OFFENSIVE DEFENCE
OWASP day, Auckland

Consultant

@ Aura Information Security

www.aurainfosec.com

WE NEED **MASS** AWARENESS OF THESE COMMON ISSUES

WE NEED **MASS** REMEDIATION

OF THESE COMMON ISSUES

30 minutes of your mind


THIS IS MY
Jam!
CLOTTED CREAM
RASPBERRY, CHERRY,
& DARK CHOCOLATE
Reduced Sugar Jam
Handmade in Bermondsey

Internal Pen Test Recap:

An internal penetration is conducted from the perspective of an **unauthenticated** internal attacker with physical access to the network, or an external attacker who has achieved a foothold on an internal system

Defenders

TEAM BLUE

VS

TEAM RED

Attackers

PLAN A: **2005/2006**

1. Grab a desk
2. Gather Interesting Information
   - User Enumeration, System Information
3. Become a low-level/local admin user
4. Escalate to domain admin

PLAN A: **2017/2018**

1. Grab a desk
2. Gather Interesting Information
   - User Enumeration, System Information
3. Become a low-level/local admin user
4. Escalate to domain admin

90%

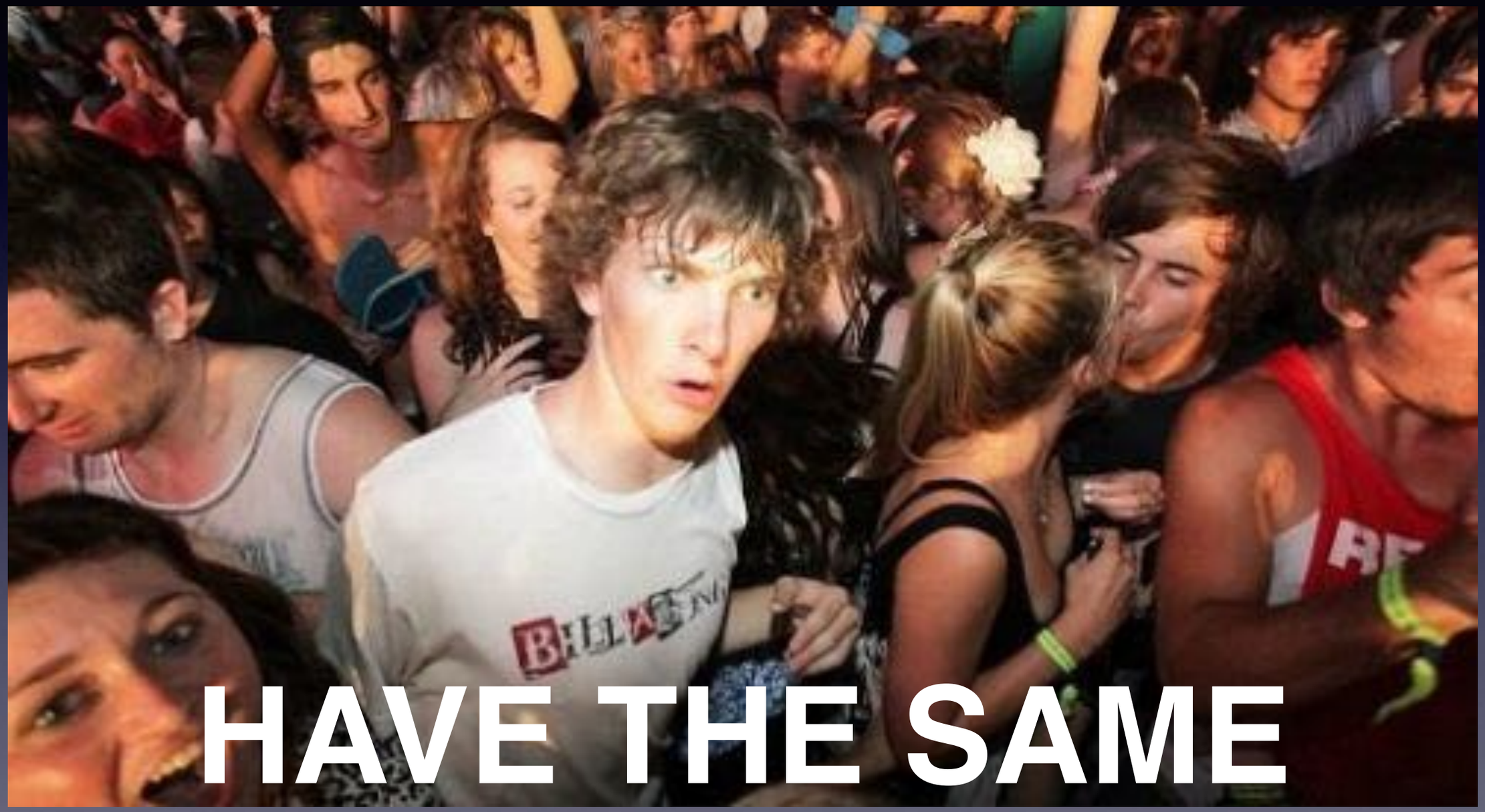
Owned

13

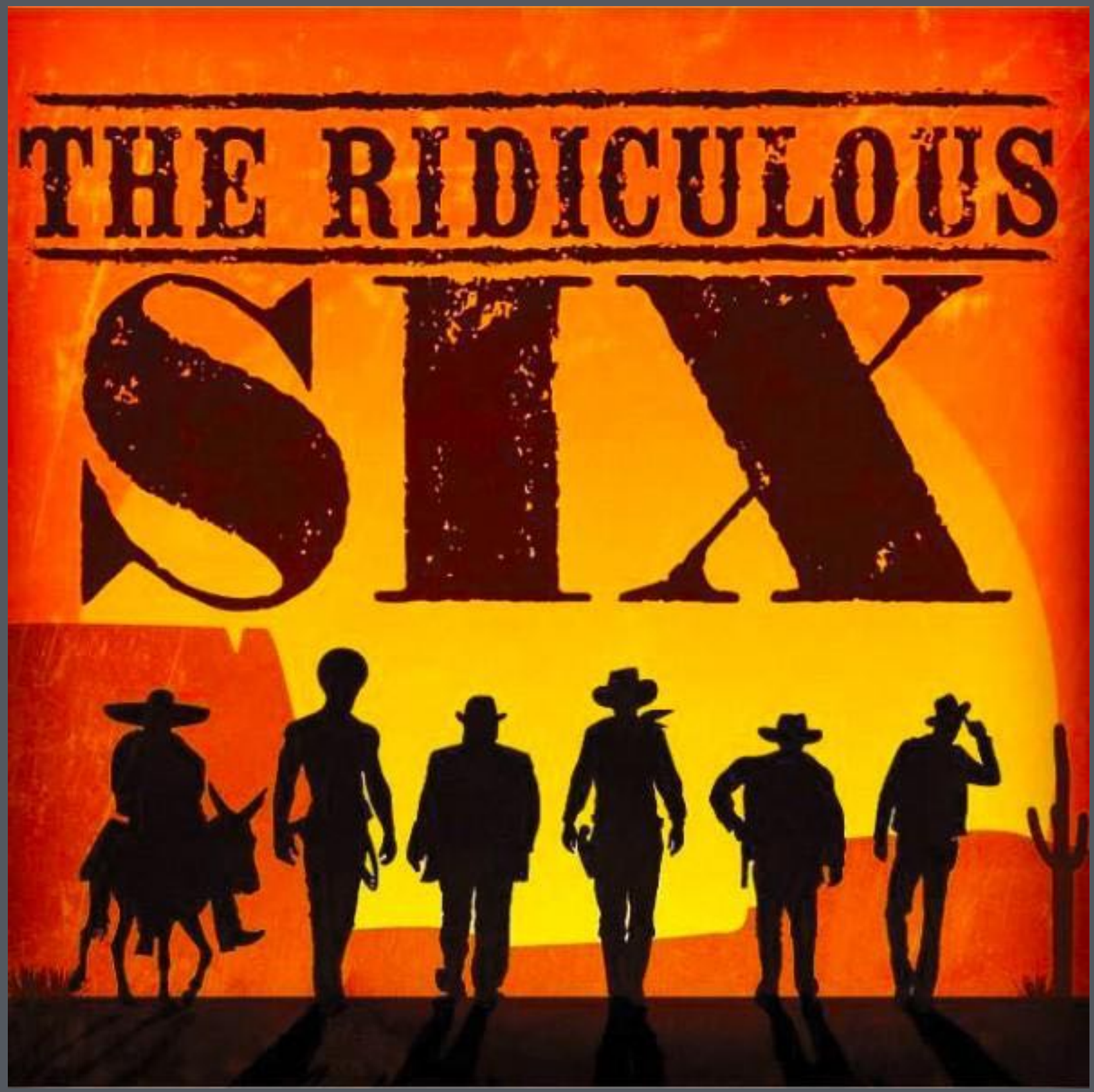
Years

#celebration

ALL THESE NETWORKS



HAVE THE SAME PROBLEMS


THE RIDICULOUS
SIX

#1 : NULL Sessions

An anonymous connection to a computer which can be used to gather information about the system.

