Non Profit IT Security

What is it, why should I care, and what can I do?

Presented by the Hartford Foundation for Public Giving
Nonprofit Support Program

November 20, 2019



Your Workshop Leader

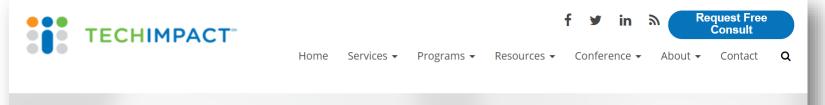
Linda Widdop

TECH IMPACT

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Tech Impact: Your Technology Resource



Sensible Technology Solutions Exclusively for Nonprofits

Tech Impact Nonprofit Technology Services

Tech Impact is a leading provider of nonprofit technology services and solutions. We are the place nonprofits can call to make sense of anything from large-scale technology projects, to technology maintenance and support. With more than a decade of experience working with a diverse group of nonprofits, we have the expertise and experience to deliver a wide range of services and support.

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Systems





Workshop in NYC: Accidental Techie Boot Camp - How to Support Your Organization Without an IT Background



Making it Easy to Measure Social Media

Tech Impact Services

Our continuum of services moves our community forward



Free and Paid Online Training for Nonprofits and our Community





CXWorks

call center training

Managed Services

Cloud Migration

ITWorks

IT support training

Cloud Identity & Device Management

Security Monitoring & Assessment

Stackable Credentials

continuous training for alumni

Data Analysis & Visualization

Application Selection & Support

PunchCode

programming Bootcamp

Machine Learning & Artificial Intelligence

Community Integrated Design

Productive

Secure

Informed

Innovative

Agenda

Overview of Cyber Security

Pieces of Security

Activity

How ED's Should Think About Security

Assessing Your Risk

Best Practices for Cyber Security

Configuration & Support

Costs of a Data Breach

Q&A / Conclusion



Overview & Examples



What Is Cyber Security?

Cybersecurity refers to preventative methods used to protect information from being stolen, compromised or attacked.

This environment includes users, networks, devices, software, processes, information (in storage or transit), applications, services, and systems that can be connected directly or indirectly to networks.



Example - Common Phishing Scams

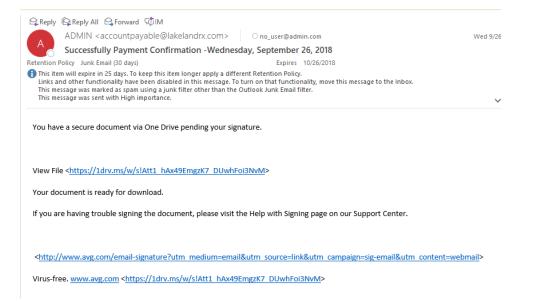


Sent: Monday, May 14, 2018 10:50 AM

Subject: {SecureMessageAtt}eFile Received -SCANNEDDOC00000002313

File Type - PDF : Size -710 KB

View your message Here <u>DOWNLOAD</u> To View Attachment, Sign in using your receiving email.



Update status



Updates are available.

• 2018-05 Cumulative Update for Windows 10 Version 1709 for x64-based Systems (KB4103727)

Status: Awaiting restart

 2018-05 Security Update for Adobe Flash Player for Windows 10 Version 1709 for x64based Systems (KB4103729)

Status: Awaiting restart

View installed update history

Your device is at risk because it's out of date and missing important security and quality updates. Let's get you back on track so Windows can run more securely. Select this button to get going:

Restart now



Example – Voicemail Attachment

Reply Reply All Sorward SIM



VOICEMAIL <pendingvoicemail_noreply@simermeyer.onmicrosoft.com>

Scheduling

Wmv received from (8328990209) (8328990209)

Retention Policy Junk Email (30 days)

Expires 10/26/2018

This item will expire in 25 days. To keep this item longer apply a different Retention Policy.

Links and other functionality have been disabled in this message. To turn on that functionality, move this message to the Inbox.

This message was marked as spam using a junk filter other than the Outlook Junk Email filter.

We converted this message into plain text format.

Hi scheduling@techimpact.org

You Have a New Voice Message

From: WIRELESS CALLER (317) 696-0438

Received: Wednesday, August 26, 2018 at 03:20 PM

Length: 00:13

To: scheduling@techimpact.org

Play Voicemail https://tinyurl.com/y8mqcdyp??==++%4b%4b%4b%4b%

Microsoft VMS 11 11

Please consider the environment before printing this.

Example – Action Needed on Account

Action Needed: Take action to keep getting emails



i You forwarded this message on 9/3/2019 9:56 AM.

If there are problems with how this message is displayed, click here to view it in a web browser.

Your Office 365 is flagged for login activity

Our records indicate that it has been more than 15 days since you logged into Office 365 through the web. For security reasons, this account will be locked due to inactivity.

To keep using your email, you must confirm that <u>Linda@techimpact.org</u> is still in use by using the activation button below.

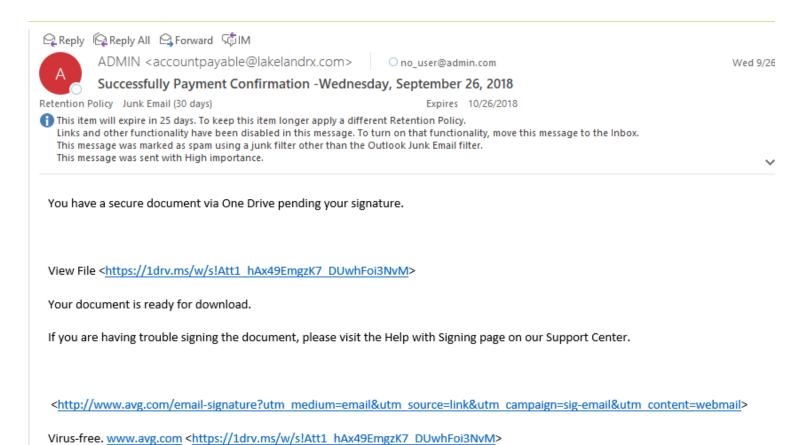
Mark As Active

You should use this button only if you want this account to remain active. If you no longer work at the company, please ignore this email.

Thanks for using Office 365!

