Casos de Ciberataques tipo Ransomware en Perú y medidas preventivas

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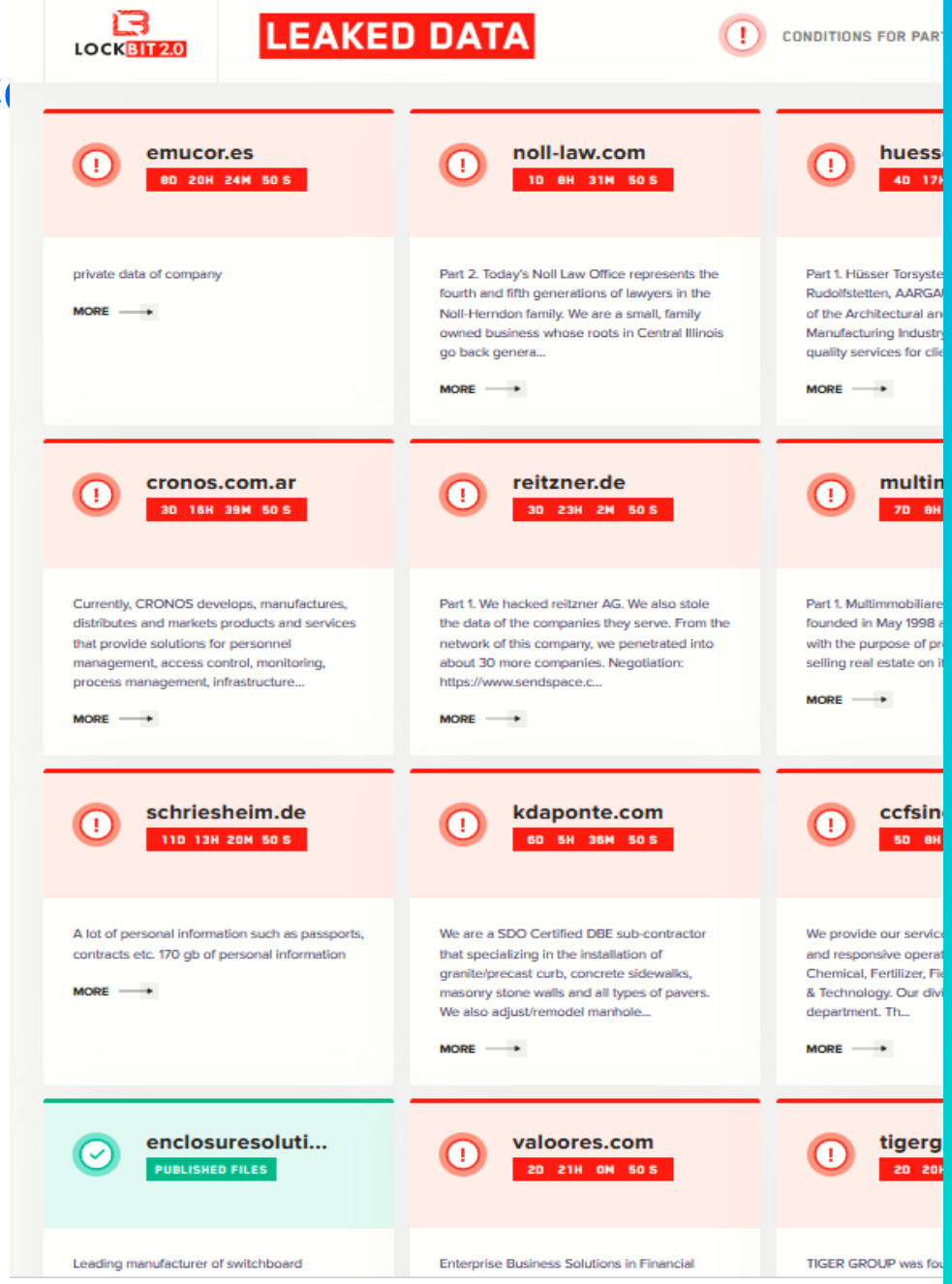
Parte 1: Casos y Vectores de Infección

Antecedentes:

- Por el Covid, se incrementó el uso de **conexiones remotas seguras VPN** SSL/TLS y VPN IPsec para la realización del Teletrabajo.
- Los atacantes de Ransomware se aprovechan de vulnerabilidades de los servicios públicos como **RDP, SMB, VPN Server**, etc.
- Los atacantes de Ransomware realizan **constantes scannings** y explotación para ingresar a los servicios públicos luego internamente realizar movimientos laterales para hackear el **Active Directory** y así apoderarse de toda la red.
- Las empresas en general **no tienen segmentación** de la red, procesos de actualización de parches de sistema operativo, procesos de gestión de vulnerabilidades, proceso de Backup/Restore y tampoco usan MFA para prevenir el robo y uso de una credencial válida.

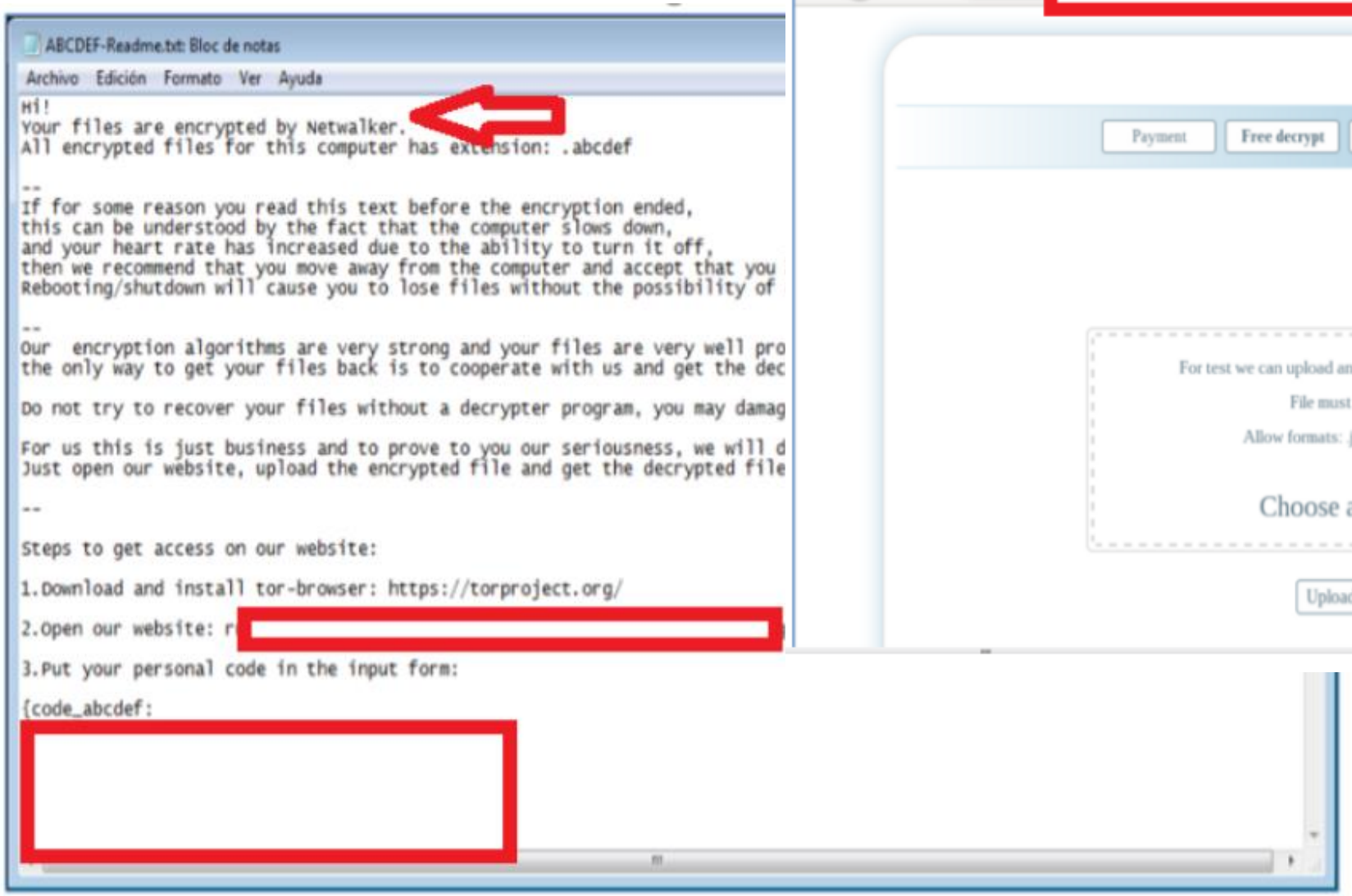


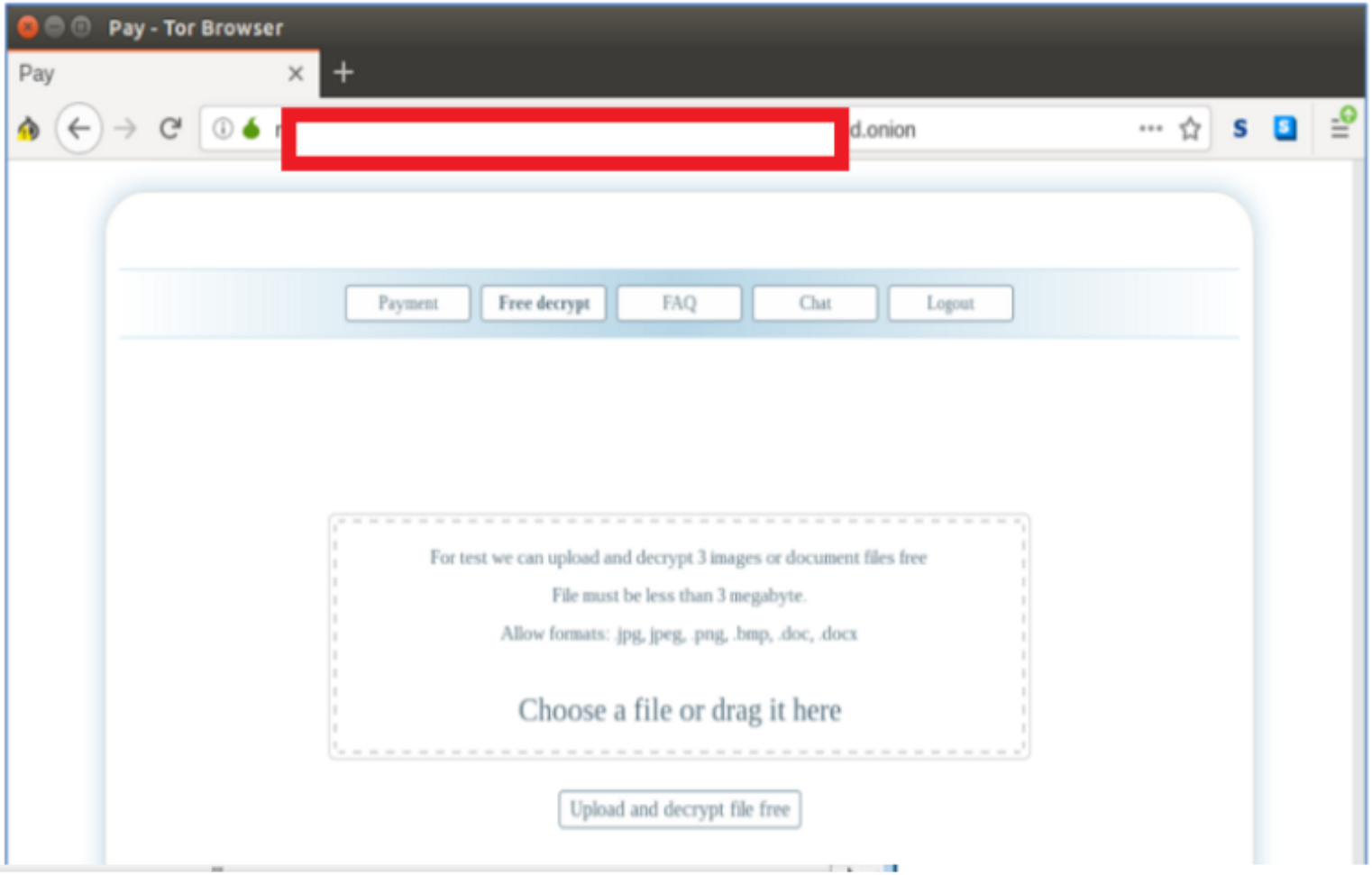
Telefónica Tech

Fuente:
Conti: https://continewsnv5otx5kaoje7krkto2qbu3gtqef22mnr7eaxw3y6ncz3ad.onion.ly/
Lockbit 2.0: http://lockbitapt6vx57t3eeqjofwgcglmutr3a35nygvokja5uuccip4ykyd.onion/