- Disabled by default on newer versions of Windows.

The Problem

- If allowed, Domain Controllers will return the complete list of domain users, groups, and group membership to aid an attacker

```
Group 'Domain Admins' (RID: 512) has member: ACME\research2
Group 'Domain Admins' (RID: 512) has member: ACME\ADM-Charlie
Group 'Domain Admins' (RID: 512) has member: ACME\MeganR
Group 'Domain Admins' (RID: 512) has member: ACME\ADM-Keifer
Group 'Domain Admins' (RID: 512) has member: ACME\A.jordaan
Group 'Domain Admins' (RID: 512) has member: ACME\ADM-Hobson
Group 'Domain Admins' (RID: 512) has member: ACME\BackupAkl
Group 'Domain Admins' (RID: 512) has member: ACME\adm-luke
Group 'Domain Admins' (RID: 512) has member: ACME\QTSupplier
Group 'Domain Admins' (RID: 512) has member: ACME\stevej
Group 'Domain Admins' (RID: 512) has member: ACME\backupexec
Group 'Domain Admins' (RID: 512) has member: ACME\ADM-Neil
Group 'Domain Admins' (RID: 512) has member: ACME\ADM-Tony
Group 'Domain Admins' (RID: 512) has member: ACME\b.furn
Group 'Domain Admins' (RID: 512) has member: ACME\c.philbert
Group 'Domain Admins' (RID: 512) has member: ACME\domainscan
Group 'Domain Admins' (RID: 512) has member: ACME\jkeagan
Group 'Domain Admins' (RID: 512) has member: ACME\fortinet
Group 'Domain Admins' (RID: 512) has member: ACME\mtest
```

>_enum4linux output sample

BlueTeam Guidance

Enum4linux

A wrapper around the Samba tools
 - smbclient, rpcclient, net nmblookup

https://tools.kali.org/information-gathering/enum4linux

#2 Server Message Block (SMB) Signing

SMB is a file protocol mostly used by windows systems primarily to provide shared access to files, printers, network locations etc.

- Signing is disabled by default on Windows systems (except Domain Controllers)

The Problem

Attacker can perform SMB Relay attacks against systems with signing disabled, gaining a foothold.

```
Relaying credentials for these users:
[  Administrator  ]

Retrieving information for '          2...
SMB signing: False
Os version: 'indows 7 Enterprise 7601 Service Pack 1'
Hostname: '          '
Part of the          domain
[+] Setting up SMB relay with SMB challenge: 990509b1d6be058a
[+] Received NTLMv2 hash from: 10.          False
```

BlueTeam Guidance

Nmap

```
Nmap scan report for acme1.acme.com (172.16.10.23)
Host is up (0.00043s latency).
PORT    STATE SERVICE
445/tcp open  microsoft-ds

Host script results:
| smb-security-mode:
|   account_used: guest
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
```

