsheets & Files
(Excel, Google Spreadsheets, CSV)
Web Applications
(Google Analytics/Adwords, ZenDesk, SalesForce, etc.)
Hadoop BigData
ElastiCube Server
(Columnar Database - Storage)
Prism Web Server
(Application Repository & Web Access)
ElastiCube Manager
BI Studio
Web Dashboard
Laptop
Desktop
Web
Mobile
Data Import & Transformation
Query/Response
HTML Rendering
Data Management
Web Publishing

NSA and Large Internet Companies



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NSA – *Always Be Careful What You Say or Enter Online*

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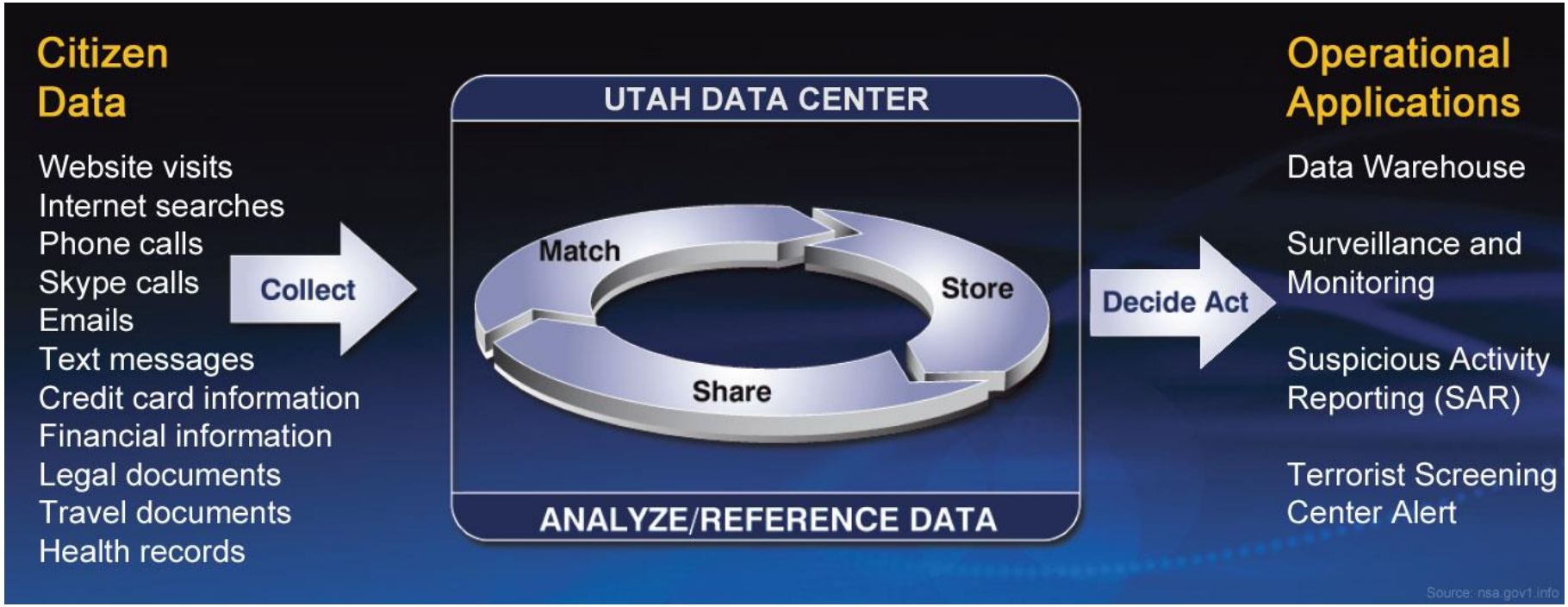
What the NSA Collects



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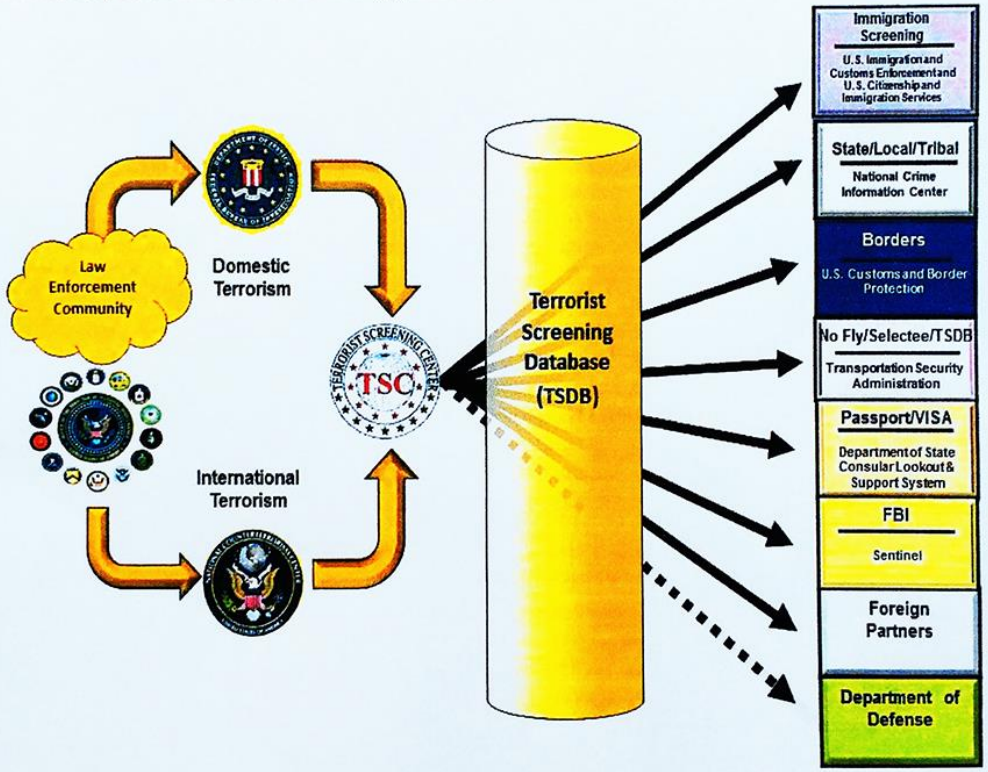
NSA – Be Careful What You Say or Enter Online

