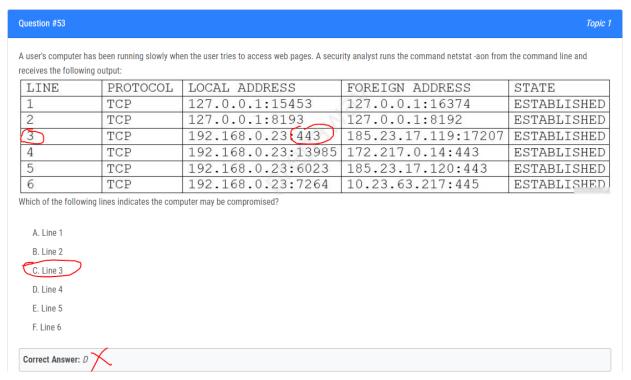
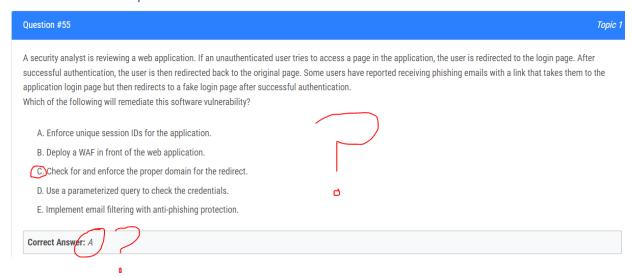
CySA+ Final Review part 2

53. Netstat -aon



55. Enforce unique session IDs



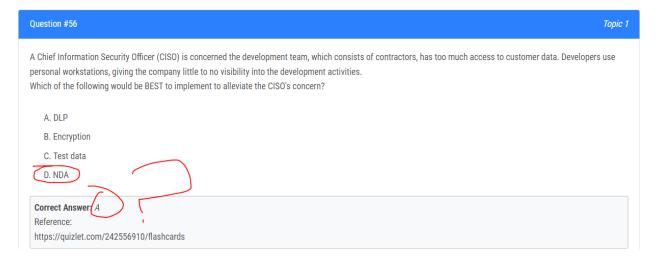
Preventing Unvalidated Redirects and Forwards

Safe use of redirects and forwards can be done in a number of ways:

- · Simply avoid using redirects and forwards.
- . If used, do not allow the URL as user input for the destination.
- Where possible, have the user provide short name, ID or token which is mapped server-side to a full target URL.
 - This provides the highest degree of protection against the attack tampering with the URL.
 - Be careful that this doesn't introduce an enumeration vulnerability where a user could cycle through IDs to find all possible redirect targets
- If user input can't be avoided, ensure that the supplied value is valid, appropriate for the
 application, and is authorized for the user.
- Sanitize input by creating a list of trusted URLs (lists of hosts or a regex).
 - This should be based on an allow-list approach, rather than a block list.
- Force all redirects to first go through a page notifying users that they are going off of your site, with the destination clearly displayed, and have them click a link to confirm.

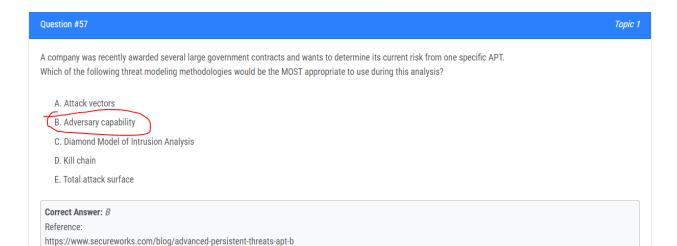
https://cheatsheetseries.owasp.org/cheatsheets/Unvalidated Redirects and Forwards Cheat Sheet.ht ml

56. NDA



57. Threat modeling methodologies

- » Threat modeling methodologies
 - » Adversary capability
 - » Total attack surface
 - » Attack vector
 - » Impact
 - » Likelihood



