COVID-19 Cyber Threats

4/23/2020

Agenda

- Increasing Coronavirus-related cyberattacks

- Coronavirus-related domains

- Real-time Coronavirus infection tracking maps

- Fake Coronavirus maps and watering hole attacks

- Azorult overview

- Coronavirus-themed Phishing

- Cyberattacks on healthcare organizations

- Nation-state disinformation campaigns

Slides Key:

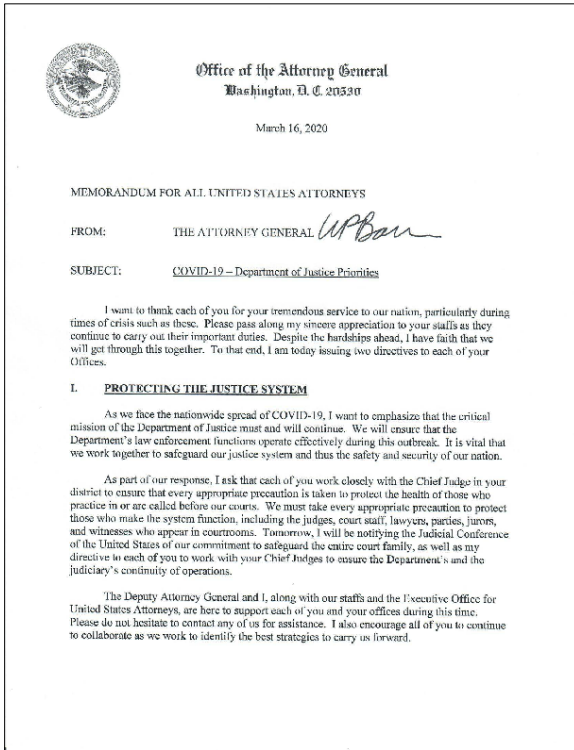Non-Technical: managerial, strategic and high-level (general audience)

Technical: Tactical / IOCs; requiring in-depth knowledge (sysadmins, IRT)

Coronavirus-related cyberattacks are prevalent!

Criminal cyber activity related to the Coronavirus pandemic has been rampant since the outbreak:

US Attorney General William Barr sent a letter to US attorney offices across the country in mid-March, 2020, ordering them to investigate and prosecute "all criminal conduct related to the current pandemic."

"…the COVID-19 pandemic provides criminal opportunities on a scale likely to dwarf anything seen before. The speed at which criminals are devising and executing their schemes is truly breathtaking."

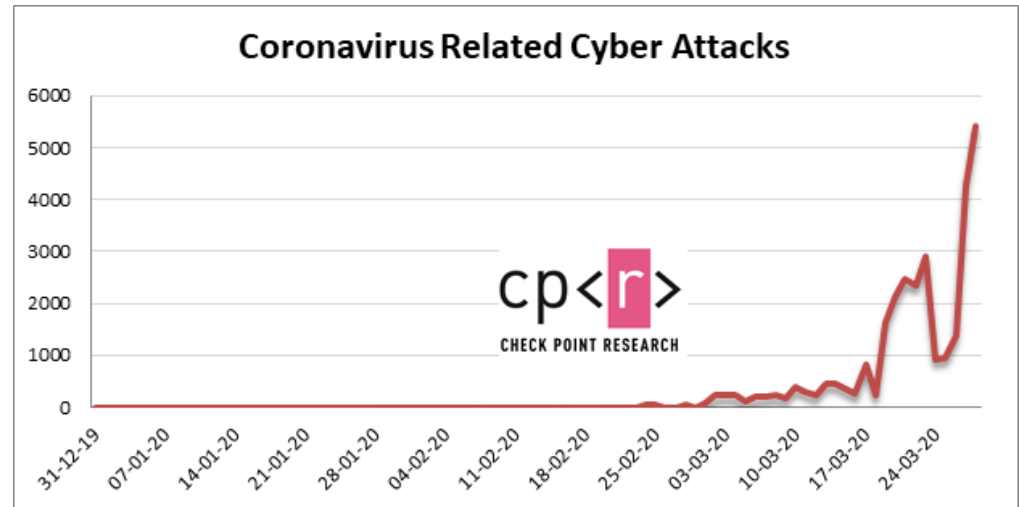Michael D'Ambrosio, Head of the U.S. Secret Service Office of Investigations

Terry Wade, lead of the Federal Bureau of Investigation Criminal, Cyber, Response and Services Branch.

