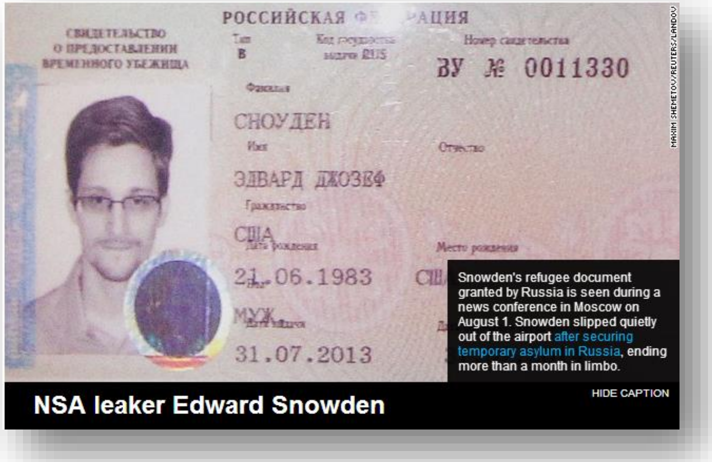
The Edward Snowden NSA Data Breach of 2013: How it happened, and its consequences and implications for the U.S. and the IT Industry



СВИДЕТЕЛЬСТВО О ПРЕДОСТАВЛЕНИИ ВРЕМЕННОГО УБЕЖИЩА

РОССИЙСКАЯ Ф АЦИЯ

Тип: В

Код государства выдачи: RUS

Номер свидетельства: ВУ № 0011330

Фамилия: СНОУДЕН

Имя: ЭДВАРД ДЖОЗЕФ

Отчество:

Гражданство: США

Дата рождения: 21.06.1983

Место рождения: США

МУЖ

Дата выдачи: 31.07.2013

MAXIM SHEMETOV/REUTERS/LANDOV

Snowden's refugee document granted by Russia is seen during a news conference in Moscow on August 1. Snowden slipped quietly out of the airport after securing temporary asylum in Russia, ending more than a month in limbo.

HIDE CAPTION

NSA leaker Edward Snowden

William Favre Slater, III, M.S. MBA, PMP, CISSP, CISA
Adjunct Professor, IIT School of Applied Technology

A Presentation for Forensecure 2014
April 2014

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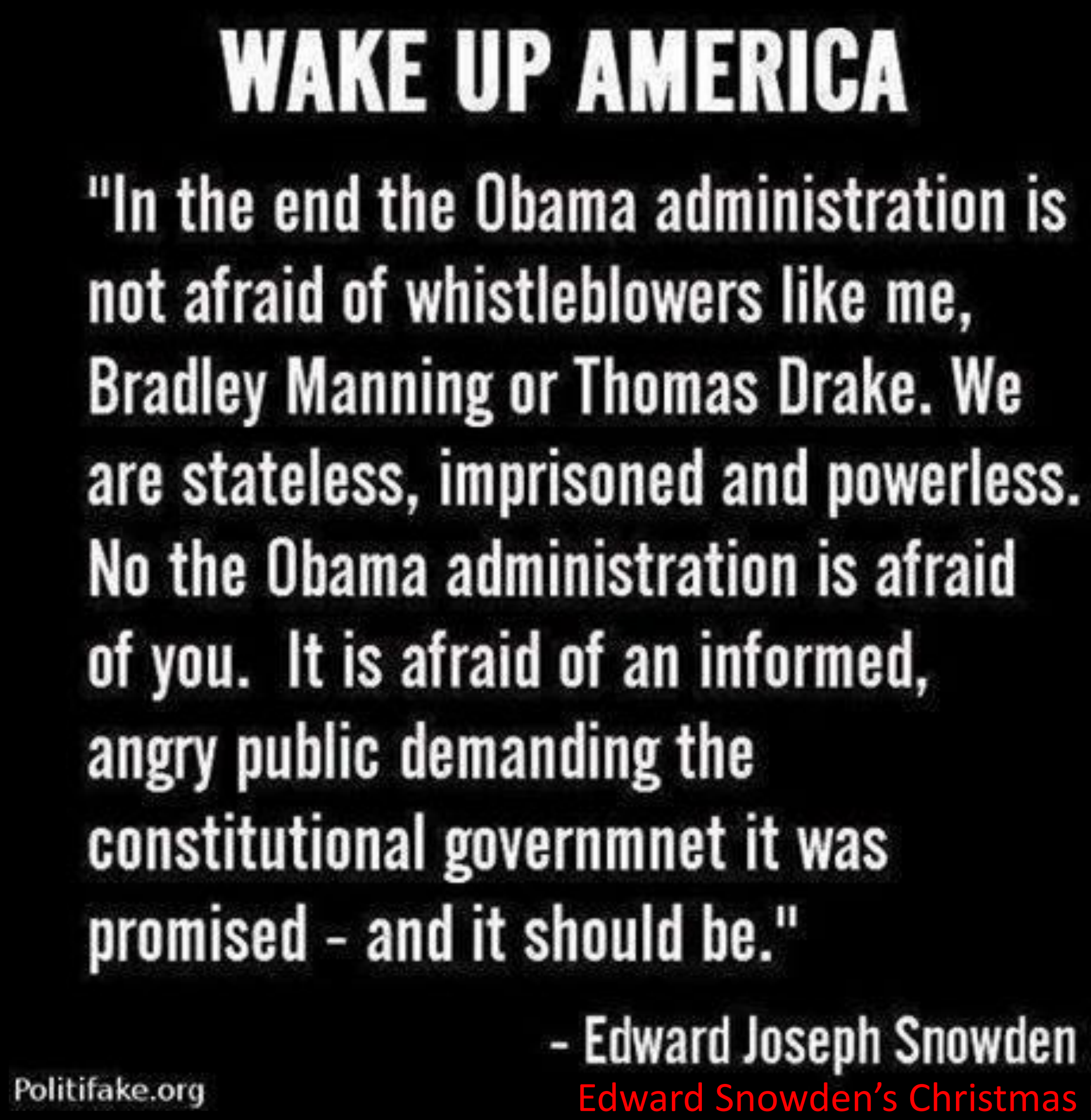

WAKE UP AMERICA

"In the end the Obama administration is not afraid of whistleblowers like me, Bradley Manning or Thomas Drake. We are stateless, imprisoned and powerless. No the Obama administration is afraid of you. It is afraid of an informed, angry public demanding the constitutional governmnet it was promised - and it should be."

- Edward Joseph Snowden

Politifake.org

Edward Snowden's Christmas Message to America, December 2013

Agenda

- Introduction
- What Happened? What Did Edward Snowden Do?
- How did he accomplish this?
- What has he disclosed?
- Consequences: How does this affect the NSA and U.S. National Security?
- Consequences: How will the Edward Snowden Compromise affect the U.S. Government?
- Consequences: Has anyone lost their job as a result of what Edward Snowden has done?
- Implications: How will the Edward Snowden Compromise affect the Cybersecurity Career Field
- Implications: How will the Edward Snowden Compromise affect your career?
- Implications: How would you prevent ant Edward Snowden-style Data Breach in your organization if your were the Cybersecurity Director?
- The Latest Developments on Edward Snowden
- Opinion: Do you think Edward Snowden was correct in doing what he did?
- Conclusion
- References
- Questions

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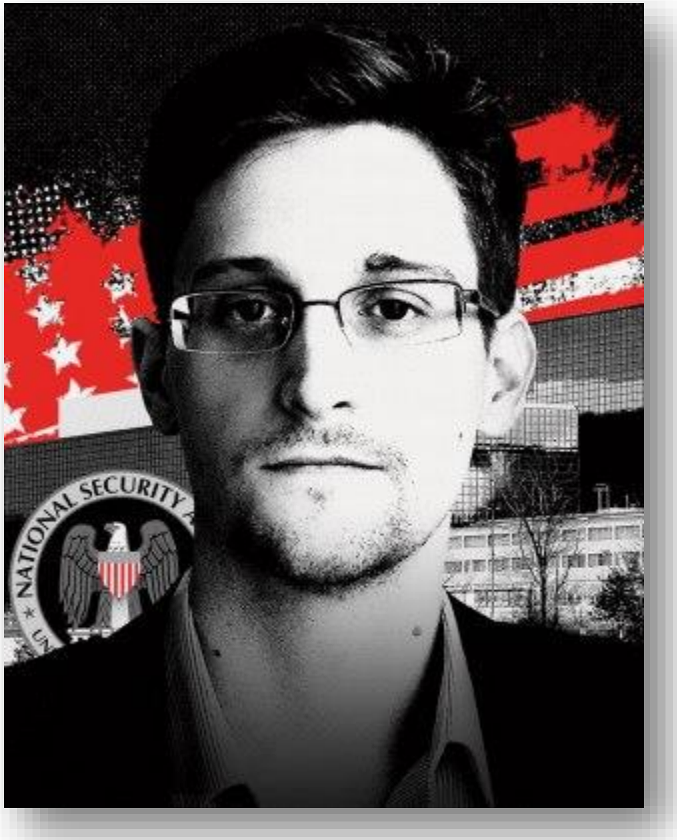
Introduction

- The Edward Snowden 2013 NSA Data Breach was arguably the most damaging (known) data breach to ever impact the U.S. Intelligence Community. This presentation will cover what happened, how it happened, why it happened, the data breach's consequences, its implications for the future, and how such breaches can be prevented in the future.



Edward Snowden
Vanity Fair Artwork

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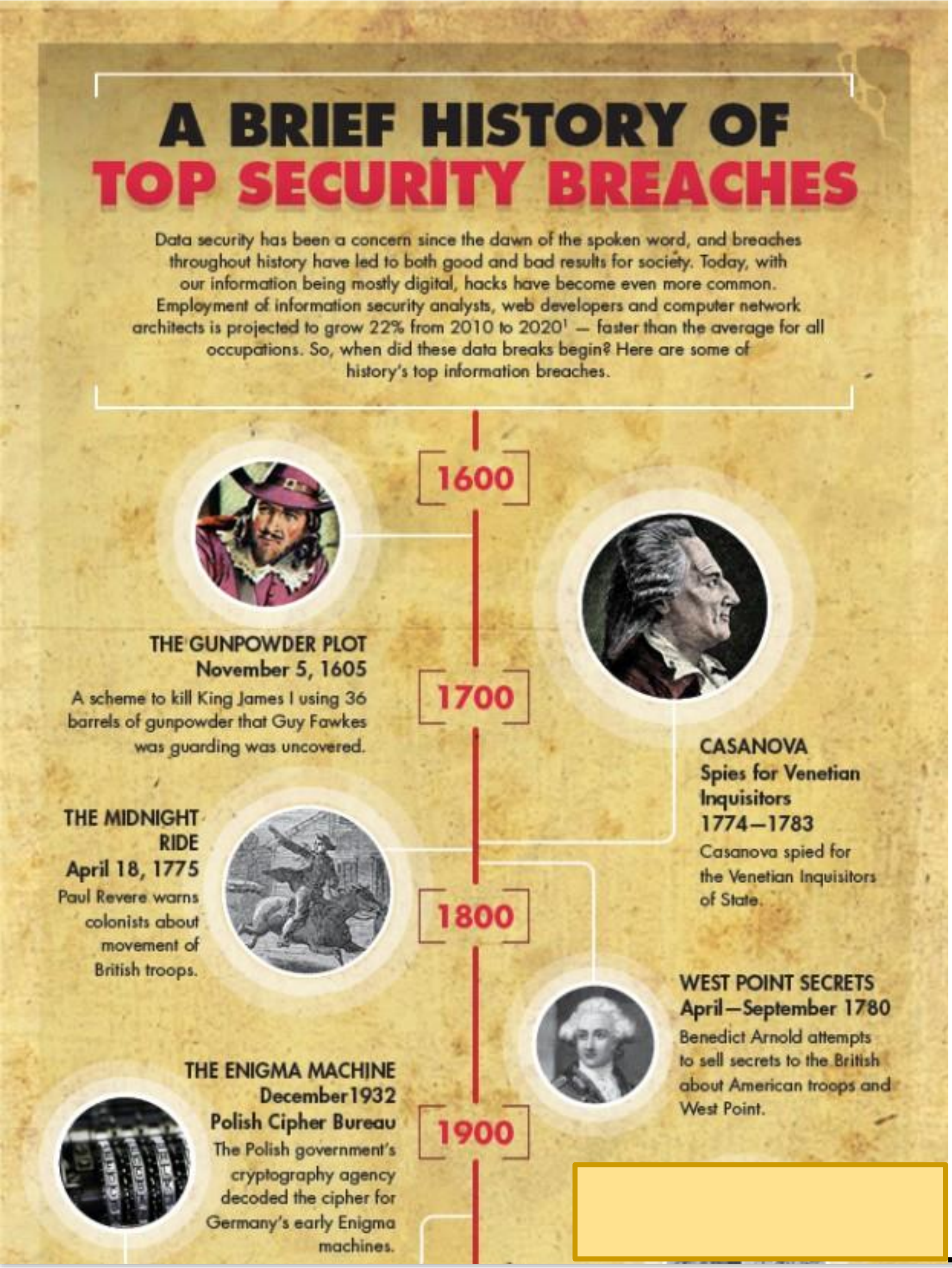
Some Previous Bad Security Breaches



A BRIEF HISTORY OF TOP SECURITY BREACHES

Data security has been a concern since the dawn of the spoken word, and breaches throughout history have led to both good and bad results for society. Today, with our information being mostly digital, hacks have become even more common. Employment of information security analysts, web developers and computer network architects is projected to grow 22% from 2010 to 2020[1] — faster than the average for all occupations. So, when did these data breaks begin? Here are some of history's top information breaches.

