

Cyber Attack Trend Analysis

Presented by
Lawrence LAW
Security Consultant
HKCERT
5/2/2021

Cybersecurity - **HKCERT**

coordination of cybersecurity incident response for local enterprises and Internet Users.



Hong Kong Computer Emergency Response Team
Coordination Centre

Hotline: 8105 6060



01

Security Alert Monitoring
and Early Warning

02

Report and Response

03

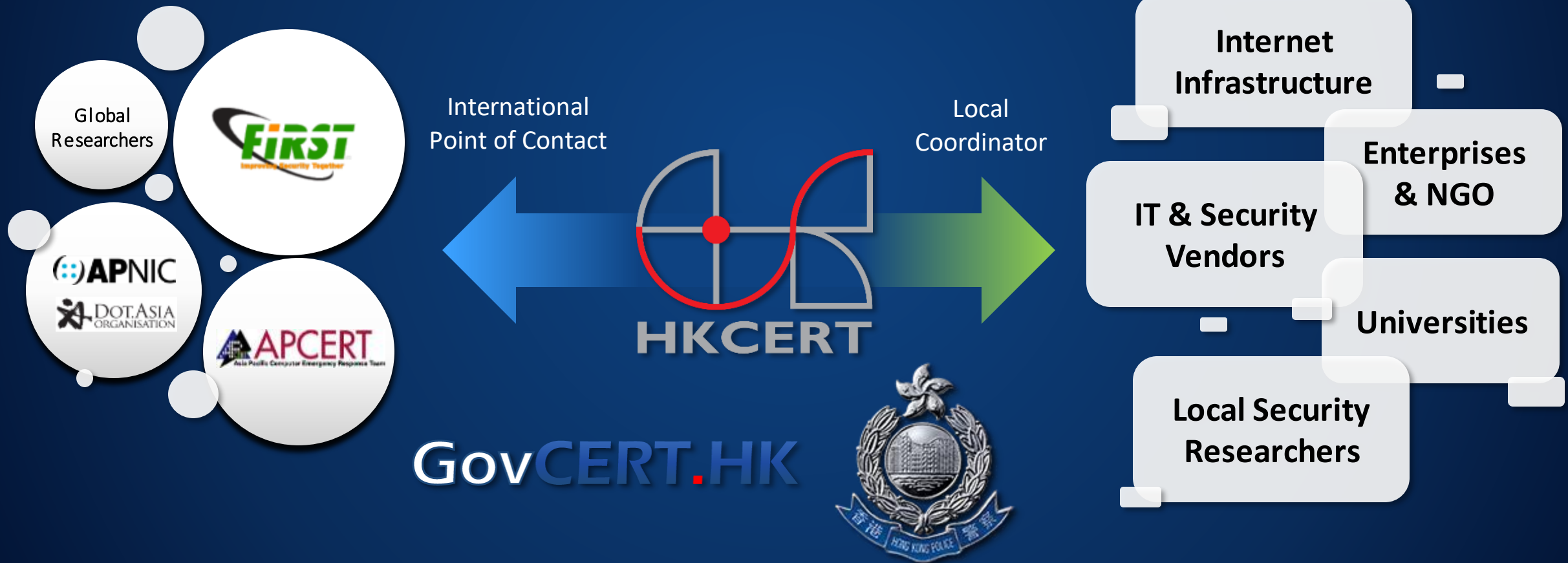
Publication of Security
Guidelines and Information

04

Promotion of Information
Security Awareness

HKCERT acts as

point of contact for cross-border cyber security incidents for Hong Kong



Agenda

Security Threat and Challenges

Attack Tactics and Trends

Cyber Attack Case Studies

Security Advices

Threat landscape changes along with the “New Normal”



Remote Work



Distance Learning

Digital and Contactless Payments



Tele-Medicine




Online Entertainment



Robotics



Online Shopping



*“The COVID-19 crisis illustrated how criminals actively take advantage of society at its most vulnerable. Criminals **tweaked existing** forms of cybercrime to fit the **pandemic narrative**, abused the uncertainty of the situation and the public’s need for reliable information.” – Europol Internet Organised Crime Threat Assessment 2020*

HKCERT Security Incident Reports 2020

Phishing Cases (YoY)

↑ 35%

生產力局：網絡釣魚個案急增35% 建議企業加強網絡保安

2021年01月19日15:12 最後更新: 15:14



Like 0



生產力局預料今年的網絡攻擊將會大大增加。

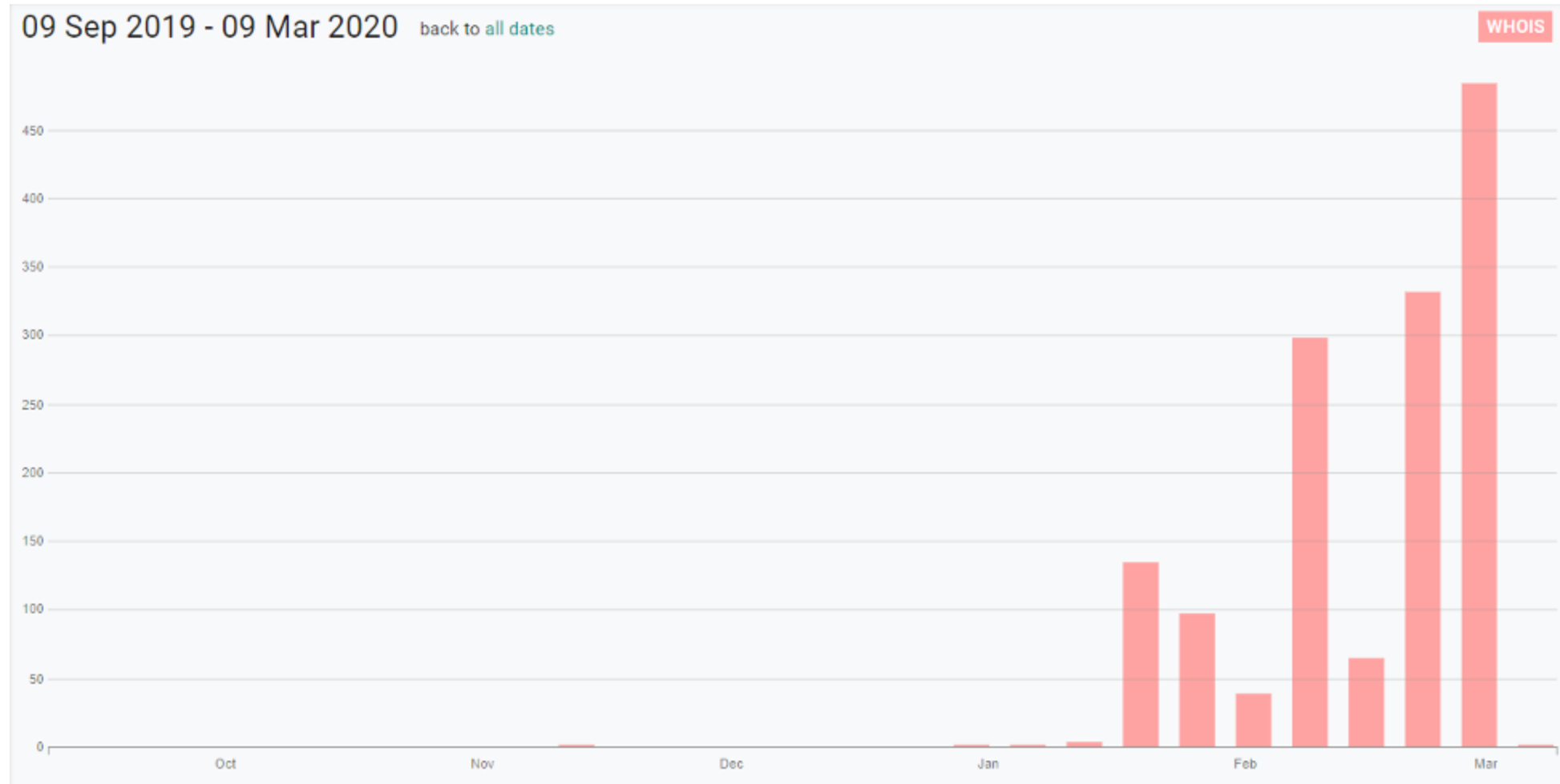
生產力促進局表示，去年共處理了8300多宗網絡安全事故，較前年下跌了12%。不過「網絡釣魚」的個案則有所上升，較前年上升了35%。當局建議企業加強網絡保安。



生產力促進局表示，去年共處理了8300多宗網絡安全事故。資料圖片

生產力局轄下香港電腦保安事故協調中心（HKCERT）今日公布網絡安全事故的統計，指去年共處理8346宗網絡安全事故，當中最多的為「殭屍網絡」個案，有4154宗，其次則為「網絡釣魚」個案，有3483宗。

