Higher Education Webinar

Cyber Hygiene for a Remote Workforce

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WEALTH ADVISORY | OUTSOURCING | AUDIT, TAX, AND CONSULTING

Create Opportunities

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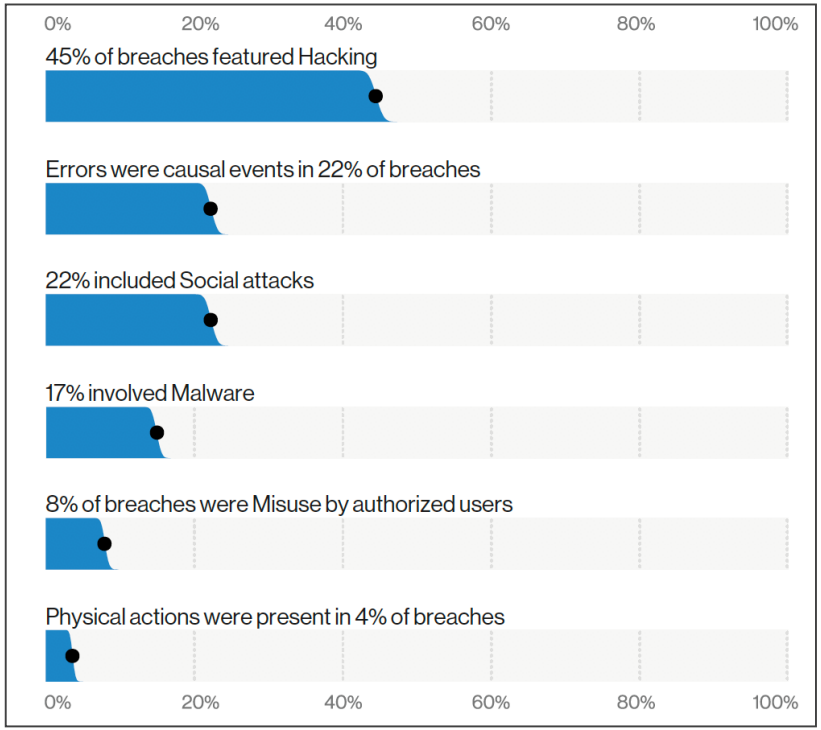
Learning Objectives

- Identify common attacks that are increasing due to the shift in remote work
- Recognize what types of remote access are acceptable and/or secure
- Identify opportunities when implementing a remote workforce

Recent Trends

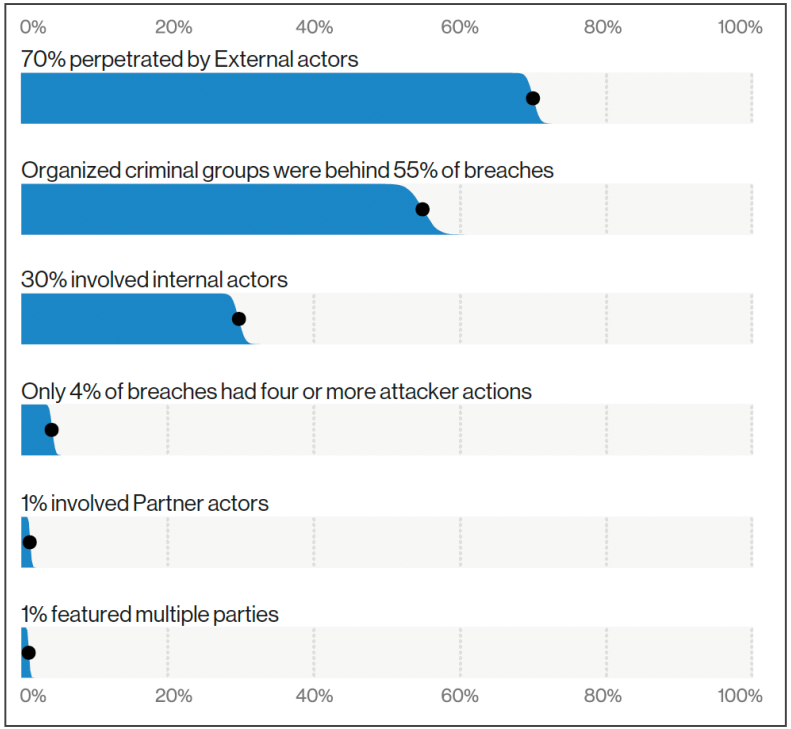
Across All Industries

Causes of Data Breaches



Across All Industries

Who's Behind the Breaches



Threat Actors (Education)

Who is behind the security incident?