58. False negative?

Question #58 Topic 1 A security analyst is reviewing vulnerability scan results and notices new workstations are being flagged as having outdated antivirus signatures. The analyst observes the following plugin output: Antivirus is installed on the remote host: Installation path: C:\Program Files\AVProduct\Win32\ Product Engine: 14.12.101 Engine Version: 3.5.71 Scanner does not currently have information about AVProduct version 3.5.71. It may no longer be supported. The engine version is out of date. The oldest supported version from the vendor is 4.2.11. The analyst uses the vendor's website to confirm the oldest supported version is correct. Which of the following BEST describes the situation? A. This is a false positive, and the scanning plugin needs to be updated by the vendor. B. This is a true negative, and the new computers have the correct version of the software. C. This is a true positive, and the new computers were imaged with an old version of the software. D. This is a false negative, and the new computers need to be updated by the desktop team. Correct Answer: D

Explanation

The type of error that occurred is a false negative. The vulnerability scan indicated no vulnerabilities existed when, in fact, one was present.

A true negative is when a vulnerability scan reports no issues and no issues exist. A true positive is when a vulnerability scan reports a vulnerability that does exist. A false positive is when a vulnerability scan reports a vulnerability that does not exist.

Security analysts should analyze reports from a vulnerability scan. This involves reviewing and interpreting scan results. As a result, security analysts need to identify false positives, identify exceptions, and prioritize response actions.

60. Insecure APIs

A product manager is working with an analyst to design a new application that will perform as a data analytics platform and will be accessible via a web browser. The product manager suggests using a PaaS provider to host the application.

Which of the following is a security concern when using a PaaS solution?

A. The use of infrastructure-as-code capabilities leads to an increased attack surface.

B. Patching the underlying application server becomes the responsibility of the client.

C. The application is unable to use encryption at the database level.

Correct Answer: B

DInsecure application programming interfaces can lead to data compromise.

Q61

Because some clients have reported unauthorized activity on their accounts, a security analyst is reviewing network packet captures from the company's API server. A portion of a capture file is shown below:

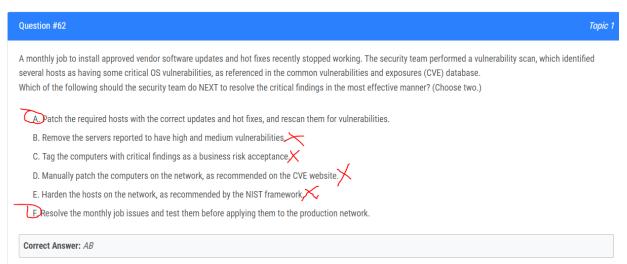
```
POST /services/v1 0/Public/Members.svc/soap
<s:Envelope+xmlns:s="http://schemas.s/soap/envelope/"><s:Body>
<GetIPLocation+xmlns="http://tempuri.org/">
<request+xmlns:a="http://schemas.somesite.org"+xmlns:i="http://www.w3.or</pre>
g/2001/XMLSchema-instance"></s:Body></s:Envelope> 192.168.1.22 -
api.somesite.com 200 0 1006 1001 0 192.168.1.22
POST /services/v1 0/Public/Members.svc/soap <<a:Password>Password123
</a:Password><a:ResetPasswordToken+i:nil="true"/>
<a:ShouldImpersonatedAuthenticationBePopulated+i:nil="true"/>
<a:Username>somebody@companyname.com</a:Username></request></Login>
</s:Body></s:Envelope> 192.168.5.66 - - api.somesite.com 200 0 11558
1712 2024 192.168.4.89
POST /services/v1_0/Public/Members.svc/soap
<s:Envelope+xmlns:s="http://schemas.xmlsoap.org/soap/envelope/"><s:Body>
<GetIPLocation+xmlns="http://tempuri.org/"> <a:IPAddress>516.7.446.605
</a:IPAddress><a:ZipCode+i:nil="true"/></request></GetIPLocation>
</s:Body></s:Envelope> 192.168.1.22 - - api.somesite.com 200 0 1003 1011
307 192.168.1.22
POST /services/v1 0/Public/Members.svc/soap
<s:Envelope+xmlns:s="http://schemas.xmlsoap.org/soap/envelope/"><s:Body>
<IsLoggedIn+xmlns="http://tempuri.org/">
<request+xmlns:a="http://schemas.datacontract.org/2004/07/somesite.web+x</pre>
mlns:i="http://www.w3.org/2001/XMLSchema-instance"><a:Authentication>
<a:ApiToken>kmL4krg2CwwWBan5BReGv5Djb7syxXTNKcWFuSjd</a:ApiToken>
<a:ImpersonateUserId>0</a:ImpersonateUserId><a:LocationId>161222
</a:LocationId> <a:NetworkId>4</a:NetworkId><a:ProviderId>''1=1
</a:ProviderId><a:UserId>13026046</a:UserId></a:Authentication>
</request></IsLoggedIn></s:Body></s:Envelope> 192.168.5.66 - -
api.somesite.com 200 0 1378 1209 48 192.168.4.89
```