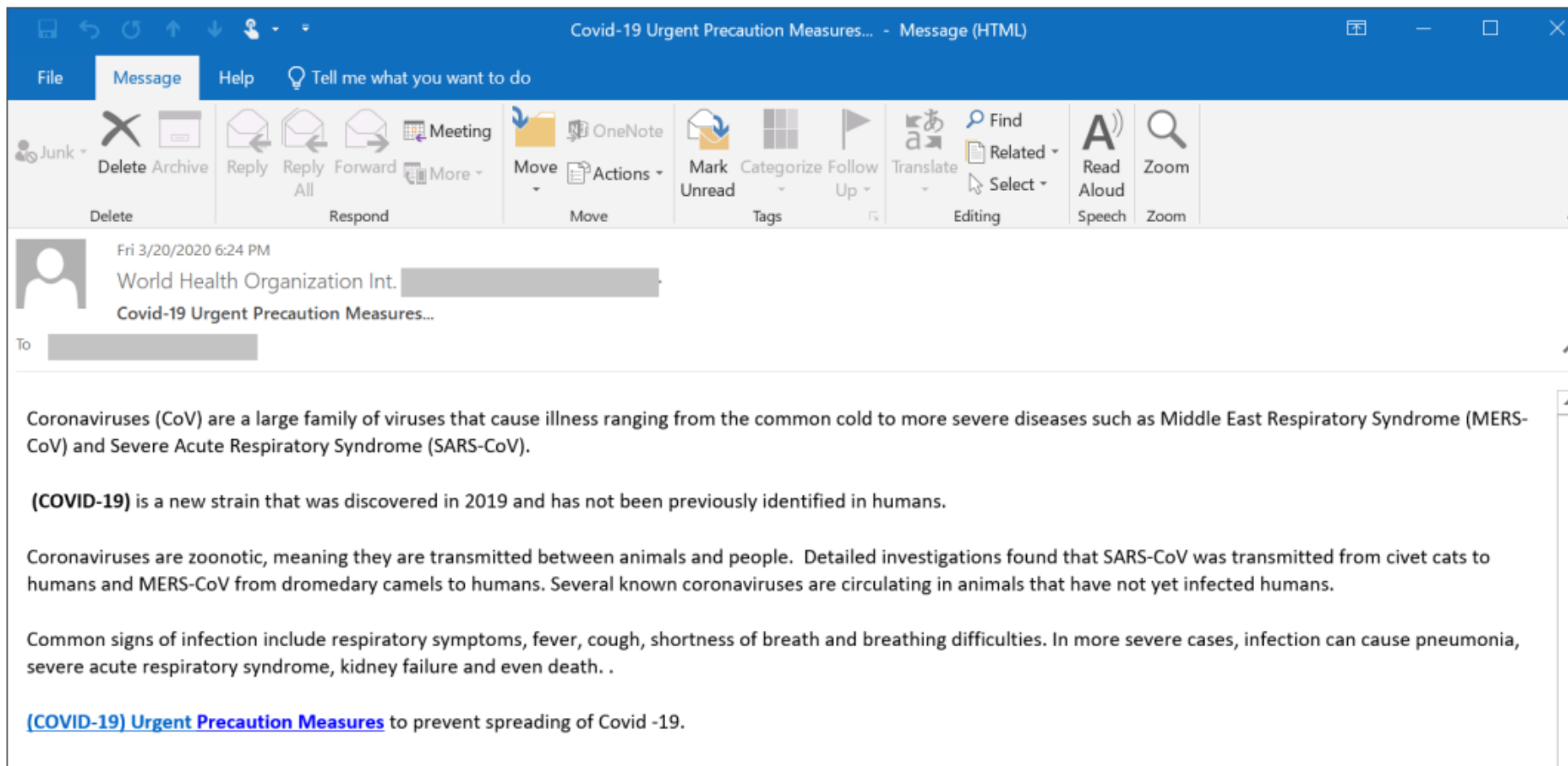
Surge in COVID-19-related domains



Source: Digital Shadows' Shadow Search

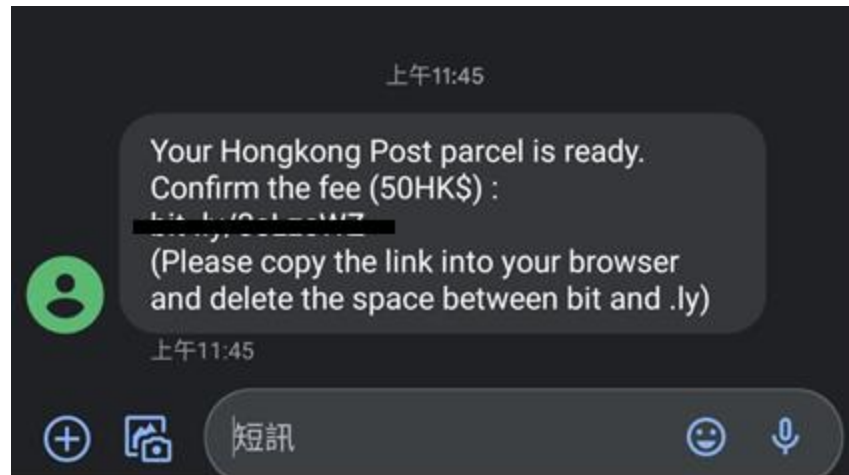
Phishing Attacks Related to the Pandemic

- Fake health organisations



Phishing Attacks Related to the Pandemic

- Fake shipping information



From: [Hongkong Post](#)
Sent: Tuesday, January 26, 2021 10:42 AM
To: [redacted]
Subject: FWD : Parcel 135605809



We missed you when we tried to deliver your parcel

Parcel : HK94358828

Delivery failed on: Mon, 25. Jan 2021 , 11:41 AM

But you can schedule a Redelivery online using the link below

[Click here to redeliver](#)

PS :Redelivery fees (17 HK\$)

Phishing Attacks Related to the Pandemic

- Fake supermarket information



More Phishing Websites Using Digital Certificate



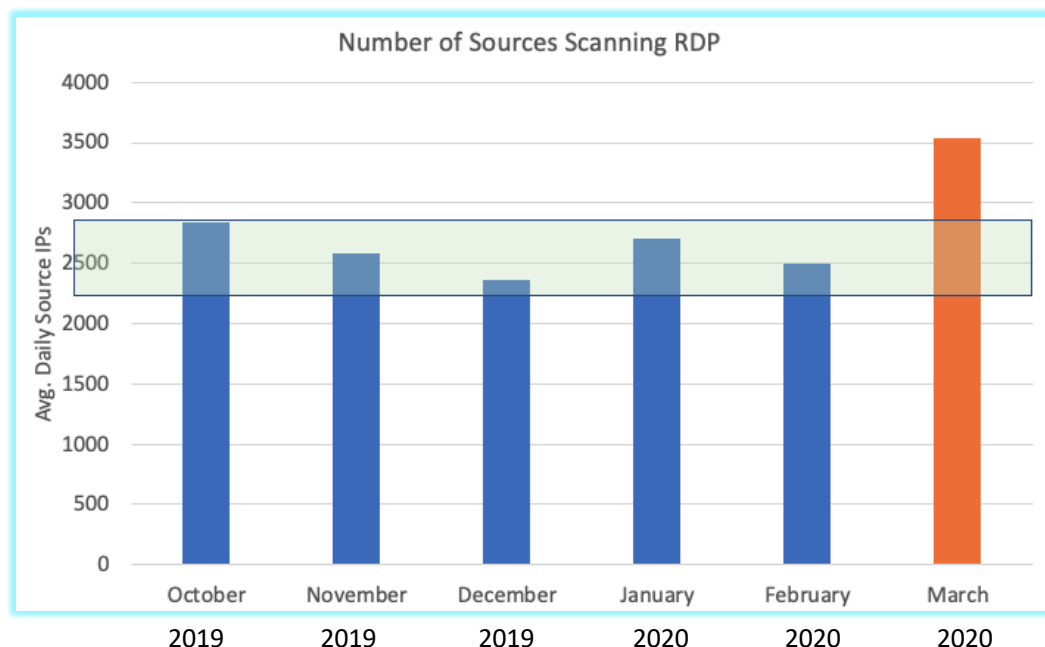
https:// Attackers make website look trustworthy by using digital certificates

HKCERT incident statistics

- 34% phishing sites using HTTPS in 2020 (YoY +9%)

More Attacks Targeting Remote Access

- Internet-accessible Remote Desktop Protocol (RDP)



Source: Johannes B. Ullrich, Ph.D., Dean of Research, SANS Technology Institute

- VPN gateway vulnerabilities



HKCERT

December 8, 2020 · 🌐

【立即修補 FortiOS SSL VPN 漏洞 (CVE-2018-13379)】

近期一名黑客在網上分享了一個IP地址列表，該IP地址列表列出超過49,000台Fortinet VPN設備，存在因CVE-2018-13379 漏洞而受到攻擊的風險。此漏洞讓攻擊者可以透過下載FortiOS系統檔案來竊取VPN憑據。世界各地有關部門已留意到這個漏洞可被利用的情況，這漏洞更可包括使用此品牌VPN設備的機構的VPN網絡。

詳細資料請參閱：

https://www.hkcert.org/my_url/zh/blog/20120801

#CVE_2018_13379

See Translation



Hong Kong Computer
Emergency Response Team
Coordination Centre
香港電腦緊急事故協調中心

ENG



主頁 > 刊物 > 保安博錄

Citrix Application Delivery Controller 嚴重漏洞 (CVE-2019-19781) 警報

發佈日期: 2020年01月17日 | 1184 觀看次數

跨國軟件和雲端運算企業Citrix最近公布了一個有關其Application Delivery Controller (ADC) 產品的保安漏洞 (CVE-2019-19781)。遠端攻



► Attack Tactics and Trends



Security Outlook for 2021

1. Security Risks of the New Normal


2. Security Risks of New Technologies

3. Security Risks of Mobile Financial Services

4. Proliferated Targeted and Organised Cyber Attacks

5. Escalated Supply Chain Attacks

Ransomware

 Hong Kong Computer
Emergency Response Team
Coordination Centre
香港電腦緊急事故協調中心

繁

Home > Publications > Security Blog

Ransomware: Double Extortion Attacks Continued - Intrusion via Exploiting VPN Gateway Vulnerability

Release Date: 13 Oct 2020 | 2004 Views

During the back-to-school season, HKCERT noticed that ransomware attacks have been targeting educational institutions all over the world while the trend of double extortion attacks continued. Related ransomware, such as Maze and Netwalker, were also very active. Users must stay vigilant.