WashingtonPost.com, April 14, 2020

"...the risk to this sector will be elevated throughout this crisis."

- FireEye, as part of analysis of cyber threats to the healthcare industry during the Coronavirus pandemic

Fake COVID-19/Coronavirus-related domains

- These domains in many cases will host malware. The attack vector can be any number of options such as phishing, watering hole and typosquatting

- According to Checkpoint, new coronavirus-related domains are being registered at very high rates and many of them are malicious
  - Over 4000 Coronavirus-related domains registered in Jan. and Feb.
  - Coronavirus-themed domains are 50% more likely to be malicious than other domains
  - Over 6000 Coronavirus-related domains registered in the third week in March

Coronavirus Domains Registered Weekly
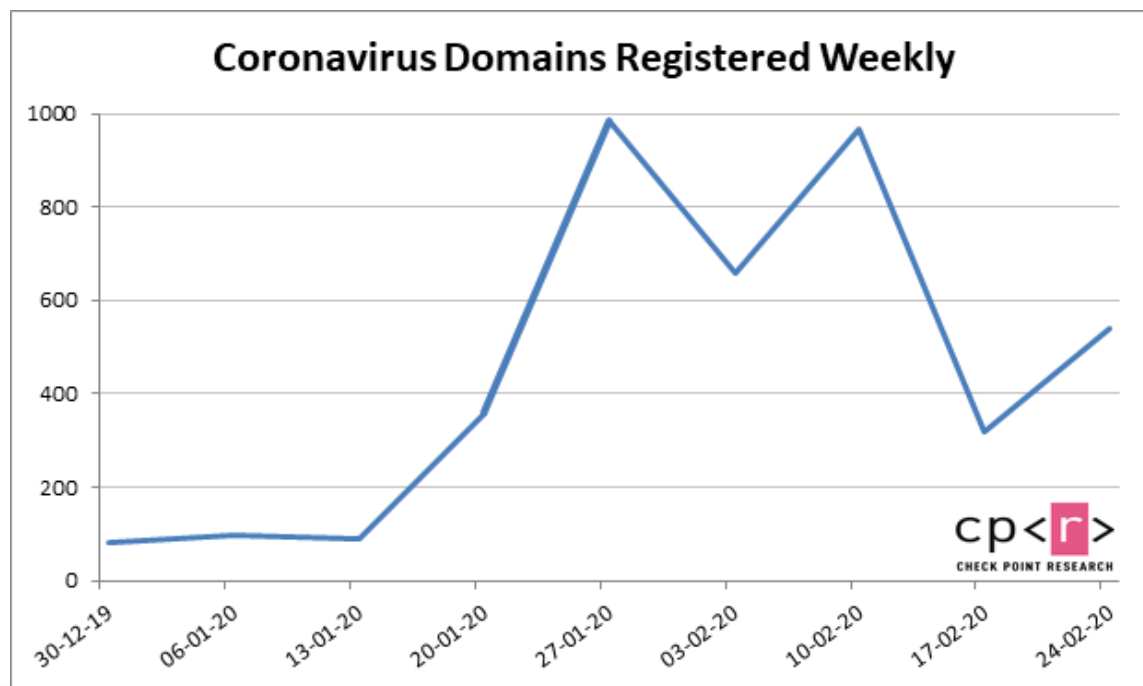
Real-time infection maps

- As the Coronavirus/COVID-19 pandemic spread, several real-time infection maps have been stood up:

  - Johns Hopkins University
    - https://coronavirus.jhu.edu/map.html
  - World Health Organization
    - https://who.sprinklr.com/
  - Kaiser Family Foundation
    - https://www.kff.org/global-health-policy/fact-sheet/coronavirus-tracker/
  - HealthMap
    - https://www.healthmap.org/covid-19/
  - SharedGe0
    - https://uscovid-19map.org/
  - Microsoft Bing:
    - https://www.bing.com/covid
  - University of Washington
    - https://hgis.uw.edu/virus/