THE GUNPOWDER PLOT
November 5, 1605
A scheme to kill King James I using 36 barrels of gunpowder that Guy Fawkes was guarding was uncovered.

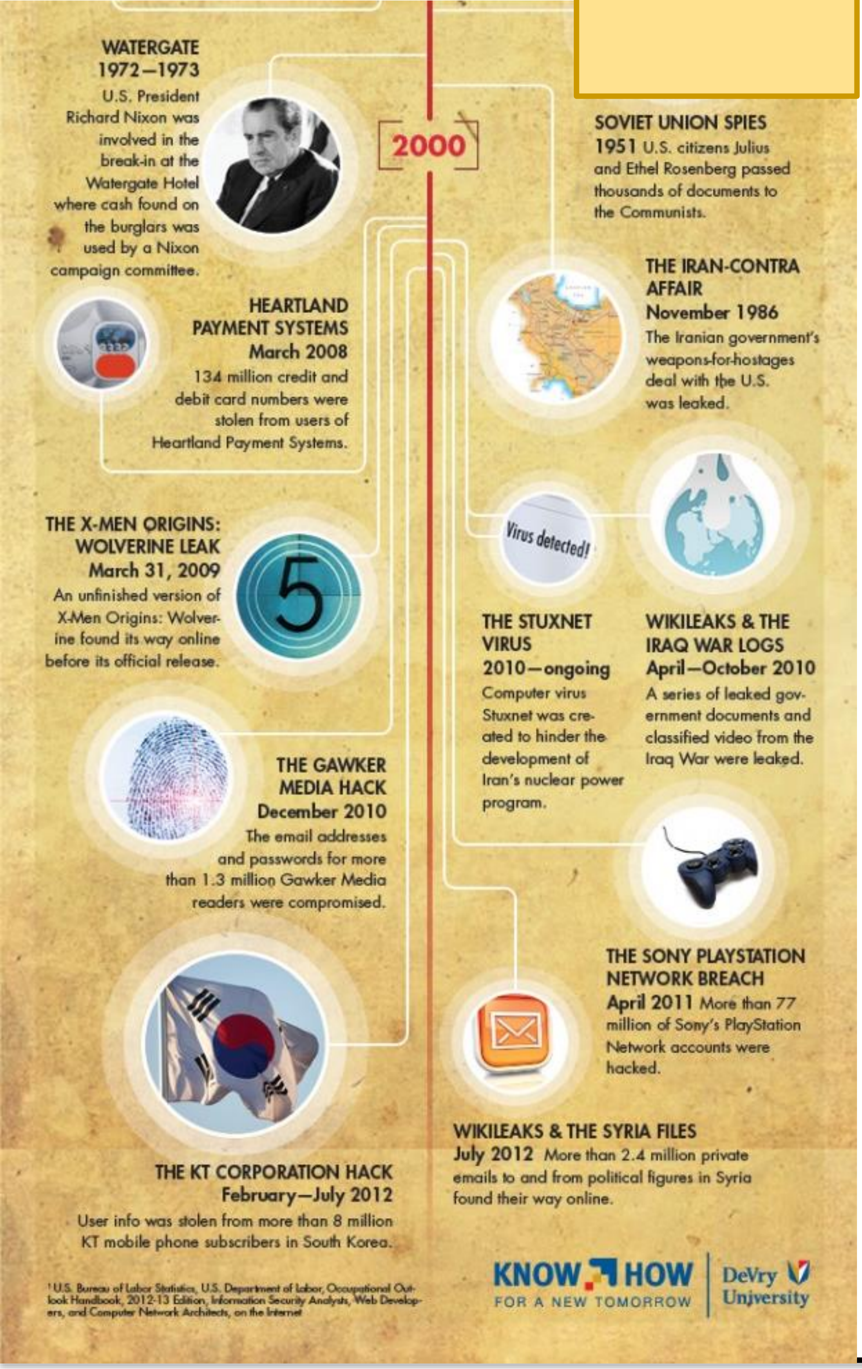
CASANOVA
Spies for Venetian Inquisitors
1774—1783
Casanova spied for the Venetian Inquisitors of State.

THE MIDNIGHT RIDE
April 18, 1775
Paul Revere warns colonists about movement of British troops.

WEST POINT SECRETS
April—September 1780
Benedict Arnold attempts to sell secrets to the British about American troops and West Point.

THE ENIGMA MACHINE
December 1932
Polish Cipher Bureau
The Polish government's cryptography agency decoded the cipher for Germany's early Enigma machines.

Some Previous Bad Security Breaches



WATERGATE
1972—1973
U.S. President Richard Nixon was involved in the break-in at the Watergate Hotel where cash found on the burglars was used by a Nixon campaign committee.

SOVIET UNION SPIES
1951 U.S. citizens Julius and Ethel Rosenberg passed thousands of documents to the Communists.

THE IRAN-CONTRA AFFAIR
November 1986
The Iranian government's weapons-for-hostages deal with the U.S. was leaked.

HEARTLAND PAYMENT SYSTEMS
March 2008
134 million credit and debit card numbers were stolen from users of Heartland Payment Systems.

THE X-MEN ORIGINS: WOLVERINE LEAK
March 31, 2009
An unfinished version of X-Men Origins: Wolverine found its way online before its official release.

THE STUXNET VIRUS
2010—ongoing
Computer virus Stuxnet was created to hinder the development of Iran's nuclear power program.

WIKILEAKS & THE IRAQ WAR LOGS
April—October 2010
A series of leaked government documents and classified video from the Iraq War were leaked.

THE GAWKER MEDIA HACK
December 2010
The email addresses and passwords for more than 1.3 million Gawker Media readers were compromised.

THE SONY PLAYSTATION NETWORK BREACH
April 2011 More than 77 million of Sony's PlayStation Network accounts were hacked.

THE KT CORPORATION HACK
February—July 2012
User info was stolen from more than 8 million KT mobile phone subscribers in South Korea.

WIKILEAKS & THE SYRIA FILES
July 2012 More than 2.4 million private emails to and from political figures in Syria found their way online.

[1] U.S. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Information Security Analysts, Web Developers, and Computer Network Architects, on the Internet

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Persons in the Story

Laura Poitras, Reporter

Barack Obama,
President of the United States

Edward J. Snowden,
Former NSA Contractor

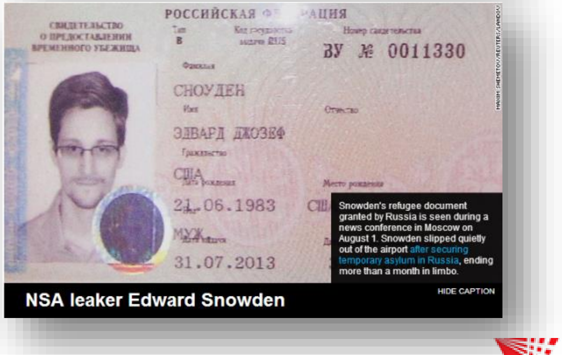
Glen Greenwald,
Reporter for the U.K. Guardian

Vladimir Putin,
President of Russia

General Keith Alexander,
Former NSA Director and Director
of US Cyber Command

What Happened? What Did Snowden Do?

- In May 2013, after a series of secret communications with two experienced reporters (Laura Poitras and Glenn Greenwald), NSA Contractor and System Administrator Edward Snowden took four laptops, each with a 1 TB drive and flew to Hong Kong and later sought asylum in Russia
- Approximately 1.7 million classified documents have been copied and removed from the NSA's infrastructure while Snowden was on duty in Hawaii
- The damage to the National Security of the United States is said to be "incalculable" and the WORST DATA BREACH EVER.


РОССИЙСКАЯ Ф   АЦИЯ

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HIDE CAPTION

NSA leaker Edward Snowden

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The Time Line

- **June 21, 1983** – Edward J. Snowden born in Elizabeth City, North Carolina
- **1999 –** Dropped out of High School
- **2004** – Joined the U.S. Army Reserve because he was patriotic, later washed out
- **2005 -** worked s a "security specialist" at the University of Maryland's Center for Advanced Study of Language
- **2006 - 2007** - Joined the CIA and worked as a system administrator in Geneva, Switzerland
- **2009 -** Became a contractor and worked at Dell for the NSA in Japan
- **2012 -** Was identified as having downloaded several sensitive documents from the NSA
- **January 2013** – Snowden initiates communications with a New York Times Reporter, Laura Poitras, setting the protocol for strong public key / private key encryption due to fears of being discovered
- **March 2013 –** Snowden joined Booz Allen Hamilton as a systems administrator working for the NSA; moved to Hawaii
- **May 2013 –** Snowden traveled from Hawaii to Hong Kong with Four Laptops; Meets Glenn Greenwald and Laura Poitras in Hong Kong
- **June 3 – 5, 2013** – Glen Greenwald published a series of articles in the U.K.'s Guardian newspaper disclosing the extent of the NSA's surveillance programs, both foreign and domestic spying
- **June 21, 2013** – At the request of President Barack Obama, the U.S. Department of Justice files (sealed) criminal espionage charges against Snowden and demands extradition
- **August 1, 2013** – Snowden granted temporary political asylum in Russia by President Vladimir Putin after spending more than four weeks at the Moscow International Airport
- **March 7, 2014** - Testimony at EU Parliament via teleconference, e-mail, Twitter, and the Internet
- **March 10, 2014** – SXSW Conference via ACLU sponsored teleconference, Twitter, and the Internet
- **March 18, 2014 –** the ACLU published all NSA documents that Snowden had disclosed so far, in an online database that is searchable by topic, title and date. The URL: https://www.aclu.org/nsa-documents-search
- **March 18, 2014** – TED Conference Talk via Telepresence Robot, software and the Internet
- **April 6, 2014** – ACLU Conference via teleconference, e-mail, Twitter, and the Internet
- **April 8, 2014** – Edward Snowden Interview in Vanity Fair magazine

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How Did Snowden Accomplish His Data Breach?

- Social Engineering
  - Achieved Elevated Privileges and Access by getting colleagues to share their login credentials
  - Defeating security controls that were designed to compartmentalize data and data access based on a need to know
- Intimate knowledge of systems, security management, and weaknesses in controls
- Copied data to four Laptops – 1 TB each
- Communicated with Reporters starting in January 2013 via encrypted e-mails
- Left Hawaii to Hong Kong gave reporters key details
- Left Hong Kong for asylum in Russia
- Communicating now via the Internet (e-mail, secure webcast, Twitter, Telepresence Robot control, phone, etc.)

Snowden at Press Conference
in Moscow with Russian Lawyers

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What Has Snowden Disclosed?