According to research by international cyber threat intelligence company "Recorded Future", there were 9 ransomware attacks against educational institutions in just over two months from July to early September this year, 4 of them against universities[1][2]. Also, Newcastle University in UK was forced to suspend most of its information technology services due to the attack[3] recently. In fact, targets of the ransomware are not

BLEEPINGCOMPUTER

Home > News > Security > Ransomware gangs add DDoS attacks to their extortion arsenal



Ransomware gangs add DDoS attacks to their extortion arsenal

By [Lawrence Abrams](#)

October 1, 2020 05:20 PM 2

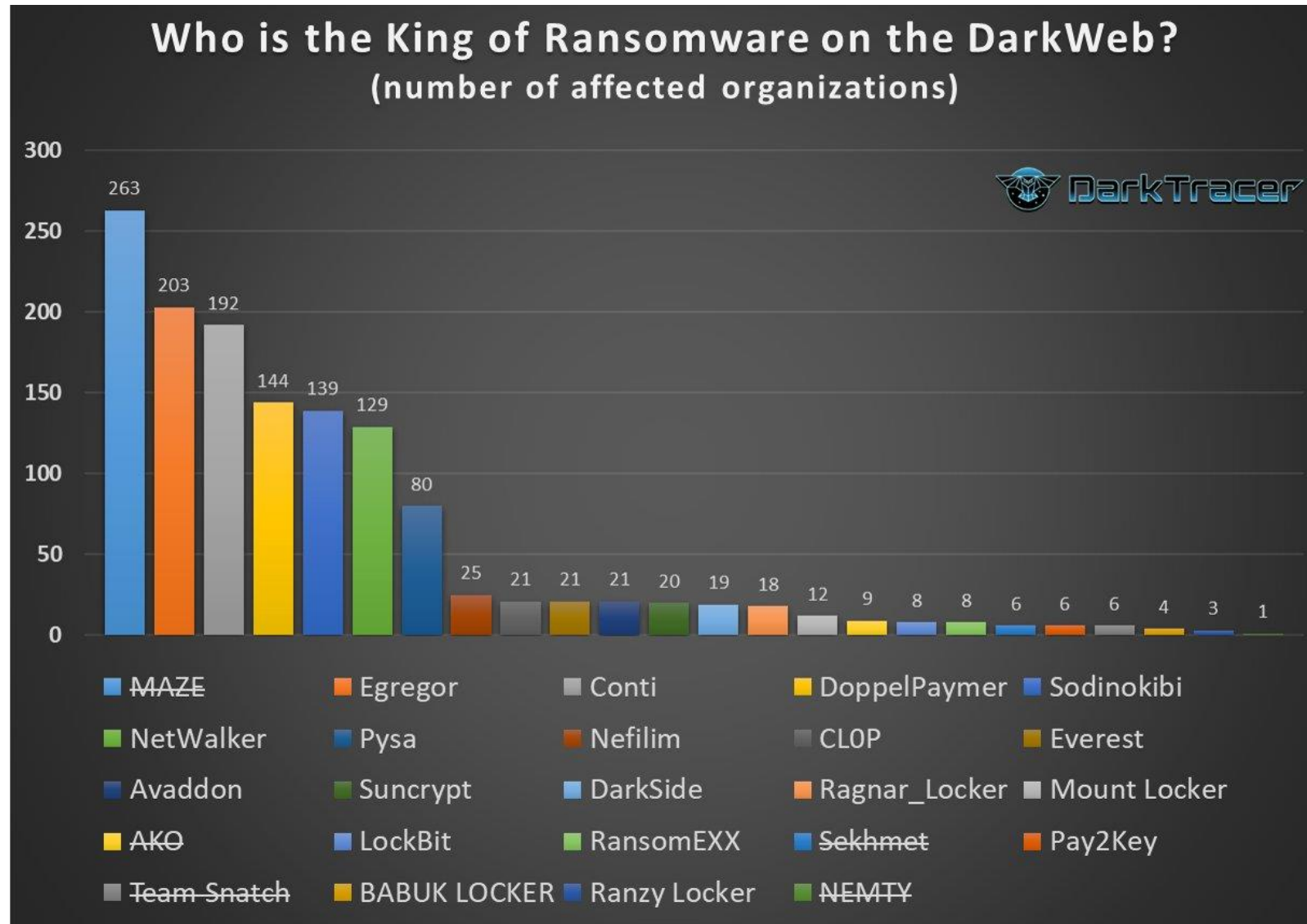
A ransomware operation has started to utilize a new tactic to extort their victims: DDoS a victim's website until they return to the negotiation table.

A distributed denial of service (DDoS) attack is when a threat actor floods a website or a network connection with a large volume of requests to make a service inaccessible.

Source:

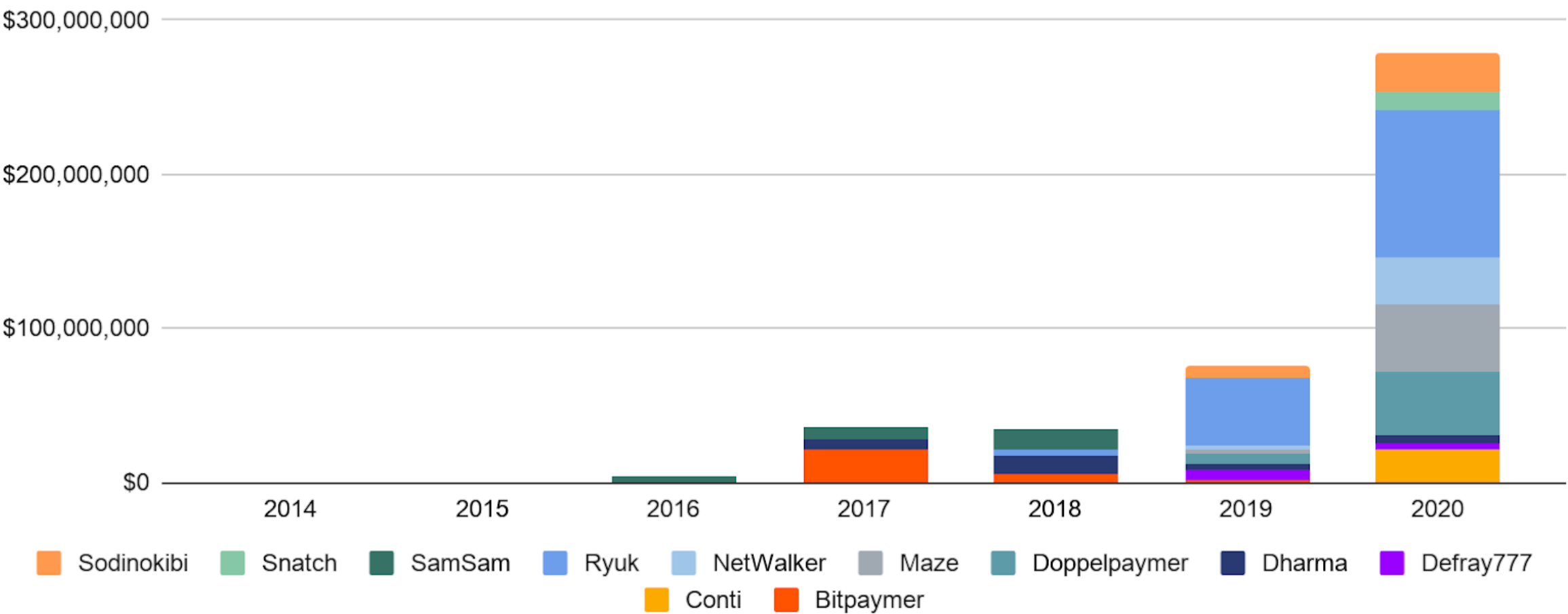
<https://www.hk01.com/18%E5%8D%80%E6%96%B0%E8%81%9E/580230/%E7%B6%B2%E7%AB%99%E6%8C%87%E7%89%9B%E5%A5%B6%E5%85%AC%E5%8F%B8%E7%B6%B2%E7%B5%A1%E9%81%AD%E9%BB%91%E5%AE%A2%E5%85%A5%E4%BE%B5-%E7%99%BC%E8%A8%80%E4%BA%BA%E8%AD%89%E4%BC%BA%E6%9C%8D%E5%99%A8%E5%8F%97%E5%BD%B1%E9%9F%BF%E8%87%B4%E5%81%9C%E6%A5%AD>

Ransomware Statistics



Ransomware Statistics

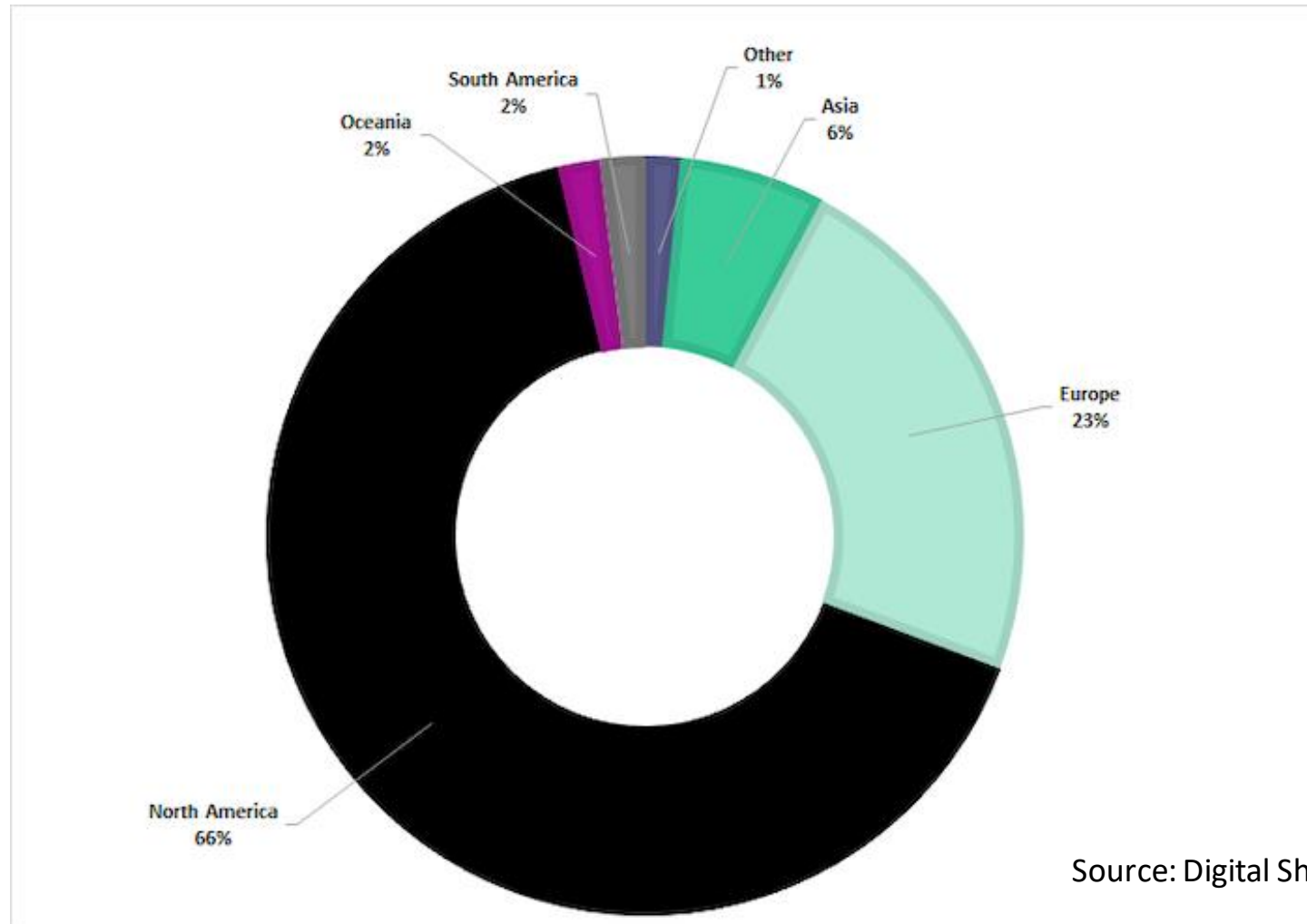
Top 10 ransomware strains by revenue by year, 2014 - 2020