67% External

33 % Internal

Threat Actor Motivations (Education)

92% FINANCIAL

5% FUN

Impacts Due to COVID

- Suppressed department budgets
- Routine IT tasks paused to support remote workforce
- Compromising security controls to support remote workforce
  - New practices = new weaknesses

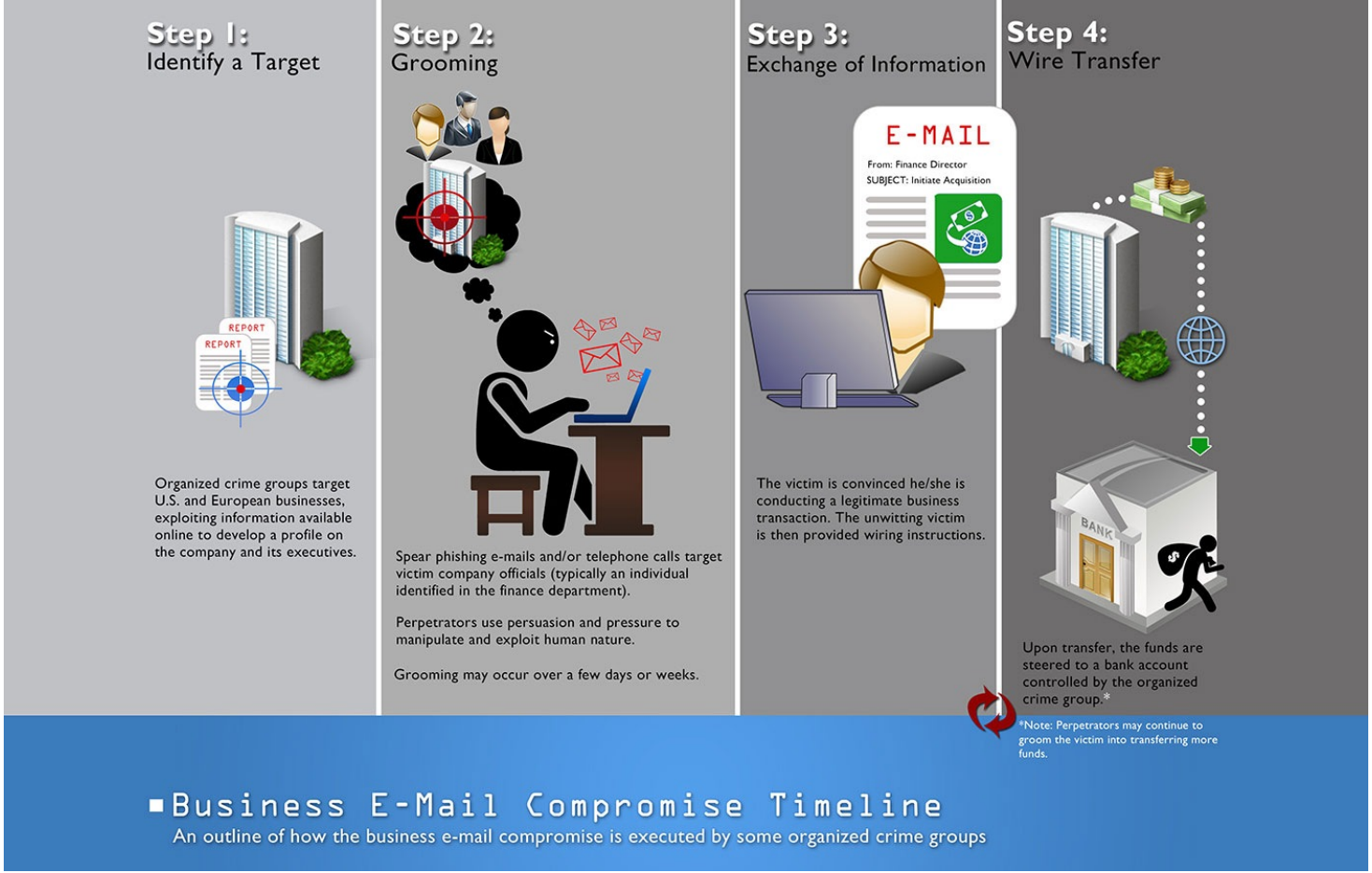
Common Cyber Attacks

- Email Compromise
- Ransomware

- Both of these are facilitated by Social Engineering
  - Phishing
  - Phone calls

What is Business Email Compromise?