- Details about
  - MANY NSA Classified Programs
  - MANY GCHQ Classified Joint Programs
  - Spying on Americans
  - Spying on Allies
  - Spying on our “Enemies”
  - Social Engineering and Discrediting Campaign Tactics
  - NSA working Microsoft, Google, Yahoo. Etc.
  - Offensive and Defensive Cyberwarfare activities and actors
  - Workings of the NSA and his job responsibilities
  - His philosophies and believes about the Government, surveillance, the Internet, and personal freedoms
- Promises to disclose a great deal more

Edward Snowden

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NSA Surveillance Programs – Now Known

Pre-2001

- ECHELON
- Main Core
- MINARET
- SHAMROCK
- PROMIS

Since 2001

- BLARNEY
- RAGTIME
- Turbulence
- PINWALE
- MAINWAY
- Upstream

Since 2007

- PRISM
- Boundless Informant
- X-Keyscore
- Dropmire
- Fairview Surveillance Detection Unit
- Bullrun
- MYSTIC
- Tubine
- Quantumhand
- Synapse

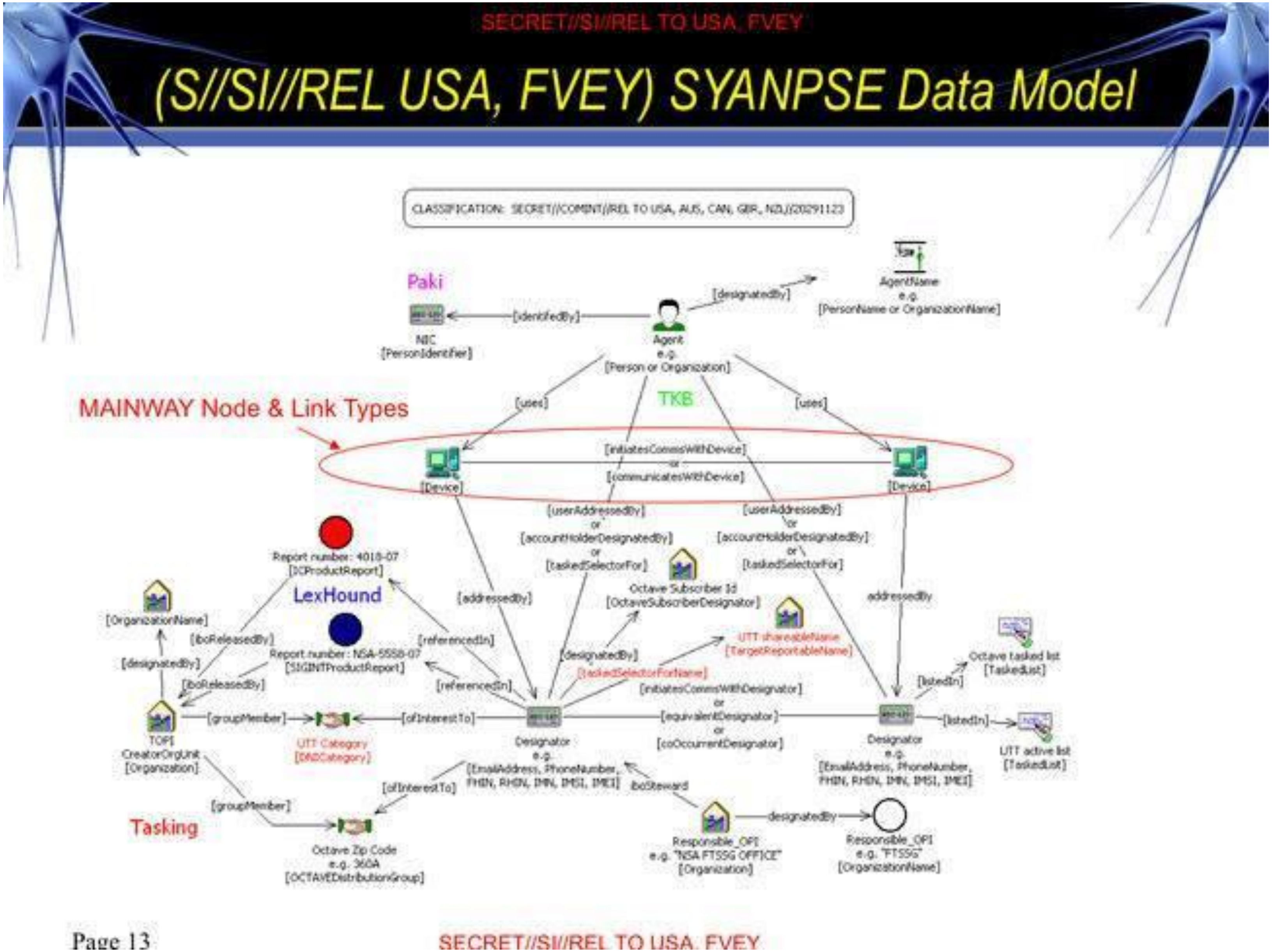
GCHQ collaboration

- MUSCULAR
- IMP
- JTRIG
- Tempora
- Mastering the Internet
- Global Telecoms Exploitation

Disclosed in Detail by Snowden

Discontinued

- Trailblazer
- Project ThinThread
- President's Surveillance Program
- Terrorist Surveillance Program
- STELLARWIND



SECRET//SI//REL TO USA, FVEY

(S//SI//REL USA, FVEY) SYANPSE Data Model

CLASSIFICATION: SECRET//COMINT//REL TO USA, AUS, CAN, GBR, NZL//20291123

Page 13

SECRET//SI//REL TO USA, FVEY

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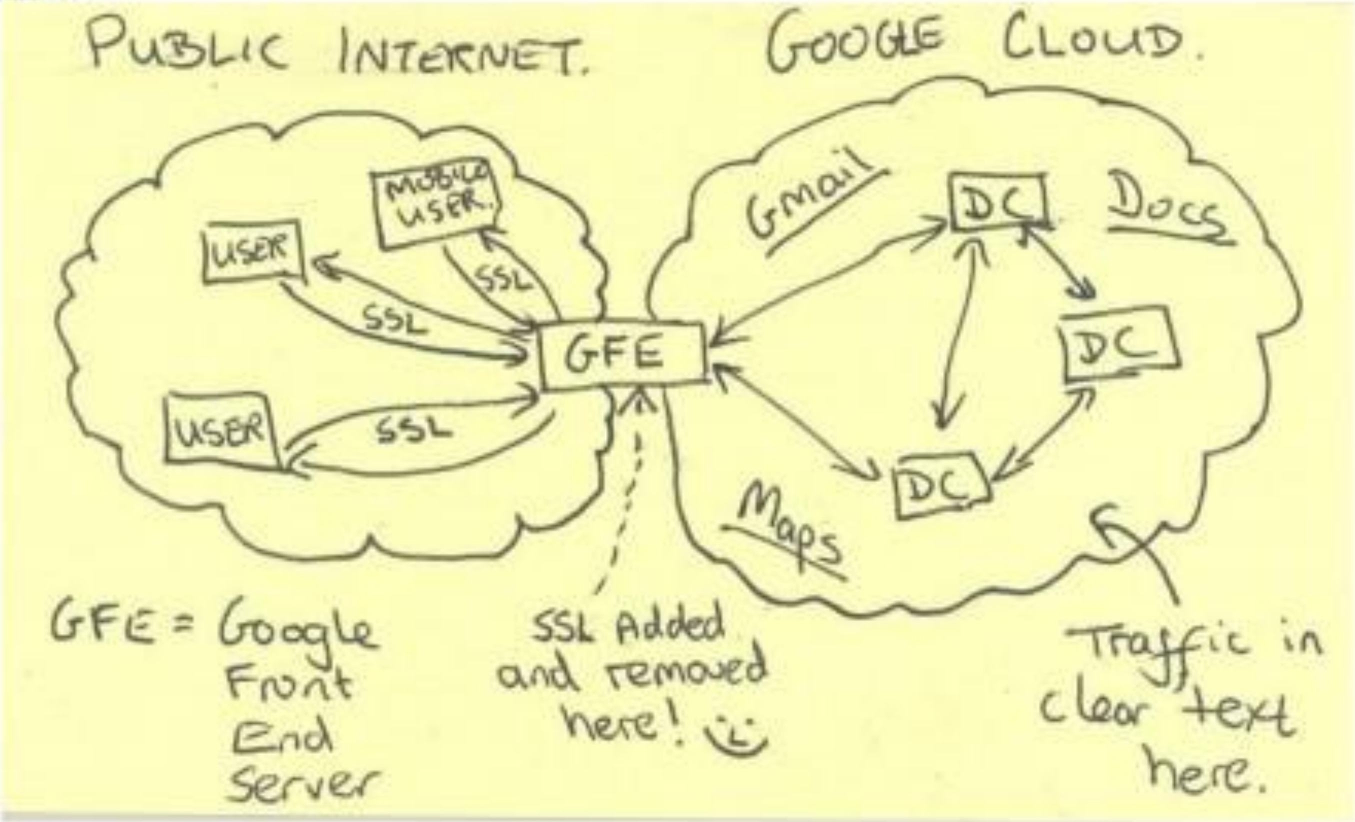
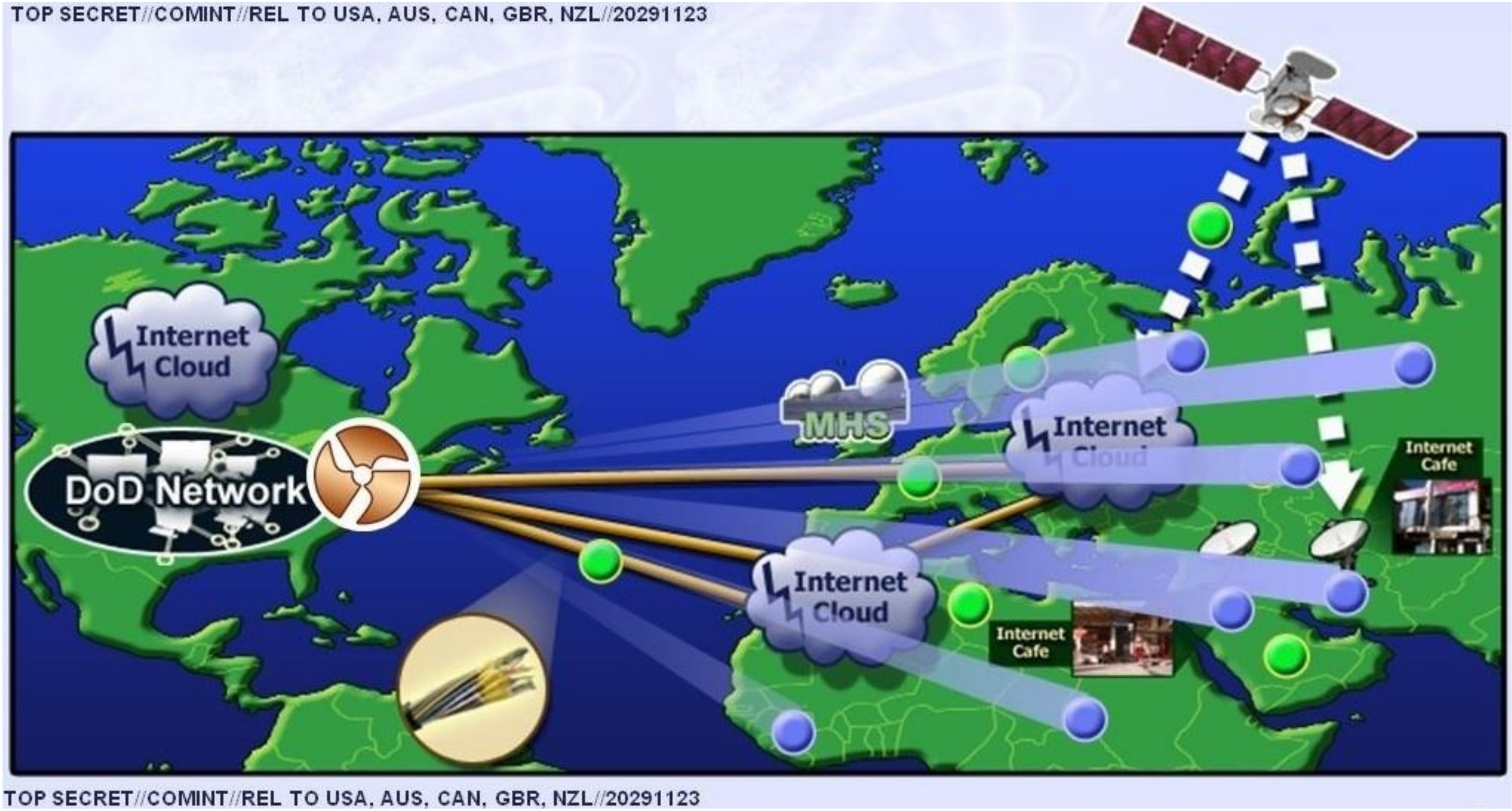
TOP SECRET//SI//NOFORN

Current Efforts - Google


PUBLIC INTERNET.
GOOGLE CLOUD.
MOBILE USER.
USER
USER
SSL
SSL
SSL
GFE
Gmail
DC
Docs
DC
DC
Maps
GFE = Google Front End Server
SSL Added and removed here! :)
Traffic in clear text here.