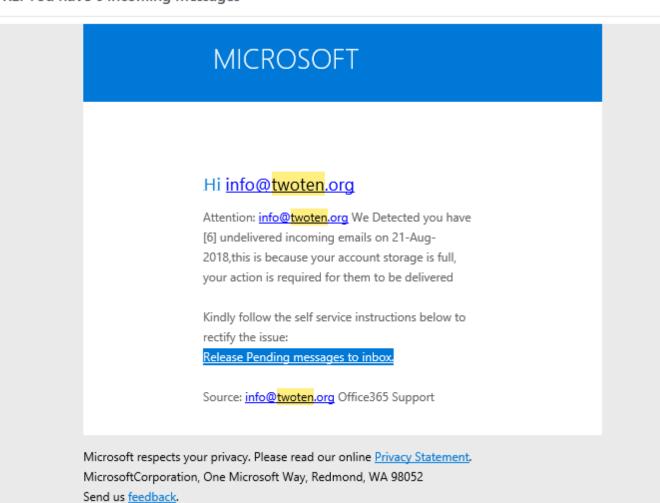
2019 @ Microsoft. All rights reserved

Example – Payment Confirmation

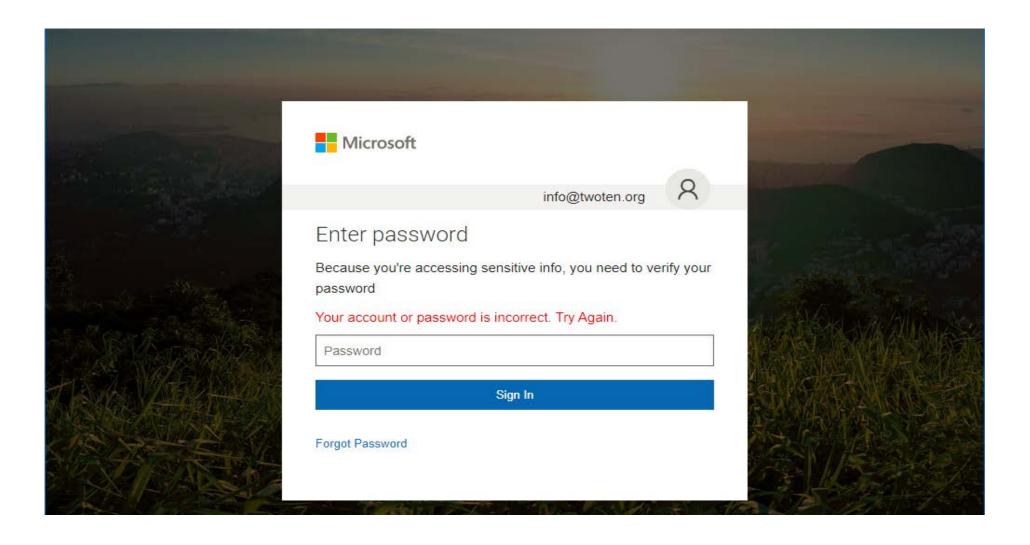


Example – Mailbox Spam Filter

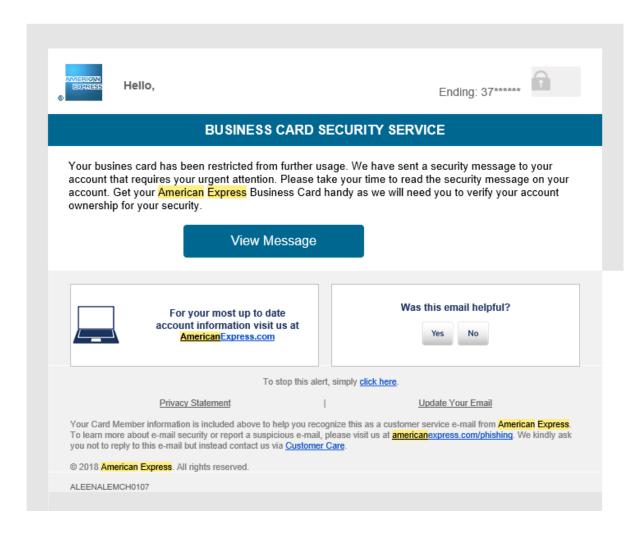
RE: You have 6 Incoming Messages



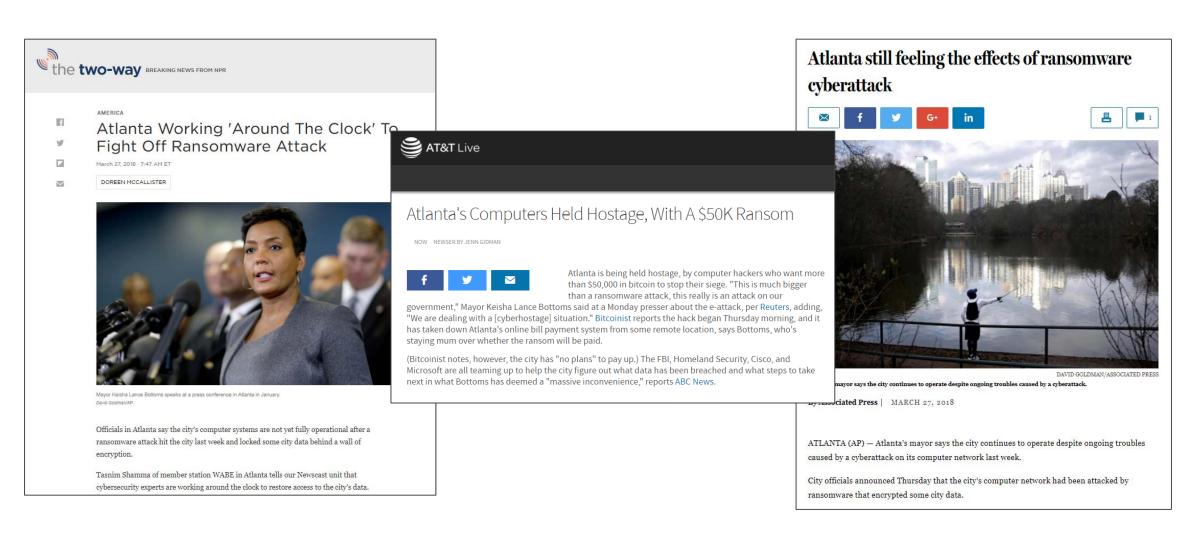
Example – Password Failure



Example – Credit Card Security Service



Making the News



Nonprofits are especially at risk

Operate heavily on trust

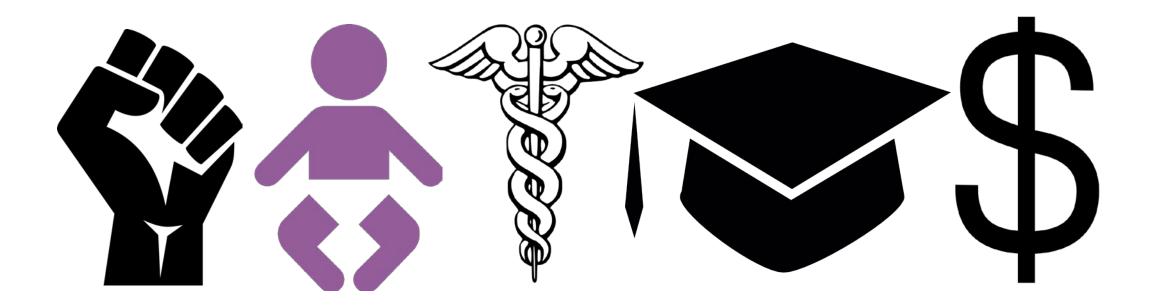
Often have tons of sensitive data

Stepping stones into bigger targets

Too busy with meaningful work to divert time/energy/money to overhead



Certain types of nonprofits are at particularly high risk

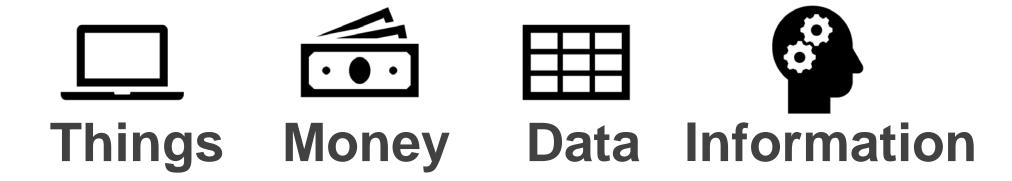


2

The pieces of your security landscape



What do you have (assets) that someone wants?



Assets



Usually they want *access* to computers and servers in order to launch scams and attacks on other organizations



Nothing shocking here – looking for quick cash transfers



Standard information like medical records, credit numbers have commodity pricing information on the black market. \$x/record



If they are against your mission, they might want damaging information or internal communications, but this is extremely unlikely.

Who wants those assets (adversaries)?



External Attackers





Concerned **Citizens**

EXTERNAL ATTACKERS

Ransomware
Phishing
DDoS (distributed denial of service)
Malicious software & spam
Online fraud
Installing Botnets
Software piracy



INTERNAL STAFF

Careless with data

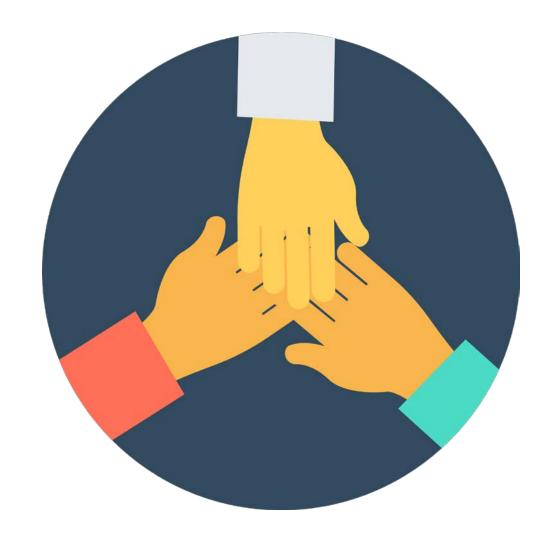
Careless with credentials
Stealing information
Coverup
Installing inappropriate software
Falling for Phishing



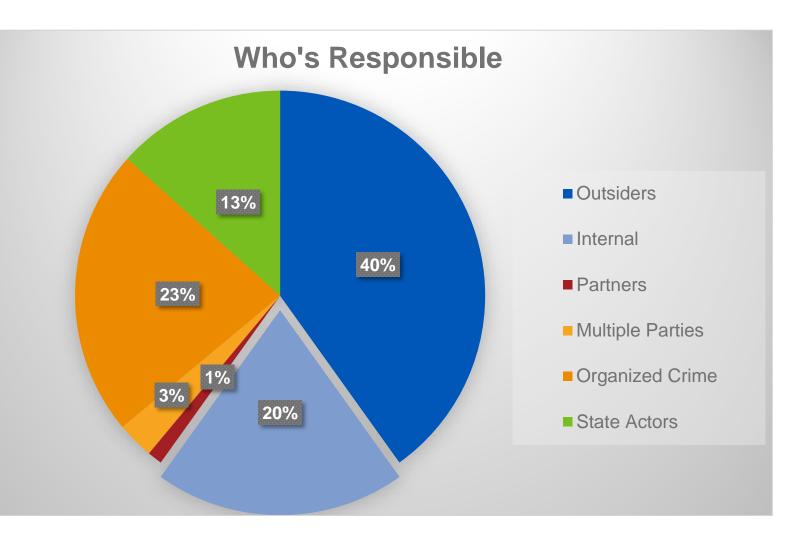
CONCERNED CITIZENS

Might go public, or submit what they found to the authorities. This would present a significant *reputational* or *regulatory* risk to you.

Are against your mission and want to disrupt your ability to deliver programs or smear your requtation.



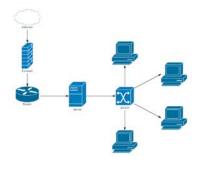
