



CYBERSECURITY

NOT JUST FOR IT ANYMORE

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Intrust IT

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twitter.com/davehatter

www.youtube.com/user/davidlhatter

My goals for today

- Educate you
- Motivate you
- Provide actionable advice
- Have fun



INTENT TO KILL | 4:50 PM by VICTOR TANGERMANN

Homeland Security Warns of Cyberattacks Intended to Kill People

"The attacks are increasing in frequency and gravity, and cybersecurity must be a priority for all of us."



- 
- Defense in Depth
 - Patched systems
 - 24/7 monitoring/
alerting
 - Annual compliance
auditing
 - Experienced IT/
Security team

*User clicks on
an email*

Cybersecurity myths

- My organization is too small or insignificant to be a target
- My data (or the data I have access to) isn't valuable
- Attacks are always sophisticated or technically complex
- New software and devices are secure out-of-the-box
- Cybersecurity requires a huge financial investment
- Cyber breaches are covered by general liability insurance
- Security is an IT issue

Ripped from the headlines...

CPO MAGAZINE HOME NEWS INSIGHTS RESOURCES

CYBER SECURITY NEWS · 3 MIN READ

Majority of Businesses Unprepared for Reputational Damage and Lawsuits Stemming From Technology Risks

Disconnect Between Legal and Cybersecurity Departments Is Common

SCOTT IKEDA · FEBRUARY 1, 2021

ComputerWeekly.com IT Management Industry Sectors Technology Topics

Cyber insurance costs up by a third

The frequency and severity of ransomware attacks is a leading factor behind a substantial increase in the cost of obtaining cyber security insurance

By Alex Scropton, Security Editor Published: 06 Jul 2021 12:45

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DARKReading

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THE EDGE ANALYTICS ATTACKS / BREACHES APP SEC CLOUD ENDPOINT IoT OPERATIONS PER

VULNERABILITIES / THREATS

4/13/2020 10:00 AM

Cybercrime May Be the World's Third-Largest Economy by 2021

techradar.pro IT INSIGHTS FOR BUSINESS UK Edition

News Security Web hosting VPN Website builder Features

Cybercrime apparently cost the world over \$1 trillion in 2020

By Barclay Ballard February 15, 2021

That's equivalent to 1% of global GDP

VIDEOS WINDOWS 10 5G IOT CLOUD

ZDNet MUST READ: Big data has a trust issue. This city wants to take a smarter approach

PART OF A ZDNET SPECIAL FEATURE: WORKING FROM HOME: THE FUTURE OF BUSINESS IS REMOTE

Working from home causes surge in security breaches, staff 'oblivious' to best practices

The coronavirus pandemic is thought to be at the heart of a rise in security incidents this year.

CNBC SIGN IN PRO WA

MARKETS BUSINESS INVESTING TECH POLITICS CNBC TV

Cyberattacks now cost small companies \$200,000 on average, putting many out of business

PUBLISHED SUN, OCT 13 2019-10:30 AM EDT

TechRepublic. SEARCH IT Policy Downloads Coronavirus

Coronavirus-related cyberattacks surge to 192,000 in one week

by Lance Whitney in Security on May 12, 2020, 6:52 AM PST

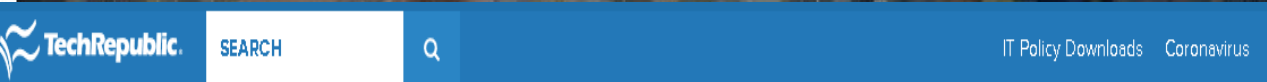
Attacks include malicious websites and files, all exploiting the COVID-19 pandemic, says Check Point Research.

hashedout by The SSL Store

About Us Resource Library

The FBI reports that direct deposit change requests increased more than 815% in 1.5 years

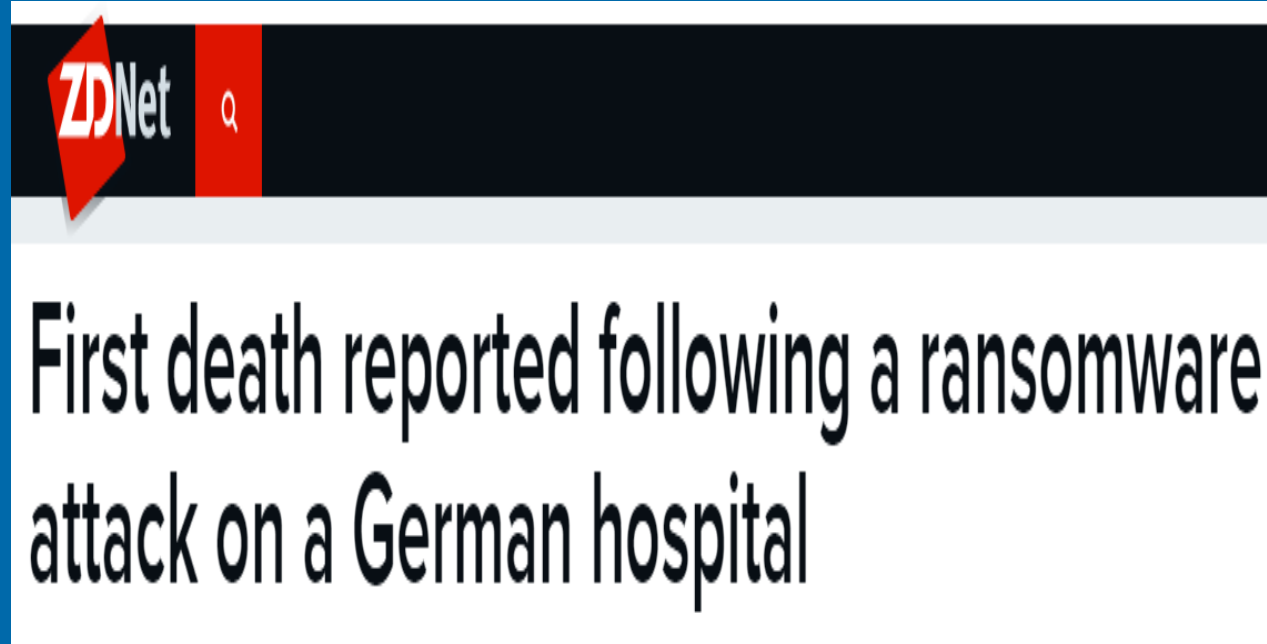
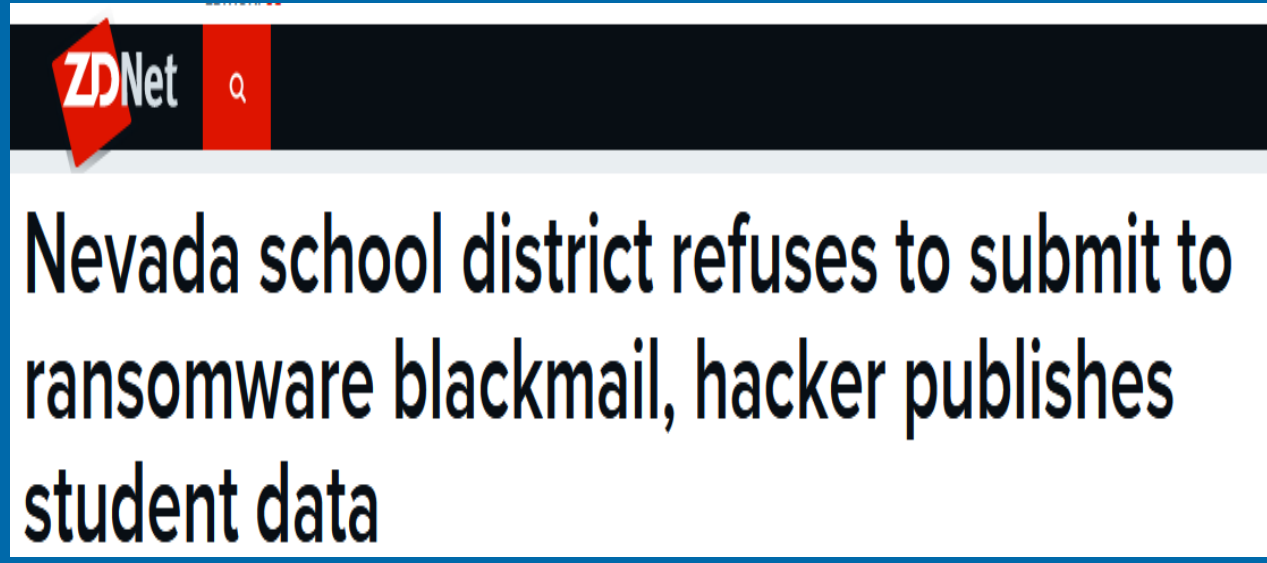
Ripped from the headlines...



Only 31% of Americans concerned with data security, despite 400% rise in cyberattacks



Bad actors have flooded the enterprise with coronavirus-related attacks, but professionals working from home have other worries, Unisys Security found.



Something to consider...

“It takes 20 years to build a reputation and few minutes of cyber-incident to ruin it.” -
Stephane Nappo

Technology impacts all organizations

- Technology is increasingly important to organizations of all shapes and sizes
- Projects increasingly implement new technology
- Technology is increasingly used to manage projects
- Gartner forecasts 2021 IT spending to be \$4 trillion

It's a matter of when, not if...

- "No locale, no industry or organization is bulletproof when it comes to the compromise of data." – Verizon 2016 Data Breach Investigation Report
- "However terrified you are about cybersecurity, you're probably not terrified enough." – LinkedIn Co-founder Reid Hoffman
- Cybercrime is "the greatest threat to every profession, every industry, every company in the world." – Former IBM CEO Ginni Rometty
- "There are two kinds of companies in the United States. There are those who've been hacked ... and those who don't know they've been hacked." – Former FBI Director James Comey

Fish in a barrel...

"Small and midsize businesses are now the preferred targets for cybercriminals – not because they are lucrative prizes individually but because automation makes it easy to attack them by the thousands, and far too many of them are easy targets."

<https://www.csoonline.com/article/2866911/why-criminals-pick-on-small-business.html>



Sorry password
must contain a
special character

System: Enter password:

Me: ScoobyDoo

System: sorry password must
contain a special character

Me: ScoobydooFeaturingBatman

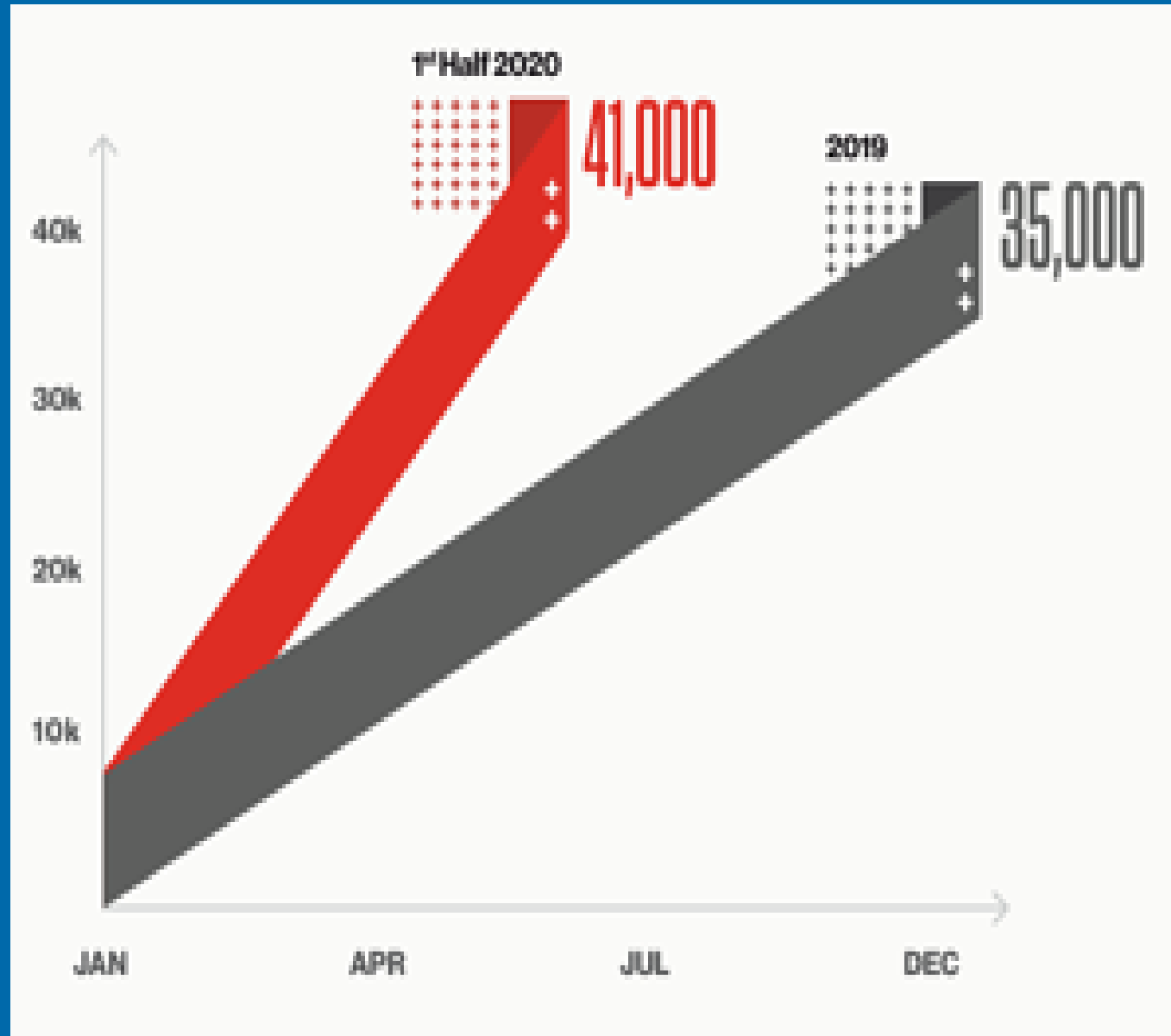
Password Change Sign Up sheet

If you'd like to change your password please fill
out the form below and we will change your
password on the system you indicate.

Full Name	System (Yardi, email, ect.)	Current password	New password
Kyle Smith	Email	Scooter44\$	Skooter4U2
IZ JONES	PHONE	89621	4281
Jack H.	Email	Password	Password2
Big Ed	Facebook	redstepin	mmmkay
Sam Adams	Pike Pass	h	beerlover1981

Come See
me
-Shawn

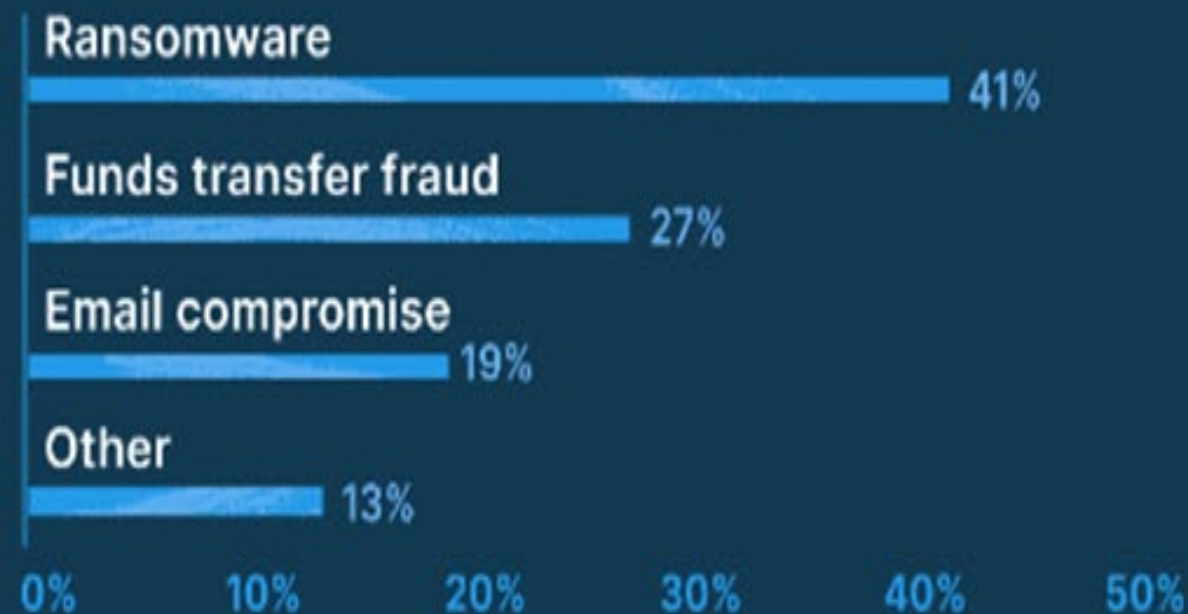
By the numbers...



