Information Security & Privacy Office

Cloudy with a Chance of Malware

Our Shared Responsibility
staysafeonline.org
National Cyber Security Awareness Month

2014 National Cyber Security Awareness Month

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Information Technology Services

City of Phoenix

Agenda

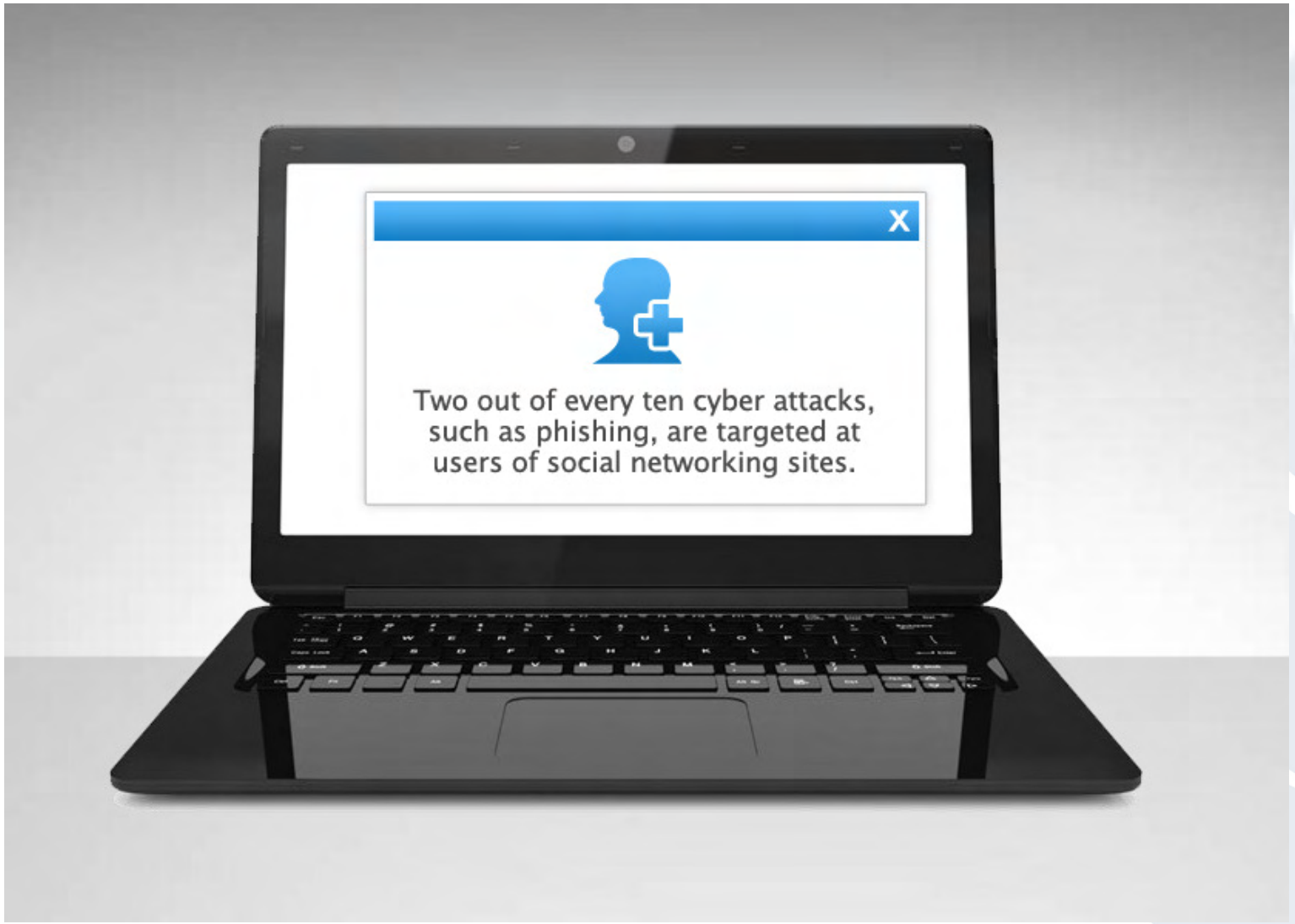
1. Introduction – Threat Landscape
   - Cyber Facts
2. Protecting yourself and your family against hackers and cybercriminals
3. Using social media safely
4. Recovering from having your personal information compromised
5. Questions & Answers

Cyber Facts - Malware

Cyber Facts - Phishing

Cyber Facts – Credit Card Fraud

Cyber Facts – Social Media



Cyber Facts – ID Theft

Cyber Facts – Mobile Devices

Cyber Facts – Online Gaming

Cyber Facts – Free Stuff

Cyber Facts – Email

Scale and speed of cyber-attacks is escalating

- Federal government suffered a 680% increase in cyber security breaches in the past six years. (Face the Facts USA)
- Cyber criminals stole over $100 million from US banks in 2013. (Congressional Cybersecurity Caucus)
- 600,000 accounts are compromised every day on Facebook (Floridatechonline.com)
- 43% of companies had a data breach in the past year
- The National Nuclear Security Administration records 10 million attempted hacks a day. (Defense News)
- The U.S. Navy receives 110,000 cyber attacks every hour. (Floridatechonline.com)
- The estimated annual cost of global cybercrime over $100 billion. (Go-gulf.com)

Online Threats

- **30,000** URLs (websites) are infected every day; 80% of those infected sites are legitimate.
- 85% percent of all malware, including viruses, worms, spyware, adware and Trojans, comes from the web.
- Drive-by downloads have become the top web threat.

Update antivirus and operating system

Source: SophosLabs

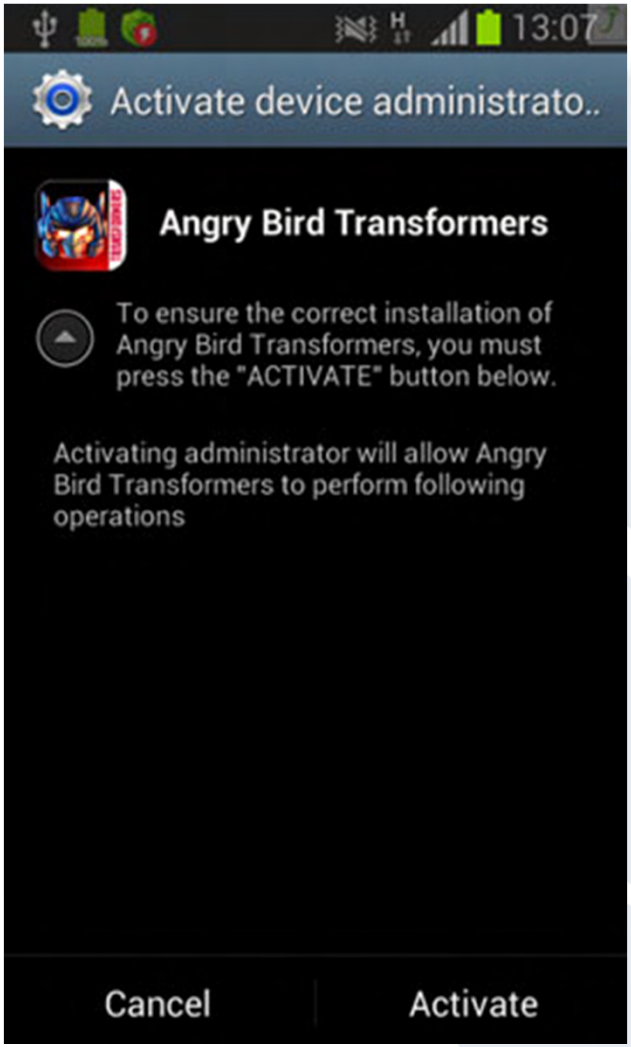
Angry Birds Malware

1. New Android malware Trojan **formats the device's SD card** and **deletes all content** on it.

2. Malware hides all notifications about new incoming SMS.

3. An SMS message saying is **sent to every contact in the device's address book** and every valid phone number from which an SMS is received.

