Blue Team Report

Cybersecurity

Final Project Week

Items we will cover in this report

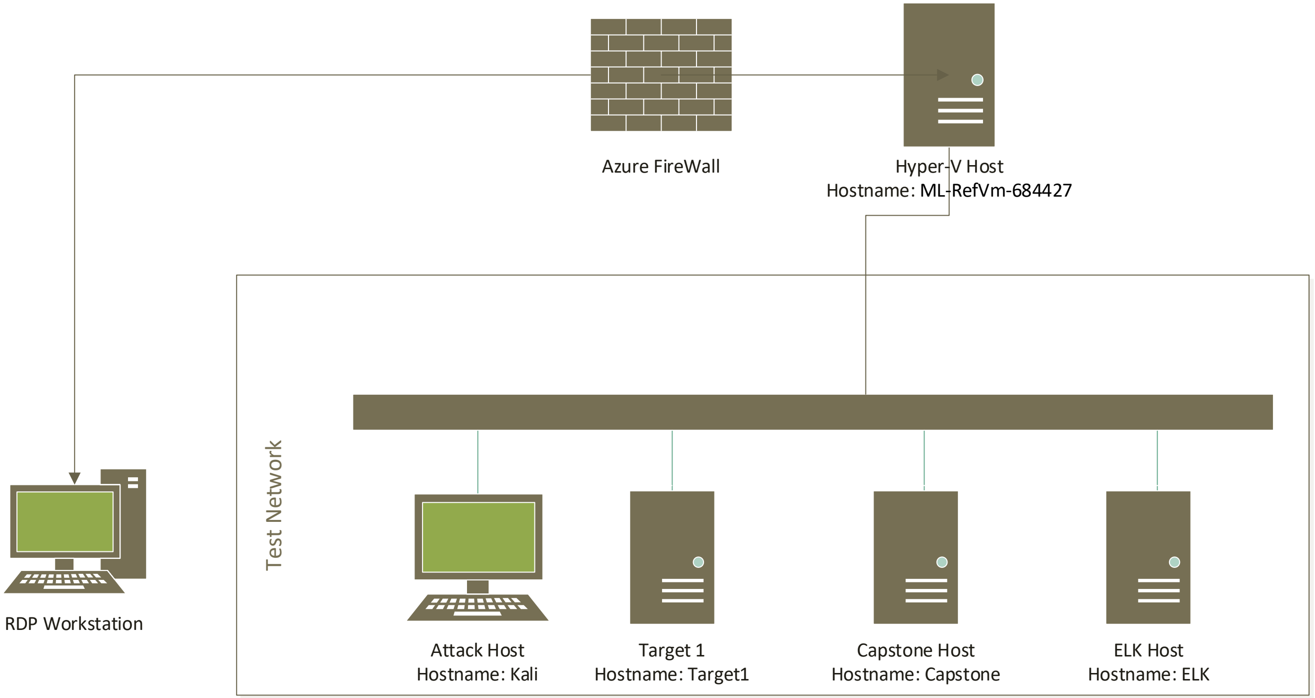
01 Current Network Topology

02 Alerts Implemented

03 Hardening/Mitigation

04 Questions

Network Topology



HostName	OS	IP Address	Purpose
ML-RefVm-684427	Windows 10	192.168.1.1	Hyper-V Host
Kali	Kali Linux 2020.1	192.168.1.90	Attacker Machine
Target 1	Debian Linux 8	192.168.1.110	Wordpress/Target Machine
Capstone	Ubuntu Linux 18.04	192.168.1.105	Log forwarder
ELK	Ubuntu Linux 18.04	192.168.1.100	ELK Stack Server

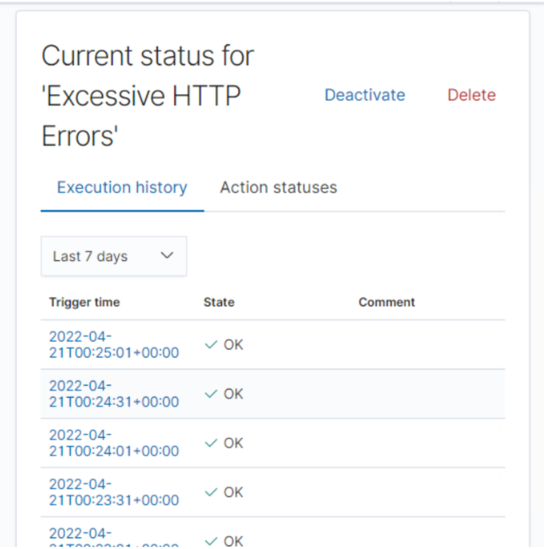
Alerts Implemented

Alert 1: Excessive HTTP Errors

01 Implementation

- **Metric**: http.response.status_code
- **Threshold**: 400
- **Vulnerability Detected:** Brute Force Attack
- **Reliability:** High

02 Visualization



Current status for 'Excessive HTTP Errors'