Ransomware Banjo

Ransomware Netwalker





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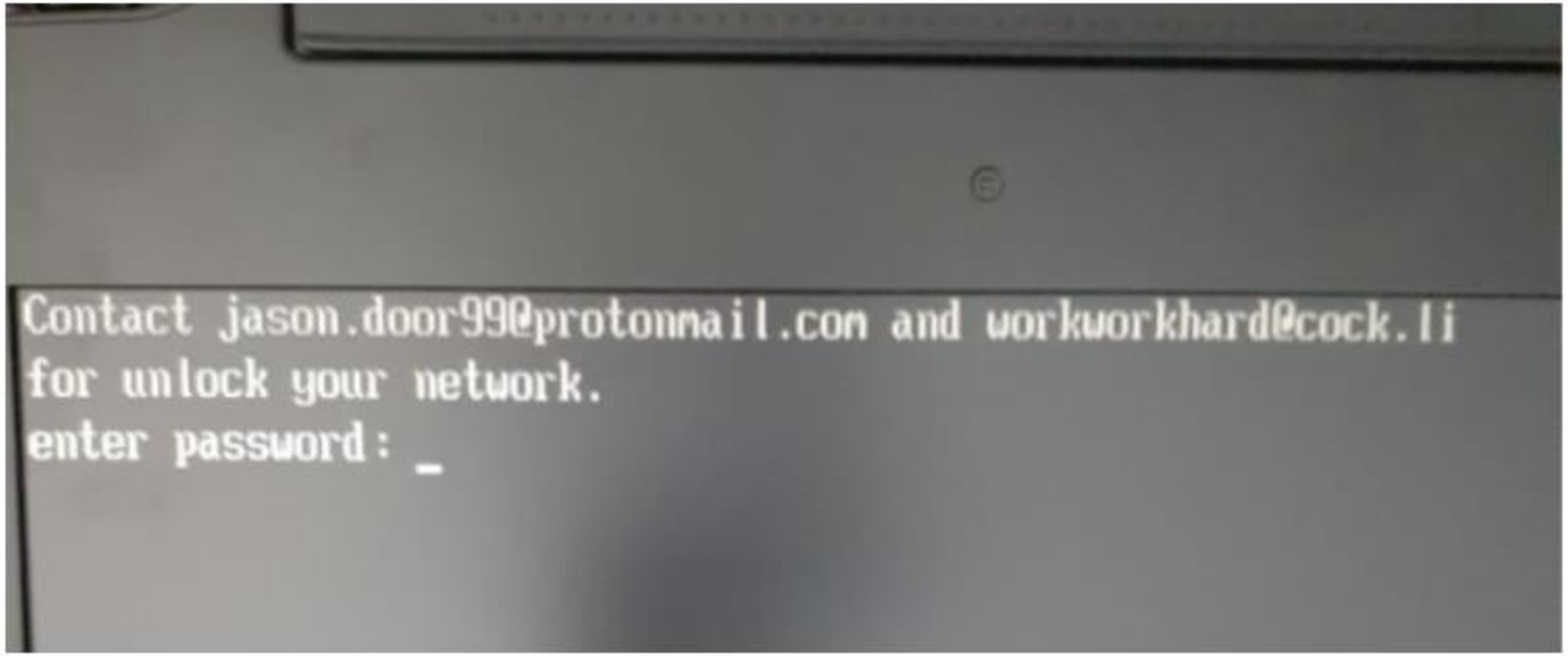
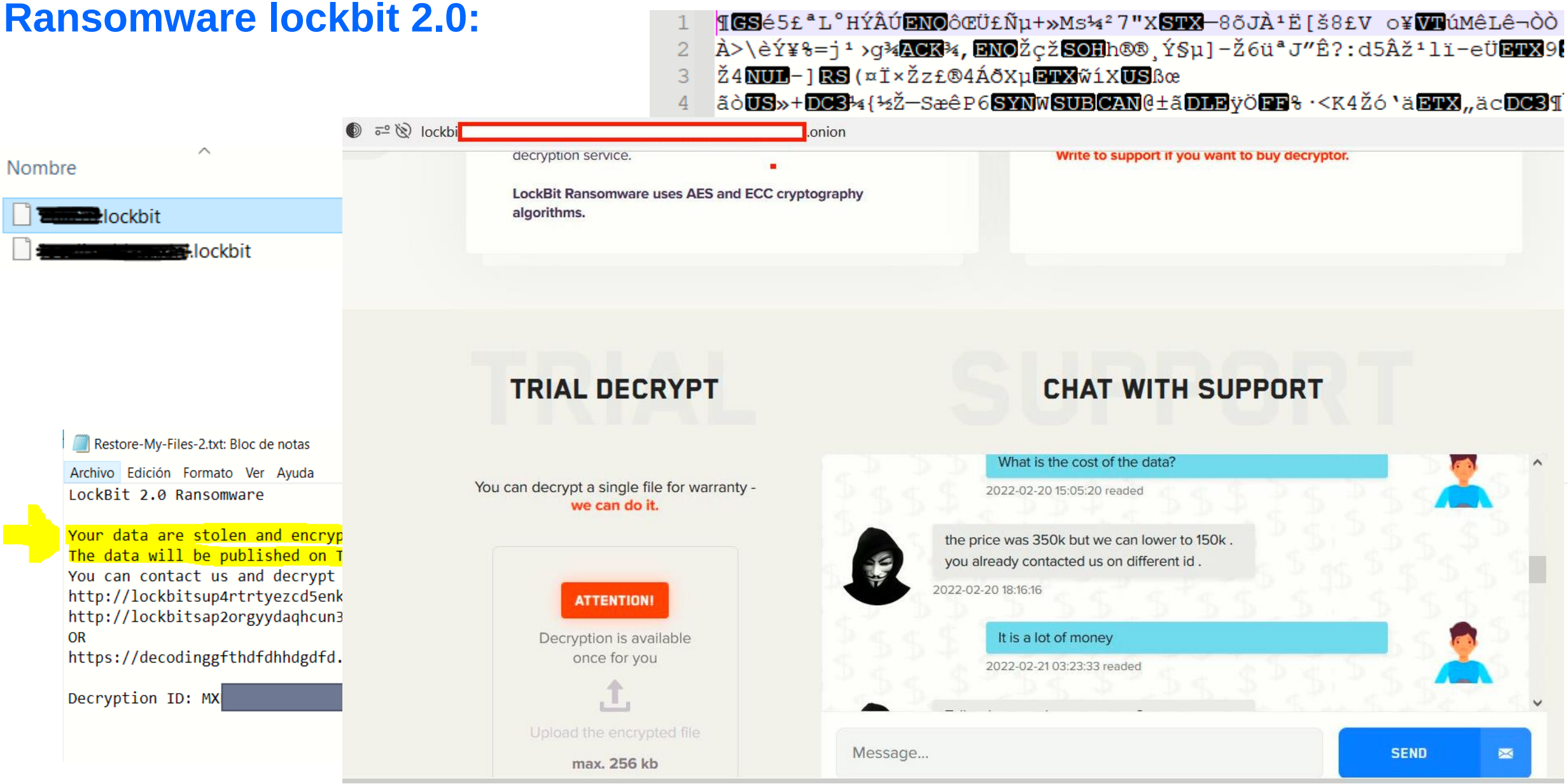
Ransomware Prometeus:

Afectación: Unidades de disco en grupos de servidores Microsoft Windows:

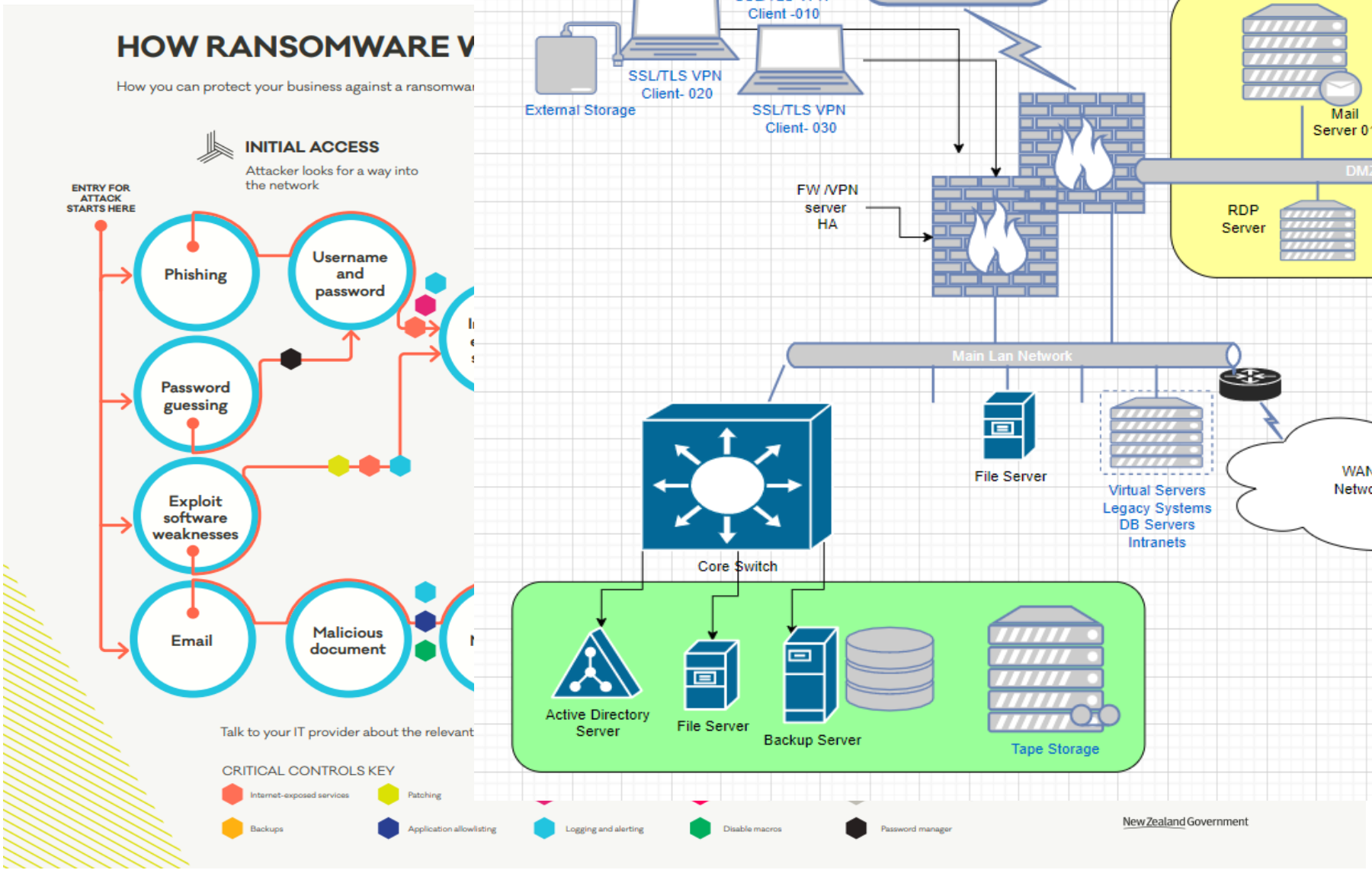
- **Grupo 1:** Los atacantes
  bitlocker, la cual pedía
- **Grupo 2:** Los atacantes
  instalaron diskcryptor y
  contacto: jason.door99