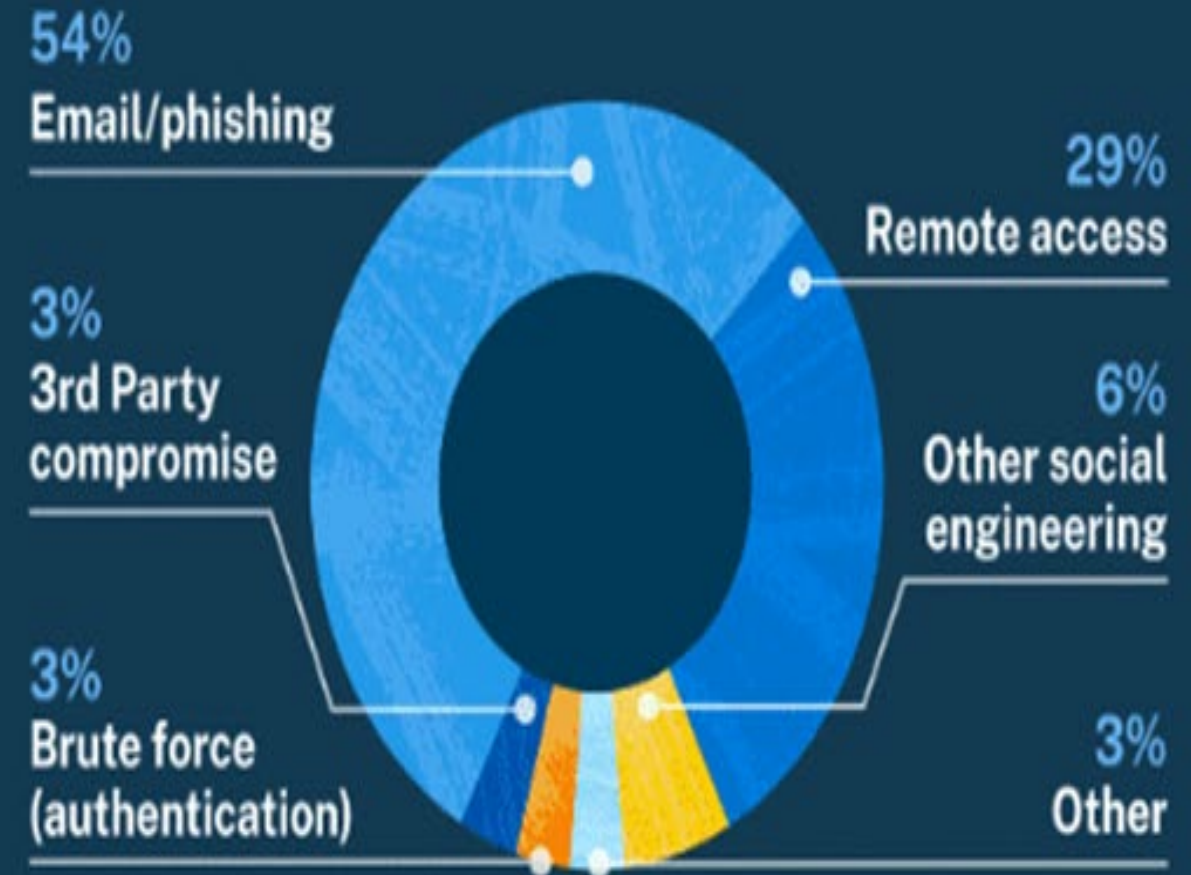
- CrowdStrike, reported detecting and blocking roughly 41,000 potential intrusions in the first half of 2020
- Up from 35,000 intrusions over 12 months in 2019
- This is a 154% increase in cyberattacks

By the numbers...

Most common cyber incidents (% of reported claims)



Percentage of claims by attack technique

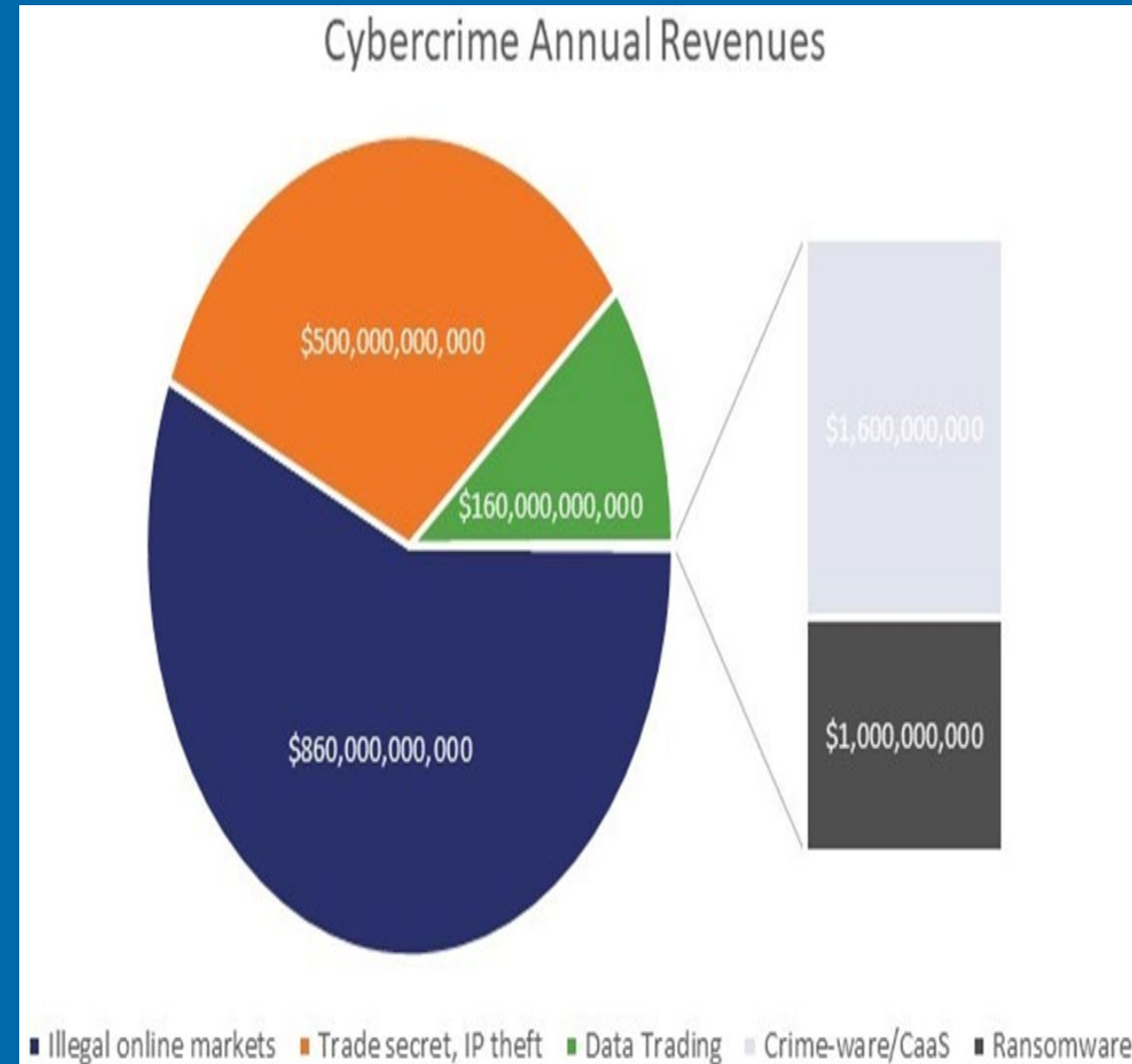


Why this is happening now

- Increasing technology use in all facets of our lives
- Scalable computing resources on-demand (cloud)
- Untraceable worldwide communications (encryption)
- Virtual international currency (cryptocurrency)
- And...

And... Crime has gone digital

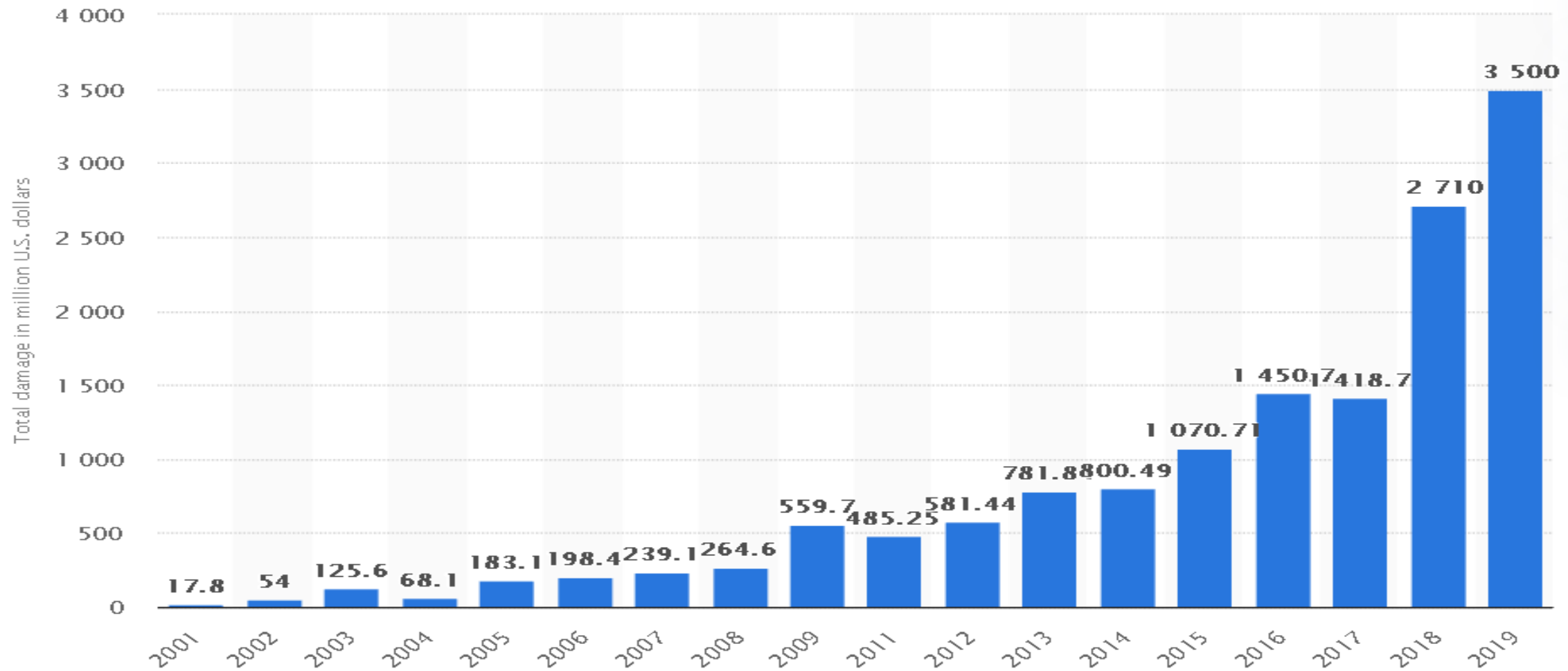
- Cyberattacks are increasing in frequency, sophistication, impact and cost
- A study by Dr. Michael McGuire puts value of the cybercrime economy at \$1.5 trillion
- Cybercriminals are rarely prosecuted



And... Criminals are raking in money!



Cybercrime damage in \$ per IC3



© Statista 2020

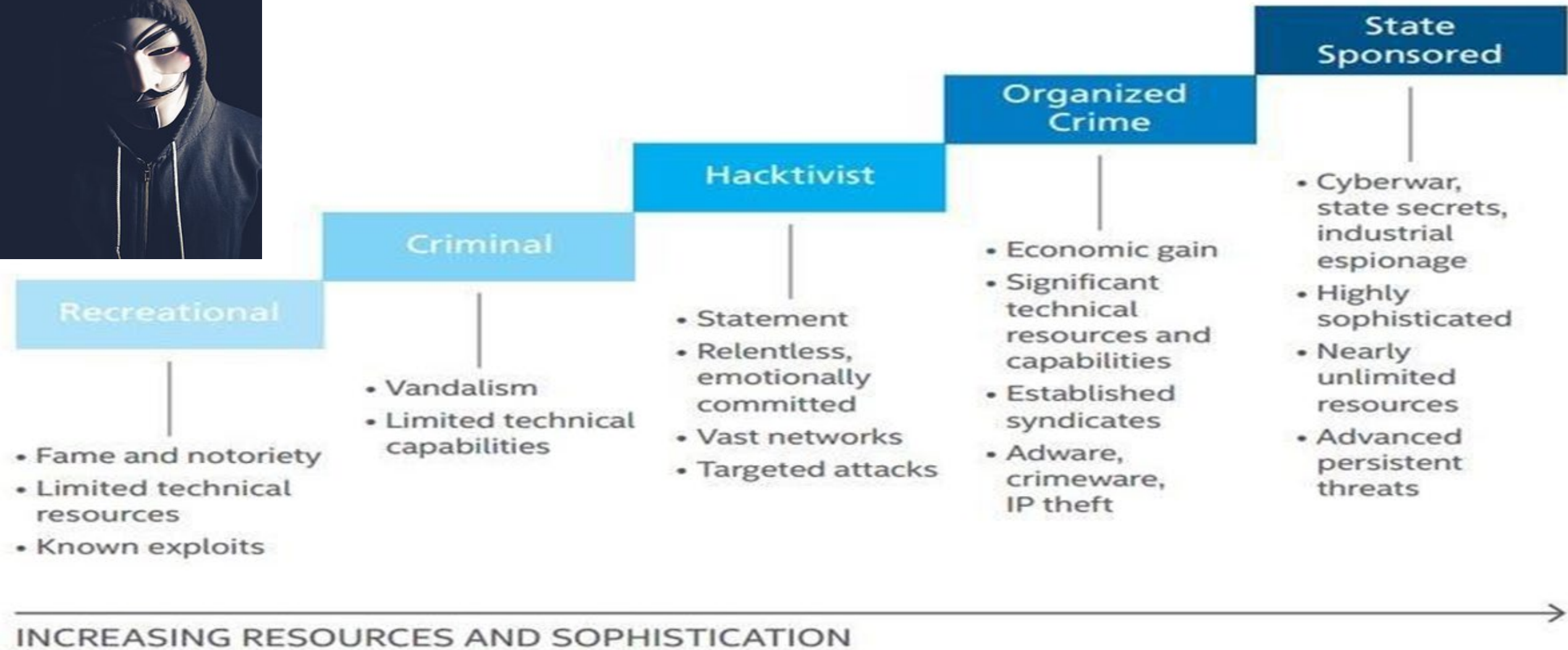
[Additional Information](#)

[Show source](#)

And... Threat actors vary



Changing Attacker Profiles

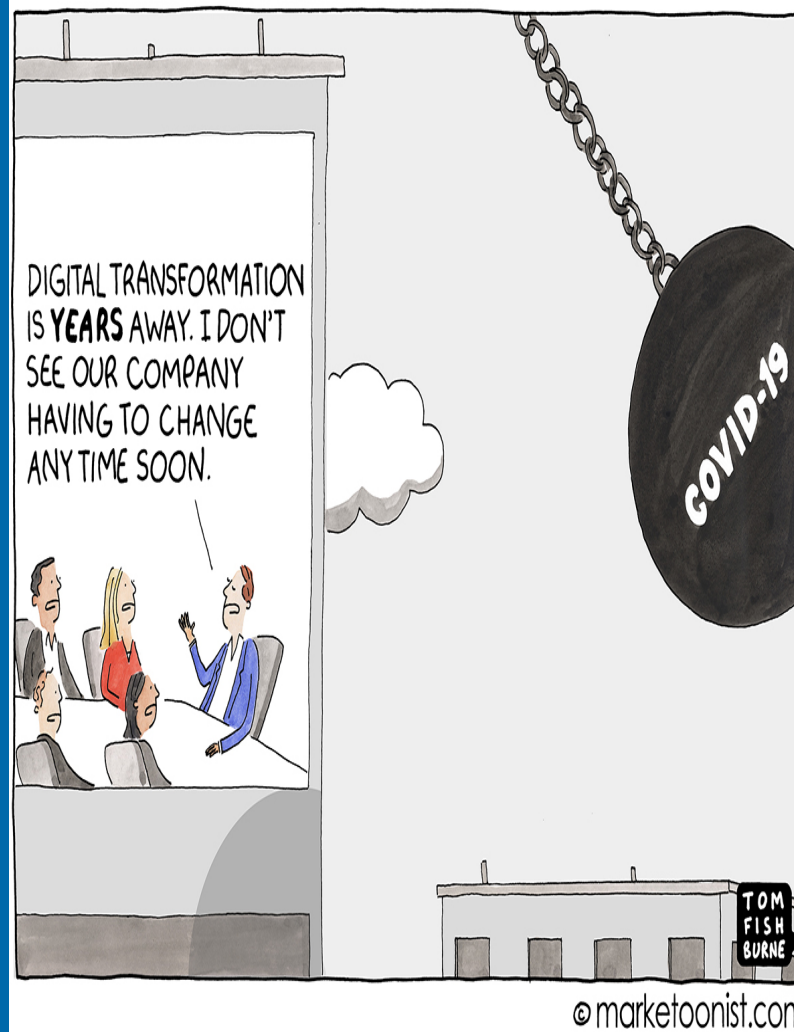


The expansion of attacker types, their resources, and their sophistication.

