

CAE Forum 2019

Cybersecurity Cross Curriculum Projects

4/17/2019




Be inspired

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Terra State Initiative

- Since being designated in 2017, Terra has made a commitment to spreading the word on Cybersecurity
 - Focus on three areas:
 - Other Degree Programs
 - Community Members
 - Industry Professionals
- 


Other Degree Programs

- Hospitality Management
 - Health Information Technology
 - Psychology
- 


Structure of Activity

- Start each fall with a new program
 - Instructors from our Cyber program meet with other lead faculty in different program areas to discuss how Cybersecurity is effecting their area
 - Interested Faculty take the Introduction to Cybersecurity Course in Cisco
 - Set up times for the Cyber faculty or current Cybersecurity students to visit their classroom and present an Introduction to Cybersecurity and the focus of the project they will be working on
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Structure of Activity

- Faculty work together throughout the semester implementing pieces of Cybersecurity into their course
 - Cyber Faculty have created a repository of activities that can be viewed and used by any instructor in multiple disciplines
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Project Details

- Poster Presentations
 - Students who are pursuing Cybersecurity will create a poster on a hot topic in Cybersecurity
 - Recently we have been focusing on big data breaches
 - Students in other degree programs will create a poster that focuses on how Cybersecurity will effect their career/field today and in the future
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Project Details

- Schedule a time to display and present our posters to the community, campus, and each other
 - Recently we planned our Poster Presentations in the Café on our campus
 - Invitations went out to the campus community and outside community members interested in learning more
 - Offered coffee and snacks as an incentive
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What do the posters look like?


- We have the students create printed or trifold posters
- They also must create a brochure or quick guide on what they are presenting to hand out to their audience

Template for Printing Poster


- The Poster must include the following information (Big data Project):
 - Background of company
 - How they were breached
 - How many people were effected
 - What the company did to solve the problem
 - Any preventative measures they are taking
 - Be sure to reference any information found.
- Also each poster must have the following PPT components:
 - Pictures
 - Charts
 - Bulleted lists
 - No spelling errors
 - Creativity!!!




Cybersecurity Poster Topics:

- Examples:
 - Each group will pick a case study below in which data was breached:
 - Yahoo 2013-2014
 - eBay may 2014
 - Equifax July 2017
 - Heartland Payment Systems Marcy 2008
 - Target Stores December 2013
 - Uber 2016
 - JP Morgan Chase July 2014
 - US Office of Personal Management 2012 – 2014
 - Sony's PlayStation Network April 2011
 - Anthem February 2015
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Other Poster Topics:

- Other topics used in the past:
 - How secure is your password
 - How to secure your mobile device
 - How to set up a wireless network at home
 - Internet of Things
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Other Degree Program Poster Topics

- Health Records and Security for Health Information Technology
 - Hotel Security, how Secure is your information? Hospitality Management
 - The Life of a Hacker, Psychology
 - Why they hack, Psychology
 - General Topics:
 - Malware and Ransomware
 - Phishing Attacks
 - Encryption Blind Spots
 - Cloud Threats
 - Employees
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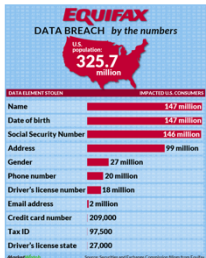
Examples of Printed Posters



COMPANY BACKGROUND

Equifax, Inc. is a consumer credit reporting agency whose services include:

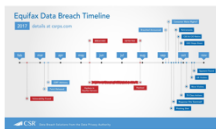
- Consumer and commercial information services
- Mortgage loan origination information
- Financial marketing services
- Identity management
- Technology and services to support debt collections and recovery management
- Employment, income, and social security number verification services
- Payroll-based transaction services
- Employment tax management services
- Sells consumer and credit information to resellers



WHAT HAPPENED

According to Equifax, the breach was discovered on July 29, 2017, but didn't make that news public until Sept. 7. Seven days later, Equifax revealed that the security hole exploited by the hackers was revealed in March 2017 but that it had failed to patch its systems.

The vulnerability was in a website application called Apache Struts. Back in March when the vulnerability was first discovered, it was a virtual feeding frenzy for 24 hours as hackers raced to exploit the flaw to try to take over web servers used by banks, governments, and high-profile internet companies, probing and downloading data, and installing malware and botnets.



