



Fools your enemy with Mikrotik

BY: DIDIET KUSUMADIHARDJA

MIKROTIK USER MEETING (MUM) 2016

JAKARTA, INDONESIA

14 OCTOBER 2016

About Me

Didiet Kusumadihardja

1. IT Security Specialist

- ▶ PT. Mitra Solusi Telematika



2. Trainer & IT Consultant

- ▶ Arch Networks



LinkedIn®



MikroTik
CERTIFIED

MTCNA, MTCINE, MTCWE, ~~MTCUME, MTCCTCE, MTCRE~~

PT. Mitra Solusi Telematika

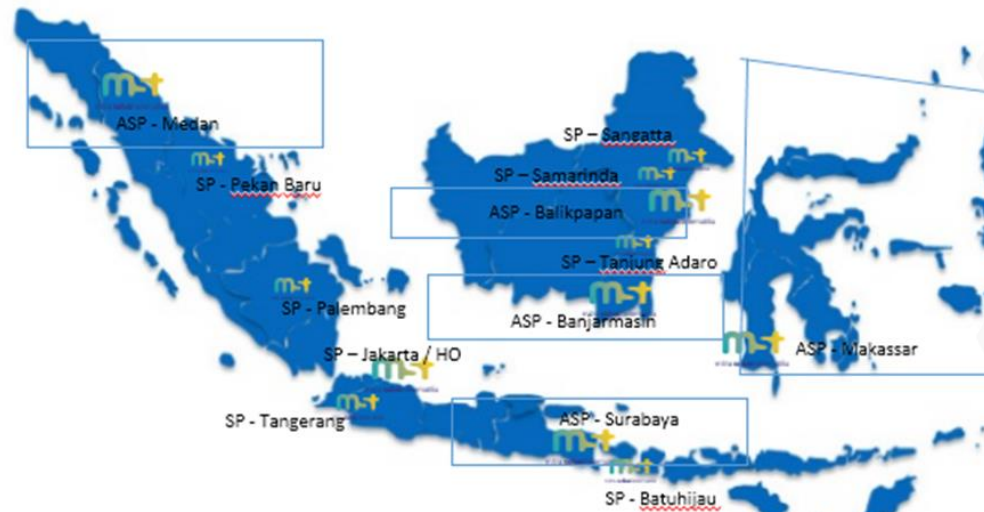


Gedung TMT 2. GF
Jl. Cilandak KKO
Jakarta

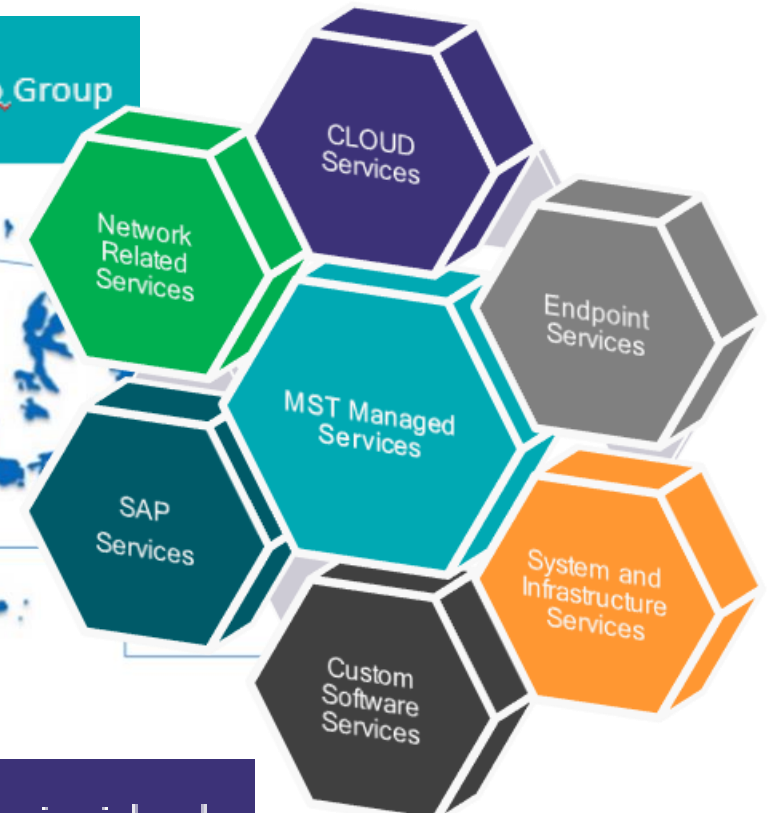


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(www.tmt.co.id)

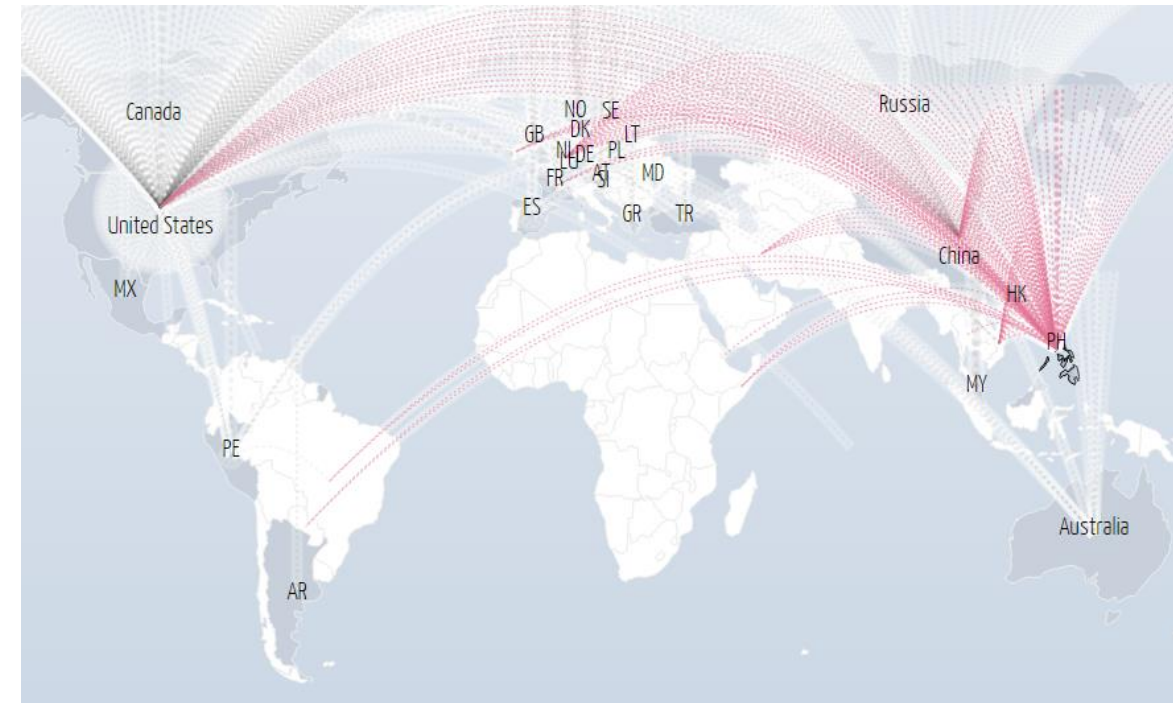


Supporting Indonesia with 12 Service points on major island



MikroTik

Global IT Security Incident



Global IT Security Incident 2014



A screen shot of an image that appeared on computers at Sony Pictures Entertainment on Nov. 24, 2014. (Photo: Reddit)

Global IT Security Incident 2015

Dow Jones Alami Kebocoran Data

3 Tahun di Hack (2012 – 2015)



Dow Jones Discloses Customer Data Breach

Wall Street Journal owner says financial data from 3,500 individuals may have been accessed



October 9, 2015

William Lewis
Chief Executive Officer, Dow Jones
Publisher, The Wall Street Journal

To our customers:

Protecting our customers' information is of the utmost importance to us. Out of an abundance of caution, we are notifying you that we recently determined there was unauthorized access to our systems. While we recognize that no company is immune to cyberattacks, we are committed to doing everything we can to protect our customers.

Indeks bursa saham AS yang terkenal yaitu Dow Jones mengakui bahwa data akibat serangan *hacker*. Dow Jones, unit usaha dari News Corp mengakui bahwa *hacker* berhasil masuk ke dalam sistemnya sejak Agustus. Dow Jones sendiri mengatakan bahwa pihaknya telah menghubungi pihak terkait mengenai data ini.