Ransomware lockbit 2.0:



Introducción, topo



Fuente:
https://www.cert.govt.nz/assets/ransomware/cert-lifecycle-of-a-ransomware-incident-with-controls-business-version.pdf

Vectores de Infección:

- **Servicios Vulnerables:**
  - ***Servicios públicos:***
    - Remote Desktop Protocol RDP 3389/tcp, Microsoft DS/SMB 445/tcp. Mysql 3306/tcp, Microsoft SQL Server 1433/tcp
  - ***Vulnerabilidades TODO:***
    - US Cert Vulnerabilidades + Exploited ++Usadas
  - ***VPN Server:***
    - VPN IPsec, IKE,500/udp, 4500/udp, https 443/tcp
  - ***Credenciales:***
    - Compra o Robo de credenciales de acceso remoto.

- **Ingeniería Social:**
  - A través de correo electrónico.
  - Enlaces dentro del correo.
  - Archivos adjuntos con malware.
  - Navegación a enlaces con malware.

Parte 2: Eventos y Vulnerabilidades

Eventos: Brute Force RDP, MS-SQL Server, SMB:

27/04/2018 21:34	Intrusion	Low	1000127	RDP Local Account Brute-force Attempt	185.156.177.4	200.1	RussianFederatio	200.1	Peru	RDP	TCP	Alert	ips_default	default
27/04/2018 21:37	Intrusion	Low	1000078	Microsoft SQL Server Authentication Brute-force Attempt	60.10.172.3	200.1	LangFang	200.1	Peru	MS_SQL9	TCP	Alert	ips_default	default
27/04/2018 21:40	Intrusion	Low	1000127	RDP Local Account Brute-force Attempt	185.156.177.4	200.1	RussianFederatio	200.1	Peru	RDP	TCP	Alert	ips_default	default
27/04/2018 21:41	Intrusion	Low	1000078	Microsoft SQL Server Authentication Brute-force Attempt	222.222.216.166	200.1	ShiJiaZhuang	200.1	Peru	MS_SQL9	TCP	Alert	ips_default	default
27/04/2018 21:43	Intrusion	Low	1000078	Microsoft SQL Server Authentication Brute-force Attempt	222.222.216.166	200.1	ShiJiaZhuang	200.1	Peru	MS_SQL9	TCP	Alert	ips_default	default
27/04/2018 21:46	Intrusion	Low	1000127	RDP Local Account Brute-force Attempt	185.156.177.4	200.1	RussianFederatio	200.1	Peru	RDP	TCP	Alert	ips_default	default
27/04/2018 21:51	Intrusion	Low	1000127	RDP Local Account Brute-force Attempt	185.156.177.4	200.1	RussianFederatio	200.1	Peru	RDP	TCP	Alert	ips_default	default
27/04/2018 21:57	Intrusion	Low	1000127	RDP Local Account Brute-force Attempt	185.156.177.4	200.1	RussianFederatio	200.1	Peru	RDP	TCP	Alert	ips_default	default
27/04/2018 22:03	Intrusion	Low	1000127	RDP Local Account Brute-force Attempt	185.156.177.4	200.1	RussianFederatio	200.1	Peru	RDP	TCP	Alert	ips_default	default
27/04/2018 22:09	Intrusion	Low	1000127	RDP Local Account Brute-force Attempt	185.156.177.4	200.1	RussianFederatio	200.1	Peru	RDP	TCP	Alert	ips_default	default
27/04/2018 22:14	Intrusion	Low	1000127	RDP Local Account Brute-force Attempt	185.156.177.4	200.1	RussianFederatio	200.1	Peru	RDP	TCP	Alert	ips_default	default

		RECEIVE TIME	TYPE	THREAT ID/NAME	FROM ZONE	TO ZONE	SOURCE ADDRESS	SOURCE USER	SOURCE DYNAMIC ADDRESS GROUP	DESTINATION ADDRESS	DESTINA... DYNAMIC ADDRESS GROUP	DYNAMIC USER GROUP	TO PORT	APPLICATION	ACTION	SEVERITY
		04/19 16:21:22	vulnerability	SMB: User Password Brute Force Attempt	RED_LAN	[redacted]	172.			172.			445	ms-ds-smbv3	alert	high
		04/18 16:38:31	vulnerability	SMB: User Password Brute Force Attempt	RED_LAN		172.			172.			445	ms-ds-smbv3	alert	high
		04/18 14:59:10	vulnerability	SMB: User Password Brute Force Attempt	RED_LAN		172.			172.			445	ms-ds-smbv3	alert	high
		04/18 14:59:04	vulnerability	SMB: User Password Brute Force Attempt	RED_LAN		172.			172.			445	ms-ds-smbv3	alert	high
		04/13 19:32:07	vulnerability	SMB: User Password Brute Force Attempt	RED_LAN		172.			172.			445	ms-ds-smbv3	alert	high
		04/13 18:39:28	vulnerability	SMB: User Password Brute Force Attempt	RED_LAN		172.			172.			445	ms-ds-smbv3	alert	high
		04/11 22:20:36	vulnerability	SMB: User Password Brute Force Attempt	RED_LAN		172.			172.			445	ms-ds-smbv3	alert	high

28/04/2018 04:21	Intrusion	Low	1000078	Microsoft SQL Server Authentication Brute-force Attempt	61.155.214.30	200.1	SuZhou(JiangSu)	200.1	Peru	MS_SQL9	TCP	Alert	ips_default	default
28/04/2018 04:23	Intrusion	Low	1000078	Microsoft SQL Server Authentication Brute-force Attempt	61.155.214.30	200.1	SuZhou(JiangSu)	200.1	Peru	MS_SQL9	TCP	Alert	ips_default	default
28/04/2018 05:26	Intrusion	Low	1000078	Microsoft SQL Server Authentication Brute-force Attempt	111.63.21.98	200.1	ChengDe	200.1	Peru	MS_SQL9	TCP	Alert	ips_default	default
28/04/2018 05:31	Intrusion	Low	1000078	Microsoft SQL Server Authentication Brute-force Attempt	182.254.157.192	200.1	ShangHai	200.1	Peru	MS_SQL9	TCP	Alert	ips_default	default
28/04/2018 06:37	Intrusion	Low	1000078	Microsoft SQL Server Authentication Brute-force Attempt	111.20.56.94	200.1	ShaanXi	200.1	Peru	MS_SQL9	TCP	Alert	ips_default	default
28/04/2018 07:01	Intrusion	Low	1000078	Microsoft SQL Server Authentication Brute-force Attempt	115.218.167.174	200.1	WenZhou	200.1	Peru	MS_SQL9	TCP	Alert	ips_default	default
28/04/2018 18:13	Intrusion	Low	370090	Microsoft IIS WebDAV ScStoragePathFromUrl Buffer Ove	194.72.112.130	200.1	UnitedKingdom	200.1	Peru	HTTP	TCP	Alert	ips_default	default
28/04/2018 18:13	Intrusion	Low	370091	Microsoft IIS WebDAV ScStoragePathFromUrl Buffer Ove	194.72.112.130	200.1	UnitedKingdom	200.1	Peru	HTTP	TCP	Alert	ips_default	default
28/04/2018 18:13	Intrusion	Low	403702	Oracle WebLogic Server WorkContextXmlInputAdapter In	194.72.112.130	200.1	UnitedKingdom	200.1	Peru	HTTP	TCP	Alert	ips_default	default

Vulnerabilidades:

cisa.gov/known-exploited-vulnerabilities-catalog

An official website of the United States government

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CVE	Vendor/Project	Product	Vulnerability Name	Date Added to Catalog	Short Description	Action	Due Date	Notes
			"BlueKeep"		A remote code execution			

Table 1: Top 15 Routinely Exploited Vulnerabilities in 2021

CVE
CVE-2021-44228
CVE-2021-40539
CVE-2021-34523
CVE-2021-34473
CVE-2021-31207
CVE-2021-27065
CVE-2021-26858
CVE-2021-26857
CVE-2021-26855
CVE-2021-26084
CVE-2021-21972
CVE-2020-1472
CVE-2020-0688
CVE-2019-11510
CVE-2018-13379

- CVE-2021-22893
- CVE-2020-8260
- CVE-2020-8243
- CVE-2019-11539
- CVE-2019-11510

Pulse SecureVPN

- CVE-2020-8196
- CVE-2020-8195
- CVE-2019-19781
- CVE-2019-11634

Citrix

- CVE-2021-34523
- CVE-2021-34473
- CVE-2021-31207
- CVE-2021-26855

Microsoft Exchange

- CVE-2020-12812
- CVE-2019-5591
- CVE-2018-13379

Fortinet

- CVE-2021-20016
- CVE-2020-5135
- CVE-2019-7481

SonicWall

- CVE-2021-22986
- CVE-2020-5902

F5

- CVE-2020-2021
- CVE-2019-1579

Palo Alto

- CVE-2021-28799
- CVE-2020-36198

QNAP

- CVE-2020-12271

Sophos

- CVE-2019-0604

SharePoint

- CVE-2019-0708
- CVE-2020-1472
- CVE-2021-31166
- CVE-2021-36942

Microsoft Windows

- CVE-2017-0199
- CVE-2017-11882
- CVE-2021-40444

Microsoft Office

- CVE-2021-21985

vCenter

- CVE-2021-27101
- CVE-2021-27104
- CVE-2021-27102
- CVE-2021-27103

Accellion

- CVE-2021-20655

FileZen

- CVE-2021-26084

Atlassian

- CVE-2021-40539

Zoho Corp.

- CVE-2021-38647

Microsoft Azure

CVE-2018-13379		Fortinet FortiOS and FortiProxy	Path traversal

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Fuente: https://www.cisa.gov/kno

Puertos y Vulnerabilidades, candidatos

- Perú 3.2 Millones de Hosts:

RDP:
- 5,369 hosts, port 3389/tcp open, Remote Desktop Protocol

SMB:
- 3,022 hosts, port 445/tcp open, Microsoft-ds Data

Base de datos:
- 3,386 hosts, port 3306/tcp open, MySQL
- 4,206 hosts, port 1433/tcp open, Microsoft SQL Server

LDAP:
- 2,051 hosts, port 389/tcp open, LDAP
- 2,255 hosts, port 88/tcp open, Kerberos.