REFERENCES

- 1) <https://money.cnn.com/2017/07/29/equifax-breach/index.html>
- 2) <https://www.bbc.com/news/technology-41011111>
- 3) <https://www.bbc.com/news/technology-41011111>
- 4) <https://blog.apache.org/foundation/entry/apache-struts-statement-on-equifax>



HOW IT WAS FIXED

The Apache Software Foundation, which oversees the Apache Struts project, said in a press release that a software update to patch the flaw was issued in March, one day after it was discovered. "The Equifax data compromise was due to their failure to install the security updates provided in a timely manner," the Foundation said in the statement.

Equifax said it was working with a leading cybersecurity firm, reported to be Mandiant, to investigate the breach.



BACKGROUND

Founded in 1979, the U.S. Office of Personnel Management (OPM) serves as the chief human resources agency and personnel policy manager for the Federal Government. OPM provides human resources leadership and support to Federal agencies.

PEOPLE AFFECTED

21.5 million people, including 4.2 millions current and former federal government employees, with data stolen to include:

- Names
- Social Security Numbers
- Date and place of birth
- Current and former addresses
- Residency and educational history
- Employment history
- Information about immediate family, personal and business acquaintances
- 5.6 million fingerprint records
- Findings from interviews conducted by background investigators



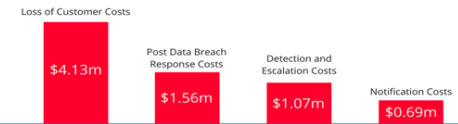
THE BREACH

Hackers gained access to the system using a contractor's credentials (the contractor had also been hacked a year prior). They then infected hosts with malware using a variant of PlugX, including an administrative server that's used to log in to all other servers.

SOLUTION

OPM scanned every host on the network to locate every malware instance, slowed down the transmission of data, and then used the timing of a scheduled power loss to remove all malware. The timing meant hackers weren't initially aware they lost access to the network.

Cost of a Data Breach in the U.S.



Source: IBM and Ponemon Cost of a Data Breach Study

PREVENTATIVE MEASURES


OPM implemented the following measures to increase security:

- Two-factor authentication
- New tools to detect malware
- Restrict privileges and access controls

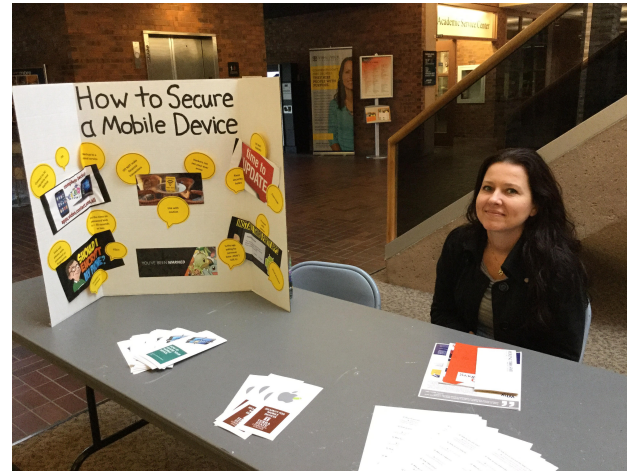
REFERENCES

- 1) <https://www.opm.gov/privacy/privacy-security/incidents/>
- 2) <https://www.wired.com/2017/07/29/equifax-breach-what-the-government-should-learn/>
- 3) <https://www.opm.gov/privacy/privacy-security/incidents/>
- 4) <https://www.opm.gov/privacy/privacy-security/incidents/>
- 5) <https://www.opm.gov/privacy/privacy-security/incidents/>
- 6) <https://www.opm.gov/privacy/privacy-security/incidents/>
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- 9) <https://www.opm.gov/privacy/privacy-security/incidents/>
- 10) <https://www.opm.gov/privacy/privacy-security/incidents/>

Where to get them printed?

- VistaPrint
 - 48” Wide by 36” high
 - Can customize smaller, just double check your edges do not exceed the boundary
 - Average \$10-\$12 per poster
 - Keep posters for future seminars on campus
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Pictures of our Event



Pictures of our Events



Community Members and Industry Professionals


- Events and programs to Educate Community Members and Industry Professionals:
 - Terra State Cybersecurity Educational Initiative Summit (October every other year) - Community
 - Guest speaker at the annual Northwest Ohio Health Information Management Association – Other Professionals
 - Elder-College: What do I need to know about Cybersecurity? – Different Age Demographic
 - Hosted the annual Great Lakes Cisco Conference 2019 – Fellow Faculty
 - Kids College : Cyberbullying – Soon to be Students

Terra State Cybersecurity Educational Initiative Summit


- First event was held in October 2018
- Students were Present at the event, networking and providing IT support
- Audience was Community members, Industry leaders and Professionals