1.32 **Collection, Nomination, Consolidation and the Use of the Terrorist Watchlist to Perform Screening Processes.** The following is a chart depicting the collection, TERRORIST nomination, consolidation and screening processes:



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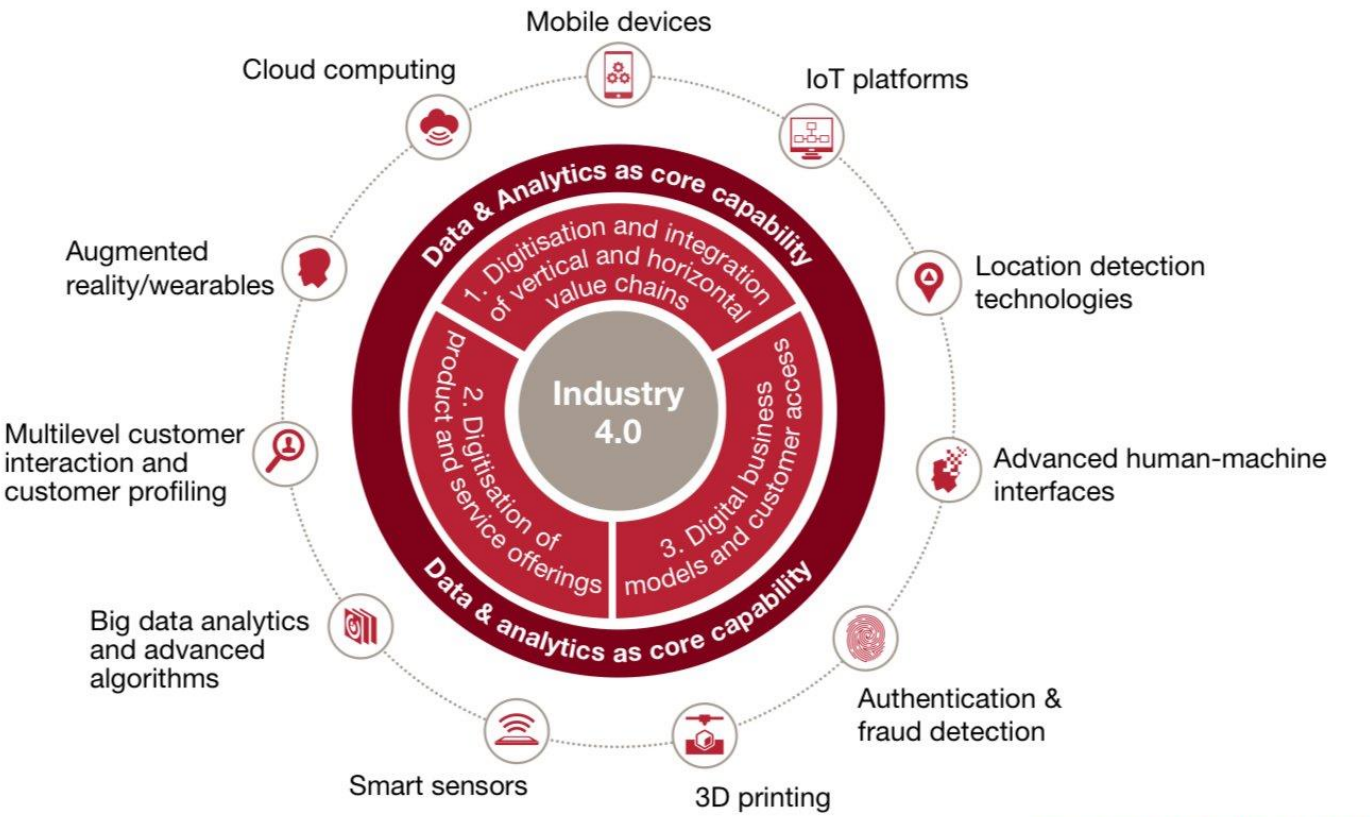
Data Science and Data Analytics Is Driving Industry 4.0