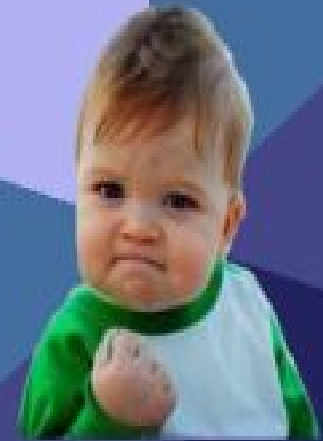
And.. Digital transformation is upon us

Who led the digital transformation of your company?

- A) CEO
- B) CTO
- C) COVID-19



**WORKING FROM HOME
TODAY**



NO PANTS

And.. The attack surface grows daily



THE EXPLOSION OF IOT DEVICES

**30.73
BILLION**





IoT devices expected by 2020*

**75.44
BILLION**

IoT devices expected by 2025

AN EASY TARGET

IoT devices are inherently vulnerable and relatively easy to hijack. Why?

-  They're leaving security up to the owner
-  They're not regularly patched
-  They're not running security software
-  They're not designed with security in mind



EVERYTHING IS CONNECTED!

IoT devices are in our homes and offices, and on our bodies



22 Million

Amazon Echos sold in 2017*



1 Per Second

how often Google says it has sold a Google Home device since October 2017*



\$310.4 Million

wearable devices sales in 2017*

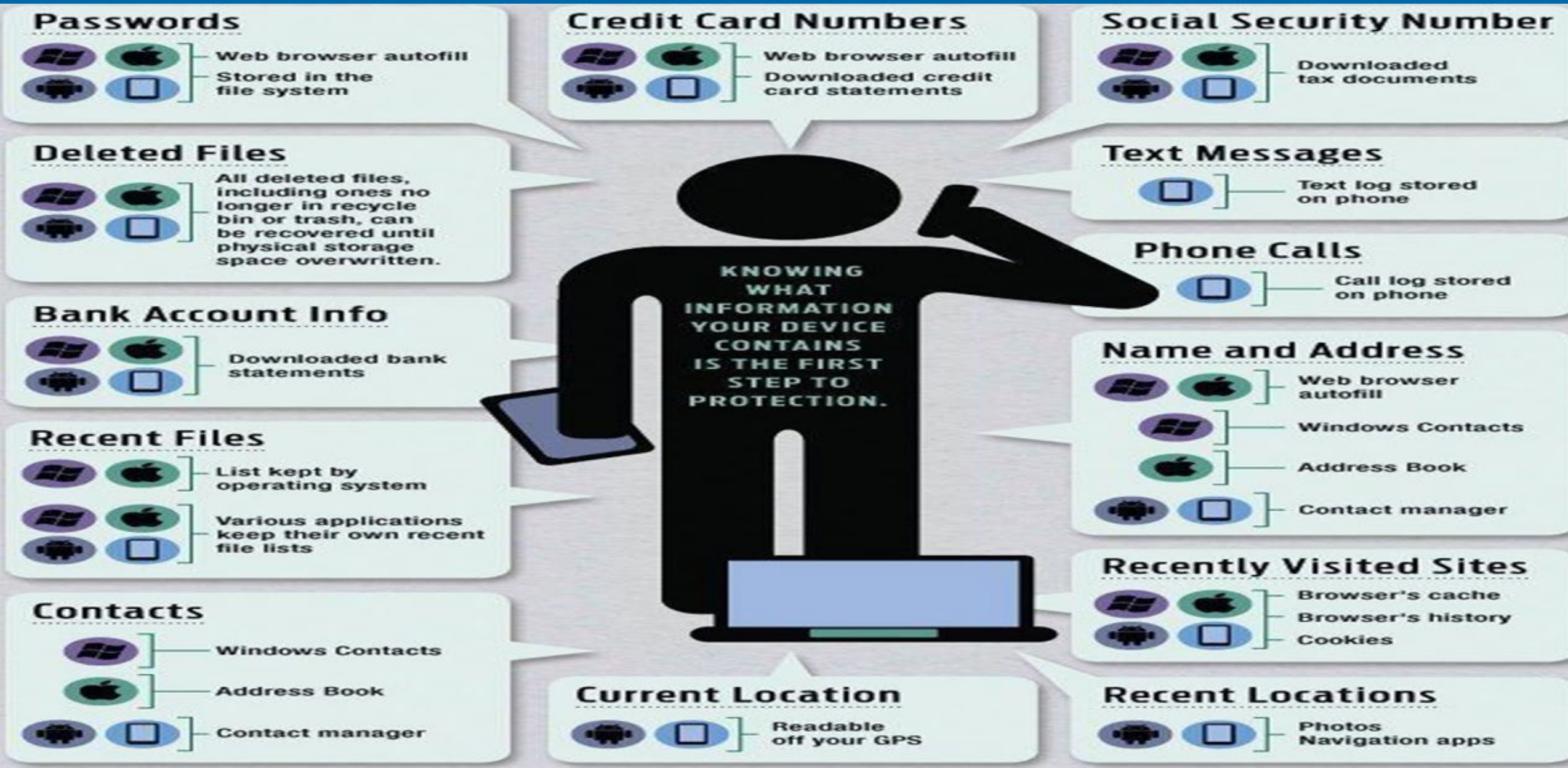
And... The attack surface grows daily

The Washington Post
Democracy Dies in Darkness

Innovations How a fish tank helped hack a casino



And... Surveillance capitalism



And... Data is increasingly valuable

Your identity is a steal on the Dark Web.

Here are what the most common pieces of information sell for:



Social security number



\$1

Online payment services login info
(e.g. Paypal)



\$20-\$200

Credit or debit card
(credit cards are more popular)



\$5-\$110

With CVV number
\$5

With bank info
\$15

Fullz info*
\$30

Drivers license



\$20

Loyalty accounts



\$20

General non-financial institution logins



\$1

Diplomas



\$100-\$400

Passports (US)



\$1000-\$2000

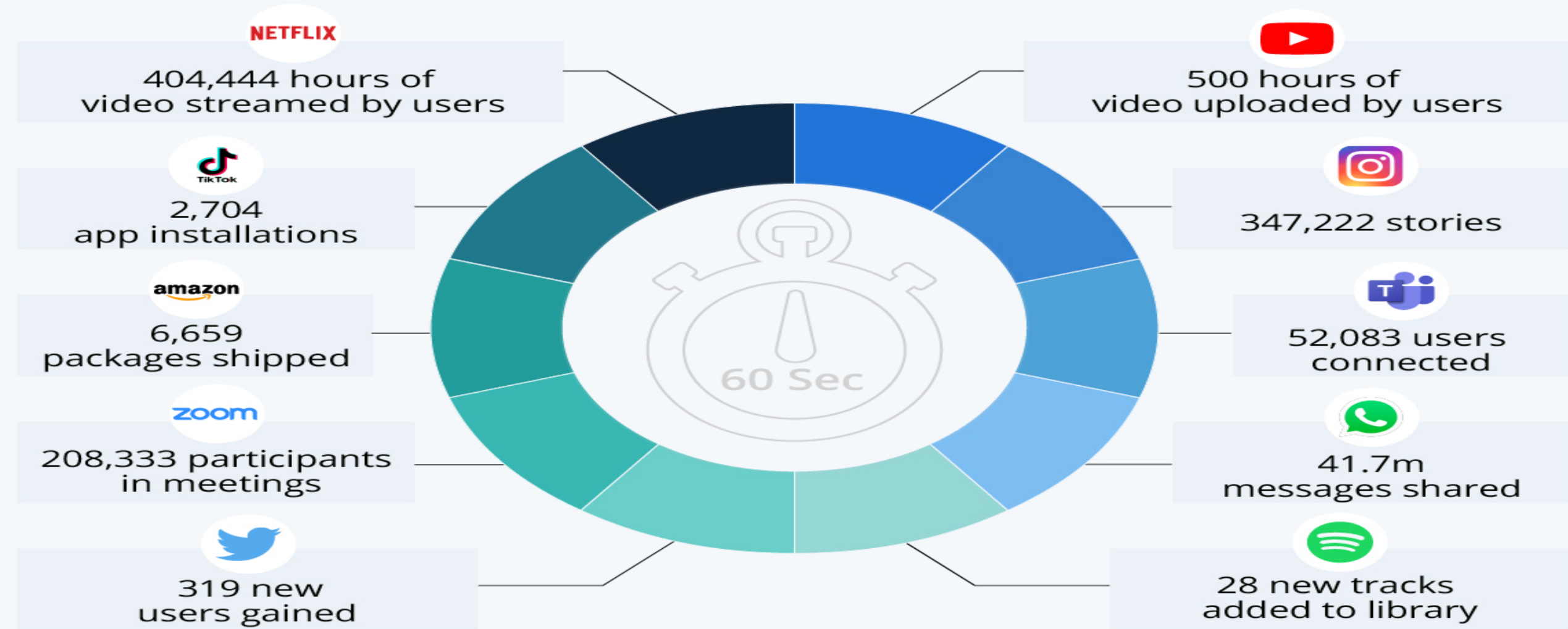
Subscription services

\$1-\$10

Medical records

\$1-\$1000**

And... 2020 Internet Minute



Source: Visual Capitalist

And... People are the weakest link

Login: admin
Password: admin



**WHEN THE PRINCE OF NIGERIA CONTACTS
YOU DIRECTLY**



**YOU DON'T ASK QUESTIONS: YOU HELP
WHERE YOU CAN.**

**THAT NIGERIAN PRINCE NEVER
EMAILED BACK**



I HOPE HE'S OKAY



Scary things we've heard...

- "What do I care if someone gets the password to my email account? Hell let them have it. We lock our building at 6PM anyway so I'd like to see them try"- Client
- "Why would hackers go after me, I'm just a small business. Those were the words I used to say until last week when I got hit with Ransomware." – small business owner
- "Additionally, the gov collect software is password protected so the counter profile does not need to be password restricted." – Client



"WE'VE NARROWED OUR SECURITY RISKS DOWN TO THESE TWO GROUPS."



Guiding principals of security

- Impenetrable security is nearly impossible and very expensive
- Focus on risk
- Take a layered approach
- Invite security to the party from the beginning
- Threats emerge and evolve constantly
- Education and awareness are critical
- Maintain a very healthy dose of skepticism/paranoia

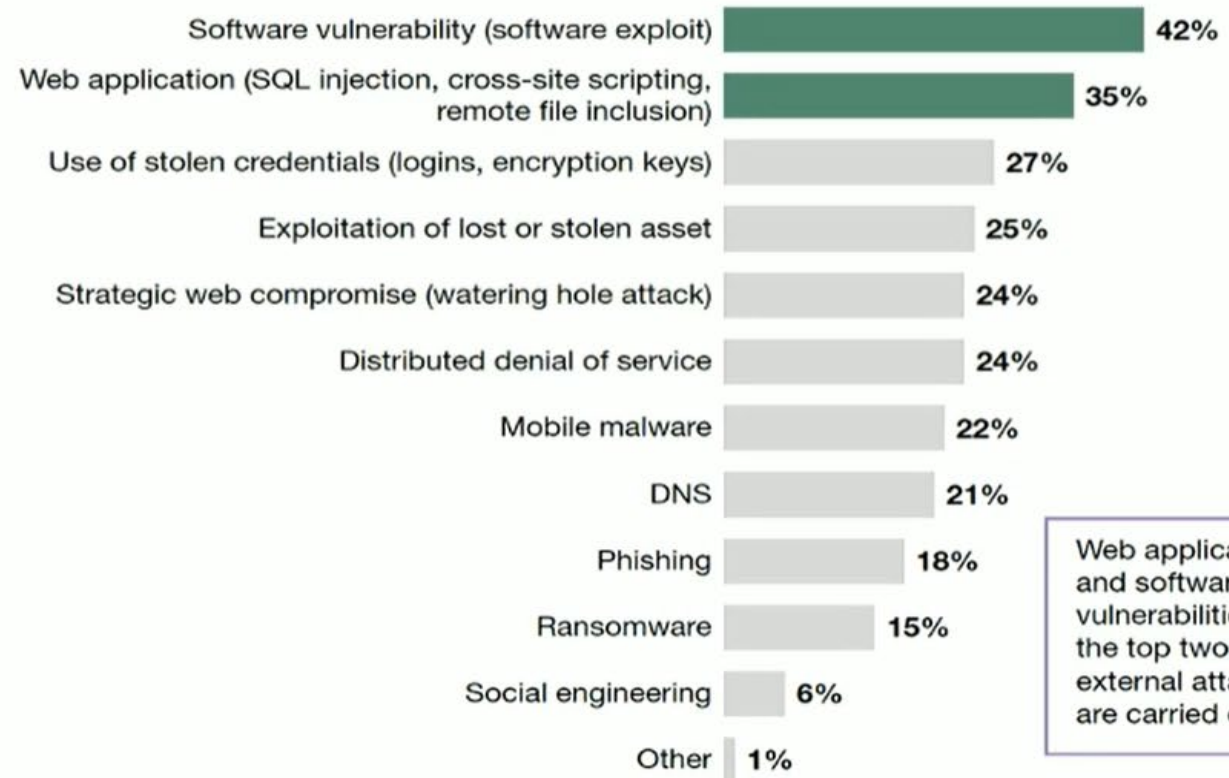
Privacy & compliance needs growing

- Existing laws such as HIPPA require privacy
- New requirements from DoD require privacy and security
- New privacy laws such as GDPR and CCPA are creating new compliance concerns with huge potential fines
- Safe Harbor laws incentivize cybersecurity
- Lack of Due Diligence and/or Due Care can have devastating consequences



The Prevalence of Breaches and Their Methodology

“How was the external attack carried out?”



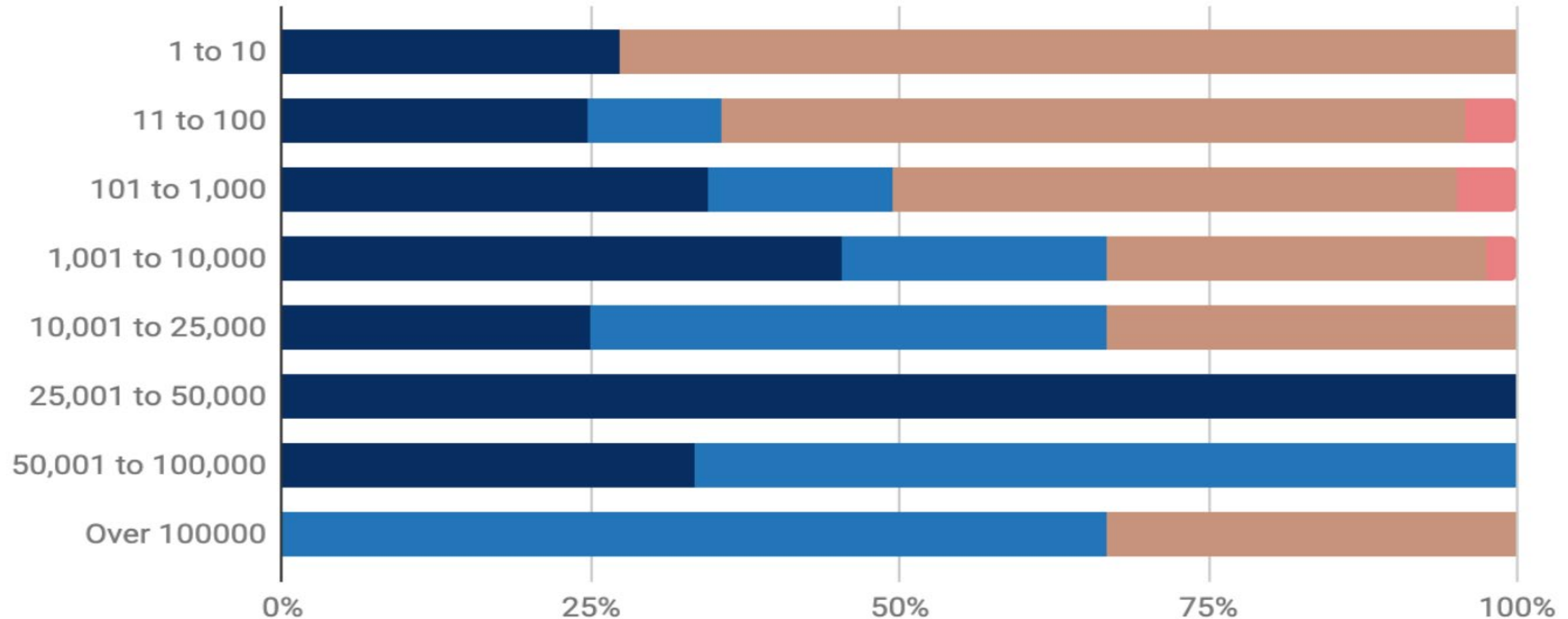
Base: 465 security decision makers with network, data center, app security, or security ops responsibilities who experienced an external attack when their company was breached

Sources: Forrester Analytics Global Business Technographics® Security Survey, 2019

Trends

Attack Vector by Company Size

■ Email Phishing ■ RDP Compromise ■ Software Vulnerability ■ Other



Incident costs are increasing!

