

# Jamf in your security stack

● **JAMF  
NATION  
LIVE**

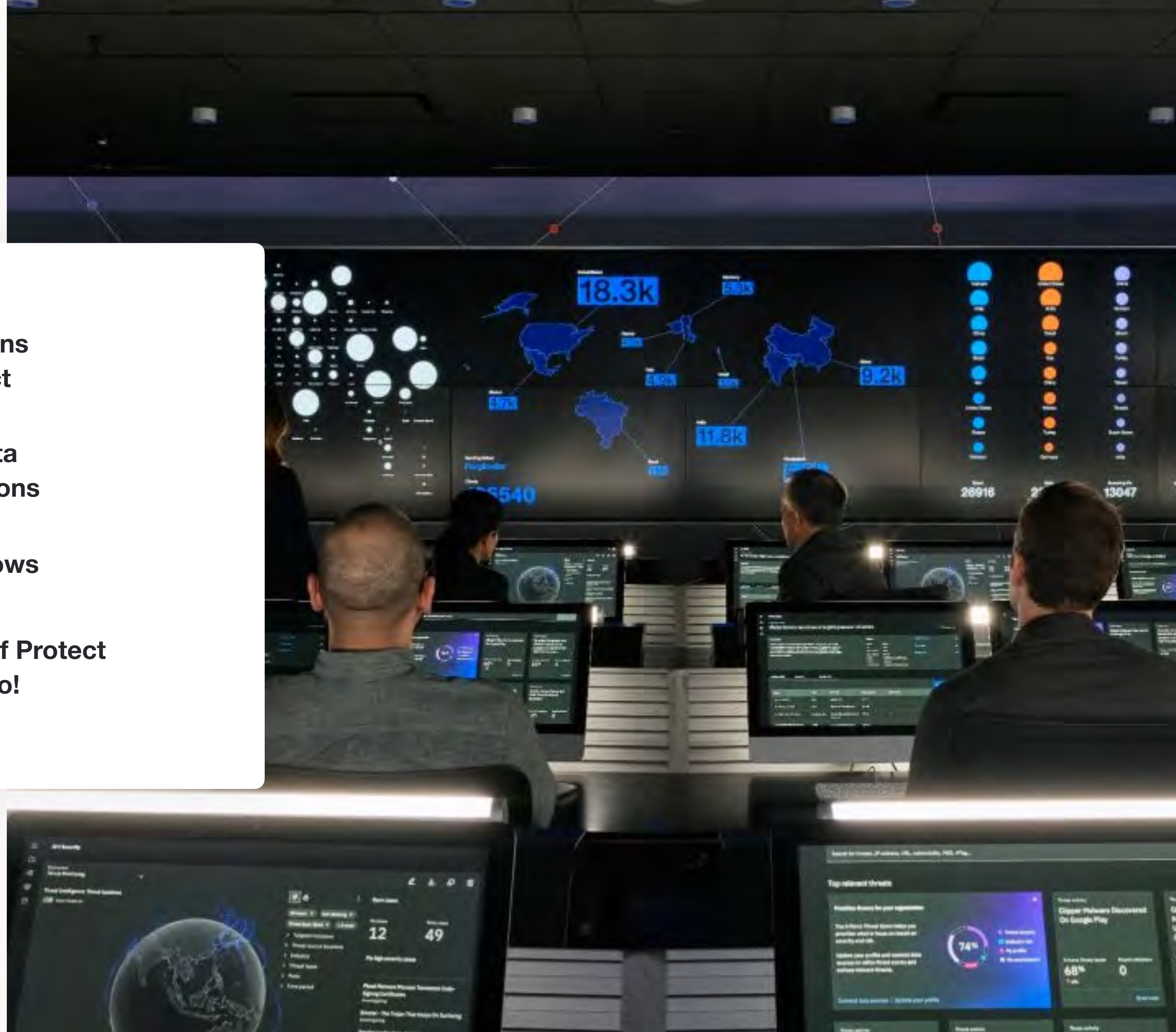


**Thijs Xhaflaire**

Consulting Engineer,  
Security  
Jamf

# Session Outline

- 1 | Overview Jamf Security solutions and options within Jamf Protect
- 2 | Why it's relevant to forward data & the available forwarding options
- 3 | Solution Integrations & Workflows
- 4 | Basic Threat Hunting with Jamf Protect and Microsoft Sentinel — Demo!



# Overview of Jamf Security Solutions



## Jamf Protect

Jamf Protect provides powerful Endpoint Security to macOS, iOS and iPadOS with advanced detection and response capabilities, backed by Jamf Threat Labs.



## Jamf Connect

Providing **Cloud-based Identity** and **Zero-trust Network Access** on macOS and Mobile endpoints.



## Jamf Safe Internet

Comprehensive content filtering and web threat protection optimized for education and integrated with MDM for simple, powerful student and user protection.



## Jamf Executive Threat Prevention

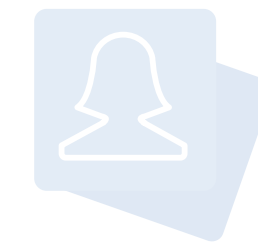
Provides Advanced detection and response capabilities to mobile endpoints and an remote method to detect incidents or activities on mobile devices and the tools needed to respond.

# Overview of Jamf Security Solutions



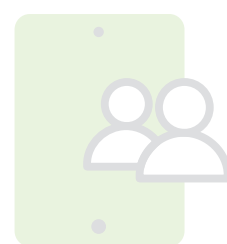
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# Jamf Protect



