

遊走紅隊與藍隊： Purple Man 我的超人

Walking around between Red Team and Blue Team –
Purple Man, My Superman

Cymetrics Zet



我是誰?

Zet

Security Researcher / Engineer
Cyber Security 10+ years

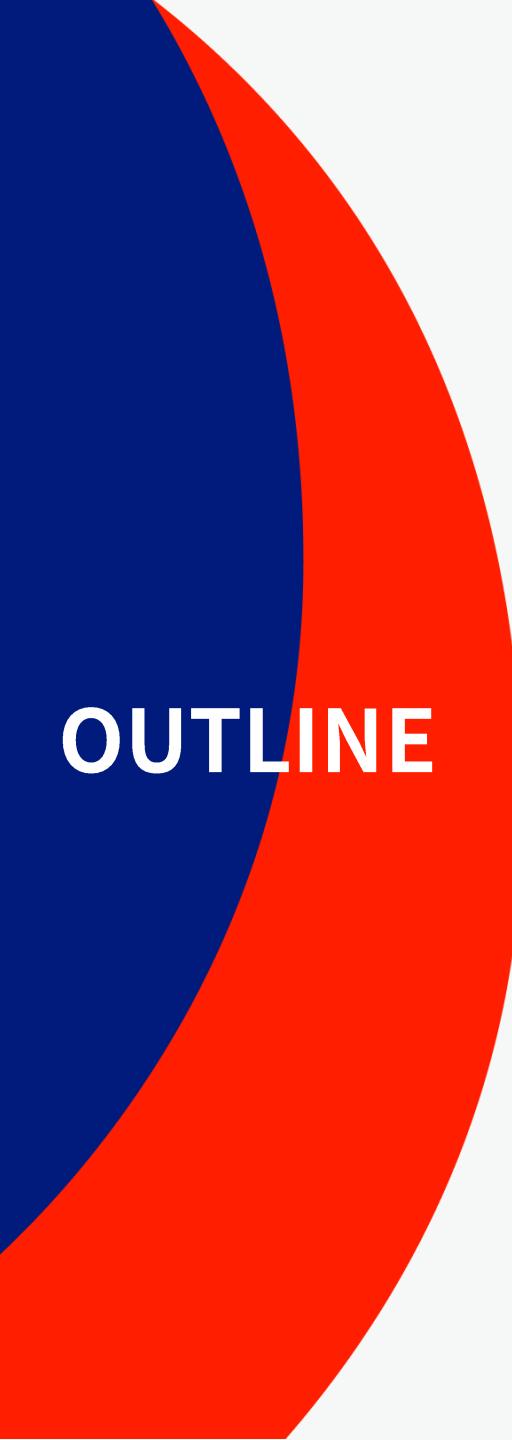
Interested:

- Defense Evasion
- Endpoint Threat Detection
- Malware Techniques
- IoT Vulnerability

 tech-blog.cymetrics.io

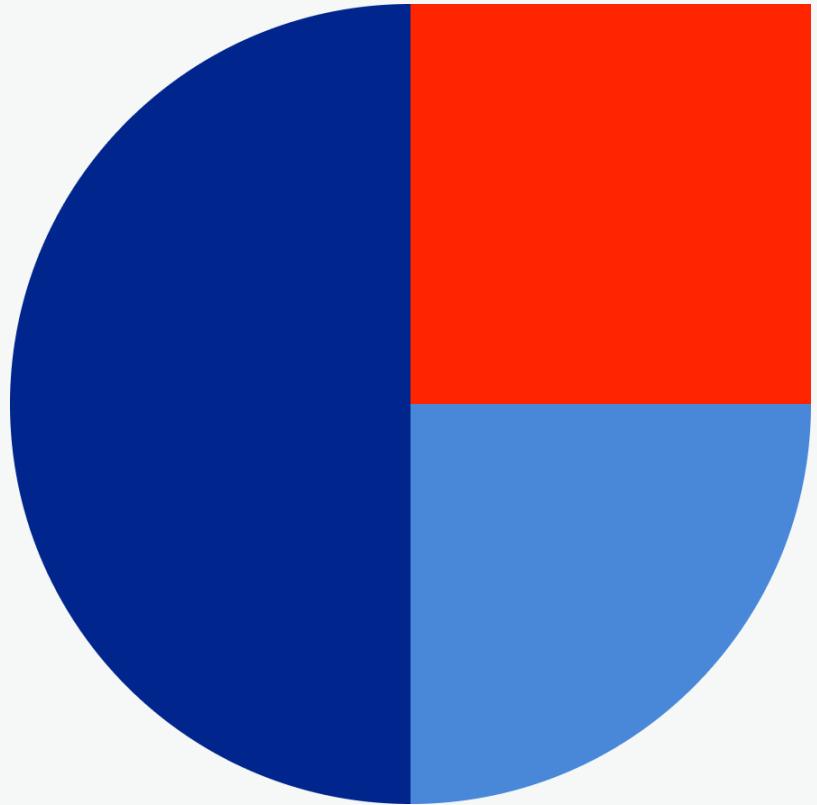
 linktr.ee/zet235





OUTLINE

1. 紅藍隊實驗環境
2. 工具整合
3. 紅藍隊技術
4. 學習方法與資源



藍隊

可以在任何一個環節發現並**阻斷攻擊**

紅隊

用新穎的攻擊技術突破，組成 **Kill Chain**

01

架設紅藍隊實驗環境



自動化架設實驗環境



AutomatedLab

> On Hyper-V or Azure

.NET 4.7.1 (Windows PowerShell)

.NET Core 2+ (PowerShell 6+)

Supported products

This solution supports setting up virtual machines with the following.