4. Messages are **sent repeatedly to all these numbers every five seconds**, so the mobile account associated with the compromised device can be depleted in minutes or even seconds.



Smishing Attacks

- **'smishing'** (term used to describe SMS phishing) is a more promising tool for cyber criminals than phishing (email) because users have fewer defensive technology tools.
- Text messaging—most common non-voice use of a mobile phone.
- 73 percent of adults text daily (41.5 messages/day).
- Ages 18 and 24 average110 messages/day. Mobile phones aren't equipped to help users avoid malicious text messages.

Pew Internet American Life Project

Data Breaches
>30,000+ accounts

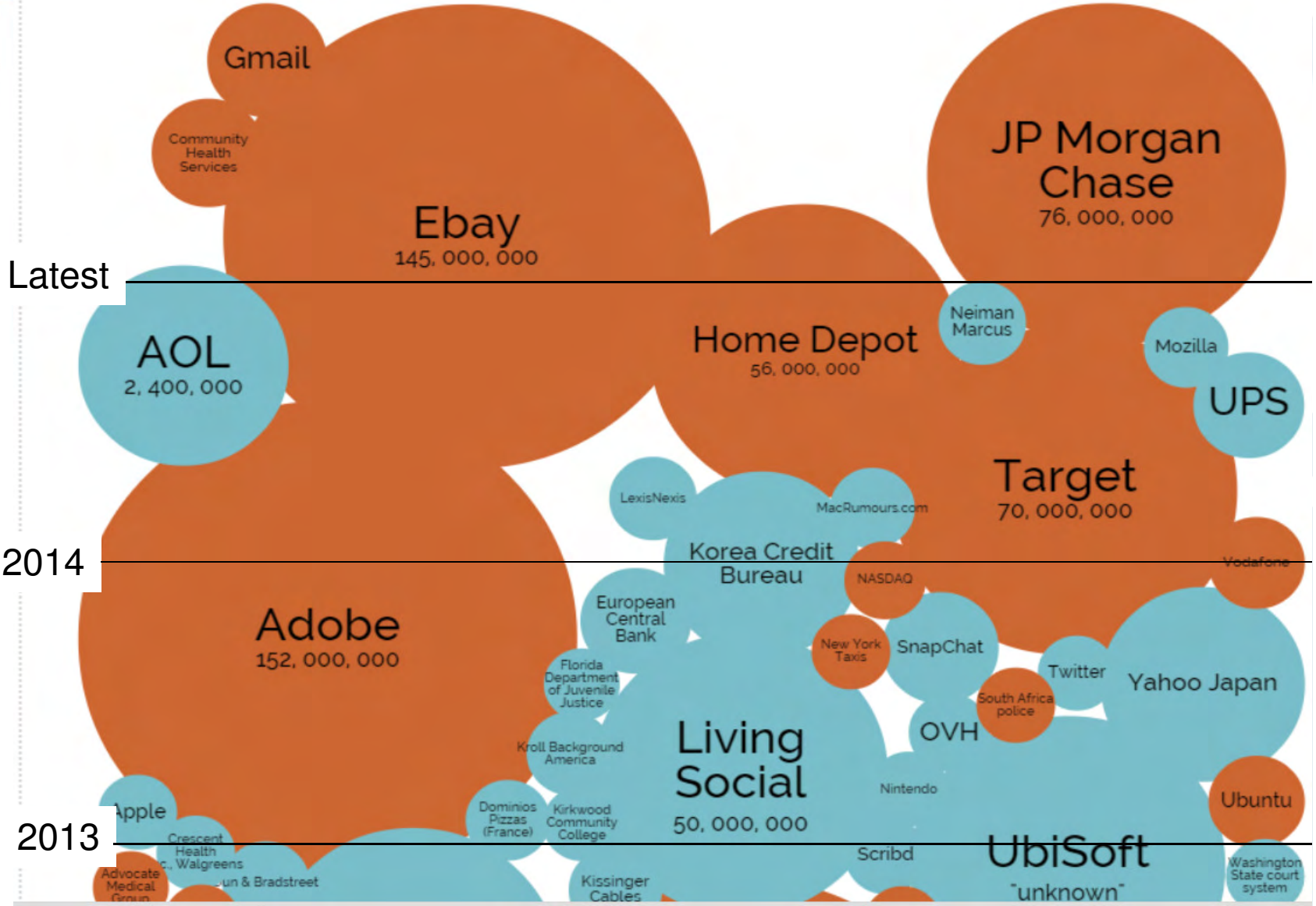
http://www.informationisbeautiful.net/visualizations/worlds-biggest-data-breaches-hacks/

Oct 15
Undisclosed

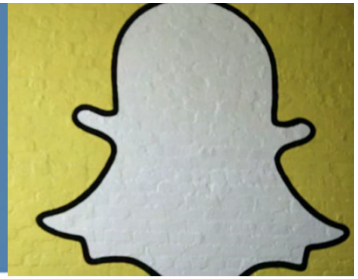
Oct 14
Undisclosed

Oct 13
7,000,000

Oct 12
200,000



Thousands of Snapchat pics leaked online



- Explicit pictures and videos taken with photo sharing app Snapchat were posted online (10/11/2014) from as many as 200,000 users.

- The service specializes in photos, videos and messages users can send that "disappear" after a period of time. However, several services have popped up allowing others to save photos or videos.

- Snapchat says the service itself has not been compromised, but that users "were victimized by their use of third-party apps."

- As half of Snapchat's users are aged between 13 and 17, there is concern many of the indecent images might be of children

USA TODAY
A GANNETT COMPANY

Data Breaches - Target

40 million – The number of credit and debit cards thieves stole from Target between Nov. 27 and Dec. 15, 2013.

70 million – The number of records stolen that included the name, address, email address and phone number of Target shoppers.

46% – The percentage drop in profits at Target in the fourth quarter of 2013, compared with the year before.

$100 million – The number of dollars Target says it will spend upgrading their payment terminals to support Chip-and-PIN enabled cards.

- In the Target breach, it was a heating and air conditioning vendor that was exploited to gain entry.

Identity Theft Resource Center

2014 Data Breach Category Summary

How is this report produced? What are the rules? See last page of report for details.