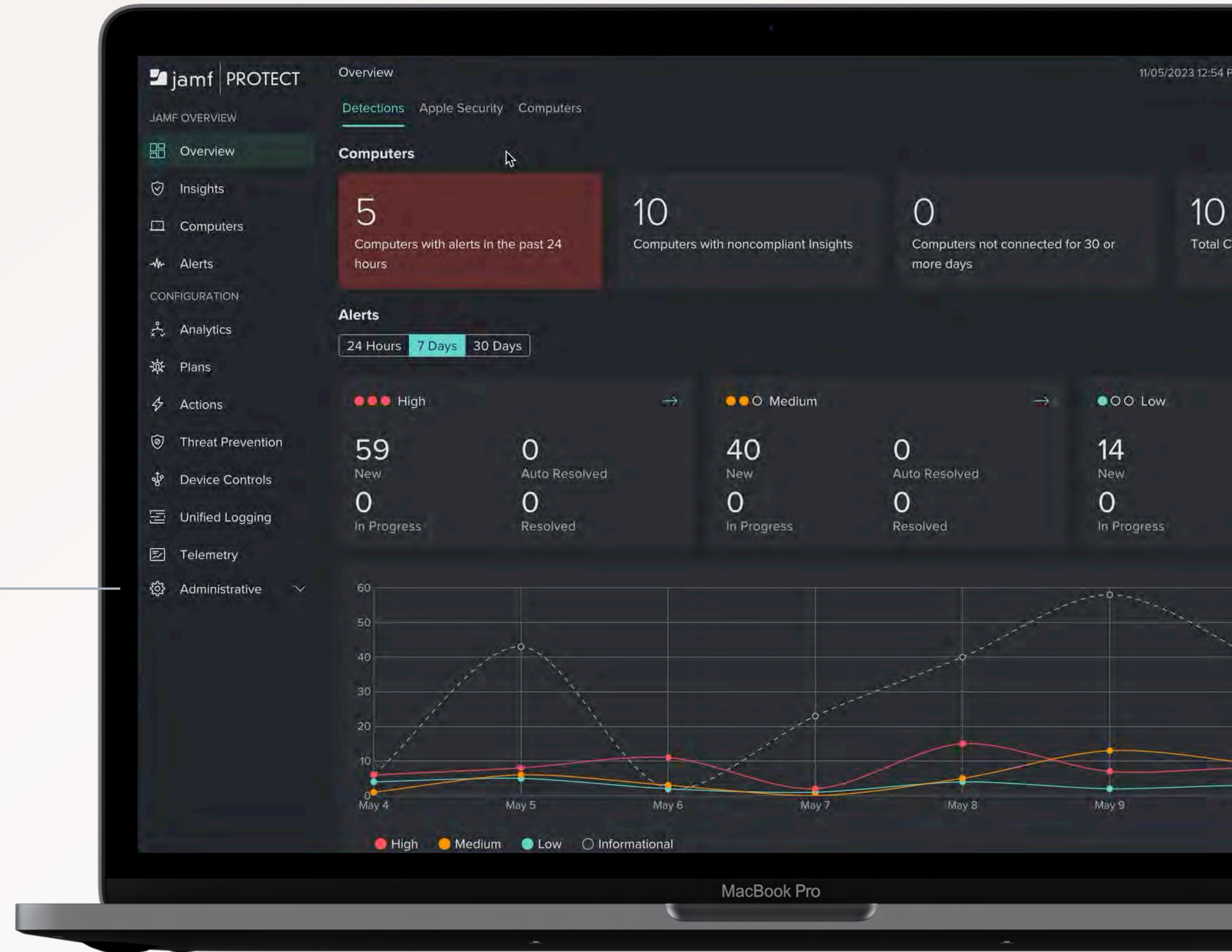
# Jamf Protect

Dashboards and Alerts

**Alerts for macOS endpoints available in Jamf Protect, macOS Security Portal**

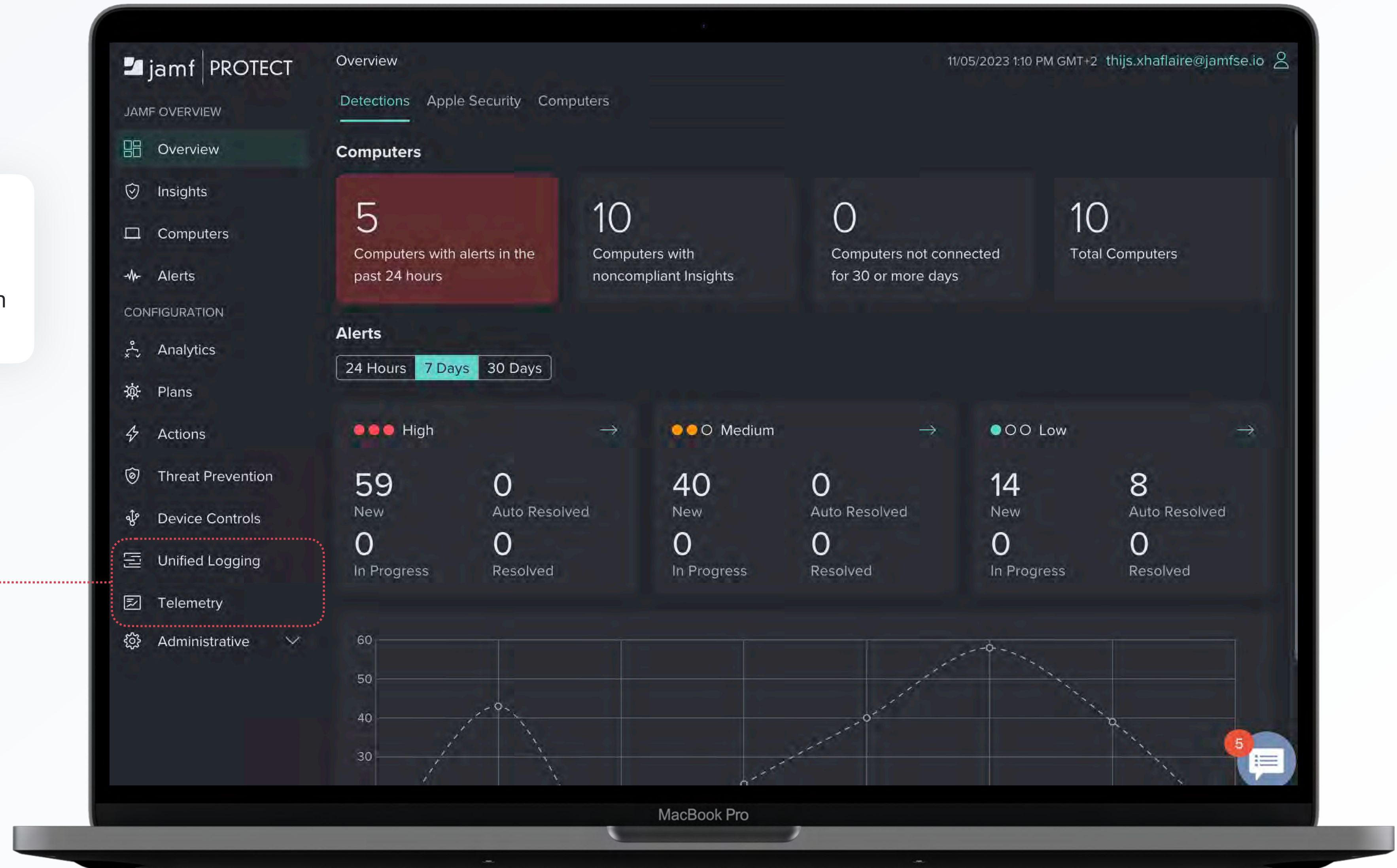
Dashboards and Alerts

**Network or app-based Threats for macOS and iOS/iPadOS available in Jamf Security Cloud (RADAR)**



# Jamf Protect

Requirements  
Both **Unified Logging** and **Telemetry**  
require integrating with a third party solution



# Jamf Protect

## Unified Logging

**Sift through macOS Unified Logging system with Jamf Protect's predicate-based filtering**

### TouchID Authentication Events:

```
process == "loginwindow" AND  
eventMessage CONTAINS[c] "APEventTouchIDMatch"
```

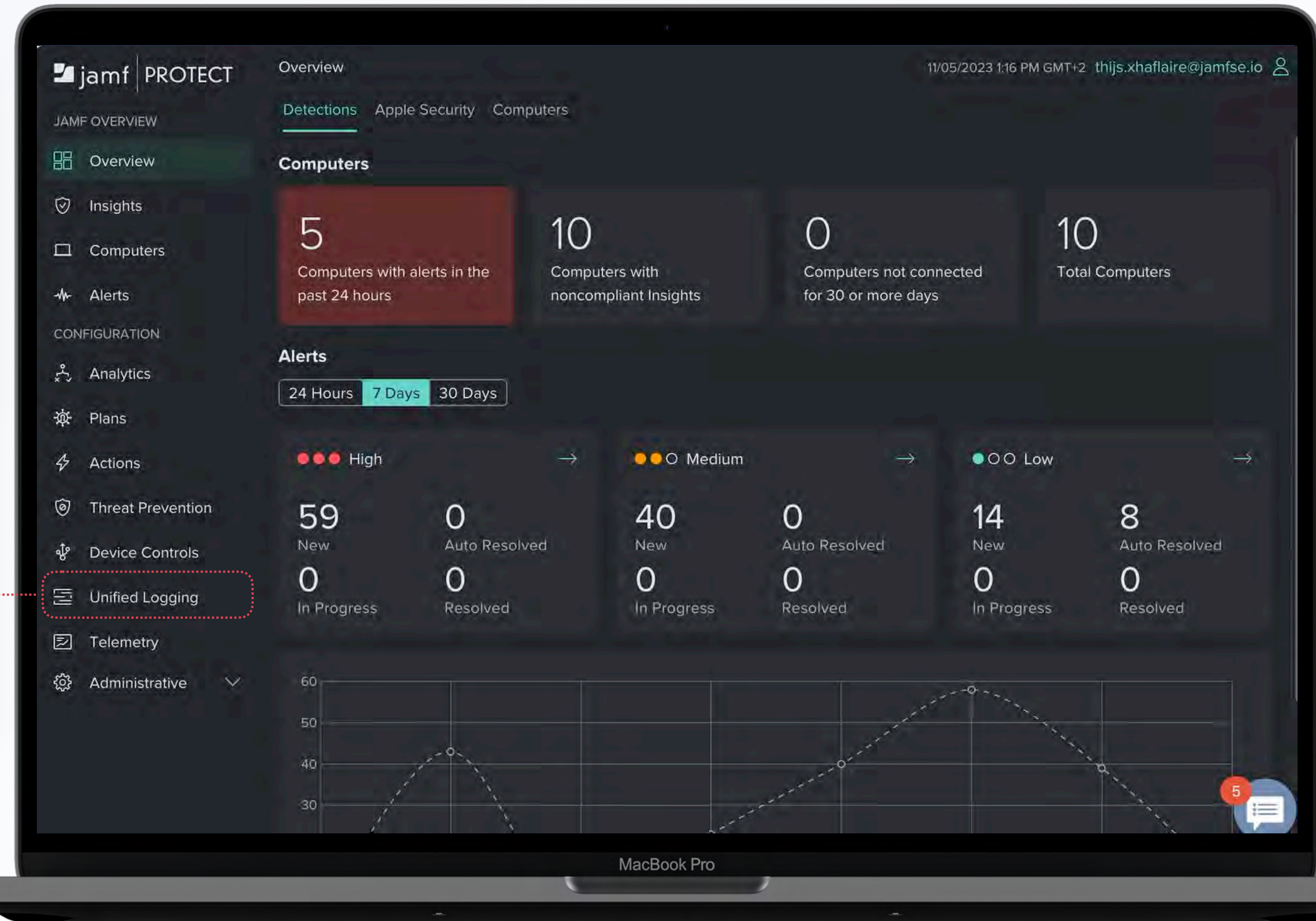
### XProtect Remediator Scan Activity:

```
subsystem ==  
"com.apple.XProtectFramework.PluginAPI" AND  
category == "XPEvent.structured"
```