Source: Chainalysis

Ransomware Statistics

Breakdown of target locations throughout 2020



Source: Digital Shadows Intelligence

Ransomware targets enterprise for higher return

網站指牛奶公司網絡遭黑客入侵 發言人證伺服器受影響致IKEA停業



18區新聞

👍 讚好 107

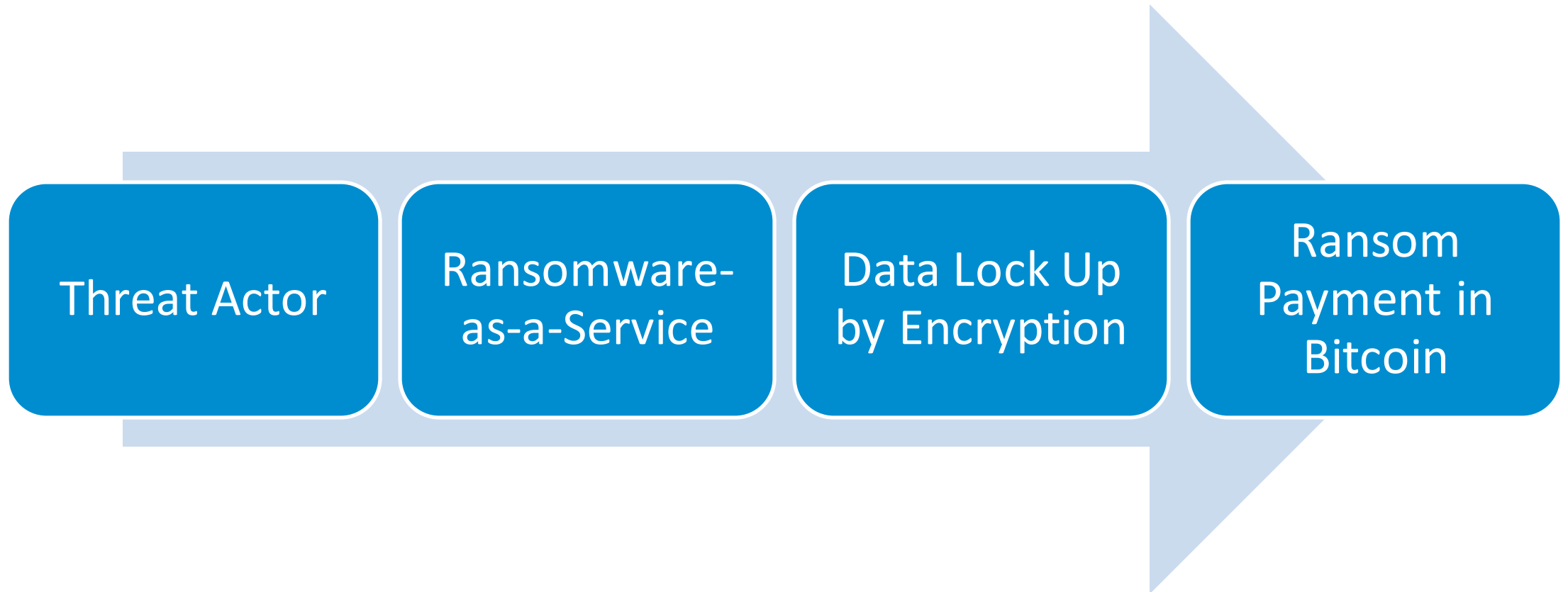
撰文：呂凝敏 2021-01-27 21:51 最後更新日期：2021-01-28 09:08



外國資訊科技網站今日（27日）引述報道指，黑客組織REvil在本月14日勒索軟件ransomware來入侵牛奶公司網絡。牛奶公司發言人回應事件，指上周四（21日）發現業務伺服器出現問題，已立即將受影響的伺服器離線及與其他伺服器隔離，而受影響的2%伺服器中，包括當日宣布因技術故障而全線分店暫停營業的宜家居。

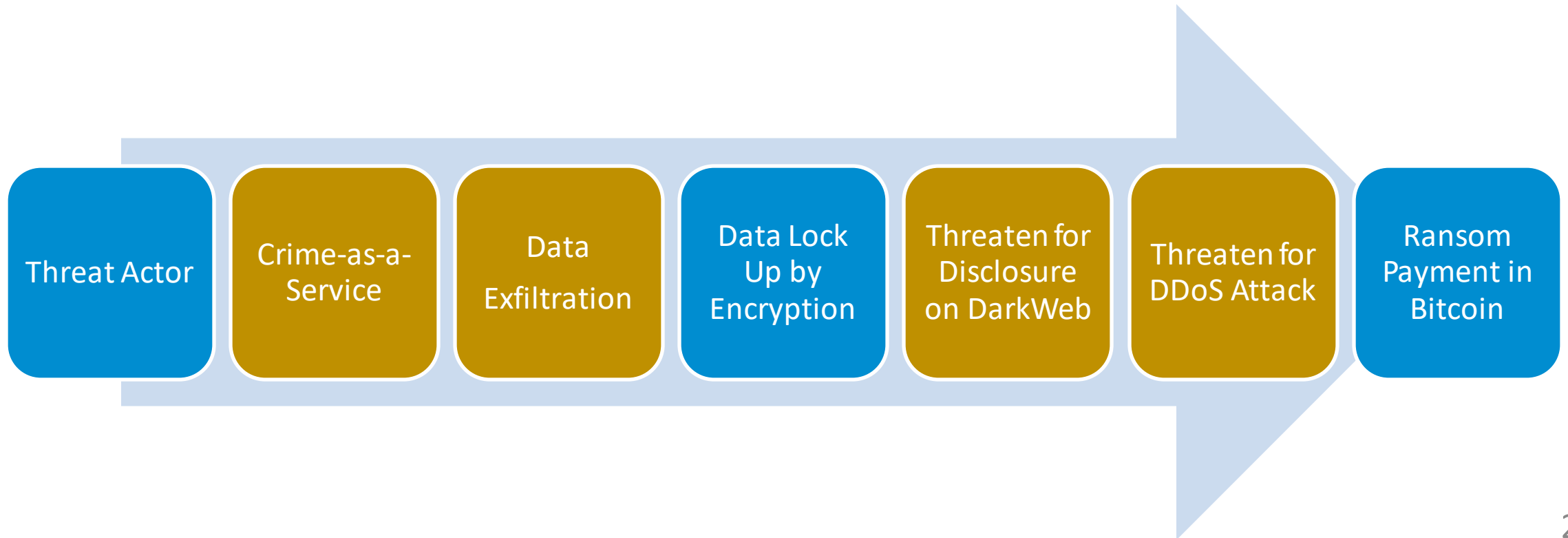
Ransomware Attack Tactics is Evolving

- Traditional Approach
 - Indiscriminate campaigns spreading the malware to variety of victims



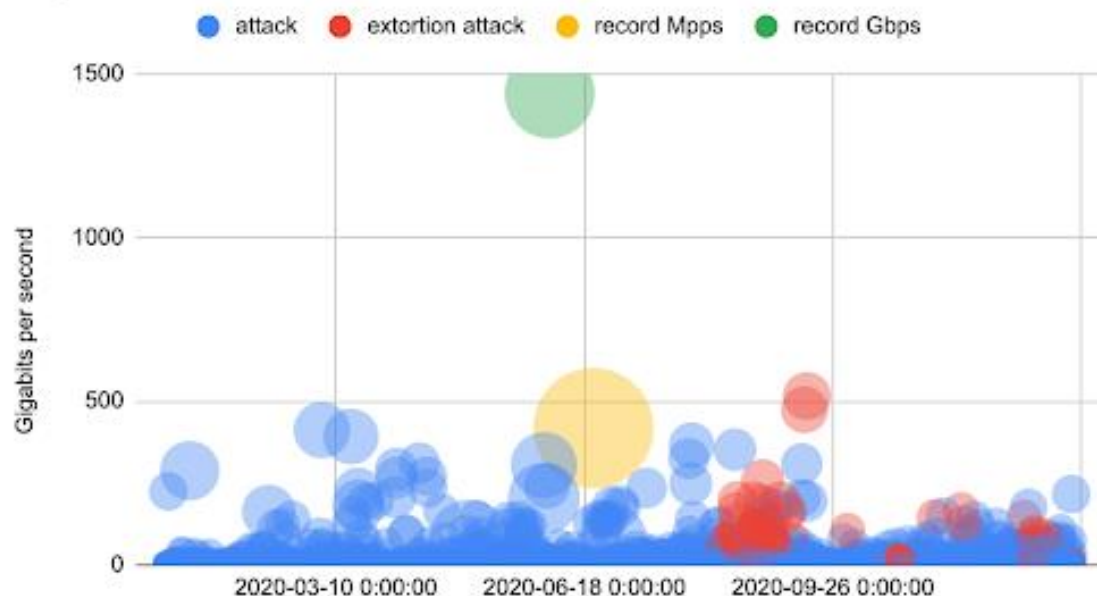
Ransomware Attack Tactics is Evolving

- More targeted and sophisticated approach
 - Targeting large companies and demanding huge payments



DDoS Extortion

Figure 4 - 2020 DDoS Attacks



Source: Akamai

Beware of Latest DDoS Extortion Attacks

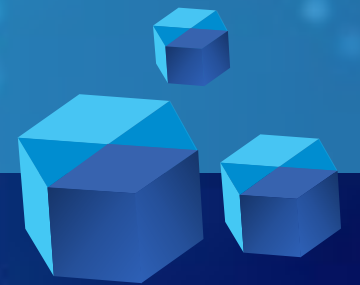
Release Date: 31 Aug 2020 | 4544 Views

In the past weeks, various financial organisations over the world have been on the receiving end of Distributed Denial of Service (DDoS) extortion attacks, with disruption to their online service.