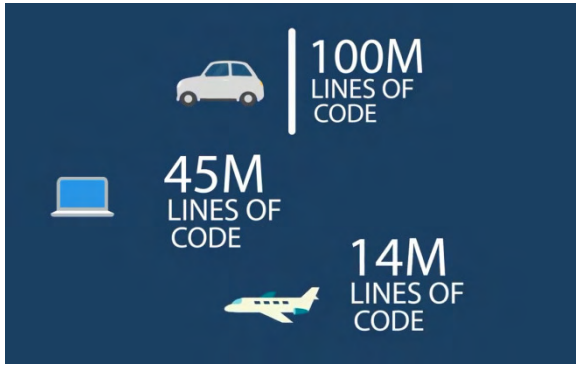
Report Date: 10/14/2014

Totals for Category:	Banking/Credit/Financial	# of Breaches: 24	# of Records:	1,172,320
		% of Breaches: 4.0%	%of Records:	1.5%
Totals for Category:	Business	# of Breaches: 211	# of Records:	64,407,359
		% of Breaches: 34.8	%of Records:	83.0%
Totals for Category:	Educational	# of Breaches: 44	# of Records:	1,222,361
		% of Breaches: 7.3%	%of Records:	1.6%
Totals for Category:	Government/Military	# of Breaches: 68	# of Records:	3,623,626
		% of Breaches: 11.2	%of Records:	4.7%
Totals for Category:	Medical/Healthcare	# of Breaches: 259	# of Records:	7,151,542
		% of Breaches: 42.7	%of Records:	9.2%
Totals for All Categories:		# of Breaches: 606	# of Records:	77,577,208
		% of Breaches: 100.0	%of Records:	100.0%

2014 Breaches Identified by the ITRC as of:	10/14/2014

Total Breaches:	606
Records Exposed:	77,577,208

Internet of Things (IoT)

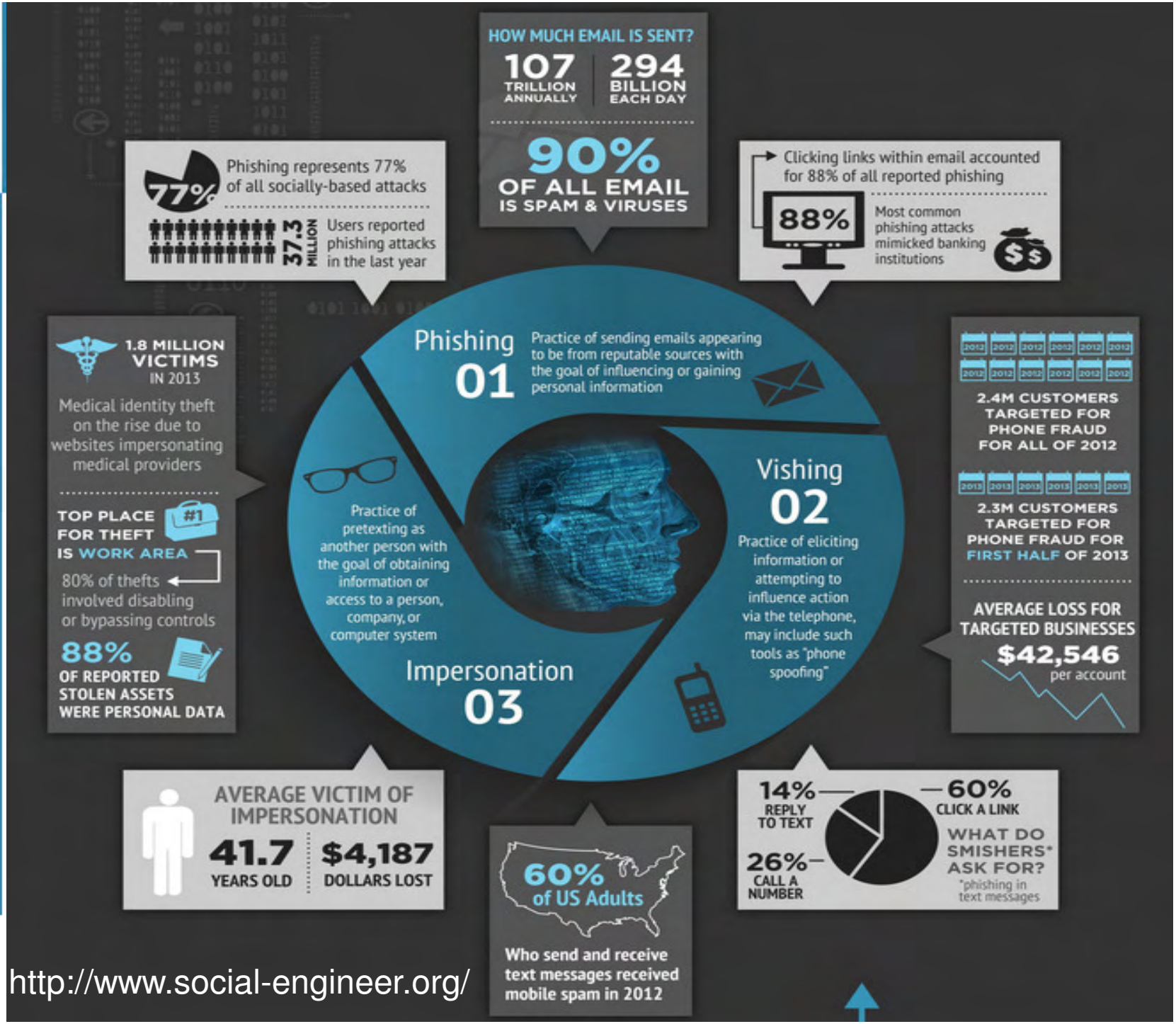


- Every device in your house is connected to the Internet: Refrigerator, Toaster, Thermostat, Water meter, Door Locks, TV Webcam, etc.
- Security researcher sitting at home within 20 minutes found 22 remotely exploitable vulnerabilities in a handful of devices.
- 100M Lines of Code in new cars; 14M Lines of Code in Boeing 787 Dreamliner.
- Hackers broke into more than 100,000 consumer gadgets (home-networking routers, connected multi-media centers, televisions, and one refrigerator), and ….
- Used those objects to send more than 750,000 malicious emails to enterprises and individuals worldwide.