1. Windows 7, 2008 R2, 8 / 8.1 and 2012 / 2012 R2, 10 / 2016, 2019, 2022
2. SQL Server 2008, 2008R2, 2012, 2014, 2016, 2017, 2019 [more](#)
3. Visual Studio 2012, 2013, 2015, 2017 [more](#)
4. Team Foundation Services 2015+
5. Azure DevOps [more](#)
6. Exchange 2013, 2016, 2019
7. SharePoint 2013, 2016, 2019
8. System Center Orchestrator 2012
9. System Center Configuration Manager 1809 or 1902+
10. System Center Operations Manager
11. System Center Virtual Machine Manager
12. Microsoft Deployment Toolkit (MDT) [more](#)
13. ProGet (Private PowerShell Gallery)
14. Office 2013, 2016
15. DSC Pull Server (with SQL Reporting) [more](#)
16. Hyper-V [more](#)
17. Failover Clustering [more](#)
18. Dynamics 365 [more](#)

```
New-LabDefinition -Name LabEx2013 -DefaultVirtualizationEngine HyperV  
  
$PSDefaultParameterValues = @{  
    'Add-LabMachineDefinition:DomainName'      = 'contoso.com'  
    'Add-LabMachineDefinition:OperatingSystem' = 'Windows Server 2012 R2 Datacenter  
(Server with a GUI)'  
}  
  
}
```

- **Add-LabMachineDefinition -Name Ex2013DC1 -Roles RootDC -Memory 1GB**

```
$role = Get-LabPostInstallationActivity -CustomRole Exchange2013 -Properties @{  
OrganizationName = 'Test1' }
```

- **Add-LabMachineDefinition -Name Ex2013EX1 -Memory 4GB -PostInstallationActivity \$role**

- **Add-LabMachineDefinition -Name Ex2013Client1 -OperatingSystem 'Windows 10 Pro' -Memory 1GB**

```
Install-Lab  
Show-LabDeploymentSummary -Detailed
```



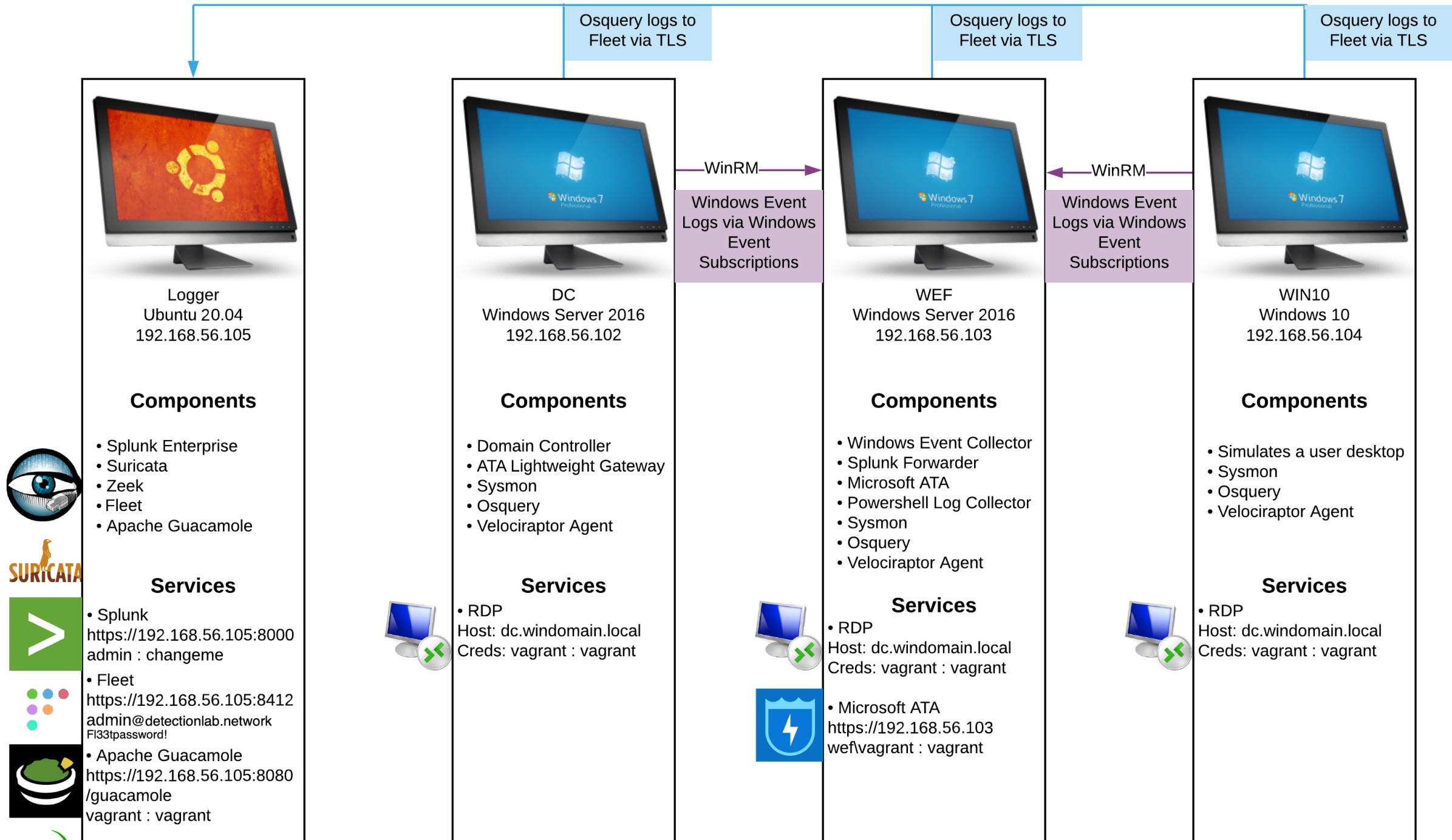


DETECTIONLAB

Github: clong/DetectionLab

> VirtualBox, VMware Workstation, Hyper-V, AWS, Azure

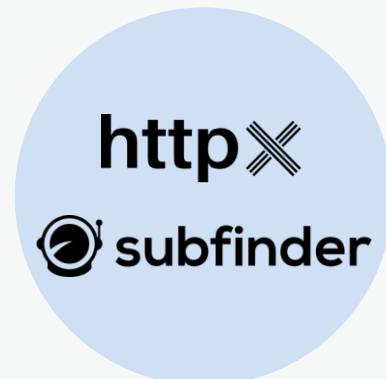
- Microsoft Advanced Threat Analytics
- Splunk
- Osquery + Fleet
- Sysmon
- Zeek