- Average incident response cost hovers around \$420,000, with cyber forensics accounting for about 40% - Chubb
- Data breach costs are expected to reach \$5 trillion by 2024
- 60-70% of claims involve breaches of less than 100 data records
- Even a small breach can cost substantial amounts of money

PERSONALLY IDENTIFIABLE INFORMATION (PII)
BREACH

*** RECEIPT ***
250 RECORDS EXPOSED

INCIDENT INVESTIGATION


BREACH COACH	\$25,000.00
FORENSICS	\$60,000.00

NOTIFICATION & CRISIS MANAGEMENT

CRISIS MANAGEMENT	\$30,000.00
NOTIFICATION	\$2,800.00
CALL CENTER	\$1,300.00
CREDIT MONITORING	\$225.00

INCIDENT INVESTIGATION SUBTOTAL	\$85,000.00
NOTIFICATION & CRISIS MANAGEMENT SUBTOTAL	\$34,325.00

TOTAL AMOUNT \$119,325.00



Incident costs are increasing!

Figure 6. Costs of a data breach

Above the surface: Well-known cyber incident costs

1. Customer breach notifications
2. Post-breach customer protection
3. Regulatory compliance (fines)
4. Public relations/crisis communications
5. Attorney fees and litigation
6. Cybersecurity improvements
7. Technical investigations

Below the surface: Hidden or less visible costs

1. Insurance premium increases
2. Increased cost to raise debt
3. Operational disruption or destruction
4. Lost value of customer relationships
5. Value of lost contract revenue
6. Devaluation of trade name
7. Loss of intellectual property

Source: "Beneath the surface of a cyber attack: A deeper look at business impacts," Deloitte Cyber Risk Services.

Threats

1



Malware

2



Web-based attacks

3



Phishing

4



Web application attacks

5



Spam

TOP 15 CYBER THREATS



6



DDoS

7



Identity theft

8



Data breach

9



Insider threat

10



Botnets

11



Physical manipulation,
damage, theft and loss

12



Information leakage

13



Ransomware

14



Cyberespionage

15

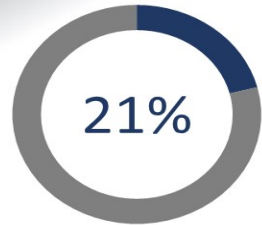


Cryptojacking

Threats



Root causes of cyber security incidents



Abandoned Technology

Technology which is still in use but no longer actively managed and patched.



Versioning

Applying the wrong version of operating systems, applications, configurations, files, etc.



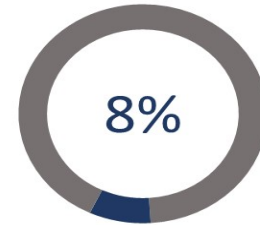
Access Management

Leaked or stolen credentials, escalated credentials, and failure to segregate role related rights.



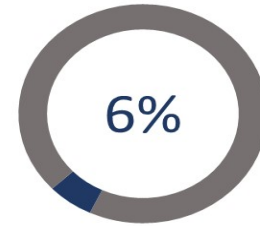
Technology Flaws

Security flaws and vulnerabilities in technology for which there are no patches available (yet).



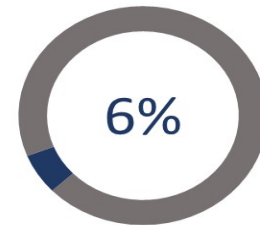
Copy/Paste Flaws

Flaws and vulnerabilities caused by copying wrong files, configurations, etc.



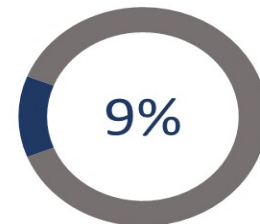
Skills

Lack of skills to properly configure and manage the technology.



Unencrypted

Unencrypted confidential or privacy related information left accessible/vulnerable.



Usage

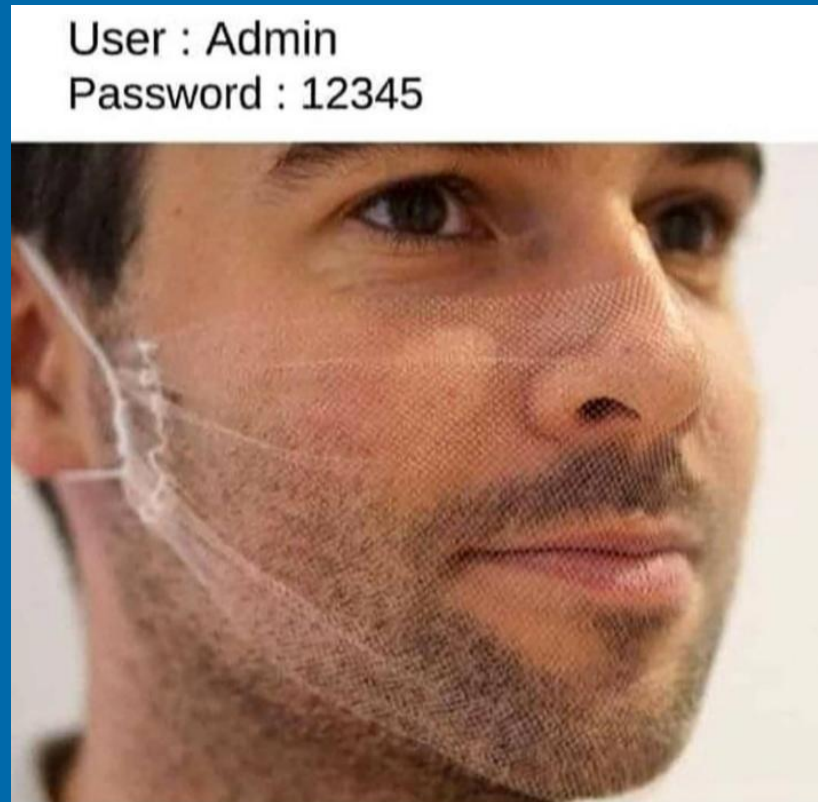
Flaws and vulnerabilities caused by copying wrong files, configurations, etc.



3 simple steps to remember

- Stop
- Think
- Protect — Be a human firewall

Threats: Poor credential management



The recent Verizon Data Breach Investigations Report says compromised passwords are responsible for 81% of hacking-related breaches

Threats: Unpatched Software

- A Ponemon Institute survey found 57% of security breaches were due to vulnerabilities in unpatched software
- 34% of these cybercrime victims were aware of holes but didn't patch them in time.
- 37% of breach victims don't perform regular scans to find vulnerabilities in their own systems
 - Patching gaps are an issue:
 - Some IT teams are unaware of the updates that are available
 - Some know these updates are available, but don't have the resources or strategies implement the patches

Threats: Spoofing

- "Spoofing, in general, is a fraudulent or malicious practice in which communication is sent from an unknown source disguised as a source known to the receiver. Spoofing is most prevalent in communication mechanisms that lack a high level of security." – Techopedia
- Spoofing leads to:
 - Phishing
 - Vishing (Voice based)
 - Smishing (Text based)
 - Doppleganger or Lookalike websites






Threats: Phishing

- "Cybercrime in which a target or targets are contacted by **email, telephone or text message** by someone posing as a legitimate institution to lure individuals into providing sensitive data such as personally identifiable information, banking and credit card details, and passwords." – Phishing.org
- Types of Phishing include:
 - Spear phishing
 - Whaling
 - Vishing
 - Smishing



Threats: Phishing

Outlook

 New |  Delete  Archive Junk |  Sweep Move to  Categories 

New Invoice #3413-1



Portia App <portiaeoleh@rambler.ru>

To: David Hatter; 



Invoice.doc
73 KB



Download Save to OneDrive - City of Fort Wright

This email is being sent in order to inform you that a new invoice has been generated for your account. Please see the attached file.

Thank you.
Portia App

Threats: Phishing

From: Dave Hatter <pm772858@gmail.com>

Sent: Wednesday, October 30, 2019 1:23 PM

To: Jeff Bethell <jbethell@fortwright.com>

Subject: Hey Jeff

Hey Jeff , i need you to help me get some gift cards at the store right now for some council members / staff appreciation gifts , let me know if you can do that right away because there is a sharp deadline for this request .

Dave Hatter

Mayor

Sent from my mobile device

Threats: Phishing

JW

Joyce Woods

To: David Hatter; y

Inbox

You replied on 3/3/2016 2:02 PM.

----- Original Message -----

From: Dave Hatter [mailto:dhatter@fortwright.com]

Sent: Wednesday, March 02, 2016 4:09 PM

To: Joyce Woods <jwoods@fortwright.com>

Subject: RE: Question

Thanks for the information. I need you to initiate 2 wire transfers today for an international payment and a local payment also. Let me know what information is required.

Sent from my iPhone

Sorry Dave.

I just got your message. I have been working on other things. If you mean the General Fund Checking Acct. the balance today is \$4,285,408.72.

Joyce

From: Dave Hatter [mailto:dhatter@fortwright.com]

Sent: Wednesday, March 02, 2016 12:35 PM

To: Joyce Woods <jwoods@fortwright.com> <mailto:jwoods@fortwright.com> >

Subject: Question

Are you available? I need to ask you a quick question What is the present balance in the operating checking account? Reply as soon as possible.

Sent from my iPhone

JW

Joyce Woods

To: David Hatter; y

From: Dave Hatter [mailto:dhatter@fortwright.com]

Sent: Wednesday, March 02, 2016 12:35 PM

To: Joyce Woods <jwoods@fortwright.com>

Subject: Question

Are you available? I need to ask you a quick question What is the present balance in the operating checking account? Reply as soon as possible.

Sent from my iPhone

Threats: Phishing

Mail - David Hatter - Outlook

https://outlook.office.com/mail/inbox/id/AAMkAGRmNDY5MGVhLWJiOTMtNGlyNS1iNDZiLTc2YWfkZThiNDE2NQBGAAAAAAj91TVN85gQbrRM1ehWXssBwBumyDpLKyoQaLSPgd6x4pIAAAAAEMAABumyDpLKyoQaLSPgd6x4pIAAOs3yuBAAA%3D

To see favorites here, select ☆ then ☆, and drag to the Favorites Bar folder. Or import from another browser. [Import favorites](#)

Outlook

New message

Reply all

Delete

Archive

Junk

Sweep

Move to

Categorize

Happy New Year!

Getting too much email? [Unsubscribe](#)

JH

J. Holloway <jholloway@fortwright.com>

Thu 12/12/2019 11:09 AM

David Hatter

**** WARNING: This e-mail is from an EXTERNAL sender. Be wary of any links or attachments. If this e-mail is unexpected and you are being asked to open an attachment or enter information or credentials into an online form STOP NOW. Call the sender via a known phone number to determine if this is legitimate. Even if you expected this email, if it is regarding any type of financial transaction like a wire, call the sender via phone to validate the information and talk to your supervisor before conducting any financial transaction. ****

Good Day Dave,

Original URL:
<http://cardpayments.microransom.us/XYWNj0aW9uPWgN...>
Click or tap if you trust this link.

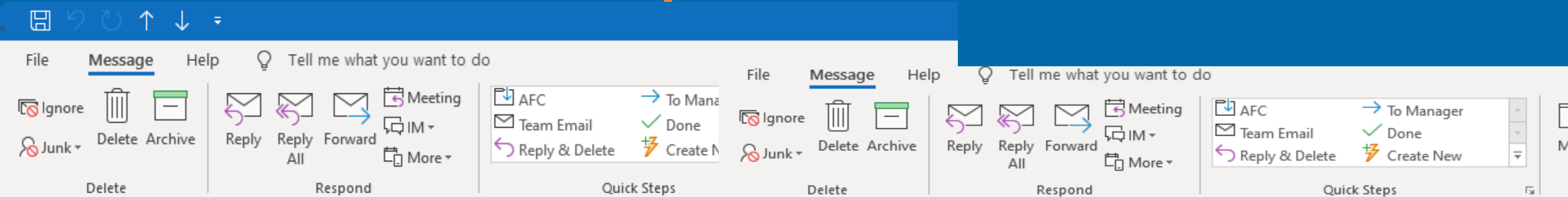
holiday, warm wishes for the new year!

[Here is your card](#)

With Gratitude,

<https://nam11.safelinks.protection.outlook.com/?url=http%3A%2F%2Fcardpayments.microransom.us%2FXYWNj0aW9uPWgNsaWNrJneVybD1ozzdHRwaczovL3NIIV3dVvZWQtbG9n%3A%3D&data=01%7B%7B%22To%22%3A%22David.Hatter%40FortWright.com%22%2C%22From%22%3A%22J.Holloway%40FortWright.com%22%2C%22Subject%22%3A%22Happy%20New%20Year%21%22%2C%22Body%22%3A%22Good%20Day%20Dave%2C%20%22%22%7D%7D&open=1>

Threats: Phishing



RE: Divorce papers



Brown & Booth LLP <Booth@brown-booth-law.com>
To: Dave Hatter

If there are problems with how this message is displayed, click here to view it in a web browser.
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of

WARNING: This e-mail is from an external sender. Be suspicious of any links or attachments. If you are not expecting this e-mail, or about any type of financial transaction like a wire, call the sender via phone to validate all the information.

Dave

My name is Keith Booth and I am a senior partner at BROWN & BOOTH LLP.
Your spouse has contracted me to prepare the divorce papers.
Here is the first draft, please contact me as soon as possible:

http://www.brown-and-booth-law.com/papers/divorce_Hatter.doc

Thank you
Keith L. Booth

RE: Divorce papers



Brown & Booth LLP <Booth@brown-booth-law.com>
To: Dave Hatter

If there are problems with how this message is displayed, click here to view it in a web browser.
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

WARNING: This e-mail is from an external sender. Be suspicious of any links or attachments. If you are not expecting this e-mail, or about any type of financial transaction like a wire, call the sender via phone to validate all the information.

Dave

My name is Keith Booth and I am a senior partner at BROWN & BOOTH LLP.
Your spouse has contracted me to prepare the divorce papers.
Here is the first draft, please contact me as soon as possible:

http://www.brown-and-booth-law.com/papers/divorce_Hatter.doc

Thank you
Keith L. Booth



Original URL:
<http://addto.password.land/xywns0aw9upwqnsawnrjnvybd1orgdhrwnczovl3nlby3cvyzwqtb9naw4ubmv0rl3bhz2vzl2findfly2jkngzhjnjly2lwawvudf9pzd01ntgxmdaxmjemy2ftcgfpz25fcnvux2lkpti3mjyindu=>
Click or tap to follow link.

Threats: Phishing

Outlook

Search

New message

Delete

Archive

Move to

Categorize

Favorites

Inbox

111

Sent Items

1

Drafts

9

Add favorite

Folders

Inbox

111

Drafts

9

Sent Items

1

Deleted Items

251

Junk Email

Archive

Notes

Conversation Hist...

You have been approved for a \$2,321.00 USD from FAFSA

Federal Student Aid

PROUD SPONSOR of
the AMERICAN MIND®

An OFFICE of the U.S. DEPARTMENT of EDUCATION

You have been approved for a free \$2,321.00 USD for Federal Student , Aid (FAFSA) This fund is granted for your education and it is free, you do not have to pay it back, Click on [Receive My Benefit Aid | Federal Student Aid](#) to complete your application to get your grant in 1-2 business days.

Sincerely,

U.S. Department of Education
Federal Student Aid
William D. Ford Federal Direct Program

This is in affiliation with The Arizona State Student System, Benefit Services Division and United States Student Association (USSA). The Benefit Plan is provided for all students whose parents have lost their job or have been affected financially as a result of the COVID-19 Disease. The plan is tax qualified under section 401(a) of the Arizona Internal Revenue Code. It is a "cost sharing" model, meaning both

Threats: Phishing

The screenshot shows an email client interface with a message titled "TRANSFER REQUEST - Message (Plain Text) (Read-Only)". The message is from Tim Rettig to Rebecca Moix. The email body contains the following text:

Hello Rebecca,
I need you to take care of the information you will need to...