Protecting Yourself and Your Family

- Social Engineering
- Identity Theft
- Creating a Hackproof PassPhrase

Social Engineering



http://www.social-engineer.org/

Common Email Phishing Attack Subject Lines

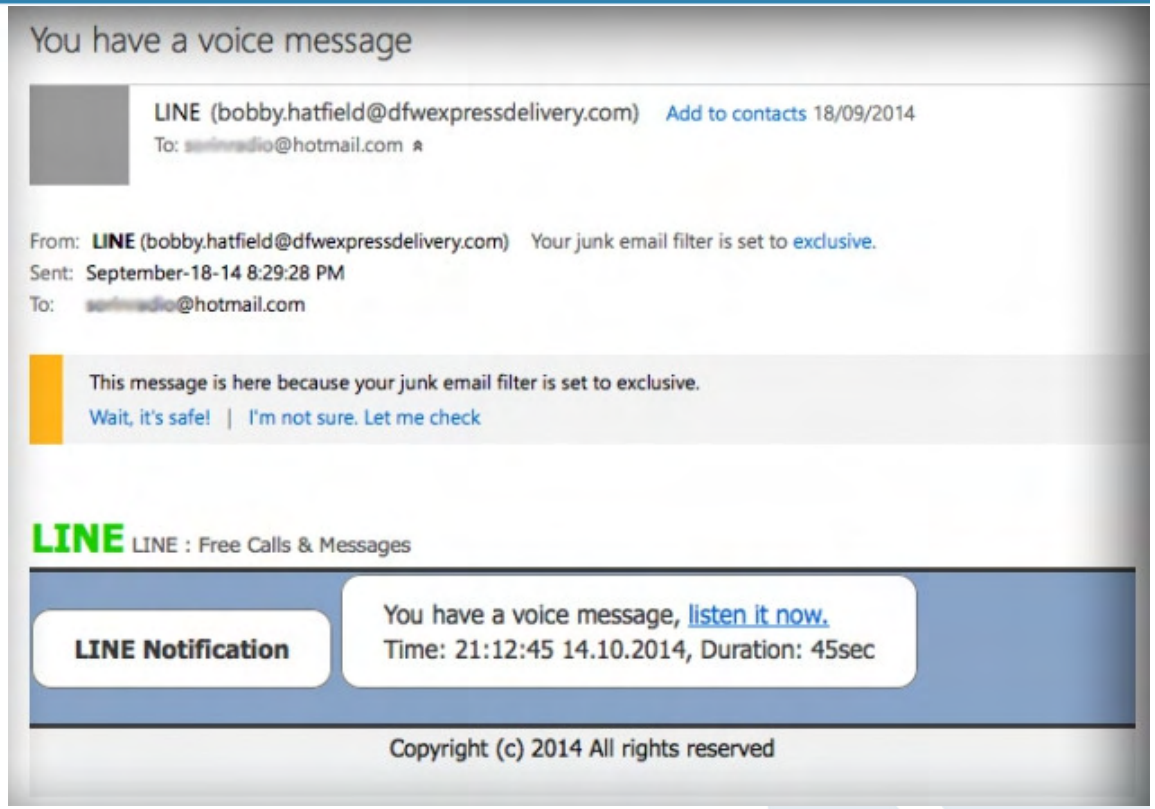
Subject: [IMPORTANT] Amount overdue
Subject: [IMPORTANT] Regarding payment overdue
Subject: [IMPORTANT] Recent invoice
Subject: [IMPORTANT] Final letter before commencing legal action
Subject: [IMPORTANT] Payment overdue notification
Subject: [IMPORTANT] Amount overdue notification
Subject: [IMPORTANT] Final notification before commencing legal action
Subject: [IMPORTANT] Invoice overdue notification
Subject: [IMPORTANT] Notification about the amount overdue
Subject: [IMPORTANT] Latest invoice
Subject: [IMPORTANT] Invoice overdue
Subject: [IMPORTANT] Recent invoice unpaid
Subject: [IMPORTANT] Last letter before commencing legal action
Subject: [IMPORTANT] Latest letter on invoice overdue
Subject: [IMPORTANT] Last notification before commencing legal action

Social Engineering

- Fake offers for free cell phone minutes accounted for the largest number of attacks on Facebook users in 2013.
- 12% of social media users say someone has hacked into their social network account and pretended to be them.
- 25% continue to share their social media passwords with others.
- 33% connect with people they don't know.

Voice Message E-mail Scam

1. Someone leaves you a voicemail via email.
2. You are invited to 'Listen' to your message. By clicking “listen is now”.
3. Clicking the button takes you to a malicious website that will download and install a file called "Browser 6.5” on your computer or phone.
4. If you then click the "Agree" button in the "browser", text messages will be sent to premium rate phone numbers.



This scam does not work on Macs as "Browser 6.5 is not compatible with your computer". However it does work on a jailbroken iPhone as jailbroken phones cannot be protected.

Fake Travel Agency

1. Tricksters create great websites for “new” travel agencies offering amazing deals.

2. The scammers, usually using amazing pictures stolen from the Internet to promote their destinations, create fake travel agencies for a month at a time.

3. Goal is to get hundreds of avid tourists who pay on the spot, and then close down the "business".

High quality websites. Hard to differentiate from a real business. Scammers buy Google AdSense or Facebook ads and close deals on spot.

Credit Card Charges

1. You receive a call from someone who says he's working for your credit card provider, whether VISA, Mastercard, or American Express:

2. Will ask if you just made a large purchase. If you say no, will then ask if you have lost your credit card or if it's still in you possession.

3. He will read off the full card number on front and first 4 digits on back. Will ask you to confirm last 3 digits on back.

4. If you give him the 3 numbers on back he will say, "That's correct" and tell you your money will be refunded in 5 business days.

5. There will be no refund, the scammer now has your CVV number and can use your card to make online purchases.

Stolen PIN With Infrared Camera

1. In line at shopping counter; man behind you appears to be texting on his cell phone.
2. Later your find a number of charges on your credit card bill you didn't make.
3. The guy behind was actually activating his camera and recording those seconds when your credit card is passed back and forth, registering the numbers on it.
4. After you left the counter, he used a FLIR One infrared camera to steal your PIN.

5. FLIR One is an infrared attachment to smartphone which allows scammer who comes right after in you in line to see the numbers you pressed on the PIN pad.

Identity Theft

- In 2012, more than 12 million Americans were affected by identity theft
- Impact to U.S. economy – $41 billion (Ponemon Institute)
- Every three seconds, a consumer's identity is comprised

Who's at risk of identity theft?

- ANSWER – **Everyone**
- 12% of Americans age 18 or older have been subject to identity theft in just the past 12 months.
- Over half (52%) of Americans do not check their free credit report annually.
- Just 14% of Americans say they subscribe to identity theft protection services such as Lifelock, Identity Guard, or LegalShield.
- Just 17% of Americans check their credit regularly with one of the credit bureaus.

AARP

Child ID Theft

- The rate of identity theft for children was 35 times higher than the rate for adults in the same population.
- 10.2% of children have had their Social Security numbers stolen
- Child IDs were used to purchase homes and automobiles, open credit card accounts, secure employment and obtain driver's licenses.
- Children are easy targets. Their identities are often a blank slate.
- The probability of discovery is low. Parents typically don't monitor a child's identity and the crime can go undiscovered for many years.

Carnegie Mellon

Child ID Theft

CHRIS FROM ARIZONA

AllClear ID discovered that a 17-year-old girl has over $725,000 in debt. Chris's daughter's Social Security number was linked to eight different suspects living in border states. The suspects opened 42 open accounts including mortgages, auto loans, credit cards, and bills in collections including medical, credit cards, and utilities.

Carnegie Mellon

Child ID Theft

NATHAN FROM KENTUCKY

Nathan, a 14-year-old, had a credit history that went back more than 10 years. Several credit cards and a foreclosed mortgage were already in his credit history, all from a suspect living in California. The thief established good credit for the first 10 years and was able to finance a $605,000 home in CA through first and second mortgages. He also used the boy's SSN to open several credit accounts.

Carnegie Mellon

Medical ID Theft

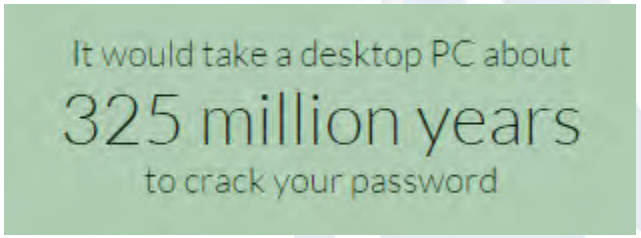
- Rapidly growing; impacts almost 6% of Americans.
- Ponemon Institute's 2012 study, "The National Study on Medical Identity Theft," more than 1.85 million victims of medical ID
- Estimated economic impact in United States at $41.3 billion
- 33% of medical ID theft occurred when a friend or family member used an individual's medical information without their knowledge.