VMware:
- 1,902 hosts, port 903/tcp open, Remote Access to VM Console (TCP)

Notas:
-Scanning realizados entre ell 19 y 26 de abril 2022
-Fuente:Lacnic https://ftp.lacnic.net/pub/stats/lacnic/delegated-lacnic-extended-lates
-Fuente:masscan **https://github.com/robertdavidgraham/masscan**

Vulnerabilidad RDP: CVE-2019-0708 (1)
- 5,369 hosts, port 3389/tcp open
- 247/243 hosts vulnerable
- 2,966/2914 hosts safe
- 606/874 hosts unkonwn

Vulnerabilidad CVE-2018-13379 (2):
-9,822 hosts, port 10443/tcp open, 26abr22
-8,308 hosts, port 10443/tcp open, 28nov20
- 115 hosts vulnerable, 27abr20

Notas:
(1) CVE-2019-0708, realizado el 26 de abril 2020,
(1) RDPscan, https://github.com/robertdavidgraham/rdpscan
(2) CVE-2018-13379.

Puertos y Vulnerabilidades, candidatos

- Colombia 17.3 Millones de Hosts:

RDP:
- 12,948/13,194 hosts, port 3389/tcp open, Remote Desktop Protocol

SMB:
- 5,957 hosts, port 445/tcp open, Microsoft-ds Data

Base de datos:
- 5,543 hosts, port 3306/tcp open, MySQL
- 3,882 hosts, port 1433/tcp open, Microsoft SQL Server

LDAP:
- 2147 hosts, port 389/tcp open, LDAP
- 3036 hosts, port 88/tcp open, Kerberos.

VMware:
- 1329 hosts, port 903/tcp open, Remote Access to VM Console (TCP)

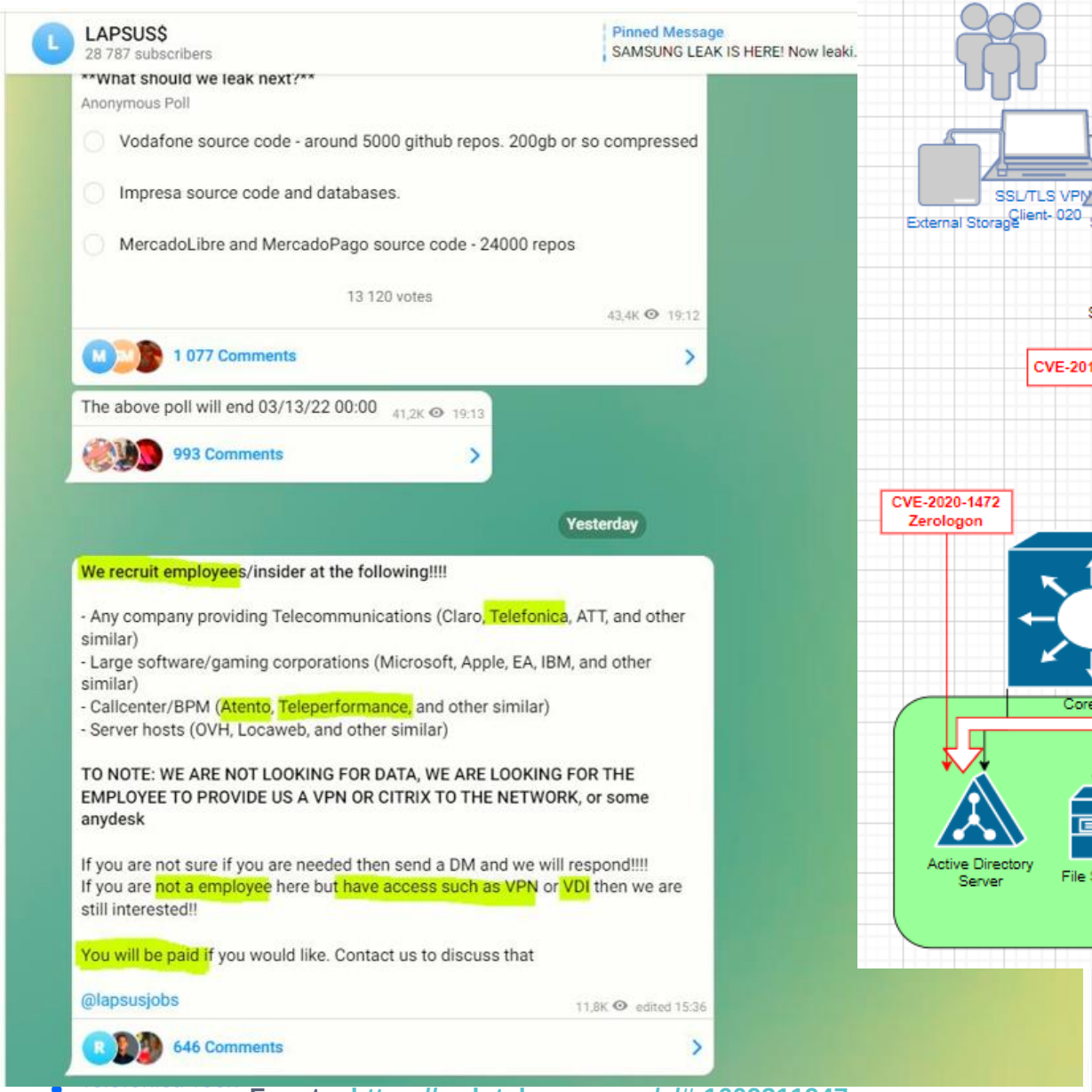
Notas:
-Scanning realizados entre ell 19 y 26 de abril 2022
-Fuente:Lacnic https://ftp.lacnic.net/pub/stats/lacnic/delegated-lacnic-extended-lates
-Fuente:masscan **https://github.com/robertdavidgraham/masscan**

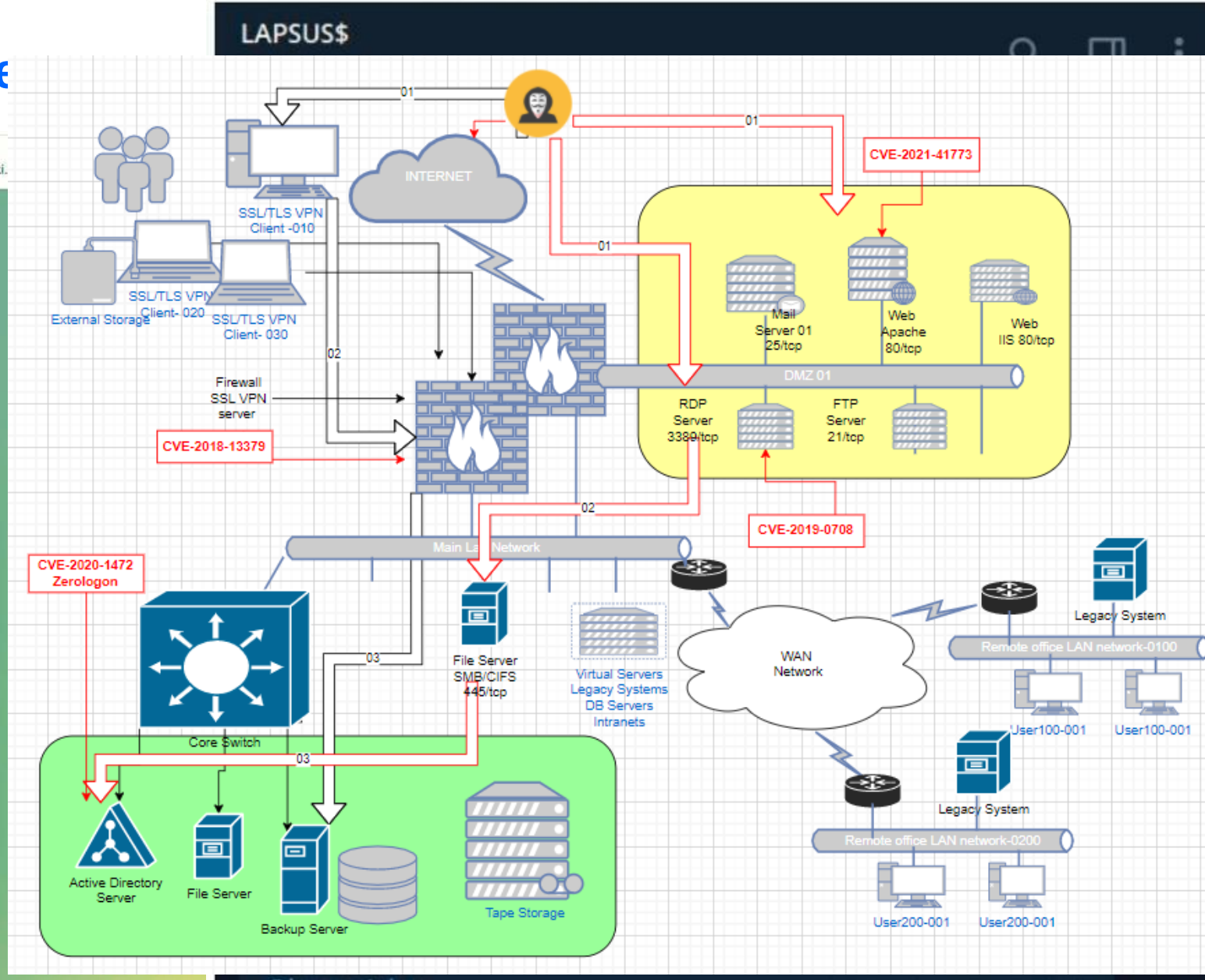
Vulnerabilidad RDP: CVE-2019-0708
- 13k hosts, port 3389/tcp open
- 697/616 hosts vulnerable
- 10k/9.2k hosts safe
- 2k/2.6k hosts unkonwn
- Fuente: rdpcan, manual 26abr22

Vulnerabilidad CVE-2018-13379:
-8,614 hosts, port 10443/tcp open,26abr22
-7,863 hosts, port 10443/tcp open,28nov20
- 120 hosts vulnerables

Notas:
(1) CVE-2019-0708, realizado el 26 de abril 2020,
(1) RDPscan, https://github.com/robertdavidgraham/rdpscan
(2) CVE-2018-13379.

