Home Is Where The Hack Is:

Attacks & Defenses for a Workforce Quarantined at Home

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Jason Nickola – COO, Senior Security Consultant

- Hacker who likes building teams, culture
- GIAC Security Expert (GSE) & Offensive Security Expert (OSCE)
- SANS instructor for Penetration Testing & Ethical Hacking
- 'Trust Me, I'm Certified' podcast host
- Tech and security opportunities to anyone I can
  - TechRamp nonprofit
  - NHTA Workforce Development Committee
  - BSidesNH Conference

Tim Connell – Head of Enterprise Products, Security Consultant

- 10 years experience in sales, marketing and product development for early stage technology companies
- Hold Certifications as an OSCP, GIAC 4x and CompTIA 2x
- Play the role of business professional during the day and cyber security professional at night from 10pm-2am, or when my two daughters and wife let me :)

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The stats – before the pandemic

- Organized crime with a financial motive is still most the common threat actor
- Business email compromise three times more lucrative at median than computer data breach
- Phishing and use of stolen credentials #1 and #2 actions associated with a breach
- 94% of all malware delivered via email

The stats – during the pandemic

- RiskIQ analyzed its spam box feed for the time period of 04/03/2020-04/06/2020.
  - **262,902** spam emails containing either "*corona*" or "*covid*" in the subject line
  - **6,835** unique subject lines
  - **3,887** unique sending email domains and **10,242** unique IP Addresses
  - **1,532** emails sent an executable file for Windows machines.

Source: 2019 Verizon Data Breach Investigations Report (https://enterprise.verizon.com/resources/reports/dbir/)

Source: Investigate | COVID-19 Cybercrime Daily Update(https://www.riskiq.com/blog/analyst/covid19-cybercrime-update/)

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Most Businesses Didn't Anticipate Mandated WFH

- Misconfigurations and poor planning for legitimate access to corporate resources remotely creates risk
- Hackers and opportunistic vendors preying on fear
    - Cheap devices and software with vulnerabilities(malicious or mistakes)
    - Phishing under the guise of helping or informing
- Employee home networks have become a more attractive target
    - Most are not doing anything to secure their home networks and personal devices
        - Now a more concentrated source of risk for organizational assets
    - How many vulnerability assessments have you run on your employee's home network?

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Accessing Corporate Resources

- Easy to get this wrong, especially with hasty transitions
- Directly connecting services (file shares, RDP & SSH, etc.) is easy but a largely terrible idea
- WannaCry (2017) exploited file sharing (SMBv1) connected to the public internet.
  - 1/3 of all corporate networks are supporting Windows XP, which has SMBv1 enabled by default
  - Three years later, we certainly aren't connecting SMB to the public internet anymore, right?

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VPN

- A few key benefits:
  - Protects your traffic from sniffing
  - Multiple services to be exposed behind a single connection, rather than a hole at the edge for each service
  - **Great choke point for monitoring and securing the network, too**
- Can be annoying to manage and use as an end user, but is necessary
- But not a panacea:
  - VPN services can have their own vulnerabilities and misconfigurations, too
  - When compromised, an attacker can typically access anything the user can…

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Home Networks as a Gateway to Corporate Assets

- Phishing to harvest credentials or exploit devices
  - Malicious intent hidden behind the "Save" or "Submit" link
- It's not just ransomware or capturing login credentials
  - Invasion of privacy via keylogger, screen grab, audio and video, clipboard, etc.
- Attacking home wireless networks
  - Wigle, sniffing traffic, cracking wireless passwords, Wifi Pineapple, etc.
- Once home network and devices are owned, attackers can use legitimate accounts and apps to access corporate environment
  - Difficult to detect without mature monitoring, behavioral & geographical analytics, etc.