Ponemon INSTITUTE

Creating a Hackproof PassPhrase

How to Create a Hackproof PassPhrase

- Example: The quick brown fox jumps over the lazy dog, becomes tqbfjotld.
- Next add a Special Character (@$!)
- Last, add a year followed by a letter (a,b,c)
- Hackproof passphrase tqbfjotld$1932a



https://howsecureismypassword.net/

- Long enough to be hard to guess
- Not a famous quotation from literature, holy books, et cetera
- Hard to guess even by someone who knows the user well
- Easy to remember
- Not reused between sites, applications and other different sources.

Password Managers

Pros

Convenience and security - can generate strong secret questions
Portability – May be portable if combined with something like Google or Firefox
Secure storage - Sensitive information is encrypted in storage and protected by a master password.
Not just for passwords – Can store bank details, insurance numbers, credit cards, passport numbers

Recommendation 1. Only use password managers that store your encrypted password vault in cloud; your key's remain on your computer.

Cons

Single point of failure - If your master password is weak then you could lose everything if attacker cracks password.
Keys to the kingdom - If your forget your master password, you may not be able to recover your keys.
Trust in the cloud – If your encrypted keys are stored in the cloud, and the cloud is breached, hackers may be able to crack your password.

Recommendation 2. Use two factor authentication for your really sensitive information and a password manager for the rest.

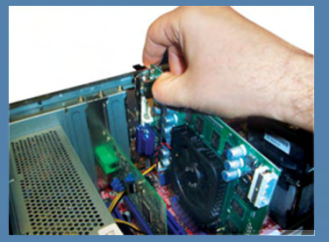
1Password | KeePass | DashLane | LastPass | PasswordBox | SplashID Safe |

Password Insecurity

The **25 most popular passwords 2013**

1. 123456	11. 123123	21. password1
2. password	12. admin	22. princess
3. 12345678	13. 1234567890	23. azerty
4. qwerty	14. letmein	24. trustno1
5. abc123	15. photoshop	25. 00000
6. 123456789	16. 1234	
7. 111111	17. monkey	
8. 1234567	18. shadow	
9. iloveyou	19. sunshine	
10. adobe123	20. 12345	

Brute Force Attack



Today ***any 7 character password can be cracked by brute force in hours*** using a regular personal computer with a GPU graphics card.

- Time to break a five character random password like ‘xnZyr’ – 24 seconds at a rate of 9.8 million password guesses per second. (normal CPU)

- Time to break same password with the addition of a GPU graphics card – 1 second

Source: http://howsecureismypassword.org/using-passwords-guide/

Google 2-Step Verification

Google 2-Step Verification

Home Features Help

Stronger security for your Google Account

With 2-Step Verification, you'll protect your account with both your password and your phone

An extra layer of security

Most people only have one layer – their password – to protect their account. With 2-Step Verification, if a bad guy hacks through your password layer, he'll still need your phone to get into your account.

Signing in to your account will work a little differently

1 **Enter your password**

Whenever you sign in to Google, you'll enter your password as usual.

2 **Enter a verification code**

Then, you'll be asked for a code that will be sent to your phone via text, voice call, or our mobile app.

Using Social Media Safely

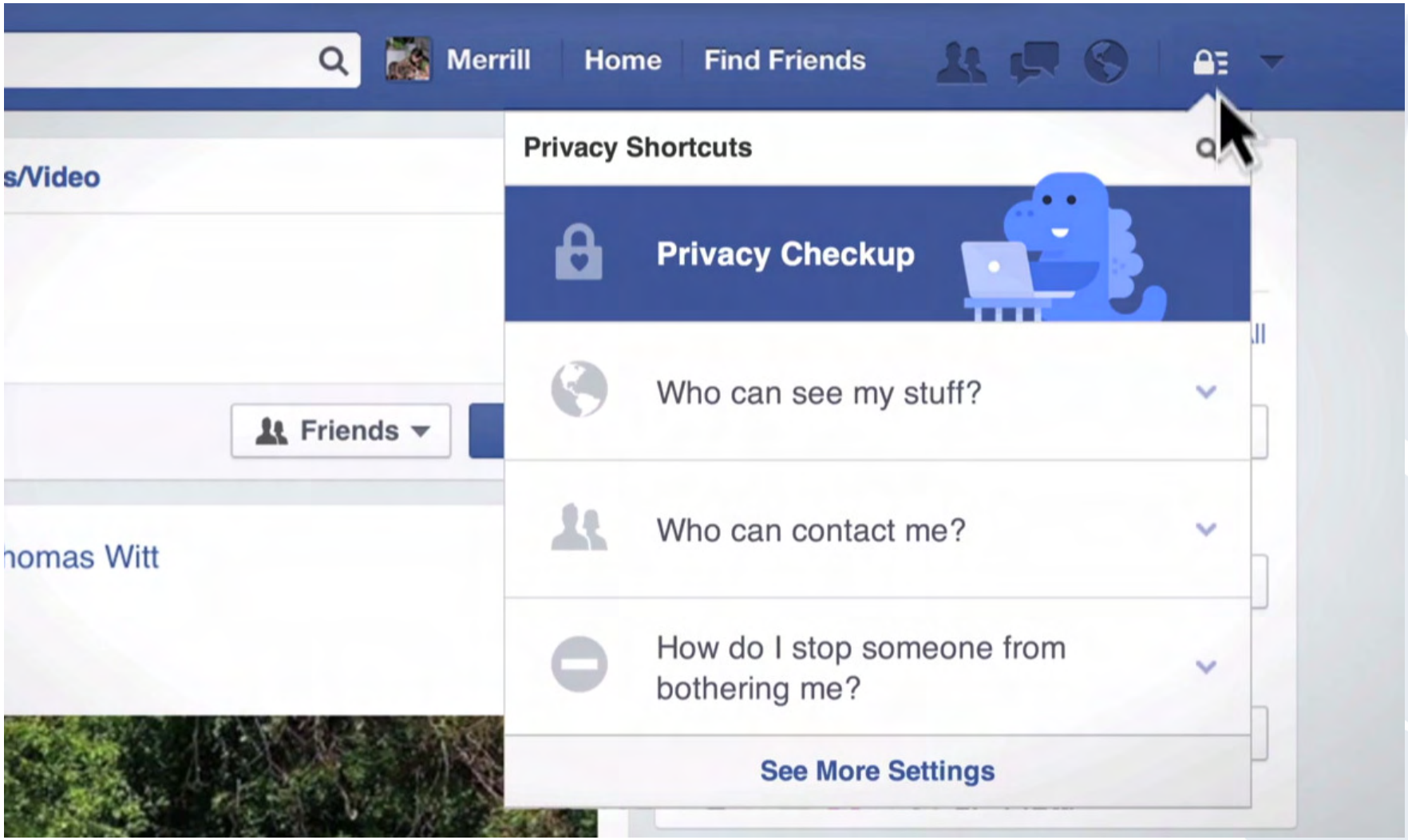
1. Social Media Oversharing
2. Facebook Privacy Checkup
3. Social Networking Do's and Don'ts
4. Disabling Smartphone Locational Services

Social Media Oversharing

Keep yourself and your information safe, pay careful attention to your online activity. Avoid posting information including:

- Travel plans
- Bank account information
- Your full address and birthdate
- Your children's' names, school, and birthdates
- Location information, such as the name of your work place
- Your daily schedule