Thanks
Tim Rettig

Sent from my iPhone

The "Properties" window is open, showing the following details:

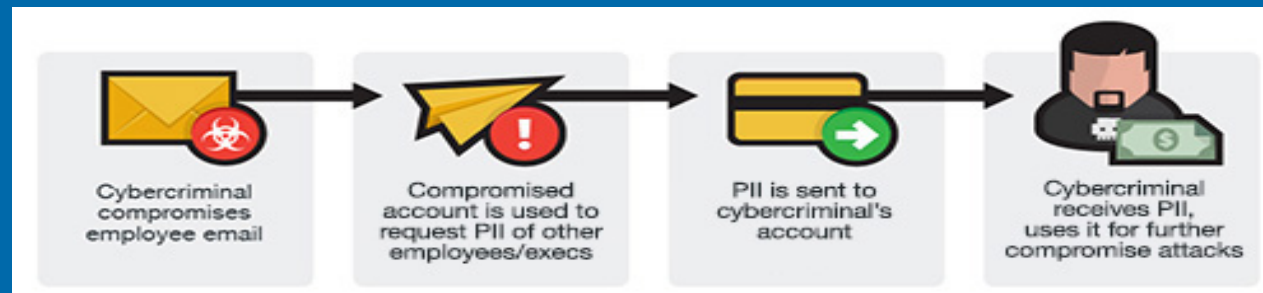
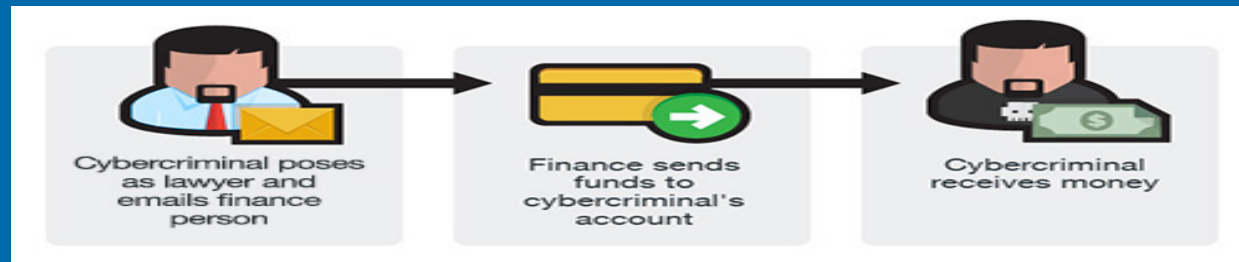
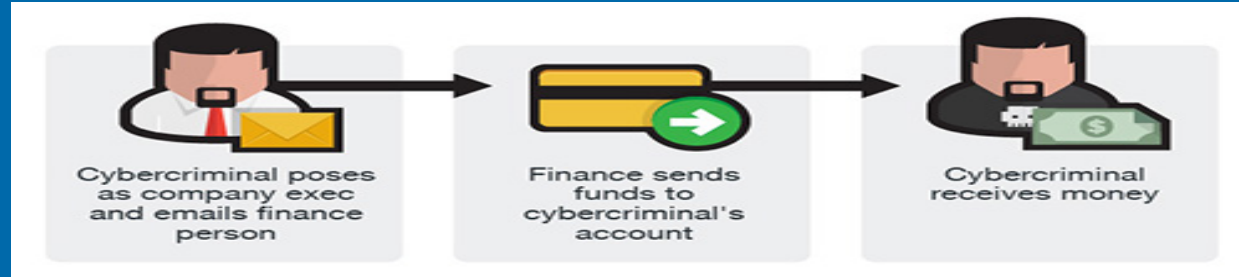
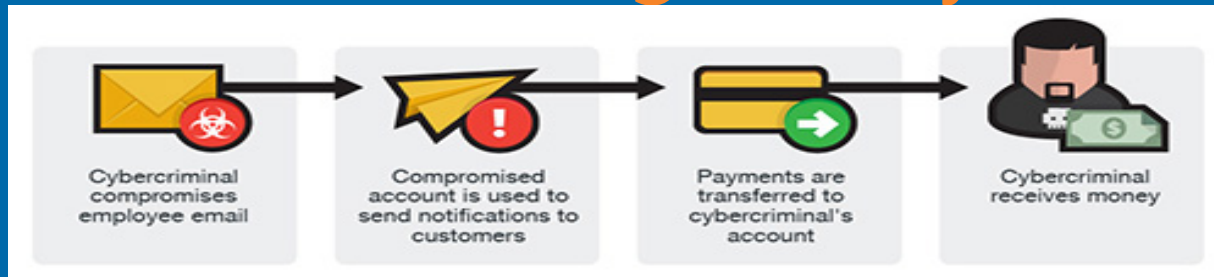
- Settings:**
 - Importance: Normal
 - Sensitivity: Normal
 - ☐ Do not AutoArchive this item
- Tracking options:**
 - ☐ Request a delivery receipt for this message
 - ☐ Request a read receipt for this message
- Delivery options:**
 - Have replies sent to: ☐ ceo.xx11@aol.com
 - ☐ Expires after: None, 12:00 AM
- Internet headers:**

```
Content-Transfer-Encoding: 7bit
Date: Tue, 15 Sep 2015 08:56:11 -0600
From: Tim Rettig <tim.rettig@intrust-it.com>
To: <rebecca.moix@intrust-it.com>
Subject: TRANSFER REQUEST
Reply-To: <ceo.xx11@aol.com>
Mail-Reply-To: ceo.xx11@aol.com
```

The "Close" button is visible at the bottom right of the Properties window.

Threats: Business Email Compromise

- BEC is an email-based scam where an attacker gains access to one or more email accounts attempting to fool employees into transferring money or sensitive data.



Threats: Real World BEC

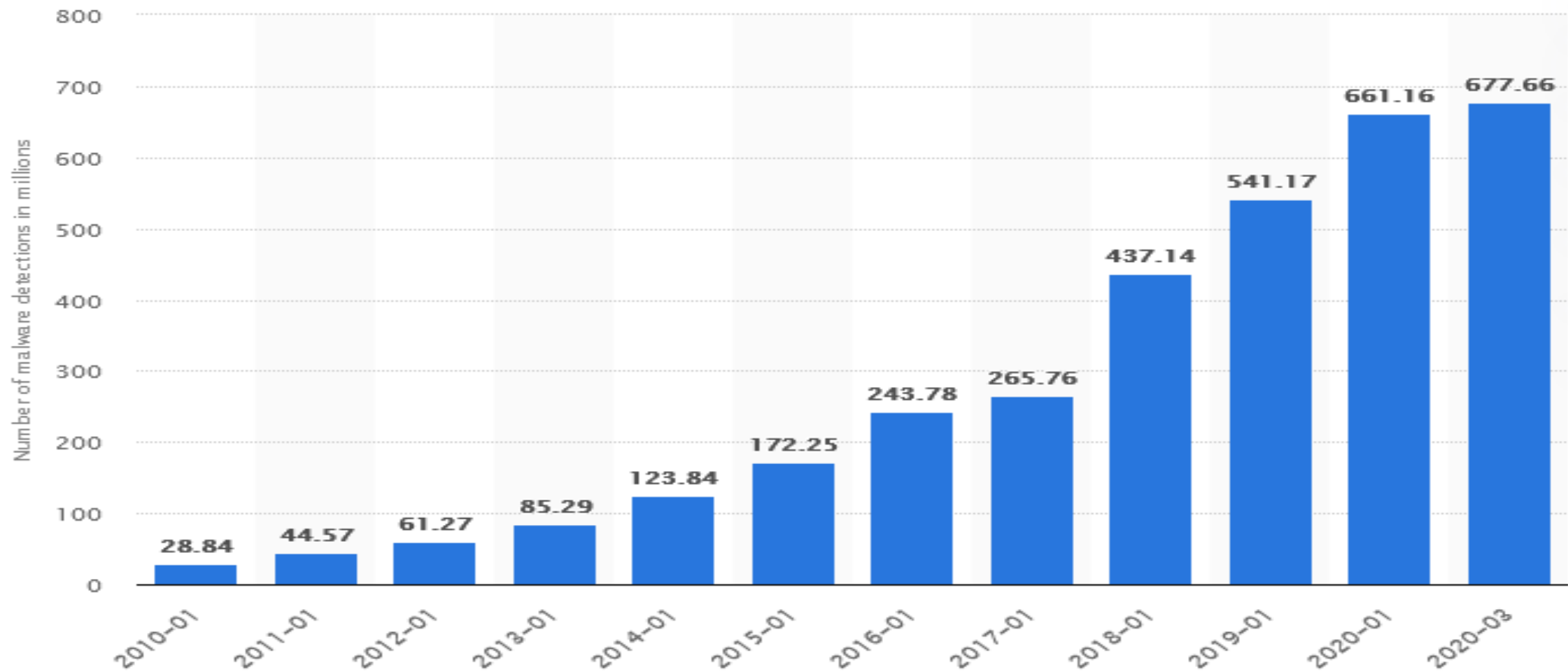
- 3 companies impersonated with legitimate business identifiers provided. Email, social media, forms, websites, etc.
- Over a dozen purchased domains that were then registered as email accounts, used, and monitored
- Virtually every phone number provided either was disconnected when called or rang through to a generic voicemail
- Custom designed forms and signatures for all of the businesses and individuals who were being impersonated
- Company addresses, delivery locations, phone numbers, references from all over the country including Florida, Texas, New Jersey, California, Colorado, Indiana, Kentucky

Threats: Malware

- Viruses
- Worms
- Rootkits
- Keystroke Loggers
- Adware
- Bots
- Zombies
- Crypto miners



Malware growth



© Statista 2021

[Additional Information](#)

[Show source](#)

Threats: Ransomware

- Malware that encrypts data and demands a ransom
 - The losses from ransomware attacks have increased significantly, according to complaints received by IC3 and FBI case information
 - Ransom demands increased more than 10 times in one year
- Exfiltration/Doxxing Threat
- Delivered many ways:
 - Phishing
 - Infected web sites
 - Compromised devices
 - Open ports



Threats: Public Wi-Fi

- Information can be stolen
- Malware can be planted

Using Public Wi-Fi in a cyber security conference



MIDDLE IN THE MIDDLE ATTACK EXAMPLE

NORMAL CONNECTION



SERVER



CLIENT



MAN IN MIDDLE CONNECTION



MAN IN THE MIDDLE



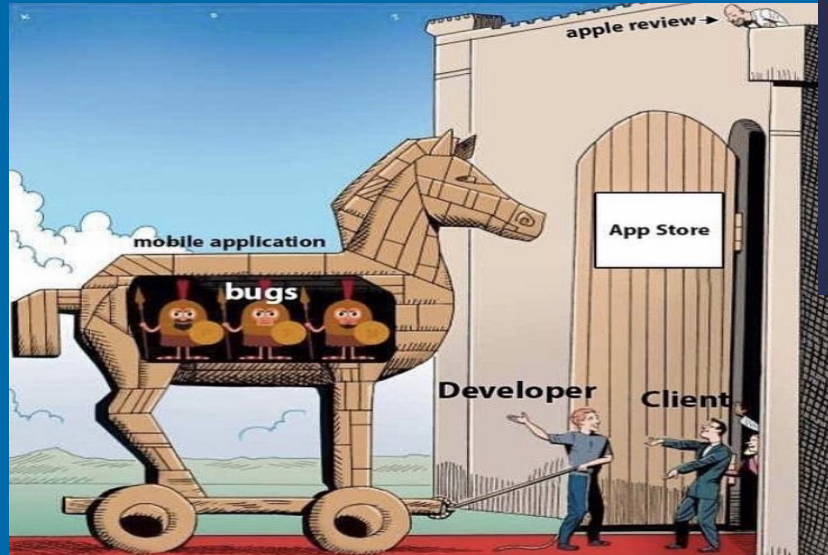
SERVER



CLIENT

Threats: "Free" software

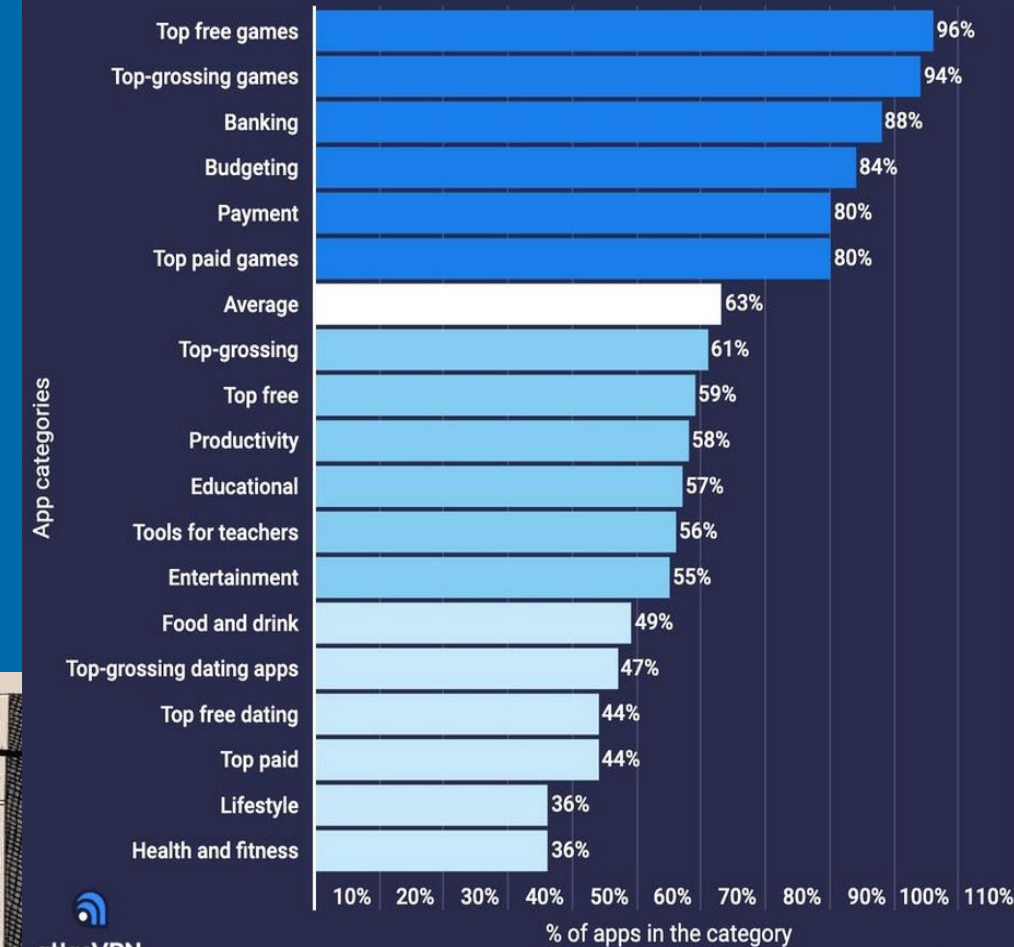
- Many free apps are thinly veiled malware
- 172 malicious apps hosted on Google Play were installed more than 335 million times in September of 2019 and have been found in the Apple store too
- Subscription scams
- Data leakage



Share of Android applications with at least one known vulnerability, by app category (Q1 2021)

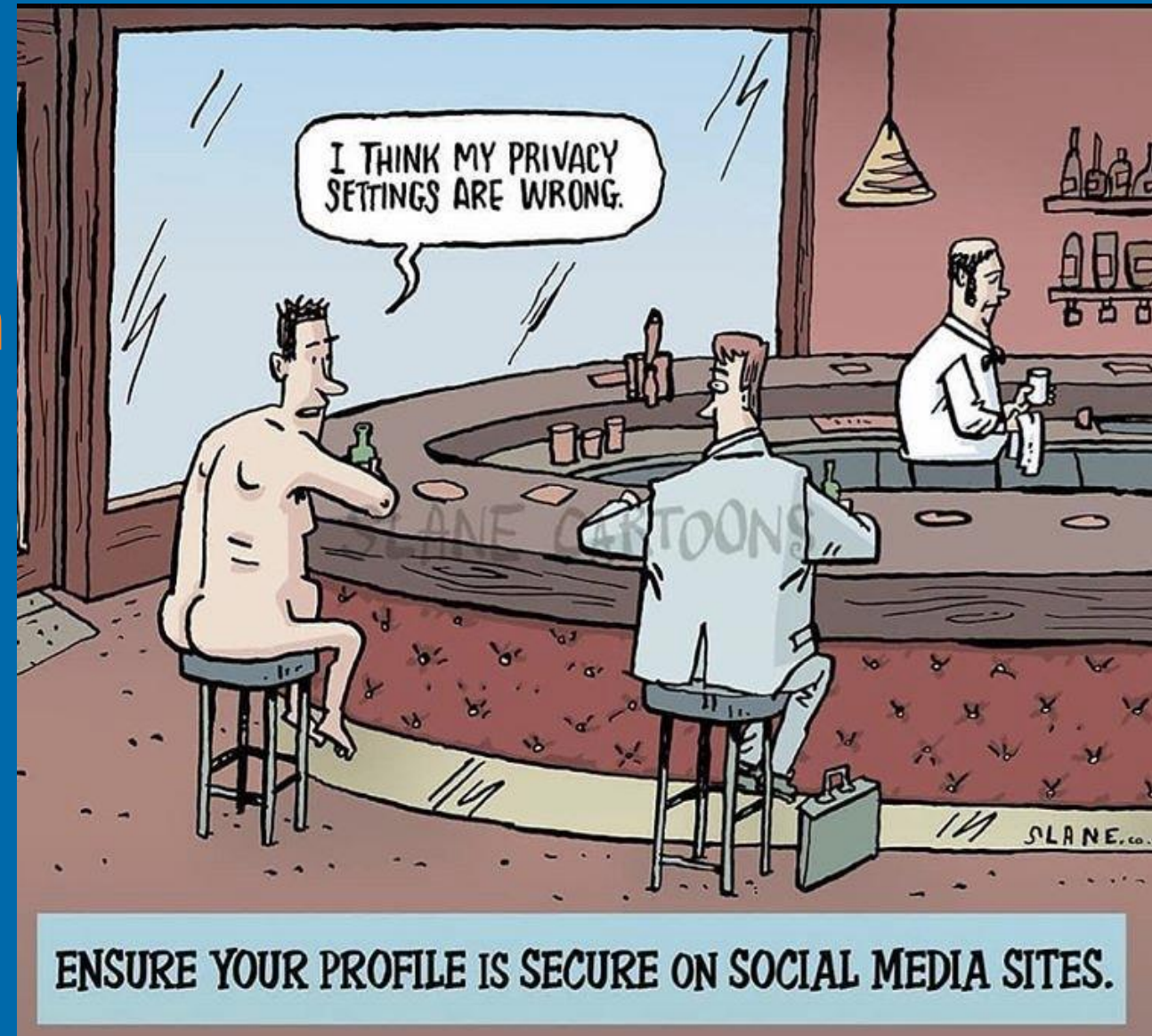


FACT: 63% of Android applications contained security vulnerabilities in Q1 2021, with an average of 39 vulnerabilities per app.