### SAP Privileges:

```
process == "corp.sap.privileges.helper" AND  
eventMessage CONTAINS "SAPCorp"
```

**More examples on <https://github.com/jamf/jamfprotect>**





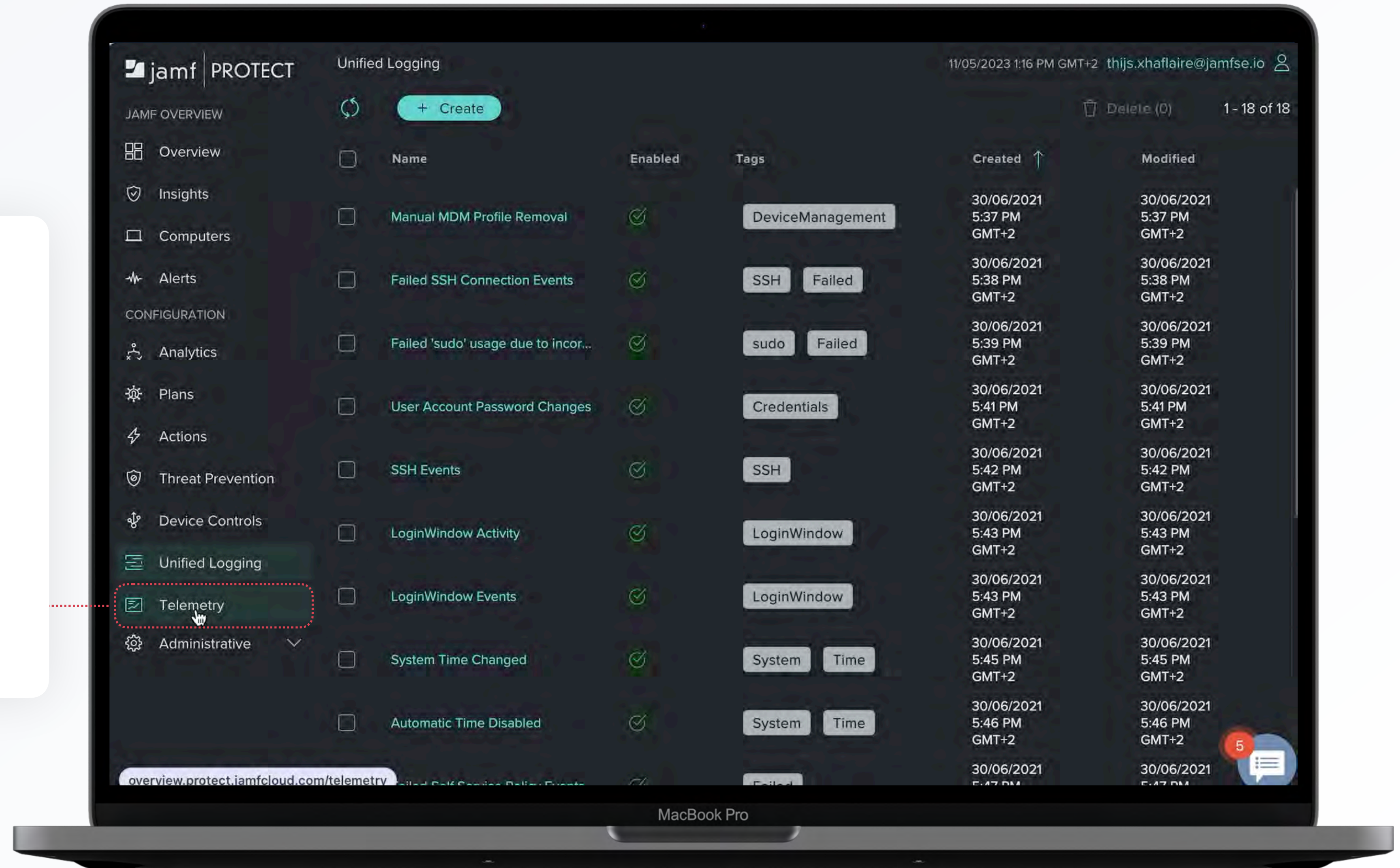
# Jamf Protect

## Telemetry

Get curated User and Device activity feeds and enable your teams with the data they require

- ▶ Collect curated endpoint Telemetry
- ▶ Collect System Performance metrics
- ▶ Collect and monitor crash, diagnostic and log files

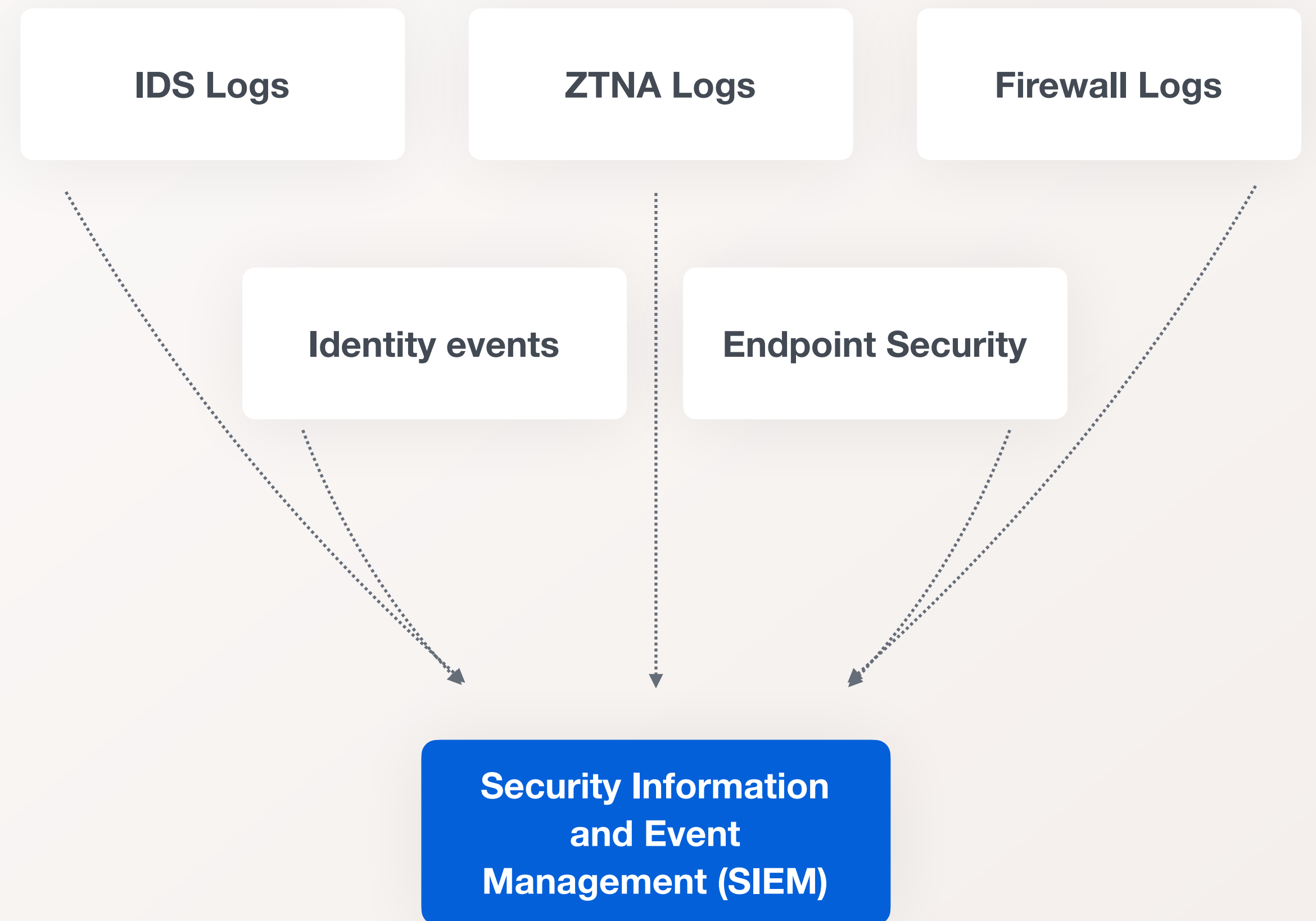
More examples on <https://github.com/jamf/jamfprotect>



# Forwarding Security Events — why it's relevant

Simplify the process of identifying threats across your fleet, gather forensic details in matter of seconds from various sources and set out manual or automated actions

- Providing a single pane of glass
- Unified searching across events provided by different solutions or platforms
- Setup Security Orchestration, Automation and Response

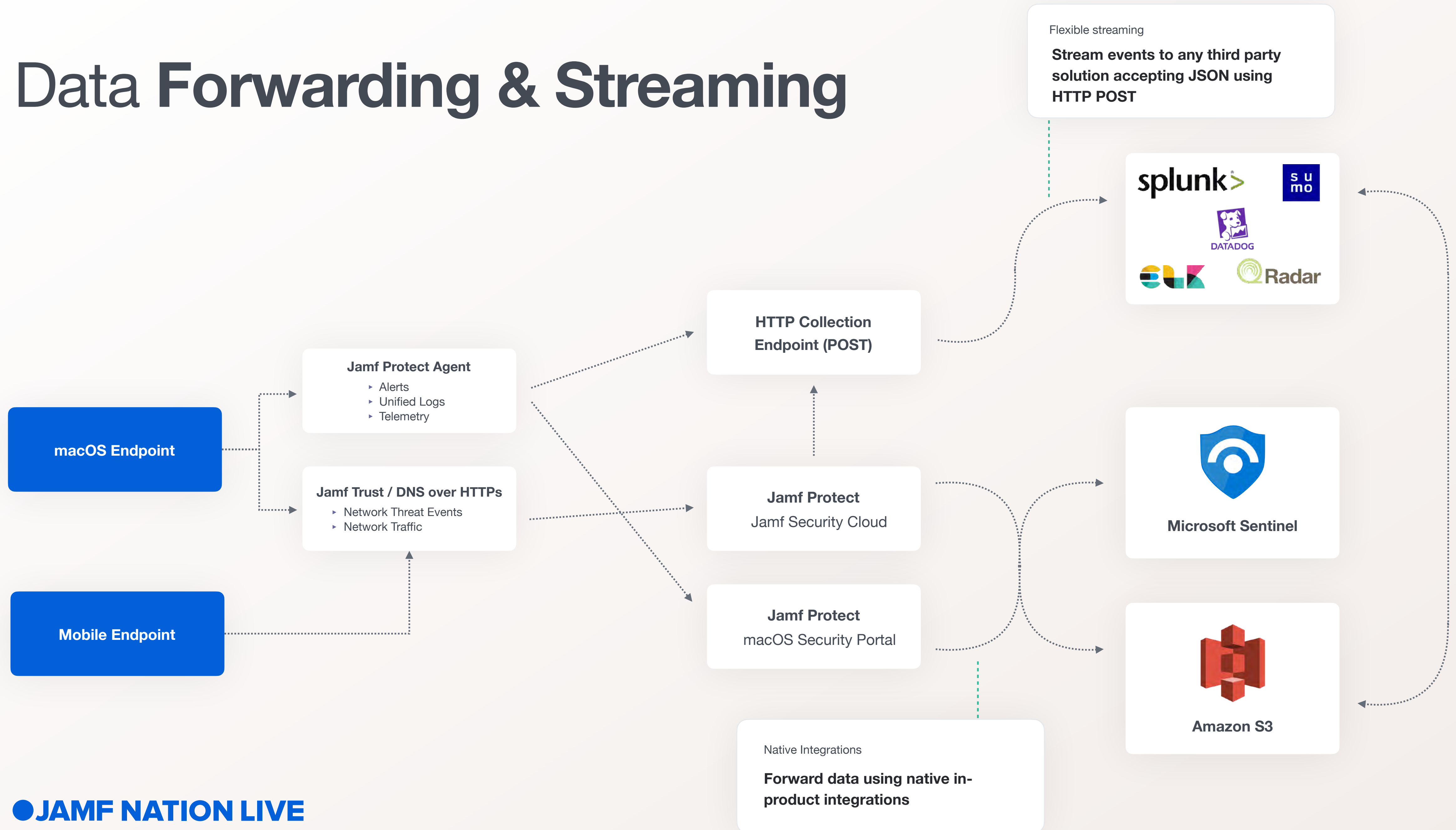


```
Query
| Where Dvc0s == "macOS"
  and TargetProcessName has "Weed"
  or
  Where DnsQuery has "mac.cracked23.site"
Example hunting query for MacStealer
```