TOP SECRET//SI//NOFORN



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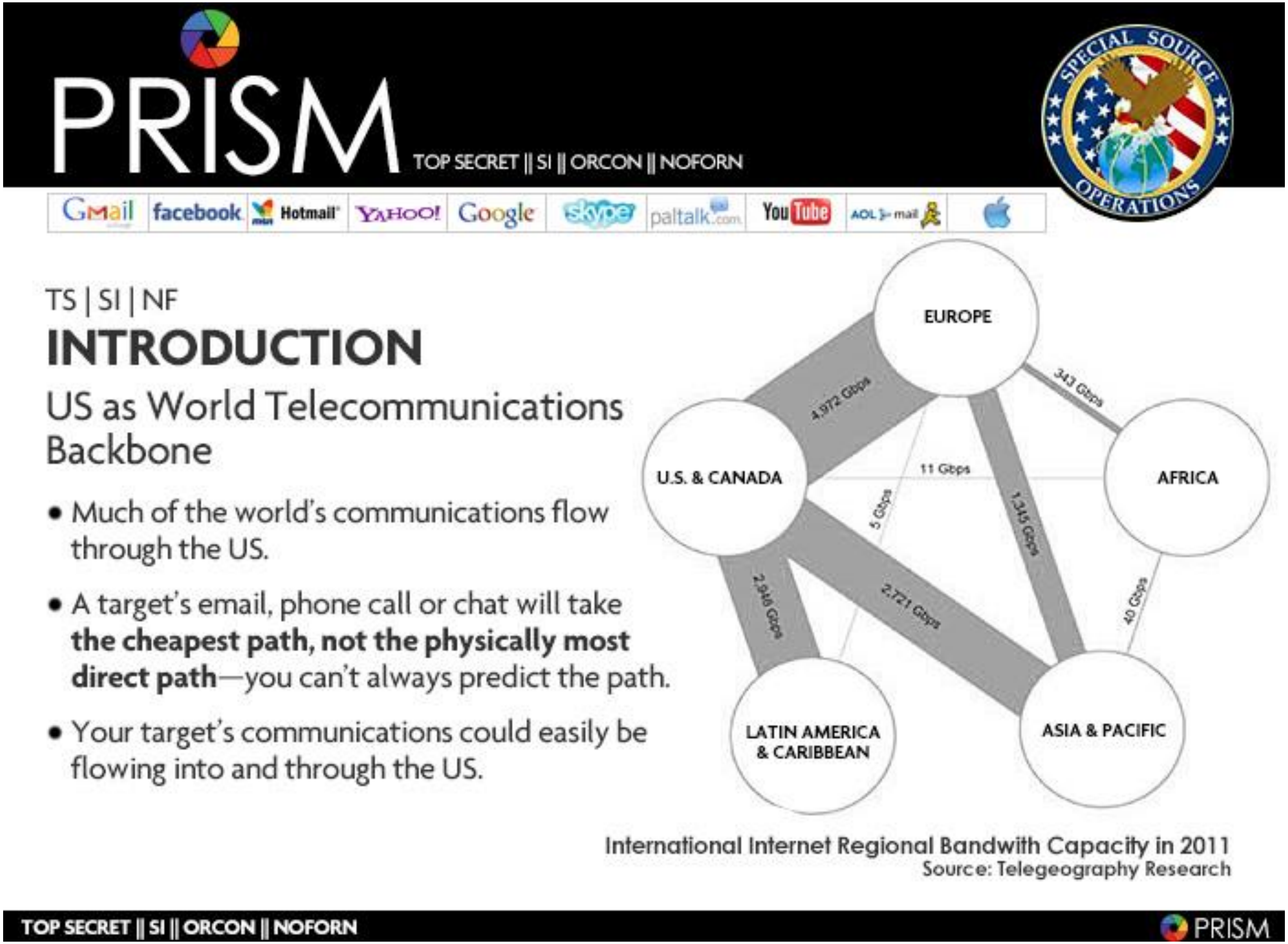


PRISM TOP SECRET || SI || ORCON || NOFORN

SPECIAL SOURCE OPERATIONS
Gmail
facebook
Hotmail
YAHOO!
Google
skype
paltalk.com
YouTube
AOL mail

TS | SI | NF

INTRODUCTION

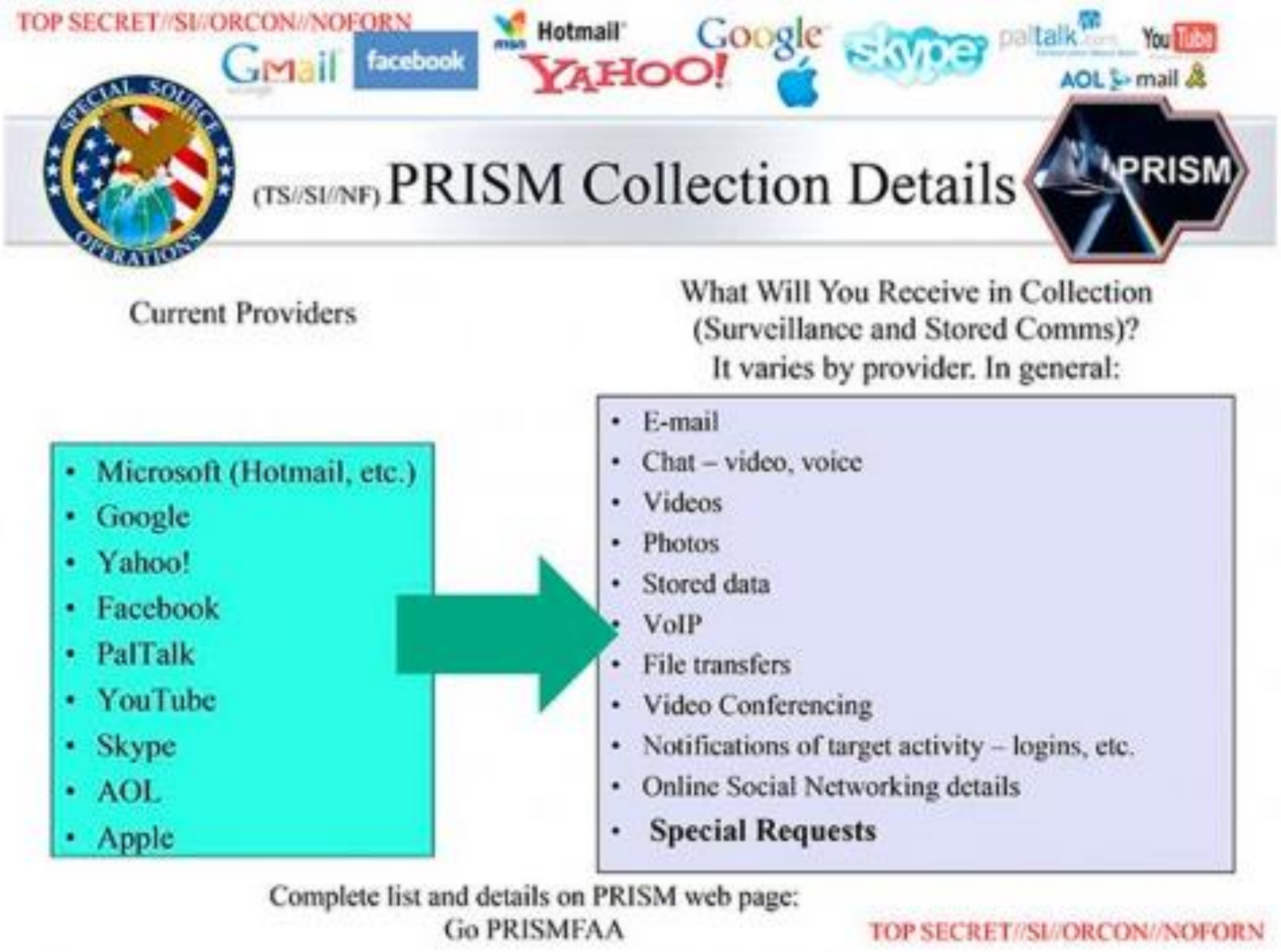
US as World Telecommunications Backbone

- Much of the world's communications flow through the US.
- A target's email, phone call or chat will take **the cheapest path, not the physically most direct path**—you can't always predict the path.
- Your target's communications could easily be flowing into and through the US.

EUROPE
U.S. & CANADA
AFRICA
LATIN AMERICA & CARIBBEAN
ASIA & PACIFIC
4,972 Gbps
343 Gbps
11 Gbps
5 Gbps
1,345 Gbps
2,946 Gbps
2,721 Gbps
40 Gbps

International Internet Regional Bandwith Capacity in 2011
Source: Telegeography Research

TOP SECRET || SI || ORCON || NOFORN PRISM


Gmail
facebook
Hotmail
Yahoo!
Google
skype
paltalk.com
YouTube
AOL mail
SPECIAL SOURCE OPERATIONS
PRISM

TOP SECRET//SI//ORCON//NOFORN

(TS//SI//NF) PRISM Collection Details

Current Providers

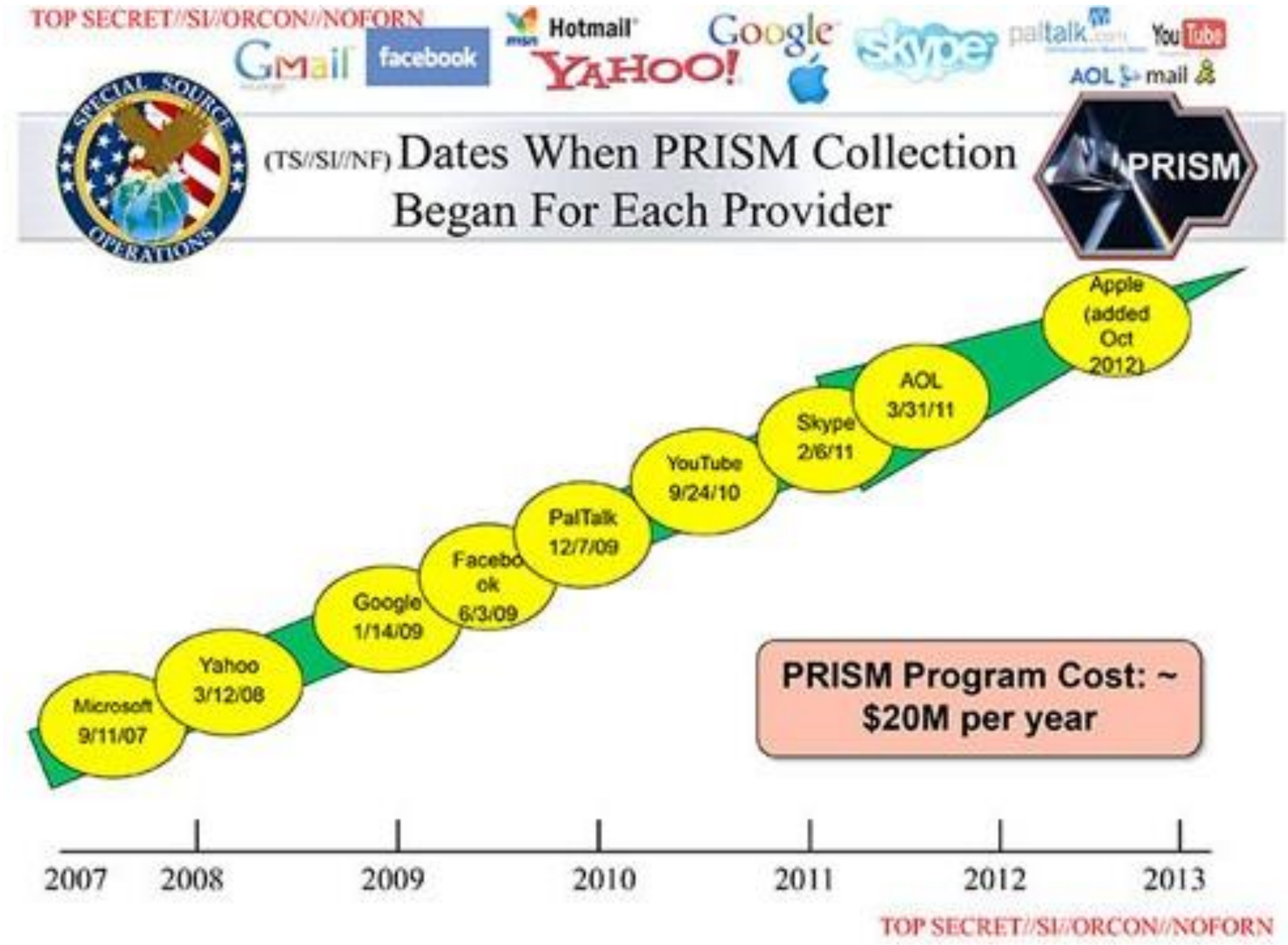
- Microsoft (Hotmail, etc.)
- Google
- Yahoo!
- Facebook
- PalTalk
- YouTube
- Skype
- AOL
- Apple

What Will You Receive in Collection (Surveillance and Stored Comms)?
It varies by provider. In general:

- E-mail
- Chat – video, voice
- Videos
- Photos
- Stored data
- VoIP
- File transfers
- Video Conferencing
- Notifications of target activity – logins, etc.
- Online Social Networking details
- **Special Requests**

Complete list and details on PRISM web page:
Go PRISMFAA

TOP SECRET//SI//ORCON//NOFORN



TOP SECRET//SI//ORCON//NOFORN

GMail
facebook
Hotmail
YAHOO!
Google
skype
paltalk.com
YouTube
AOL mail
SPECIAL SOURCE OPERATIONS
PRISM