Threats: Social Media

- New channels for attack
- Conduit to deliver malware
- Users freely share information that can be used for hacking and social engineering
- Data loss
- Billions of targets!
- OSINT

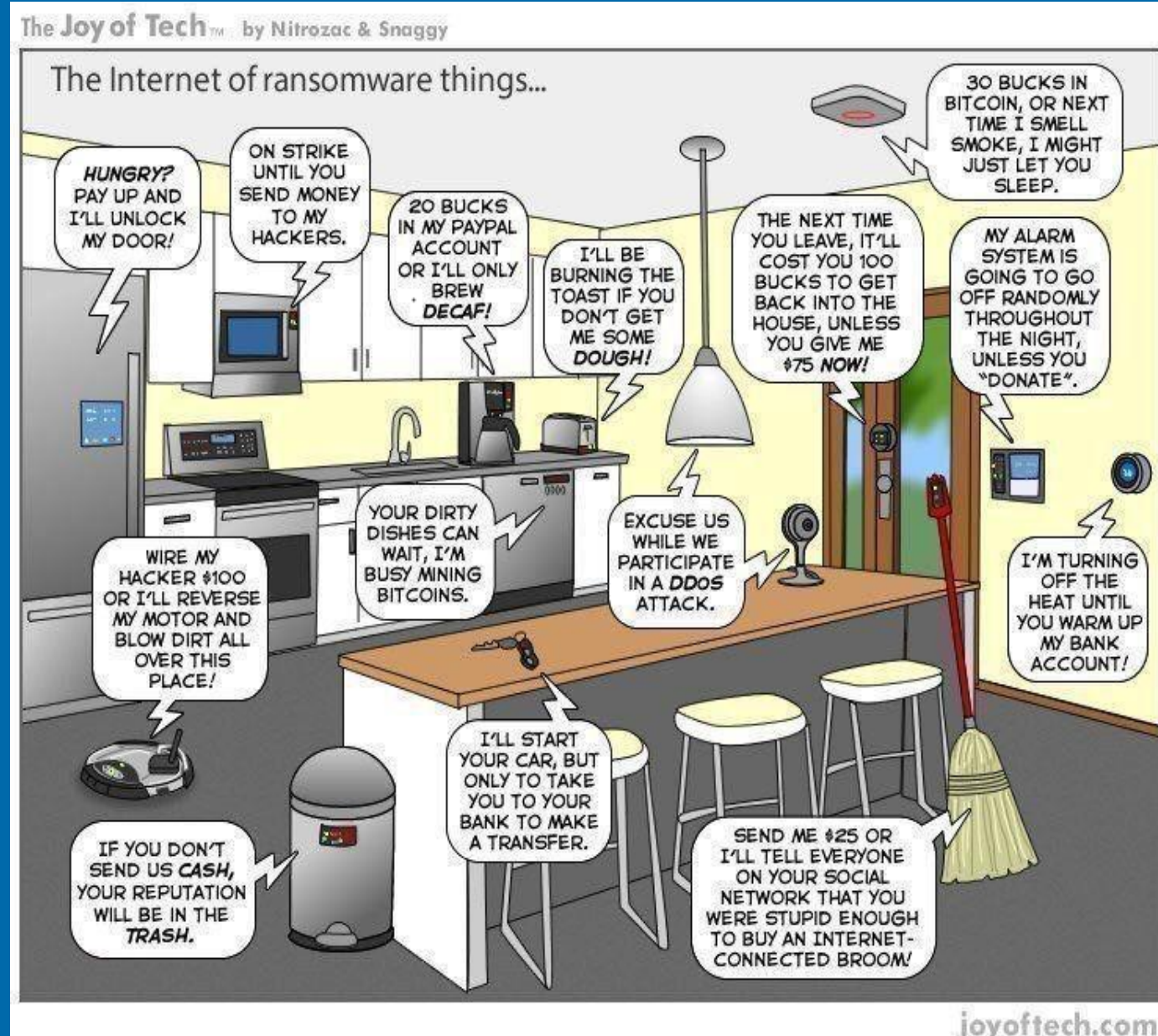


Threats: Mobile Devices

- Patching issues
- Misconfiguration
- Apps steal data
- Malware
- Sensitive data loss
- Split tunneling issues

Threats: Internet of Things (IoT)

- 50 billion devices by 2020
- Often not designed with security in mind
- Vector to attack a network
- Can be used to spy on you and your organization
- Can host malware

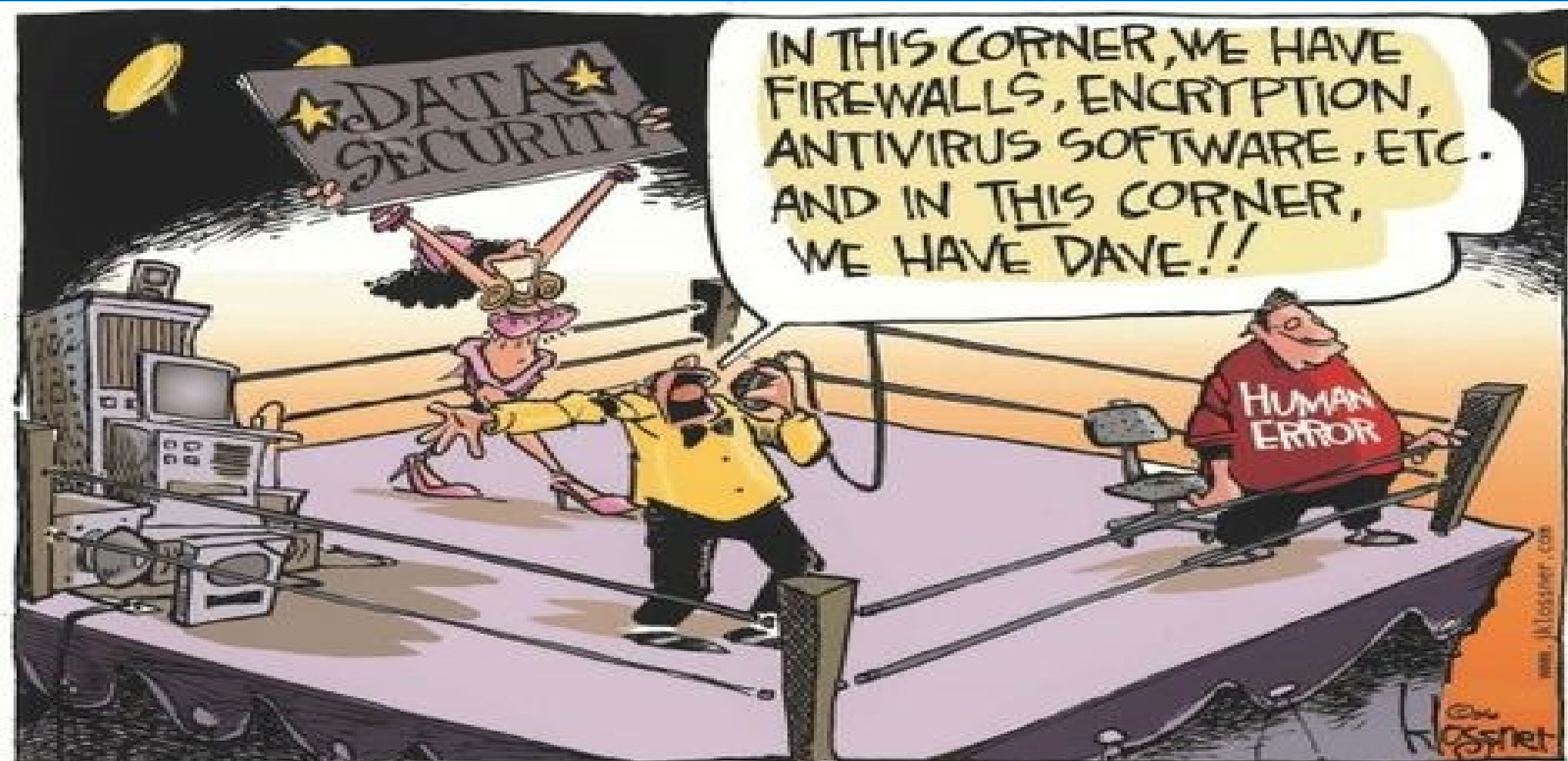


Threats: Insider Threats

“A malicious insider is an employee or authorized person who uses his data access for harmful, unethical, or illegal activities. Because of the wider access available internally, insiders are often harder to detect and apprehend than external attackers or hackers” – Answers.com



Don't be a "Dave"



Defenses



Defenses

It might feel like this...



Don't be
scared be
prepared!











PERFECTLY TIMED PHOTOS.COM

Defenses: Software updates

- Vendors regularly release updates
- Updates may contain productivity and/or security fixes
- ALL devices that contain software should be updated
- Automate this process if you can

Downloads and updates [Get updates](#)


Recent activity

	Lenovo Vantage	App	10.2006.30.0	Modified today
	Windows Camera	App	2020.504.40.0	Modified today
	Movies & TV	App	10.20032.16211.0	Modified yesterday
	Microsoft Sticky Notes	App	3.7.140.0	Modified yesterday
	Skype	App	15.61.87.0	Modified yesterday
	Movie Maker 10 - FREE	App	2.9.73.0	Modified yesterday
	LastPass for Microsoft Edge	App	4.50.1.0	Modified 6/19/2020
	Cortana	App	2.2005.5739.0	Modified 6/19/2020

Windows Update


**Some settings are managed by your organization*
[View configured update policies](#)


Looking for info on the latest updates?
[Learn more](#)


 **You're up to date**
Last checked: Today, 12:21 PM

[Check for updates](#)

**Your organization has turned off automatic updates*

 **Pause updates for 7 days**
Visit [Advanced options](#) to change the pause period

 **View update history**
See updates installed on your device

 **Advanced options**
Additional update controls and settings


[Check Storage](#)

[OS build info](#)

[Get help](#)

[Give feedback](#)

Lenovo Vantage

 **LENOVO VANTAGE**
ThinkPad T480

[Dashboard](#) [Device](#) [Security](#)

[< BACK](#)

System Update

An up-to-date system is a healthy system.

Last updated: 6/19/2020 9:19 AM
Next scheduled update: 6/29/2020 10:39 AM


[CHECK FOR UPDATES](#)

Available updates

These packages include updates that are critical for the correct operation of your computer. Critical updates help keep your computer more secure and reliable and should be installed as they become available. Recommended updates and optional updates help keep your software up to date and your computer running at its best.

[INSTALL ALL UPDATES](#)

About Mozilla Firefox



Firefox Browser

77.0.1 (64-bit) [What's new](#)

Firefox is up to date

Firefox is designed by Mozilla, a global community working together to keep the Web open, public and accessible to all.

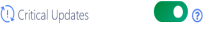

Want to help? [Make a donation](#) or [get involved!](#)

[Licensing Information](#) [End-User Rights](#) [Privacy Policy](#)

Firefox and the Firefox logos are trademarks of the Mozilla Foundation.





Auto update settings





Automatically install updates



 Critical Updates 

Manage Your Extensions

Enabled

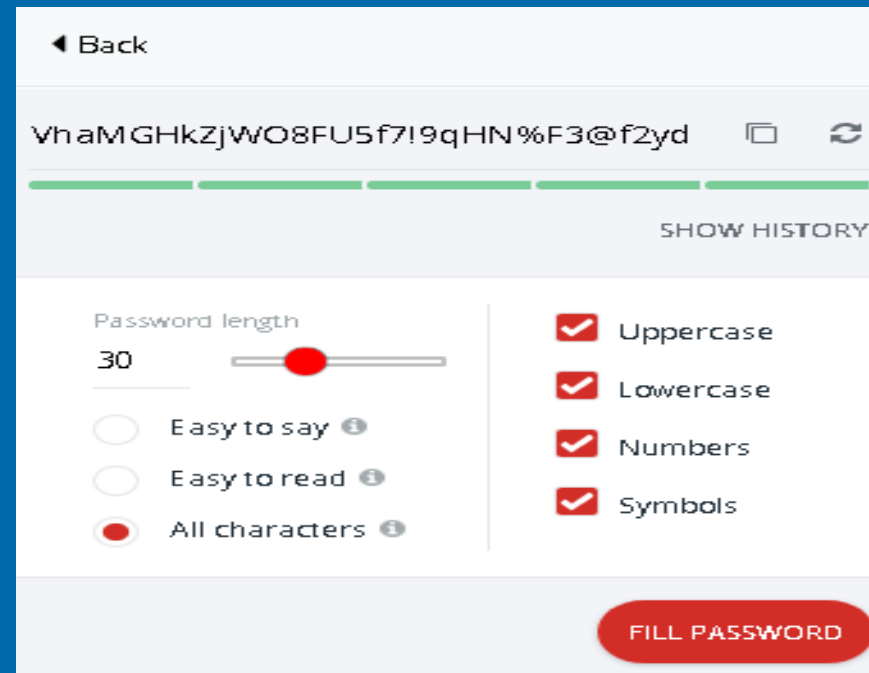
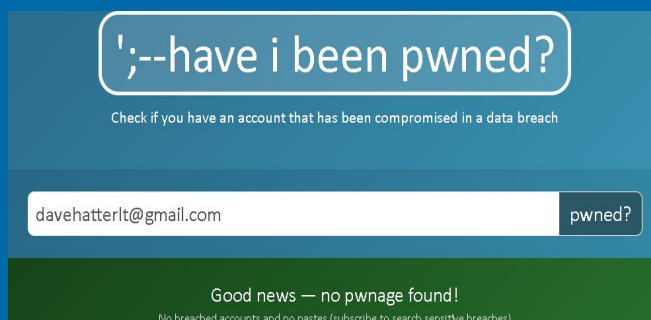
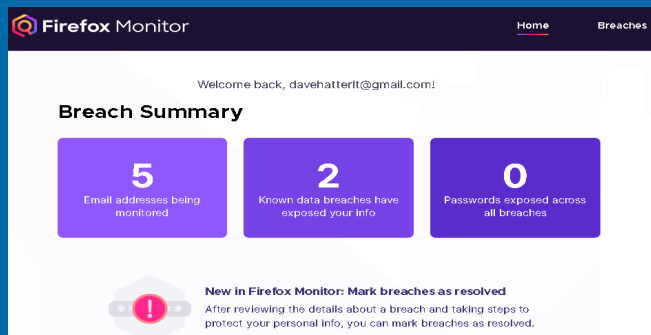
 **Cisco Webex Extension** 
Join Webex meetings using Firefox™  

 **DuckDuckGo Privacy Essentials** 
Privacy, simplified. Protect your data as you search and browse; tracker blocking, smarter encr...  