Industry 4.0 framework and contributing digital technologies



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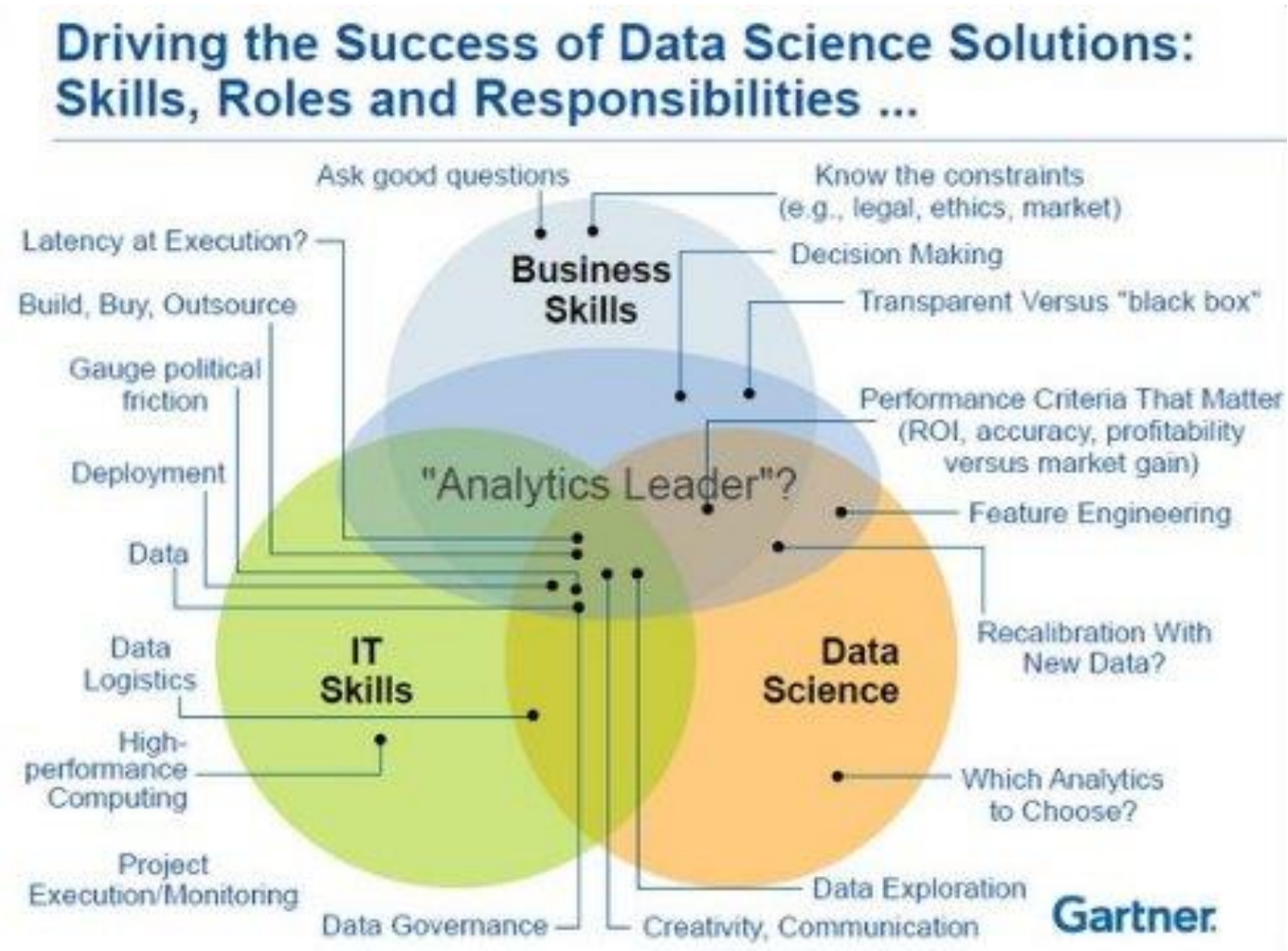
Data Science Has Become a Huge Industry



17 Ways to Being Completely Anonymous Online

1. Find a safe country that values privacy
2. Get an anonymizing operating system
3. Use an anonymous VPN
4. Use Tor
5. Don't use plug-ins
6. Stick with HTTPS
7. Avoid the usual applications
8. Set up anonymous burner accounts
9. Never use credit cards
10. Test for DNS leaks and browser tracking
11. Test your overall privacy protection
12. Share files anonymously
13. Use a search engine that doesn't track your behavior
14. Turn off your location
15. Block Javascript
16. Keep your webmail private
17. Delete cookies and your browsing history

Source: 17 Ways to Being Completely Anonymous Online: https://www.csoonline.com/article/2975193/data-protection/9-steps-completely-anonymous-online.html

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17 Essential Tools to Protect Your Online Identity, Privacy

1. TPM
2. UEFI BIOS
3. Secure storage (encrypted)
4. Two-factor authentication
5. Logon account lockout
6. Remote find
7. Remote wipe
8. Secure VPN
9. Tor
10. Anonymity services
11. Anonymity hardware
12. Secure browsing
13. Secure e-mail
14. Secure chat
15. Secure payments
16. Secure file transfers
17. Anything Phil Zimmerman creates