Global IT Security Incident 2016



Former Yahoo Exec Thinks Security Breach Could Have Compromised Up To 3 Billion Accounts, Not Just 500 Million

1 October 2016, 9:37 am EDT By Aaron Mamiit Tech Times



A former Yahoo executive thinks that the number of user accounts compromised by the recently revealed security breach is higher than 500 million. According to his estimate, up to 3 billion users were affected. (Justin Sullivan | Getty Images)

Didiet Kusumadihardja - didiet@arch.web.id

~~500 Juta Account~~

3 Miliar Account ???

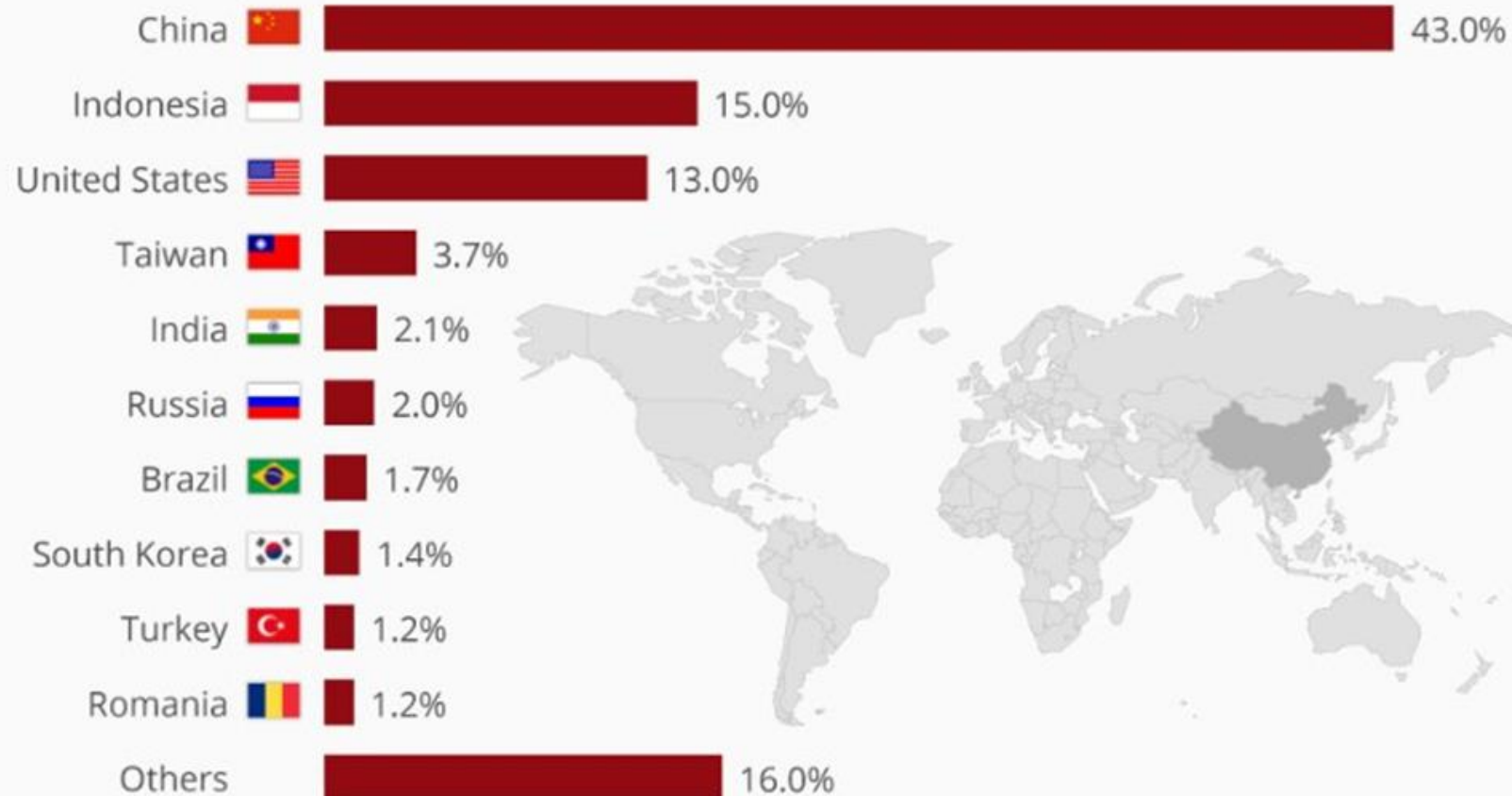
Source: Tech Times

Indonesia IT Security Incident



China Is The World's Top Source Of Internet Attack Traffic

Percentage of global internet attack traffic by country of origin (Q2 2014)



Source: Akamai

Forbes statista

INDONESIA IS SAFE?

Indonesia IT Security Incident 2013

polri.go.id
2013

Deface

Motive: Fame?

Indonesia IT Security Incident 2016

Teman Ahok

DDoS Attack



Teman Ahok

10 hrs · 🌐

[PENGUMUMAN]

WEBSITE WWW.TEMANAHOK.COM MENGALAMI PERCOBAAN HACK. SAAT INI SISTEM KAMI SENGAJA DISABLE.

Mohon maaf atas ketidaknyamanan ini. Kami mohon dukungan dari teman2 semua.

Our system has automatically detected an inbound DDoS against your droplet named Teman-Ahok-1

As a precautionary measure, we have temporarily disabled network traffic to your droplet to protect our network and other customers. Once the attack subsides, networking will be automatically reestablished to your droplet. The networking restriction is in place for three hours and then removed.

Ada serangan dari luar. Jadi untuk sementara pihak Hosting disable web TA dlam waktu bbrpa jam kedepan.

188.166.251.186

188.166.251.186

2.5K Likes · 605 Comments · 1K Shares

➦ Share

Motive: Politics?

Indonesia IT Security Incident 2016

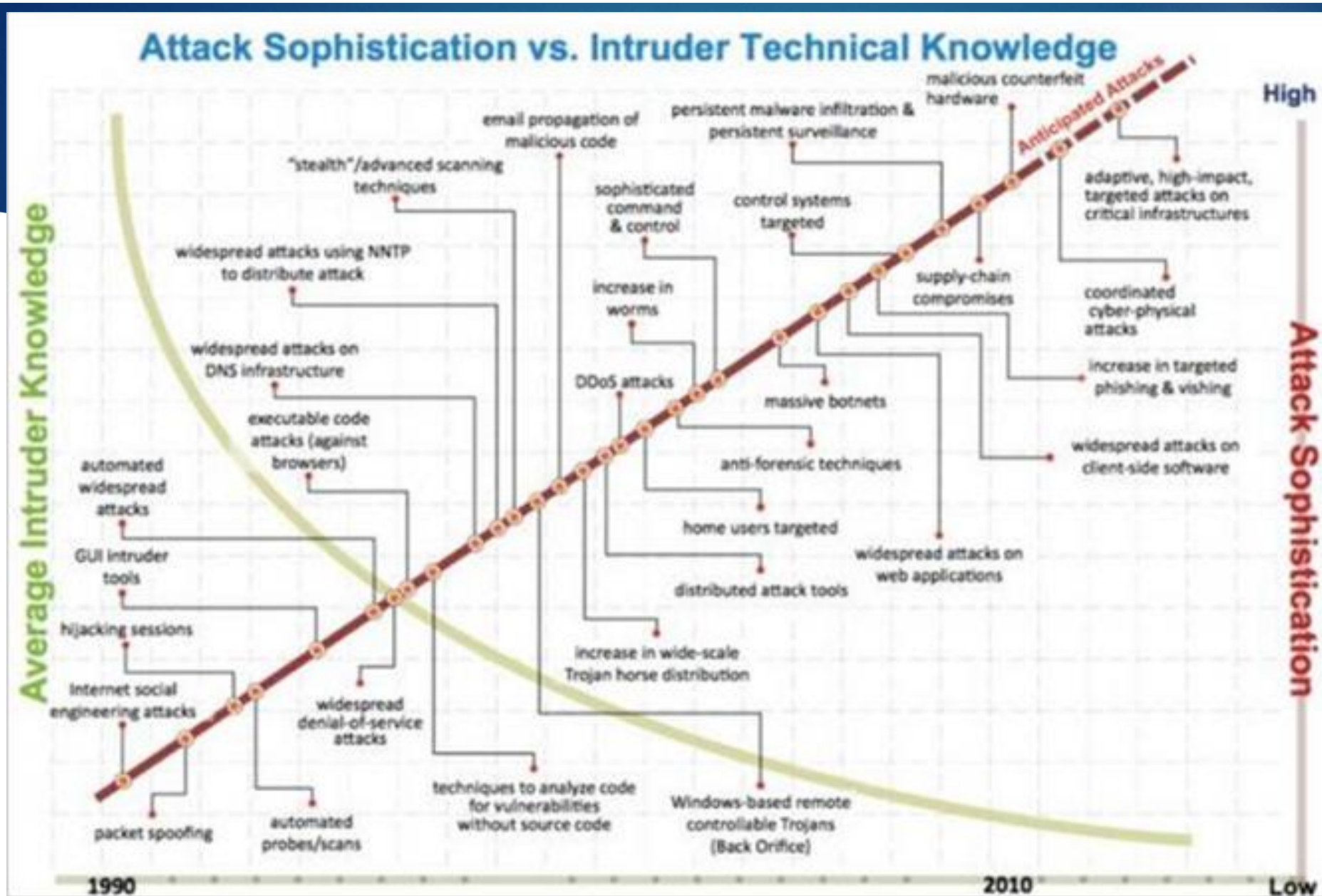
Videotron

Kebayoran Baru Jakarta Selatan



Foto: Istimewa - Ilustrator Andhika Akbarayansyah

Motive: Curiosity?