- Fraudsters impersonate employees or vendors via email in an attempt to steal money
  - Fake vendor invoice
  - Exec asks staff to “buy gift cards”
  - Update direct deposit account
  - Etc.
- Malware often not needed



https://www.fbi.gov/scams-and-safety/common-scams-and-crimes/business-email-compromise

How attackers perform BEC

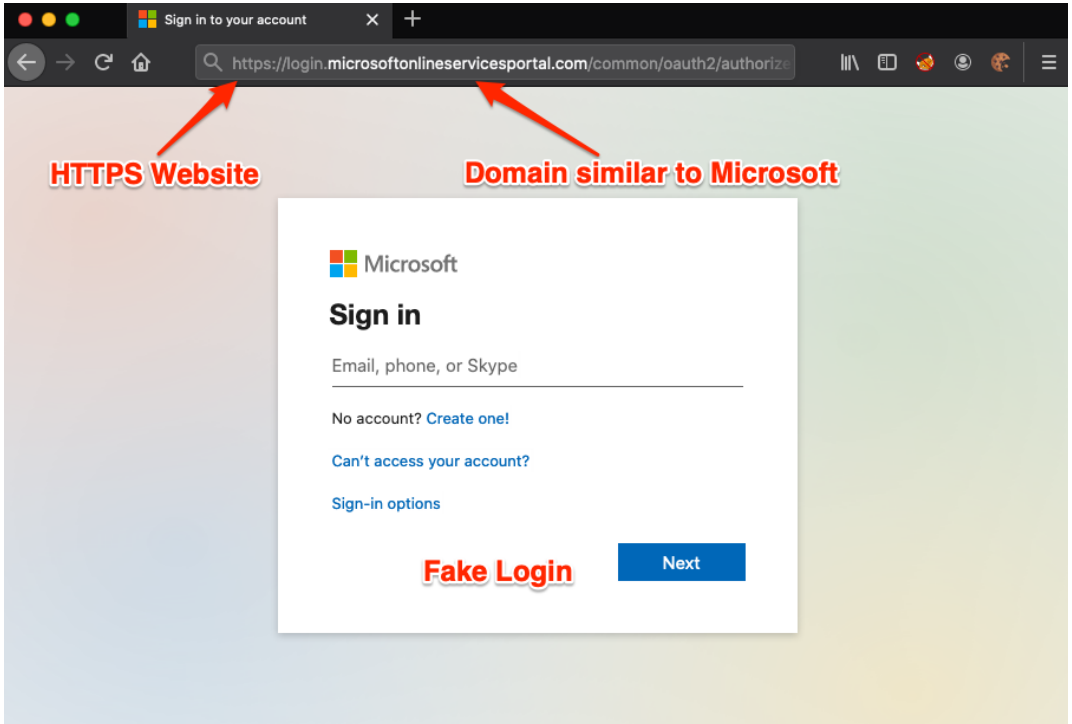
- Email spoofing
- Domain impersonation
- Name dropping
- Compromised email

