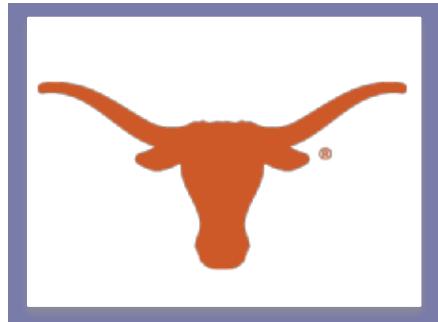




# CS4TX Meetup

October 3, 2017  
Let's talk cybersecurity



**Jennie Kam**  
**@TXJennieK**



Once upon a time, in the year 2000...

- Amazon was 6 years old and had yet to turn a profit
- Google was 2 years old
- These plus some computing giants like IBM, Microsoft, and Cisco were considered the “tech” companies

 But, by 2013...“Every company is a tech company” so said the Gartner Symposium.

Despite the initial resistance, he wasn’t wrong. Of course, every company does not write sw or build computers, but the Internet and prevalence of smart phones had made all companies, a tech company in some way.

Hospitals and governments digitize records, and were conducting transactions online. Netflix needed engineers to stream movies, instead of mailing DVDs. Mobile banking enabled people to deposit checks with their camera phone. Nike was one of the first to dabble in fitness trackers.

## And, by 2017...“Every company is a cybersecurity company”

Not everyone is saying this, but will need to become true. Home Depot, Target, Equifax had some technological component to their business, they clearly weren't cybersecurity companies yet.

By “be a cybersecurity company,” I mean make it a priority in terms of money, expertise, and company culture. I'm not saying mom and pop shops should go get a PhD – but cybersecurity should be considered an essential part of a business you may visit a consultant on. Say like you would a marketing firm, or an accountant.



## 27 'Petya' Ransomware Outbreak Goes Global

JUN 17

**Chernobyl nuclear power plant hit by 'Petya' ransomware attack causing havoc across the globe**

TECHNOLOGY

**Ukrainian officials: Hacked auto-updates spread ransomware infection across country**

**Petya cyber-attack still disrupting firms weeks later**

**Ukrainian company that spread Petya could face criminal charges for vulnerability**

*The hack was easier than we thought*

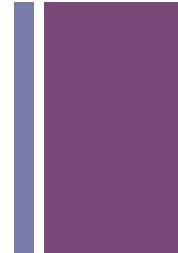
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“We need  
cybersecurity”

So...what?



# So what needs to be protected?



- Passwords
- Stock trading
- Baby monitors
- Banking
- Voting ballots
- Facebook
- Intranets
- Chemical plants
- Photos
- Nuclear weapons
- Medical records
- Location history
- MORE!

# + From whom does it need to be protected?

- Script Kiddies
- Governments/State Actors
- Cyber Terrorists
- Competing Corporations
- Ransomware Crooks
- Malicious Insiders
- Hacktivists
- Professional Black Hats
- MORE!

+

# Ransomware: Anatomy of an Attack

Video:

<https://www.youtube.com/watch?v=4gR562GW7TI>

+

Yikes!



So about computer  
science...?



+

# Finally! Cybersecurity roles

## ■ Security Testing

- Products: What I do, Internal or External (Bug Bounties)
- Networks: AKA Penetration testing
- **CS Education:** Coding, critical thinking, scripting tools
- Did Qualicart red team their intranet?



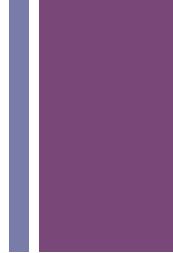
# + Finally! Cybersecurity roles

## ■ Secure development

- Securely developing life: mobile apps, websites, IOT devices that connect to the Internet
- Securely developing the security products: Anti-virus, Firewalls, IPS
- **CS Education:** Coding required!
- What if Qualicart had an IPS?



# + Finally! Cybersecurity roles

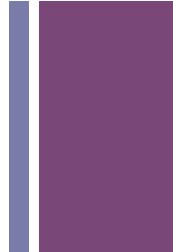


## ■ Incident Response

- Products: Forensic data recovery for a device, Intelligence gathering
- Networks: Incident response – what did attackers get? Who were the attackers?
- **CS Education:** Coding, critical thinking, scripting tools, computer hardware
- Did Qualicart understand who and why they were attacked?



# Finally! Cybersecurity roles

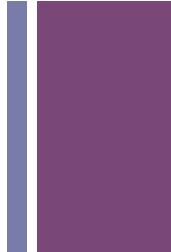


## ■ Defenders

- Products: Secure boot, Anti-tamper to stop counterfeits or supply chain attacks
- Networks: IT department, network monitoring
- **CS Education:** Critical thinking, documentation of process, scripting tools
- Could Qualicart's back-ups be more efficient?  
Detect and stop the attack to minimize damage?



# Finally! Cybersecurity roles

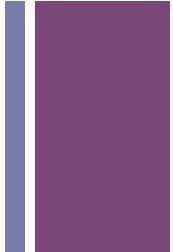


## ■ Researchers

- Solve the bigger picture problems: how will quantum computing affect cryptographic algorithms? Will passwords be replaced by biometrics?
- **CS Education:** Wide + deep technical knowledge, scientific method, creativity



# Finally! Cybersecurity roles



## ■ Education and Awareness

- The human aspect – “social engineering”
- Could be considered non-technical
- **CS Education:** STILL RELEVANT! User-interface, critical thinking
- Qualicart didn't educate their users on phishing



Many of these career paths can  
be seen in this (more  
humorous) NCIS video

Video:

<https://www.youtube.com/watch?v=u8qgehH3kEQ>

+

Don't forget the ethics lesson!





# I don't teach Comp Sci But I try to teach Cybersecurity



Goes live Oct 4, 2017: <https://blogs.cisco.com/security/pitching-packets-game-teaches-cyber-security-with-beanbags>

# Questions?

- + Thank you!
- + @TXJennieK - best way to reach me!  
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