- Fields are mapped against respective schema
- Review security incidents at ease
- Configure automated responses across systems

# Data Forwarding & Streaming



# Event Types



## Jamf Protect Alerts

### Alerts

- Detection and Prevention of known threats
- Gatekeeper and XProtect events
- Behavior-based detections

### Device Controls

- Mount Events
- Enforced Policies



## Jamf Protect Telemetry

### Endpoint Telemetry

- Login and Authorization events
- User and Group creation and changes
- System Operation Events
- Network and Firewall changes
- Application process executions and security actions by applications
- Terminal and shell script activity
- Inbound network connections
- Outbound network connections
- Unified Logs



## Jamf Protect Network Events

### Threat Events

- Phishing
- Malware Network Traffic
- Spam
- Cryptojacking
- Vulnerable & out-of-date OS

### Network Traffic

- Network Traffic using SecureDNS
- Content Filtering

# Event Types — JSON

Jamf Protect — Web Threats

```
    "id": "303",
    "description": "Risky Host/Domain - Malware",
    "name": "ACCESS_BAD_HOST"
  },
  "app": {
    "id": null,
    "name": null,
    "version": null,
    "sha1": null,
    "sha256": null
  },
  "destination": {
    "name": "www.eicar.org",
    "ip": "89.238.73.97",
    "port": null
  },
  "source": {
    "ip": null,
    "port": null
  },
  "location": "GB",
  "accessPoint": null,
  "accessPointBssid": null,
  "severity": 8,
  "user": {
    "email": "thijs.xhaflaire@jamfse.io",
    "name": "Thijs Xhaflaire"
  },
  "eventUrl": "https://radar.wandera.com/security/events/detail/4503dafa-62b7-4297-a73e-5cb53d38916c.ACCESS_BAD_HOST?createdUtcMs=1682645742063",
  "action": "Blocked"
}
```

## Common fields of interest

```
{
  "event": {
    "device": {
      "deviceId": "e9671102-5ccf-4e66-a6b3-b117ba257d5f",
      "os": "macOS 13.2.1",
      "deviceName": "Mac (13.2.1)",
      "userDeviceName": "acme-C1MT80UUH30D",
      "externalId": "0c221ae4-50af-5e39-8275-4424cc87ab8e"
    },
    "severity": 8,
    "user": {
      "email": "thijs.xhaflaire@jamfse.io",
      "name": "Thijs Xhaflaire"
    },
    "eventUrl": "https://radar.wandera.com/security/events/detail/4503dafa-62b7-4297-a73e-5cb53d38916c.ACCESS_BAD_HOST?createdUtcMs=1682645742063",
    "action": "Blocked"
  }
}
```





## Specific fields of interest

```
{
  "event": {
    "eventType": {
      "id": "303",
      "description": "Risky Host/Domain - Malware",
      "name": "ACCESS_BAD_HOST"
    },
    "destination": {
      "name": "www.eicar.org",
      "ip": "89.238.73.97",
      "port": null
    },
    "source": {
      "ip": null,
      "port": null
    }
  }
}
```

# Solution Integrations

## Third party integrations maintained by Jamf

**Jamf Protect for Microsoft Sentinel**

Data Connector    Workbooks    Analytic Rules

## Third party integrations maintained by vendor





**Jamf Protect Google Chronicle Integration**

UDM Mappings    EDR Logs    Parser




## To be released by Jamf

**Jamf Protect Technical Add-on**




Splunk CIM    Dashboards    Macro's

**Jamf Protect Elastic Integration**

ECS Mappings    Dashboards

**Jamf Protect Sumo Logic Integration**

CSE Mappings    Dashboards

# Solution Integrations

## Third party integrations maintained by Jamf

### Jamf Protect for Microsoft Sentinel



### Jamf Protect Technical Add-on



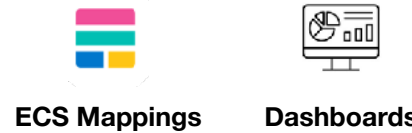
## Third party integrations maintained by vendor

### Jamf Protect Google Chronicle Integration



## To be released by Jamf

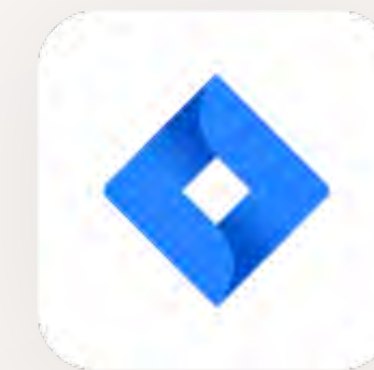
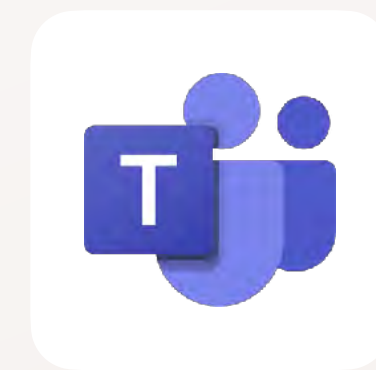
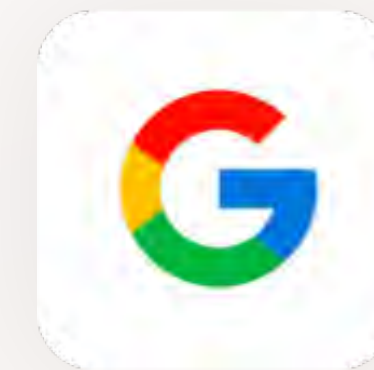
### Jamf Protect Elastic Integration



### Jamf Protect Sumo Logic Integration



# Solution Workflows



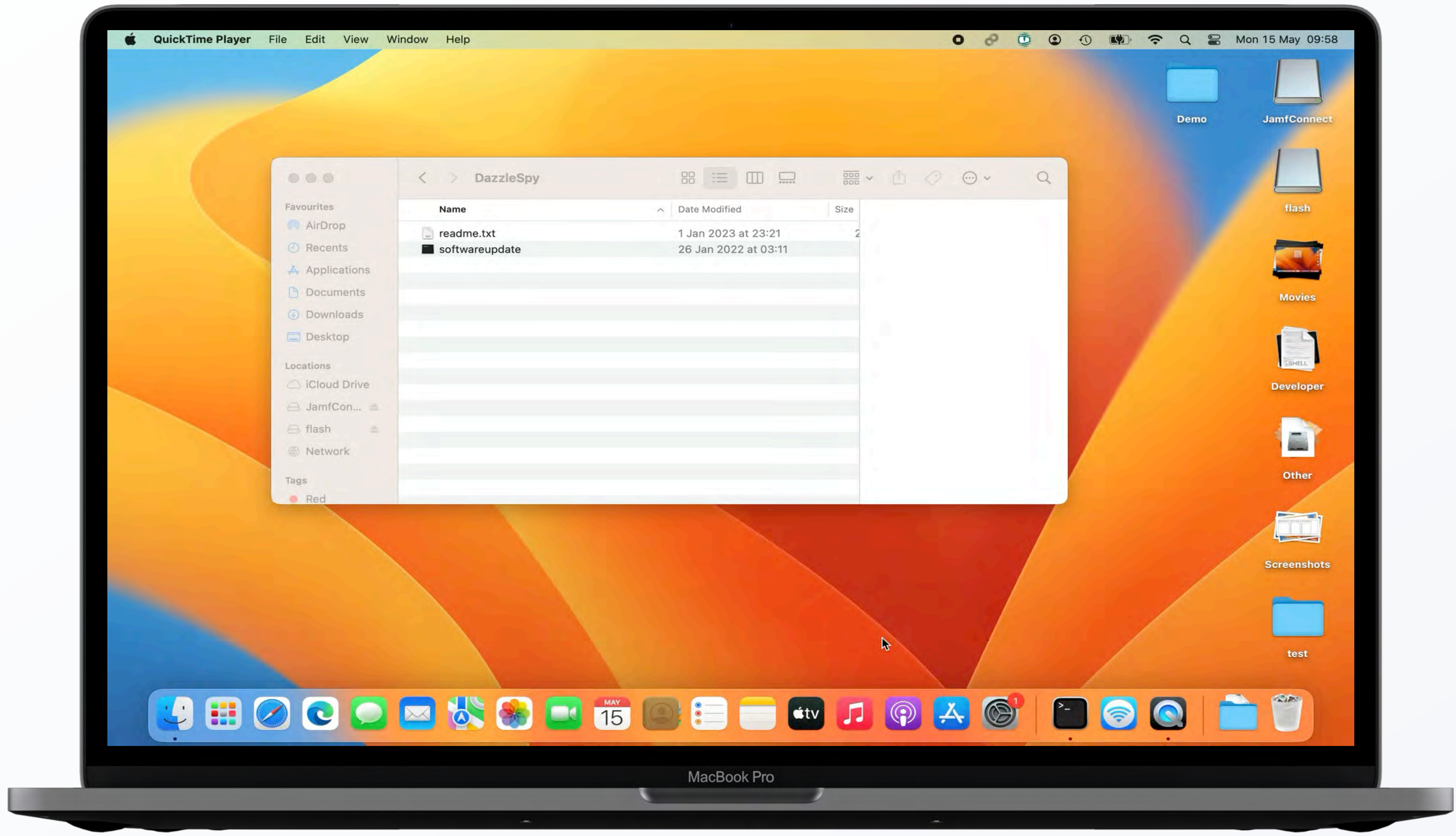
Examples available on:  
<https://github.com/jamf/jamfprotect>