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Videoconferencing and Recent Zoom Developments

- Zoom has received a lot of attention due to recent research and high-profile incidents
  - Some mistakes and sloppy practices, but not unique to Zoom
- Don't look for the service that doesn't have any issues
  - Really just means no one is looking
  - Pay more attention to response, patching, and trending approach to security
- "Zoom Bombing" and "hacking" are really just trolling due to misconfiguration
  - Take the time to research and learn how to use the product
  - Follow best-practice guidance from vendor and trusted third parties

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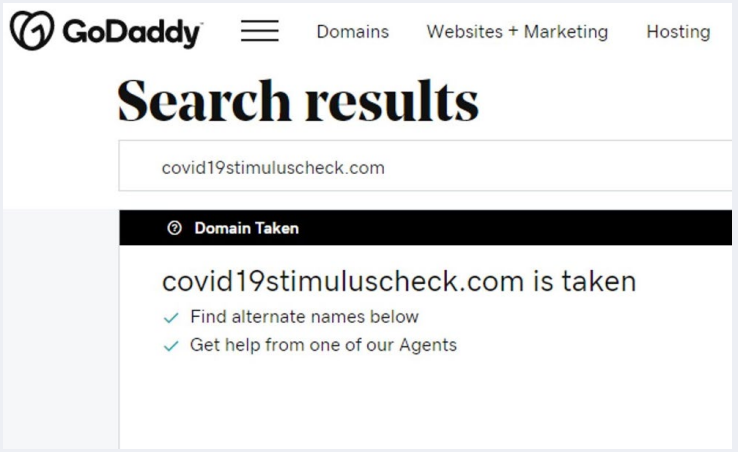
Fear and Scarcity Creates Opportunity

- Malicious domains and sites created posing as pandemic help / resources
- Increase in phishing activity taking advantage of FUD, both health and economic
- Entire world working from home? Gonna need a webcam...
  - "Good" ones are all sold out or price gouged
  - Many "cheap" alternatives suddenly available
  - Should you trust these brands? How do you know what the device actually does?
    - Can easily be backdoored or vulnerable thanks to sloppy code or poor hardware
- Buy from trusted brands, and make sure default configurations are hardened to limit attacking surface



Simulated Phishing Attack
& Compromise

DEMO

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Defenses: Great Account/Password Practices

- Use a password manager
  - The best password is one you can't remember (and don't need to)
  - LastPass, DashLane, 1Password, etc.
- Long passphrases when you can't use a password manager
  - 'a long time ago in a galaxy far, far away' is better than Spring2020$
- Turn on Multi-Factor Authentication wherever you can
  - Severely limits the ability for your password to be guessed or used when found via a breach dump

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Defenses: Patching

- Not news to most, even if you are not an IT or security professional
  - A vendor's vulnerability fix doesn't protect you if you don't apply the patch…
- Automatically applying patches is safe for most home environments
  - Some devices – modems and WiFi access points especially – don't offer great support
- Some devices require more complicated processes for applying updates
  - Especially device firmware
  - Best to have a trusted resource (more on this in a minute) to help if you are unsure of the process

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Defenses: Secure Configuration

- Lots of devices come with insecure defaults
- Even secure configurations can change over time as a result of troubleshooting or mistakes
- Hardening guides, if you are up for the challenge
    - NIST, Center for Internet Security, etc.
    - Another area where trusted advisors helps
- In general, turn off everything you don't actively use
    - "Reduce the attack surface"
    - Universal Plug n' Play and WPS are high-value
    - Most home networks don't need anything to be allowed in from the public internet
    - Another great spot for a trusted advisor to help with

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Defenses: Stick to Trusted Sites, Vendors

- You don't need work-from-home tips from that site you've never heard of
  - Major news media, government, and well-known private entities are the safest bet
    - Have lots of their own issues, but are not (usually) trying to hack you
- The $10 webcam is cheap for a reason
  - Popular brands and products are typically subject to more vetting and review
  - Remember this if you have a hand in purchasing or setting expense policies
- The IRS is not emailing you to threaten jail
- That link from the alternative medicine Facebook group is not going to show you how to self-vaccinate

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Defenses: Support Your Employees

- Hyper concentrated at the moment, but work from home is not new and isn't going away
- Orgs must evolve and offer more resources to help employees configure and secure personal resources
    - Difficult to mandate, but typically well-received where we've seen it
- Help with configuration, patching, security best-practice review, and whatever else you can do
    - Fill their need for a trusted advisor
- Shedding responsibility at your firewall doesn't make you more secure, it just means you don't know the ways in which you are not

THANKS!

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