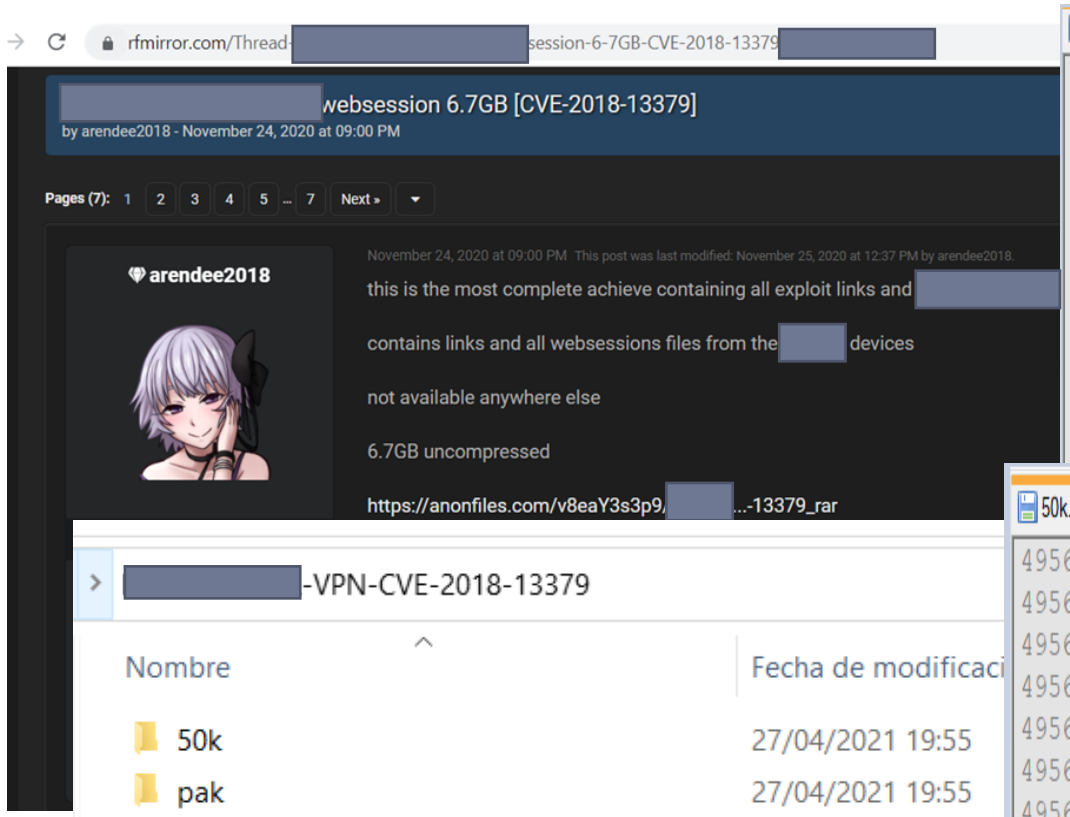
Robo o Compra de Credenciale

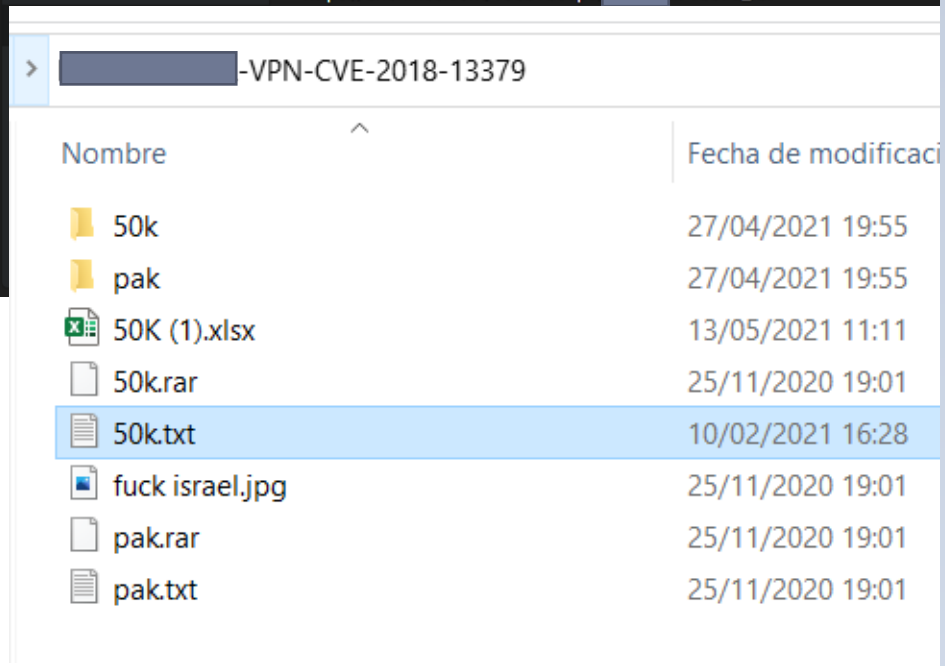


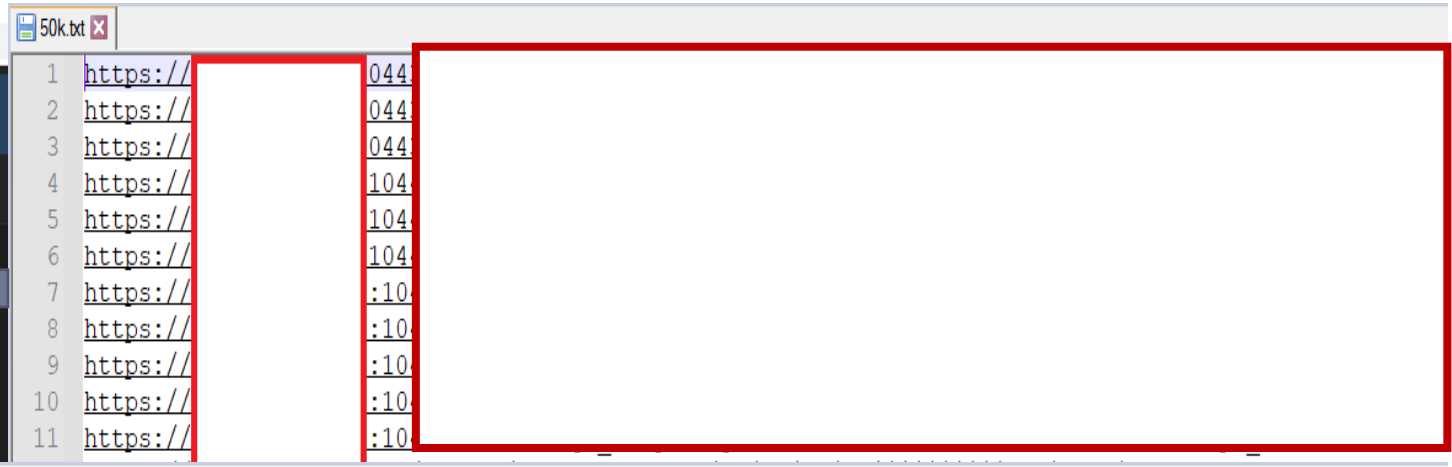


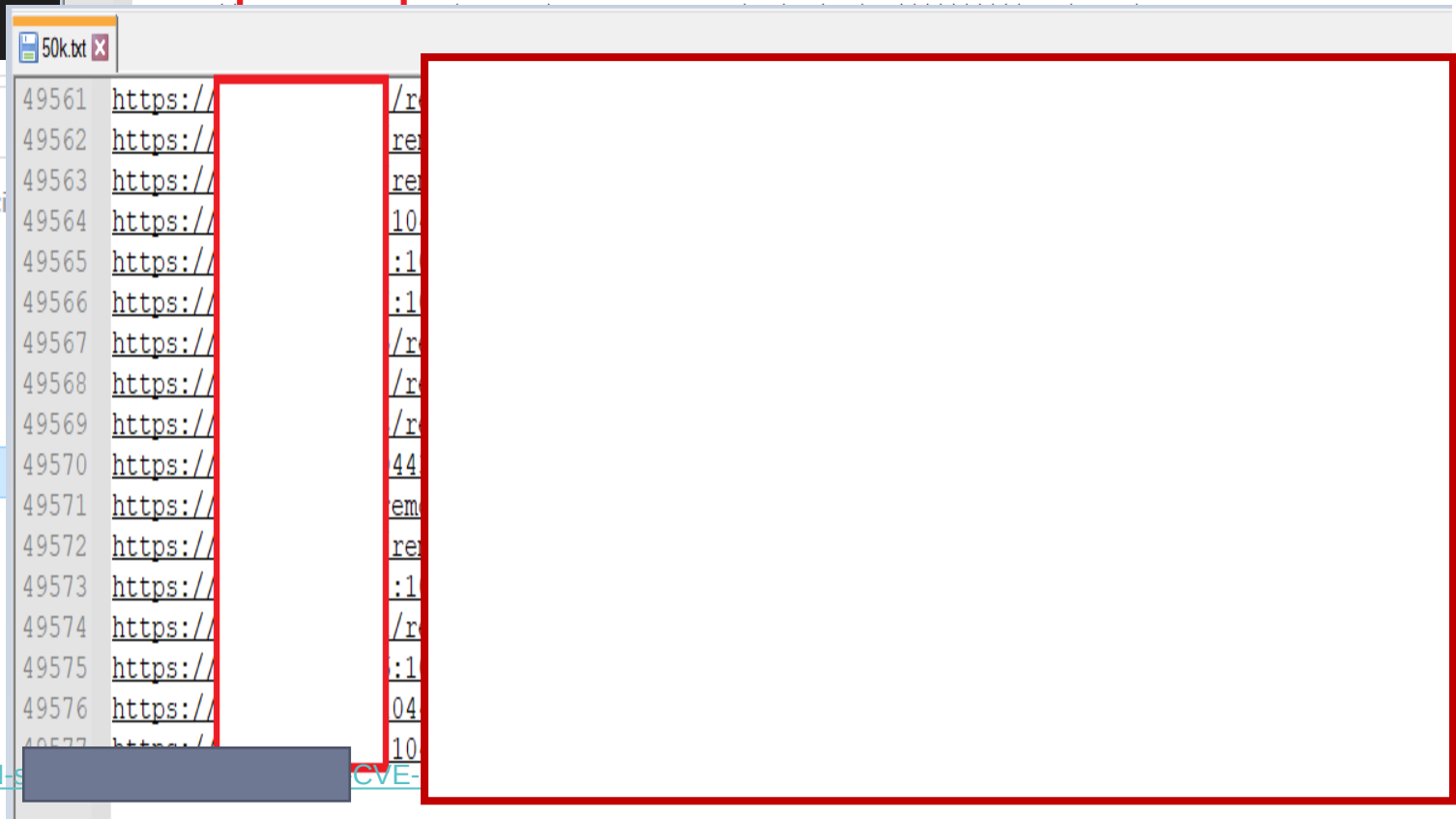
Fuente: https://web.telegram.org/z/#-1609311947

Vulnerabilidad CVE-2018-13379:









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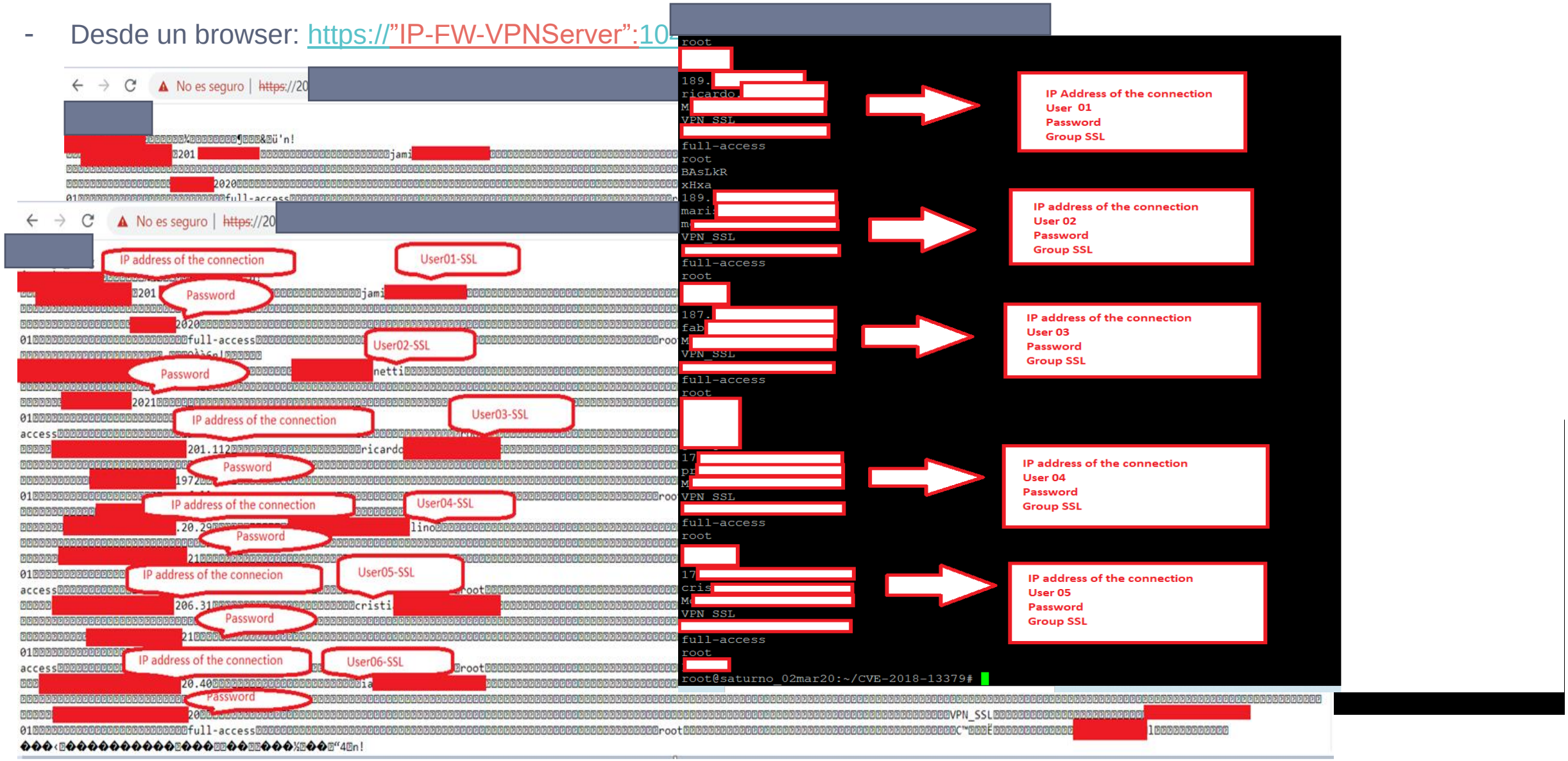
Fuente: https://rfmirror.com/ -VPN- CVE-

Vulnerabilidad CVE-2018-13379:

- Desde un browser: https://"IP-FW-VPNServer":10[redacted]



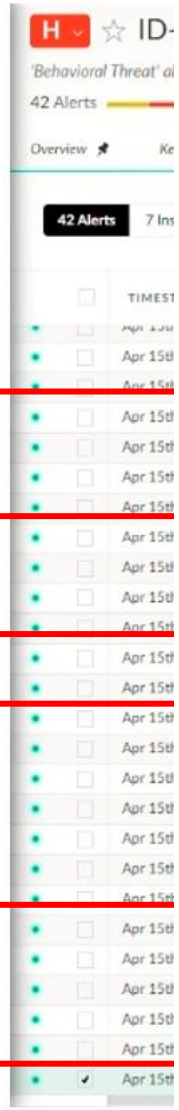
Fuente: https://rfmirror.com/[redacted]-6-7GB-CVE-2018-13379[redacted]

Vulnerabilidad CVE-2018-13379:

Fuente: Propia

Parte 3:
Detección y Respuesta:

Mimikatz:

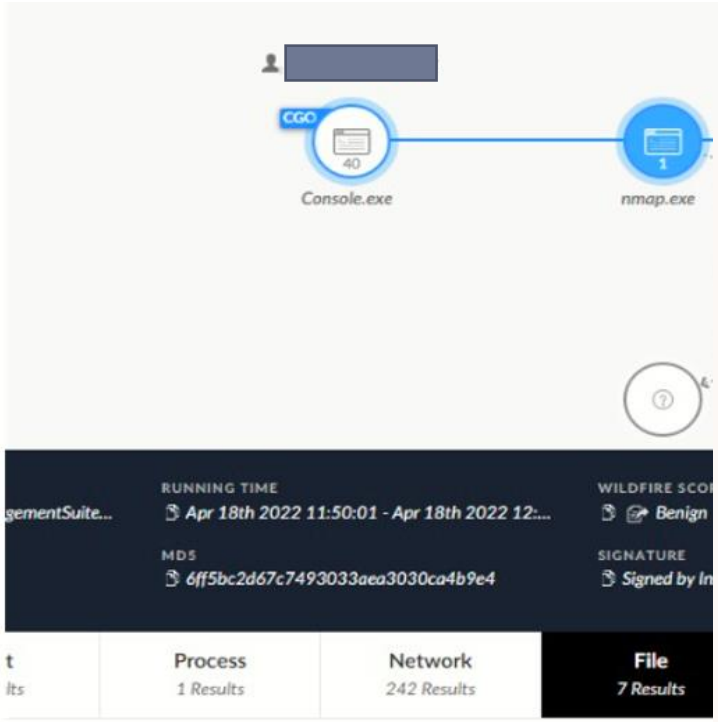


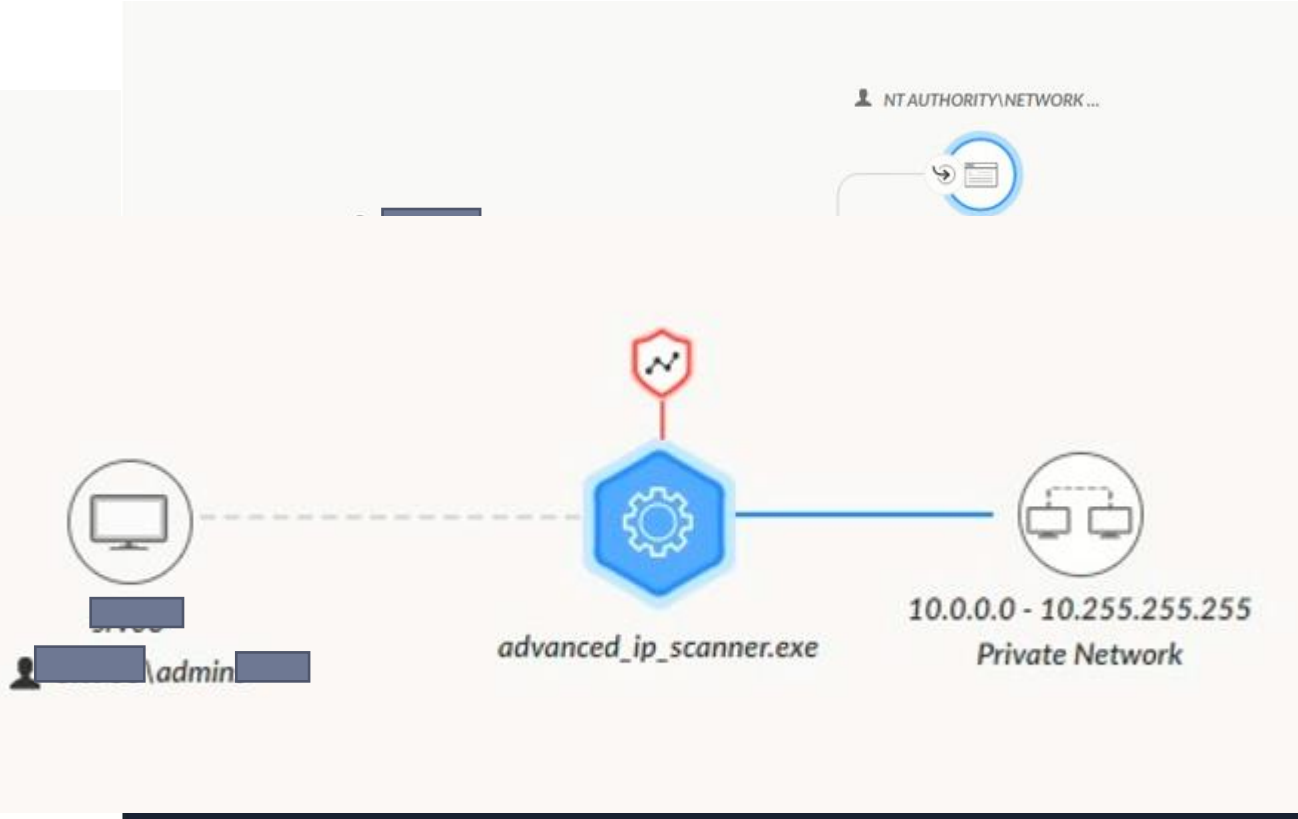
View children

Children Found 34 results

PROCESS START TIME	NAME	CMD	USERNAME
Apr 15th 2022	Taskmgr.exe	"C:\Windows\system32\taskmgr.exe" /4	\admi
Apr 15th 2022	fsquirt.exe	"C:\Windows\System32\fsquirt.exe" -Register	\admi
Apr 15th 2022	notepad.exe	"C:\Windows\system32\NOTEPAD.EXE" C:\Users\admins\Desktop\automim1\automim1\!logs\Passwords.txt	\admi
Apr 15th 2022	notepad.exe	"C:\Windows\system32\NOTEPAD.EXE" C:\Users\admins\Desktop\ArestorenNew\cepoass.txt	\admi
Apr 15th 2022	notepad.exe	"C:\Windows\system32\NOTEPAD.EXE" C:\Users\admins\Desktop\automim1\automim1\mimikatz\x64\mimikatz.log	\admi
Apr 15th 2022	runonce.exe	C:\Windows\SysWOW64\runonce.exe /Run6432	\admi
Apr 15th 2022	ie4uinit.exe	"C:\Windows\System32\ie4uinit.exe" -UserConfig	\admi
Apr 15th 2022	rundll32.exe	"C:\Windows\System32\rundll32.exe" "C:\Windows\System32\iesetup.dll",IEHardenAdmin	\admi
Apr 15th 2022	rundll32.exe	"C:\Windows\System32\rundll32.exe" "C:\Windows\System32\iesetup.dll",IEHardenUser	\admi
Apr 15th 2022	unregmp2.exe	"C:\Windows\System32\unregmp2.exe" /FirstLogon	\admi
Apr 15th 2022	unregmp2.exe	"C:\Windows\System32\unregmp2.exe" /FirstLogon	\admi

nmap, zenmap, ip_scanner:



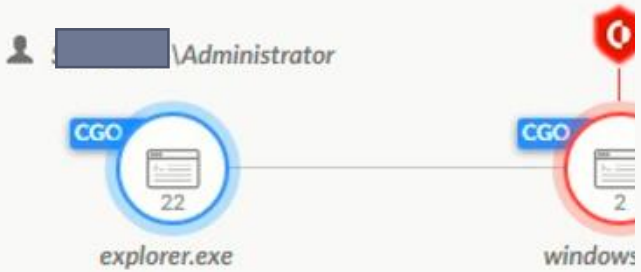


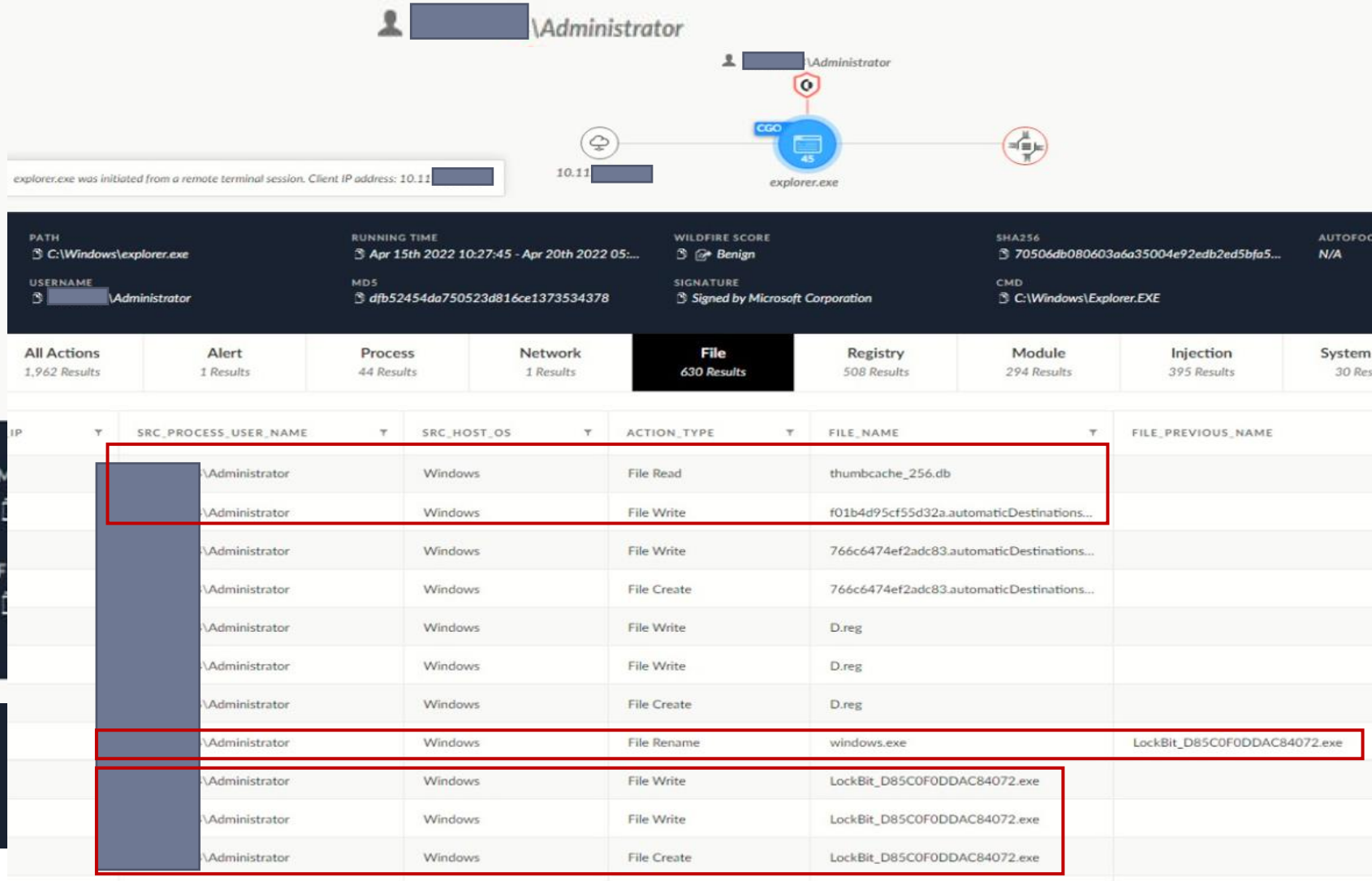
ACTI...	FILE_NAME	FILE_PREVIOUS_NAME	FILE_P
File Write	4xvlzsbd.xml		C:\Use
File Read	nmap-payloads		D:\Pro
File Read	hosts		C:\Wi
File Read	script.db		D:\Pro
File Read	nmap-services		D:\Pro

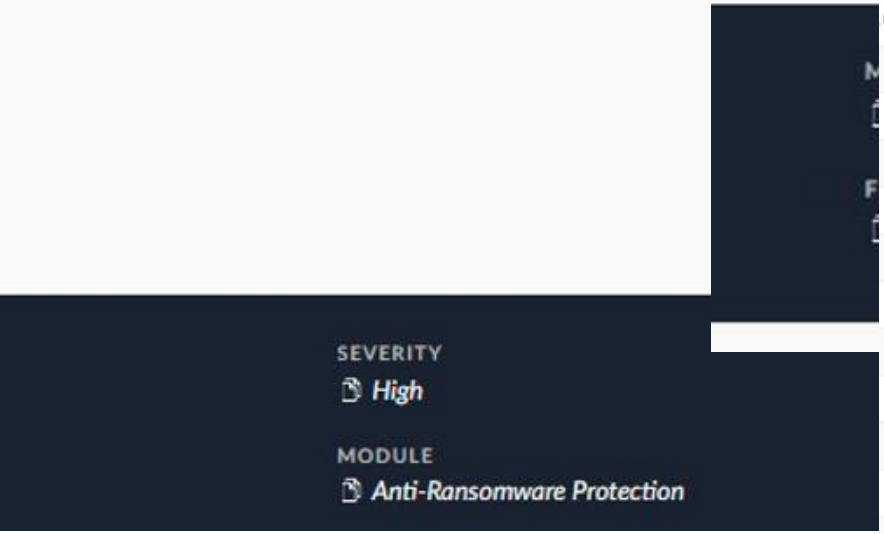
Network 1,089 Results | File 12 Results | Module 51 Results | System Calls 12 Results | Network Connections 1,089 Results

RC_HOST_IP	SRC_PROCESS_USER_NAME	SRC_HOST_OS	ACTION_TYPE	SRC_IP	SRC_PORT
		Windows	Network Outgoing	172.	5126
		Windows	Network Outgoing	172.	5124
		Windows	Network Outgoing	172.	5123
		Windows	Network Outgoing	172.	5122

LockBit:







Fuente: https://www.virustotal.com/gui/file/630e24cc1c4c95321965ad967e77e1888c48c4b1f653d800c7df08e879814787

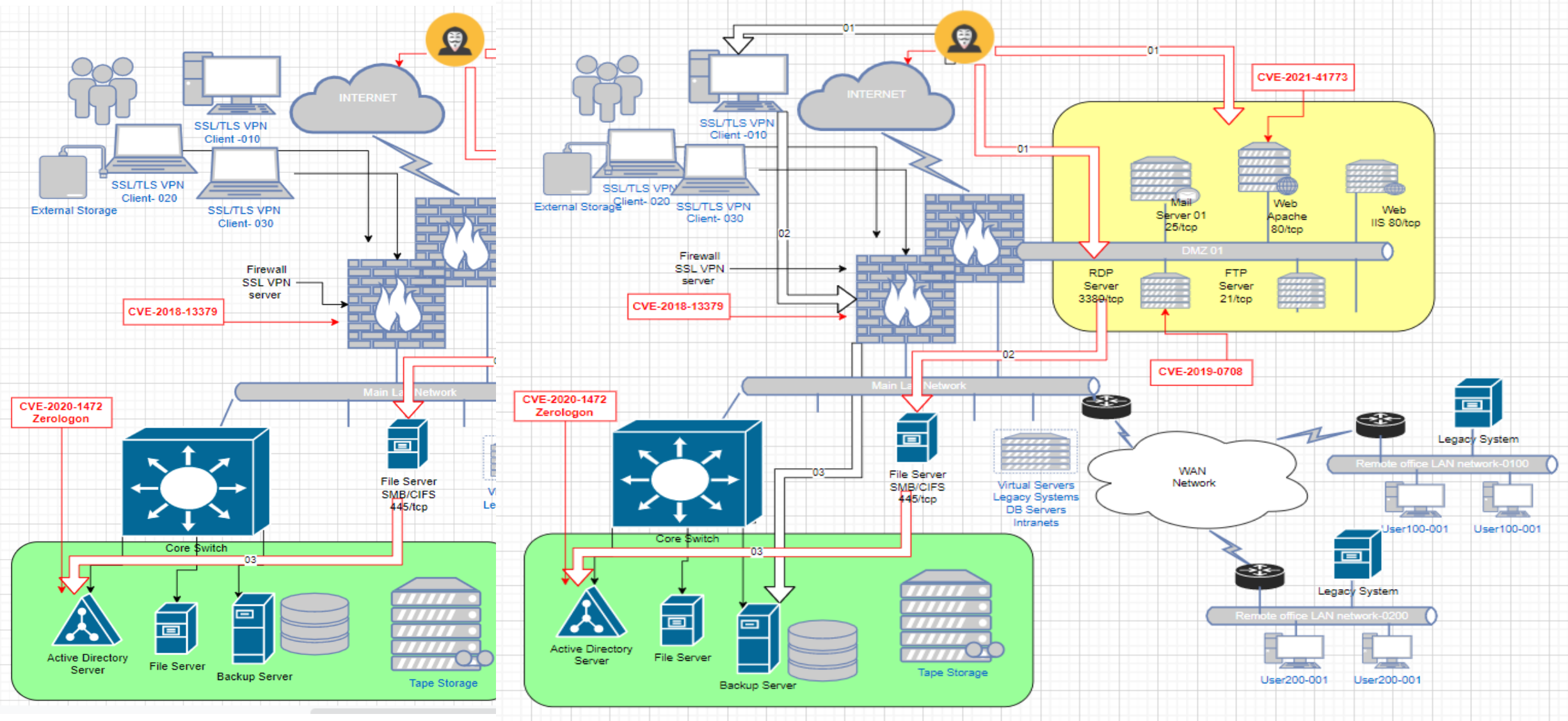
Parte 4: Recomendaciones

Buenas Prácticas, Brief:

- Actualización y parchado sistemas pperativos frecuentemente.
- Backup y Restore on premise, offsite and offline
- Implementar un proceso de Gestión de vulnerabilidades, Incidentes y Hardening.
- Hardening de S.O.: Desactivar PowerShell, quitar programas innecesarios, desactivar usuarios “admin”, Revisa GPOs and shared folders.
- Activar MFA.
- Realizar pruebas de hacking periódicas.
- Revisar las políticas de publicación en los firewalls, eventos, logs, alertas.
- Instalar agentes de seguridad en los servidores tipo EDR/XDR.
- Monitorear conexiones outbound
- Concientizar a los usuarios de la organización en correos falsos, archivos adjuntos.

Fuente: https://www.cisa.gov/stopransomware/ransomware-guide

Contramedidas rápidas: Scanning Vulnerabilidades

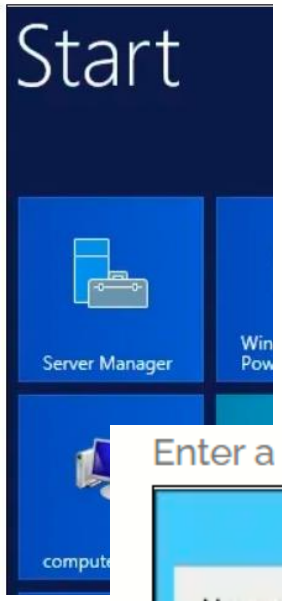


Fuente: Nmap, Nmap/NSE-Scrips, Masscan, Nessus/Tenable.