According to an international anti-DDoS service provider, the attackers would target multiple sectors, including finance, travel, and e-commerce. They would first contact their targets by sending ransom emails, warning of an impending DDoS attack against their company unless a ransom is paid in Bitcoin. The attackers would utilise various attack vectors, such as ARMS, DNS Flood, GRE Protocol Flood, SNMP Flood, SYN Flood, and WSDiscovery Flood attacks, to launch DDoS attack traffic at almost 200 Gb/sec (equivalent to send 40,000 mp3 songs in a second). Also, they would cunningly change attack tactics, such as application attacks and spoofed attacks, to bypass the security protections of their targets.



► Cyber Attack Case Studies



Social Engineering Attack

Elon Musk confirms Russian hacking plot targeted Tesla factory

A Russian hacker tried to recruit a Tesla employee working for the company's factory in Sparks, Nevada.



in



f



By Catalin Cimpanu for Zero Day | August 28, 2020 -- 00:47 GMT
(08:47 SGT) | Topic: Security

Social Engineering Attack

21 **GoDaddy Employees Used in Attacks on Multiple Cryptocurrency Services**

NOV 20

Fraudsters redirected email and web traffic destined for several cryptocurrency trading platforms over the past week. The attacks were facilitated by scams targeting employees at **GoDaddy**, the world's largest domain name registrar, KrebsOnSecurity has learned.

The incident is the latest incursion at GoDaddy that relied on tricking employees into transferring ownership and/or control over targeted domains to fraudsters. In March, a voice phishing scam targeting GoDaddy support employees **allowed attackers to assume control over at least a half-dozen domain names, including transaction brokering site escrow.com.**

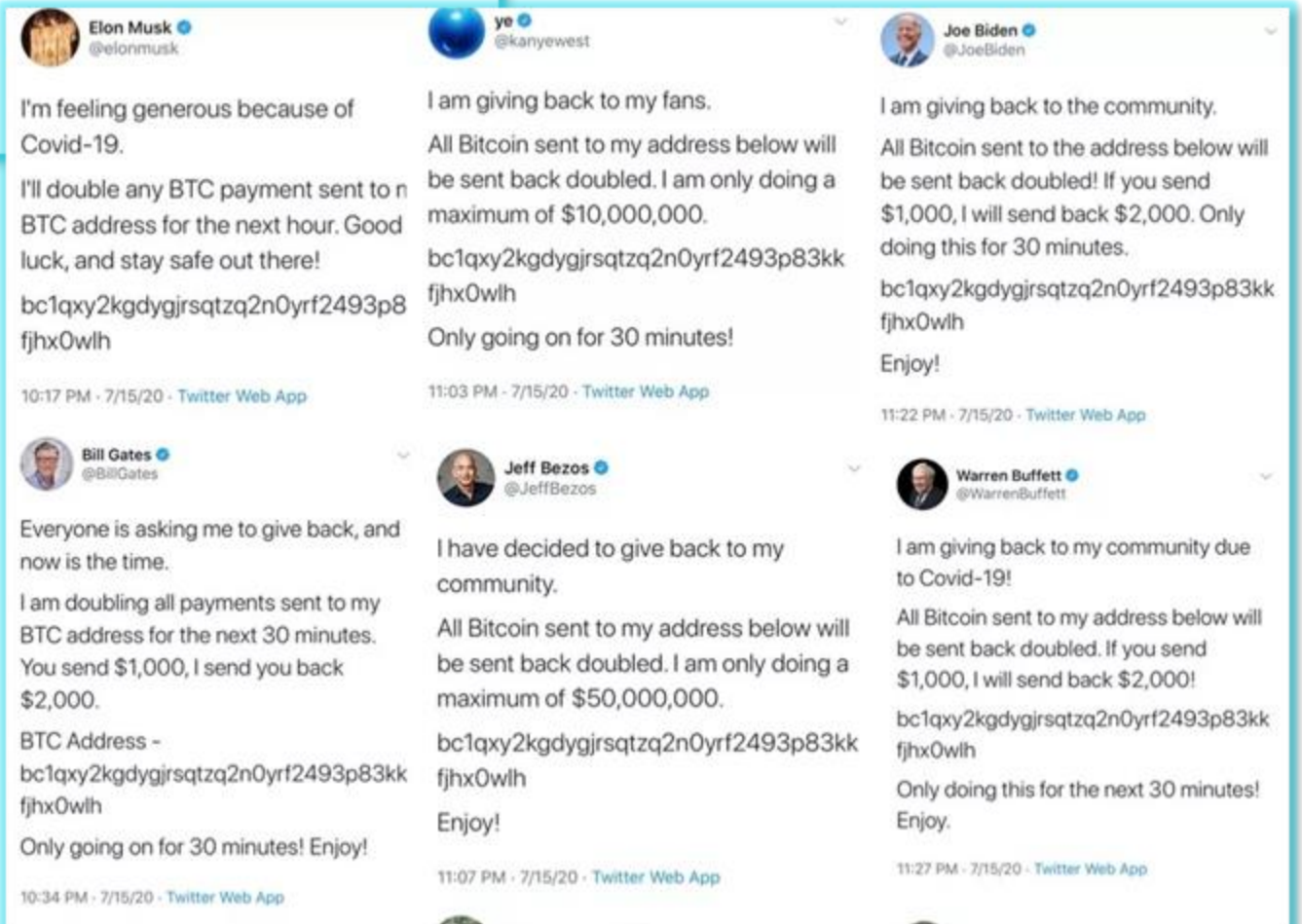
And in May of this year, GoDaddy **disclosed that 28,000 of its customers' web hosting accounts were compromised** following a security incident in Oct. 2019 that wasn't discovered until April 2020.