Data Breach Investigations Report (2019)



Verizon's DBIR analyzes
41,600+ security incidents
and 2,000+ breaches across
65 countries.

The report draws its findings from an analysis of real-world data breaches investigated by Verizon and an extensive range of third-party contributors during the last 12 months.

Threat Vectors: (AKA How do they get in?)



Network Penetration



Phishing Scams



Lost / Stolen
Malware / Virus



User Error

Common Threat Vectors



Compromising a valid **identity** by stealing credentials or social engineering



Exploiting vulnerabilities in **software** or **firmware** used by your organization (Zero-day exploits)



Take advantage of normal data-leakage caused by common poor security hygiene



Use **physical access** to steal data or compromise systems



Spy on **communication** between staff or between your systems and the internet

3

How ED's Should Think About Security



Security is probably part of your mission

Do you...

...work with / advocate for sensitive populations?

...work with / advocate for minors?

...help people with financial, health, or educational matters?



If you answered yes to any of the above, practicing and advocating for responsible data storage and sharing practices is actually a core part of your mission.

Letters and more letters

GDPR: General Data Protection Regulation

Data protection framework across EU, imposes strict rules on hosting, processing EU citizen data anywhere in the world.

PCI: Payment Card Industry

Set of security standards designed to ensure that ALL companies that accept, process, store or transmit credit card information maintain a secure environment

HIPAA: Health Insurance Portability and Accountability Act

National standards for electronic health care data and national identifiers for providers, health insurance plans, and employers

PII: Personally Identifiable Information

Information that can be used on its own or with other information to identify, contact, or locate a single person, or to identify an individual ir context.