# Basic Threat Hunting:

Using Jamf Protect and  
Microsoft Sentinel

MacBook Pro

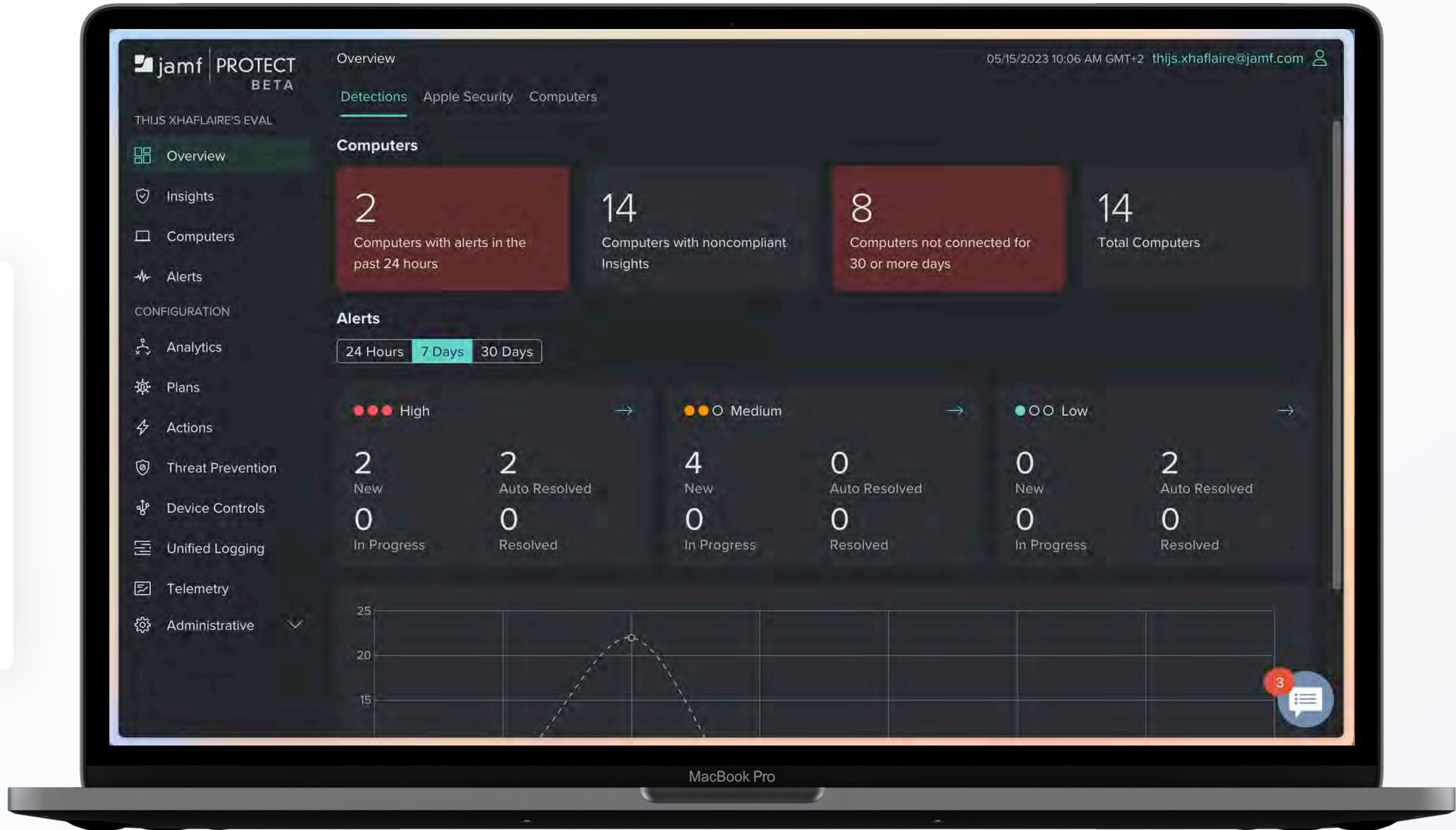


### Threat has been detected

Security Admin receives and inspects alert in either

- ▶ Jamf Protect macOS Security Portal
- ▶ Microsoft Sentinel Workbook or Incidents

Let's take note of the **SHA1 hash** value of the binary



### Indicators of Compromise

SHA1 hash of Mach-0 Executable

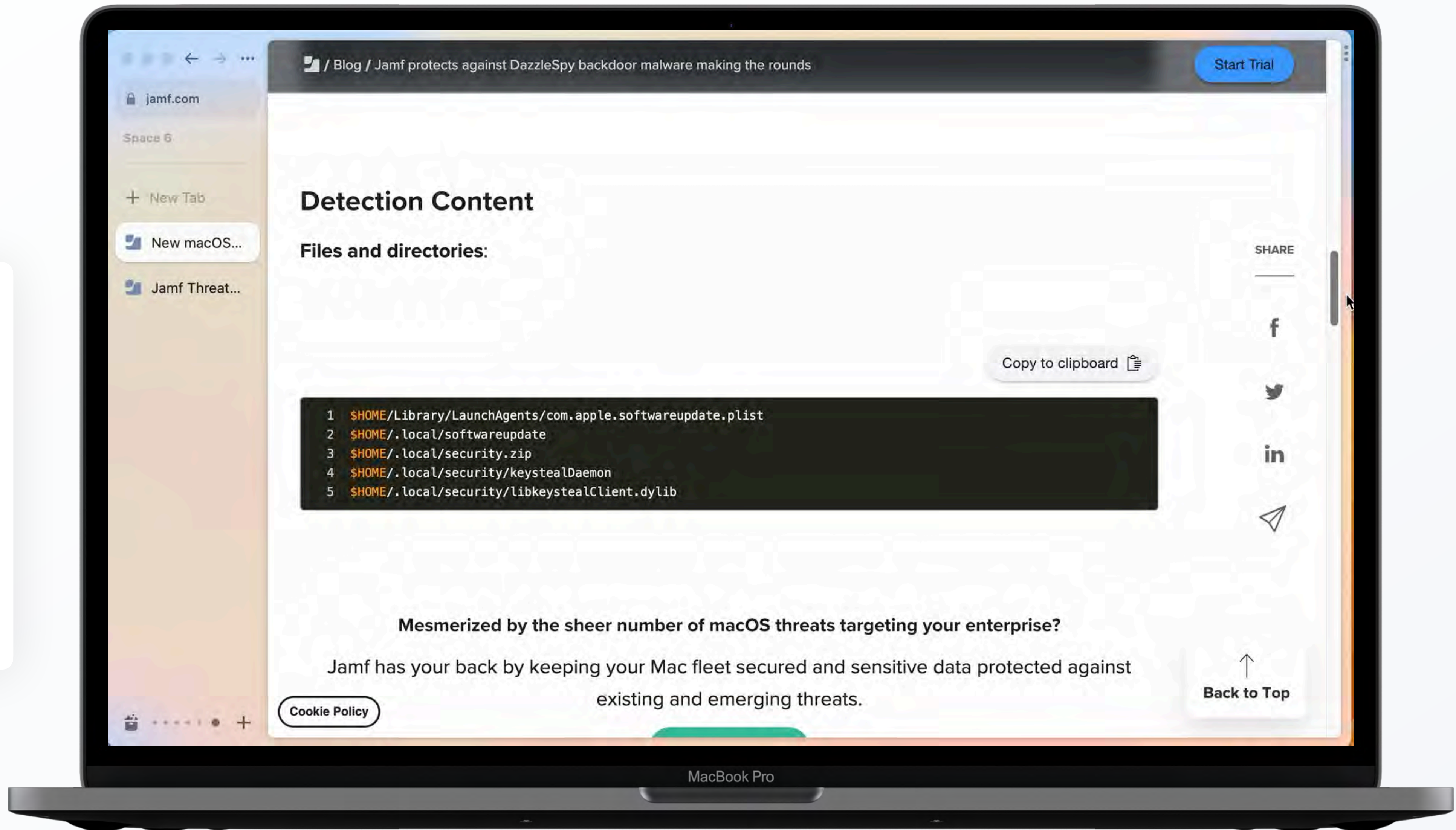
```
ee0678e58868ebd6603cc2e06a134680d2012c1b
```

Command And Control (C2) IPs

```
88.218.192.128
```

### Related Files

```
/com.apple.softwareupdate.plist  
./local/softwareupdate
```



## Detection Content

### Files and directories:

```
1 $HOME/Library/LaunchAgents/com.apple.softwareupdate.plist  
2 $HOME/.local/softwareupdate  
3 $HOME/.local/security.zip  
4 $HOME/.local/security/keysteaLdaemon  
5 $HOME/.local/security/libkeysteaLClient.dylib
```

Copy to clipboard

SHARE



Mesmerized by the sheer number of macOS threats targeting your enterprise?

Jamf has your back by keeping your Mac fleet secured and sensitive data protected against existing and emerging threats.