Source: 17 Essential Tools to Protect Your Online Identity, Privacy: https://www.infoworld.com/article/3135324/security/17-essential-tools-to-protect-your-online-identity-and-privacy.html

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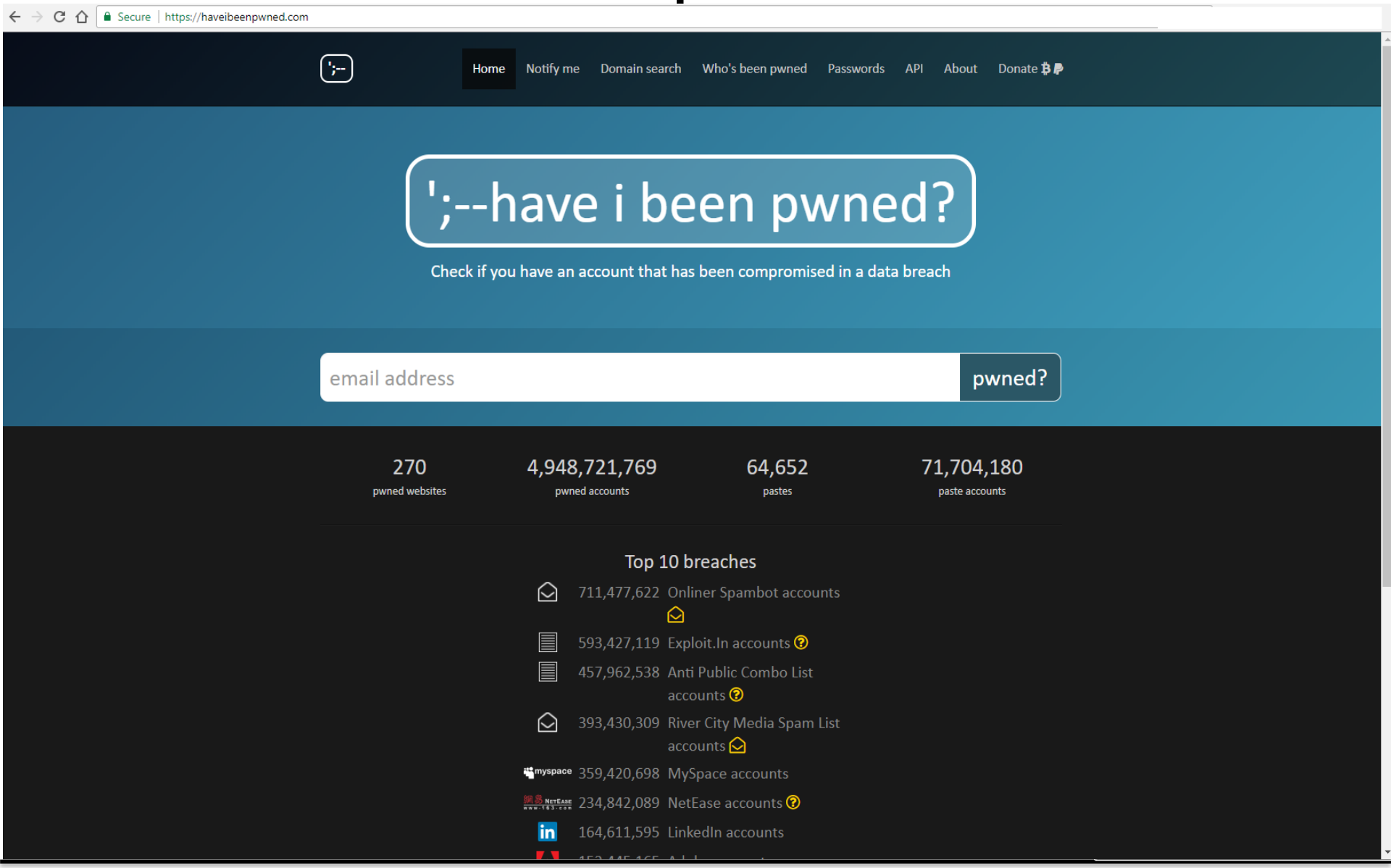
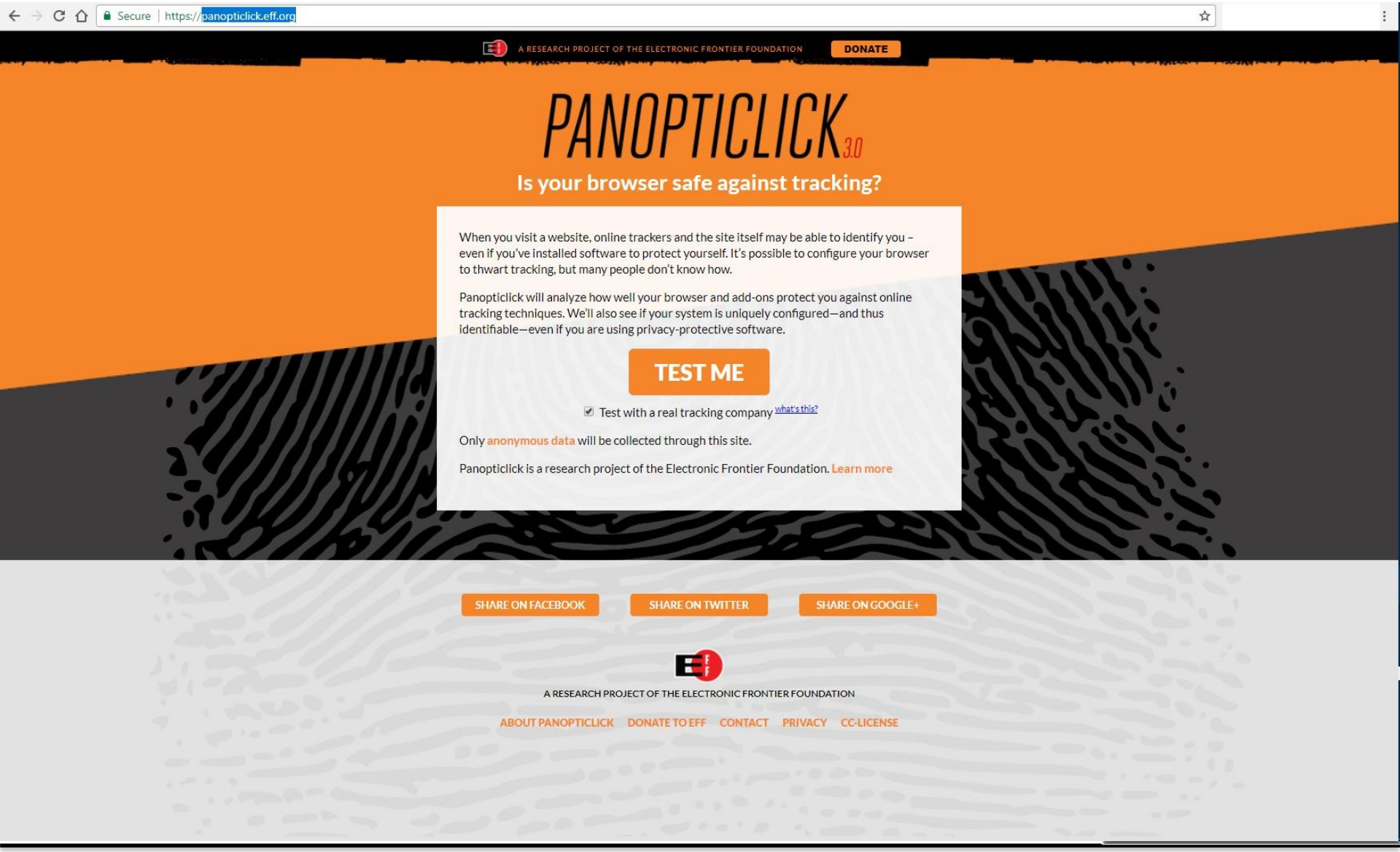
THREE ADDITIONAL FREE TOOLS