Image source: Forbes

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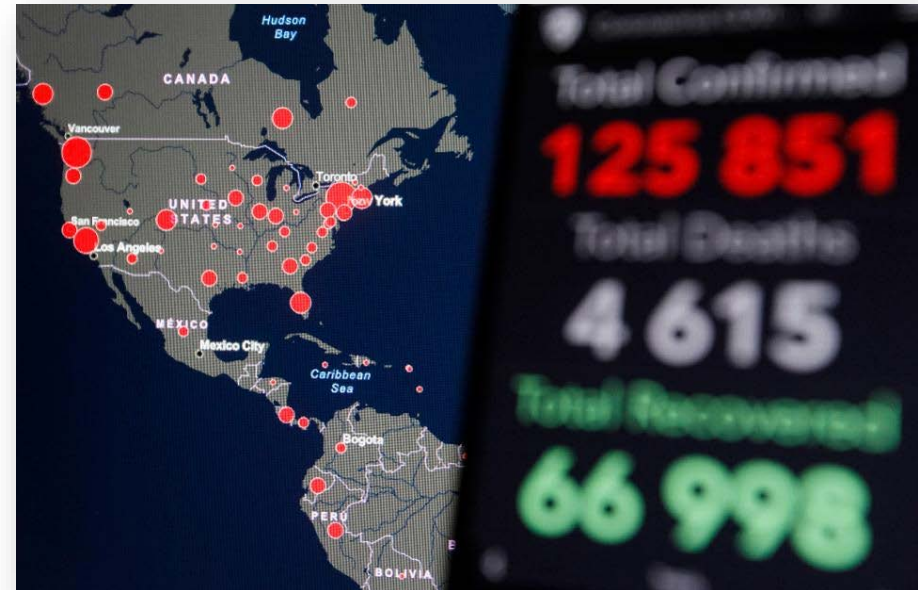
Legitimate Johns Hopkins Coronavirus Map

Legitimate Map

Fake Map
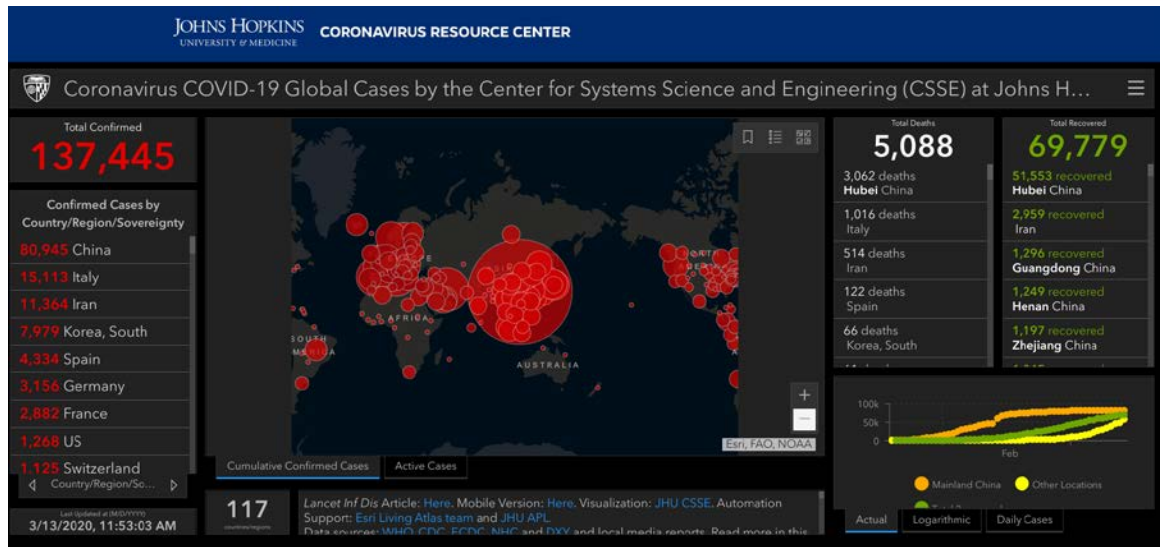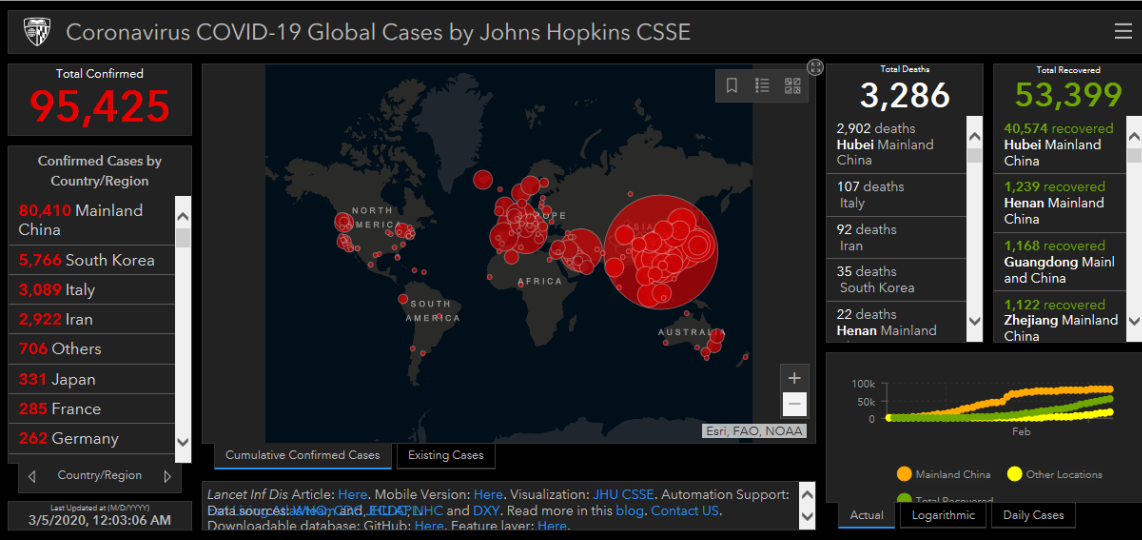
Fake Coronavirus tracking map