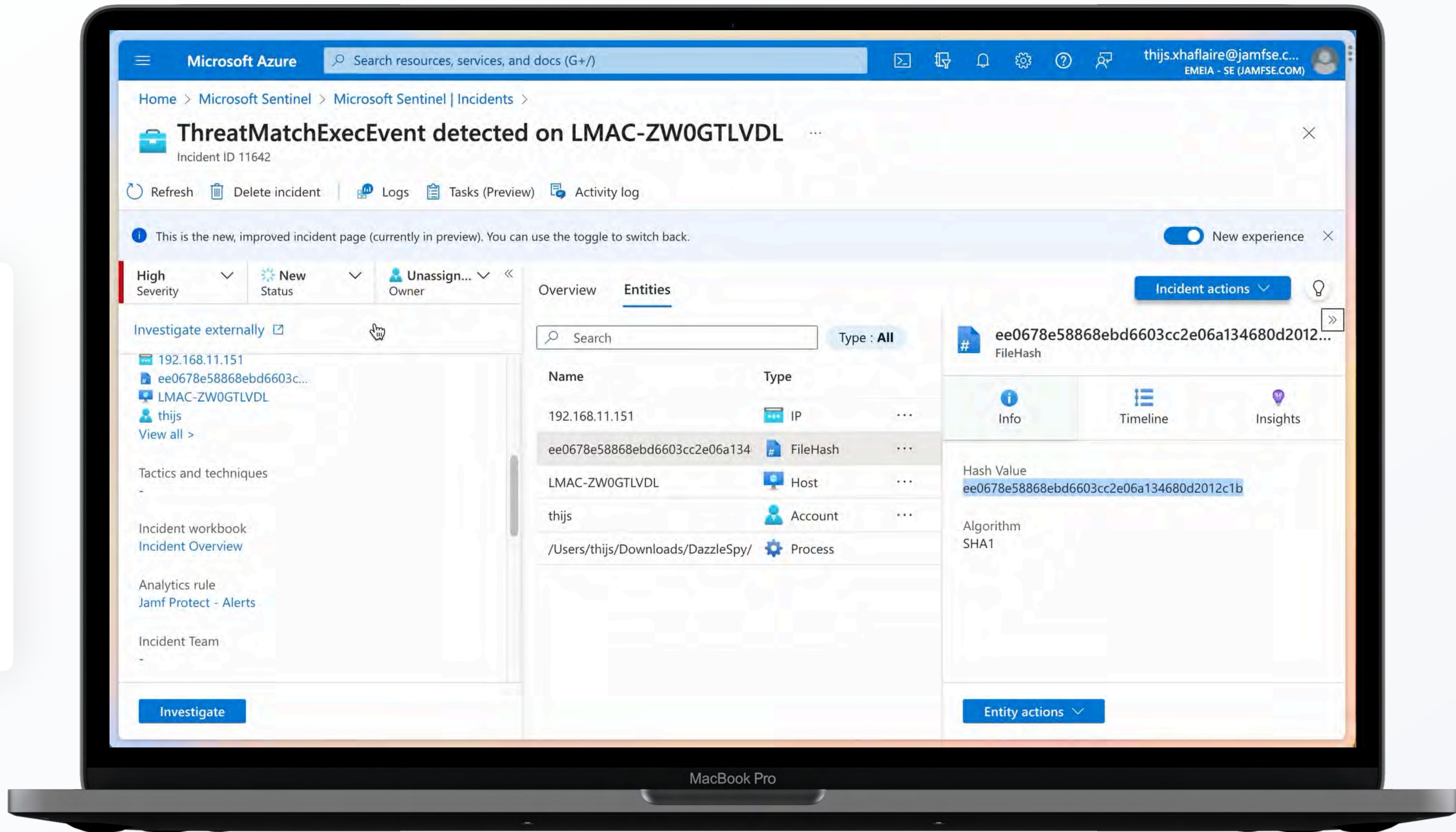
Cookie Policy

↑  
Back to Top

### Let's start our hunt

Remember we took note of that **SHA1** hash value of the binary?

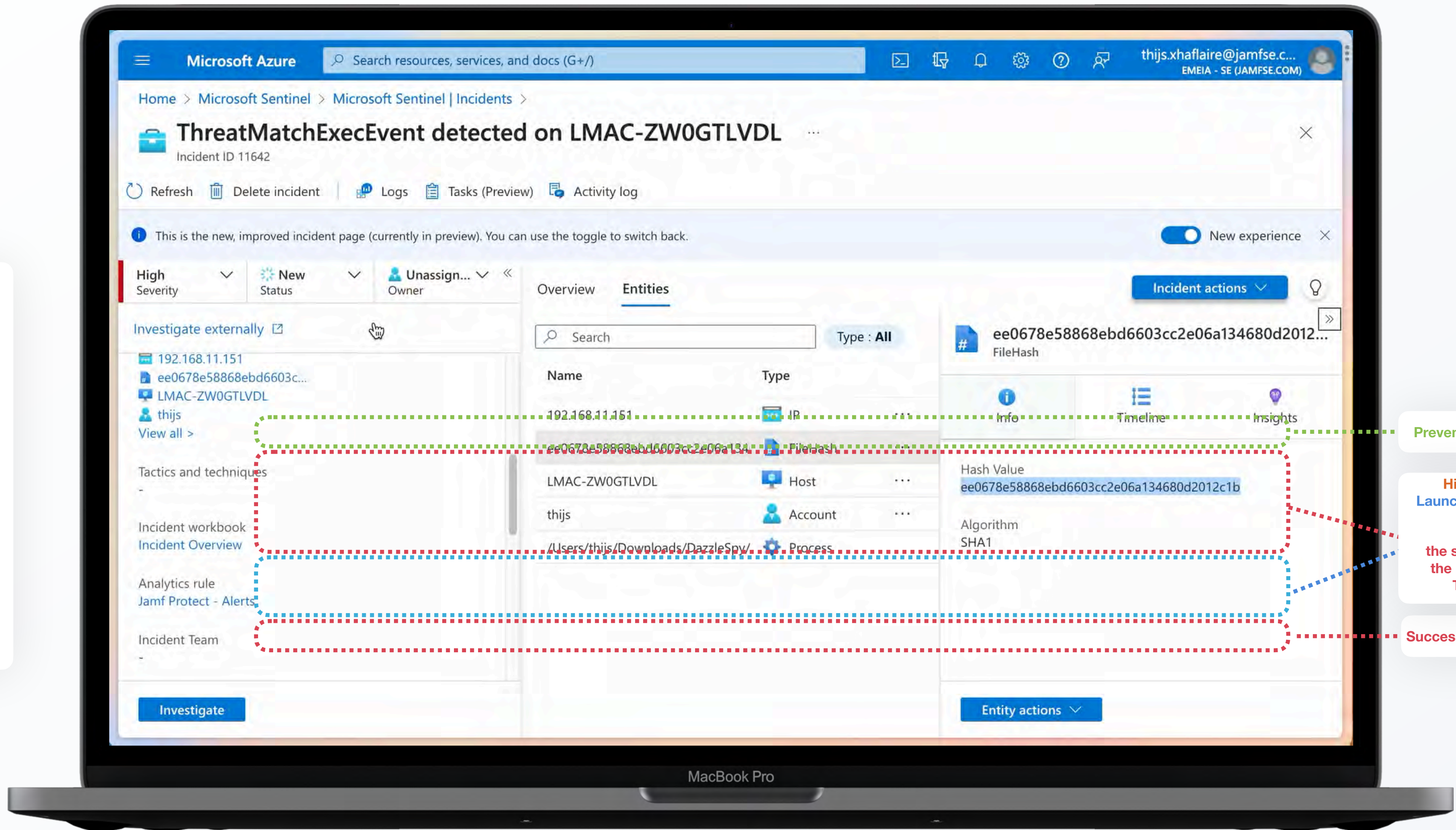
Let's start our hunt based on using that hash



### Let's start our hunt

Remember we took note of that **SHA1** hash value of the binary?

Let's start our hunt based on using that hash



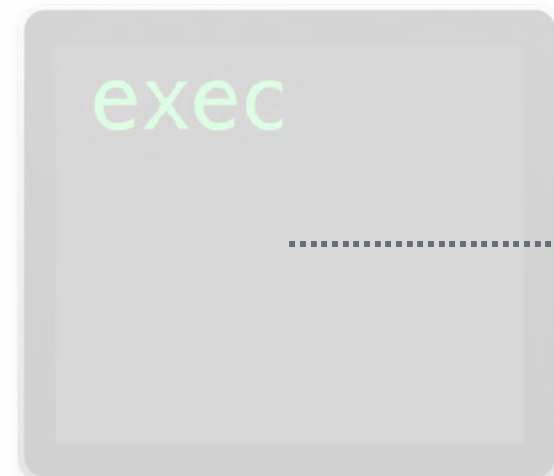
Prevented by Jamf Protect

Highly Suspicious  
LaunchAgent loaded onto the system and executes the softwareupdate and the process generates Traffic to C2 IPs