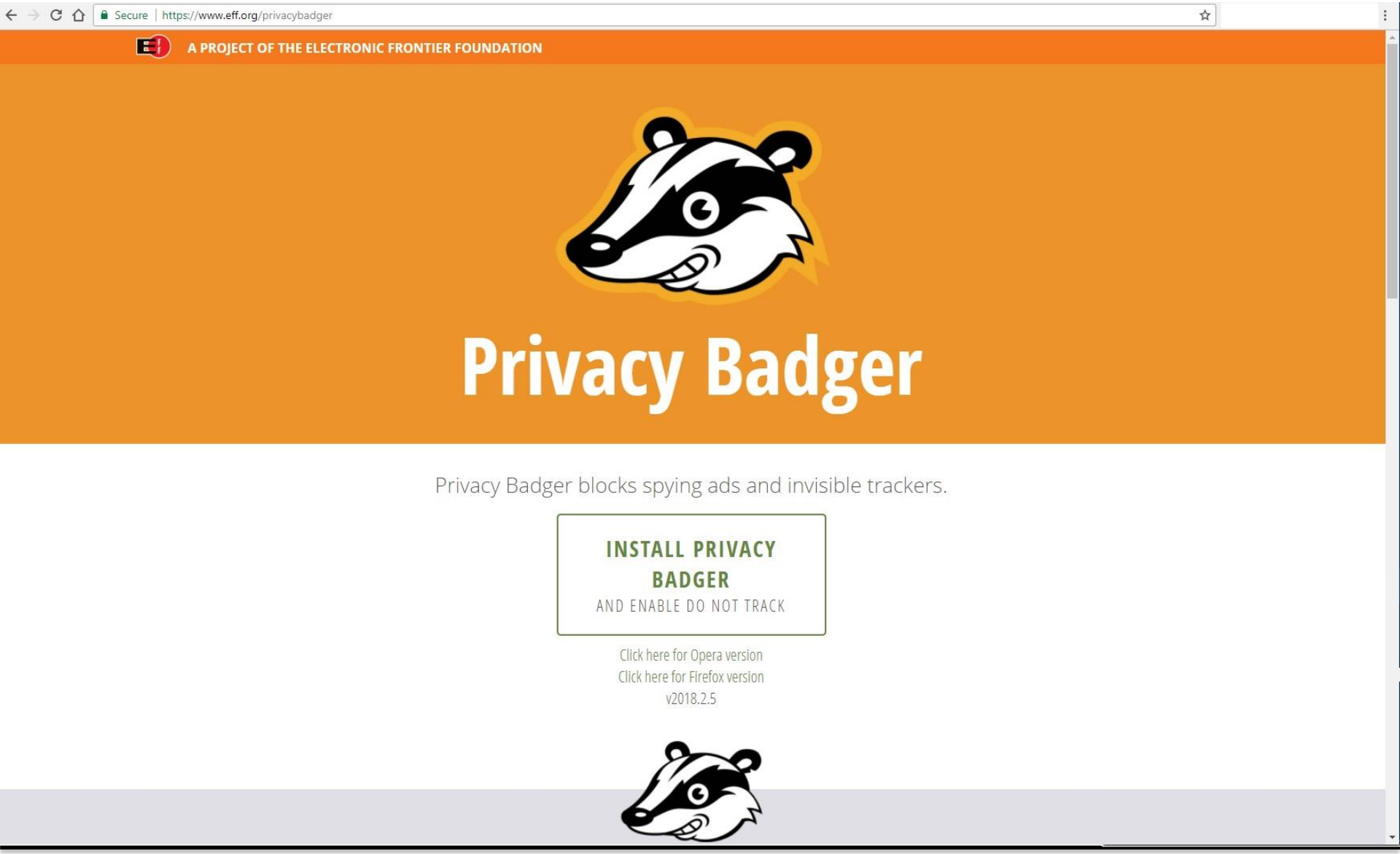
haveibeenpwned.com



panopticlick.eff.org



www.eff.org/privacybadger



Other Threats to Your Privacy and Identity – Life in The Surveillance Society

- NSA
- FBI
- Local Police – Sting Ray
- Your Big Screen Digital TV
- Your Grocery Store
- Retail stores – everywhere you use a credit or debit card
- Your Cell Phone
- Internet of Things Devices (Think ***Amazon Echo***)
- Surveillance Satellites
- Drones
- Private Eyes (Detectives)
- Nosey and Untrustworthy Neighbors
- Untrustworthy Family Members and Friends
- Bad Actors

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Other Threats to Your Privacy and Identity – Life in The Surveillance Society