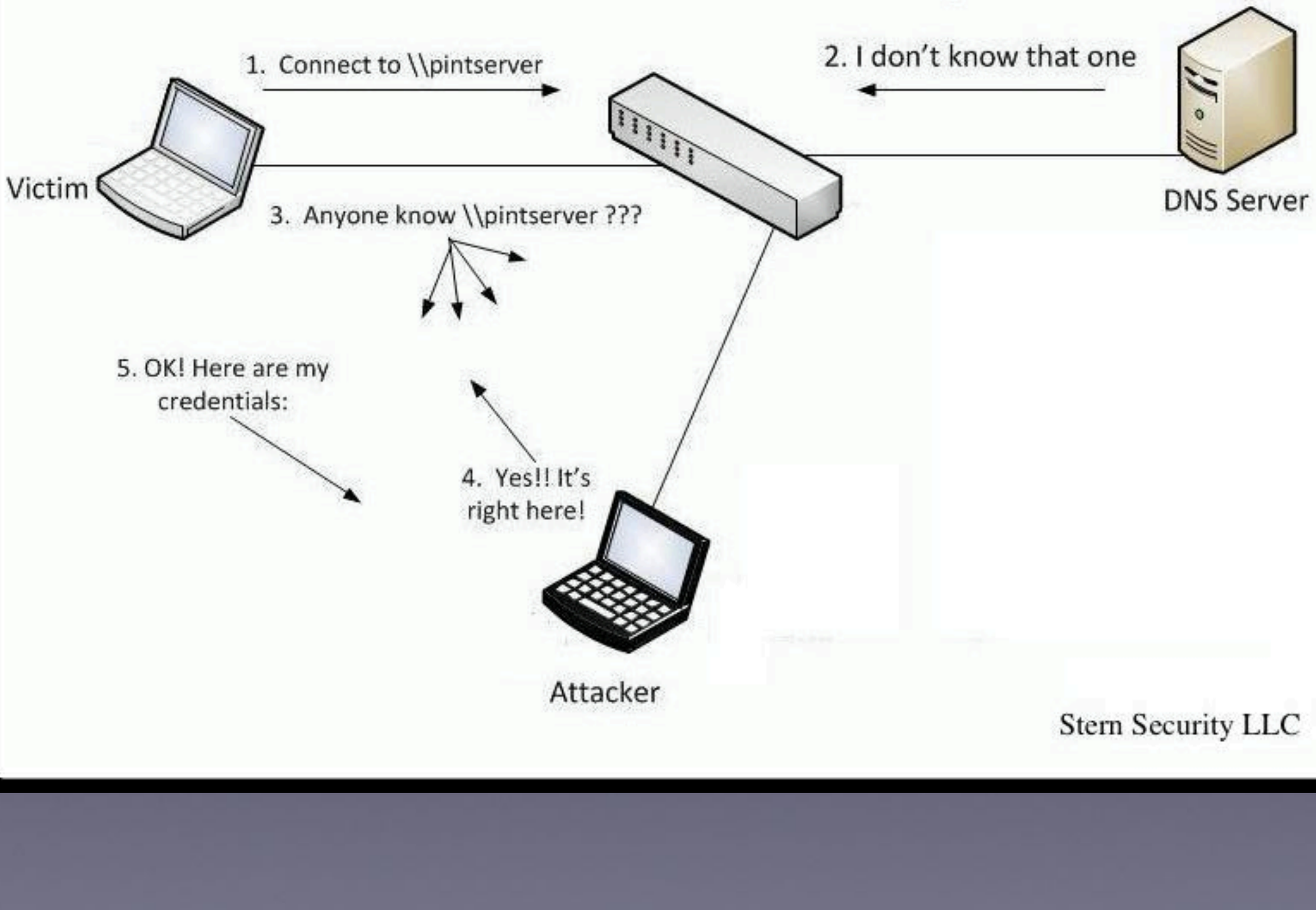
3: Link-Local Multicast and NetBIOS Name Resolution

Two components of Microsoft Windows, which helps machines on the same subnet to find each other when DNS fails.