IT Security Trends

Gak Perlu Pinter Buat Hacking

Hacking Tools Example



Cain & Abel



Kali Linux

HACKING Menu

ASK YOUR SERVER ABOUT OUR SPECIALS!

Hack Group

	Bitcoin	USD
Hacking Web Server (VPS or hosting)	0.43	\$266.52
Setting up Keylogger	0.25	\$154.95
Device Tracking (smartphone/PC)	0.32	\$198.34
Hacking Personal Computer	0.23	\$142.56
Spyware Creation	0.35	\$216.93
Intelligence Report - Background Check	0.23	\$142.56
Setting Up Your Own Botnet	0.93	\$567.42
Logs from Zeus Malware, 10 GB (Stolen CCs, PayPal, Bank Accounts)	1.24	\$768.56

Russia Hackers

	Bitcoin	USD
Custom Ransomware (CTB-Locker)	2	\$1,239.62

The Real Deal (TOR eBay-clone)

	Bitcoin	USD
24 Hour DDoS	0.743	\$460.52
Social Media Hacking, Per Account	0.104	\$64.46
Apple Enterprise Certificate Private Key	14.8569	\$9,208.46

Cell Phone Hacking / Phreaking

	Bitcoin	USD
SS7 API Access (1 Month)	0.32	\$200.00
SMS / Call Spoofing (1 Month)	0.03	\$20.00

Rent-A-Hacker

	Bitcoin	USD
Small Jobs	0.35	\$221.14
Medium-Large Jobs	0.89	\$552.85

Cybercrime as a Service (CaaS)

Modern Business

How Hackers do it?



Hacking Phase

1. Reconnaissance
2. Scanning
3. Gaining Access
4. Maintaining Access
5. Clearing Tracks



Hacking Phase (Cont'd)

1. Reconnaissance

2. Scanning

3. Gaining Access

4. Maintaining Access

5. Clearing Tracks



Information Gathering Device Type

OS Detail Open Port

Application Version **Vulnerability**

Exploit Vulnerability Backdoors

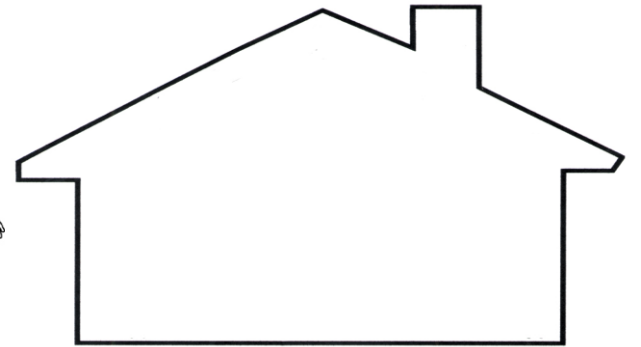
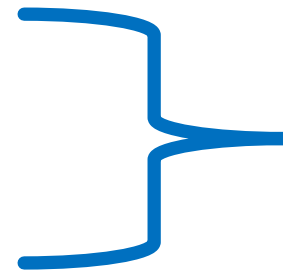
Escalate Privilege

Data harvesting

Delete/overwrite Event/Logs

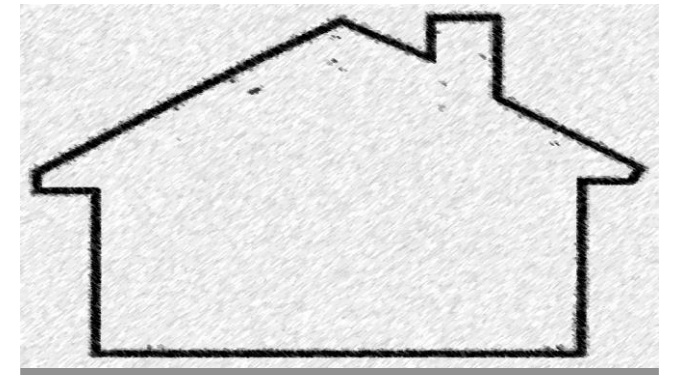
Hacking Phase Analogy

1. Reconnaissance
2. Scanning
3. Gaining Access
4. Maintaining Access
5. Clearing Tracks



When we fools them?

1. Reconnaissance
2. Scanning
3. Gaining Access
4. Maintaining Access
5. Clearing Tracks

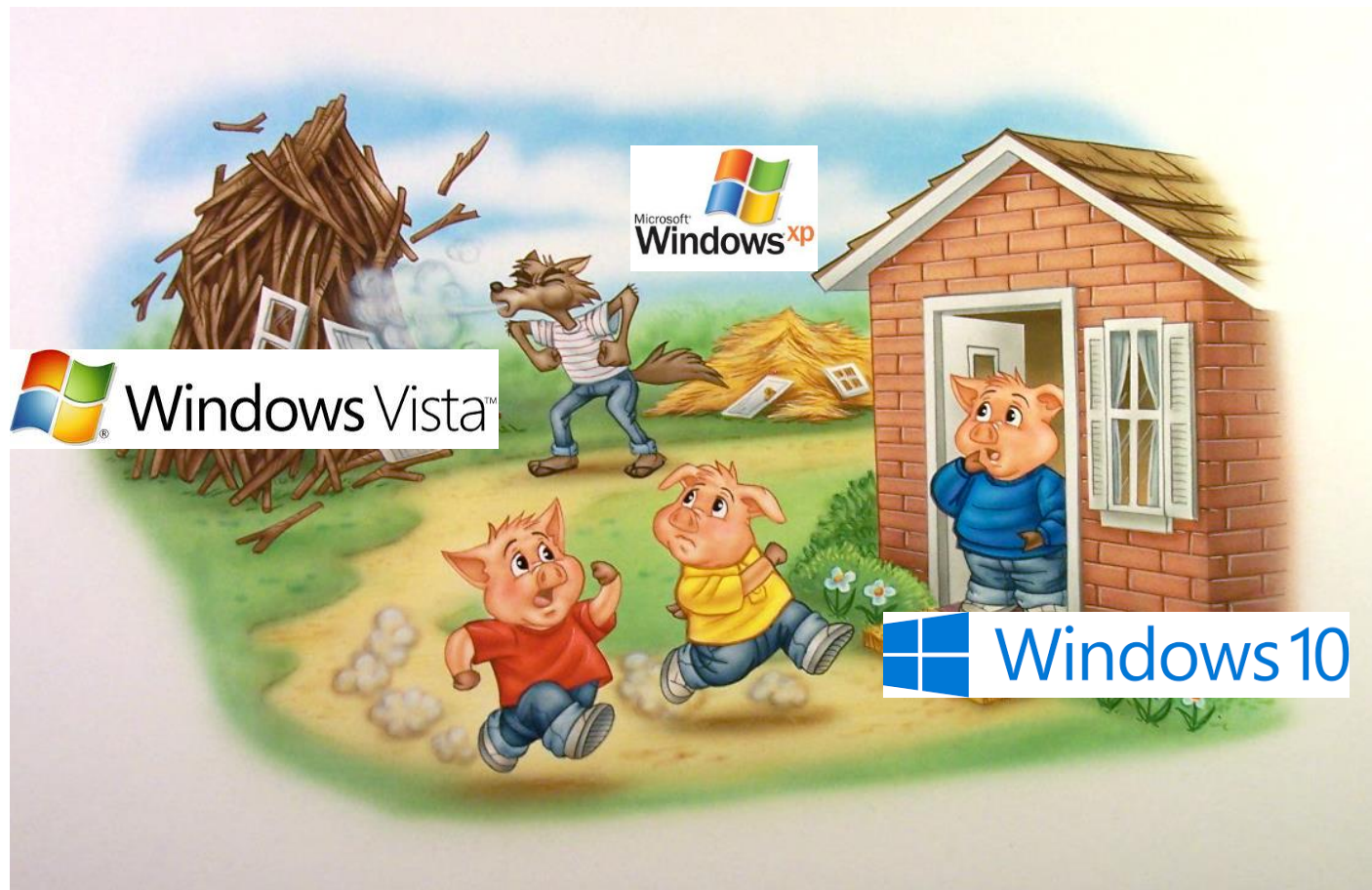


Why at Scanning Phase?