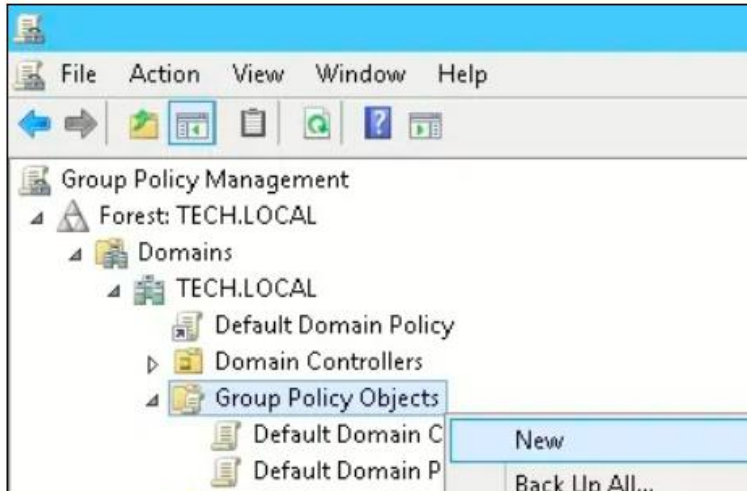
Contramedidas rápidas: Deshabilitar Powershell

Tutorial GPO - Pre

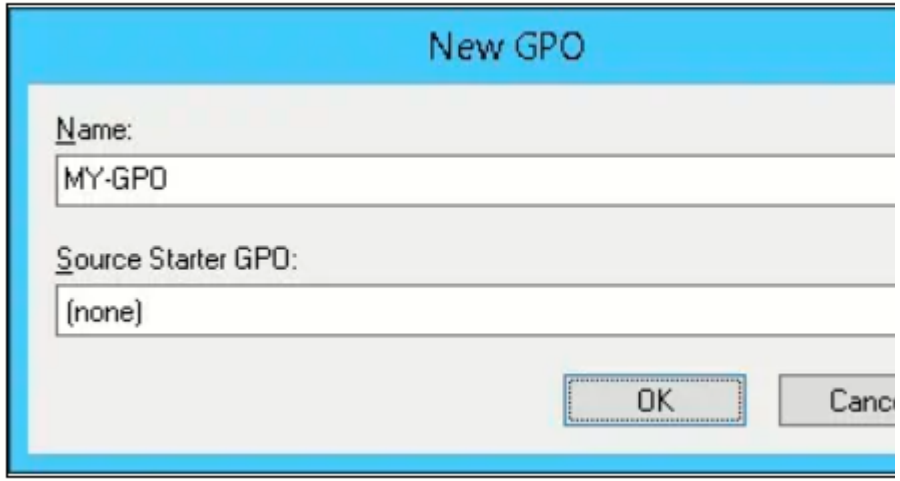
On the domain controlle



Create a new group policy.

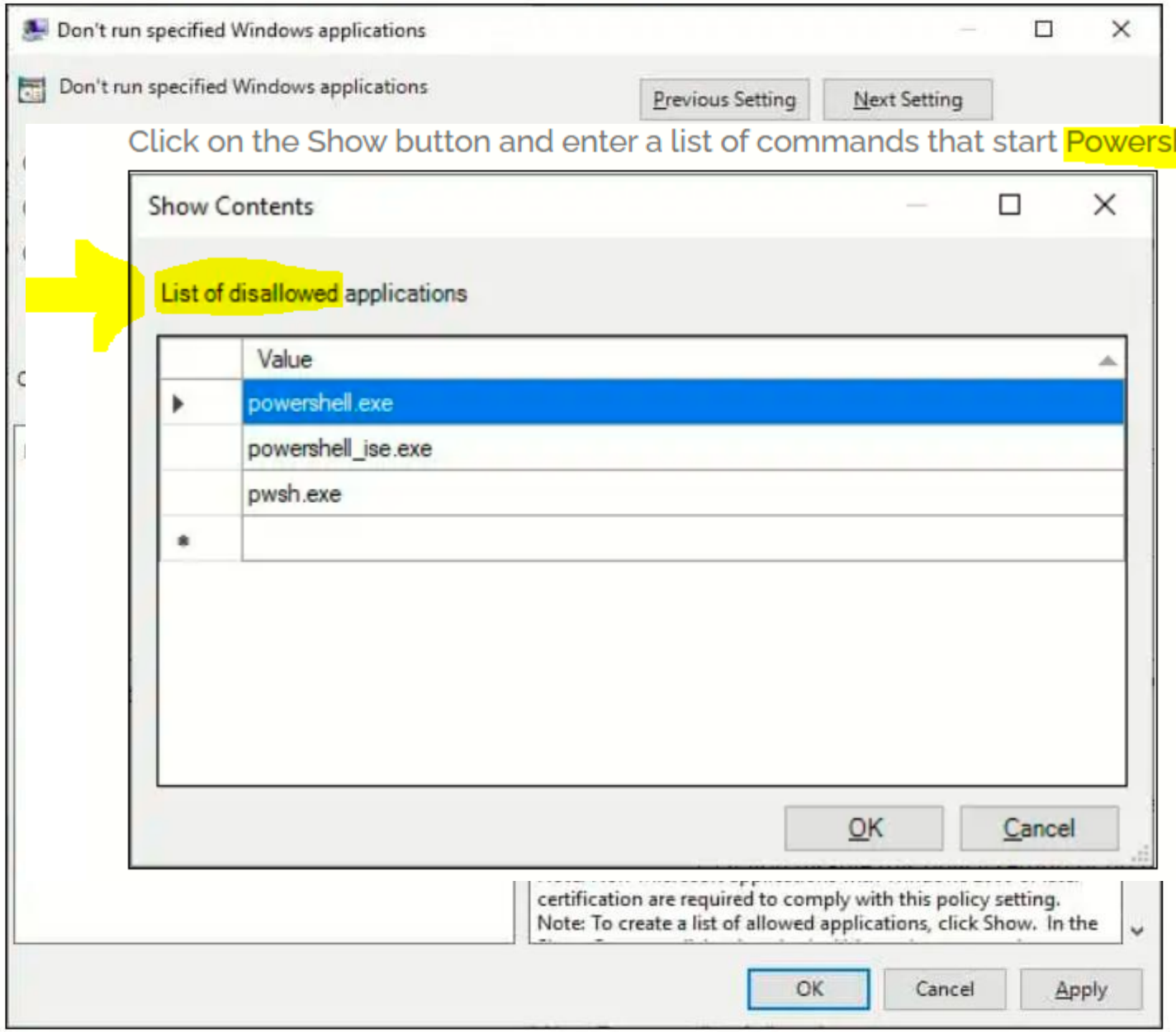


Enter a name for the new group policy.



In our example, the new GPO was named: MY-GPO.

Enable the item named Don't run specified Windows applications.



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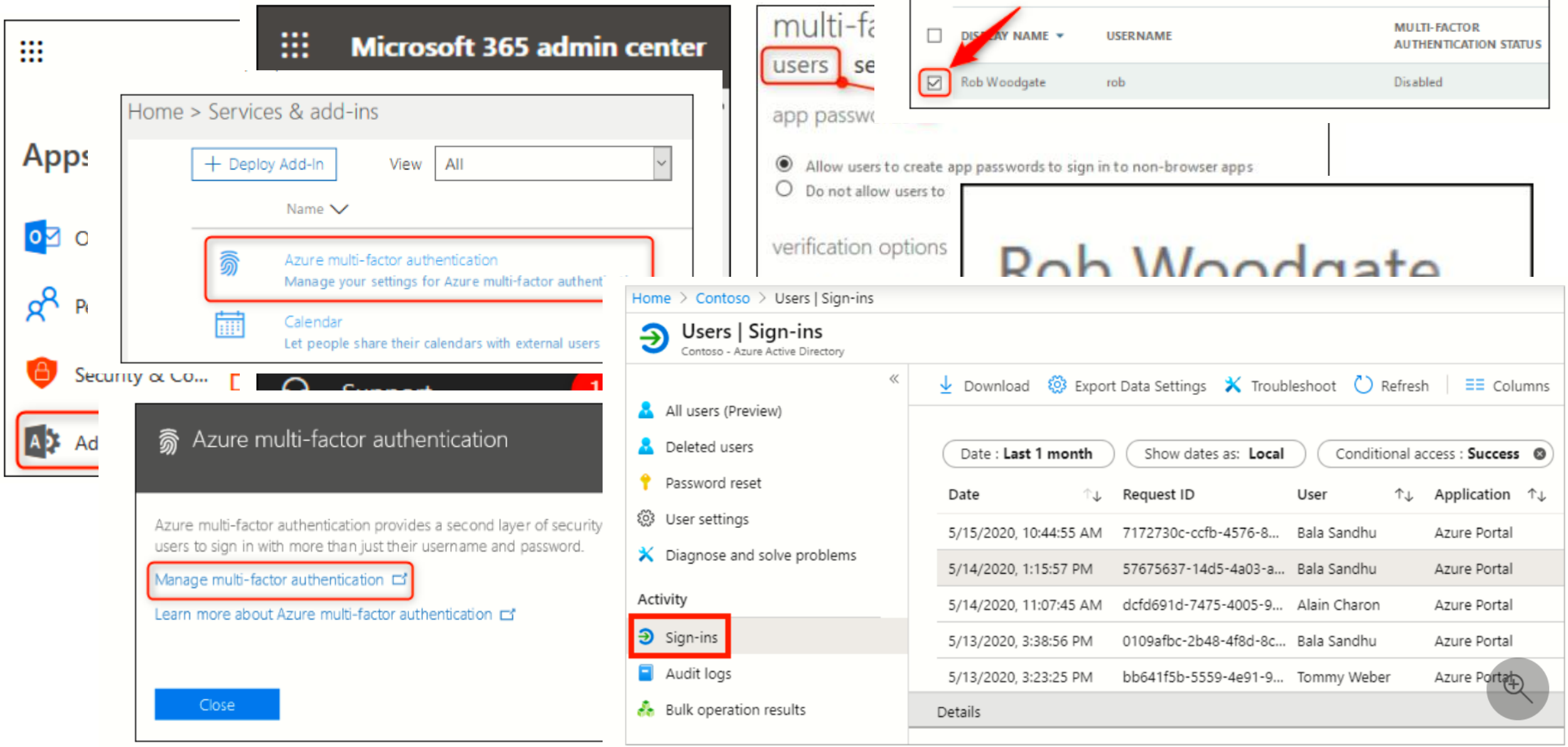
Fuente: https://techexpert.tips/powershell/gpo-prevent-a

Contramedidas rápidas: MFA



Fuente: https://www.thefastcode.com/article/how-to-enforce-multi-factor-authentication-for-all-users-of-your-office-365-subscription
Fuente: https://docs.microsoft.com/es-es/azure/active-directory/authentication/howto-mfa-reporting

Métodos de Recuperación: (No recomendable!!)

- Backup!! offline y Restore validado -> “Es tu Deber”

- Archivos que no han sido cifrados por tamaño, falta de tiempo del atacante, etc -> “Busca, copia y pega”

- Archivos que se podrían reconstruir -> “Evaluar c/archivo estructura y contenido” con herramientas de análisis forense.

- Buscar publicación del Decryptor “nomoreransomware.org”, “fabricantes” -> “Esperar 2 a 6 meses”

Fuente: https://www.nomoreransom.org/es/index.html

Recomendaciones Finales:

1. Establecer una **estrategia de seguridad en profundidad "Defense in Depth"** generando grupos técnicos, personal calificado, herramientas y procedimientos de acuerdo a los últimos ciberataques.

2. Considerar la **importancia** del **perfil del profesional de ciberseguridad** en el asesoramiento independiente y el conocimiento de "hacking".

3. Para prevenir y responder es necesario la **cooperación técnica e intercambio de experiencias** entre el sector público y privado con centros especialistas locales e internacionales.

4. **No depender** 100% de los fabricantes de seguridad.

5. Crear **entidades nacionales e internacionales** con el objetivo de proteger y defender frente a filtraciones de datos personales.

6. Desde el comité de **LACNIC**, Seguir difundiendo la importancia de la Ciberseguridad en nuestros países a través de Capacitación, Labs e intercambio de experiencias.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