02

工具整合

自動化掃描整合 CI/CD



Host / URL Emulation



Scan



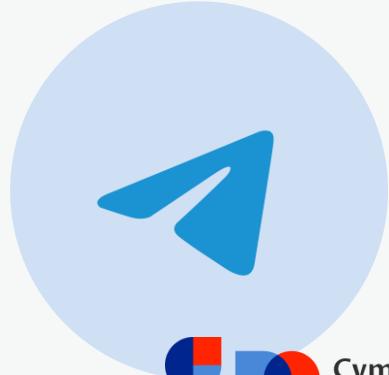
Tools Setup



Spider / Crawl and Analyze



Notify



自動化掃描整合 CI/CD

Builds > #30 >

LOG VIEW

GRAPH VIEW

← drone

✓ adjust path env



zet pushed

-o 57f727f4

to

main

PIPELINE STAGES

1 stage

✓ scan

04:44

STEPS

✓ clone

00:03

✓ install

00:03

✓ Ffuf

00:43

✓ Nuclei

03:53

CONSOLE LOGS

```
1 + export PATH=$PATH:/usr/local/go/bin:/root/go/bin
2 + wget -q https://raw.githubusercontent.com/maurosoria/dirsearch/master/db/dicc.txt
3 + wget -q https://raw.githubusercontent.com/ayoubfathi/leaky-paths/main/leaky-paths.txt
4 + cat dicc.txt leaky-paths.txt > path.txt
5 + ffuf -s -w ./path.txt -u $URL/FUZZ
6 FUZZ : .idea FFUHASH : 1fe86268
7 FUZZ : .idea/ FFUHASH : 1fe8626a
8 FFUHASH : 1fe8626b FUZZ : .idea/.name
9 FUZZ : .idea/encodings.xml FFUHASH : 1fe86277
10 FUZZ : .idea/misc.xml FFUHASH : 1fe8627d
11 FUZZ : .idea/modules.xml FFUHASH : 1fe8627f
12 FUZZ : .idea/scopes/scope_settings.xml FFUHASH : 1fe86283
13 FUZZ : .idea/vcs.xml FFUHASH : 1fe86288
14 FUZZ : .idea/workspace.xml FFUHASH : 1fe86291
15 FUZZ : _mmServerScripts/ FFUHASH : 1fe86718
16 FUZZ : _mmServerScripts/_mmServerScripts/ FFUHASH : 1fe86718
```