(TS//SI//NF) Dates When PRISM Collection Began For Each Provider

Microsoft 9/11/07

Yahoo 3/12/08

Google 1/14/09

Facebo ok 6/3/09

PalTalk 12/7/09

YouTube 9/24/10

Skype 2/6/11

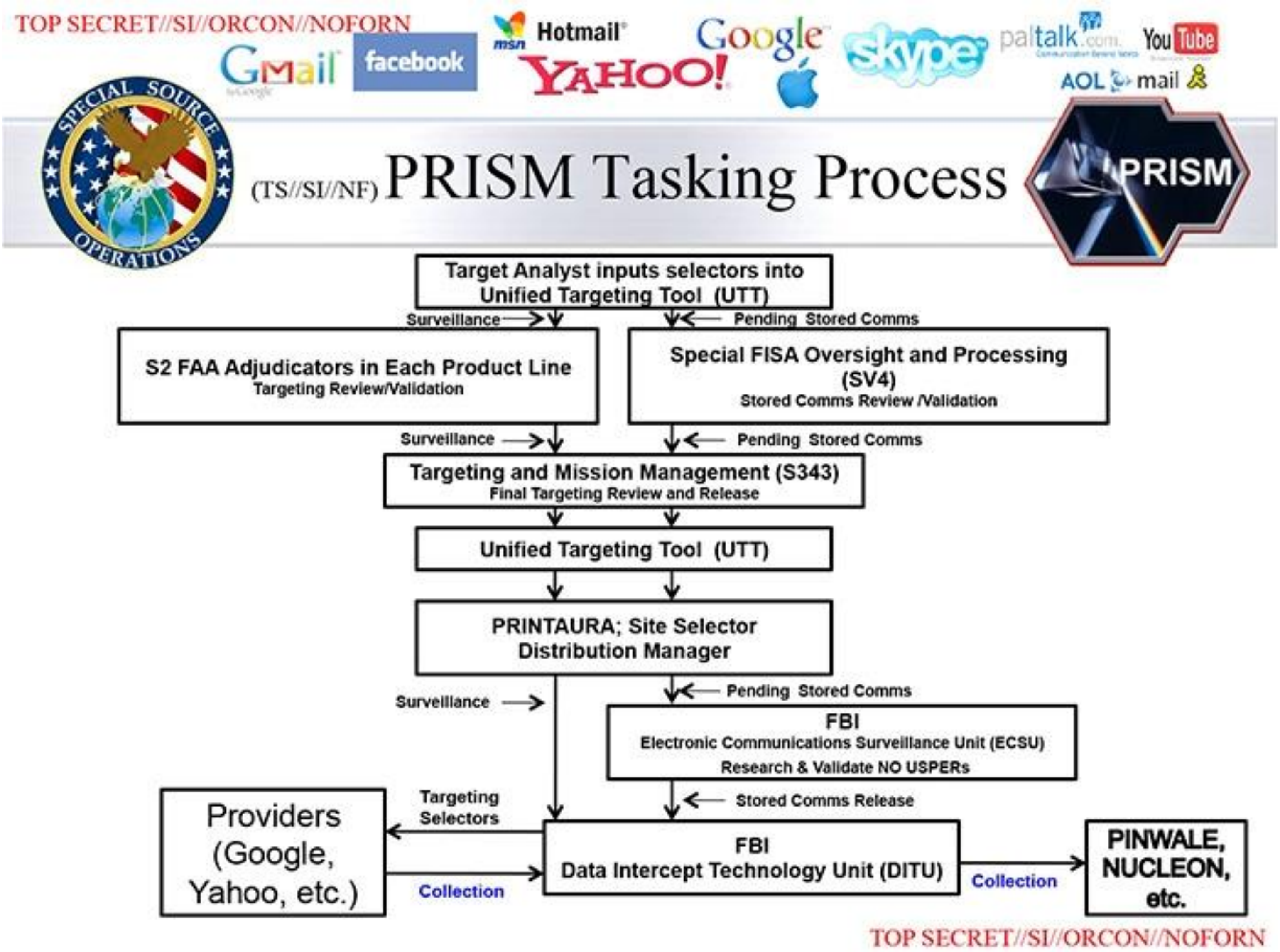
AOL 3/31/11

Apple (added Oct 2012)

2007
2008
2009
2010
2011
2012
2013

PRISM Program Cost: ~ $20M per year

TOP SECRET//SI//ORCON//NOFORN



TOP SECRET//SI//ORCON//NOFORN

(TS//SI//NF) PRISM Tasking Process

Target Analyst inputs selectors into Unified Targeting Tool (UTT)

Surveillance

Pending Stored Comms

S2 FAA Adjudicators in Each Product Line
Targeting Review/Validation

Special FISA Oversight and Processing (SV4)
Stored Comms Review /Validation

Surveillance

Pending Stored Comms

Targeting and Mission Management (S343)
Final Targeting Review and Release

Unified Targeting Tool (UTT)

PRINTAURA; Site Selector Distribution Manager

Surveillance

Pending Stored Comms

FBI
Electronic Communications Surveillance Unit (ECSU)
Research & Validate NO USPERs

Stored Comms Release

Providers (Google, Yahoo, etc.)

Targeting Selectors

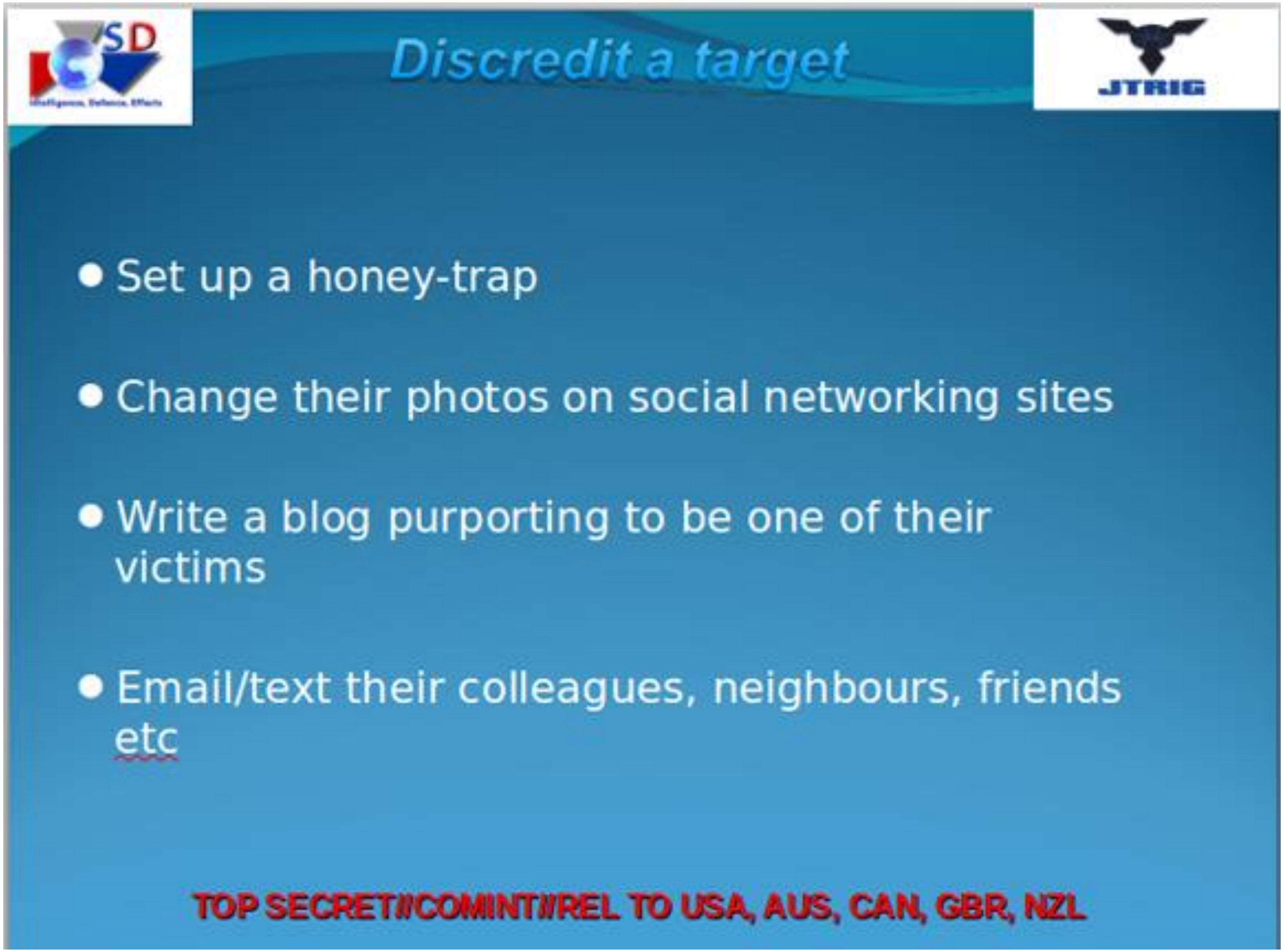
Collection

FBI
Data Intercept Technology Unit (DITU)

Collection

PINWALE, NUCLEON, etc.

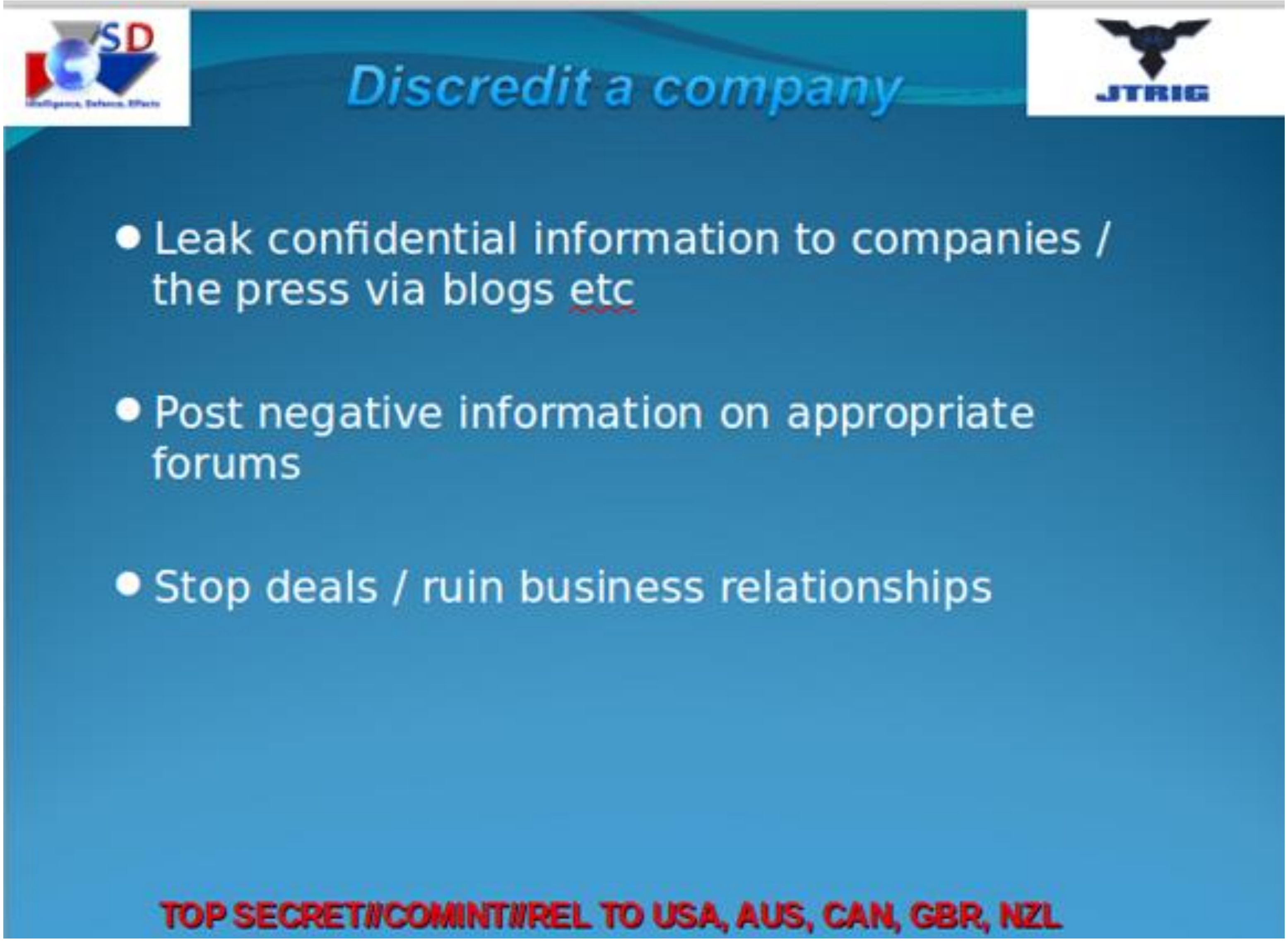
TOP SECRET//SI//ORCON//NOFORN



Discredit a target

- Set up a honey-trap
- Change their photos on social networking sites
- Write a blog purporting to be one of their victims
- Email/text their colleagues, neighbours, friends etc