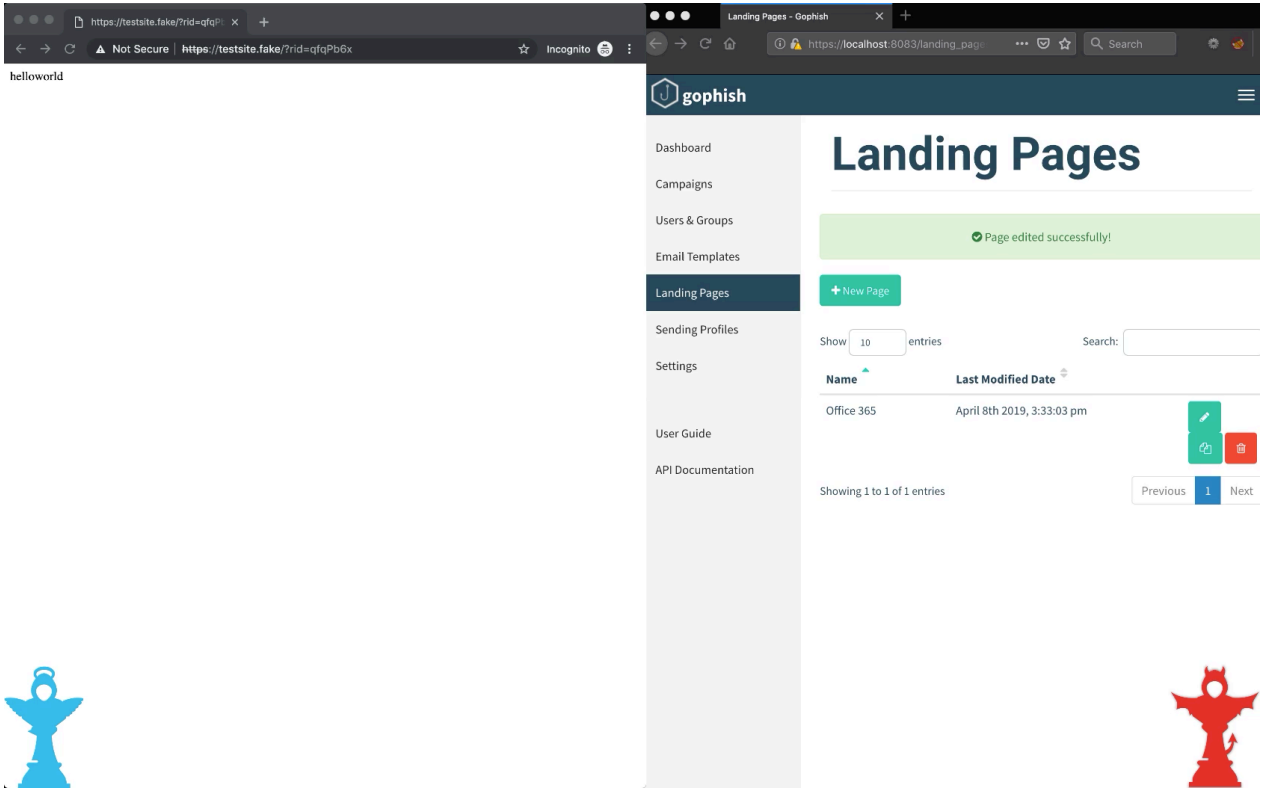
Exchange Online / Office 365

- Email is accessible from anywhere in the world
  - No longer need to find where you “are” on the Internet

- Easy to steal passwords and try logging into Office 365
  - Fake websites and password guessing tools

Fake Login Portal





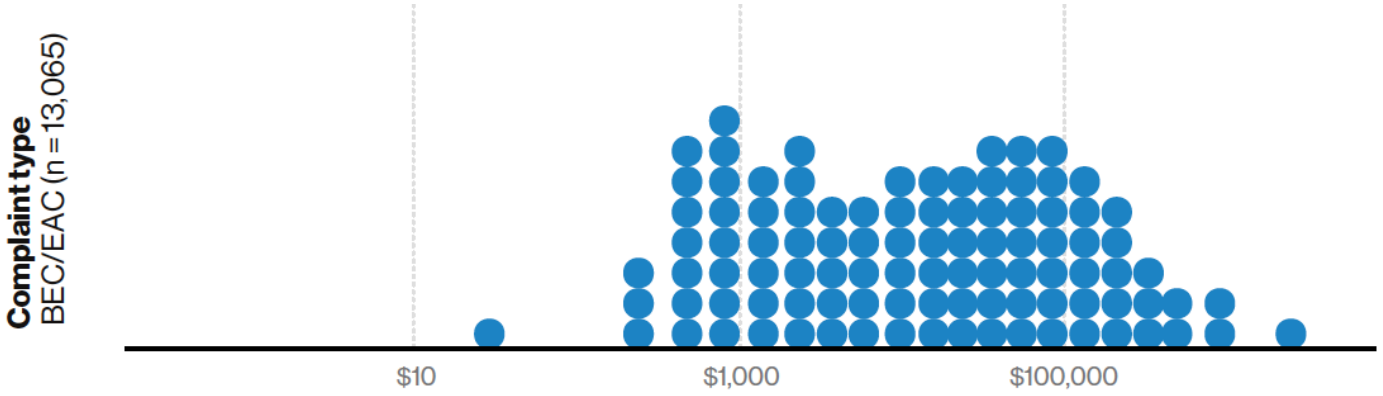
Password Guessing

```
[DBUG] Opening SSH connection to root@1.2.3.4
[DBUG] /usr/bin/ssh root@1.2.3.4 -D 33482
[DBUG] Waiting for /usr/bin/ssh root@1.2.3.4 -D 33482
[DBUG] Proxy: socks4://127.0.0.1:33482
[INFO] Spraying 2 users against https://login.microsoft.com at Sun Sep  6 17:19:01 2020
[INFO] Command: ./trevorspray.py -e bob@evilcorp.com alice@evilcorp.com -p Fall2020! asdf --ssh root@1.2.3.4
[SUCC] bob@evilcorp.com : Fall2020! - NOTE: The response indicates MFA (Microsoft) is in use.
[WARN] Invalid email or password. email: alice@evilcorp.com could exist.
[INFO] Finished spraying 2 accounts at Sun Sep  6 17:19:03 2020
[SUCC] bob@evilcorp.com : Fall2020!
[DBUG] 2 valid emails written to /trevorspray/log/valid_emails.txt
[DBUG] 1 valid user/pass combos written to /trevorspray/log/valid_logins.txt
```