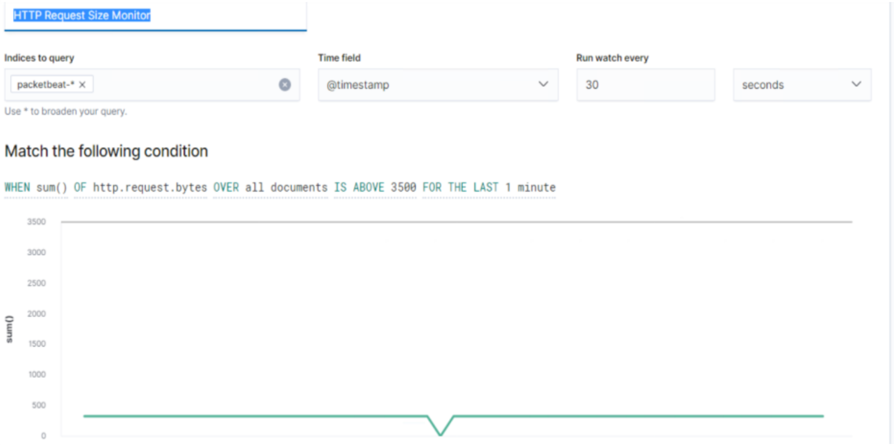
Trigger time	State	Comment
2022-04-21T00:25:01+00:00	✓ OK	
2022-04-21T00:24:31+00:00	✓ OK	
2022-04-21T00:24:01+00:00	✓ OK	
2022-04-21T00:23:31+00:00	✓ OK	
2022-04-	✓ OK	

Alert 2: HTTP Request Size Monitor

01 Implementation

- **Metric**: http.request.bytes
- **Threshold**: 3500
- **Vulnerability Detected:** Code injection in HTTP requests (XSS and CRLF) or DDOS
- **Reliability:** Medium

02 Visualization



HTTP Request Size Monitor

Indices to query: packetbeat-*

Use * to broaden your query.

Time field: @timestamp

Run watch every: 30 seconds

Match the following condition

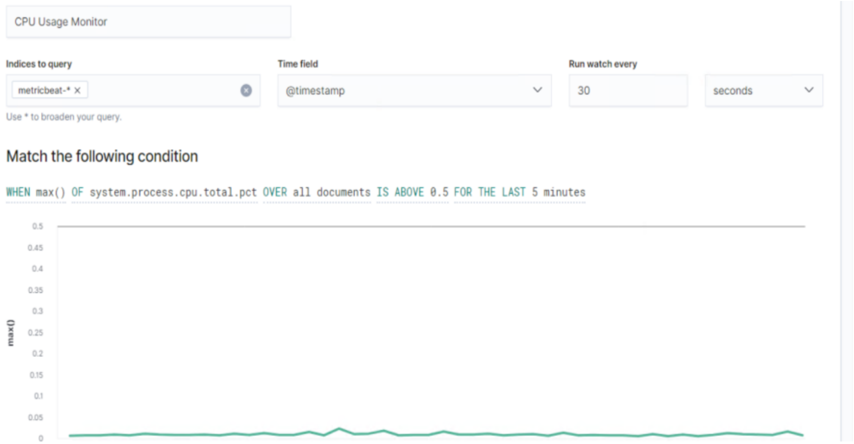
```
WHEN sum() OF http.request.bytes OVER all documents IS ABOVE 3500 FOR THE LAST 1 minute
```

Alert 3: CPU Usage Monitor

01 Implementation

- **Metric**: system.process.cpu.total.pct
- **Threshold**: .5
- **Vulnerability Detected:** Virus/Malware or DDOS
- **Reliability:** High

02 Visualization



CPU Usage Monitor

Indices to query: metricbeat-* ×

Use * to broaden your query.

Time field: @timestamp

Run watch every: 30 seconds

Match the following condition

```
WHEN max() OF system.process.cpu.total.pct OVER all documents IS ABOVE 0.5 FOR THE LAST 5 minutes
```

Hardening

Vulnerability: Wordpress Brute Force Attack

01 Implementation

a brute-force attack is a trial of each and every possible combination of username and password to bypass the website admin login. These attacks are called brute-force because they use extensively forceful methods to break in. Unlike other attacks, they don’t rely on the weaknesses or vulnerabilities of the website. Instead, they prey on easy passwords, unlimited login attempts, etc.

02 Mitigation

1. **Use strong login credentials**
2. **Hide WordPress login page**
3. **Two-factor Authentication**
4. **Limit login attempts**
5. **Whitelisting Access**

Vulnerability: Code injection in HTTP requests (XSS and CRLF) or DDOS

01 Implementation

Code Injection:

An object injection vulnerability occurs when you fail to sanitize user-supplied input correctly before passing it to the unserialize() PHP function. Since PHP permits object serialization, attackers can potentially pass ad-hoc serialized strings to an unserialize() call. This may result in arbitrary PHP object(s) being injected into your application's scope.

DDOS:

DDoS attack, short for Distributed Denial of Service attack, is a type of cyber attack that uses compromised computers and devices to send or request data from a WordPress hosting server. The purpose of these requests is to slow down and eventually crash the targeted server.

02 Mitigation

1. Keep WordPress Core Up-to-Date
2. Use a Web Application Firewall
3. Sanitize Your Data
4. Disable XML RPC in WordPress
5. Disable REST API in WordPress

Vulnerability: Virus/Malware

01 Implementation

Common web coding languages like PHP and Java allow programmers to refer to external files and scripts from within their code. The “include” command is the generic name for this type of activity.

In certain situations, a hacker can manipulate a website’s URL to compromise the “include” section of the code and gain access to other parts of the application server. Certain plug-ins for the WordPress platform have been found to be vulnerable against file inclusion attacks. When such hacks occur, the infiltrator can gain access to all data on the primary application server.

02 Mitigation

1. Keep WordPress Core Up-to-Date
2. Use a Web Application Firewall
3. Sanitize Your Data
4. Disable XML RPC in WordPress
5. Disable REST API in WordPress
6. Install a Virus Scanner

Questions?