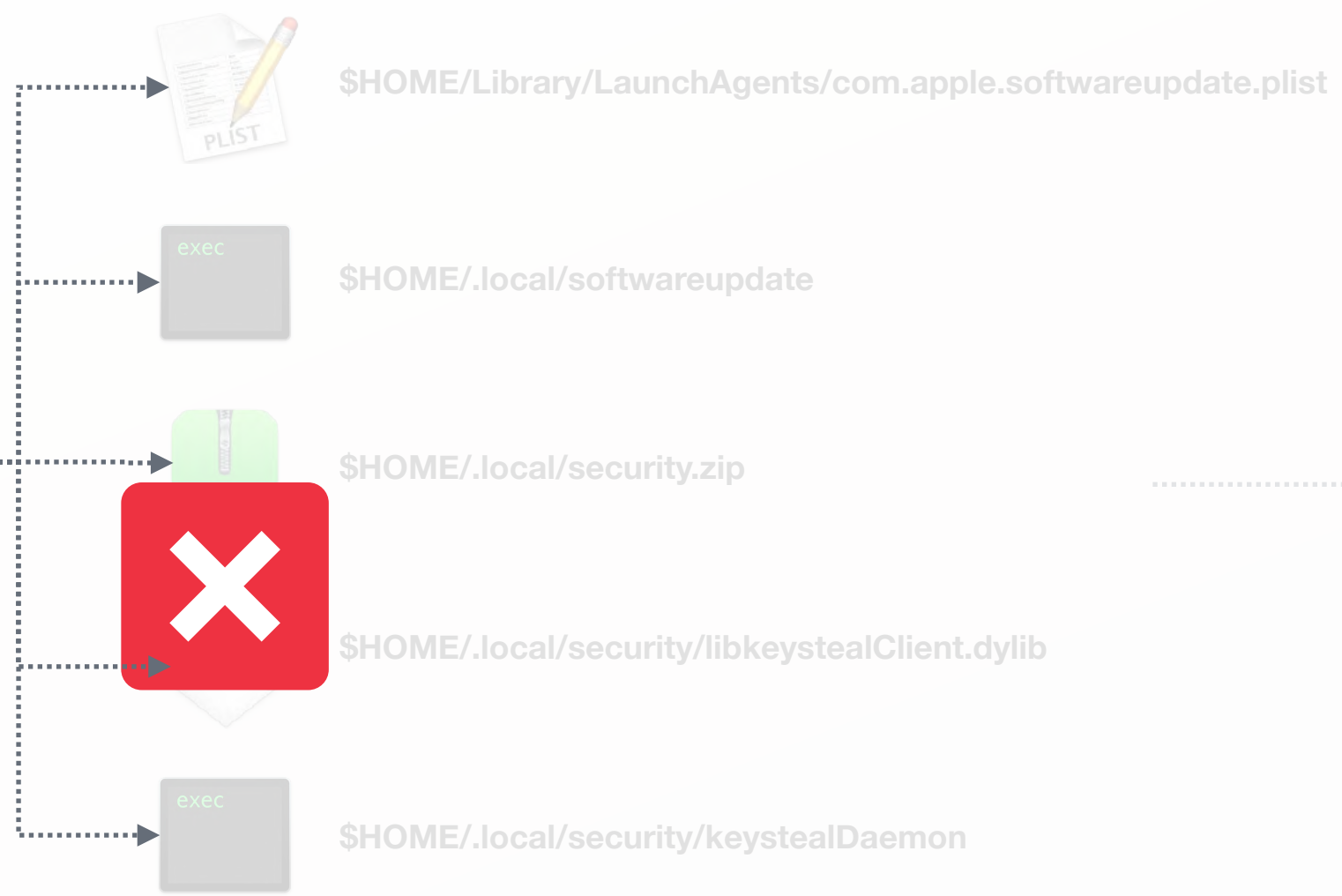
Successful Process Creation



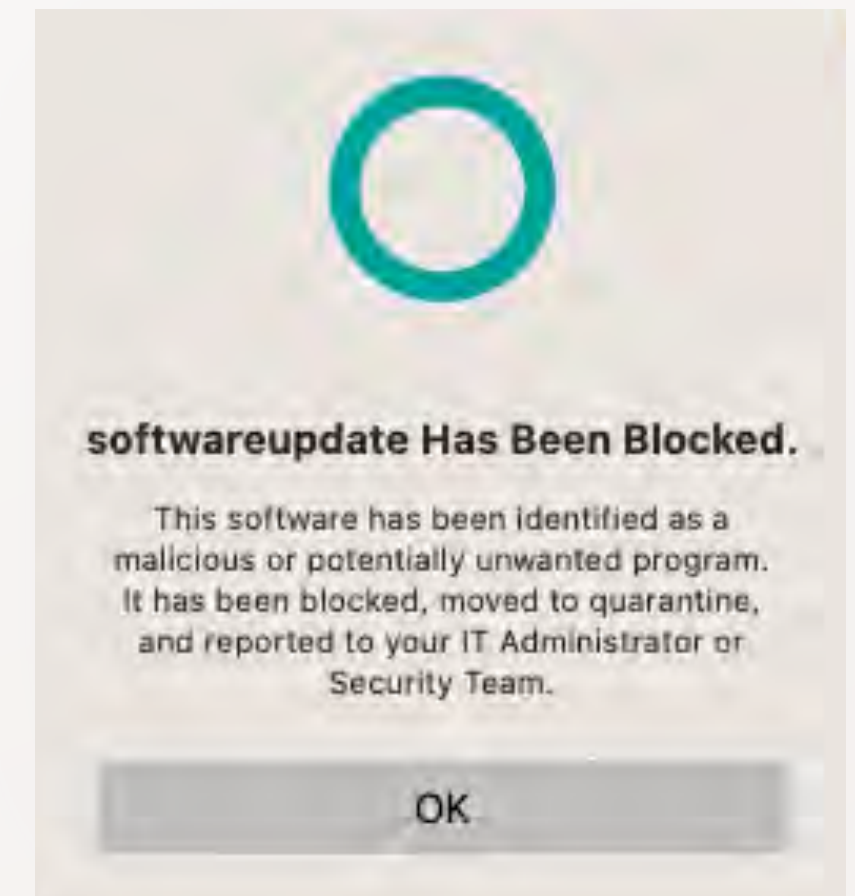
Computer 1



softwareupdate



10:58AM — User executes softwareupdate binary



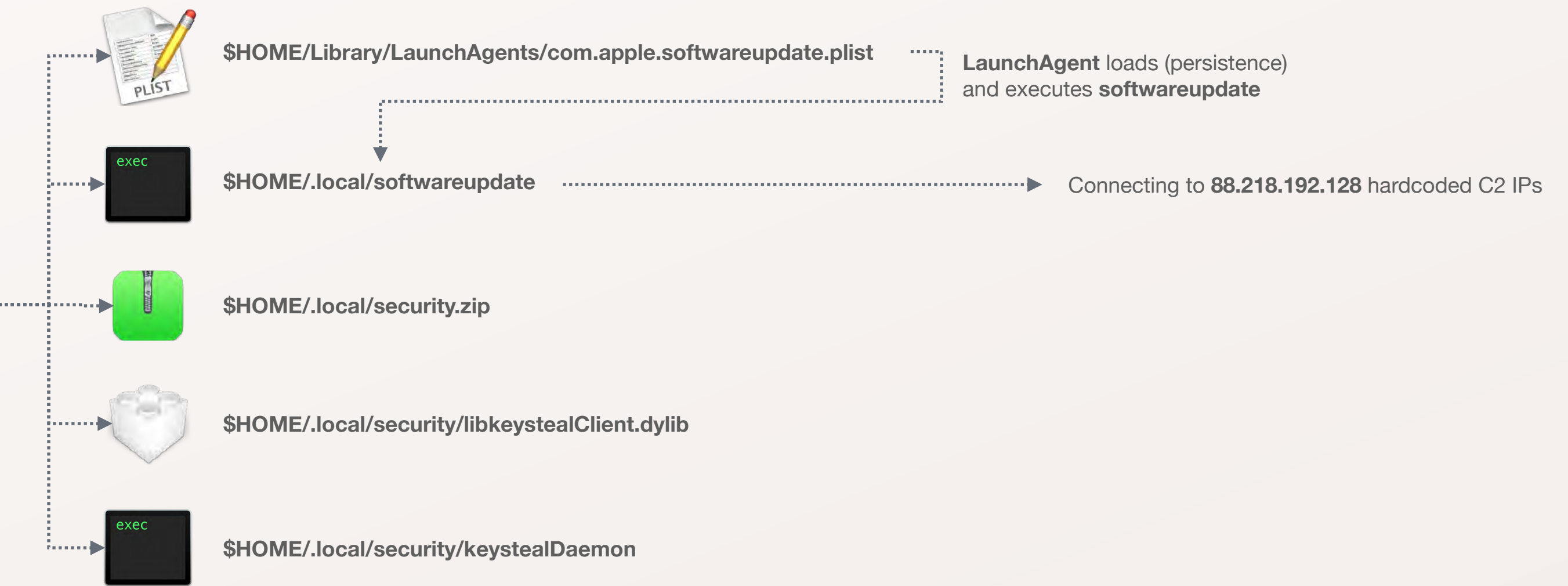
10:58AM - Prevented process execution by Jamf Protect as there was a signature match



Computer 2



Softwareupdate

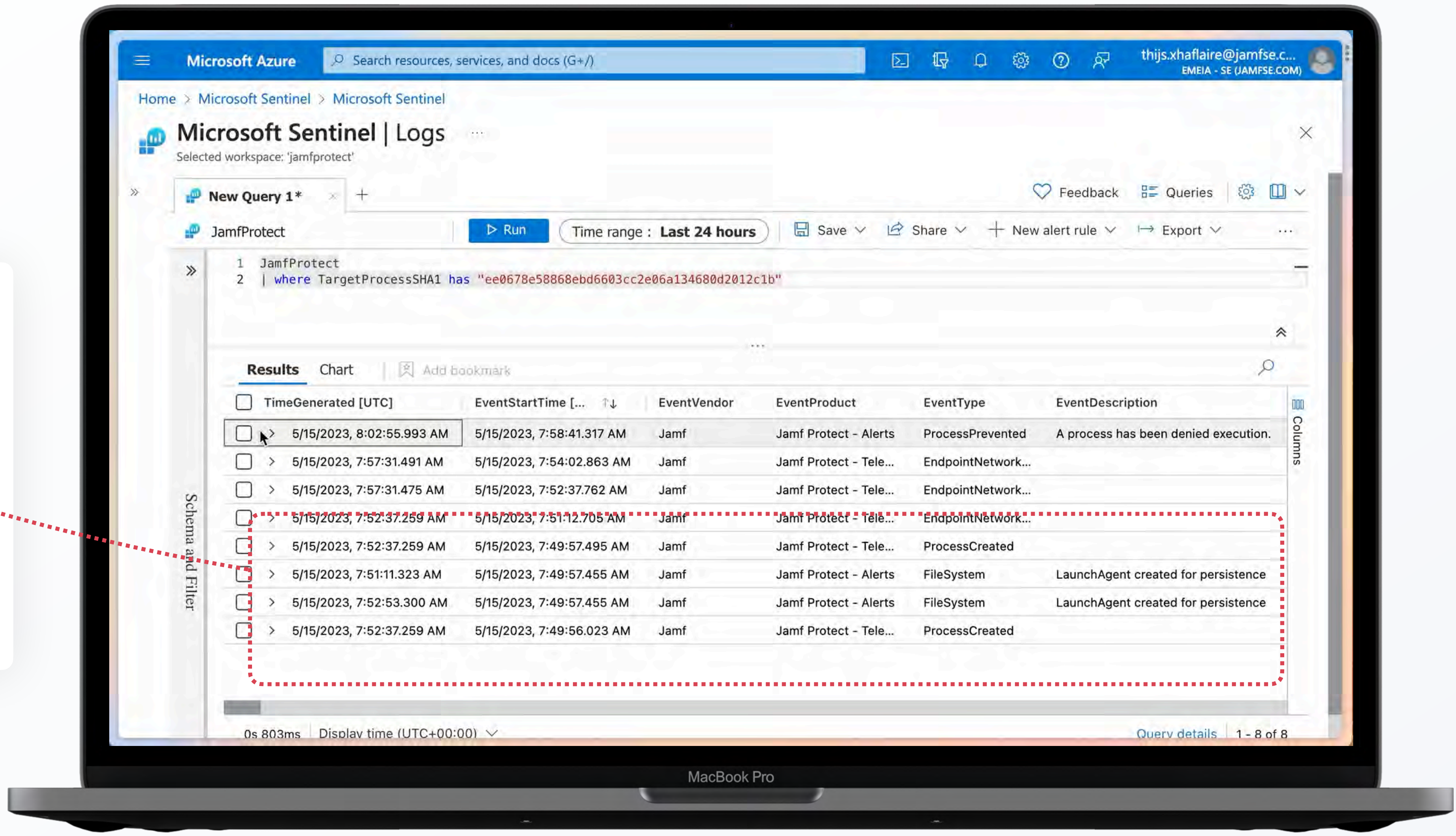


10:48AM — User executes softwareupdate binary

### Investigation

Let's **inspect** the first event matching to the **SHA1 hash**

**ProcessCreated** event, user executing the malicious **softwareupdate** binary from the download folder





### Investigation

Network event, the earlier shown **LaunchAgent** is executing the **TargetProcessName** and the **softwareupdate** process is creating a network connection to **DstIpAddr**