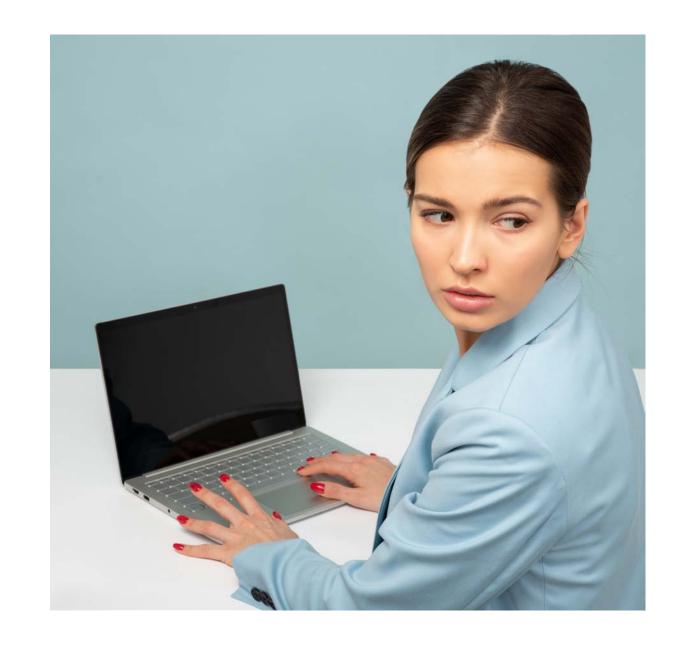
Some important and underappreciated principles

IT Security is:

...not overhead, and not optional. It's a core element of your operational mandate.

...an ongoing process, not an achievement.

...not something you can do perfectly, and something that you can overdo.





Your goal is not to fix everything

Perfect security isn't possible

Trying to implement perfect security is a waste of resources that hamstrings and frustrates your team and actually makes you less safe

The goal here is balance

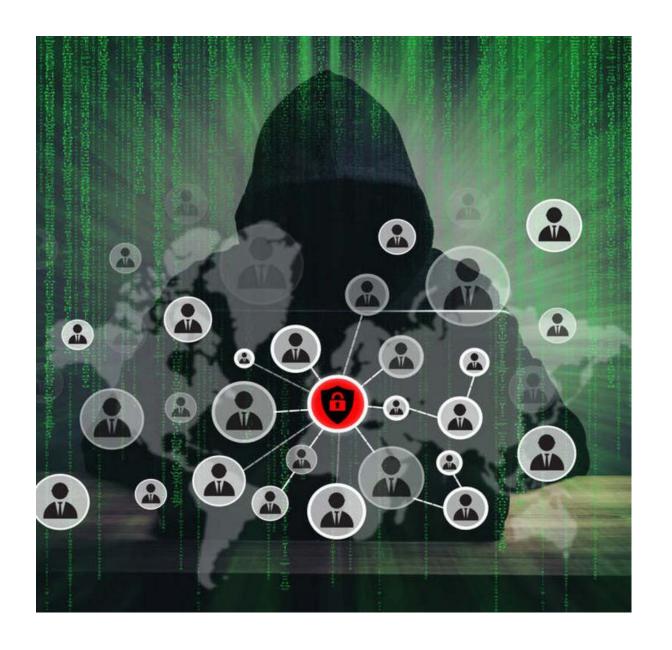
Most Common Threats

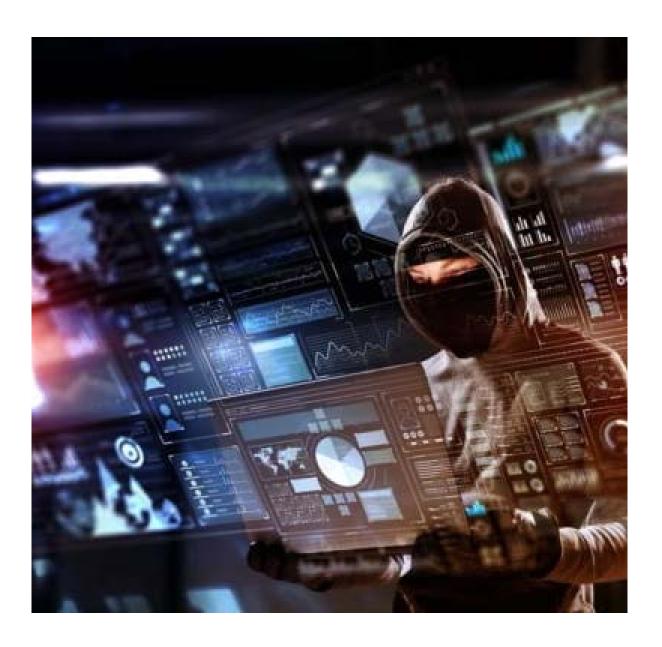
External Attackers stealing email account credentials for spam or fraud

External Attackers repurposing servers, computers, or networking equipment for botnets or fraud

External Attackers phishing to make money

Protecting against these is a matter of making it harder for the attacker to get in. They often go after someone else





And those are just the basic threats that everyone worries about

Advanced adversaries are those that specifically target you and have the technical means to pull it off. Usually their aim is espionage and/or damaging your reputation.

Protecting yourself is possible but difficult. You need to be hardened not just harder. That probably means compromises for your staff.

Protecting against government actors is even harder because you often can't use cloud-based services.

Focusing efforts

We only want to worry about the threats that are actually relevant to your organization

Too much security = no security at all

at the planning stage (because you'll be too overwhelmed to ever get started)

at the deployment stage (because your staff will be too overwhelmed and frustrated to follow your directives)

Why protect against the loss of medical information if you don't have any or the stealing of internal communications if you make everything public?

What would the **impact** be of <u>Staff</u> getting access to <u>HR Data</u>?

Activity

Let's fill out the DIY Security Assessment Worksheet

Enter "Low", "Medium" or "High" in the Impact Self-Assessment table

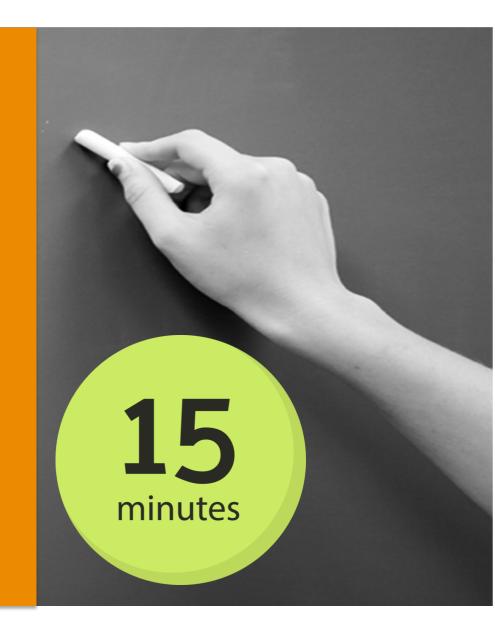
Use blank lines for additional systems

Let's evaluate our Priorities

Circle any boxes that are High Priority in the Impact Self-Assessment Table

Rate those using #1 as highest priority in the Prioritization Self-Assessment table

Let's discuss



Your Impact

On Page 1 of your worksheet, answer the following question for each box:

What would the **impact** be of ______ getting access to _____?