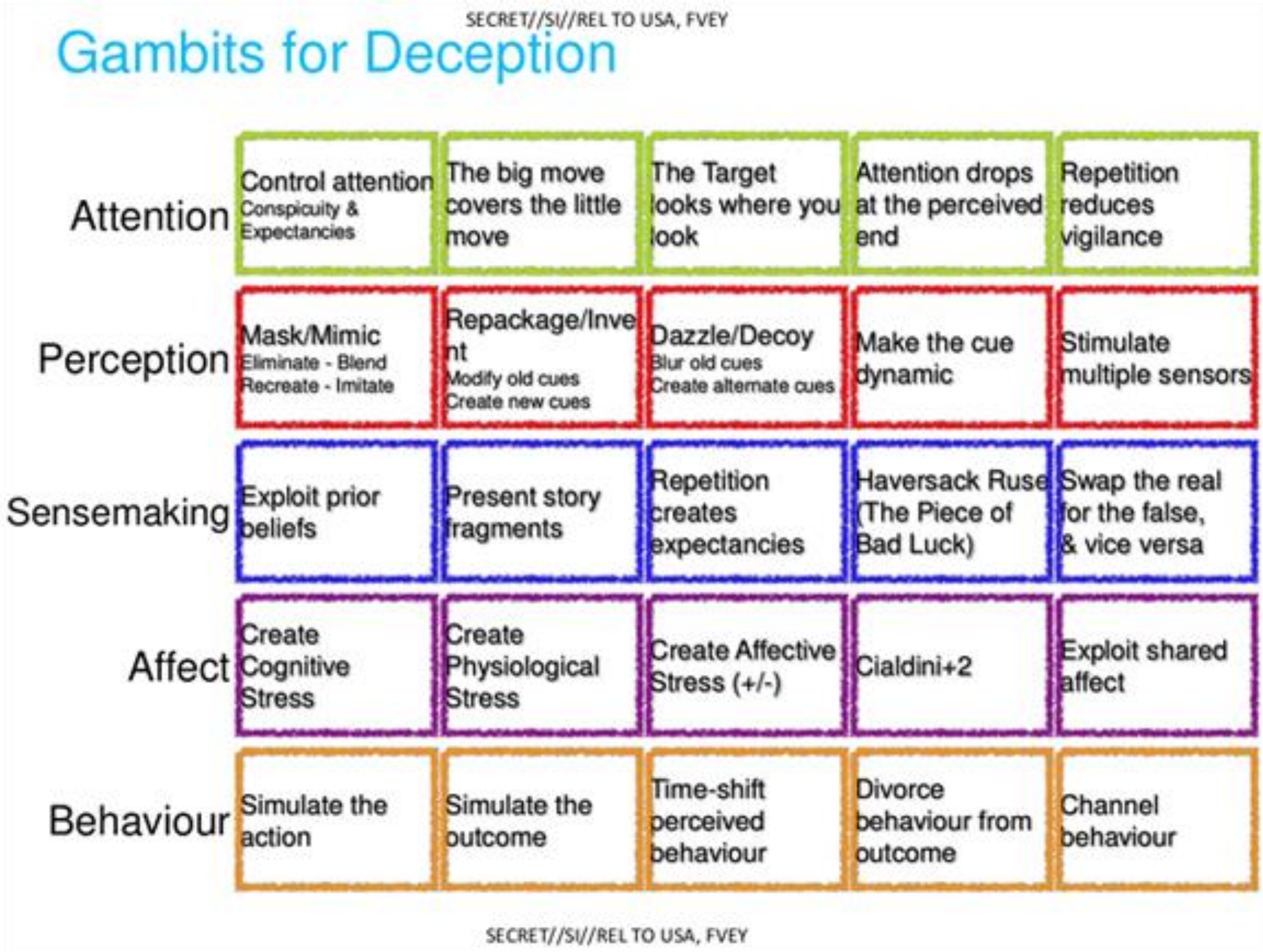
TOP SECRET//COMINT//REL TO USA, AUS, CAN, GBR, NZL



Discredit a company

- Leak confidential information to companies / the press via blogs etc
- Post negative information on appropriate forums
- Stop deals / ruin business relationships

TOP SECRET//COMINT//REL TO USA, AUS, CAN, GBR, NZL



SECRET//SI//REL TO USA, FVEY

Gambits for Deception

Attention	Control attention Conspicuity & Expectancies	The big move covers the little move	The Target looks where you look	Attention drops at the perceived end	Repetition reduces vigilance
Perception	Mask/Mimic Eliminate - Blend Recreate - Imitate	Repackage/Invent Modify old cues Create new cues	Dazzle/Decoy Blur old cues Create alternate cues	Make the cue dynamic	Stimulate multiple sensors
Sensemaking	Exploit prior beliefs	Present story fragments	Repetition creates expectancies	Haversack Ruse (The Piece of Bad Luck)	Swap the real for the false, & vice versa
Affect	Create Cognitive Stress	Create Physiological Stress	Create Affective Stress (+/-)	Cialdini+2	Exploit shared affect
Behaviour	Simulate the action	Simulate the outcome	Time-shift perceived behaviour	Divorce behaviour from outcome	Channel behaviour

SECRET//SI//REL TO USA, FVEY

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Consequences: How does this affect the NSA and U.S. National Security?

- One U.S. Government Official:
  - "We have to assume that the Russians know EVERYTHING about our Surveillance Programs…"
- The U.S. will have to go back to the drawing board to create and implement most of the programs that provided the capabilities they want and need
- The NSA and other Intelligence gathering agencies must now rethink their human security programs
- Fewer people will have access to highly classified data

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Consequences: How will the Edward Snowden Compromise affect the U.S. Government?

- Better Risk Assessment and Risk Management Programs
- Better security management
- More money will be spent creating new surveillance programs and data protection programs
- Fewer people will have access to highly classified data
- Those with access to data will be watched more carefully
- Quicker and Harsher punishment for infractions

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(Sealed) Charges Filed Against Edward Snowden

- June 21, 2013 – the U.S. Filed Criminal Charges Against Former NSA Contractor, Edward Snowden
- If convicted, Snowden could get the death penalty

Edward Snowden
Former NSA Contractor

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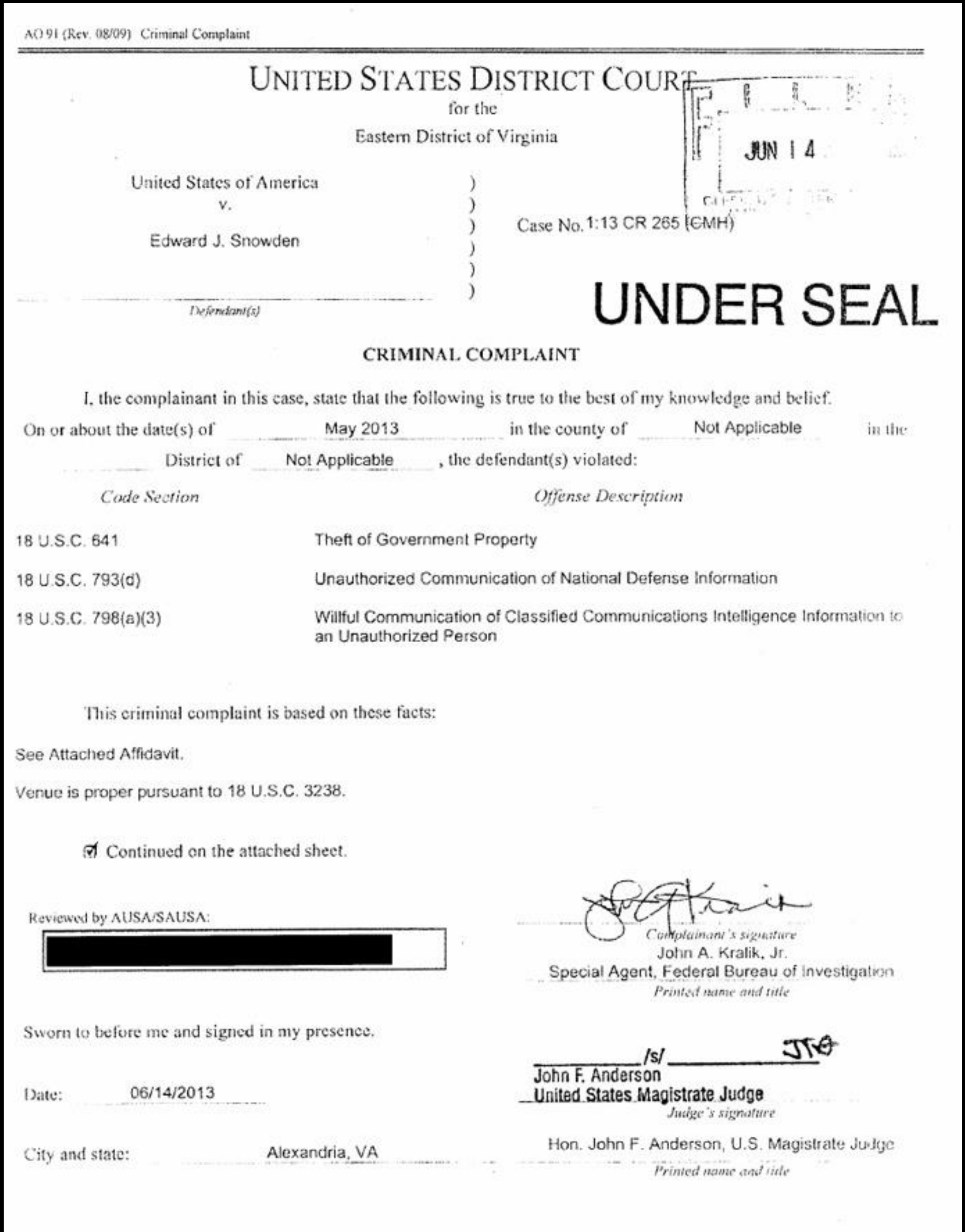

AO 91 (Rev. 08/09) Criminal Complaint

UNITED STATES DISTRICT COURT
for the
Eastern District of Virginia

JUN 14

United States of America
v.
Edward J. Snowden
Defendant(s)

Case No. 1:13 CR 265 (CMH)

UNDER SEAL

CRIMINAL COMPLAINT

I, the complainant in this case, state that the following is true to the best of my knowledge and belief.

On or about the date(s) of May 2013 in the county of Not Applicable in the District of Not Applicable, the defendant(s) violated:

Code Section	*Offense Description*
18 U.S.C. 641	Theft of Government Property
18 U.S.C. 793(d)	Unauthorized Communication of National Defense Information
18 U.S.C. 798(a)(3)	Willful Communication of Classified Communications Intelligence Information to an Unauthorized Person

This criminal complaint is based on these facts:

See Attached Affidavit.

Venue is proper pursuant to 18 U.S.C. 3238.

☑ Continued on the attached sheet.

Reviewed by AUSA/SAUSA:
[redacted]

Complainant's signature
John A. Kralik, Jr.
Special Agent, Federal Bureau of Investigation
Printed name and title

Sworn to before me and signed in my presence.

/s/ JFA
John F. Anderson
United States Magistrate Judge
Judge's signature

Date: 06/14/2013

City and state: Alexandria, VA

Hon. John F. Anderson, U.S. Magistrate Judge
Printed name and title

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Consequences: Has anyone lost their job as a result of what Edward Snowden has done?

- General Keith Alexander, chief of the NSA, Central Security Service, and U.S. Cyber Command AND his Deputy John Inglis
  - On October 16, 2013, it was announced that General Alexander, and his Deputy John C. Inglis, were leaving the NSA. This announcement came on the heels of four months of NSA spying revelations spawned by press-leaks made by former NSA contractor Edward Snowden.
- Most likely some of Snowden's bosses at the NSA and Booz Allen Hamilton were quietly fired

General Keith Alexander

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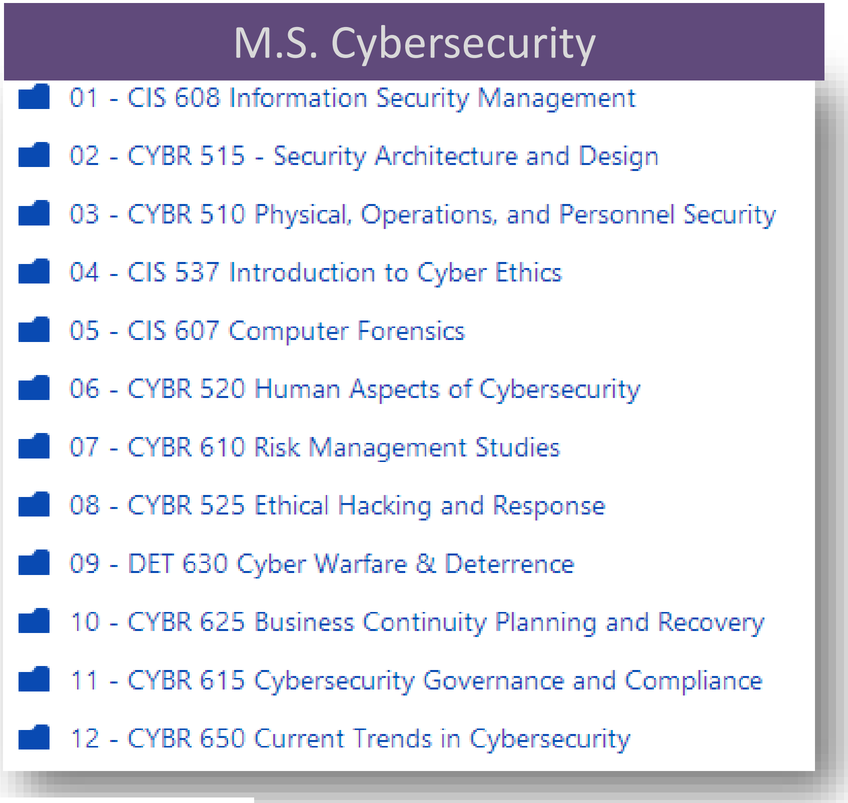
Implications: How will the Edward Snowden Compromise affect the Cybersecurity Career Field

- More qualifications and experience
- More frequent training
- More certifications
- More stringent controls
  - More surveillance
  - Background checks
  - Better control of access to data
  - Two-man policies



M.S. Cybersecurity

01 - CIS 608 Information Security Management

02 - CYBR 515 - Security Architecture and Design

03 - CYBR 510 Physical, Operations, and Personnel Security

04 - CIS 537 Introduction to Cyber Ethics

05 - CIS 607 Computer Forensics

06 - CYBR 520 Human Aspects of Cybersecurity

07 - CYBR 610 Risk Management Studies

08 - CYBR 525 Ethical Hacking and Response

09 - DET 630 Cyber Warfare & Deterrence

10 - CYBR 625 Business Continuity Planning and Recovery

11 - CYBR 615 Cybersecurity Governance and Compliance

12 - CYBR 650 Current Trends in Cybersecurity

CERTIFIED INFORMATION SYSTEMS SECURITY PROFESSIONAL · CISSP®

SYSTEMS SECURITY CERTIFIED PRACTITIONER · SSCP®

CompTIA Security+

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Implications: How will the Edward Snowden Compromise affect your career as an IT Professional?