Which of the following MOST likely explains how the clients' accounts were compromised?

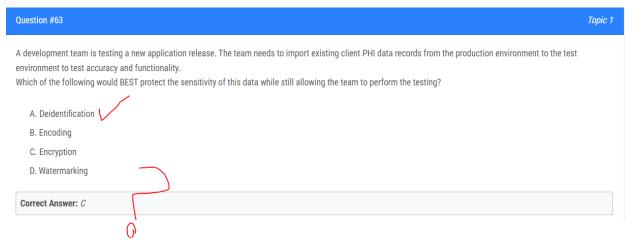
- A. The clients' authentication tokens were impersonated and replayed.
- B. The clients' usernames and passwords were transmitted in cleartext.
- C. An XSS scripting attack was carried out on the server.
- D. A SQL injection attack was carried out on the server.

Correct Answer: A

Q62



63. Deidentification



8. C. This is an example of data masking, removing enough digits from sensitive information to render it non-sensitive. Tokenization would replace the existing number with an unrelated number. Purging would remove the data completely. The data is not deidentified because the customer's name appears on the receipt.

Data Minimization

If we can't completely remove data from a dataset, we can often transform it into a format where the original sensitive information is deidentified. The *deidentifica-tion* process removes the ability to link data back to an individual, reducing its sensitivity.

An alternative to deidentifying data is transforming it into a format where the original information can't be retrieved. This is a process called *data obfuscation* and we have several tools at our disposal to assist with it:

- *Hashing* uses a hash function to transform a value in our dataset to a corresponding hash value. If we apply a strong hash function to a data element, we may replace the value in our file with the hashed value.
- Tokenization replaces sensitive values with a unique identifier using a lookup table. For example, we might replace a widely known value, such as a student ID, with a randomly generated 10-digit number. We'd then maintain a lookup table that allows us to convert those back to student IDs if we need to determine someone's identity. Of course, if you use this approach, you need to keep the lookup table secure!
- Masking partially redacts sensitive information by replacing some or all of sensitive fields with blank characters. For example, we might replace all but the last four digits of a credit card number with X's or *'s to render the card number unreadable.

Q64 Containment

Question #64

A network attack that is exploiting a vulnerability in the SNMP is detected. Which of the following should the cybersecurity analyst do FIRST?

- A. Apply the required patches to remediate the vulnerability.
- B. Escalate the incident to senior management for guidance.
- C. Disable all privileged user accounts on the network.
- D. Temporarily block the attacking IP address.

Correct Answer: A

Reference:

https://beyondsecurity.com/scan-pentest-network-vulnerabilities-snmp-protocol-version-detection.html

■ Mobi_Wan_Jacoby Highly Voted 1 year, 4 months ago

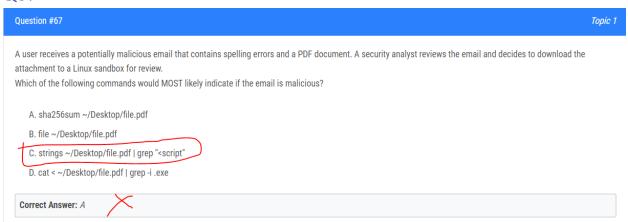
I also am going with D. The reason is that D seems to be part of the "Containment" phase of the Incident Response Process, whereas Answer A is for sure part of the "Eradication/Recovery" phase (Recovery) as patching systems is mentioned at the end of that phase.