drops AZORult on victim systems:

AZORult

AZORult:

- Malware – Information stealer and cryptocurrency theft

- Very common; Sold on Russian hacker forums for ~$100

- Can both be dropped or serve as a dropper (first or second stage)

- Constantly changing/evolving infection vectors and attack stages and capabilities
    - System login credentials
    - System reconnaissance info (GUID, system architecture and language, username and computer name, operating system version, system IP address
    - Cryptocurrency wallets
        - Monero, uCoin, and bitcoin cryptocurrencies
        - Electrum, Electrum-LTC, Ethereum, Exodus, Jaxx and Mist wallets
        - Steam and Telegram credentials; Skype chat history and credentials
    - Payment card numbers
    - Cookies and other sensitive browser-based data (especially autofill)

- Screenshots

- Data Exfiltration/Communication
    - Pushes to a command-and-control server

- Executes files via remote backdoor commands

COVID-related phishing

Phishing: A social engineering attack using a fake e-mail, often with a theme, to elicit interaction (clicking a link or opening an attachment) to deposit malware on the target system.

Image source: FTC.gov

Image source: Kaspersky

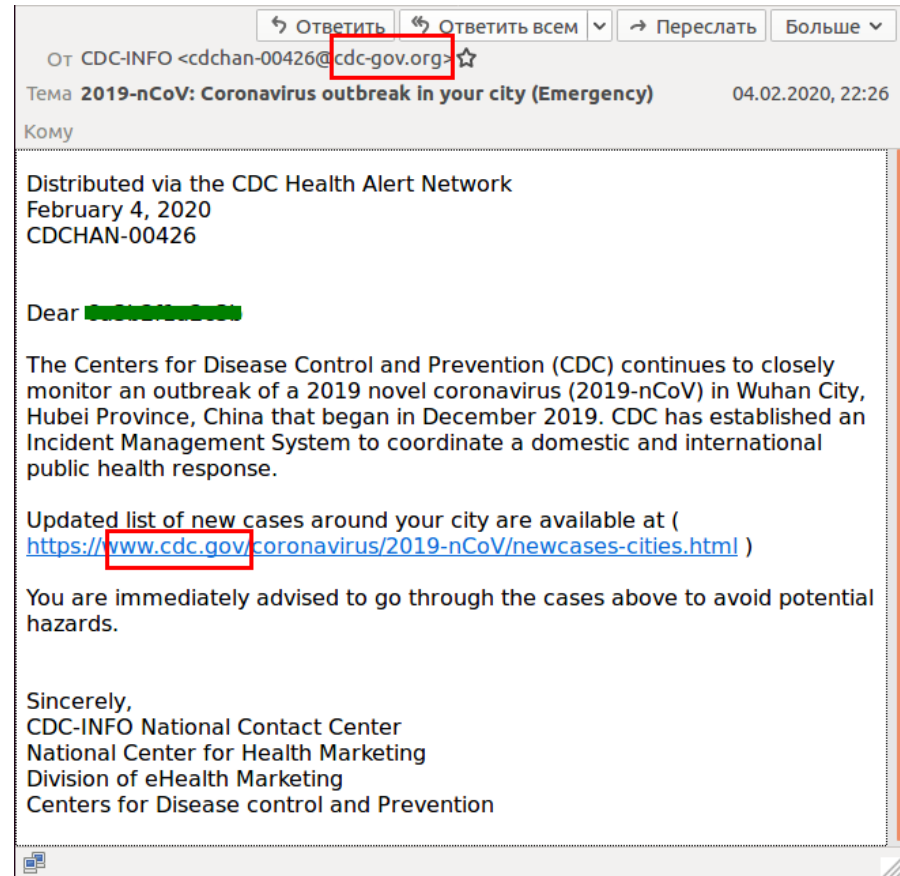# Coronavirus-themed Phishing

We already noted the increasing number of Coronavirus-themed domains being registered
- Many of them are being setup for phishing
- Coronavirus-related phishing is becoming prevalent

Phishing sites detected by Google., 2020

Image source: PC Mag   Raw data: Google

SHARE OF CORONAVIRUS THEMED MALICIOUS EMAIL DETECTIONS IN ALL MARCH 2020 MALICIOUS EMAIL DETECTIONS

Coronavirus-related phishing

8X increase in Coronavirus related phishing from Jan. to Feb., and again from Feb. to Mar.

Barracuda Networks

Line chart showing Phishing Attacks: January 137, February 1188, March 9116.

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Attacks vs. hospitals and other healthcare orgs.