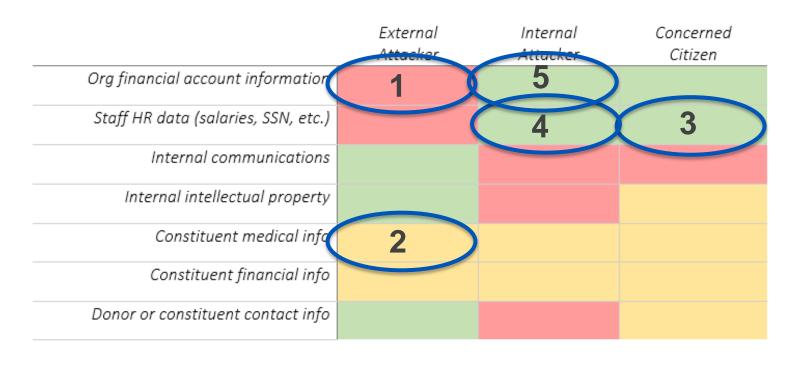
	External	Internal	Concerned
	Attacker	Attacker	Citizen
Org financial account information	High	Low	Low
Staff HR data (salaries, SSN, etc.)			
Internal communications			
Internal intellectual property			
Constituent medical info			
Constituent financial info			
Donor or constituent contact info			

We can't do everything

- Unless you're a bank, you're going to have to pick and choose which of these vectors you focus on
- The likelihood of a particular kind of attack can help, but we should combine that with the impact to your specific organization we determined in part 1.

Org financial account information	External Attacker High	Internal Attacker Low	Concerned Citizen Low		Likelihood
Staff HR data (salaries, SSN, etc.) Internal communications					Very Rare
Internal intellectual property Constituent medical info				+	Unusual
Constituent financial info					Common
Donor or constituent contact info					

Prioritization



Likelihood

Very Rare

Unusual Common

- Look back to your impact assessment and review your highestimpact outcomes
- Circle these cells on the second page of your workbook
- Rank them starting at 1

 (highest priority) by
 looking at the likelihood
 of something
 happening

Cyber Security Threat Vectors

Device Security

Ensure our devices are safe and that their loss will not endanger the organization



Ensure that people have only the level of access they really need, and that we know who is accessing what

Data Loss Controls Ensure that sensitive information doesn't intentionally or accidentally get put somewhere unsafe, or sent to someone who shouldn't have it



Minimize the exposure of our devices to risky software and websites, and ensure that active protections are in place to defend against new and unknown malware

Itemlevel Encryption

Provide extra protection to specific highly sensitive information to prevent sharing



Monitor our networks and protect them from direct penetration attempts



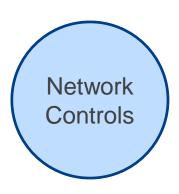
What is Device Security?

- Allows organizations to limit which devices are accessing data
- Allows organizations to enforce settings on devices that are exposed to sensitive information
- Allows organizations to manage updates, anti-virus, and other key features of mobile devices
- Allows organizations to wipe sensitive data from devices when employees leave or devices are lost



What is Malware Controls?

- Ensure that all workstations have antivirus and antimalware applications installed
- Ensure that all AM/AV is updated
- Run full scans regularly
- Address any suspicious results immediately



What are Network Controls?

- Network firewall is installed and configured properly (do not just use the Internet modem)
- Firewalls are patched and updated regularly
- Log files are regularly monitored for suspicious activity (DDoS)
- Wireless access points are configured with passwords
- Wireless guest network is separate from business network



What is Account Security?

- Ensure that each account is used by one user
- Ensure that each account is used by the correct user
- Monitor for suspicious login activity



What are Data Loss Controls?

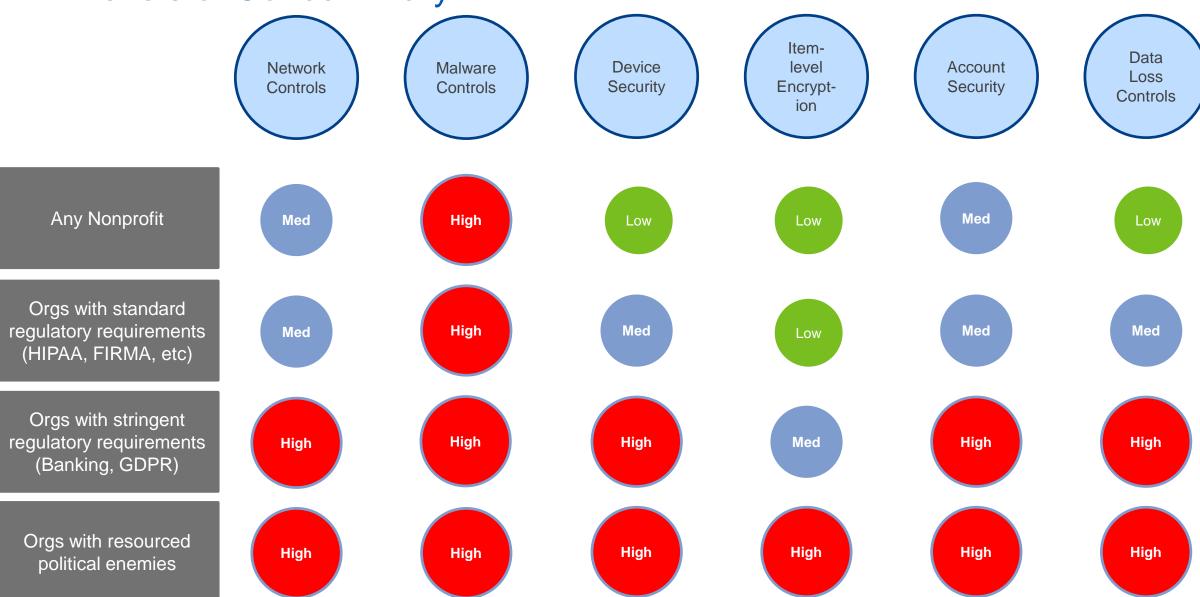
- Monitor for the accidental or intentional sharing of sensitive information like Social Security Numbers and other PII
- Monitor the location of sensitive information
- Use heuristic analysis to identify suspicious patterns of behavior that might indicate compromise or intentional removal of data



What is Item-Level Encryption?

- Allows organizations to protect sensitive data regardless of it's location.
 Protected files can be stored on thumb drives or emailed outside of the organization without fear of data loss.
- Prevents users from sharing content unless permitted by the organization. Protected files can't be forwarded and some control is provided over printing, copy/paste, etc.