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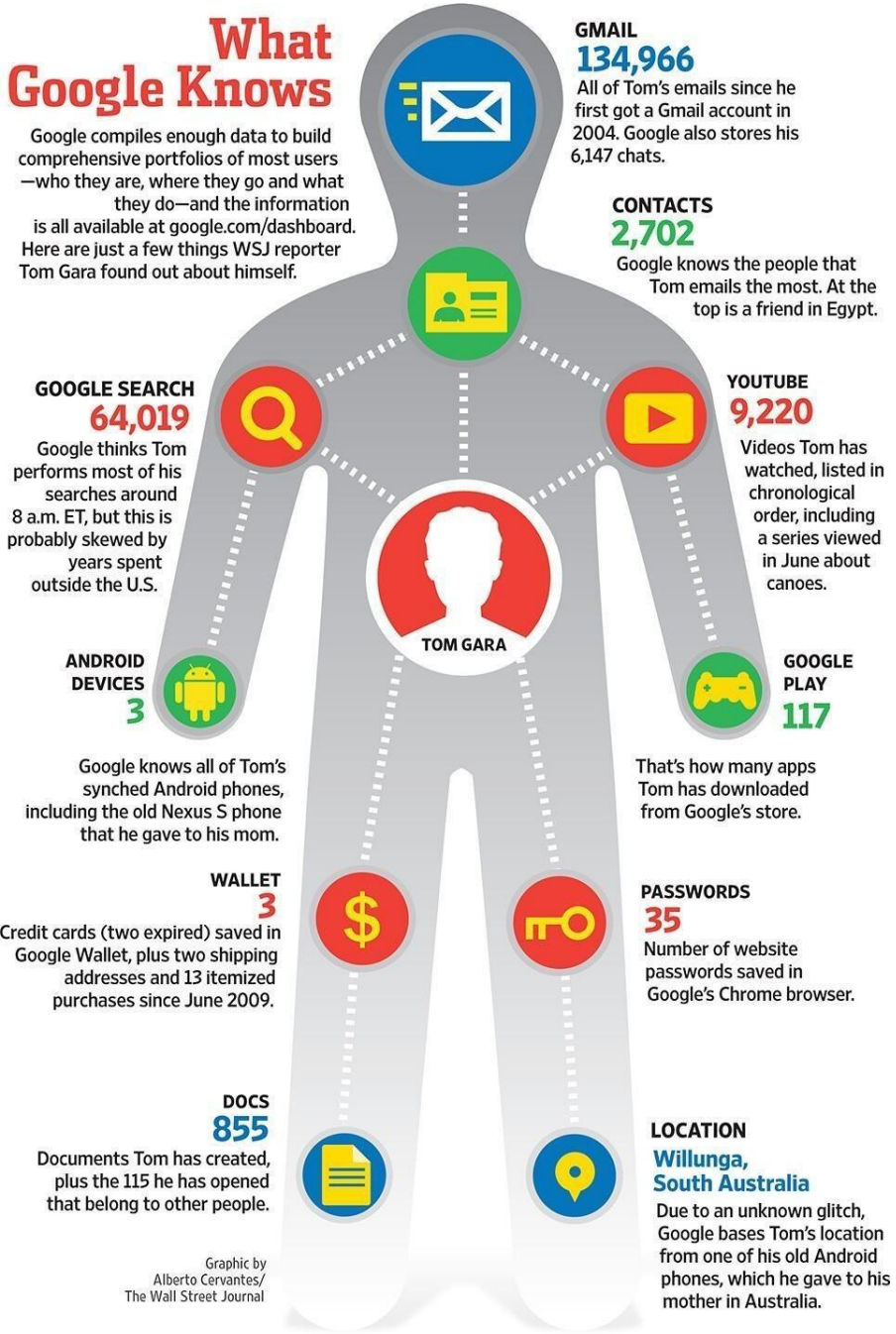
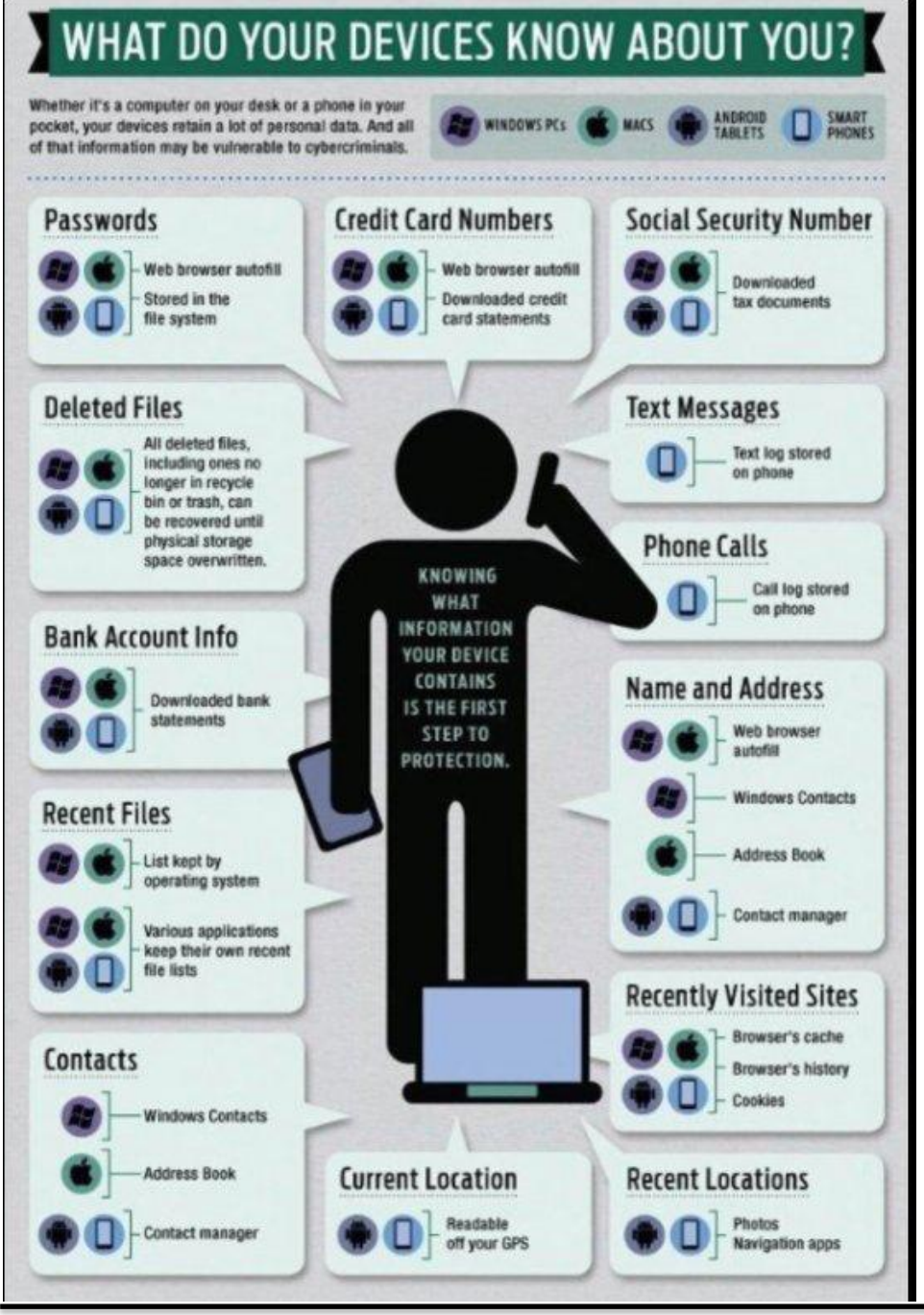
Other Threats to Your Privacy and Identity – Life in The Surveillance Society





Other Threats to Your Privacy and Identity – Life in The Surveillance Society

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Other Forms of Accomplishing Anonymity in Your Daily Life

- Block your webcam on every computer you use.
- Vary your travel routines for work and recreation.
- Never throw anything away with your name and address on it.
- Get your mail and packages at a commercial package delivery store.
- Never give your phone numbers or address to anyone.
- Trust No One.