- March 2020 – Owner Bleepingcomputer.com contacted ransomware operators to ask if they would continue cyberattacks during pandemic
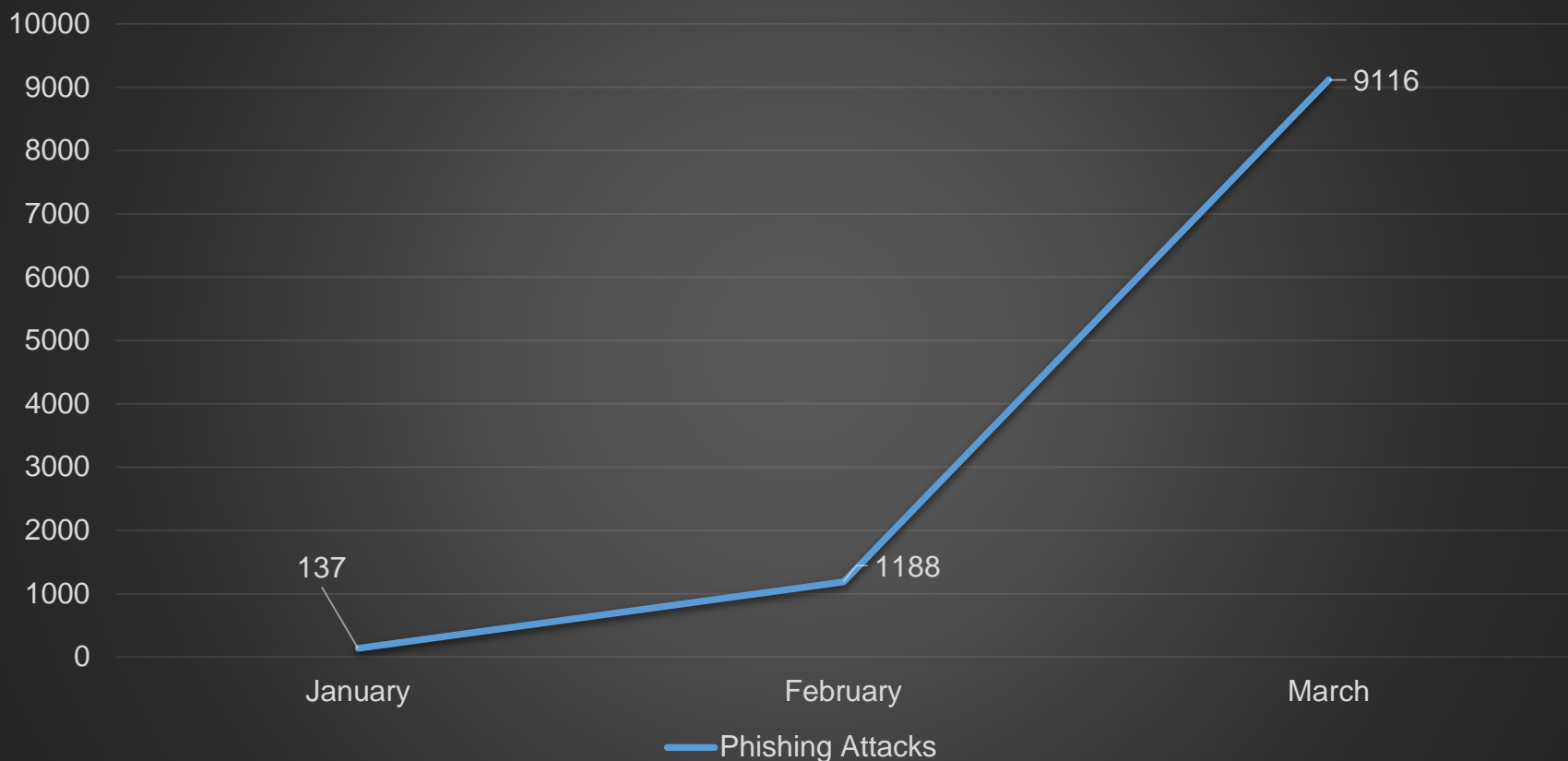   - Clop
    - Maze
    - DoppelPaymer
    - Nefilim
    - Ryuk
    - Sodinokibi/Revel
    - PwndLocker
    - Ako

- Clop, Nefilim and DoppelPaymer claimed they don't attack hospitals

- Maze promised to cease attacks against medical organizations during the pandemic

- Netwalker (incorrectly) asserted that hospitals are not targeted by ransomware

Hackers Promise 'No More Healthcare Cyber Attacks' During COVID-19 Crisis

Forbes

Image source: Datanami

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The result:

WRONG!