https://github.com/blacklanternsecurity/TREVORspray

Cost of BEC

- Exploitation of cloud-based email has cost US businesses 2.1+ billion



Lots of claims around $40K

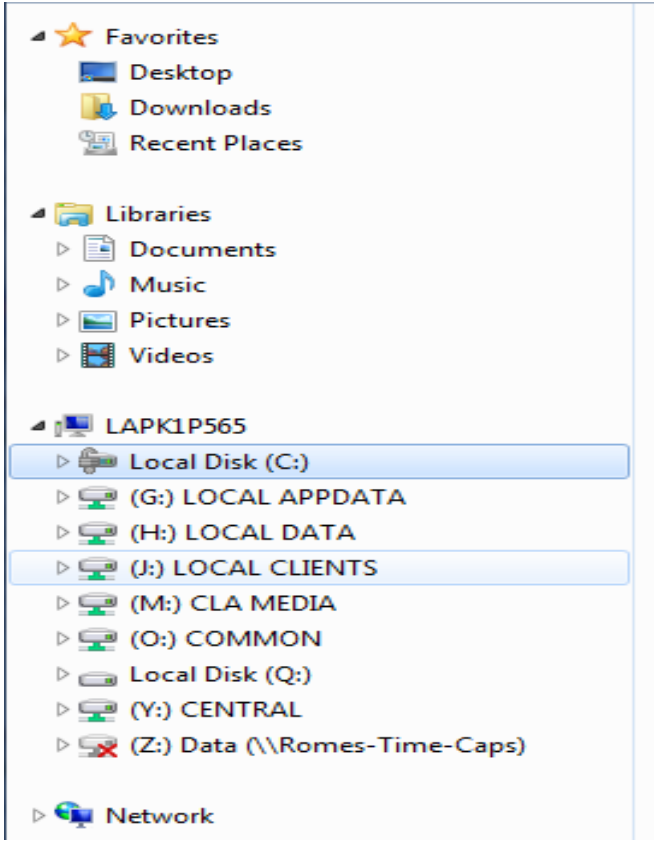
50% of victims recover money

Where are the attackers?

- Complaints filed with the FBI
  - 85% of victims and subjects in the same country
  - 56% in the same state
  - 35% in the same city

Ransomware

- Malware that encrypts your files/system and makes them unusable



Ransomware

- Attack on the **Availability** of network data
- Easier to do than exfiltration of the data
- Uses strong encryption to render victims' files unreadable
- Payments are often in Bitcoin
- Cyber criminals attempt to delete host and network backups
- User credentials are used for network access
- Many variants and constant evolution