Facebook Privacy Checkup



Google+ Smart Card

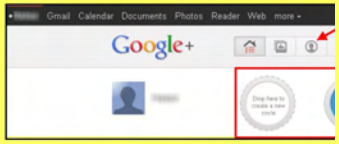
G+ 121911_2000

Social Networks - Do's and Don'ts

- Only establish and maintain connections with peop
- Assume that ANYONE can see any information abo
- Ensure that your family takes similar precautions w
- Avoid posting or tagging images of you or your fam otherwise concealed. **Never post Smartphone pho**
- Use secure browser settings when possible and mo

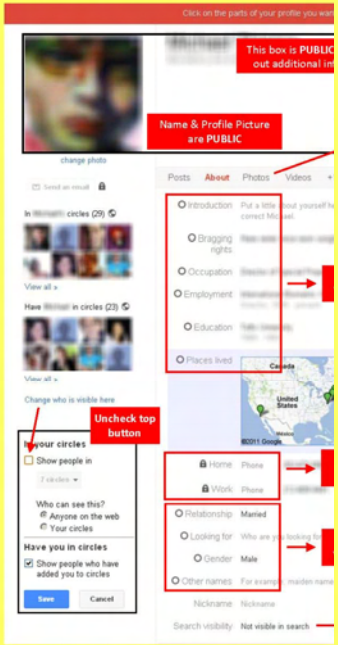
Managing Your Google+ Profile

Google+ provides privacy and sharing options using **Cir** family, friends, or colleagues. Content is shared only w



Profile Settings

Apply and save the **Profile** settings shown below to en



LinkedIn Smart Card

LI 121911_1400

Social Networks -Do's and Don'ts

- Only establish and maintain connections with p
- Assume that ANYONE can see any information a
- Ensure that your family takes similar precaution
- Avoid posting or tagging images of you or your otherwise concealed. **Never post Smartphone p**
- Use secure browser settings when possible and

Managing Your LinkedIn Profile

LinkedIn is a professional networking site whose us employees and employers. Users post and share int

Profile Settings

Apply the **Profile** settings shown with arrows below

- Users tend to share information related to their
- LinkedIn profiles tend to be more **visible and sea**
- **Paid LinkedIn accounts** have access to more info
- The type of information users can see about each

Twitter Smart Card

Twitter 12

Social Networks -Do's and Don'ts

- Only establish and maintain connections wit
- Assume that ANYONE can see any informatio
- Ensure that your family takes similar precaut
- Avoid posting or tagging images of you or yo otherwise concealed. **Never post Smartphor**
- Use secure browser settings when possible a

Managing your Twitter Account

Twitter is a social networking and microblogging popularity with +300 million active users as of 2

Following are people you subscribe to
Followers subscribe to your tweets
Private tweets will only be visible to followers you approve

Tweets
"Tweets" are refer to a pos protected by

Hashtags (#topic) are used to mark a keywo Tweet. Posts with hashtag are categorized l Twitter search engine. Hashtagged words that become Trending Topics (ex. #jan25, #egypt, #s

Mentions (@username) are used to tag a user update. When a public user mentions a private account, the link to the private account profile

Profile Settings

Apply the **Profile** settings shown below to ensur

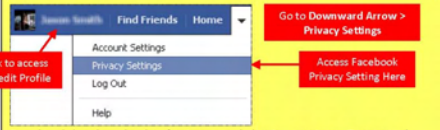
Facebook Smart Card

FB 121211_1800

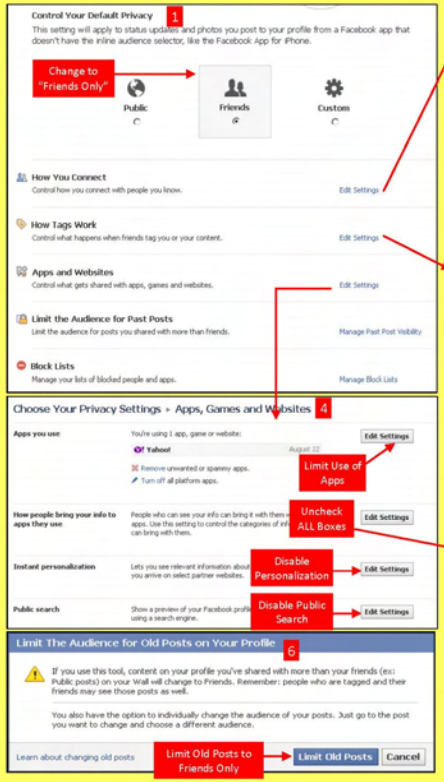
Social Networks - Do's and Don'ts

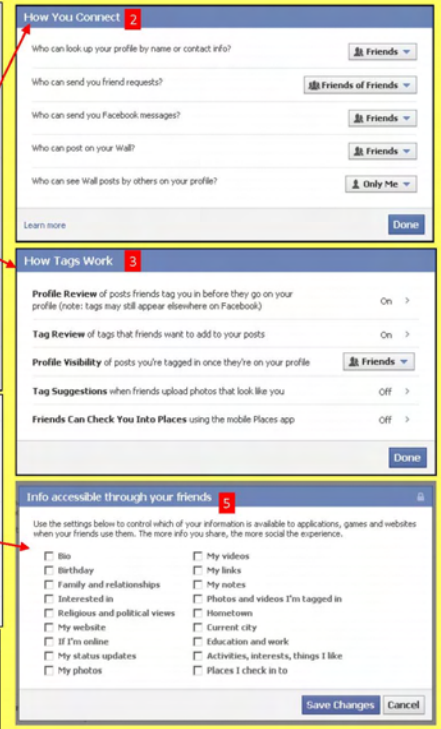
- Only establish and maintain connections with people you know and trust. Review your connections often.
- Assume that ANYONE can see any information about your activities, personal life, or professional life that you post and share.
- Ensure that your family takes similar precautions with their accounts; their privacy and sharing settings can expose your personal data.
- Avoid posting or tagging images of you or your family that clearly show your face. Select pictures taken at a distance, at an angle, or otherwise concealed. Never post Smartphone photos and don't use your face as a profile photo, instead, use cartoons or avatars.
- Use secure browser settings when possible and monitor your browsing history to ensure that you recognize all access points.

Minimizing your Facebook Profile



Facebook has hundreds of privacy and sharing options. To control how your personal information is shared, you should use the settings shown below (such as *Only Me, Friends Only*) for **(1) Privacy, (2) Connecting, (3) Tags, (4) Apps/Websites, (5) Info Access through Friends,** and **(6) Past Posts.**





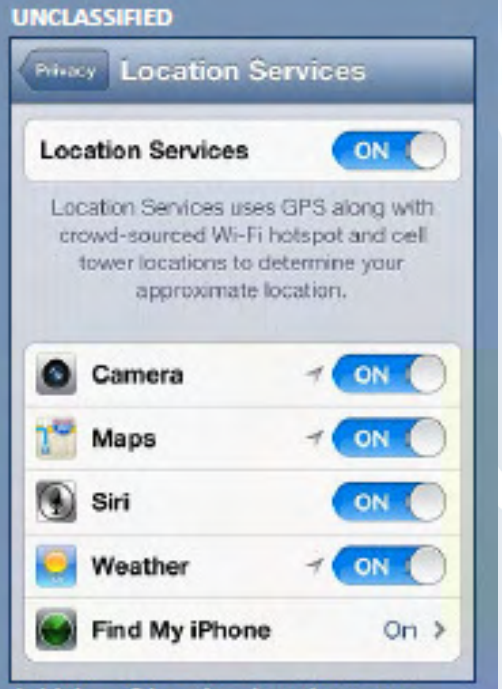
Disabling Locational Services

(U) Disabling Locational Services

(U//FOUO) Turning off locational services—collectively or individually—on mobile devices may help reduce geotagging of personal information through mobile device functions and social media applications available through many mobile devices.