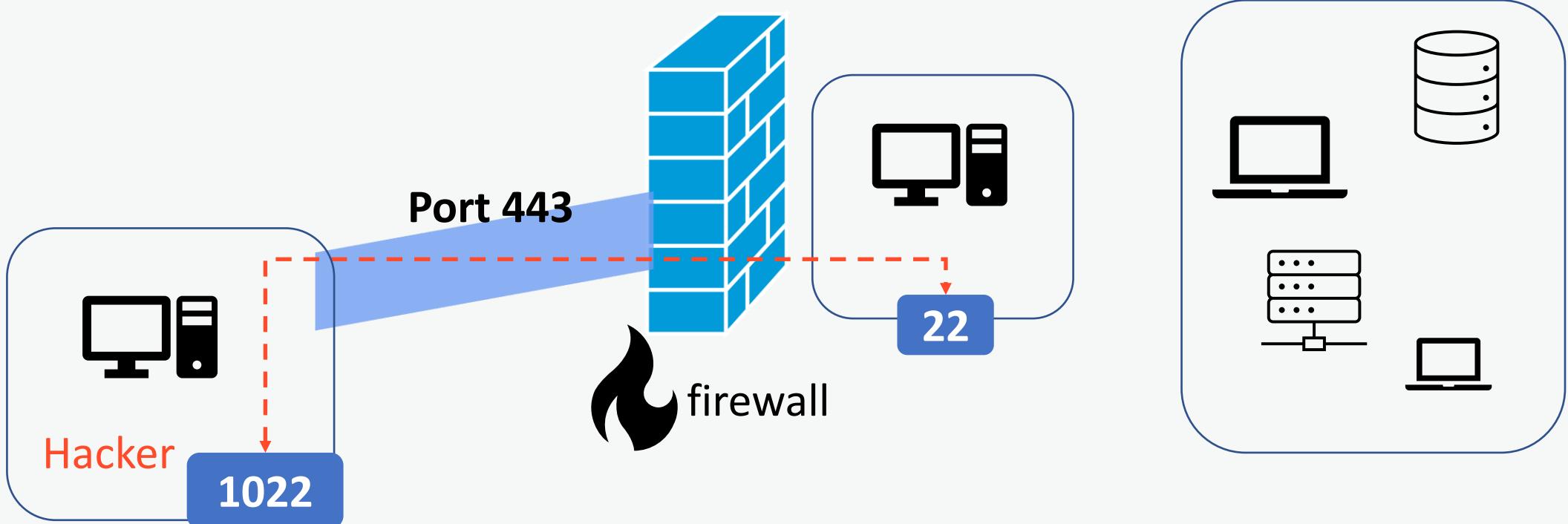
03

紅藍隊技術與防禦



Tunneling

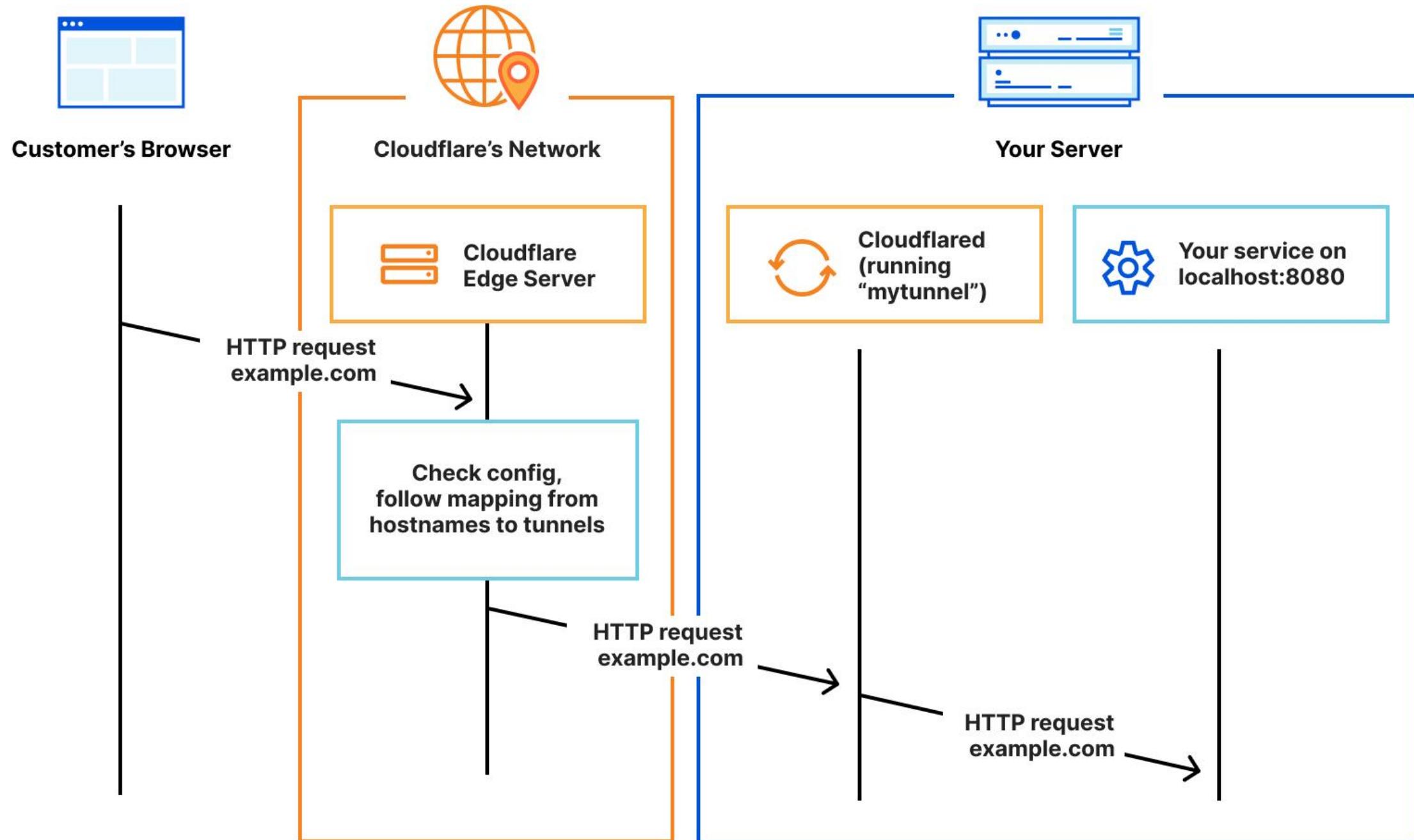
Tunneling





Tunnel and VPN

- Ngrok
- Cloudflared
- SoftEther
- Tailscale
- Headscale



[← Back to tunnels](#)[Overview](#)[Public Hostname](#)[Private Network](#)

Private Network

[+ Add a private network](#)

CIDR



My Team



Logs



[← Back to Profile](#)

Manage Split Tunnels (exclude)

Configure Cloudflare Zero Trust to exclude or include traffic to a given set of IP addresses or domains. Any traffic directed to an excluded destination will be handled by the local machine. Use wildcards to match against multiple subdomains at the same time.

[Learn more](#)**Selector** (Required)**Value****Description (optional)****Save destination**

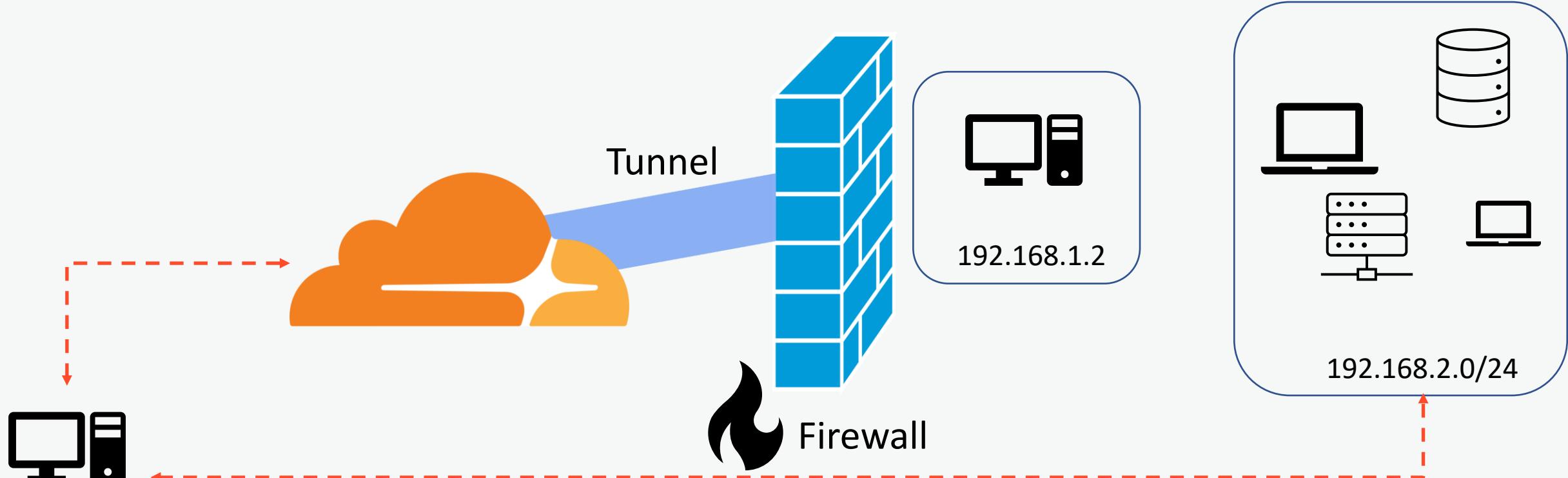
Your Split Tunnel entries (exclude) Showing 1-16 of 16

View and manage the IPs and domains Cloudflare Zero Trust excludes.