"As hospitals and medical organizations around the world are working non-stop to preserve the well-being of individuals stricken with the coronavirus, they have become targets for ruthless cybercriminals who are looking to make a profit at the expense of sick patients"

Secretary General Jürgen Stock of Interpol

The Maze ransomware group has published personal and medical details of thousands of former patients of a London-based medical research company after a failed attempt to disable the firm's computer systems

Source: Carbon Black

Example Netwalker ransom note, used to attack Champaign-Urbana Public Health District in Illinois

Image source: Carbon Black

Under the Breach
@underthebreach
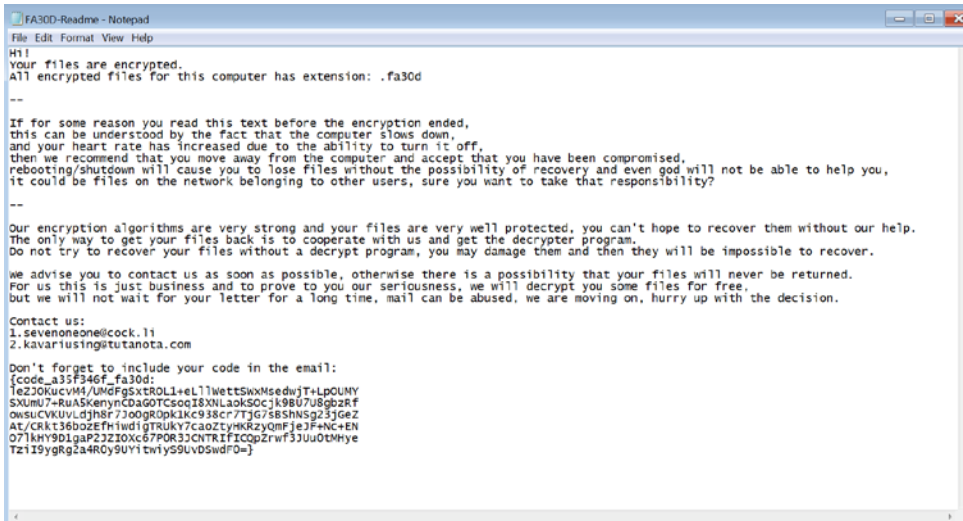
REvil/Sodinokibi #Ransomware group claiming they took 1TB worth of data from 10x Genomics (@10xGenomics), American biotechnology company that is traded on NASDAQ.