(U) To reduce the effects of locational services and geotagging, the following steps can be taken:

1. (U) On Android® devices, tap the **Location** option from the **Settings** menu. Most Android devices will allow you to turn off location services for your entire phone, such as GPS services, and other companies' location services. Generally, by leaving a box unchecked, the location service is turned off.
2. (U) On iPhone® and Windows® phones, tap **Settings**, then tap **Location Services** and toggle the switch to **OFF**.
3. (U) On many social media platforms, an account's security is only as good as its weakest link. Consider un-tagging yourself from geotagged posts made by other users on social media.



(U) iPhone® locational services menu.
(Image Source: Apple)

Recovering from a Compromise

1. Don’t Panic!
2. Check to see if your user information has been posted online (https://haveibeenpwned.com/)
3. If your information was compromised by a company, contact them to see if they will be providing credit monitoring services.
4. Immediately change your passwords!
5. Notify Phoenix Police Department (https://www.phoenix.gov/policesite/Documents/066344.pdf)

What to Do After Identity Theft

Credit Reporting Companies	
Exquifax	1-800-525-6285
Experian	1-888-397-3742
TransUnion	1-800-680-7289

Place an Initial Fraud Alert

- Contact 1 of the credit reporting companies.
- Report that you are an identity theft victim.
- Ask the company to put a fraud alert on your credit file.
- Confirm that the company you call will contact the other 2 companies. Placing a fraud alert is **free**. The initial fraud alert stays on your credit report for 90 days. Be sure the credit reporting companies have your current contact information so they can get in touch with you.

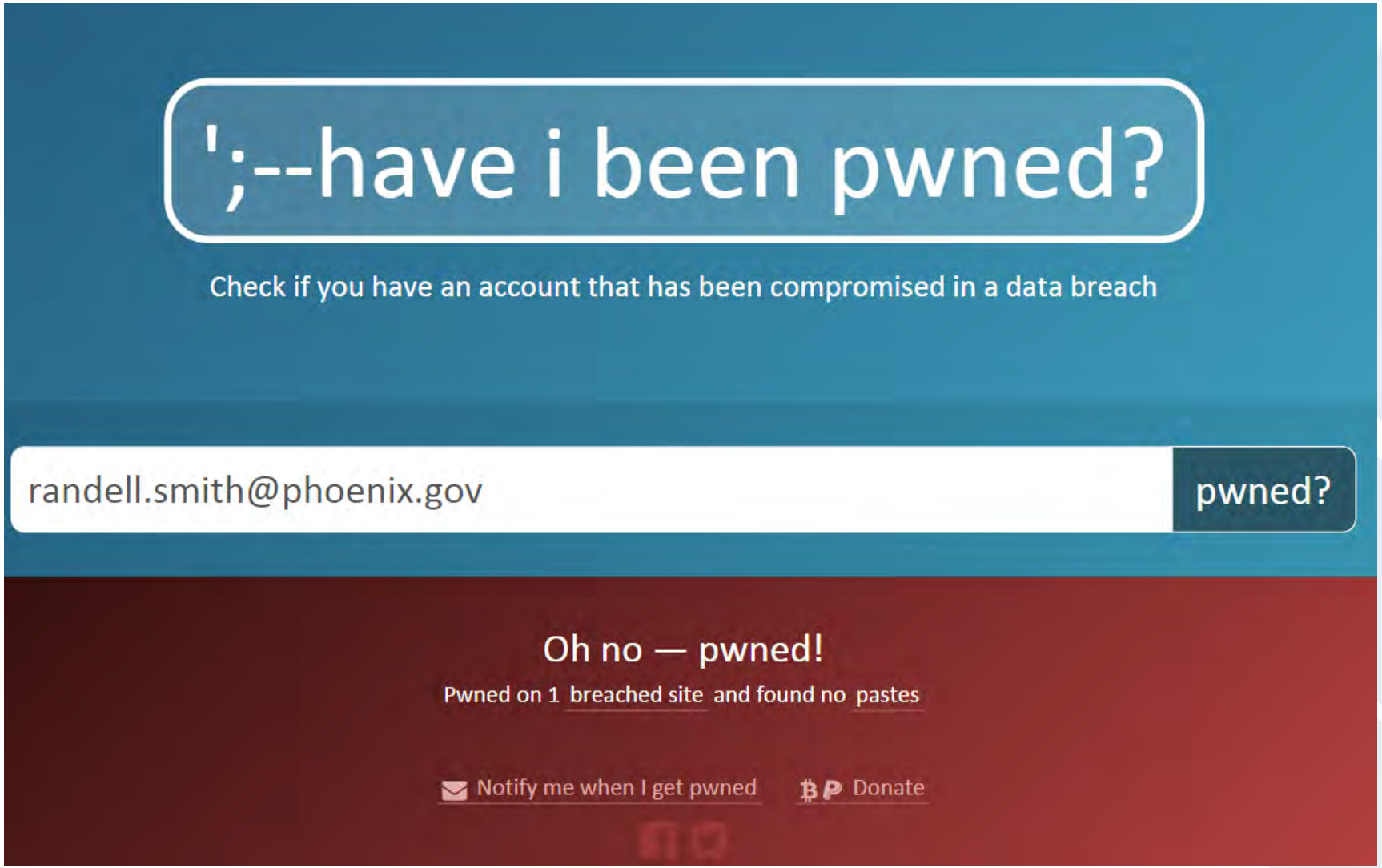
Order Your Free Credit Reports

- Contact each of the 3 nationwide credit reporting companies.
- Explain that you placed an initial fraud alert.
- Order your free copy of your credit report. Ask each company to show only the last 4 digits of your Social Security number on your report.

(http://www.consumer.ftc.gov/articles/0274-immediate-steps-repair-identity-theft)

FEDERAL TRADE COMMISSION
PROTECTING AMERICA'S CONSUMERS

https://haveibeenpwned.com/



https://haveibeenpwned.com/

Breaches you were pwned in

A "breach" is an incident where a site's data has been illegally accessed by hackers and then released publicly. Review the types of data that were compromised (email addresses, passwords, credit cards etc.) and take appropriate action, such as changing passwords.

The big one. In October 2013, 153 million Adobe accounts were breached with each containing an internal ID, username, email, *encrypted* password and a password hint in plain text. The password cryptography was poorly done and many were quickly resolved back to plain text. The unencrypted hints also disclosed much about the passwords adding further to the risk that hundreds of millions of Adobe customers already faced.

Compromised data: Email addresses, Password hints, Passwords, Usernames

Pastes you were found in

A "paste" is information that has been published to a publicly facing website designed to share content, usually anonymously. Often these are indicators of a data breach so review the paste and determine if your account has been compromised then take appropriate action such as changing passwords. Pastes are often removed shortly after having been posted. Read more on the pastes page.