<input type="checkbox"/>	Type ↑	Value
<input type="checkbox"/>	address	10.0.0.0/8
<input type="checkbox"/>	address	100.64.0.0/10
<input type="checkbox"/>	address	169.254.0.0/16
<input type="checkbox"/>	address	172.16.0.0/12
<input type="checkbox"/>	address	192.0.0.0/24
<input type="checkbox"/>	address	192.168.0.0/16
<input type="checkbox"/>	address	224.0.0.0/24
<input type="checkbox"/>	address	240.0.0.0/4
<input type="checkbox"/>	address	255.255.255.255/32
<input type="checkbox"/>	address	fe80::/10
<input type="checkbox"/>	address	fd00::/8



Cloudflare Tunnel



Hacker with WARP client



```
rule M_Hunting_Linux_VPNEngine_GenericSoftEther_1
{
    meta:
        author = "Mandiant"
        description = "Rule looks for SoftEther generic
terms in samples."
    strings:
        $domain = "update-check.softether-network.net"
    ascii fullword
        $keepalive = "keepalive.softether.org"
        $vpn = "SoftEther Corporation" ascii fullword
    condition:
        filesize < 10MB and uint32(0) == 0x464c457f and
all of them
}
```

<https://www.mandiant.com/resources/blog/burrowing-your-way-into-vpns>





```
detection:  
    selectionDomain:  
        urlMonitorEvent Hostname|contains:  
            - 'get-my-ip.ddns.softether-network.net'  
    filterProcessName:  
        urlMonitorEvent Process|contains:  
            - 'softether'  
condition: selectionDomain and not filterProcessName  
fields:  
    - "urlMonitorEvent Process"  
    - "urlMonitorEvent Hostname"  
    - "urlMonitorEvent Type"  
    - "urlMonitorEvent Commandline"  
level: "medium"
```



TA0109

Lateral Movement



Lateral Movement

- **Impacket : Implement your own tools**

- PsExec
- SMBExec
- Atexec

- **CrackMapExec : support Credentials, Kerberos, module, BloodHound**

- Enumerate
- Password spraying
- Command execution
- SMB, LDAP, WINRM, MSSQL, SSH ...

```
class RemoteShell(cmd.Cmd):

    def __init__(self, share, rpc, mode, serviceName, shell_type):
        cmd.Cmd.__init__(self)
        self.__share = share
        self.__mode = mode
        self.__output = '\\\\%COMPUTERNAME\\\\' + self.__share + '\\\\' +
OUTPUT_FILENAME
        self.__outputBuffer = b''
        self.__command = ''
        self.__shell = '%COMSPEC% /Q /c '
        self.__shell_type = shell_type
        self.__pwsh =
            'powershell.exe -NoP -NoL -sta -NonI -W Hidden -Exec Bypass -Enc '
        self.__serviceName = serviceName
        self.__rpc = rpc
        self.intro = '[!] Launching semi-interactive shell - Careful what you
execute'
```

```
def execute_remote(self, data, shell_type='cmd'):

    if shell_type == 'powershell':
        data = '$ProgressPreference="SilentlyContinue";' + data
        data = self.__pwsh + b64encode(data.encode('utf-16le')).decode()

        batchFile = '%SYSTEMROOT%\\' + \
            ''.join([random.choice(string.ascii_letters) for _ in range(8)]) + \
'.bat'

        command = self.__shell + 'echo ' + data + ' ^> ' + \
            self.__output + ' 2>&1 > ' + batchFile + ' & ' + \
            self.__shell + batchFile
```

横向移動攻擊的偵測與防禦

- 建置告警系統
- 設置陷阱
 - 資料夾 (HoneyShare)
 - 帳號 (HoneyUser)
- 網路流量分析 Network Traffic Analysis

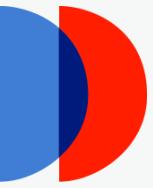


TA0101

Command-and-Control (C&C)

只要時間足夠

任何防護軟體都可以被繞過



防護軟體

- **Pattern-based**

- Web WAF
- Antivirus

- **Behavior-based**

- EDR

- **Indicators of Compromise (IOCs)**



Command-and-Control (C&C) Techniques

- Kill Process(Logger, EDR)
- Unhook
- Syscall
 - HellsGate / indirect syscalls
- PowerShell
 - Cobalt Strike powerpick
- Disable AMSI, ETW, Event Log

擁有多樣化的 Loader, Packer

大幅減少繞過防護軟體的時間

甚至有 SaaS 服務

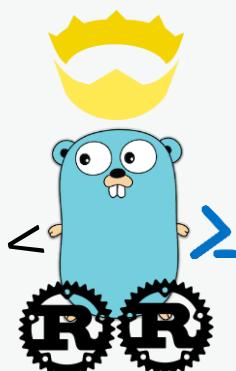
options:

-h, --help	show this help message
-p explorer.exe, --process explorer.exe	Process to inject into
-m QueueUserAPC, --method QueueUserAPC	Method for shellcode injection via RemoteThreadContext, QueueUserAPC
-u, --unhook	Unhook NTDLL in current process
-w, --word-encode	Save shellcode in standard word format
-nr, --no-randomize	Disable syscall name randomization
-ns, --no-sandbox	Disable sandbox checks
-l, --llvm-obfuscator	Use Obfuscator-LLVM
-v, --verbose	Enable debugging messages
-sc GetSyscallStub, --syscall GetSyscallStub	Syscall execution method
-d, --dll	Generate a DLL instead of EXE
-dp apphelp.dll, --dll-proxy apphelp.dll	Create Proxy DLL using apphelp.dll
-s domain, --sandbox domain	Sandbox evasion technique
-sa testlab.local, --sandbox-arg testlab.local	Argument for sandbox domain
-o a.exe, --outfile a.exe	Name of compiled file



利用各種語言實現

Offensive



C#
Nim
PowerShell
Python
Go
Rust
V

shellcode_bin.nim	Creates a suspended process and injects shellcode with VirtualAllocEx/CreateRemoteThread. Also demonstrates the usage of compile time definitions to detect arch, os etc..
minidump_bin.nim	Creates a memory dump of lsass using MiniDumpWriteDump
keylogger_bin.nim	Keylogger using SetWindowsHookEx
uuid_exec_bin.nim	Plants shellcode from UUID array into heap space and uses EnumSystemLocalesA Callback in order to execute the shellcode.