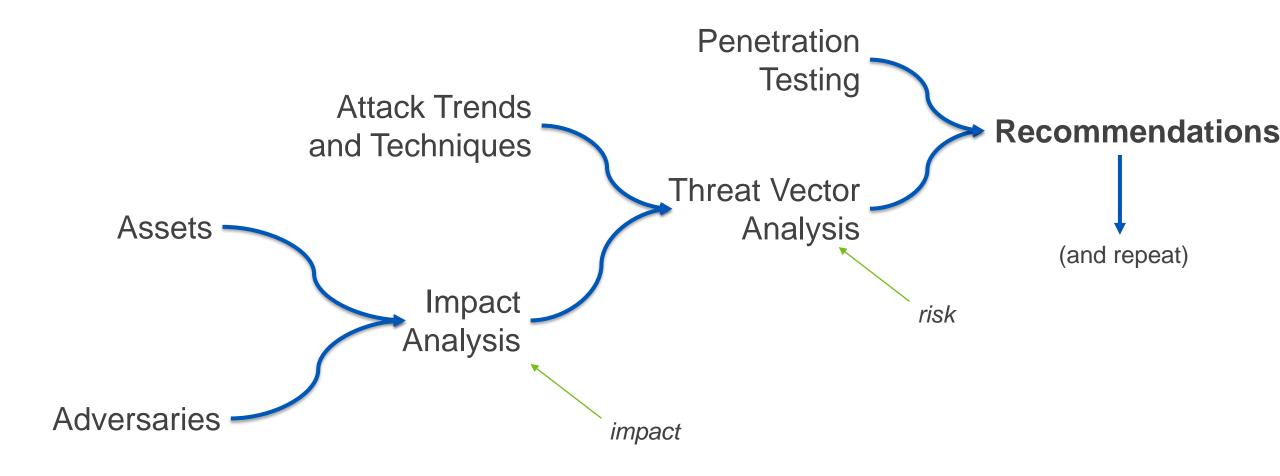
Levels of Concern Vary



Assessing Your Risk



What's our process?



Security Assessment (DIY)

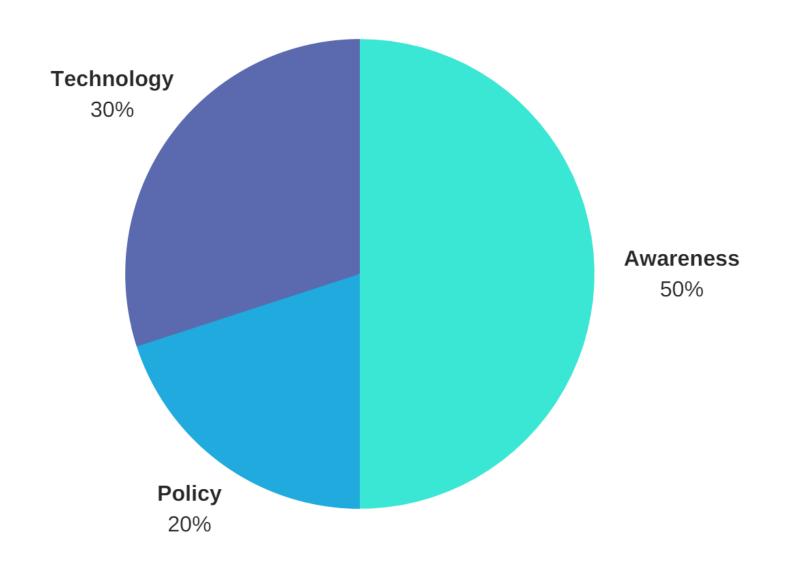
Security Wo	orksheet		
BENCHMARKS	standard security areas, add to list if needed		
ASSESSMENT	details of current state with gap and score (see scoring chart)		
PROJECTS	any mitigation projects with timeline/priority		
COSTS	costs of mitigation and ongoing support if needed		

5

Best Practices for Cyber Security



Cyber Security Best Practices – Areas to Address



Awareness - Policy



Clear and updated policy for computer use



Documented methods for storing, sharing and handling information



Communicated and signed by staff



Protects the organization from liabilities

https://www.sans.org/security-resources/policies/general#acceptable-use-policy
https://www.sans.org/security-resources/policies/general/

Awareness - Culture



The *culture* of security in your organization



Are people likely to think about security before taking action?



Know there are consequences to poor security practices



Trust that you care more about them getting work done than fear mongering



Have **usable** tools to be secure

Awareness - User Education

Regular security briefs and educational content – threats are always changing

Educate – use KnowBe4 to simulate phishing attacks and provide education. Will protect organization but extra benefit to protect employee personal information.

Accountability - keep users accountable



Awareness – Liability and Recovery



- Investigation determine what occurred and how to recover. May involve 3rd party or FBI
- Business Losses monetary losses, downtime, and costs to manage the crisis
- Privacy/Notification send data breach notifications to customers or affected parties
- <u>Lawsuits/Extortion</u> legal expenses associated with release of confidential data. Also includes ransomware costs

Technology Mitigations



Helpful where policy is difficult to apply and/or follow (protecting against technical external attacks)



Enforces policy and culture and provides feedback about what is working and what isn't



Gives staff tools to **enable** then to do what is right (send data securely, store safely, etc)



Not a panacea, but a safety net

Technology - Password Practices

01

Make passwords as long as possible: 20+ characters

02

Don't reuse passwords – ever

03

Don't share passwords unless you absolutely have to. Use a password manager

04

Use multi-factor authentication

Technology - Multi-Factor Authentication

Use one centralized system as an identity / MFA provider

Users are prompted on phone using mobile app

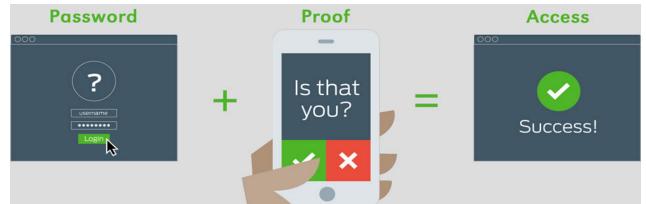
Users receive phone call or text message verifying identity

"Remember" devices for configurable period of time to prevent the need for entering two-factor during that time

Exempt certain physical locations (ie, your offices) from enforcement

Examples of MFA providers include Google, Office 365, Duo, Okta,

OneLogin



Technology - Software Update & Antivirus enforcement

Use a centralized tool to check for and apply software updates to all of your PCs

Use a centralized tool to check for and enforce the presence of up-to-date antivirus tooling on all PCs