In the News

University Pays $457K After Ransomeware Attack

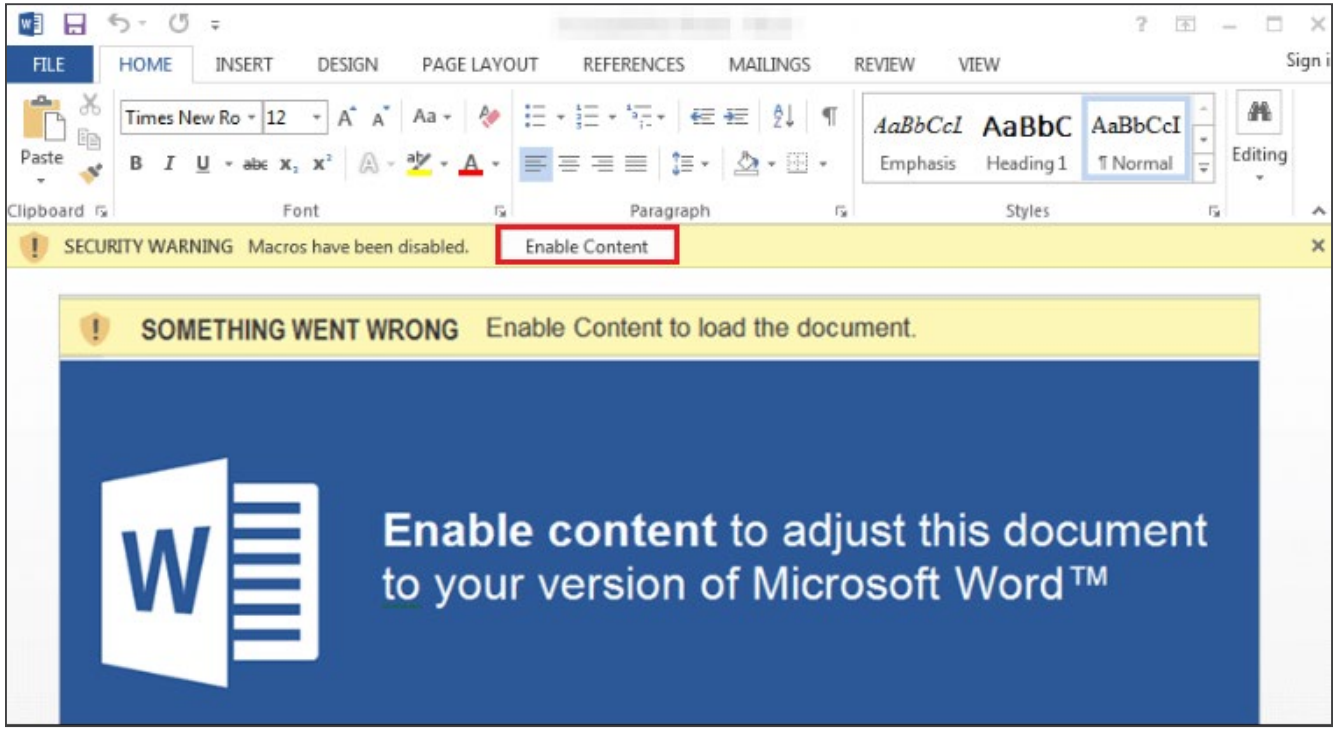
Ransomeware attack: University had data protection but it wasn't used on affected systems

University Dodges A Bullet As Fake COVID-19 Survey Leads To Ransomeware Attack

Ransomware Delivery

- Stealing remote login credentials and then deploying ransomware
- Delivering ransomware via email attachments
  - Office documents
  - HTA files
  - ZIP files

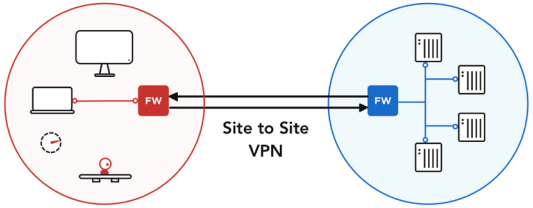
Office Malware

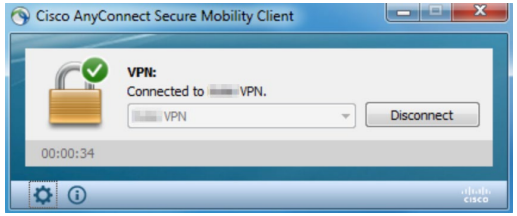


Securing Remote Access

Remote Access

- Remote access solutions
  - VPN
    - ◊ Site-to-Site
    - ◊ Client-Access
  - Applications





CITRIX

vmware Horizon

Remote Desktop Services Default Connection
RemoteApp and Desktop Connection

Remote Access Security Concerns

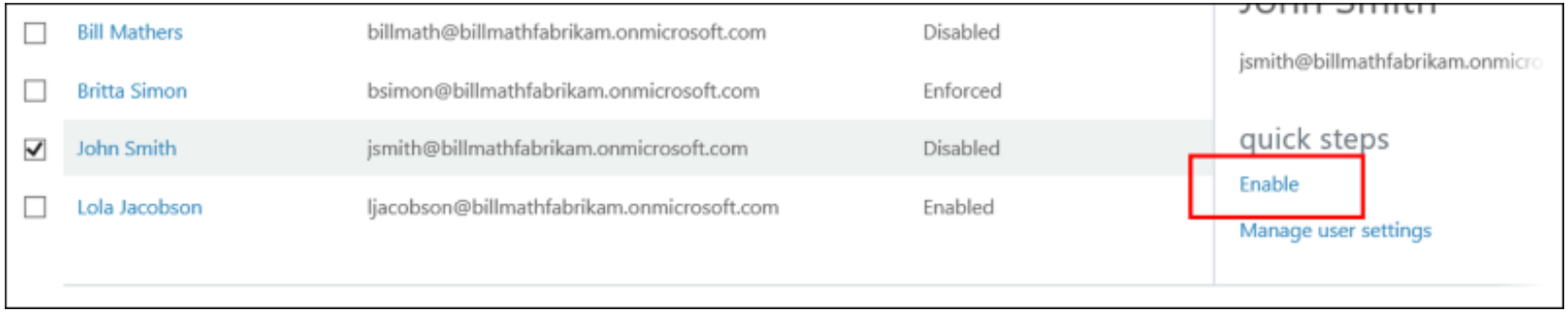
- Is it exposed to the entire Internet
- How is access controlled
  - Username + password
  - Multi-factor
- Can it be accessed from unmanaged devices
- How is monitoring and logging configured