-posted samples, Will publish more files in 3 days if not paid.
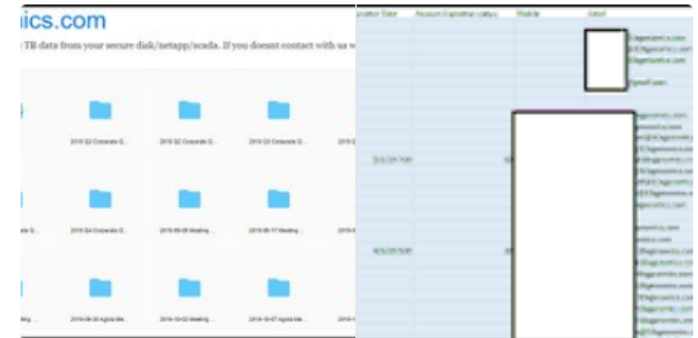-10x Genomics appear to be working on #coronavirus.

♡ 56   9:49 AM - Mar 13, 2020

💬 58 people are talking about this

Image source: Govinfosecurity.com

Nation-state threats

- Nation states also have agendas which make them threats:
    - Collection of research
        - Why invest the resources and wait for results when you can steal them?
        - Bioweapons and other medical research have national security/defense implications
    - Disinformation and propaganda
        - The pandemic is having a significant global impact which makes it inherently political
        - There are also significant implications for the economies of the world as well as the readiness of troops of many nations

Source: ZDNet

FBI official says foreign hackers have targeted COVID-19 research

Iran–Linked Group Caught Spreading COVID–19 'Disinformation' On Facebook And Instagram

Chinese COVID-19 disinformation campaigns commenced as early as January: Stanford
This culminated in a Chinese government official accusing the US military of starting the outbreak on social media.

Russian media 'spreading Covid-19 disinformation'

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Reference Materials

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Questions

Upcoming Briefs

- Threat Modeling for Mobile Health Systems

- Quantitative Risk Management

Product Evaluations

Recipients of this and other Healthcare Sector Cybersecurity Coordination Center (HC3) Threat Intelligence products are highly encouraged to provide feedback to **HC3@HHS.GOV**.

Requests for Information

Need information on a specific cybersecurity topic? Send your request for information (RFI) to **HC3@HHS.GOV** or call us Monday-Friday, between 9am-5pm (EST), at **(202) 691-2110.**

Health Sector Cybersecurity Coordination Center (HC3) Background

HC3 works with private and public sector partners to improve cybersecurity throughout the Healthcare and Public Health (HPH) Sector

Products

Sector & Victim Notifications

Directed communications to victims or potential victims of compromises, vulnerable equipment or PII/PHI theft and general notifications to the HPH about currently impacting threats via the HHS OIG

White Papers

Document that provides in-depth information on a cybersecurity topic to increase comprehensive situational awareness and provide risk recommendations to a wide audience.

Threat Briefings & Webinar

Briefing document and presentation that provides actionable information on health sector cybersecurity threats and mitigations. Analysts present current cybersecurity topics, engage in discussions with participants on current threats, and highlight best practices and mitigation tactics.

Need information on a specific cybersecurity topic or want to join our listserv? Send your request for information (RFI) to HC3@HHS.GOV or call us Monday-Friday, between 9am-5pm (EST), at (202) 691-2110.

Contact

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