Have policies requiring staff to apply updates / restart PCs when prompted

Examples of RMM tools include Kaseya, Solar Windows, Comodo, AutoTask







Technology - Mobile Device Management

Enrolled devices have configuration policies applied

View compliance with your policies using Compliance policies

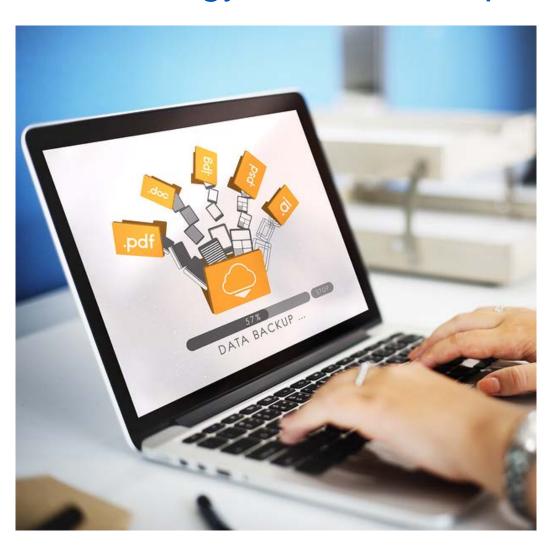
Remote wipe

Device geolocation

Allow users to enroll personal devices, preferably at the application level



Technology - Data Backup & Recovery



Scheduled and Automated

Offsite

Tested

Next Steps

Evaluate your risks

Pick your interventions

Develop a plan

Get some help (if needed)

Key Recommendations

"Quick wins" 1. Create/Update Computer Policy 2. Update software, and keep it updated Do these first 3. Block access to known-dangerous sites Fast Fnablement Minimum user impact and cost Do these next 1. Protect all accounts with MFA 2. Use a password manager Base protections 3. Encrypt devices Moderate user impact and cost 4. Fully manage your devices Do these last 1. Know who is doing what in your systems 2. Monitor and proactively prevent data loss Best protections Additional investments required 3. Protect network traffic

5a Microsoft Office 365





365 E3 Security Features

Advanced email	Use archiving and legal hold capabilities, plus unlimited storage, for compliance needs. And use data loss prevention (DLP) policies and policy tips that educate your users for additional compliance enforcement in email.
Document and email access control	Rights Management Services enable you to restrict access to documents and email to specific people and to prevent anyone else from viewing or editing them, even if they are sent outside the organization.
Message Encryption	Apply flexible out-of-the-box encryption policies like Encrypt Only and Do Not Forward, and read protected messages in Outlook while messages sent to non-Office 365 users can be read using Google, Yahoo or a Microsoft identity. Plus, control your encryption keys in Azure Key Vault. Learn more Outlook while messages sent to non-Office 365 users can be read using Google, Yahoo or a Microsoft identity. Plus, control your encryption keys in Azure Key Vault. Learn more
Advanced compliance tools	With the unified eDiscovery Center, you can search across Exchange, Skype for Business, OneDrive for Business, and SharePoint mailboxes.
Information protection	Rights management, data loss prevention, and encryption for Exchange Online, Skype for Business, and SharePoint Online help keep your content safe in email, IM and meetings, and team sites.



365 E5 Advanced Security Features

O365 E3 + :

Advanced information protection

Data loss prevention and encryption across Exchange Online, Skype for Business, and SharePoint Online help keep your content safe in email, IM, meetings, and team sites.

Threat intelligence

Threat intelligence provides broad visibility into the threat landscape, which helps deliver actionable insights, and enables proactive cybersecurity to ultimately help reduce your costs.



Advanced Threat Protection helps defend users against sophisticated threats hidden in emails, attachments, and links.

Customer Lockbox lets you limit data access to only pre-assigned, two-factor-authenticated administrator approvals for greater control and transparency. And the built-in features of Office 365 Cloud App Security give you enhanced visibility and control of your Office 365 environment.



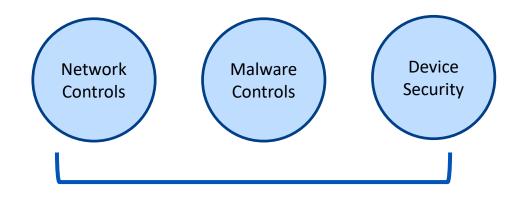
With the live dashboards and interactive reports of Power BI Pro non-technical users can visualize and analyze data with greater speed, efficiency, and understanding. With its interactive dashboards, Microsoft MyAnalytics enables you to surface personal and organizational insights based on information across Office 365.

6 Configuration & Support



How can we protect ourselves?

Do This First!



Antivirus/Antimalware

Content Filtering Tools

Firewalls/VPNs

OS Version/updates

Available through TechSoup or MSP

Subscribe (DNS Umbrella, Barracuda, etc)

Install/Configure a good firewall

Windows 10 PRO – a must!

Levels of Professional Support Needed



Itemlevel Encryption





Any Nonprofit









Orgs with standard regulatory requirements (HIPAA, FIRMA, etc)









Orgs with stringent regulatory requirements (Banking, GDPR)