TELNET



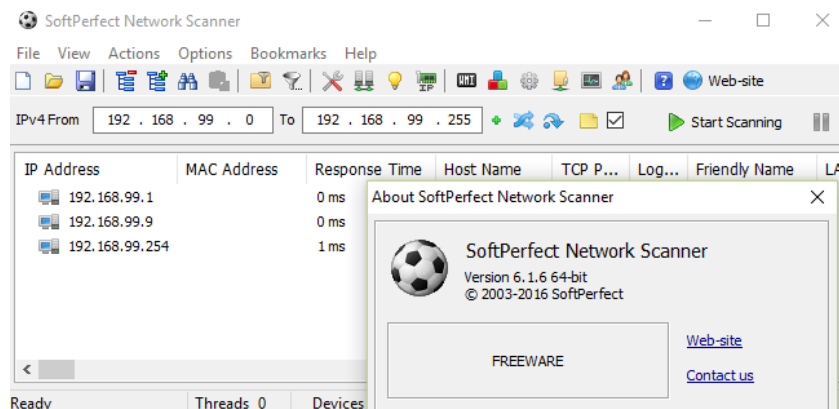
SSH



Scanning Tools



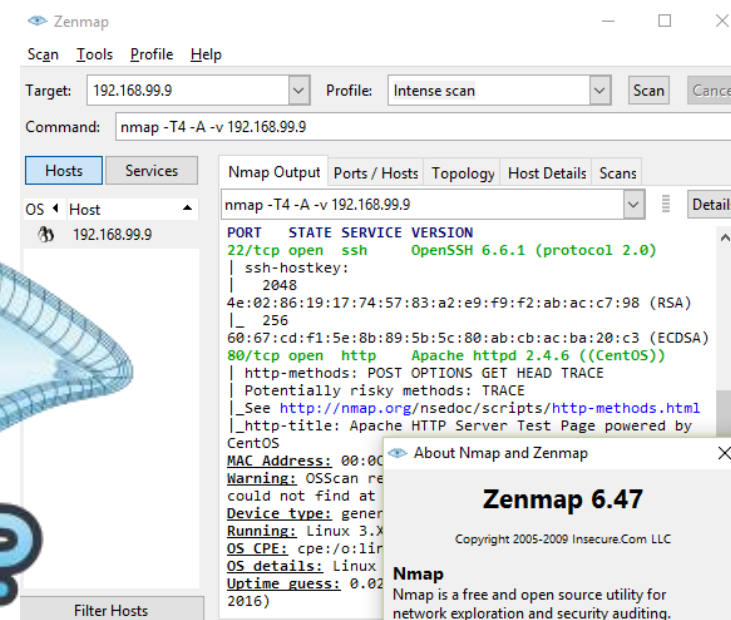
SoftPerfect Network Scanner



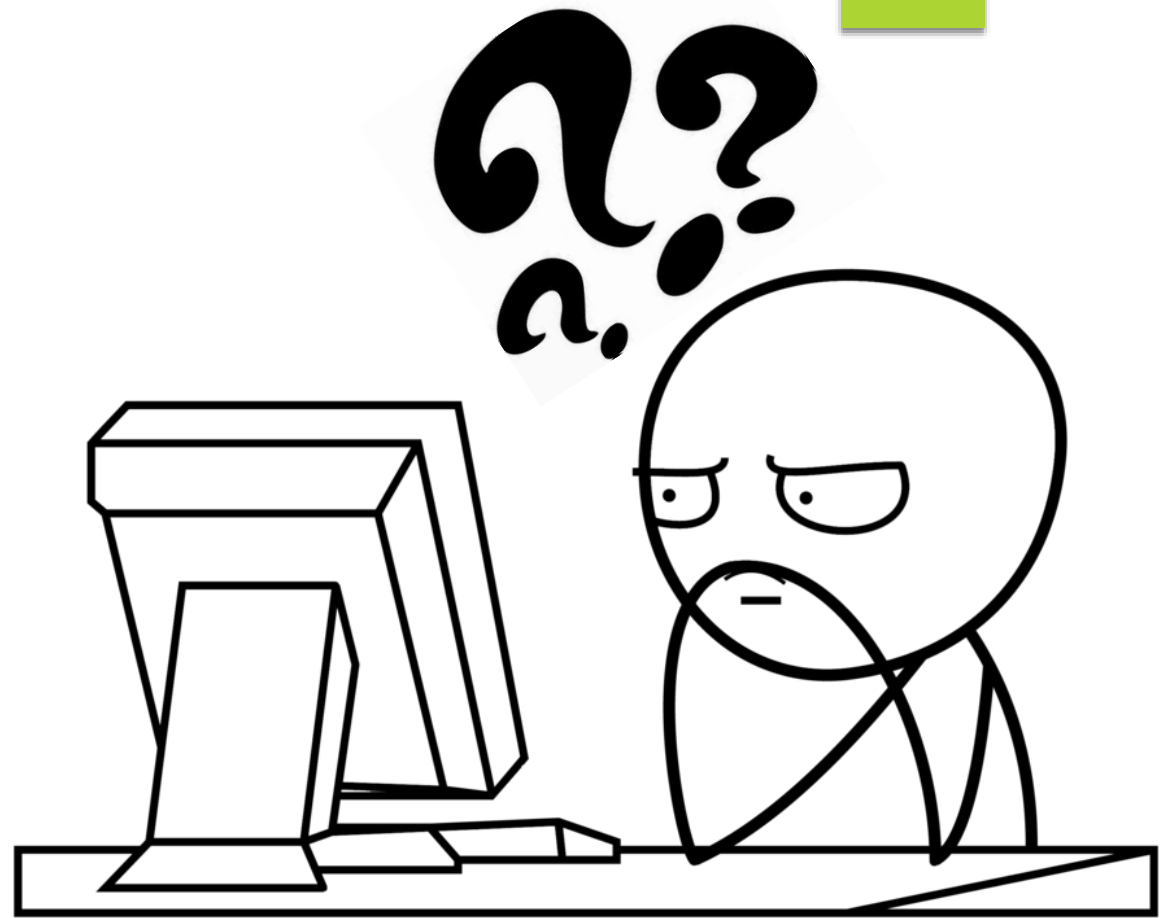
The Dude



NMAP



How to fools
them?