33	174,451,409	10,105	4,993,147
pwned websites	pwned accounts	pastes	paste accounts

Identity Theft Recovery Services

Third party services offered to help victims of ID fraud reclaim their identity.

- **Fraud Alert Reminders** - The company will remind you when the fraud alert on your account is about to expire so you can renew it.
- **Fraud Specialist** - The company provides access to fraud specialists to help you manage your fraud case.
- **Identity Theft Insurance** - The company offers insurance to reimburse you for costs related to restoring your identity.
- **Lost Wallet Protection** - The company offers assistance with canceling and replacing lost or stolen debit/credit cards.

http://www.reviews.com/identity-theft-protection-services/

LifeLock | AllClear ID | Identity Force | ID Patrol | Trusted ID | ID WatchDog

Getting Help – FBI

THE FBI FEDERAL BUREAU OF INVESTIGATION

REPORT THREATS • A-Z INDEX • SITE MAP

SEARCH

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Cyber Crime

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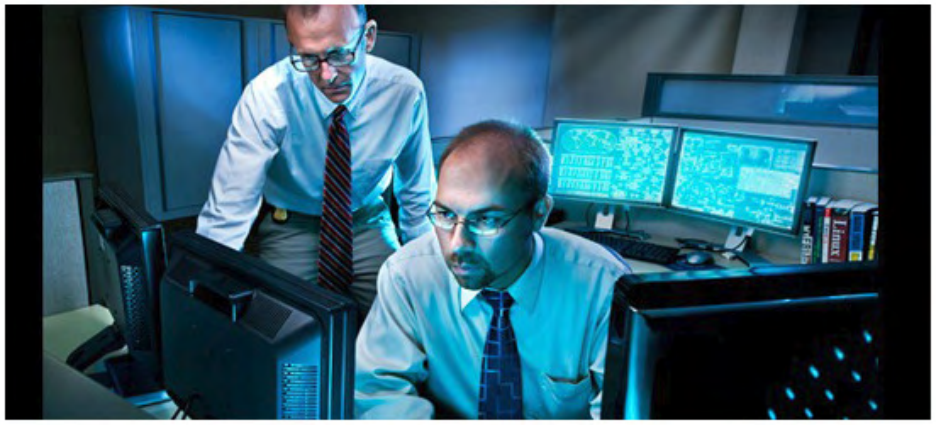


We are building our lives around our wired and wireless networks. The question is, are we ready to work together to defend them?

The FBI certainly is. We lead the national effort to investigate high-tech crimes, including cyber-based terrorism, espionage, computer intrusions, and major cyber fraud. To stay in front of current and emerging trends, we gather and share information and intelligence with public and private sector partners worldwide.

In the News

10.08.14 **Albuquerque** : Governor's Former Campaign Manager Sentenced to Prison for Computer...

10.06.14 **San Diego**: StealthGenie Mobile Device Spyware Application

10.03.14 **San Diego**: National Cyber Security Awareness Month

10.02.14 **Headquarters**: Cyber Security

10.02.14 **San Diego**: FBI Offers $5,000 Reward for Cyber Fugitive

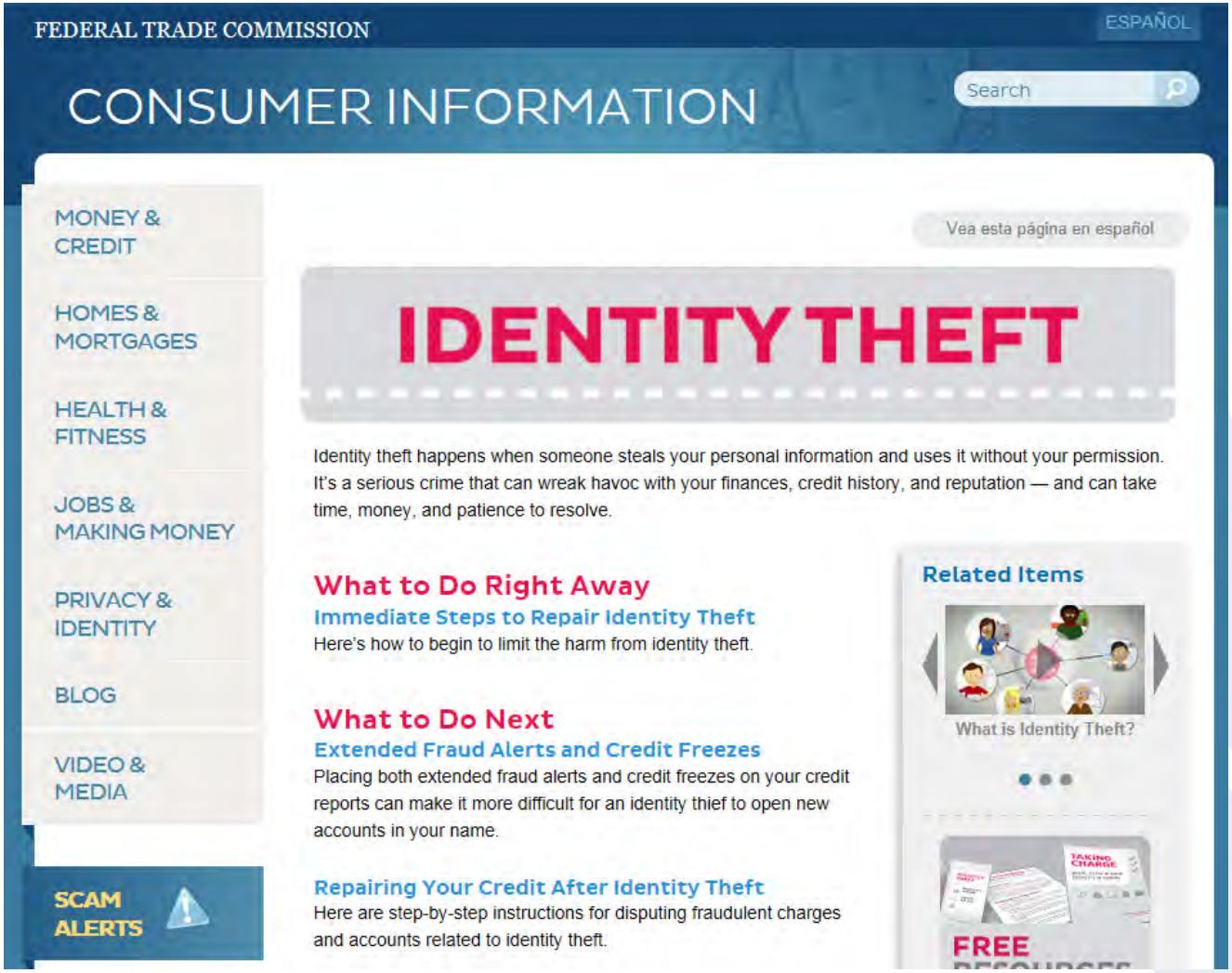
More News

Cyber Fact Sheet

Learn how the FBI is working to address cyber-based threats to national security.
Details | Story

http://www.fbi.gov/about-us/investigate/cyber

Getting Help – FTC



http://www.consumer.ftc.gov

Getting Help – FCC

http://www.fcc.gov/smartphone-security

Getting Help – StaySafeOnline

http://staysafeonline.org

Questions & Answers

Thank You!

For more information, please visit…Phoenix.gov/INFOSEC