 **Facebook Container** 

Defenses: Password Hygiene

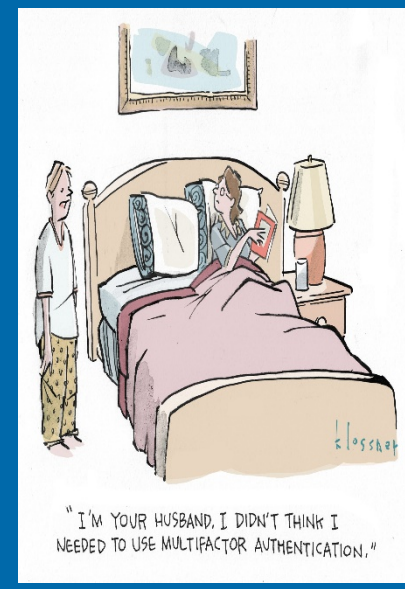
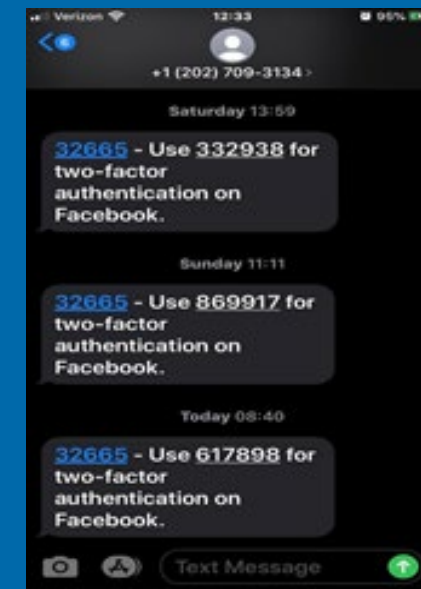
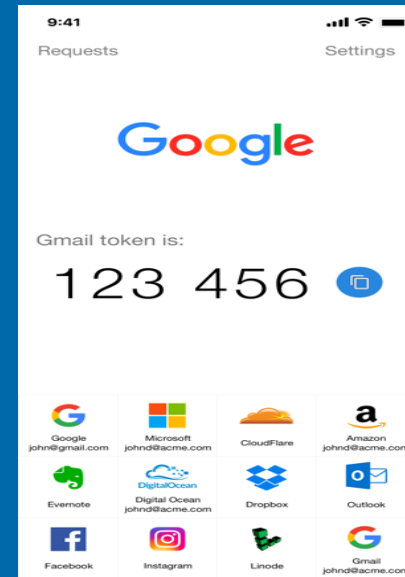
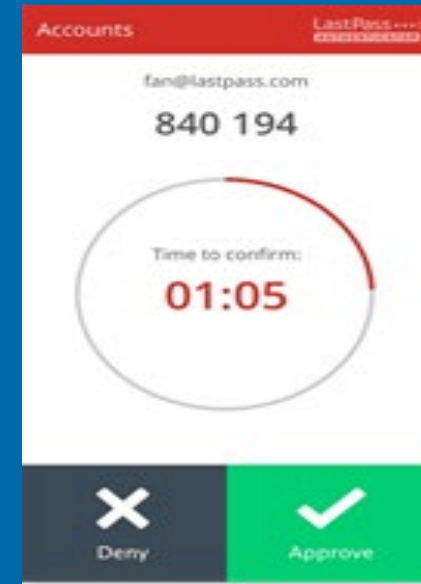
- Use strong, unique passwords for every account
- A passphrase is better. e.g. "1 l0ve pizz@ with 0ni0ns"
- Use a password manager with MFA.
- Check the Dark Web for leaked creds



- ❌ Previous breach exposures
- ❌ Dictionary words
- ❌ Less than 8 characters
- ❌ Repetitive characters
- ❌ Context-specific words
- ❌ Password hints

Defenses: Multi-factor Authentication

- MFA: Aka Two-factor Authentication or Two-Step Verification
- Microsoft and Google have recently indicated MFA can stop 99% of all automated attacks
- Enable MFA everywhere
- Use an authenticator app like Authy rather than SMS based OTPs



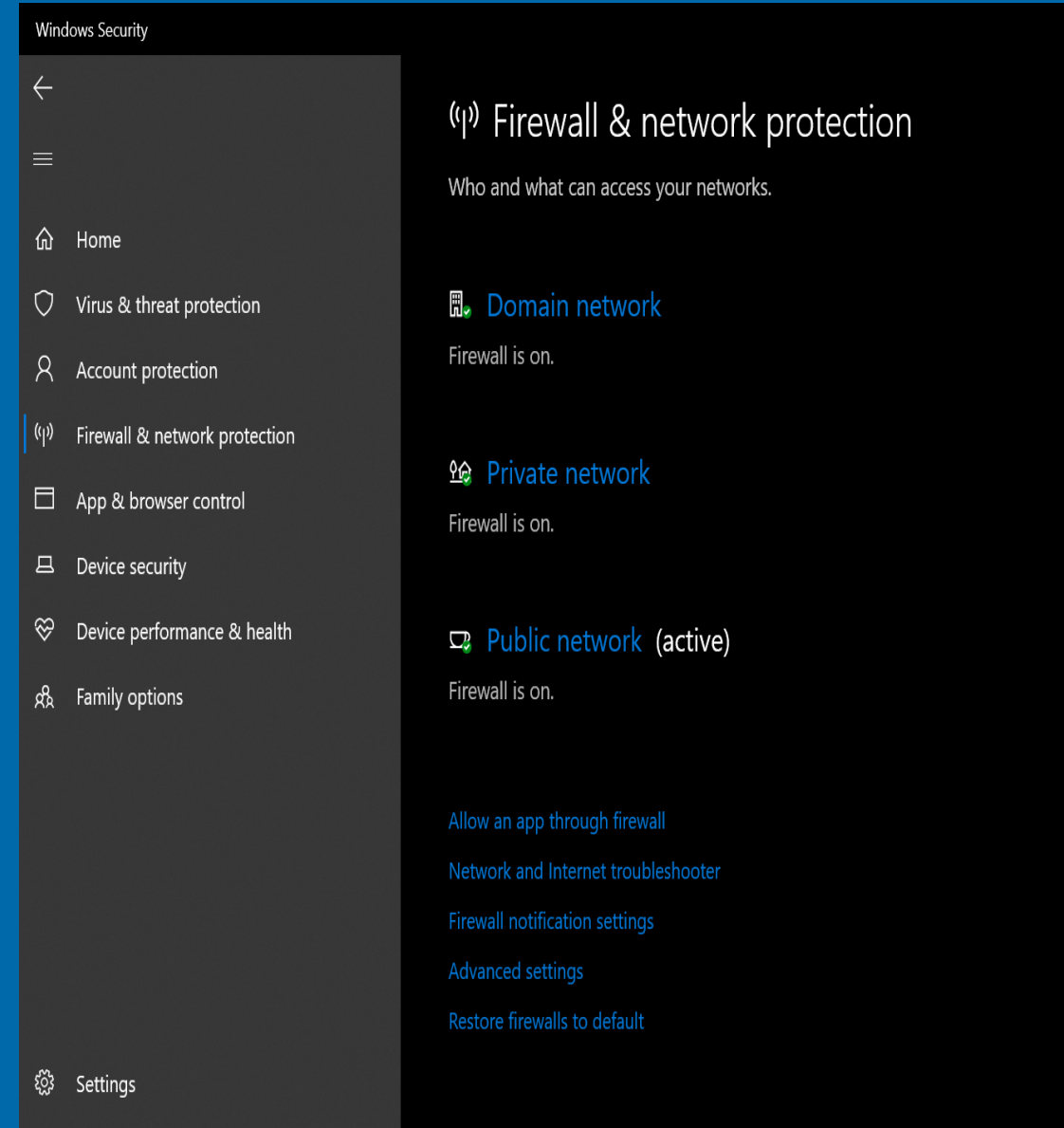
Defenses: Endpoint Protection

- Vendors regularly release updates
- Also known as anti-malware or anti-virus software
- Update definitions
- Disable everything and enable functionality as required
- Consider more than one



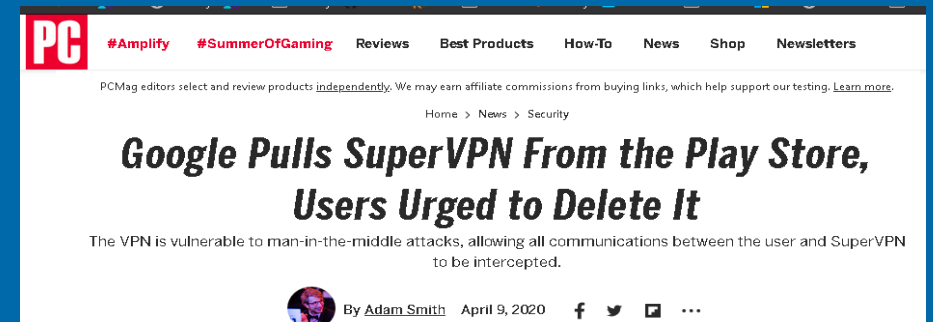
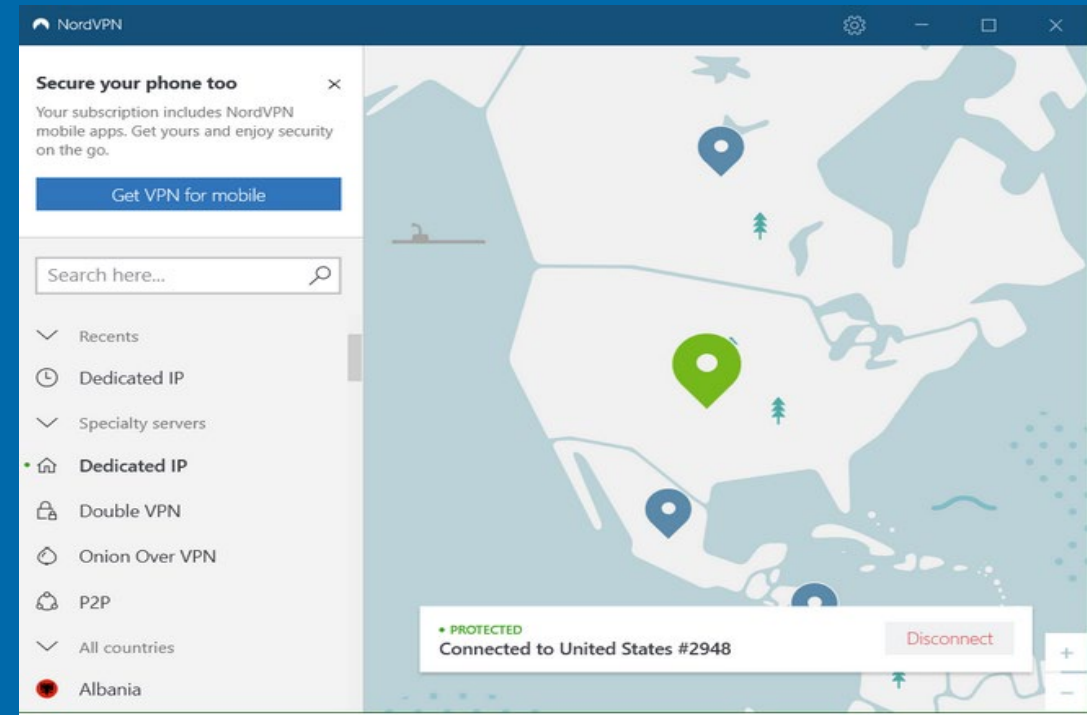
Defenses: Firewall

- Use a firewall to protect your device / network
- Your router can be configured to be a firewall
- Windows comes with a software firewall



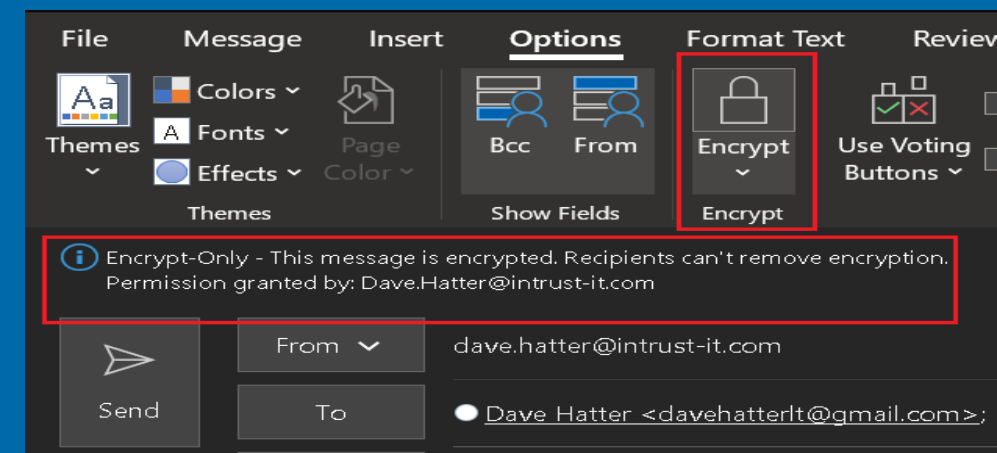
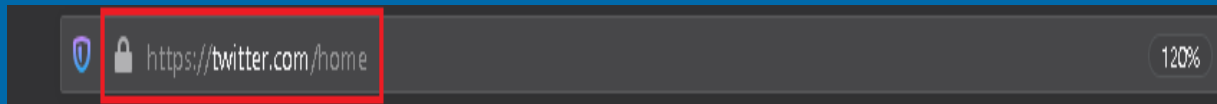
Defenses: Virtual Private Network

- A VPN creates an encrypted connection
- May not be required if all your apps are cloud based
- Never use public Wi-Fi without a VPN
- The best include NordVPN, IPVanish and TunnelBear
- Vet the VPN software carefully!



Defenses: Encryption

- Encryption scrambles data so that it can only be unscrambled with the appropriate key
- Use Encryption (at rest and in motion)
- Enable BitLocker for data at rest
- Look for <https://> in the browser
- Use encryption to protect email
- Use encryption to protect messaging



Defenses: Router

- Change default password to a strong password
- Enable WPA2 or higher encryption
- Enable firewall
- Update regularly
- Use a guest network

Security Options

- ☐ None
- ☒ WPA2-PSK [AES]
- ☐ WPA-PSK [TKIP] + WPA2-PSK [AES]
- ☐ WPA/WPA2 Enterprise

Router Auto Firmware Update

Enable router to automatically update to future firmware. This keeps your router up to date with the latest features and security fixes.
Select one of the following options:

- ☒ Enable ☐ Disable

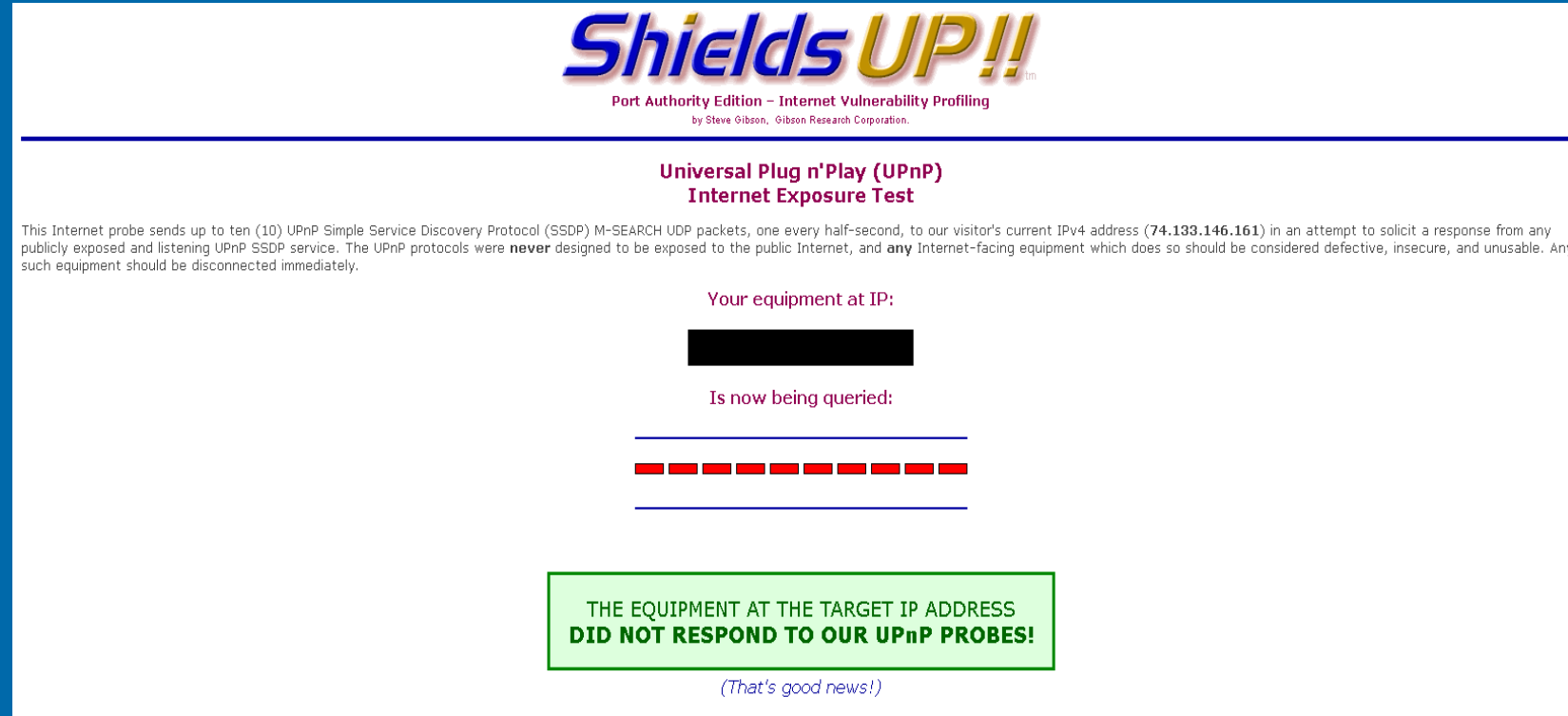
Firmware Version Check

No new firmware version available.

OK

Defenses: Router

- Disable SSID broadcast
- Whitelist devices
- Disable WPS
- Use 3rd party DNS
- Disable remote management
- Create VLANs



ShieldsUP!!
Port Authority Edition - Internet Vulnerability Profiling
by Steve Gibson, Gibson Research Corporation.

**Universal Plug n'Play (UPnP)
Internet Exposure Test**

This Internet probe sends up to ten (10) UPnP Simple Service Discovery Protocol (SSDP) M-SEARCH UDP packets, one every half-second, to our visitor's current IPv4 address (**74.133.146.161**) in an attempt to solicit a response from any publicly exposed and listening UPnP SSDP service. The UPnP protocols were **never** designed to be exposed to the public Internet, and **any** Internet-facing equipment which does so should be considered defective, insecure, and unusable. Any such equipment should be disconnected immediately.