Use a bait



Hacker



Bait

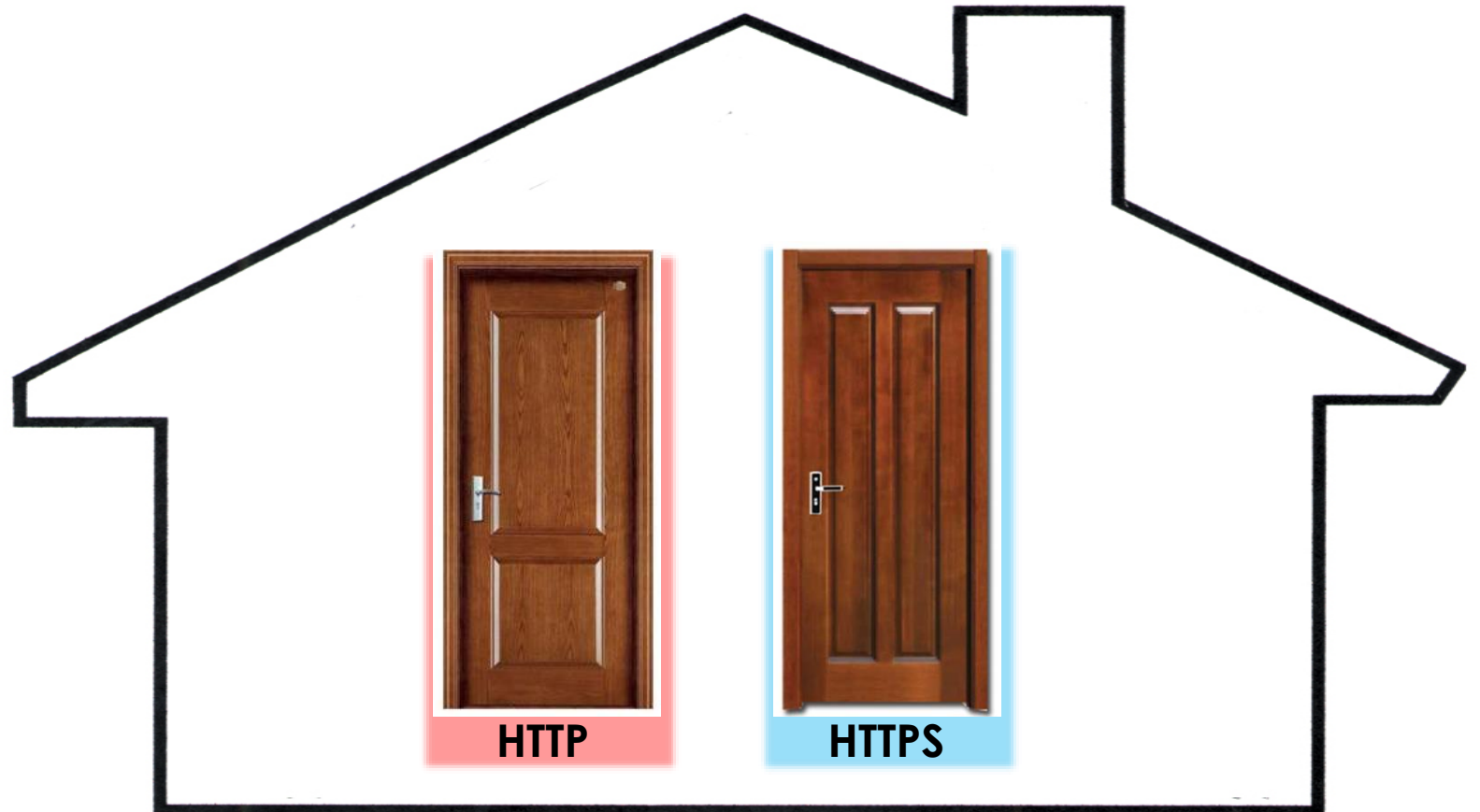
Honey Pot

Web Server Example

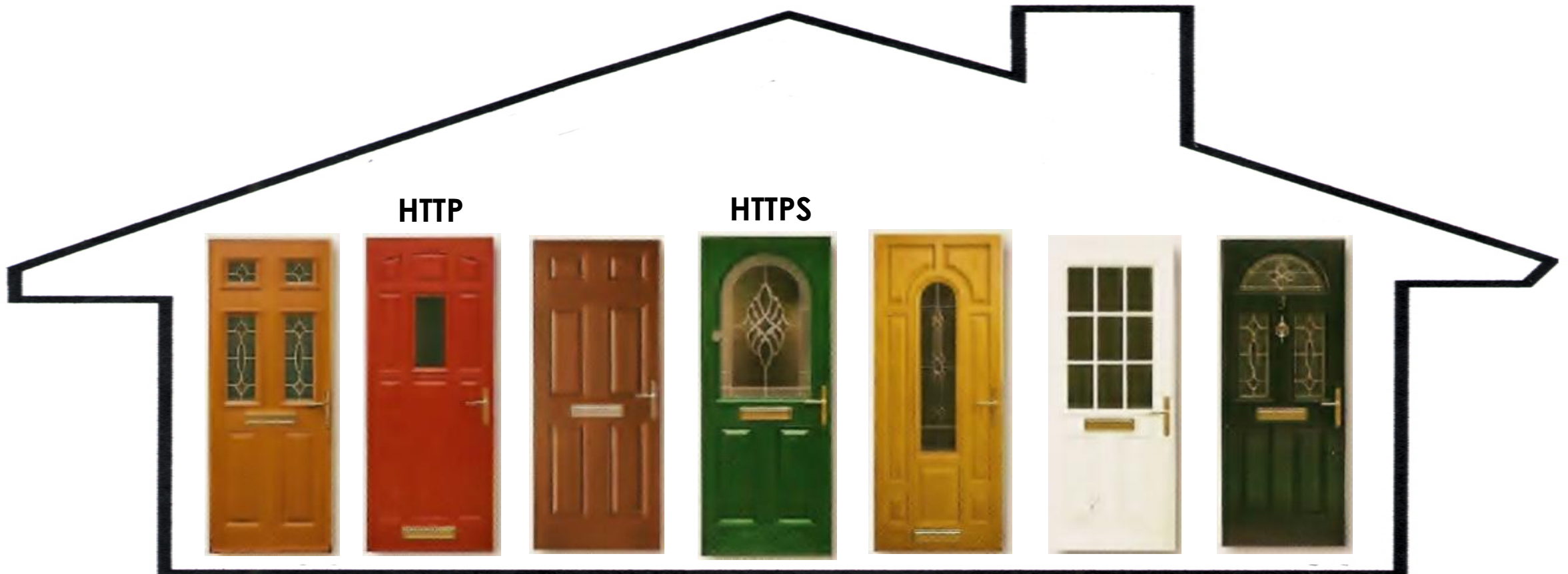


Web Server

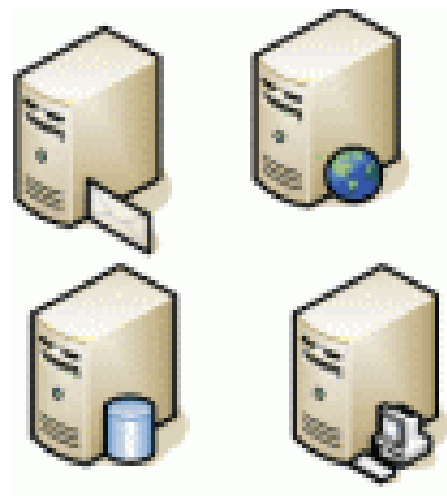
=



Confuse your enemy



Server Farm Network Example

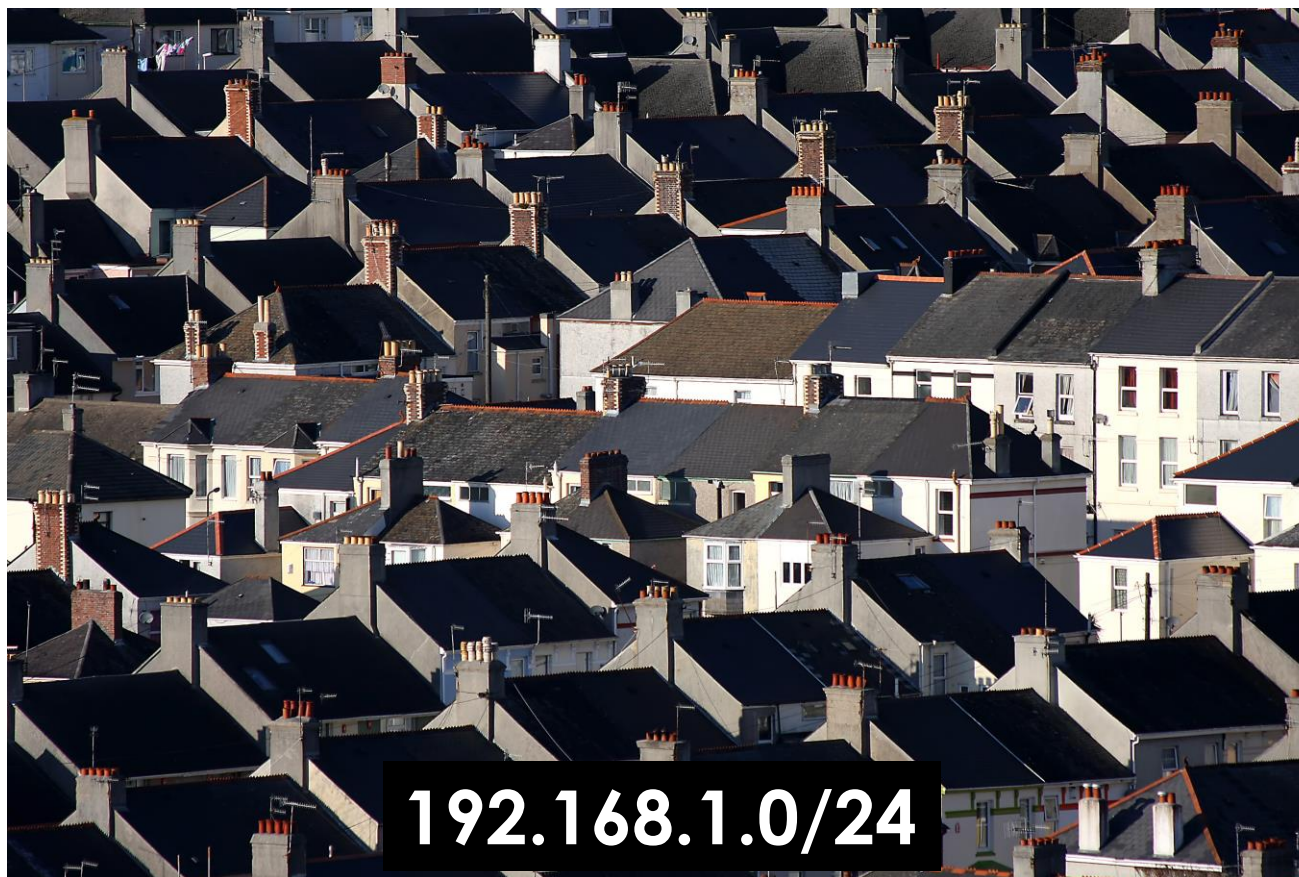


192.168.1.2 → DNS Server
192.168.1.5 → Web Server
192.168.1.10 → DB Server
192.168.1.15 → Mail Server