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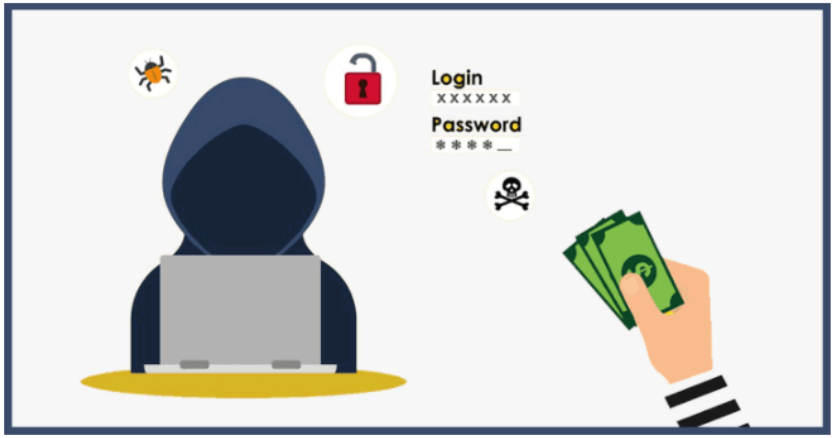
Big Caution About the Dark Web

- Some people go Anonymous so they can do illegal things on The Dark Web
- If you know such people, let them know they can be caught and prosecuted

Hacker Who Never Hacked Anyone Gets 33-Month Prison Sentence

Tuesday, February 27, 2018 Mohit Kumar

Share Share Tweet Share Share Mail Share



A hacker who was arrested and pleaded guilty last year—not because he hacked someone, but for creating and selling a remote access trojan that helped cyber criminals—has finally been sentenced to serve almost three years in prison.

Taylor Huddleston, 26, of Hot Springs, Arkansas, pleaded guilty in July 2017 to one charge of aiding and abetting computer intrusions by building and intentionally selling a remote access trojan (RAT), called **NanoCore**, to hackers for $25.

Huddleston was arrested in March, almost two months before the FBI raided his house in Hot Springs, Arkansas and left with his computers after 90 minutes, only to return eight weeks later with handcuffs.

This case is a rare example of the US Department of Justice (DOJ) charging someone not for actively using malware to hack victims' computers, but for developing and selling it to other cybercriminals.

Huddleston admitted to the court that he created his software knowing it would be used by other cybercriminals to break the law.

Advantages and Disadvantages of Being Anonymous Online

Advantages

- Risk avoidance.
- You get to have privacy and protect yourself and your personal data from the perils of data leakage.
- You will make it very difficult for the bad guys to steal your data and cause hurt and/or damage.
- You will become a data privacy subject matter expert and role model for your family, friends, and colleagues.

Disadvantages

- It's a never-ending effort if you are actively using the Internet via a laptop, desktop, and or smartphone.
- Essentially, you must always stay vigilant to protect yourself.
- Well-intentioned people may find it difficult to reach you.
- People may think you have dark intentions for going anonymous
- People will think you are paranoid.

10 Privacy Tips for Businesses

1. Limit your collection and retention of personal information.
2. Know what personal information you collect, where you store it and what you do with it.
3. Ensure staff receive appropriate privacy protection training.
4. Limit and monitor access to personal information and take appropriate action when an employee accesses information without authorization.
5. Think twice before collecting sensitive personal information, such as driver's licenses.
6. Inform customers if you are using video surveillance.
7. Have a privacy policy and be upfront about your collection and use of personal information.
8. Protect personal information on laptops, USB keys and portable hard drives through technological safeguards such as encryption and password protection.
9. Respond to requests for access to personal information in a timely manner.
10. Make sure your customers know who to speak to if they have questions about privacy.

Source: 10 Privacy Tips for Businesses https://www.priv.gc.ca/en/privacy-topics/privacy-laws-in-canada/the-personal-information-protection-and-electronic-documents-act-pipeda/pipeda-compliance-help/pipeda-compliance-and-training-tools/tips-bus_info_201501/

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Parting Thoughts - 001:

U.S. Government Surveillance Capability Was Officially Revealed by U.S. Senator Frank Church (D. – Idaho) on Meet the Press in August 1975

- To understand the Genesis of U.S. Government Surveillance and the Power that has now accumulated in the **Executive Branch of the U.S. Federal Government**, please view this very brief **August 17, 1975** video with prescient comments about powerful and growing surveillance capabilities, **"Government Tyranny" and "the Abyss" by Senator Frank Church**, Chairman of the Senate Committee on Intelligence Activities on NBC's Meet the Press.

Senator Frank Church

Source: NBC NEWS Meet the press Interview with Senator Frank Church
Retrieved from https://www.youtube.com/watch?v=YAG1N4a84Dk

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Parting Thoughts - 002:

Amazon allows Echo to spy on you.

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Conclusion

- Threats to our privacy and PII are pervasive and ubiquitous
- You must work diligently to maintain your privacy, particularly in the U.S.
- There are modern tools and methods to help maintain your privacy and anonymity.
- Consequences of leaked PII are significant, especially when it's YOUR data
- As Cybersecurity professionals, we have a responsibility to understand the importance of and best methods for data and privacy protection.

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Questions?

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