Terra State Cybersecurity Educational Initiative Summit

- Event Details:
 - 3 Break out sessions (40 minutes long each)
 - Dynamic Speaker
 - Lunch
 - Capture the Flag Event for local high school students and Terra State Students
 - Company Gallery
 - Participation:
 - 30 high school students in Capture the Flag Event
 - 150 participants at the Summit
 - 9 Industry professionals that presented
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Speakers

- Dynamic Speaker: David Kennedy, TrustedSec, CEO
 - Breakout speakers:
 - Adam Luck, IGS, Senior Manager
 - Scott Blough, Tiffin University, Executive Director, CISO
 - Ryan Bonner, Brightline Technologies, Compliance Director
 - Loren Wagner, CentraComm, Senior Director Compliance Services
 - Tara Wilson, National Payment Corporation, Senior Account Executive
 - Devin Hill, Booz Allen Hamilton, Incident Responder
 - Christopher Kakish, Oswald Companies, Client Executive
 - Gregory Tapocsi, Office of Ohio Attorney General Mike DeWine, CyberOhio Director/Senior Assistant Attorney
 - Chris Ramdeen, Office of Ohio Attorney General Mike DeWine, Assistant Attorney General/Cyber and Privacy and Legal Units
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Topics Covered at Summit

- Starting Corporate Information System Program
 - Securing OT in an IT World
 - Department of Defense Contractors, must know information
 - Reducing Cyber Risk with a compliance program
 - What is PCI DSS and how it can affect your business
 - NIST 800-171 Complying with NIST
 - How to respond to wide spread breach
 - Risk Management and Transfer
 - Cybersecurity for Small Businesses
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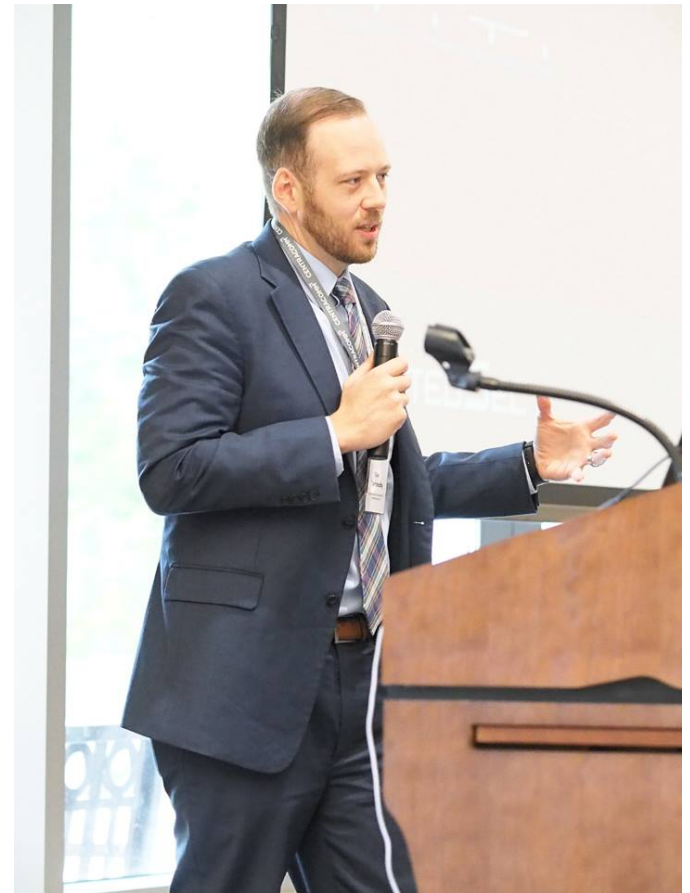
Pictures of Event



Pictures of Event




Pictures of Event




Speaking Opportunities

- Engage the Community by Speaking at Educational Events that are not directed for IT Professionals

Topics for Speaking Engagements

- Who are Hackers
 - Internal and External Threats
 - Principles of Security
 - What is Malware
 - Ransomware Explained
 - Backdoors
 - Rootkits
 - What is the Cloud
 - Common Cloud Threats
 - How to handle Threats
 - How to Prevent Threats
 - Encryption Blind Spots
 - Phishing
 - Employees: Biggest Vulnerability
 - Social Engineering
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Great Lakes Cisco Conference

- 5G
 - Automotive Cybersecurity
 - Project Based Learning
 - Introduction to IoT
 - IoT Cloud Services
 - Packet Tracer
 - Python Coding Labs
 - Cyberpatriot
 - Wireshark Tips and Tricks
 - Meraki Training
 - Layer 2 Security
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