The Problem

Attacker can intercept and respond to these requests, to capture password hashes > crack weak passwords.

LLMNR / NBT-NS Poisoning



Stern Security LLC

USERNAME::ACME:
4da48bc39cda0000:207F43D4CF1D9F6B4E8D1A9468035FE8:01010000000000
000ED4B4630034DD301F6EC346B69BA81DF0300000002000600490052004C0
001001E00490046005300 2D00430052005900530054004 1004C00320030003000
03300004001C0069006E0074002E00690072006C002E00630072006900 2E006E
007A0003003C00690066 0073002D00630072007900730074006 1006C0032003
000300033002E0069006E0074002E00690072006F9C2E00630072006900 2E006
E007A0005001C0069006E0074002E00690072006C002E00630072006900 2E00
6E007A000800300030000000000000000000000200000C7880B89BF2E360
CB05EA5A22EDA93D3C5F5D1BD998E6CD8CA860E8F41453D1C0A00100000
0000000000000000000000000900180048005400540050002F00770070 00
06100640 03A00380030000000000E7BD238

BlueTeam Guidance

Responder

Metasploit

https://github.com/lgandx/Responder

4: Passwords Management

Weak and default passwords are frequently detected. Domain and local account password policies enforce the company password requirements. Password reuse.

The Problem

- The industry requirements are difficult, so users construct passwords following predictable patterns. Captured hashes are more likely to be cracked.