- The qualifications bar will be much higher
  - No more high school drop-outs or GEDs
  - More certifications, cybersecurity-related degrees
- Stronger examination of backgrounds
- Expect more oversight

Implications: How would you prevent an Edward Snowden-style Data Breach in your organization if your were the Cybersecurity Director?

- Revamp your **<u>Risk Assessment and Risk Management Programs</u>**
- Revamp your **<u>Security Management Program</u>**
  - Applying the Control Framework(s) controls that relate to Security Personnel and Asset Management
  - Training on Security, ethics, etc.
  - Increased surveillance, controls and accountability
  - Fewer people should have access to hig classified data
  - Two-man policies
- Apply and use metrics
- Monitor! Monitor! Monitor!
- Continuously improve
- Train! Train! Train!

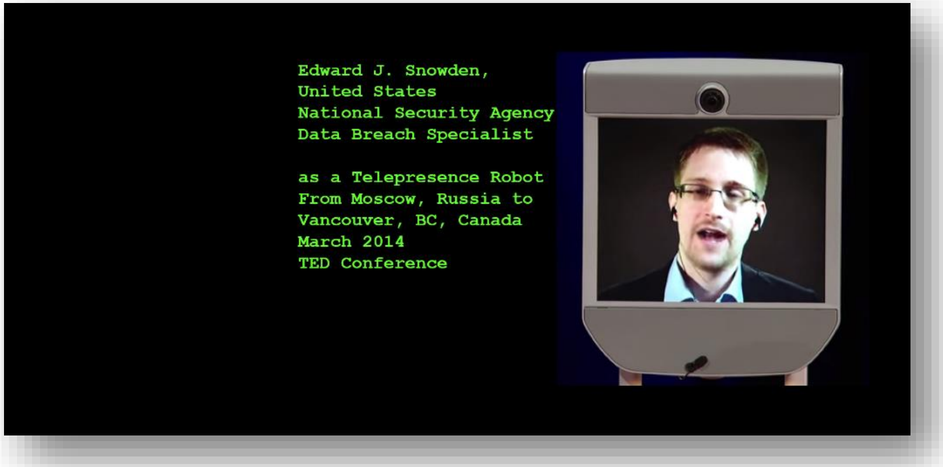
Risk Warning Signs

Edward Snowden Routinely wore an EFF Hoodie and had an EFF Sticker on his laptop

Source: http://www.dailydot.com/news/snowden-eff-hoodie/

The Latest Developments on Edward Snowden

- **March 7, 2014** - Testimony at EU Parliament
- **March 11, 2014** – SXSW Conference
- **March 18, 2014** – TED Conference
- **April 6, 2014** – ACLU Conference
- Has promised to release MANY more revealing documents
- Has set up a “Doomsday” release arrangements of all documents in case he is assassinated



Edward J. Snowden,
United States
National Security Agency
Data Breach Specialist

as a Telepresence Robot
From Moscow, Russia to
Vancouver, BC, Canada
March 2014
TED Conference

Edward Snowden’s 6 Revelations at the SXSW Conference

1. Bulk Data Collection Doesn't Work
2. There Isn't Much Consumers Can Do to Avoid It
3. The Most Dangerous Men in America Are Michael Hayden and Keith Alexander
4. The Government Still Doesn't Know What Snowden Has
5. The Tech Industry Is Upset
6. Snowden Has No Regrets

"The NSA is setting fire to the Internet. You people in the room at SXSW are the firefighters.“ – Edward Snowden

Edward Snowden
Live via Secure Webcast
at the SXSW Conference
March 11, 2014

6 Things Edward Snowden Revealed at SXSW
http://www.pcmag.com/article2/0,2817,2454827,00.asp

The EU Parliament in a show of Solidarity for Edward Snowden and his disclosures votes in support of anti-spying measures

Opinion: Do you think Edward Snowden was correct in doing what he did?

- Let’s take a vote using a show of hands

Snowden was WRONG	Snowden was RIGHT

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Anecdotal Advice to Prevent an Edward Snowden Event in your Organization:

1. Learn about vetting your people with background checks.
2. Learn about monitoring your peoples’ work and behaviors
3. Never hire a high school drop-out.
4. Learn about and train your system administrators on a Code of Ethics: http://1drv.ms/QjMcjw
5. Learn about and train your entire staff about what Social Engineering is, how it works, and how to protect against it
6. Read this paper about Hacking Humans: http://www.billslater.com/writing/Hacking_Humans_from_W_F_Slater_v1_2013_0219_.pdf

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Conclusions

- Despite billions of dollars of planning, engineering and administration, the human element proved to be the weakest link
- A lot of security REENGINEERING will need to take place
- A lot of money, time, and energy will be required to get it corrected
- Things will get more complicated for Management and Cybersecurity professionals
- Greater vetting efforts and compartmentalization of data
- Expect that highly-trained, high-skilled, trustworthy cybersecurity professionals and managers will be more valuable and in demand

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The End… of The Beginning

The Brand New 1 million square foot NSA Data Center in Bluffdale, Utah
This 100 MW Facility will hold 12 Exabytes of Data

It houses EVERYONE's Data

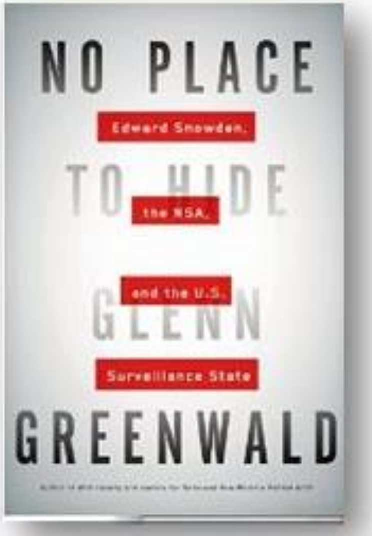
References

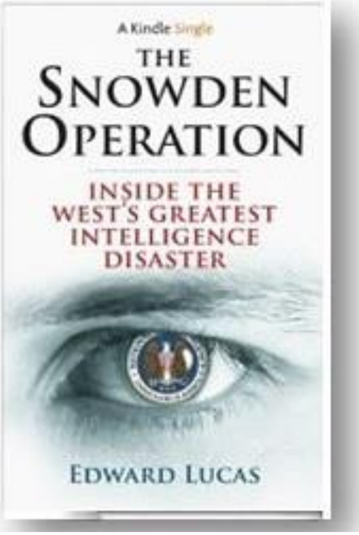
- New Books on Edward Snowden

No Place to Hide: Edward Snowden, the NSA, and the U.S. Surveillance State

The Snowden Operation: Inside the West's Greatest Intelligence Disaster

No Place to Hide: Edward Snowden, the NSA, and the U.S. Surveillance State





References

- ACLU. (2014). President Obama: Grant Edward Snowden Immunity Now. Retrieved from https://www.aclu.org/secure/grant_snowden_immunity on March 18, 2014.
- ANI. (2014). White House cyber security chief says damage done by Edward Snowden will take decades to repair. Retrieved from http://www.dnaindia.com/world/report-white-house-cyber-security-chief-says-damage-done-by-edward-snowden-will-take-decades-to-repair-1973325 on April 5, 2014,
- Anonymous, (2104). Edward Snowden, A Truth Unveiled (Documentary). Retrieved from http://www.youtube.com/watch?v=dSXlKdWF5HE on March 20, 2014.
- Batley, M. (2014). Clapper: Snowden Took Advantage of 'Perfect Storm' of Security Lapses. Retrieved from http://www.newsmax.com/US/Edward-Snowden-James-Clapper-NSA-intelligence/2014/02/12/id/552327 on February 12, 2014.
- Campbell, B. (2014). The story of Edward Snowden is so unbelievable, sometimes you forget it's nonfiction Retrieved from http://www.pri.org/stories/2014-02-14/story-edward-snowden-so-unbelievable-sometimes-you-forget-its-nonfiction on February 15, 2014.
- Cohen, T. Military spy chief: Have to assume Russia knows U.S. secrets. Retrieved from http://www.cnn.com/2014/03/07/politics/snowden-leaks-russia/index.html on March 9, 2014.
- Coleman, G. (2014). The Latest Snowden Revelation Is Dangerous for Anonymous — And for All of Us. Retrieved from http://www.wired.com/opinion/2014/02/comes-around-goes-around-latest-snowden-revelation-isnt-just-dangerous-anonymous-us/ on February 4, 2014.
- Decrypted Matrix. (2014). An NSA Coworker Remembers The Real Edward Snowden: ‘A Genius Among Geniuses’. Retrieved from https://decryptedmatrix.com/live/an-nsa-coworker-remembers-the-real-edward-snowden-a-genius-among-geniuses/ on March 31, 2014.

References

- Farrell, H. (2014). The political science of cybersecurity IV: How Edward Snowden helps U.S. deterrence. Retrieved from http://www.washingtonpost.com/blogs/monkey-cage/wp/2014/03/12/the-political-science-of-cybersecurity-iv-how-edward-snowden-helps-u-s-deterrence/ on March 12, 2014.
- Forrest, H. (2014). Monday, March 10: Edward Snowden to Speak at SXSW Interactive Via Videoconference. Retrieved from http://sxsw.com/interactive/news/2014/monday-march-10-edward-snowden-speak-sxsw-interactive-videoconference on March 10, 2014.
- Free Man's Perspective. (2014). YES, YOU ARE BEING MANIPULATED BY YOUR GOVERNMENT. Retrieved from http://www.freemansperspective.com/governments-manipulate/ on March 20, 2014.
- Gallagher, R. and Greenwald, G. (2104). How the NSA Plans to Infect 'Millions' of Computers with Malware. Retrieved from https://firstlook.org/theintercept/article/2014/03/12/nsa-plans-infect-millions-computers-malware/ on March 12, 2014.
- Greenwald, G. (2014). No Place to Hide: Edward Snowden, the NSA, and the U.S. Surveillance State Metropolitan Books.
- Gurnow, M. (2014). The Edward Snowden Affair: Exposing the Politics and Media Behind the NSA Scandal. Blue River Press, Inc.
- Harding, L. (2014). The Snowden Files: The Inside Story of the World's Most Wanted Man. Random House, LLC.
- Huffington Post. (2014). Bill Gates: Edward Snowden Is No Hero. Retrieved from http://live.huffingtonpost.com/r/archive/segment/bill-gates-edward-snowden-is-no-hero/5323697e78c90a1ede00033b on March 16, 2014.
- Lucas, E. (2014). The Snowden Operation: Inside the West's Greatest Intelligence Disaster. Amazon Digital Services.