Orgs with resourced political enemies





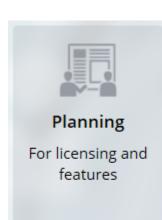




Professional Help is Available









Email migration

From any existing system



File sharing and collaboration

We can customize your cloud storage space for your modern day teams



Communication & teamwork

To work with internal and external users quickly and cost effectively



Support

For admins and users



Compliance & Security

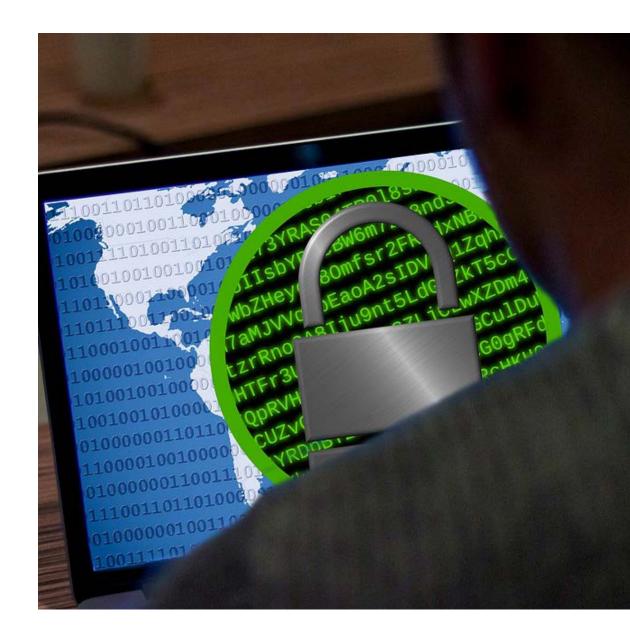
Manage access and maintain compliance

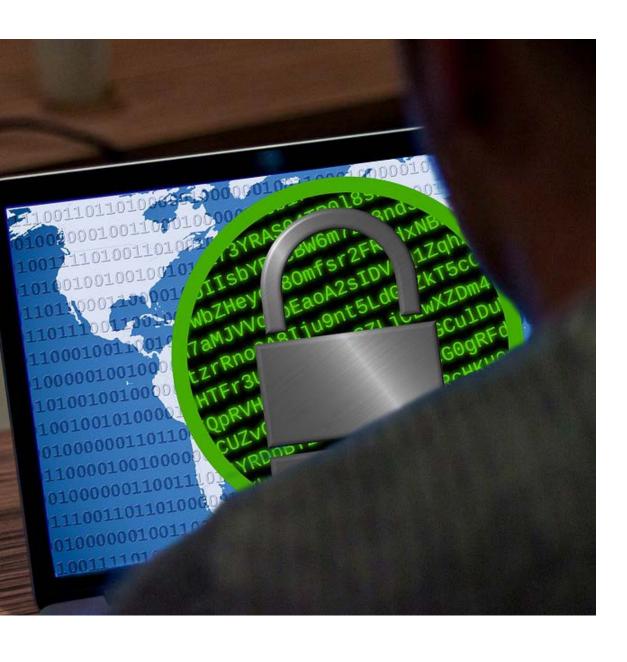
Cost of a Data Breach: Actual Costs

Estimates an average of \$221 per lost record, and \$7 million average total cost. Costs may include:

- legal guidance
- breach notification
- forensics
- credit monitoring

Source: Ponemon Institute 2018 Cost of Data Breach Study (www.ibm.com/downloads/cas/861MNWN2)





Cost of a Data Breach: Intangible Costs

The lost trust that nonprofits experience from donors, volunteers and the community can affect

- fundraising activities
- volunteer engagement
- partnerships with other organizations

Source: Ponemon Institute 2018 Cost of Data Breach Study (www.ibm.com/downloads/cas/861MNWN2)

Different Levels of Data Breach Insurance Coverage

First-party data breach insurance provisions include:

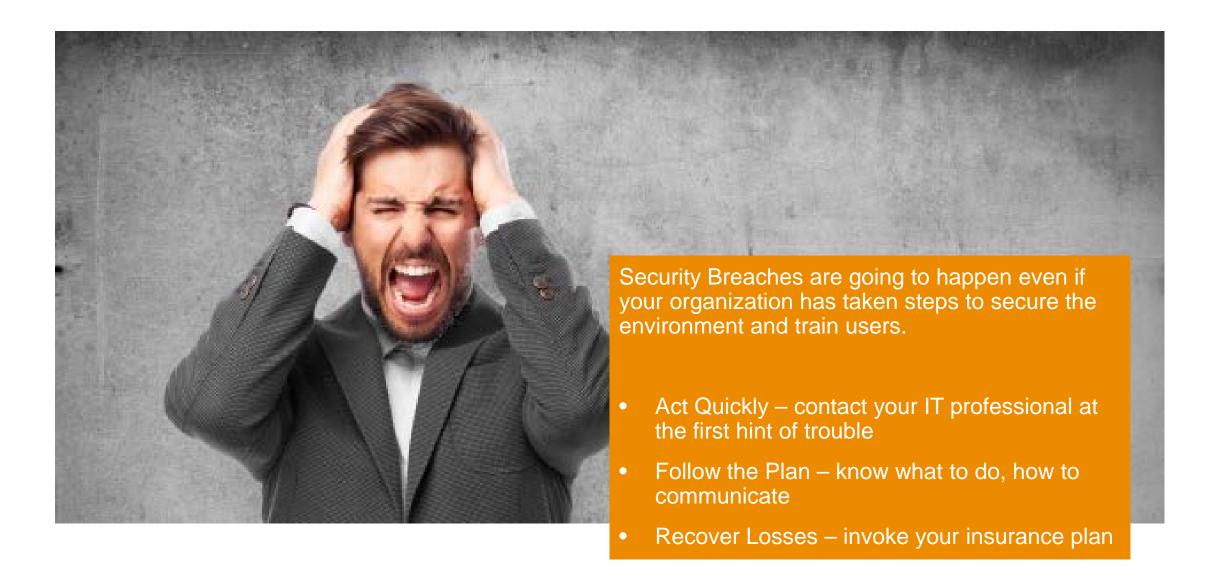
- Data breach investigation costs
- Hardware and software damage costs
- Fines incurred by lost data
- Lost revenue

Third-party data breach insurance provisions include:

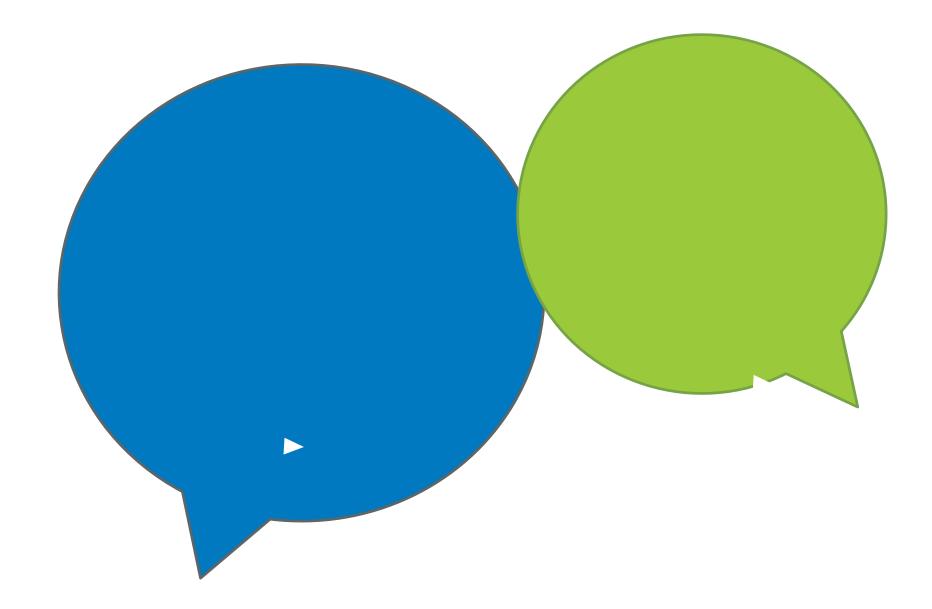
- Lawsuits from individuals due to data loss
- Fees incurred for aiding individuals in the event of data loss



Bad News – It's Not "IF", It's "WHEN"



Questions?



Acknowledgments

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Amy Studwell

Meher Shulman

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Thank You!



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