Case Study – Twitter Bitcoin Scam

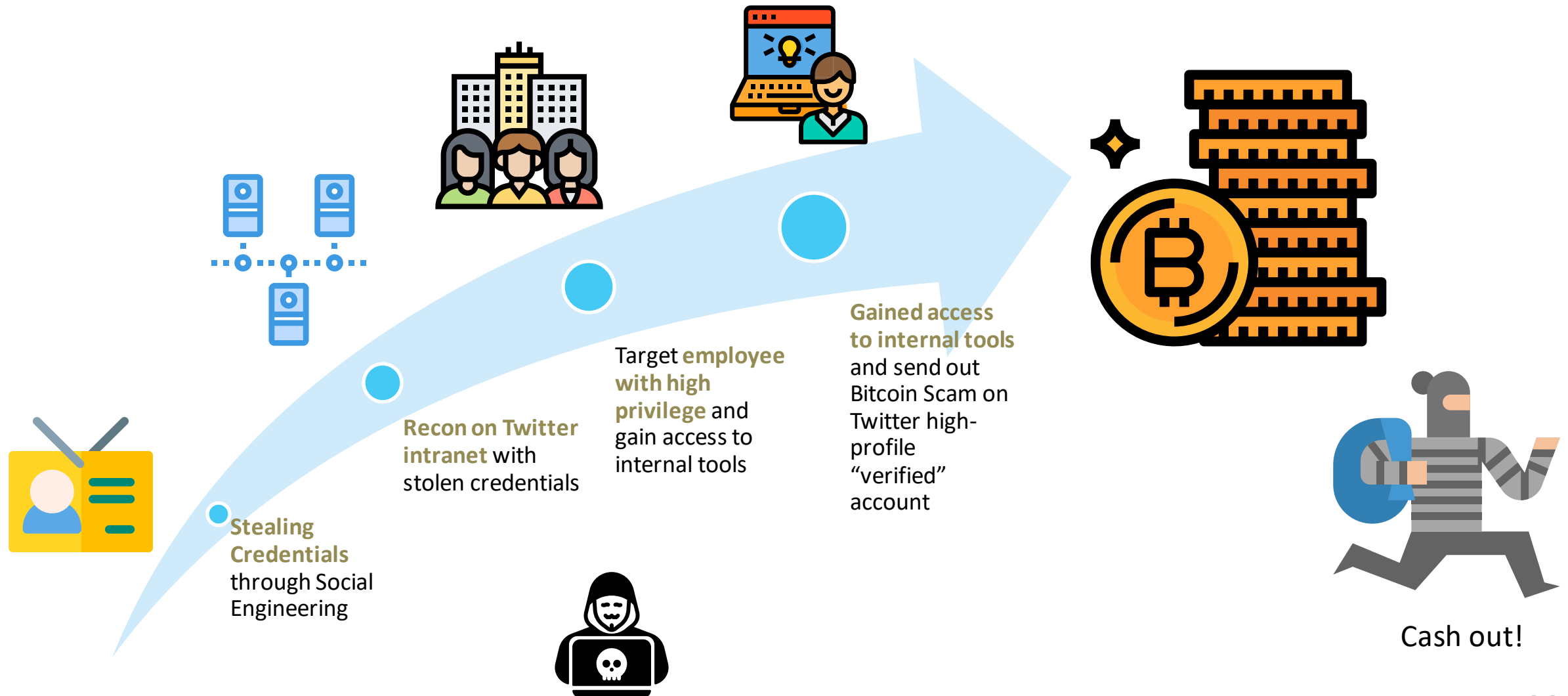
— 資訊保安

美國大量名人 Twitter 帳戶被駭 散播 Bitcoin 詐騙內容

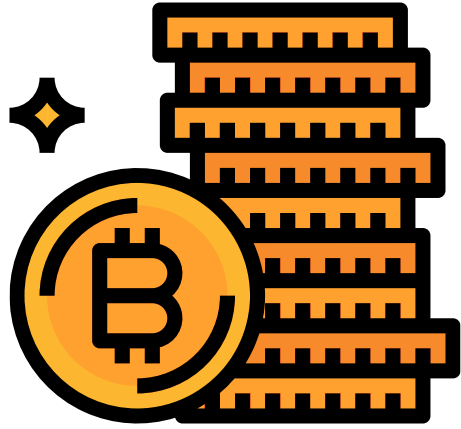
◇ 資訊保安 by Antony Shum on 16 七月, 2020



Bitcoin Scam Attack Process



Cash Out Amount by Threat Actor



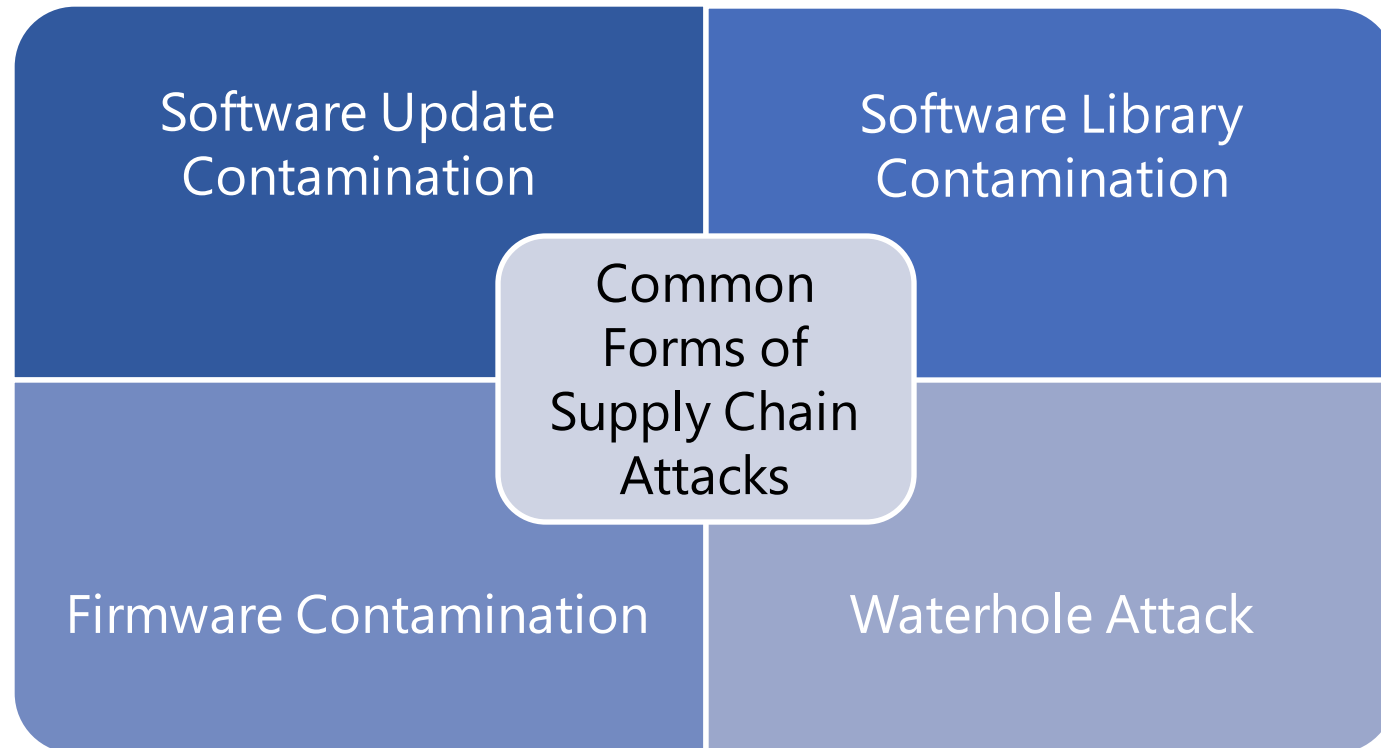
12.83 bitcoins

equivalent to

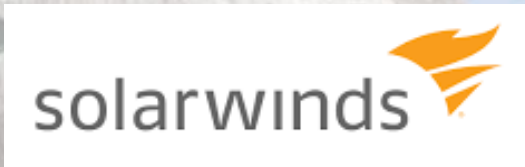
HK\$ 1,166,000

What is Supply Chain Attack?

- Leveraging on our **trust** on our supply chain partners to **bypass traditional defenses** and compromise a large number of computers.
- Target **weak points** in the supply chain to launch their initial attacks.
- The compromised software spread to other parties **downstream**.



Supply Chain Attacks in 2020



- Malicious NPM packages to install remote access trojan
- Trojanised Solarwinds Orion software (2020-Dec)
Solarwinds Orion
 - Affected 18,000 customers
 - Over 425 of Fortune 500
 - Top 10 US Telcos
 - US military and government departments
- Supply chain attacks increased by 430% in 2020

(Source: Sonatype State of the Software Supply Chain 2020)

Supply Chain Attack Case Study - SUNBURST

SolarWinds Orion Platform Multiple Vulnerabilities

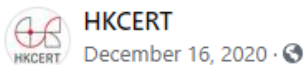
Last Update Date: 15 Dec 2020 10:55 | Release Date: 15 Dec 2020 | 1092 Views

RISK: High Risk

TYPE: Servers - Network Management

Multiple vulnerabilities were identified in SolarWinds Orion Platform, a remote attacker could exploit some of these vulnerabilities to trigger denial of service, remote code execution and sensitive information disclosure on the targeted system.

Note: These Vulnerabilities were reported being used in scattered attacks.









【盡快修補SolarWinds Orion Platform漏洞】

網絡管理軟件供應商SolarWinds於12月14日發布保安公告，披露了一個針對SolarWinds Orion Platform軟件的高度複雜、手動供應鏈攻擊，受影響軟件版本為2019.4 HF 5、2020.2 with no hotfix 或 2020.2 HF 1。黑客一旦成功利用該漏洞，便可能導致服務中斷、遠端執行程式碼及資料洩露。HKCERT強烈呼籲用戶盡快更新修補程式。如果未能及時進行更新修補，系統管理員亦可通過將Orion Platform安裝在防火牆之後、阻截互聯網存取Orion Platform以及將通訊埠和連接限制在必要的範圍內，以減低風險。

詳細資料請參閱: ... [See More](#)


[See Translation](#)




 **MUST READ:** US, China or Europe? Here's who is really winning the global race for AI

SEC filings: SolarWinds says 18,000 customers were impacted by recent hack

In SEC documents filed today, SolarWinds said it notified 33,000 customers of its recent hack, but that only 18,000 used a trojanized version of its Orion platform.





By Catalin Cimpanu for Zero Day | December 14, 2020 -- 17:36 GMT (01:36 SGT) | Topic: Security