BlueTeam Guidance

Hashcat

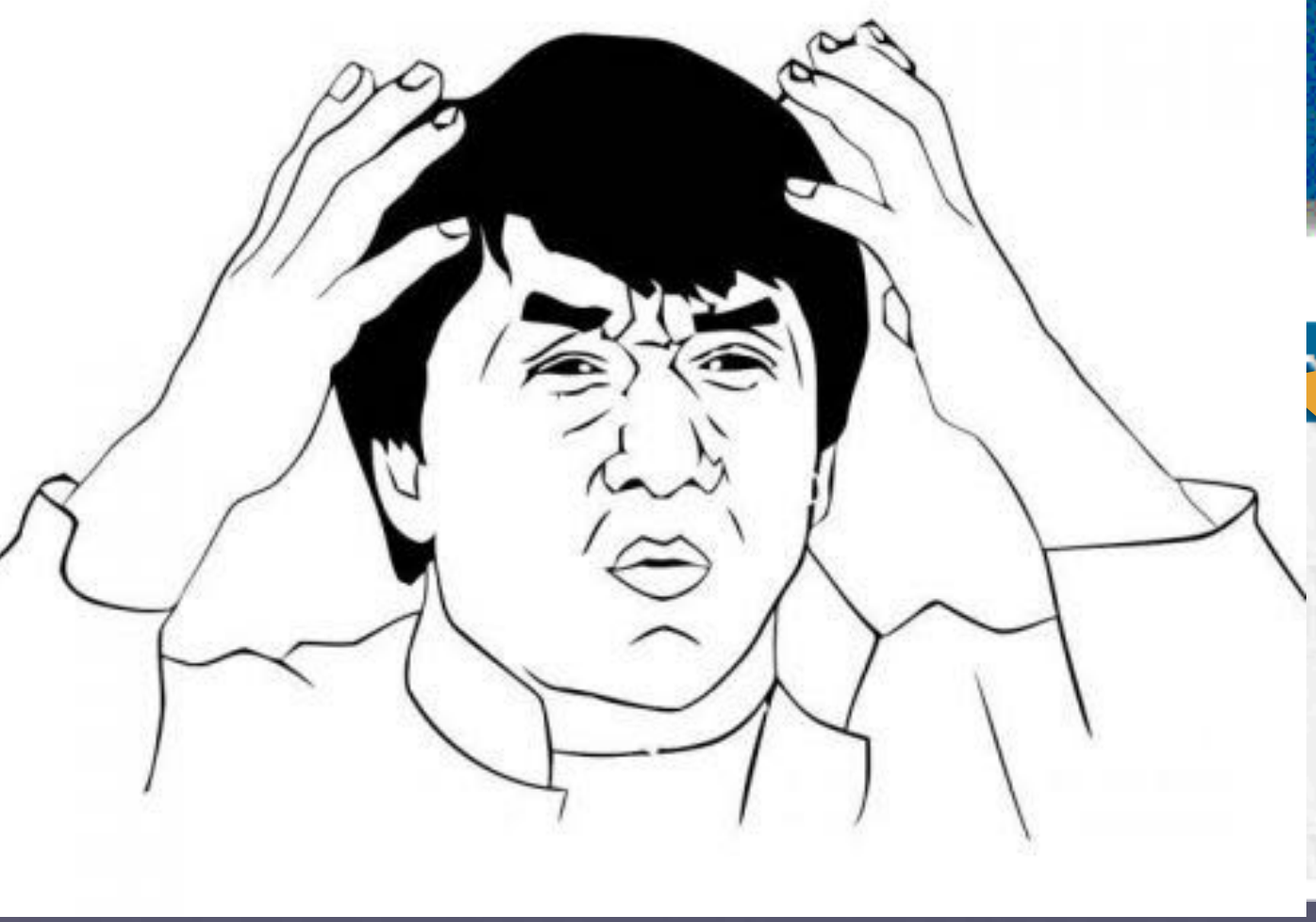
https://hashcat.net/hashcat/

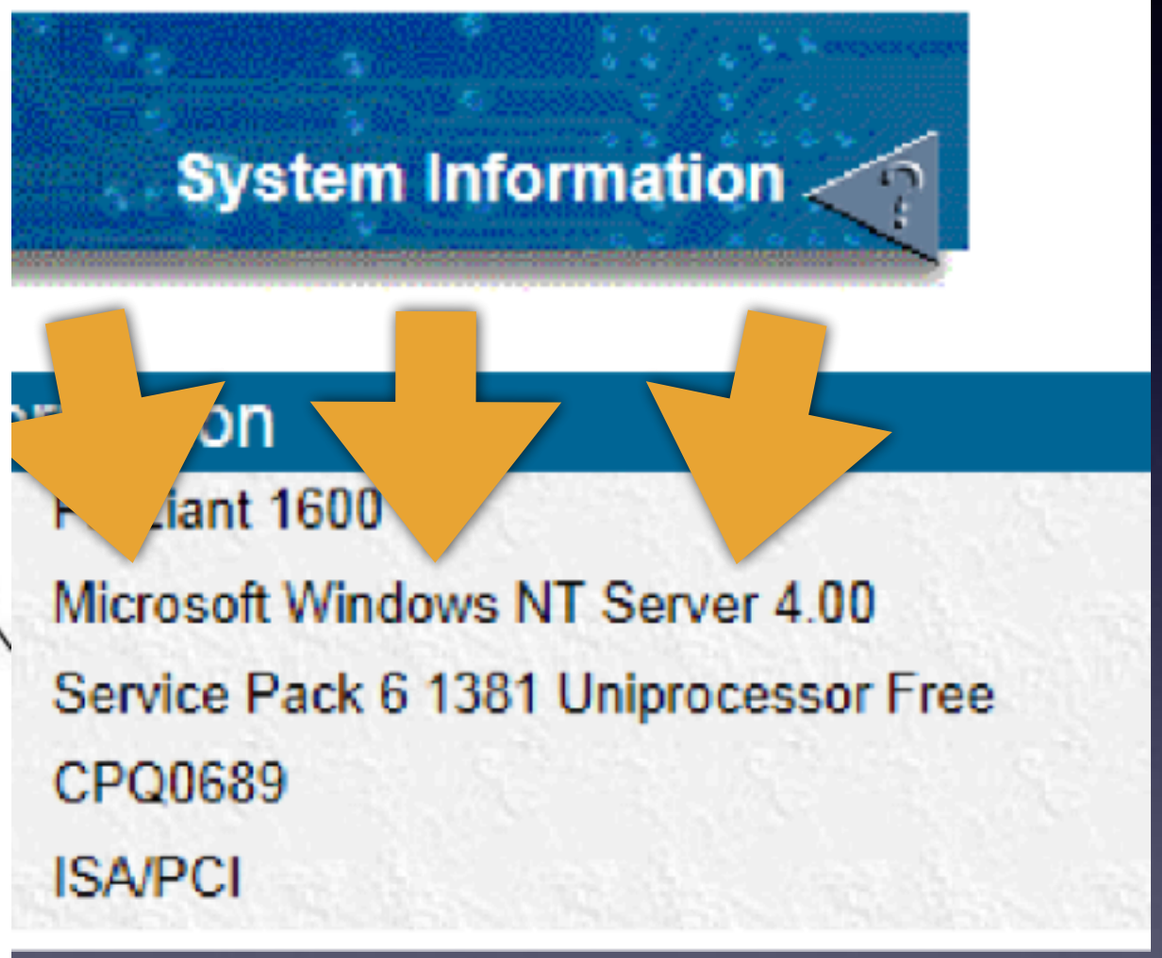
#5: Out of Date Software

Software Vendors release new versions to fix bugs. Eventually software because deprecated (EOL) and replaced completely.