upvoted 25 times

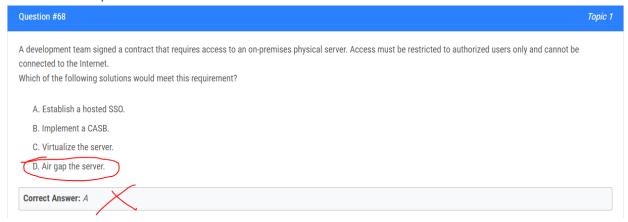
Q65. One VPC

An organization is moving its infrastructure to the cloud in an effort to meet the budget and reduce staffing requirements. The organization has three environments: development, testing, and production. These environments have interdependencies but must remain relatively segmented. Which of the following methods would BEST secure the company's infrastructure and be the simplest to manage and maintain? A. Create three separate cloud accounts for each environment. Configure account peering and security rules to allow access to and from each environment. B. Create one cloud account with one VPC for all environments. Purchase a virtual firewall and create granular security rules. Create one cloud account and three separate VPCs for each environment. Create security rules to allow access to and from each environment. D. Create three separate cloud accounts for each environment and a single core account for network services. Route all traffic through the core account. Correct Answer: C

Q67



Q68. Air Gap



When a system is physically isolated, we say that there is an <u>air gap</u> between it and the other systems. <u>Air gaps</u> are not totally secure, however. As was proved by the Stuxnet attack, corrupted USB drives can be used to "jump" the air gap.

A sheep dip computer is a system that has been isolated from the other systems and is used for analyzing suspect files and messages for malware. It may be isolated using an air gap, but is not the air gap itself.

A virtual LAN is a logical Layer 2 segmentation technique used on switches. It does not create an air gap, because systems are still physically connected.

A demilitarized zone (DMZ) is a section of the network separated from the internal network logically where resources are place that can be accessed from the Internet. A DMZ does not create an air gap since systems are still physically connected.

60. Simulation

SIMULATION

You are a cybersecurity analyst tasked with interpreting scan data from Company A's servers. You must verify the requirements are being met for all of the servers and recommend changes if you find they are not.

The company's hardening guidelines indicate the following:

ג€¢ TLS 1.2 is the only version of TLS running.

ג€¢ Apache 2.4.18 or greater should be used.

 λ €¢ Only default ports should be used.

INSTRUCTIONS -

Using the supplied data, record the status of compliance with the company's guidelines for each server.

The question contains two parts: make sure you complete Part 1 and Part 2. Make recommendations for issues based ONLY on the hardening guidelines provided.

Scan Data	Compliance Report
AppServ1 AppServ2 AppServ3 AppServ4	Fill out the following report based on your analysis of the scan data.
root@INFOSEC:~# curlhead appsrv1.fictionalorg.com:443 HTTP/1.1 200 OK Date: Wed, 26 Jun 2019 21:15:15 GMT Server: Apache/2.4.48 (CentoS) Last-Modified: Wed, 26 Jun 2019 21:10:22 GMT ETag: "13520-58c407930177d" Accept-Ranges: bytes Content-Length: 79136 Vary: Accept-Encoding Cache-Control: max-age=3600 Expires: Wed, 26 Jun 2019 22:15:15 GMT Content-Type: text/html	AppServ1 is only using TLS 1.2 AppServ2 is only using TLS 1.2 AppServ3 is only using TLS 1.2 AppServ4 is only using TLS 1.2 AppServ1 is using Apache 2.4.18 or greater AppServ2 is using Apache 2.4.18 or greater AppServ3 is using Apache 2.4.18 or greater AppServ4 is using Apache 2.4.18 or greater
root@INFOSEC:~# nmapscript ssl-enum-ciphers appsrvl.fictionalorg.com -p 443	
Starting Nmap 6.40 (http://nmap.org) at 2019-06-26 16:07 CDT	
Nmap scan report for AppSrvl.fictionalorg.com (10.21.4.68) Host is up (0.042s latency). rDNS record for 10.21.4.68: inaddrArpa.fictionalorg.com PORT STATE SERVICE 443/tcp open https ssl-enum-ciphers: TLSvl.2: ciphers: TLS RSA WITH 3DES EDE CBC SHA - strong TLS RSA WITH AES 128 CBC SHA - strong TLS RSA WITH AES 128 CBC SHA - strong TLS RSA WITH AES 256 CBC SHA - strong TLS RSA WITH AES 256 CBC SHA - strong TLS RSA WITH AES 256 CBC SHA - strong TLS RSA WITH AES 256 CBC SHA - strong TLS RSA WITH AES 256 CBC SHA - strong TLS RSA WITH AES 256 CBC SHA - strong TLS RSA WITH AES 256 CBC SHA - strong Compressors: NULL least strength: strong Nmap done: 1 IP address (1 host up) scanned in 8.63 seconds	
root@INFOSEC:~# nmaptop-ports 10 appsrv1.fictionalorg.com	
Starting Nmap 6.40 (http://nmap.org) at 2019-06-27 10:13 CDT	
Nmap scan report for appsrv1.fictionalorg.com (10.21.4.68) Host is up (0.15s latency). rDNS record for 10.21.4.68: appsrv1.fictionalorg.com PORT STATE SERVICE 80/tcp open http 443/tcp open https	
Nmap done: 1 IP address (1 host up) scanned in 0.42 seconds	