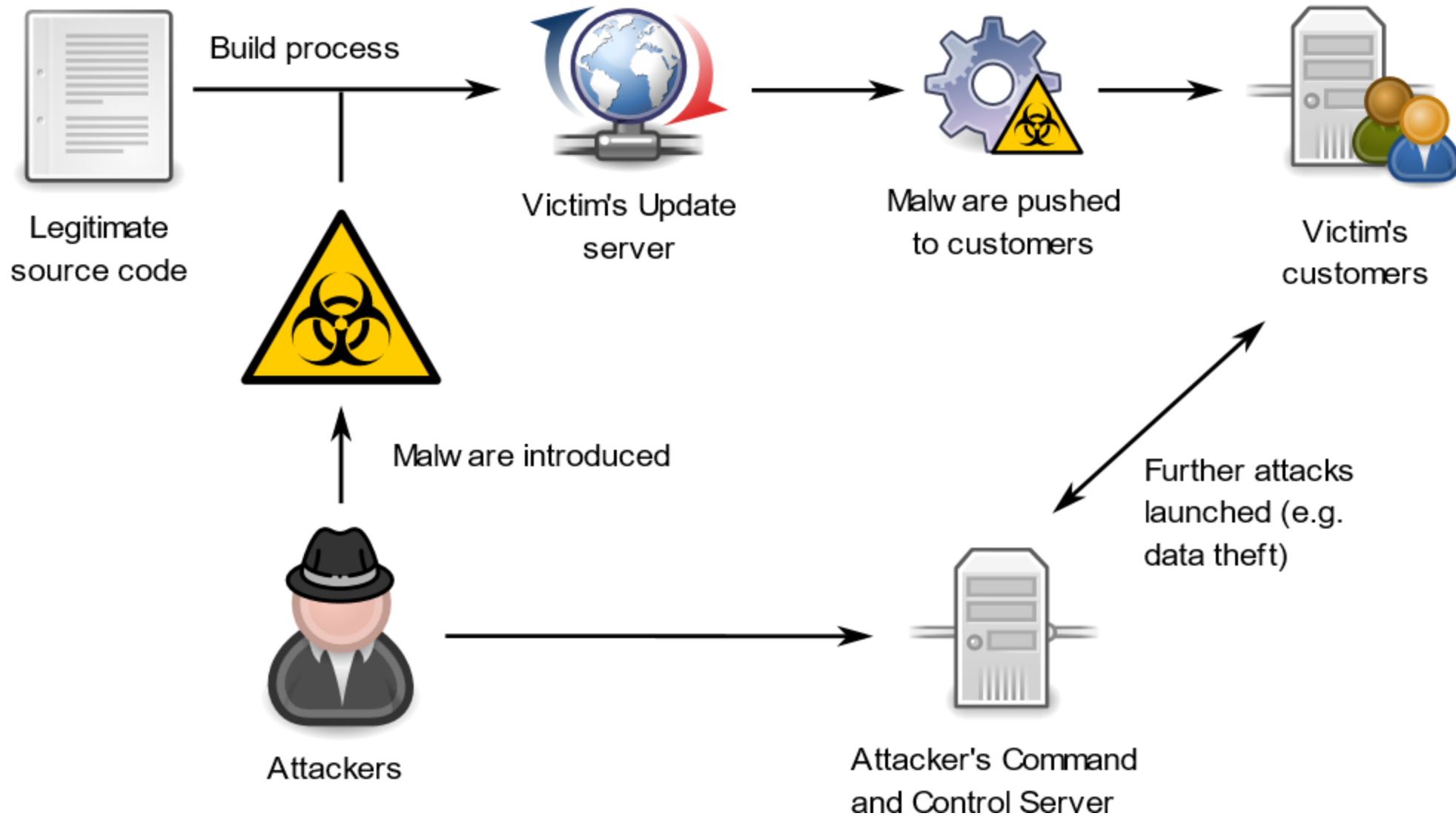


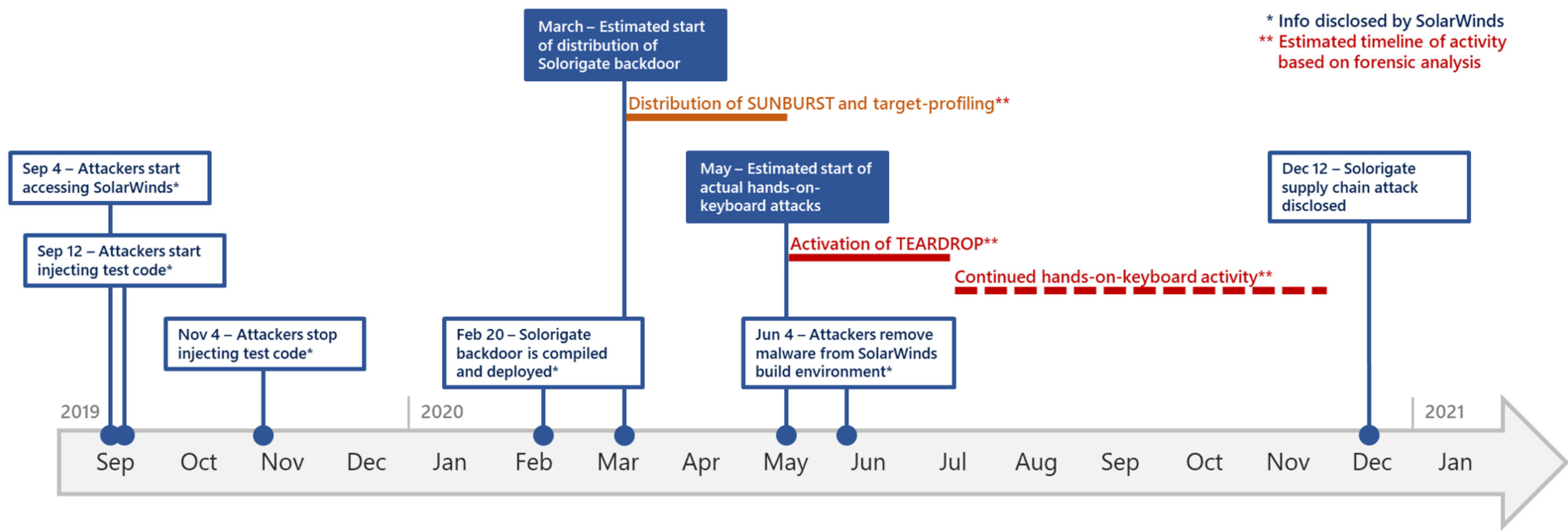
Image: SolarWinds, ZDNet

IT software provider SolarWinds downplayed a recent security breach in documents filed with the US Securities and Exchange

Attack Process

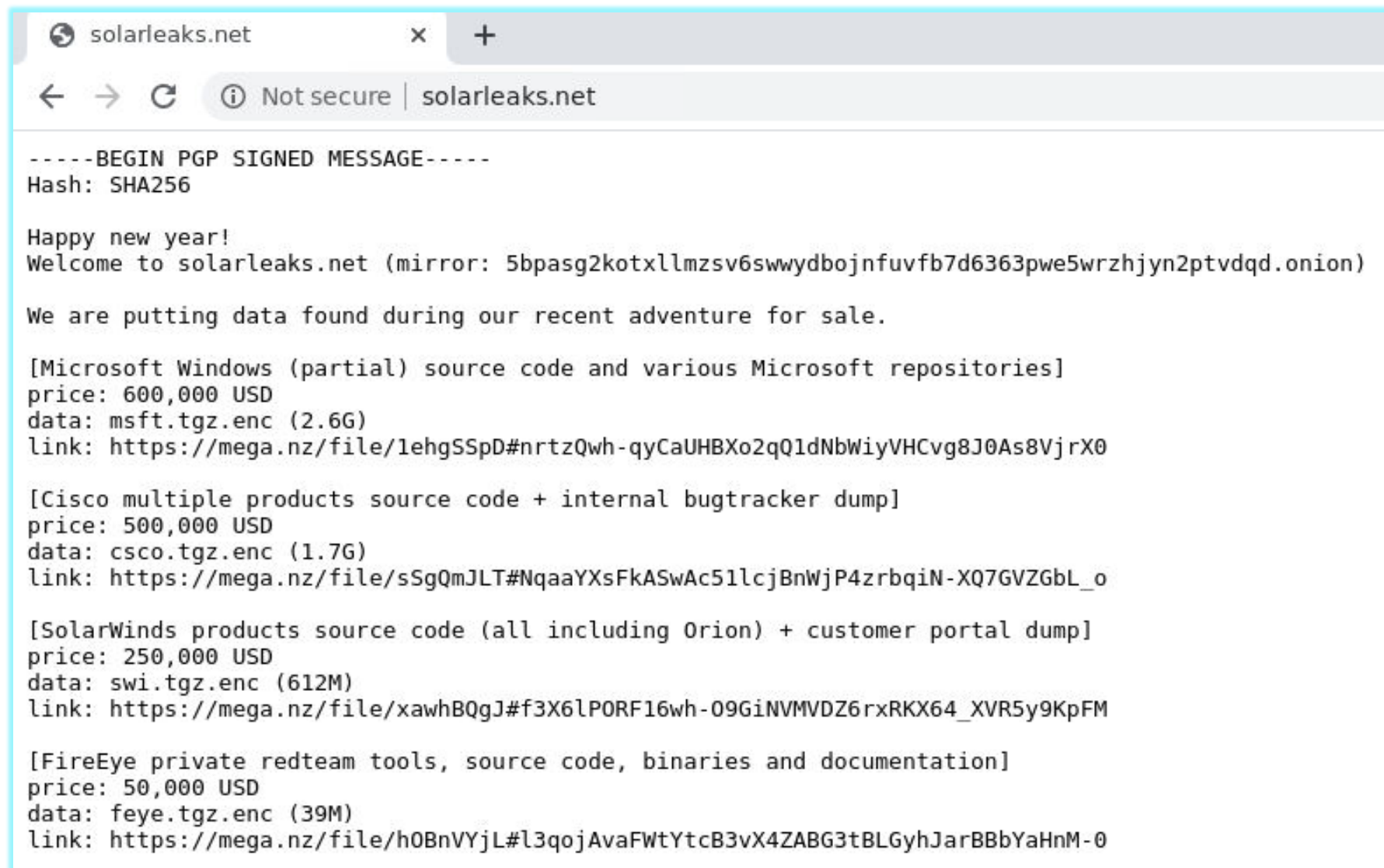


Attack Timeline



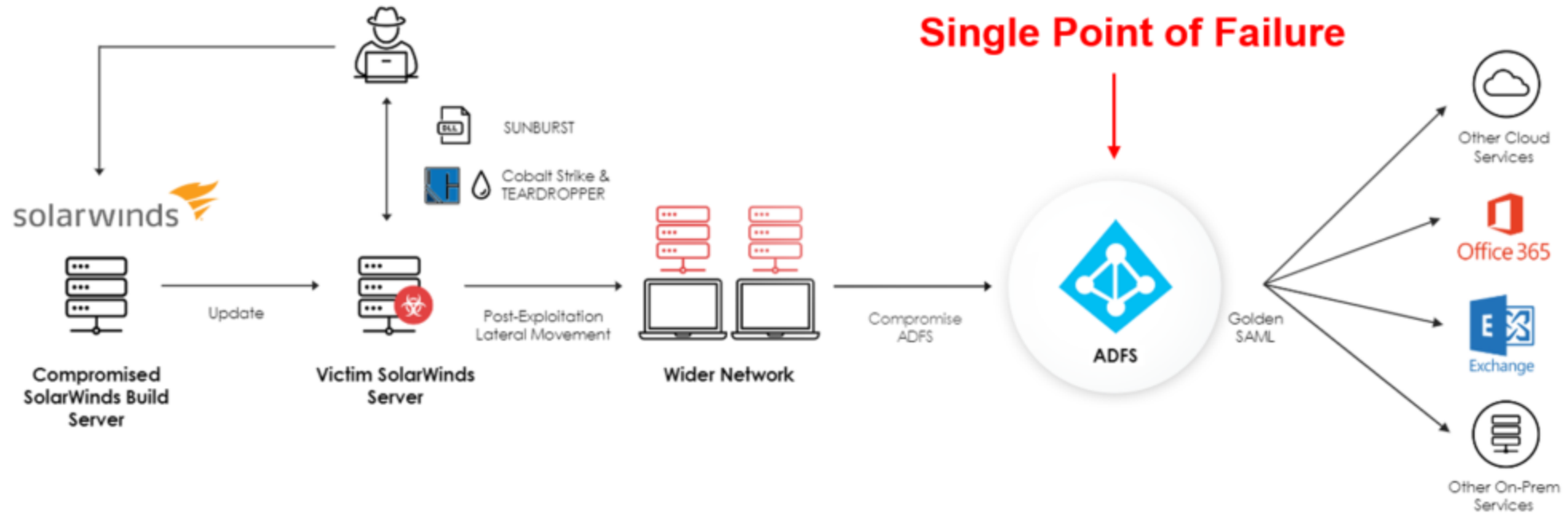
* Info disclosed by SolarWinds
** Estimated timeline of activity based on forensic analysis