Your equipment at IP:
[REDACTED]

Is now being queried:
[REDACTED]

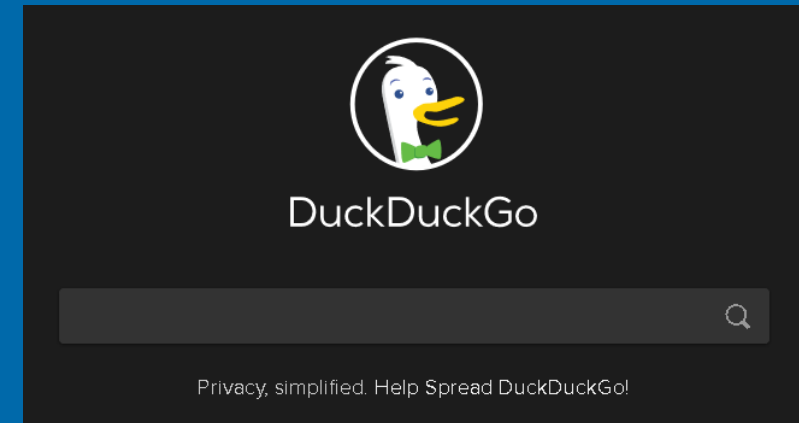
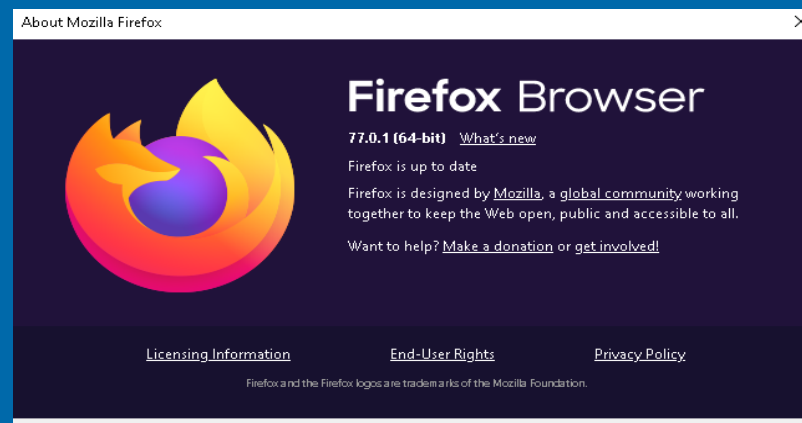
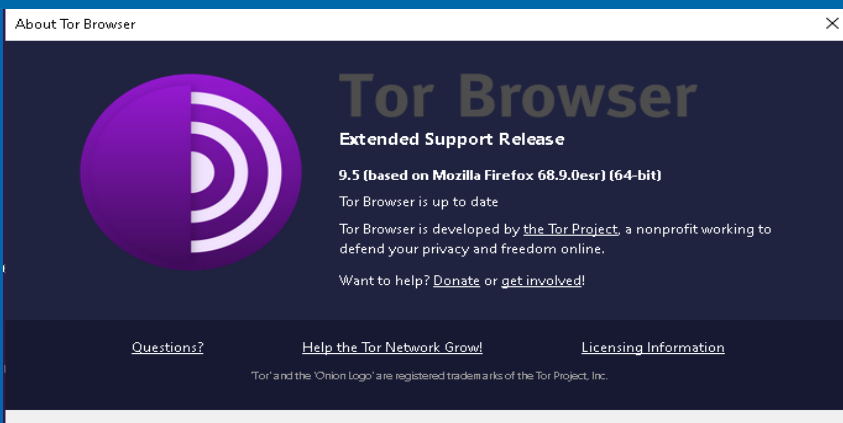
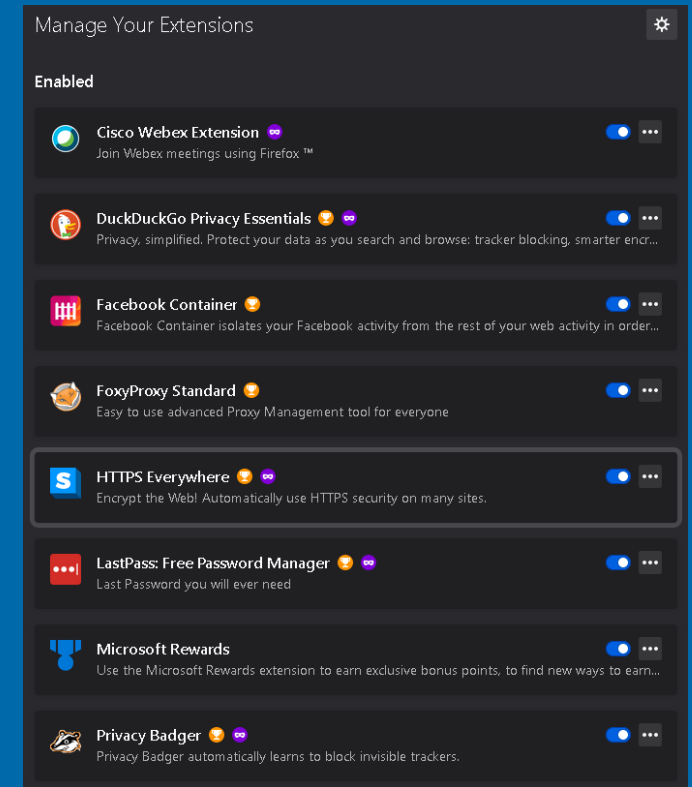
**THE EQUIPMENT AT THE TARGET IP ADDRESS
DID NOT RESPOND TO OUR UPnP PROBES!**

(That's good news!)

<https://www.grc.com/shieldsup>

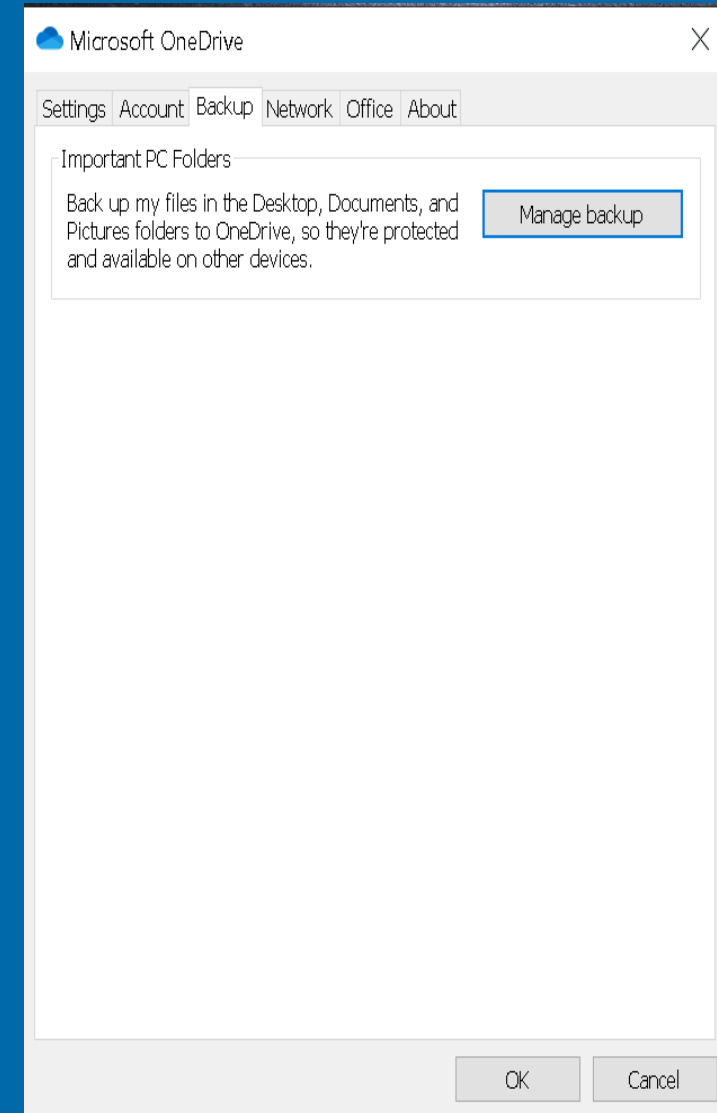
Defenses: Vet software carefully

- Do your homework and vet apps
- Don't download the latest viral thing
- This applies to desktop apps, mobile apps, and browser extensions
- Delete apps you don't need
- Use privacy friendly platforms & apps



Defenses: Backup

- Backup data and verify the backup integrity
- 3-2-1 rule: At least three versions of your data on two different media, one of which is off-site
- Look for a service that allows you to define a personal encryption key. If not, read the privacy policy carefully
- Tools like OneDrive can be a basic backup
- iDrive and BackBlaze rate highly



Defenses: Hardening

- Configuring systems to make them more difficult to hack
- For example, change default passwords and remove unnecessary accounts
- Lock the screen when not in use
- Don't make work devices visible on the network
- Check out the CIS Benchmarks



The screenshot shows the homepage of the CIS Benchmarks website. At the top, there is a navigation bar with the text "Home • CIS Benchmarks". Below this, the CIS Benchmarks logo is prominently displayed. To the right of the logo, a paragraph states: "With our global community of cybersecurity experts, we've developed CIS Benchmarks: 140+ configuration guidelines for various technology groups to safeguard systems against today's evolving cyber threats." On the left side, there is a video player featuring a man, with the name "JORDAN RAKOSKE" and the title "CIS BENCHMARKS PROJECT MANAGER" visible below the video. At the bottom of the page, there are three main sections: "Overview of CIS Benchmarks and CIS-CAT Demo", "Register for the Webinar" (with dates "Tues. June 23 at 10:00 AM EDT" and "Tues. July 7 at 1:30 PM EDT"), and "CIS Benchmarks FAQ". A green button in the bottom right corner says "Access all Benchmarks →".

Defenses: Limit digital footprint

- Delete old unused email accounts and/or old emails
- Delete old content from social media platforms
- Disconnect apps and platforms to stop information leakage
- Lock down social media and understand the privacy settings
- Use a Virtual Private network (VPN)
- Use privacy friendly platforms and tools:
 - DuckDuckGo (search)
 - Tor
 - Firefox
 - Brave
- Lock down your browser and use extensions to limit tracking

Defenses: Limit digital footprint

- Create "burner" accounts
- Turn off services like location and Bluetooth when not needed
- Ensure that cloud-based backups are secured with a password, MFA where possible, and encrypted
- Do Darkweb searches for leaked data
- Use Google Alerts to find information online
- Work with a company like Delete Me who for a fee will provide annual "protection plans" that guarantee removal of your personal data from data-broker services
- Understand that old content may be archived somewhere like the Wayback Machine: <https://archive.org/web/web.php>

Defenses: General

- Prioritize risk
- Be wary of remote access
- Sanitize old equipment
- Maintain a clean desk policy
- Vendor management
- Disable devices that can watch/listen while working
- Don't allow family to use work devices
- Keep work data on work devices only

Defenses: General

- Use secure videoconferencing
- Be careful about information you share
- Shred work-related documents
- Get cyberinsurance, read policy carefully
- Create policies and procedures
- Have an incident response plan
- Engage early and often with your security team
- SETA (Security, Education, Training and Awareness)

Defenses: Use a framework

- NIST published first version of the Cybersecurity Framework (CSF) in February 2014
- CSF maps to multiple frameworks such as ISO 27001, CIS Controls & more
- Version 1.1 was published in April 2018
- CIS Controls V8 just published



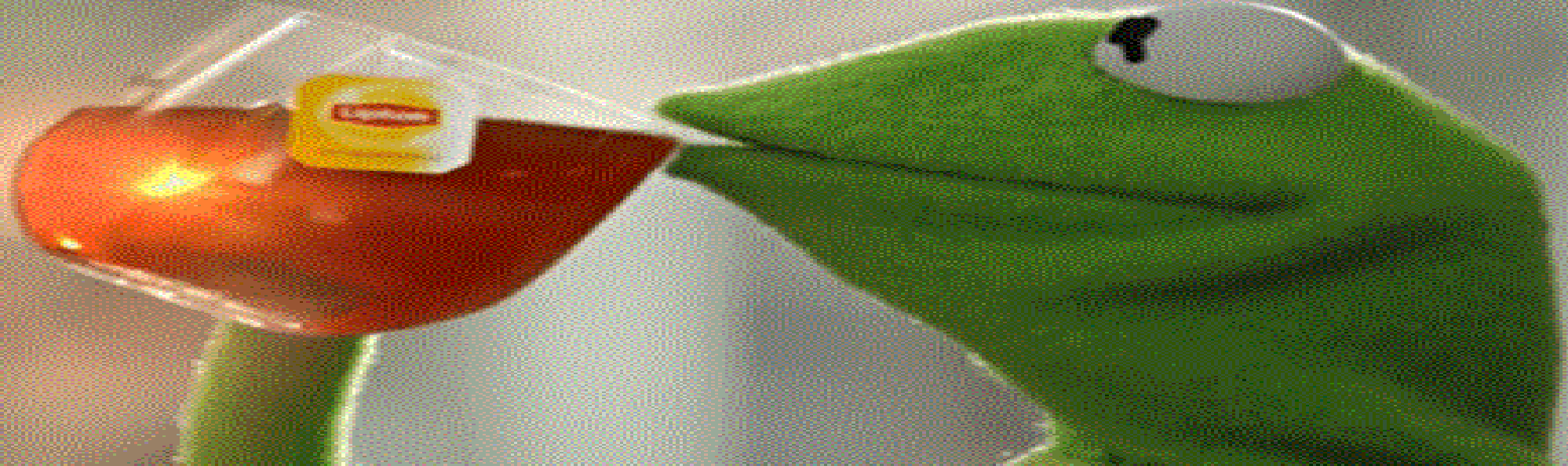
CIS Controls Version 8

Tools

- Microsoft Defender / Sentinel One
- Open DNS
- BitLocker
- AppLocker
- LastPass
- KnowBe4
- Azure Sentinel / Perch
- Duo
- Nessus

Be vigilant and keep learning!

**YOU SAY INFORMATION SECURITY
IS IMPORTANT BUT YOU AVOID
AWARENESS TRAINING**



**BUT THAT'S NONE OF MY
BUSINESS**

Cybersecurity myths dispelled

- My organization is too small or insignificant to be a target
- My data (or the data I have access to) isn't valuable
- Attacks are always sophisticated or technically complex
- New software and devices are secure out-of-the-box
- Cybersecurity requires a huge financial investment
- Cyber breaches are covered by general liability insurance
- Cybersecurity is an IT issue

Hope and denial are NOT a strategy!

Remember the 3 simple steps

- Stop
- Think
- Protect — Be a human firewall

Skepticism and Security

FRANK'S®
RedHot®



I put that  on everything™

For more information follow:

- Bruce Schneier: @schneierblog
- Kevin Mitnick: @kevinmitnick
- US-CERT: @USCERT_gov
- SecurityWeek: @SecurityWeek
- Center for Internet Security: @CISecurity
- MSRC: @msftsecresponse
- NIST Cyber: @NISTcyber
- Intrust IT: @IntrustIT
- MSRC: @msftsecresponse
- Microsoft Secure: @msftsecurity
- RSA: @RSAsecurity
- Mikko Hypponen: @mikko
- Troy Hunt: @troyhunt
- CSOnline: @CSOonline
- Me: @DaveHatter

Additional Resources

- www.mcafee.com
- www.symantec.com
- www.twofactorauth.org
- www.safer-networking.org
- www.zonealarm.com
- www.webopedia.com
- www.hackerwatch.org
- www.haveibeenpwned.com
- www.twofactorauth.org
- www.knowbe4.com
- www.antiphishing.org
- www.microsoft.com/security
- www.idtheftcenter.org/facts.shtml
- www.ic3.gov/default.aspx
- www.ftc.gov/bcp/online/pubs/alerts/phishingalrt.htm
- enterprise.verizon.com/resources/reports/dbir/
- www.sans.org/critical-security-controls/
- <https://www.us-cert.gov/ncas/current-activity/2019/11/06/cisa-launches-cyber-essentials-small-businesses-and-small-slts>
- www.nist.gov/cyberframework
- <https://www.cisecurity.org/blog/cyber-hygiene-guidance-for-windows-10/>
- www.ftc.gov/tips-advice/business-center/small-businesses/cybersecurity
- <https://www.pcmag.com/roundup/256703/the-best-antivirus-protection>
- <https://www.pcmag.com/roundup/296955/the-best-vpn-services>
- <https://www.zdnet.com>
- <http://www.cnet.com>

Q & A



"It's time for a cybersecurity zeitgeist in the West where cyber hygiene is a meme that is aggressively distributed by those who have mastered it and encouraged to be imitated by those who have experienced it." - James Scott



THANK YOU!

Dave Hatter, CISSP, CCSP, CCSLP, Security +, Network+, PMP, PMI-ACP, ITIL V3

Intrust IT

[linkedin.com/in/davehatter](https://www.linkedin.com/in/davehatter)

twitter.com/davehatter

www.youtube.com/user/davidlhatter

Catch my Tech Friday spot live on 55KRC at 6:30 AM every Friday on
550 AM or <http://www.55krc.com>