Embedded

- Interpreter
- Lua
- .NET Assemblies

```
package main

import (
    "github.com/traefik/yaegi/interp"
    "github.com/traefik/yaegi/stdlib"
)

func main() {
    i := interp.New(interp.Options{})
    i.Use(stdlib.Symbols)

    _, err := i.Eval(`import "fmt"`)
    if err != nil {
        panic(err)
    }

    _, err = i.Eval(`fmt.Println("Hello Yaegi")`)
    if err != nil {
        panic(err)
    }
}
```

Threat Hunting

- YARA
- Sigma
- Elasticsearch Event Query Language
- Timeline Explorer
- Open Source / Free Scanner

elastic/detection-rules

```
risk_score = 47
rule_id = "6aace640-e631-4870-ba8e-5fdda09325db"
severity = "medium"
tags = ["Elastic", "Host", "Windows", "Threat Detection"]
timestamp_override = "event.ingested"
type = "eql"

query = '''
process where host.os.type == "windows" and
event.type == "start" and
process.name: ("powershell.exe", "pwsh.exe") and
process.command_line : ("*MailboxExportRequest*")
'''
```

Eric Zimmerman/Timeline Explorer + Yamato-Security/hayabusa

Time	Computername	Eventid	Level	Alert	Details
2021-05-22 05:43:18.227 +09:00	fs01.offsec.lan	4648	informational	Explicit Logon	Source User: FS01\$: Target User: admmig
2021-05-22 05:43:22.562 +09:00	fs01.offsec.lan	4625	low	Logon Failure - Wrong Password	User: admmig@offsec.lan : Type: 8 : Workstation
2021-05-22 05:43:49.345 +09:00	fs01.offsec.lan	4625	low	Logon Failure - Wrong Password	User: admmig@offsec.lan : Type: 8 : Workstation
2021-05-22 05:43:50.131 +09:00	fs01.offsec.lan	4625	low	Logon Failure - Wrong Password	User: admmig@offsec.lan : Type: 8 : Workstation
2021-05-22 05:43:50.607 +09:00	fs01.offsec.lan	4625	low	Logon Failure - Wrong Password	User: admmig@offsec.lan : Type: 8 : Workstation
2021-05-22 05:43:50.866 +09:00	fs01.offsec.lan	4625	low	Logon Failure - Wrong Password	User: admmig@offsec.lan : Type: 8 : Workstation
2021-05-23 06:56:57.685 +09:00	fs01.offsec.lan	1102	high	Security log was cleared	User: admmig
2021-05-23 06:57:11.842 +09:00	fs01.offsec.lan	4688	high	Relevant Anti-Virus Event	
2021-05-23 06:57:11.842 +09:00	fs01.offsec.lan	4688	critical	Mimikatz Use	
2021-05-26 22:02:27.149 +09:00	mssql01.offsec.lan	4624	informational	Logon Type 3 - Network	User: admmig : Workstation: - : IP Address
2021-05-26 22:02:27.155 +09:00	mssql01.offsec.lan	5145	medium	DCERPC SMB Spoolss Named Pipe	
2021-05-26 22:02:27.155 +09:00	mssql01.offsec.lan	5145	critical	CVE-2021-1675 Print Spooler Exploitation IPC Access	
2021-05-26 22:02:29.726 +09:00	mssql01.offsec.lan	4624	informational	Logon Type 3 - Network	User: admmig : Workstation: - : IP Address
2021-05-26 22:02:29.734 +09:00	mssql01.offsec.lan	5145	medium	DCERPC SMB Spoolss Named Pipe	
2021-05-26 22:02:29.734 +09:00	mssql01.offsec.lan	5145	critical	CVE-2021-1675 Print Spooler Exploitation IPC Access	
2021-05-26 22:02:34.373 +09:00	mssql01.offsec.lan	4624	informational	Logon Type 3 - Network	User: admmig : Workstation: - : IP Address
2021-05-26 22:02:34.375 +09:00	mssql01.offsec.lan	5145	medium	DCERPC SMB Spoolss Named Pipe	
2021-05-26 22:02:34.379 +09:00	mssql01.offsec.lan	4624	informational	Logon Type 3 - Network	User: admmig : Workstation: - : IP Address
2021-05-26 22:02:34.379 +09:00	mssql01.offsec.lan	4624	informational	Logon Type 3 - Network	User: admmig : Workstation: - : IP Address
2021-05-26 22:02:34.380 +09:00	mssql01.offsec.lan	4624	informational	Logon Type 3 - Network	User: admmig : Workstation: - : IP Address
2021-05-27 05:24:46.570 +09:00	rootdc1.offsec.lan	4768	medium	Possible AS-REP Roasting	Possible AS-REP Roasting
2021-05-27 05:24:46.570 +09:00	rootdc1.offsec.lan	4768	informational	Kerberos TGT was requested	User: admin-test : Service: krbtgt : IP Address
2021-06-01 23:06:34.542 +09:00	fs01.offsec.lan	4720	medium	Local user account created	User: WADGUtilityAccount : SID:S-1-5-21-1081258321-37800
2021-06-01 23:08:21.225 +09:00	fs01.offsec.lan	4720	medium	Local user account created	User: elie : SID:S-1-5-21-1081258321-37800
2021-06-03 21:17:56.988 +09:00	fs01.offsec.lan	1102	high	Security log was cleared	User: admmig
2021-06-03 21:18:12.941 +09:00	fs01.offsec.lan	4672	informational	Admin Logon	User: admmig : LogonID: 0x322e5b7
2021-06-03 21:18:12.942 +09:00	fs01.offsec.lan	4624	informational	Logon Type 3 - Network	User: admmig : Workstation: - : IP Address
2021-06-04 03:34:12.672 +09:00	fs01.offsec.lan	4104	high	Windows Firewall Profile Disabled	
2021-06-04 04:17:44.873 +09:00	fs01.offsec.lan	1102	high	Security log was cleared	User: admmig