AppServ1 AppServ2 AppServ3 AppServ4 Fill out the following report based on your analysis of the scan data. AppServ1 is only using TLS 1.2 AppServ2 is only using TLS 1.2 Date: Wed, 26 Jun 2019 21:15:15 GMT Server: Apache/2.4.48 (CentOS) Last-Modified: Wed, 26 Jun 2019 21:10:22 GMT ETag: "13520-58c406780177e" AppServ3 is only using TLS 1.2 AppServ4 is only using TLS 1.2 AppServ1 is using Apache 2.4.18 or greater Accept-Ranges: bytes Content-Length: 79136 AppServ2 is using Apache 2.4.18 or greater AppServ3 is using Apache 2.4.18 or greater Vary: Accept-Encoding Cache-Control: max-age=3600 Expires: Wed, 26 Jun 2019 22:15:15 GMT Content-Type: text/html AppServ4 is using Apache 2.4.18 or greater root@INFOSEC:~# nmap --script sal-enum-ciphers appsrv3.fictionalorg.com -p 443 Nmap scan report for AppSrv3.fictionalorg.com (10.21.4.70)
Host is up (0.042s latency).
rDNS record for 10.21.4.70: inaddrArpa.fictionalorg.com
PORT STATE SERVICE
80/tcp open http
443/tcp open https
| ssl-enum-ciphers:
| TLSvl.0:
| ciphers: TLS RSA WITH 3DES EDE CBC SHA - strong TLS RSA WITH AES 128 CBC SHA - strong TLS RSA WITH AES 256 CBC SHA - strong ciphers: TLS_RSA_WITH_3DES_EDE_CBC_SHA - strong TLS_RSA_WITH_AES_128_CBC_SHA - strong TLS_RSA_WITH_AES_256_CBC_SHA - strong compressors: ciphers: phers: TLS RSA WITH 3DES EDE CBC SHA - strong TLS RSA WITH AES 128 GBC SHA - strong TLS RSA WITH AES 128 GCM SHA256 - strong TLS RSA WITH AES 256 GBC SHA - strong TLS RSA WITH AES 256 GCM SHA384 - strong root@INFOSEC:~# nmap --top-ports 10 appsrv3.fictionalorg.com Nmap scan report for apparv3.fictionalorg.com (10.21.4.70)
Host is up (0.15s latency).
rDNS record for 10.21.4.70: apparv3.fictionalorg.com
PORT STATE SERVICE
80/tcp open http
443/tcp open https