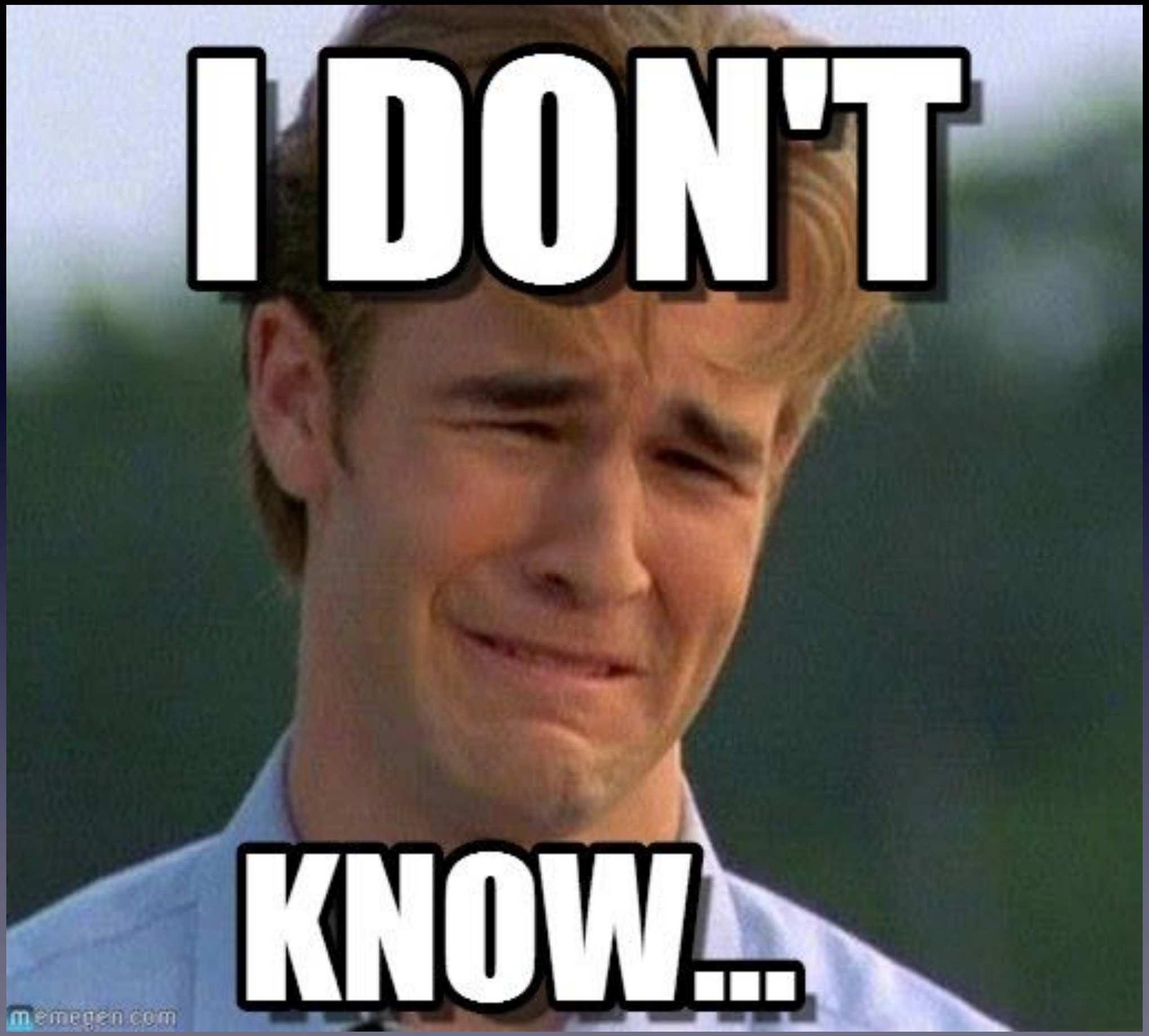
The Problem

Patches seem to take between 3 months and ‘infinity’ to be installed.




System Information
on
iant 1600
Microsoft Windows NT Server 4.00
Service Pack 6 1381 Uniprocessor Free
CPQ0689
ISA/PCI


ARE WE PROTECTED
FROM THIS NEW ATTACK ?
RISK AND COMPLIANCE
SYS ADMIN
60178272


I DON'T
KNOW...
memegen.com

BlueTeam Guidance

Nmap (has scripts for several vulns)

OpenVAS (free)

- Community version of Nessus

Metasploit Framework

https://www.openvas.org

[-] 10.7.39.160:445 - Host does NOT appear vulnerable.
[+] 10.7.39.161:445 - Host is likely VULNERABLE to MS17-010!
[-] 10.7.39.162:445 - Host does NOT appear vulnerable.
[-] 10.7.39.163:445 - Host does NOT appear vulnerable.
[-] 10.7.39.170:445 - Host does NOT appear vulnerable.
[+] 10.7.39.171:445 - Host is likely VULNERABLE to MS17-010!
(Windows 7 Enterprise 7601 Service Pack 1)

#6: Privileged Service Accounts

Service accounts are created by Admins to install, configure and operate software applications.
e.g. backup software, anti virus.

The Problem

- Service accounts are often excluded from security policies i.e MFA, password expiration
- Excessive privileges

<UNCSite Type="repository" Name="Christchurch Repository" Order="2" Server="chrv01" Enabled="1" Local="0"><ShareName>mcafeeEPO5.1$</ShareName><RelativePath></RelativePath><UseLoggedonUserAccount>0</UseLoggedonUserAccount><DomainName>ACME</DomainName><UserName>McAfeeEpo_SVC</UserName><Password Encrypted="1">[redacted]kDTrFXsR/abAFPM9B3Q==</Password></UNCSite><UNCSite Type="repository" Name="Dunedin Repository" Order="3" Server="dnsrv01" Enabled="1" Local="0"><ShareName>McAfeeEPO5.1$</ShareName><RelativePath></RelativePath><UseLoggedonUserAccount>0</UseLoggedonUserAccount><DomainName>ACME</Domain

funoverip / mcafee-sitelist-pwd-decryption

Watch 11 | Star 57 | Fork 14

Code | Issues 0 | Pull requests 0 | Projects 0 | Wiki | Insights

Password decryption tool for the McAfee SiteList.xml file

7 commits | 1 branch | 0 releases | 2 contributors

Branch: master | New pull request | Create new file | Upload files | Find file | Clone or download

funoverip Cleaning up IV — Latest commit 3665de8 on 12 Feb 2016

README.md	Typo fix (French != English)	2 years ago
mcafee_sitelist_pwd_decrypt.py	Cleaning up IV	2 years ago

BlueTeam Guidance

Enum4linux, but simpler to just review AD

https://tools.kali.org/information-gathering/enum4linux

There is no acceptable excuse to be at risk to

20 year old vulnerabilities….

Summation

Thank you for your time

No Wait There's More

(code for: "I went to fast and finished early")