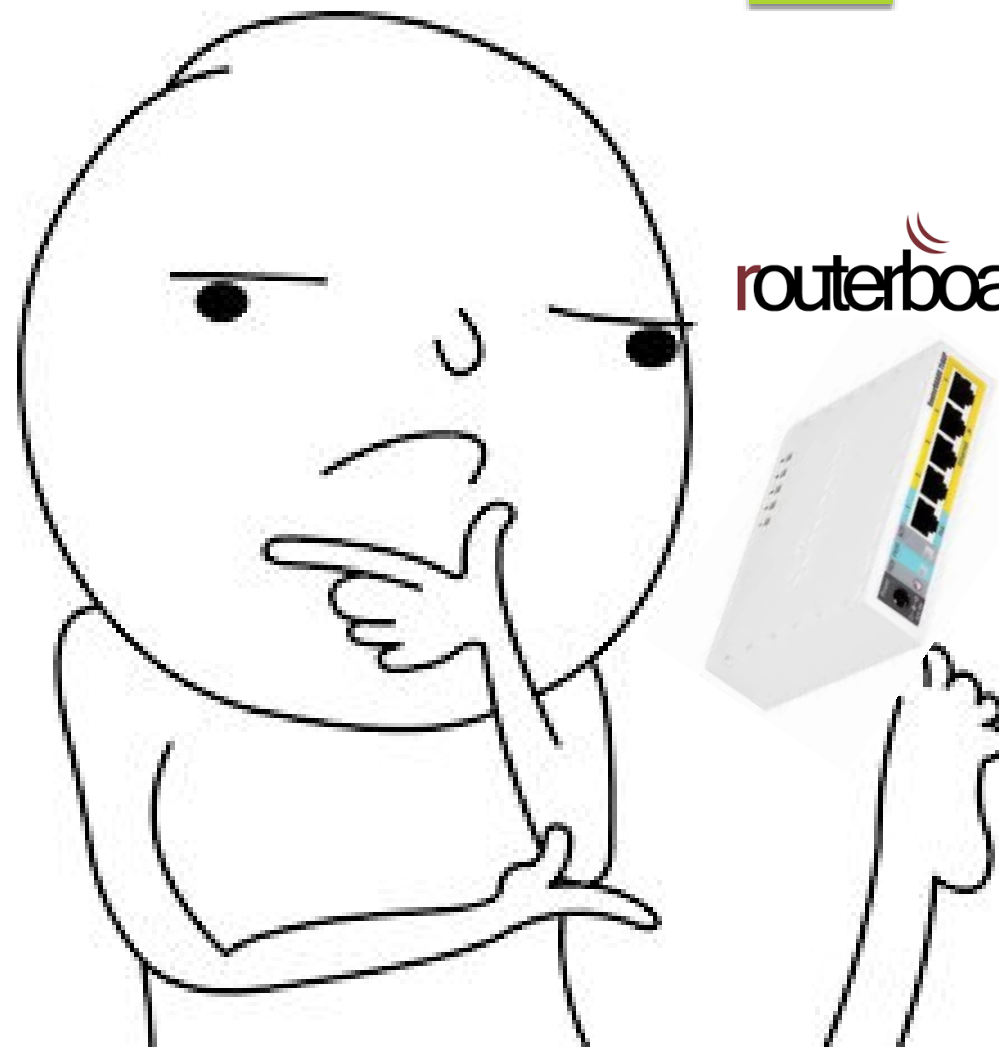
Confuse your enemy

192.168.1.1 → Fake Server 1
192.168.1.2 → DNS Server
192.168.1.3 → Fake Server 2
192.168.1.4 → Fake Server 3
192.168.1.5 → Web Server
192.168.1.6 → Fake Server 4
192.168.1.7 → Fake Server 5
192.168.1.8 → Fake Server 6
192.168.1.9 → Fake Server 7
192.168.1.10 → DB Server
192.168.1.11 → Fake Server 8
192.168.1.12 → Fake Server 9
192.168.1.13 → Fake Server 10
192.168.1.14 → Fake Server 11
192.168.1.15 → Mail Server



192.168.1.0/24

How we do it
with Mikrotik?

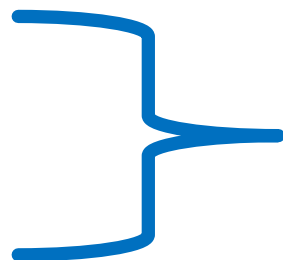


NAT

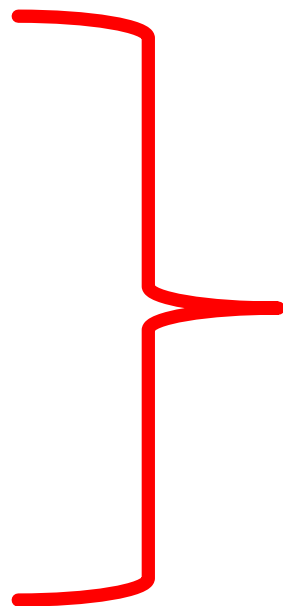
(Network Address Translation)

Fake NAT

Fake Ports at your Web Server



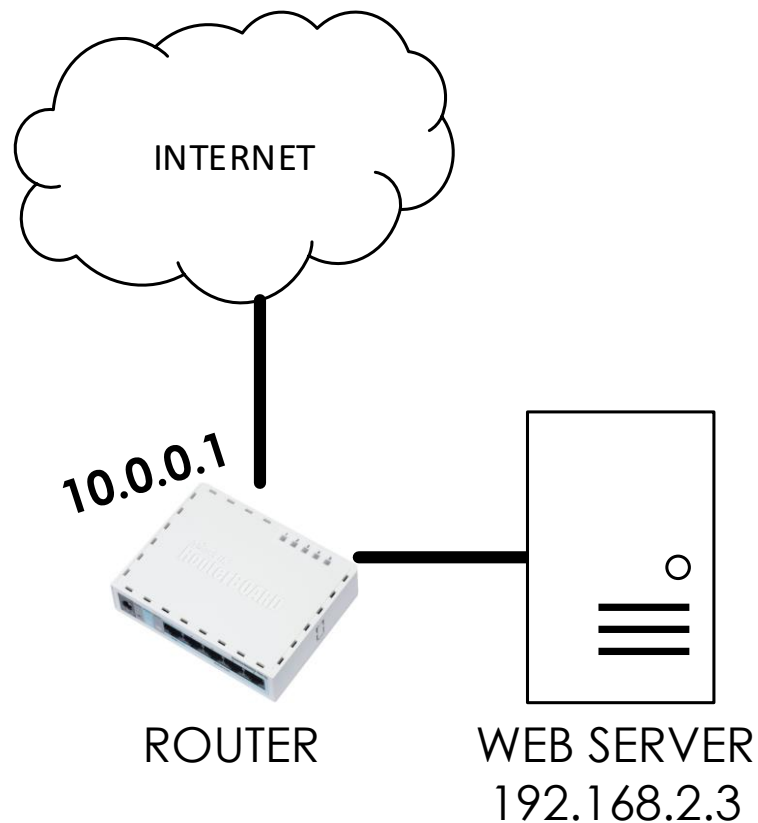
HTTP & HTTPS to
Legitimate Server



Other Ports to
Fake Server



Simple NAT for Web Server



NAT (Port Mapping)

NAT Rule <10.0.0.1:80>

General | **Advanced** | Extra | Action | ...

Chain:

Src. Address:

Dst. Address:

Protocol:

Src. Port:

Dst. Port:

Chain

NAT Rule <10.0.0.1:80>

Advanced | Extra | **Action** | Statistics | ...

Action:

Log

Log Prefix:

To Addresses:

To Ports:

Action

Add Additional NAT for Bait

NAT Rule <10.0.0.1> **Chain**

General | **Advanced** | Extra | Action | ...

Chain:

Src. Address:

Dst. Address:

Protocol:

Src. Port:

Dst. Port:

NAT Rule <10.0.0.1> **Action**

Advanced | **Extra** | Action | Statistics | ...