Threat actor claims to sell breaches of data

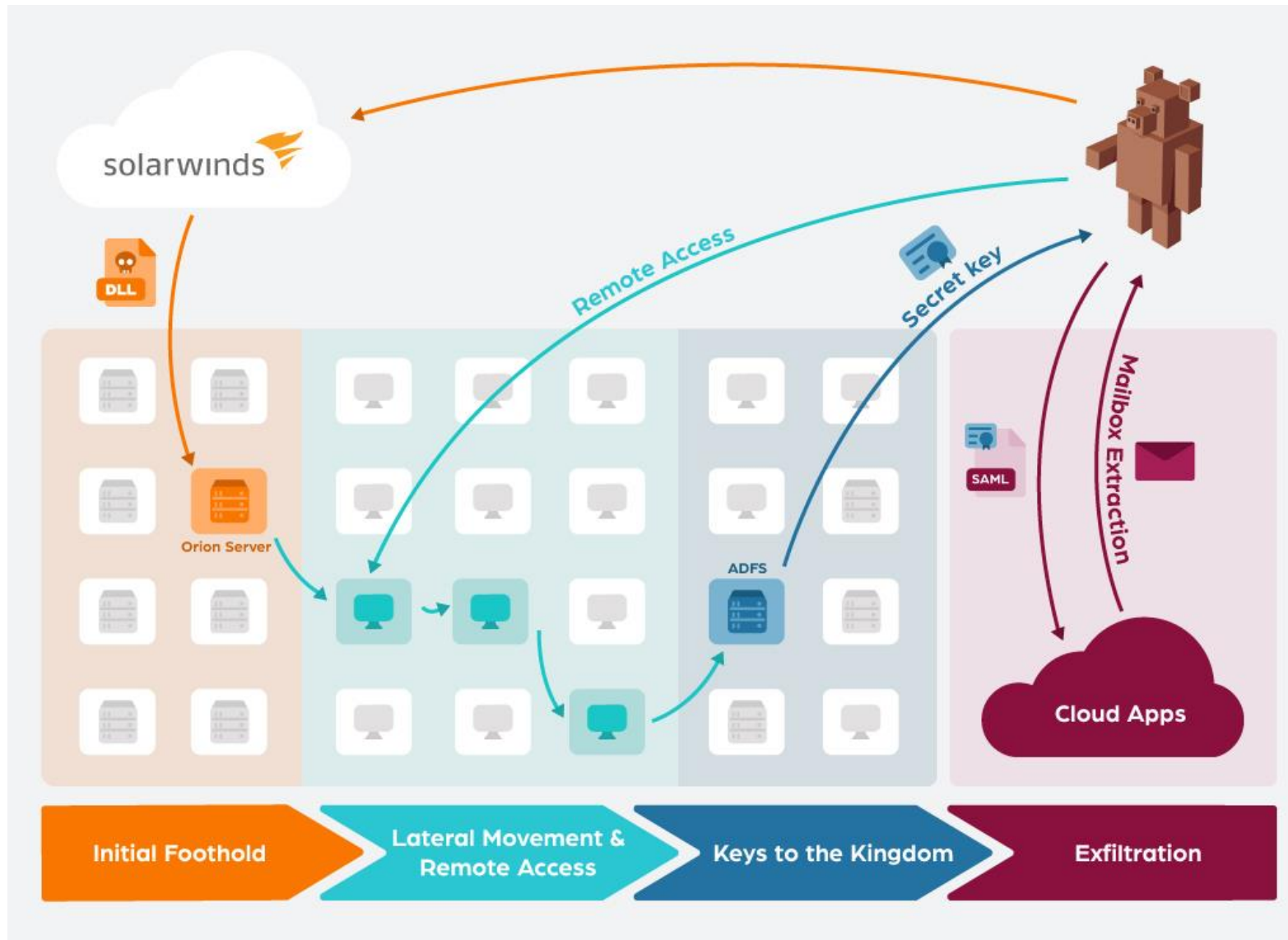
A screenshot of a web browser window. The address bar shows 'solarleaks.net' with a lock icon and a status of 'Not secure'. The page content is a PGP signed message. It starts with 'Happy new year!' and 'Welcome to solarleaks.net (mirror: 5bpasg2kotxllmzsv6swwydbojnfuvfb7d6363pwe5wrzhjyn2ptvdqd.onion)'. It then states 'We are putting data found during our recent adventure for sale.' and lists four items for sale: Microsoft Windows source code, Cisco products source code, SolarWinds products source code, and FireEye private redteam tools. Each item includes its price, data file name, and a link to a MEGA.nz file.

```
-----BEGIN PGP SIGNED MESSAGE-----  
Hash: SHA256  
  
Happy new year!  
Welcome to solarleaks.net (mirror: 5bpasg2kotxllmzsv6swwydbojnfuvfb7d6363pwe5wrzhjyn2ptvdqd.onion)  
  
We are putting data found during our recent adventure for sale.  
  
[Microsoft Windows (partial) source code and various Microsoft repositories]  
price: 600,000 USD  
data: msft.tgz.enc (2.6G)  
link: https://mega.nz/file/1ehgSSpD#nrtzQwh-qyCaUHBXo2qQ1dNbWiyVHCvg8J0As8VjrX0  
  
[Cisco multiple products source code + internal bugtracker dump]  
price: 500,000 USD  
data: cisco.tgz.enc (1.7G)  
link: https://mega.nz/file/sSgQmJLT#NqaaYXsFkASwAc51lcjBnWjP4zrbqiN-XQ7GVZGbL_o  
  
[SolarWinds products source code (all including Orion) + customer portal dump]  
price: 250,000 USD  
data: swi.tgz.enc (612M)  
link: https://mega.nz/file/xawhBQgJ#f3X6lPORF16wh-09GiNVMVDZ6rxRKX64_XVR5y9KpFM  
  
[FireEye private redteam tools, source code, binaries and documentation]  
price: 50,000 USD  
data: feye.tgz.enc (39M)  
link: https://mega.nz/file/h0BnVYjL#l3qojAvaFWtYtcB3vX4ZABG3tBLGyhJarBBbYaHnM-0
```

More attacks evolving from this incident

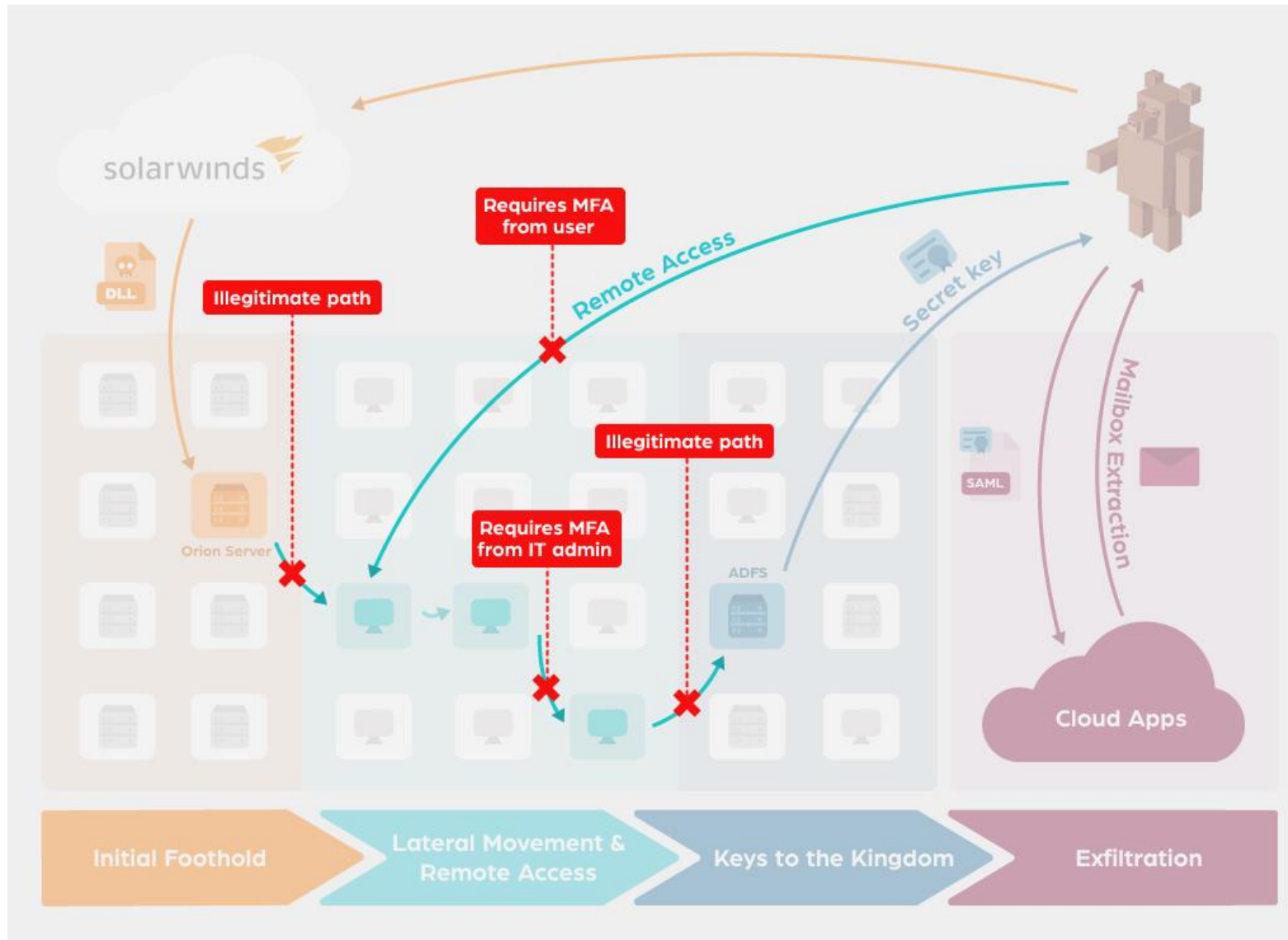


Phases of The Attack



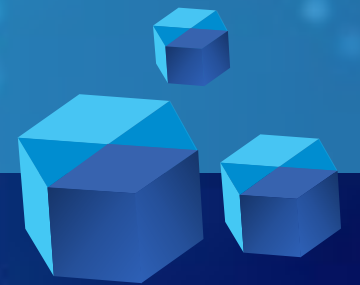
Can we stop
the attack?

Phases of The Attack





▶ Security Advises



Managing New Cyber Security Risks

1. Formulate Security Strategy for the New Normal

SMEs and Enterprises

- Provide WFH security guideline
- Plan for capacity resilience for remote working
- Protect remote access facilities and endpoints
- Raise user security awareness

Employees and Users

- Ensure privacy and security of working environment
- Keep business and leisure apart
- Think before connecting or entering credentials
- Report suspicious activity

Useful Guidelines

Six Security Tips for Home Office

<https://www.hkcert.org/security-guideline/six-security-tips-for-home-office>

Assessing the Security of Remote Access Services Guideline

<https://www.hkcert.org/security-guideline/assessing-the-security-of-remote-access-services-guideline>

Managing New Cyber Security Risks

2. Manage Security Risks of New Technologies

- Understand security implication of new technologies, (e.g. 5G/IoT, cloud computing or mobile financial services)

3. Conduct Security Health Check

- Assess network and system security regularly
- Continuously monitor IT assets exposed to the Internet

4. Monitor Third Party Security Risks

HKCERT Security Awareness Videos



<https://www.youtube.com/user/hkcert>





Hong Kong Computer
Emergency Response Team
Coordination Centre



<https://www.hkcert.org/>



8105 6060



hkcert@hkcert.org





Q & A