Remote Access Security Best Practices

1. Limit types of remote access technologies
   - Use firewall rules/access controls lists to limit remote access to sensitive data
   - Don’t expose RDP to the Internet…just don’t…
   - Limit remote access to sensitive data to managed devices

Remote Access Security Best Practices

2. Enable multi-factor authentication on as many accounts as you can



Remote Access Security Best Practices

3. Configure robust logging/auditing
   - Daily/weekly reports of who has connected to VPN
     - Who (name/username)
     - When (date/time)
     - Where (source IP address/geolocation)

Other Cybersecurity Controls

Security Best Practices

1. Update policies and procedures to reflect current environment
   - Remote access policy
   - Password reset processes
   - Etc.

Security Best Practices

2. Harden email/spam filter
   - Block emails that impersonate your domain
   - C-level protections (based on name of employees)
   - Enable mailbox auditing
   - Retain logs for access/logins
   - Configure SPF, DKIM, DMARC on email server

Security Best Practices

2. Harden email/spam filter (cont.)
   - Disable legacy email protocols
   - Disable automatic email forwarding
   - Restrict logins geographically (only allow US logins)
   - You can restrict access to managed/company owned devices
   - Block unauthorized files (.exe, .zip, .hta, .js, etc.)

Security Best Practices

3. Document trusted phone numbers of vendors
   - Change of payments requests need to be validated through a phone call

Security Best Practices

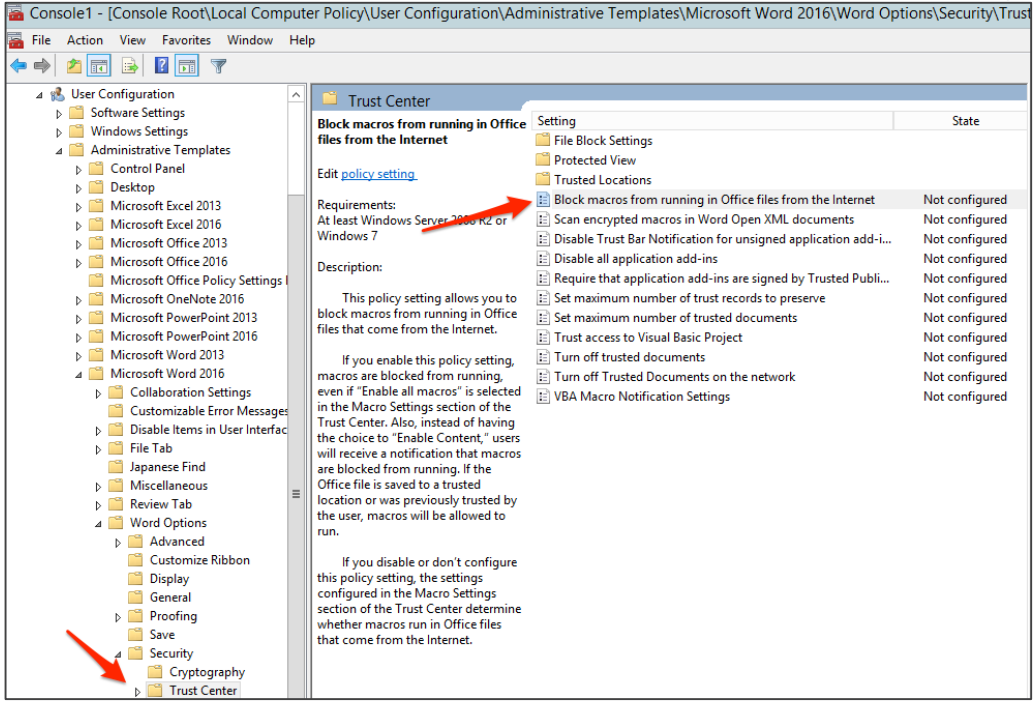
4. Train your users
   - How to review emails for suspicious content
     - ◊ Review “FROM” address closely
     - ◊ Hover over links
   - That you expect them to validate requests over the phone
   - Who to contact if they suspect they have an issue