### C2 IP IoC

```
1 88.218.192[.]128:5633
```

The screenshot shows the Microsoft Sentinel Logs interface. At the top, the Microsoft Azure header is visible with a search bar and user information for 'thijs.xhaflaire@jamfse.c...'. The main content area is titled 'Microsoft Sentinel | Logs' and shows a workspace named 'jamfprotect'. A query editor displays a KQL query: '1 JamfProtect 2 | where TargetProcessSHA1 has "ee0678e58868ebd6603cc2e06a134680d2012c1b"'. Below the query, the 'Results' section shows a table with columns: TimeGenerated [UTC], EventStartTime [...], EventVendor, EventProduct, EventType, and EventDescription. A red dashed box highlights the 'EventDescription' column, which contains the following data:

TargetProcessName	/Users/thijs.xhaflaire/.local/softwareupdate
TargetProcessId	84712
TargetProcessGuid	84712
TargetProcessSHA1	ee0678e58868ebd6603cc2e06a134680d2012c1b
TargetUsername_string	thijs.xhaflaire
TargetUserId_real	502
DstIpAddr	88.218.192.128
DvcOsVersion	Version 13.3 (Build 22E252)
ParentProcessName	/sbin/launchd
SrcIpAddr	0.0.0.0

At the bottom of the interface, the status bar shows '0s 803ms', 'Display time (UTC+00:00)', and 'Query details 4 - 4 of 8'. The laptop is identified as a 'MacBook Pro' at the bottom center.

## Investigation

We could even start our hunt by searching on the **C2 destination IPs** to search for matching events and if any other devices are reaching out to the **C2 IPs/Domains**

The screenshot shows the Microsoft Sentinel Logs interface. At the top, there's a search bar and navigation links. The main area displays a query editor with a query: `1 JamfProt  
2 | where TargetProcessSHA1 has "ee0678e58868ebd6603cc2e06a134680d2012c1b"`. Below the query editor, there's a 'Results' section with a table of event details.

TimeGenerated [UTC]	EventStartTime [...]	EventVendor	EventProduct	EventType	EventDescription
			TargetProcessName		/Users/thijs.xhaflaire/.local/softwareupdate
			TargetProcessId		84712
			TargetProcessGuid		84712
			TargetProcessSHA1		ee0678e58868ebd6603cc2e06a134680d2012c1b
			TargetUsername_string		thijs.xhaflaire
			TargetUserId_real		502
			DstIpAddr		88.218.192.128
			DvcOsVersion		Version 13.3 (Build 22E252)
			ParentProcessName		/sbin/launchd
			SrcIpAddr		0.0.0.0

At the bottom of the interface, there's a status bar showing '0s 803ms', 'Display time (UTC+00:00)', and 'Query details | 4 - 4 of 8'.

### Investigation

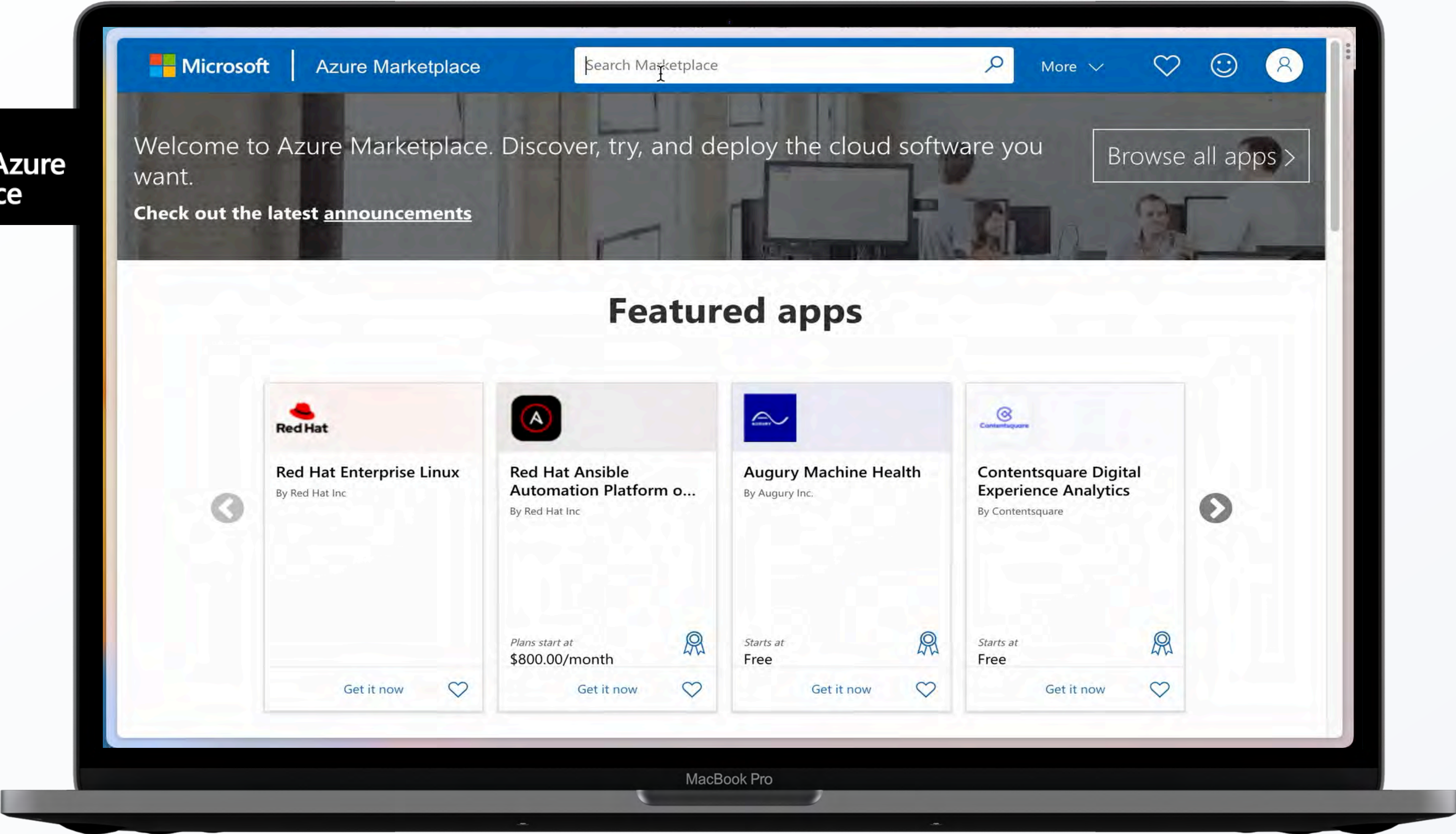
Or search for events that do match the IOC's files and directories

### Files/Directories IoC

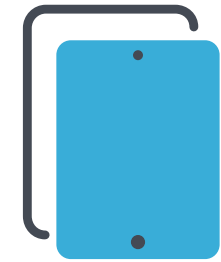
- 1 \$HOME/Library/LaunchAgents/com.apple.softwareupdate.plist
- 2 \$HOME/.local/softwareupdate
- 3 \$HOME/.local/security.zip
- 4 \$HOME/.local/security/keystealDaemon
- 5 \$HOME/.local/security/libkeystealClient.dylib

The screenshot shows the Microsoft Sentinel Logs interface. At the top, there's a navigation bar with 'Microsoft Azure' and a search bar. Below that, the breadcrumb is 'Home > Microsoft Sentinel > Microsoft Sentinel'. The main title is 'Microsoft Sentinel | Logs' with a sub-header 'Selected workspace: 'jamfprotect''. There's a 'New Query 1\*' tab and a 'Run' button. The time range is set to 'Last 24 hours'. The query is: `1 JamfProtect  
2 /// where TargetProcessSHA1 has "ee0678e58868ebd6603cc2e06a134680d2012c1b"  
3 /// where DstIpAddr contains "88.218.192.128"  
4 | where TargetFilePath contains "/Library/LaunchAgents/com.apple.softwareupdate.plist"`. The results are shown in a table with columns: TimeGenerated [UTC], EventStartTime [UTC], EventVendor, EventProduct, EventType. The table contains one row with the following data: TargetFileSize: 0, TargetFileSigningInfoMessage: code object is not signed at all, TargetFileSignerType: Unsigned, TargetFileIsAppBundle: false, TargetFileIsDirectory: false, TargetFileIsDownload: false, TargetFileIsScreenshot: false, TargetBinaryFilePath: /Users/thijs.xhaflaire/Downloads/DazzleSpy/softwareupdate, TargetBinarySHA1: ee0678e58868ebd6603cc2e06a134680d2012c1b, TargetBinarySHA256: f9ad42a9bd9ade188e997845cae1b0587bf496a35c3bfffacd20fefe07860a348. At the bottom, it shows '0s 476ms' and 'Display time (UTC+00:00)'. A 'Columns' sidebar is visible on the right.

Get it from  
**Microsoft Azure  
Marketplace**



# Session recap



Features and relevance of event forwarding



Flexible **data forwarding** and **streaming** options



Integrations and add-ons



Threat Hunting with **Jamf Protect** and a **SIEM**

# How **Dyson** uses Jamf in their security stack

● **JAMF  
NATION  
LIVE**



**Gary Bidwell**

Apple Solutions  
Architect  
Dyson

Thanks 🍺🍺