Thor lite

Scan Information						Modules		Statistics	
	0	4	2	678	1	Autoruns	8	Alerts	2
	0	17	7	1108	1	Filescan	178	Warnings	2987
	0	13	83	1190	1	LogScan	3058	Notice	674
	0	4	2	689	1	ProcessCheck	102	Info	29202
	0	260	11	935	1	ProcessConnections	0	Errors	36
	0	9	2	1325	1	ProcessIntegrity	261	Help	
	0	14	2	1312	1	RuntimeWatcher	0	Shortcuts	Use Ctrl+↑ (Windows/Linux) or ⌘+↑ (macOS) to return to the top of the page
	0	260	11	935	1			Filters	You can provide a file (--filter file) with regular expressions to suppress false positives
	0	22	2	905	1			Hint 1	Select text and use the context menu to filter / select / lookup strings
	0	326	4	700	2				
	0	4	5	873	1				
	0	126	8	726	2				
	0	257	2	849	1				
DC01	0	271	11	942	1				
DC02	0	256	11	929	1				
DC03	2	452	386	925	1				
01	0	280	19	1605	2				

Loki

```
LOKI
Simple IOC Scanner
(C) Florian Roth - BSK Consulting GmbH
Jan 2015
Version 0.2
DISCLAIMER - USE AT YOUR OWN RISK

[INFO] LOKI - Starting Loki Scan on PROMETHEUS
[INFO] File Name Characteristics initialized with 32 regex patterns
[INFO] Malware Hashes initialized with 43 hashes
[INFO] False Positive Hashes initialized with 8 hashes
[INFO] Scanning C:\ ...
-[ALERT] Malware Hash TYPE: SHA256 HASH: b12c7d57507286bbbe36d7acf9b34c22
c96606ffd904e3c23008399a4a50c047 FILE: C:\$Recycle.Bin\S-1-5-21-949666807
-3097873-177000209-1000\$RC7V2PZ.sys DESC: Regin Malware Sample
[ALERT] Yara Rule MATCH: Regin_APT_KernelDriver_Generic_B FILE: C:\$Recyc
le.Bin\S-1-5-21-949666807-3097873-177000209-1000\$RC7V2PZ.sys
```

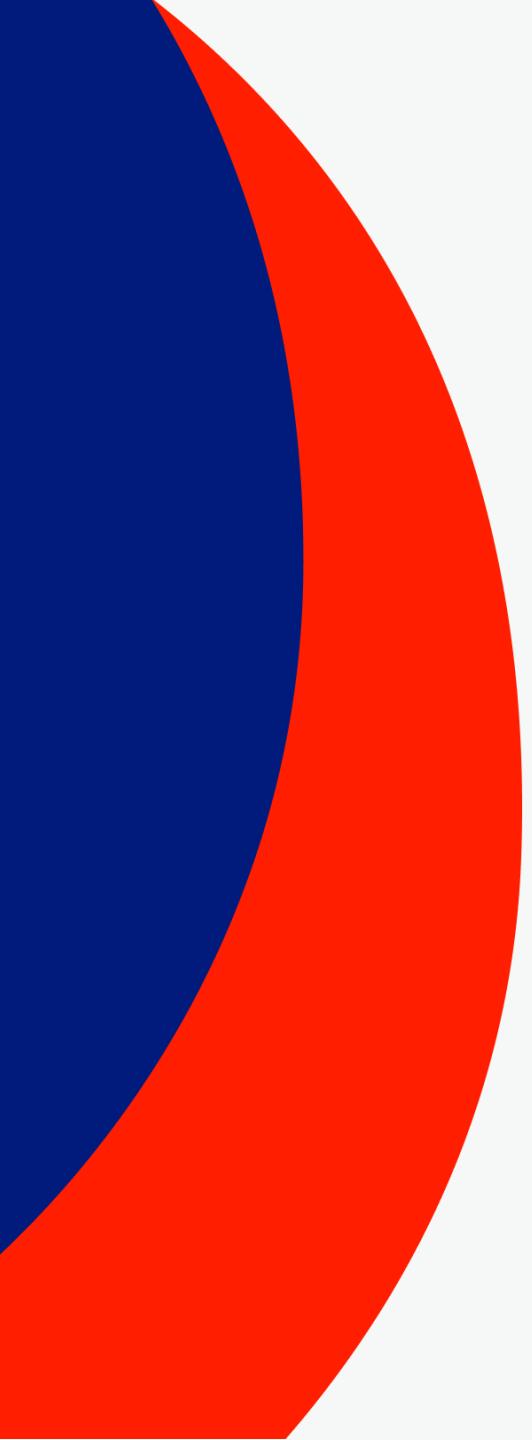
```
X:\Workspace\Loki>python loki.py --noprocs -p M:\Regin\falsepositiv
LOKI
Simple IOC Scanner
(C) Florian Roth - BSK Consulting GmbH
Jan 2015
Version 0.2
DISCLAIMER - USE AT YOUR OWN RISK

[INFO] LOKI - Starting Loki Scan on PROMETHEUS
[INFO] File Name Characteristics initialized with 32 regex patterns
[INFO] Malware Hashes initialized with 43 hashes
[INFO] False Positive Hashes initialized with 8 hashes
[INFO] Scanning M:\Regin\falsepositive ...
/[INFO] SYSTEM SEEMS TO BE CLEAN.

Press Enter to exit ...
```

藍隊的一些小建議

- 資產盤點
- 可以聯網的裝置，盡可能的更新上 patch
 - Router, Switch, IoT, Printer, Endpoint
- 架設 Log Server，Log 盡量搜集完整
 - Firewall, Endpoint, Server
- 定期弱點掃描與滲透測試，DevSecOps 規劃
- 訂閱產品弱點與情資，了解相關手法與知識



對於 **藍隊**

紅隊 是 **工具** 用於驗證與發現問題

04

如何有效學習資訊安全技術



有效學習方式



RSS 訂閱

- TVN, Exploit Database, ZDI
- 有去參加 MITRE ATT&CK 評比的訂閱一輪
 - Gartner 觀察相似公司
- Reddit, 社團, 論壇, Youtube