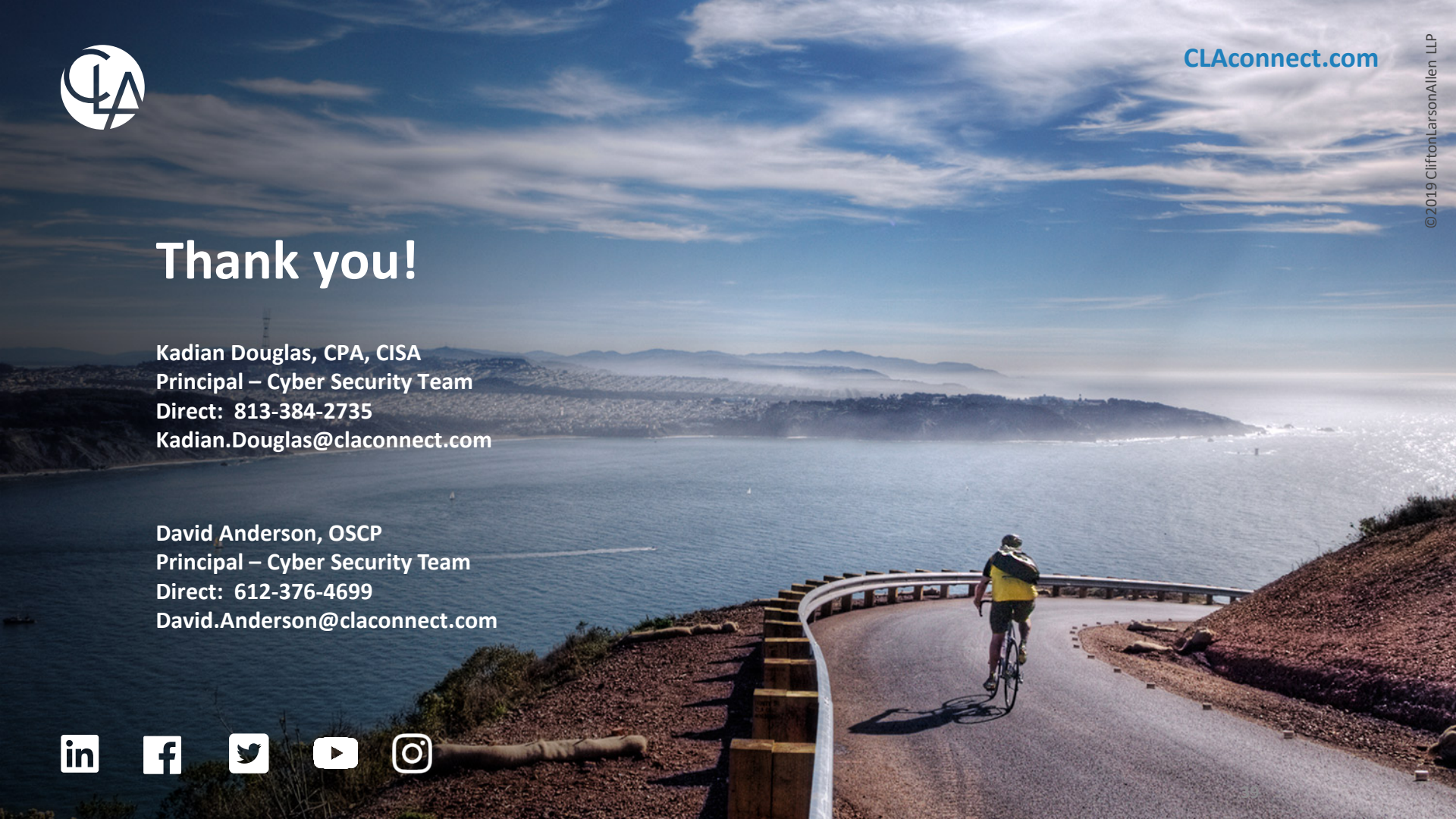
Security Best Practices

5. Have good backups
   - Keep backups isolated from network/offline
   - Test your backups and recovery procedures regularly

Security Best Practices

6. Block Office macros
   - Identify what users need macros: train them
   - Block macros for those who don't need it





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Thank you!

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