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References

- Maass, P. (2013). How Laura Poitras Helped Snowden Spill His Secrets. Retrieved from http://www.nytimes.com/2013/08/18/magazine/laura-poitras-snowden.html on April 3, 2014.
- Meyer, D. (2014). Edward Snowden tells European Parliament how local spies aid NSA surveillance. Retrieved from http://gigaom.com/2014/03/07/edward-snowden-gives-testimony-to-european-parliament-surveillance-inquiry/ on March 7, 2014.
- Moyers, B. (2014). Anatomy of the Deep State. http://billmoyers.com/2014/02/21/anatomy-of-the-deep-state/ on March 31, 2014.
- Newsmax. (2013). NSA, Military Beef-Up Cybersecurity Measures in Wake of Leaks. Retrieved from http://www.newsmax.com/US/NSA-Military-cybersecurity-leaks/2013/07/19/id/515984 on July 19, 2013.
- Reuters. (2014). Edward Snowden, Glenn Greenwald urge caution of wider government monitoring at Amnesty event. Retrieved from http://www.dnaindia.com/world/report-edward-snowden-glenn-greenwald-urge-caution-of-wider-government-monitoring-at-amnesty-event-1975659 on April 6, 2014.
- Rodriguez, S. (2014). NSA posed as Facebook to infect computers with malware, report says. Retrieved from http://www.latimes.com/business/technology/la-fi-tn-nsa-posing-facebook-malware-20140312,0,3491724.story#ixzz2yGiHhZJa on March 12, 2014.
- RT. (2014). Spooking the spooks: US surveillance system to muzzle rogue agents and leakers. Retrieved from http://rt.com/usa/us-government-internal-monitoring-870/ on March 10, 2014.
- Sanger, D. and Schmidtt, E. (2014). Spy Chief Says Snowden Took Advantage of 'Perfect Storm' of Security Lapses. Retrieved from http://www.nytimes.com/2014/02/12/us/politics/spy-chief-says-snowden-took-advantage-of-perfect-storm-of-security-lapses.html on February 12, 2014.

References

- Sardesai, N. (2014). NSA is Working on an Encryption-Cracking Quantum Computer. Retrieved from http://www.cryptocoinsnews.com/2014/01/03/nsa-working-encryption-cracking-quantum-computer/ on March 1, 2014.
- Schneier, B. (2013). Snowden's Cryptographer on the NSA & Defending the Internet. Retrieved from https://www.youtube.com/watch?feature=player_embedded&v=kWNk9irv1e8 on March 10, 2014.
- Snowden, E. (2014. Edward Snowden's Testimony to the European Union Parliament. Retrieved from http://www.europarl.europa.eu/document/activities/cont/201403/20140307ATT80674/20140307ATT80674EN.pdf on March 7, 2014.
- Snowden, E. (2104). TED Talk: Here's how we take back the Internet. Retrieved from http://www.youtube.com/watch?v=EomroTpkaYI on March 20, 2014.
- Vanity Fair. (2014). Snowden Speaks: A Vanity Fair Exclusive. Retrieved from http://www.vanityfair.com/online/daily/2014/04/edward-snowden-interview on April 9, 2014.

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Questions?

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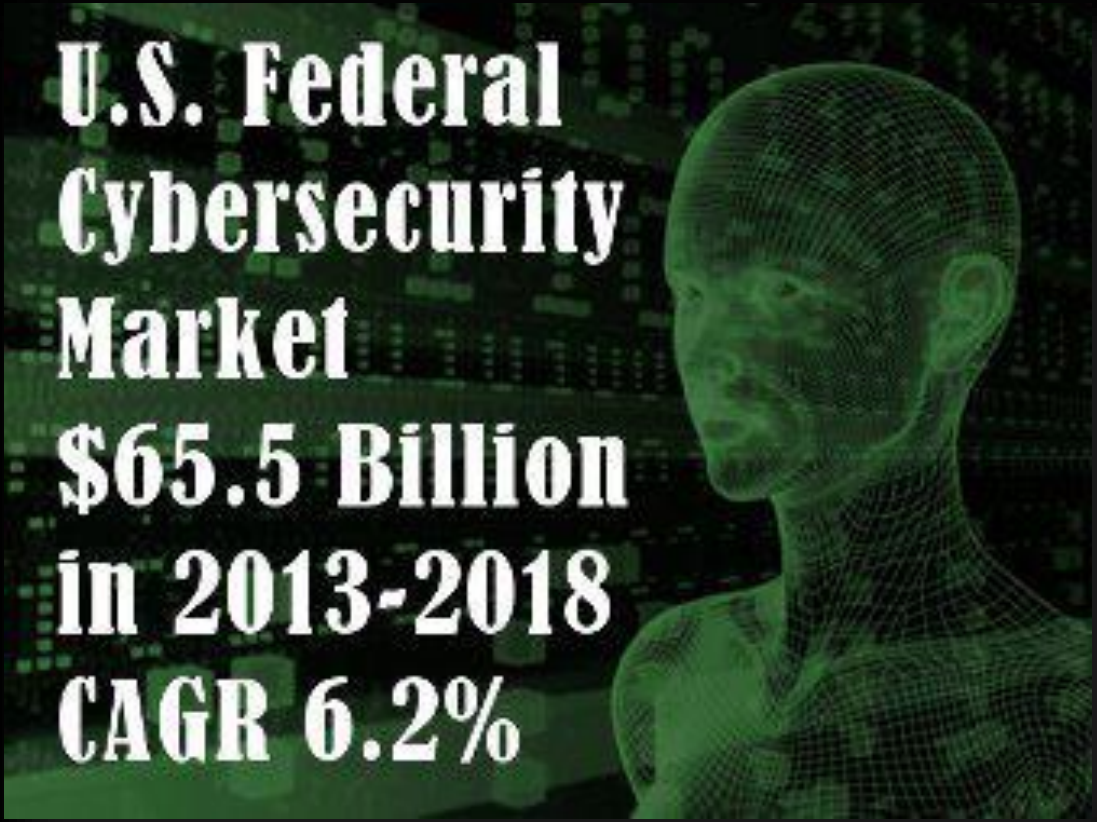
Career Opportunities?

- Yes – The U.S. Government is hiring Cybersecurity Professionals
- Private Industry will be picking up more and more Cybersecurity experts



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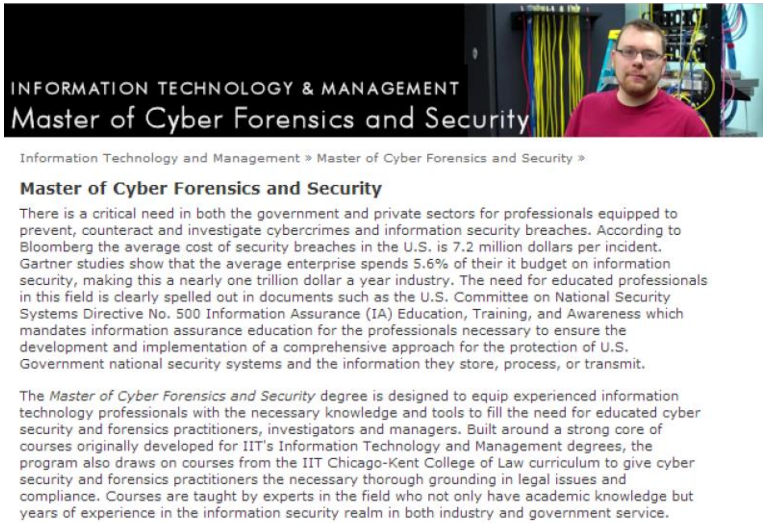
Career Development Opportunities?

Illinois Institute of Technology

- M.S. in Cyber Forensics and Security (land campus)



INFORMATION TECHNOLOGY & MANAGEMENT

Master of Cyber Forensics and Security

Information Technology and Management » Master of Cyber Forensics and Security »

Master of Cyber Forensics and Security

There is a critical need in both the government and private sectors for professionals equipped to prevent, counteract and investigate cybercrimes and information security breaches. According to Bloomberg the average cost of security breaches in the U.S. is 7.2 million dollars per incident. Gartner studies show that the average enterprise spends 5.6% of their it budget on information security, making this a nearly one trillion dollar a year industry. The need for educated professionals in this field is clearly spelled out in documents such as the U.S. Committee on National Security Systems Directive No. 500 Information Assurance (IA) Education, Training, and Awareness which mandates information assurance education for the professionals necessary to ensure the development and implementation of a comprehensive approach for the protection of U.S. Government national security systems and the information they store, process, or transmit.

The *Master of Cyber Forensics and Security* degree is designed to equip experienced information technology professionals with the necessary knowledge and tools to fill the need for educated cyber security and forensics practitioners, investigators and managers. Built around a strong core of courses originally developed for IIT's Information Technology and Management degrees, the program also draws on courses from the IIT Chicago-Kent College of Law curriculum to give cyber security and forensics practitioners the necessary thorough grounding in legal issues and compliance. Courses are taught by experts in the field who not only have academic knowledge but years of experience in the information security realm in both industry and government service.

http://www.itm.iit.edu/cybersecurity/index.php

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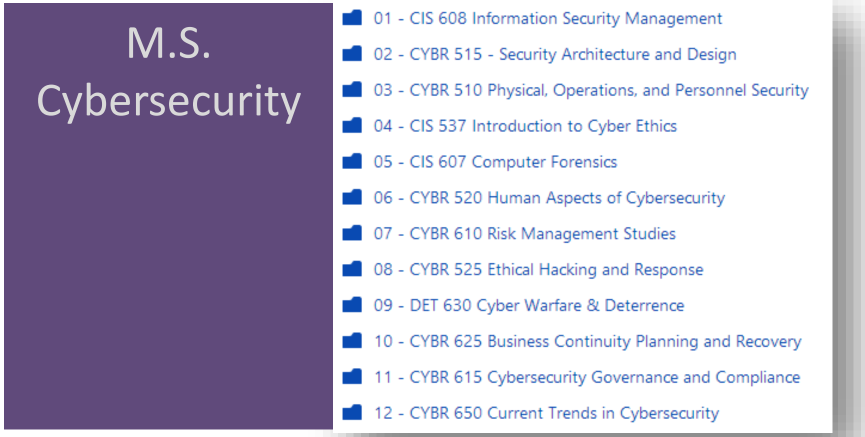
Bellevue University

Bellevue, NE (land campus and online)

- M.S. in Cybersecurity
- B.S. in Cybersecurity



M.S. Cybersecurity

- 01 - CIS 608 Information Security Management
- 02 - CYBR 515 - Security Architecture and Design
- 03 - CYBR 510 Physical, Operations, and Personnel Security
- 04 - CIS 537 Introduction to Cyber Ethics
- 05 - CIS 607 Computer Forensics
- 06 - CYBR 520 Human Aspects of Cybersecurity
- 07 - CYBR 610 Risk Management Studies
- 08 - CYBR 525 Ethical Hacking and Response
- 09 - DET 630 Cyber Warfare & Deterrence
- 10 - CYBR 625 Business Continuity Planning and Recovery
- 11 - CYBR 615 Cybersecurity Governance and Compliance
- 12 - CYBR 650 Current Trends in Cybersecurity

http://www.bellevue.edu/degrees/graduate/cybersecurity-ms/

BELLEVUE UNIVERSITY

Presenter Bio:
William Favre Slater, III

- IT professional since July 1977
- Owner of Slater Technologies, Inc.
- Currently a Senior IT Consultant in IT Security, Information Security, IT Infrastructure Management, Data Center Operations & Development, IT Change Management, Application System Development, Technical Service Development, and Service Management
- An Adjunct Professor at the Illinois Institute of Technology – for six years
- first Data Center Manager of Microsoft's Flagship Cloud Data Center, the Microsoft Chicago Data Center in 2008
- Managed Data Centers at BP from August 2001 – November 2006, was also a Change Management Manager and a System Administrator during that time.
- Have achieved 80 IT-related certifications, including PMP, CDCP, CISSP, SSCP, CISA, MCITP, MS Project, Visio, MCSE 2003 Security & Messaging, MCSD, MCAD, MCDST, and MCT
- Data Center Technology Program – Marist College & and the Institute of Data Center Professionals, February 2008 – Received the Certified Data Center Professional Certification
- M.S. in Cybersecurity – Bellevue University, Bellevue, NE (completed on March 2, 2013)
- MBA, University of Phoenix, 2010
- MS in Computer Information Systems, University of Phoenix, 2004
- BS in Engineering Technology with a major in Computer Systems Technology, University of Memphis
- Published author & editor: Magazines, books, courseware
- Subject Matter Expert in Cybersecurity for Caveon Courseware and Testing
- Happily married (since December 2000) to Joanna K. Roguska, who is a professional web developer
- A former U.S. Air Force computer systems staff officer at Strategic Air Command Headquarters supporting the SAC Underground and SAC Battle Staff Command Control Communications Systems, July 1977 – October 1980
- Native of Memphis, Tennessee, born the same month and year as Bill Gates
- Resident of Chicago
- Active member of Chicago Police Judo Club and a Black belt in Kodokan Judo, since 1988

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Presenter Bio: William Favre Slater, III

- **Current Position – Project Manager / Sr. IT Consultant at Slater Technologies, Inc.** Working on projects related to
  - Security reviews and auditing
  - ISO 27001 Project Implementations
  - Subject Matter Expert for preparing Risk Management and Security Exams at Western Governor's State University in UT
  - Created an eBook with articles about Security, Risk Management, Cyberwarfare, Project Management and Data Center Operations
  - Providing subject matter expert services to Data Center product vendors and other local businesses.
  - Developing and presenting technical training materials for undergraduate and graduate students at the Illinois Institute of Technology in the areas of Data Center Operations, Data Center Architecture, Cyber Security Management, and Information Technology hardware and software.

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