Part 1

AppServ1 AppServ2 AppServ3 AppServ4 Fill out the following report based on your analysis of the scan data. root@INFOSEC:~# curl --head appsrv4.fictionalorg.com:443 AppServ1 is only using TLS 1.2 AppServ2 is only using TLS 1.2 AppServ3 is only using TLS 1.2 AppServ4 is only using TLS 1.2 AppServ1 is using Apache 2.4.18 or greater Server: Apache/2.4.48 (CentOS) Last-Modified: Wed, 26 Jun 2019 21:10:22 GMT ETag: "13520-58c406780177e" Accept-Ranges: bytes Content-Length: 79136 AppServ2 is using Apache 2.4.18 or greater AppServ3 is using Apache 2.4.18 or greater Vary: Accept-Encoding Cache-Control: max-age=3600 Expires: Wed, 26 Jun 2019 22:15:15 GMT Content-Type: text/html AppServ4 is using Apache 2.4.18 or greater root@INFOSEC:~# nmap --script ssl-enum-ciphers appsrv4.fictionalorg.com -p 443 rDNS record for 10.21.4.71: inaddrArpa.fictionalorg.com PORT STATE SERVICE 443/tcp open https TLS_RSA_WITH_AES_128_CBC_SHA - strong TLS_RSA_WITH_AES_128_CBC_SHA - strong TLS_RSA_WITH_AES_256_CBC_SHA - strong TLS_RSA_WITH_AES_256_CBC_SHA - strong compressors: root@INFOSEC:~# nmap --top-ports 10 appsrv4.fictionalorg.com Starting Nmap 6.40 (http://nmap.org) at 2019-06-27 10:13 CDT Nmap scan report for appsrv4.fictionalorg.com (10.21.4.71) Host is up (0.15s latency). rDNS record for 10.21.4.71: appsrv4.fictionalorg.com PORT STATE SERVICE 80/tcp open http 443/tcp open https 8675/ssh open ssh Nmap done: 1 IP address (1 host up) scanned in 0.42 seconds

Part 2



Correct Answer: Part 1 Answer:

Check on the following:

AppServ1 is only using TLS.1.2 -

AppServ4 is only using TLS.1.2 -

AppServ1 is using Apache 2.4.18 or greater

AppServ3 is using Apache 2.4.18 or greater

AppServ4 is using Apache 2.4.18 or greater

Part 2 answer:

Recommendation:

Recommendation is to disable TLS v1.1 on AppServ2 and AppServ3. Also upgrade AppServ2 Apache to version 2.4.48 from its current version of 2.3.48

70 Stealth Command

When attempting to do a stealth scan against a system that does not respond to ping, which of the following Nmap commands BEST accomplishes that goal?

- A. nmap a€"sA a€"O <system> -noping
- B. nmap a€"sT a€"0 <system> -P0
- C. nmap a€"sS a€"0 <system> -P0
- D. nmap a€"sQ a€"O <system> -P0

Correct Answer: C

Reference:

https://www.freecodecamp.org/news/what-is-nmap-and-how-to-use-it-a-tutorial-for-the-greatest-scanning-tool-of-all-time/

Stealth scan

Stealth scanning is performed by sending an SYN packet and analyzing the response. If SYN/ACK is received, it means the port is open, and you can open a TCP connection.

However, a stealth scan never completes the <u>3-way handshake</u>, which makes it hard for the target to determine the scanning system.

> nmap -sS scanme.nmap.org

You can use the '-sS' command to perform a stealth scan. Remember, stealth scanning is slower and not as aggressive as the other types of scanning, so you might have to wait a while to get a response.

71. Detection phase

Question #71 Topic 1

A team of security analysts has been alerted to potential malware activity. The initial examination indicates one of the affected workstations is beaconing on TCP port 80 to five IP addresses and attempting to spread across the network over port 445. Which of the following should be the team's NEXT step during the detection phase of this response process?

- A. Escalate the incident to management, who will then engage the network infrastructure team to keep them informed.
- B. Depending on system criticality, remove each affected device from the network by disabling wired and wireless connections.
- C. Engage the engineering team to block SMB traffic internally and outbound HTTP traffic to the five IP addresses.
- dentify potentially affected systems by creating a correlation search in the SIEM based on the network traffic.

Correct Answer: D

References CySA+Objectives