Neo23x0 released LOKI version 0.46.2 at Neo23x0/Loki

github by Neo23x0 / April 25, 2023 at 07:58PM // keep unread // hide

Neo23x0 released v0.46.2 of Neo23x0/Loki ·
Neo23x0 / Neo23x0/Loki
LOKI version 0.46.2

- fix: downgrading PE-Sieve to version 0.3.4 due to stability issues

 AlienVault Blogs	 Check Point Blog	 MITRE ATT&CK®	1
 avast! blog	 CyberArk	 Palo Alto Networks Blog	11
 BlackBerry Knowledge B..	 Elastic Blog - Elasticsear...	 Product and Tech – Qual...	2
 Blog	 McAfee » McAfee Labs	 Rapid7 Cybersecurity Blog	26
 Broadcom Software Blogs	 MITRE ATT&CK®	 SentinelOne	22
 Business Insights	 Palo Alto Networks Blog	 VMware Security Blog	5

資訊安全

資訊安全

Metasploit

Wireshark

Penetration-test 滲透測試

kali-linux

資訊安全

讚 1

分享

相關書籍

排序： **銷售排行**

出版日期

語系：**繁中**

簡中

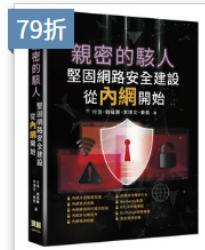
英文

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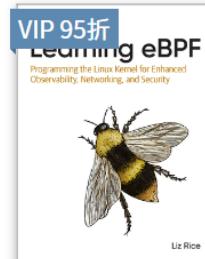
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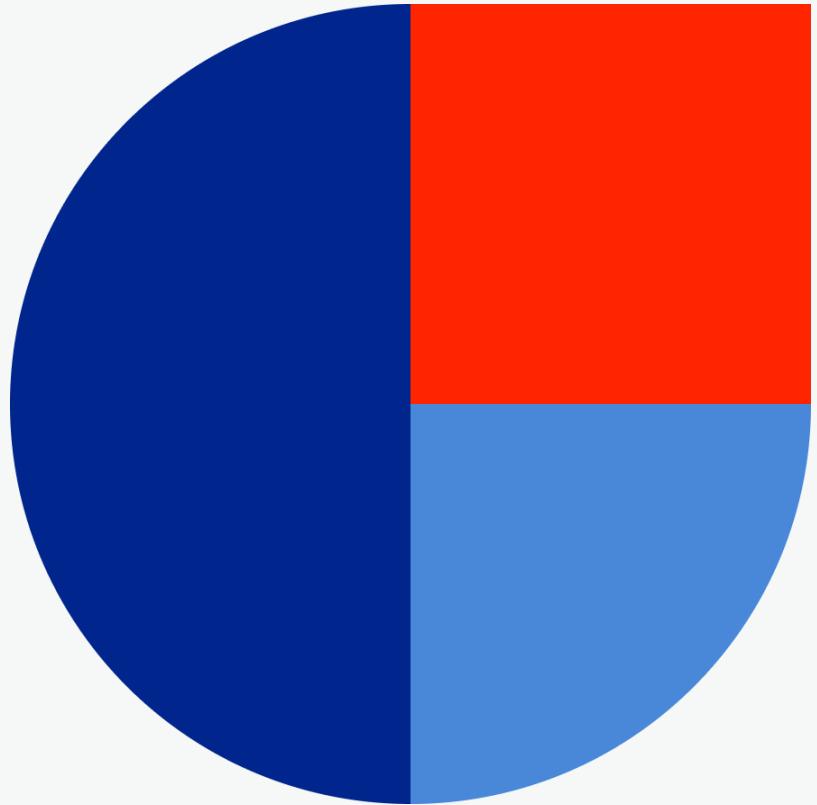
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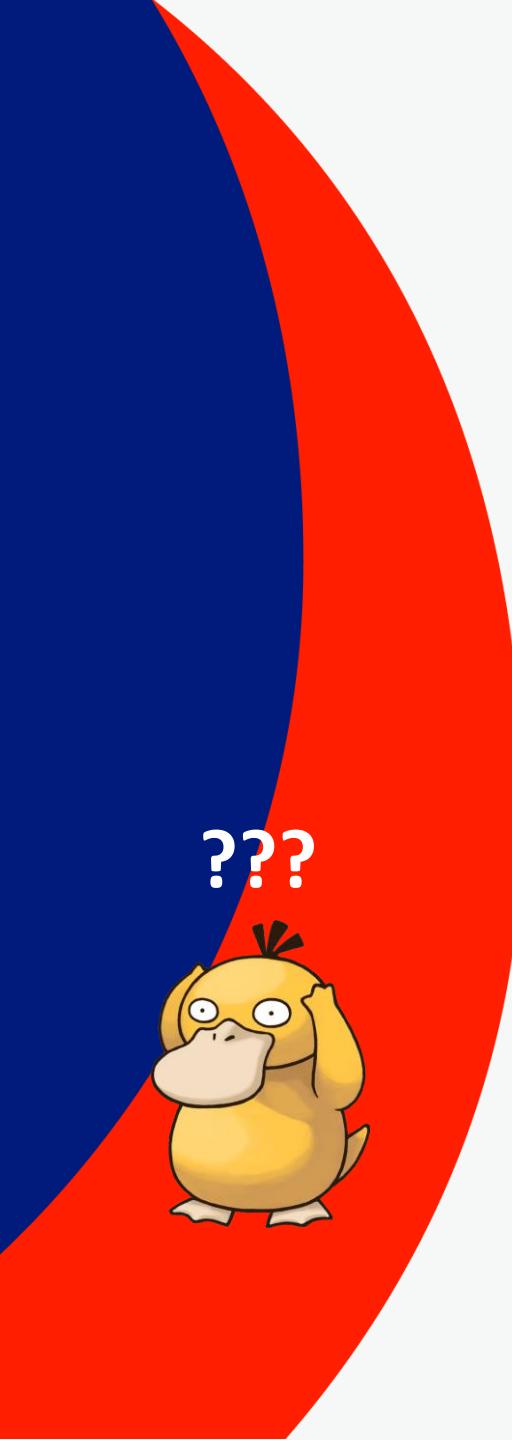
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