Action:

Log

Log Prefix:

To Addresses:

To Ports:



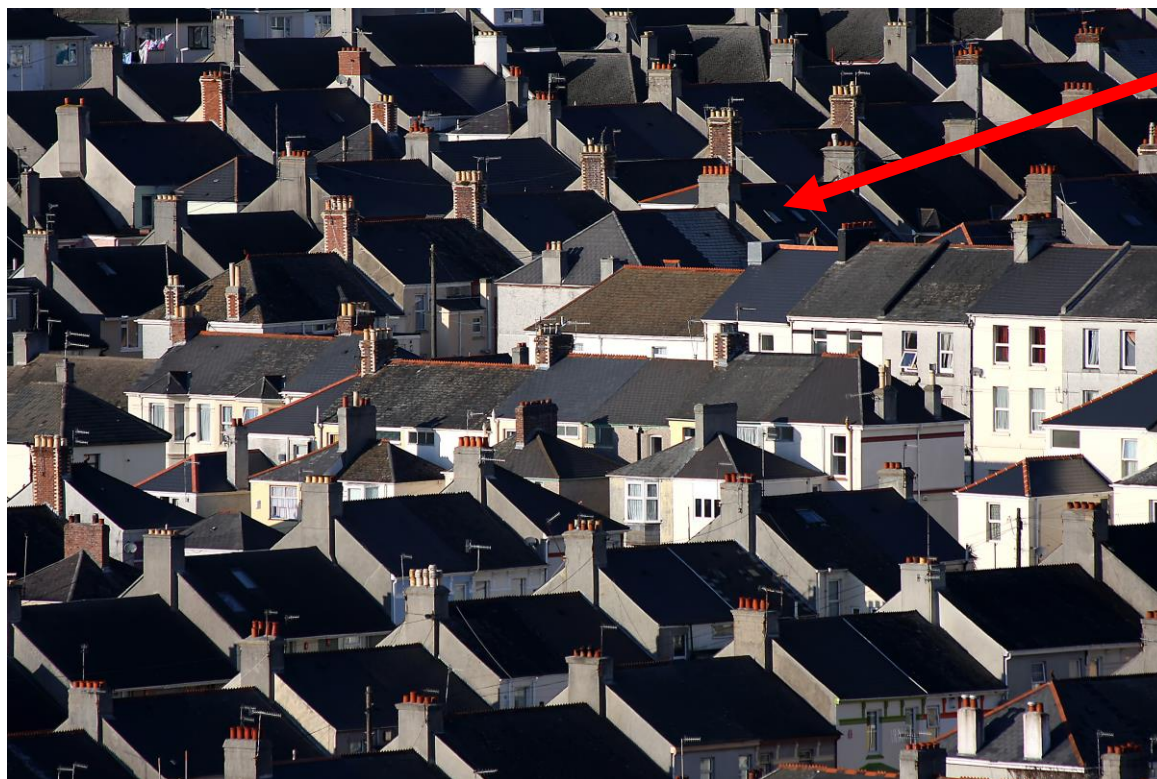
Web Server
192.168.2.3



Fake Server
(Honey Pot)
192.168.2.4

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	To Addresses	To Ports	Bytes	Packets
::: Real Web Server											
0	+ ^ dst-nat	dstnat		10.0.0.1	6 (tcp)		80	192.168.2.3	80	916 B	18
::: Fake Server (Honey Pot)											
1	+ ^ dst-nat	dstnat		10.0.0.1				192.168.2.4		0 B	0

Fake Server at your Server Farm Network



Only one legitimate server



Others are Fake Server



Another Example

NAT Rule <10.0.0.0/24> Chain

General | Advanced | Extra | Action | ...

Chain:

Src. Address:

Dst. Address: 10.0.0.0/24

Protocol:

Src. Port:

Dst. Port:

NAT Rule <10.0.0.0/24> Action

Advanced | Extra | Action | Statistics | ...

Action:

Log

Log Prefix:

To Addresses:

To Ports:



Web Server
192.168.2.3



Fake Server
(Honey Pot)
192.168.2.4

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	To Addresses	To Ports	Bytes	Packets
::: Real Web Server											
0	+ > dst-nat	dstnat		10.0.0.1	6 (tcp)		80	192.168.2.3	80	2588 B	49
::: Fake Server (Honey Pot)											
1	+ > dst-nat	dstnat		10.0.0.0/24				192.168.2.4		0 B	0

Combine with Honey Pot



KFSensor Enterprise Administrator

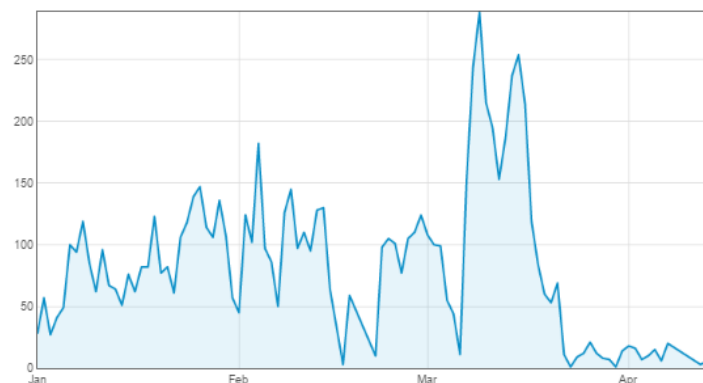
File View Scenario Signatures Settings Help

New York - localhost - Main Scenario

Sensor ID	ID	Start Time	Pr...	Sens...	Name
New York	1039	12:04:07.609	TCP	20034	NetBus
New York	1038	12:02:02.671	TCP	6969	GateCrasher, T...
New York	1037	12:01:27.671	TCP	5631	PC Anywhere 1
Berlin	1036	12:00:20.937			
Berlin	1035	11:58:20.859			
New York	1034	11:57:51.968			
New York	1033	11:56:14.093			
Berlin	1032	11:55:25.281			
New York	1031	11:41:36.453			
Berlin	1030	11:40:42.234			
New York	1029	11:39:04.312			
New York	1028	11:38:34.828			
Berlin	1027	11:36:34.703			
Berlin	1026	11:35:25.046			
London	1025	11:31:30.187			

Left sidebar: TCP, 21 FTP Guild, 22 SSH, 23 Telnet, 25 SMTP - Activity, 42 WINS, 53 DNS - Activity, 68 DHCP, 80 IIS - Recent Activity, 88 Kerberos, 110 POP3, 111 sunrpc, 113 ident, 119 NNTP

Events by day



Visitors

- 60.220.1.32 - Activity
- 80.230.252.73 - IGLD-80-230-252-73
- 81.45.234.47 - 47.Red-81-45-234.po
- 81.152.241.78 - host81-152-241-78.i
- 81.153.4.53 - host81-153-4-53.range
- 81.153.15.137 - host81-153-15-**
- 81.153.16.239 - host81-153-16-239.i
- 81.153.27.215 - host81-153-27-**
- 81.153.63.210 - host81-153-63-210.i
- 81.153.68.191 - host81-153-68-191.i
- 81.153.98.237 - host81-153-98-237.i
- 81.153.130.36 - host81-153-130-36.i
- 81.153.139.157 - host81-153-139-15
- 81.153.183.246 - host81-153-183-24
- 81.153.255.122 - host81-153-25**



KFSensor

What Hacker See (NMAP)



Nmap / Zenmap

Nmap Output					
Port	Protocol	State	Service	Version	
22	tcp	open	ssh	OpenSSH 6.6.1 (protocol 2.0)	
80	tcp	open	http	Apache httpd 2.4.6 ((CentOS))	

Before

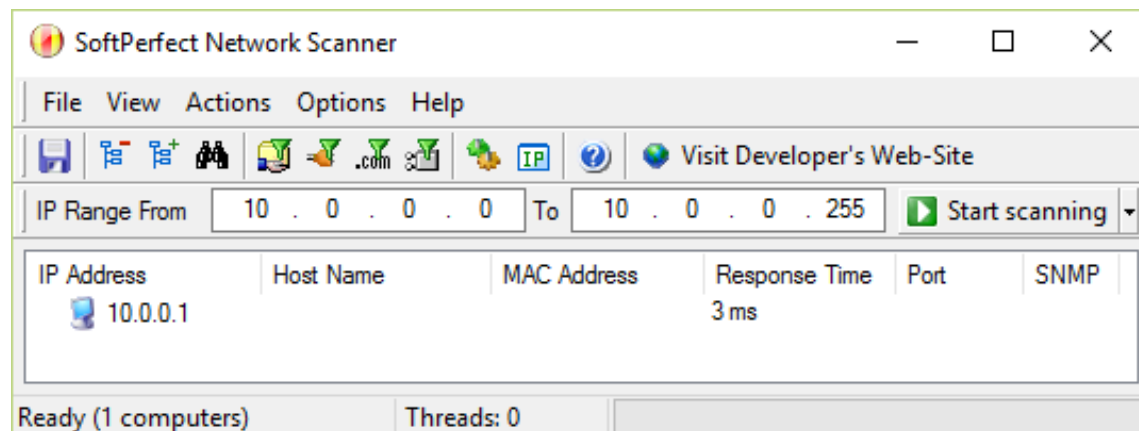
Nmap Output					
Port	Protocol	State	Service	Version	
22	tcp	open	tcpwrapped		
23	tcp	open	tcpwrapped		
25	tcp	open	tcpwrapped		
42	tcp	open	tcpwrapped		
53	tcp	open	tcpwrapped		
80	tcp	open	http	Apache httpd 2.4.6 ((CentOS))	
81	tcp	open	tcpwrapped		
82	tcp	open	tcpwrapped		
83	tcp	open	tcpwrapped		
110	tcp	open	tcpwrapped		
111	tcp	open	tcpwrapped		
113	tcp	open	tcpwrapped		
119	tcp	open	tcpwrapped		
135	tcp	open	msrpc	Microsoft Windows RPC	

After

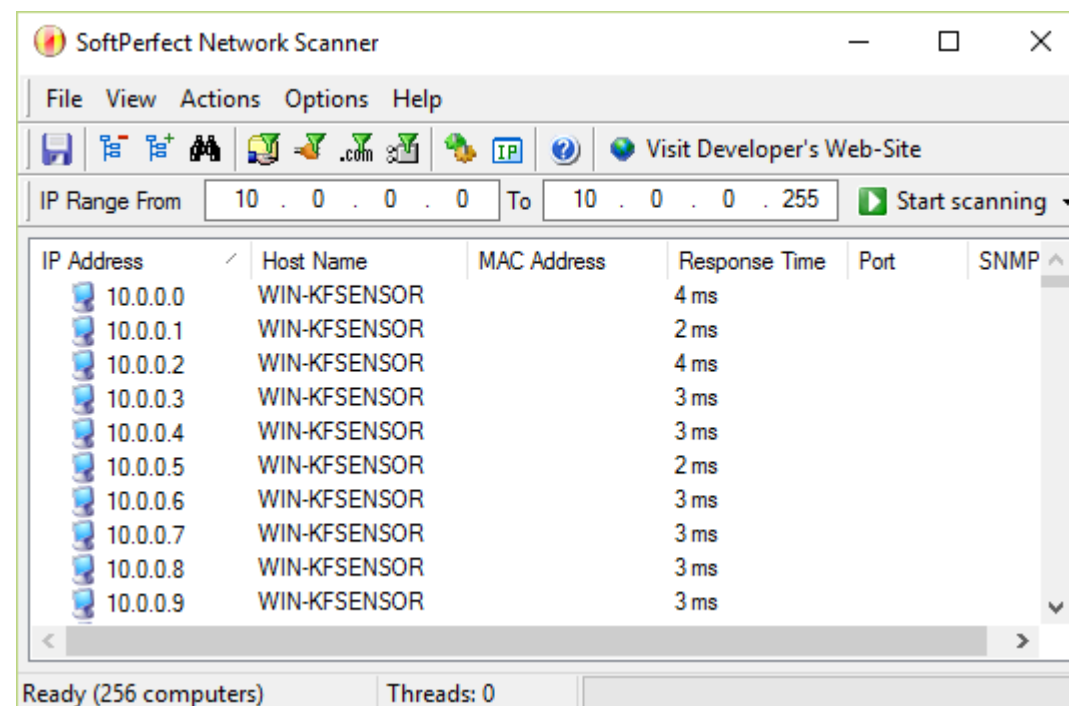
What Hacker See (SoftPerfect NetScan)



SoftPerfect Network Scanner



Before



After

I don't want to use HoneyPot



Step 1: Chain

NAT Rule <10.10.10.10>

General Advanced Extra Action Statistics

Chain:

Src. Address:

Dst. Address:

Step 2: Action

NAT Rule <10.10.10.10>

General Advanced Extra Action Statistics

Action:

Log

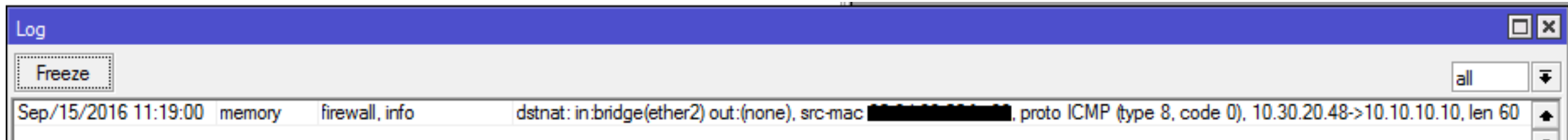
Log Prefix:

What we see, If someone PING

```
>ping 10.10.10.10
```

```
Pinging 10.10.10.10 with 32 bytes of data:  
Request timed out.  
Request timed out.  
Request timed out.  
Request timed out.
```

```
Ping statistics for 10.10.10.10:  
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```



SRC-MAC ADDRESS
SRC-IP ADDRESS

What we see, If someone NMAP

```
nmap -T4 -A -v 10.10.10.10
```

Starting Nmap 6.47 (<http://nmap.org>) at 2016-09-15 11:12 SE Asia Standard Time
NSE: Loaded 118 scripts for scanning.
NSE: Script Pre-scanning.
Initiating Ping Scan at 11:12
Scanning 10.10.10.10 [4 ports]
Completed Ping Scan at 11:12, 2.46s elapsed (1 total hosts)
Nmap scan report for 10.10.10.10 [host down]
mass_dns: warning: Unable to determine any DNS servers. Reverse DNS is disabled. Try using --system-dns or specify valid servers with --dns-servers
NSE: Script Post-scanning.
Read data files from: C:\Program Files (x86)\Nmap
Note: Host seems down. If it is really up, but blocking our ping probes, try -Pn
Nmap done: 1 IP address (0 hosts up) scanned in 56.39 seconds

Raw packets sent: 8 (304B) | Rcvd: 0 (0B)

Mikrotik LOG:

```
proto ICMP (type 8, code 0), 10.30.20.48->10.10.10.10, len 28
proto TCP (SYN), 10.30.20.48:33447->10.10.10.10:443, len 44
proto TCP (ACK), 10.30.20.48:33447->10.10.10.10:80, len 40
proto ICMP (type 13, code 0), 10.30.20.48->10.10.10.10, len 40
proto ICMP (type 13, code 0), 10.30.20.48->10.10.10.10, len 40
proto TCP (ACK), 10.30.20.48:33448->10.10.10.10:80, len 40
proto TCP (SYN), 10.30.20.48:33448->10.10.10.10:443, len 44
proto ICMP (type 8, code 0), 10.30.20.48->10.10.10.10, len 28
```

The Dude, Hotspot & Userman

Server Configuration

General SNMP Polling Server Agents Syslog Map Chart Report Discover RouterOS Misc

Enable

Port: 514

#	Source Add...	Regexp	Action	Notification	Notes
1			accept	log to syslog	

New Syslog Rule

Source Address:

Regexp:

Action: accept passthrough drop

Notification:

MikroTik
RouterOS User Manager

Sessions

ID	From Time	Till Time	Uptime	Download	Upload
3124	Jan/18/2006 17:15:36	Jan/18/2006 17:15:40	4s	3.6 KiB	1235 B
3125	Jan/18/2006 17:15:57	Jan/18/2006 17:16:36	38s	13.9 KiB	7.5 KiB
3126	Jan/18/2006 17:16:41	Jan/18/2006 17:23:45	7m:4s	61.9 KiB	38.6 KiB
3128	Jan/18/2006 17:21:07	Jan/18/2006 17:23:45	2m:37s	61.8 KiB	34.9 KiB
3130	Jan/18/2006 17:29:56	Jan/18/2006 17:32:01	2m:5s	5.5 KiB	1844 B
3131	Jan/18/2006 17:34:24	Jan/18/2006 17:36:51	2m:26s	108.4 KiB	59.5 KiB
3133	Jan/18/2006 17:37:09	Jan/18/2006 17:38:21	1m:12s	91.1 KiB	18.0 KiB
3136	Jan/18/2006 18:08:58	Jan/18/2006 18:25:31	16m:34s	596.0 KiB	545.0 KiB

IP Address → MAC Address → User ID → Person

Use Case 1



**Internet Café
(WARNET)**



Insider Threat



University



Office

Use Case 2



<http://public.honeynet.id>



Analytics

(Low Interaction Honeypot)

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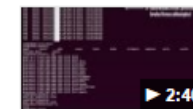
Research

Chinese Hacker caught in Honeypot - YouTube



<https://www.youtube.com/watch?v=gsytGk9kqbQ>
Apr 3, 2012 - Uploaded by HoneyPotsRUs
Chinese Hacker recorded while hacking into my Honeypot.

Hacker caught in Kippo SSH honeypot - YouTube



<https://www.youtube.com/watch?v=Rr6pBcKd7R4>
Nov 18, 2013 - Uploaded by JustSomeITguy
This hacker's IP address places him/her in Sao Paulo, Brazil. Of all the "hackers" I have had in my system so ...

Script Kiddie caught in Honeypot - YouTube



<https://www.youtube.com/watch?v=IRczvIBBSzo>
Aug 30, 2014 - Uploaded by Fred Statmoss
Some poor moron caught in one of my honeypots. So many losers out there today trying tohack using tired ...

For Fun

**Learn hacking method
from hacker / script kiddies**

(High Interaction Honeypot)



Thank you

.

.

Question?



DIDIET KUSUMADIHARDJA



didiet@arch.web.id

<http://didiet.arch.web.id/>

<https://www.facebook.com/ArchNetID/>