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Cybersecurity HW#9

Networks Fundamentals II Homework

Mission 1

Issue: The Resistance (starwars.com) is able to send emails but unable to receive any.

- The Resistance isn't receiving any emails because they are using incorrect mail server addresses.
  - **Primary Mail Server:** address has been set to `asltx.l.google.com`, but should actually be `aspmx.l.google.com`.
  - **Secondary Mail Server:** address has been set to `asltx.2.google.com`, but should actually be `alt2.aspmx.l.google.com`.
- **Evidence:**

Mission 2

Issue: Many of the alert bulletins are being blocked or going into spam folders.

- This is probably due to the fact that `theforce.net` changed the IP address of their mail server to `45.23.176.21` .
- `SPF` for `theforce.net` :

```
v=spf1 a mx mx:smtp.secureserver.net include:aspmx.googlemail.com
ip4:104.156.250.80 ip4:45.63.15.159 ip4:45.63.4.215
```

- The Force's emails are going to spam because the IP address selected for their mail server is not one of the trusted, secure server IPs listed in the `SPF` entry for `theforce.net` .
- The correct IP address of the mail server should be `104.156.250.80`. (Registered secured server.)
- **Note:** There are actually three choices for working IPs that can be used for the mail server:
  - `104.156.250.80`
  - `45.63.15.159`
  - `45.63.4.215`
- **Evidence:**

Mission 3

Issue: The Resistance is unable to easily read the details of alert bulletins online. The Resistance is supposed to be automatically redirected from their sub page of `resistance.theforce.net` to `theforce.net`.

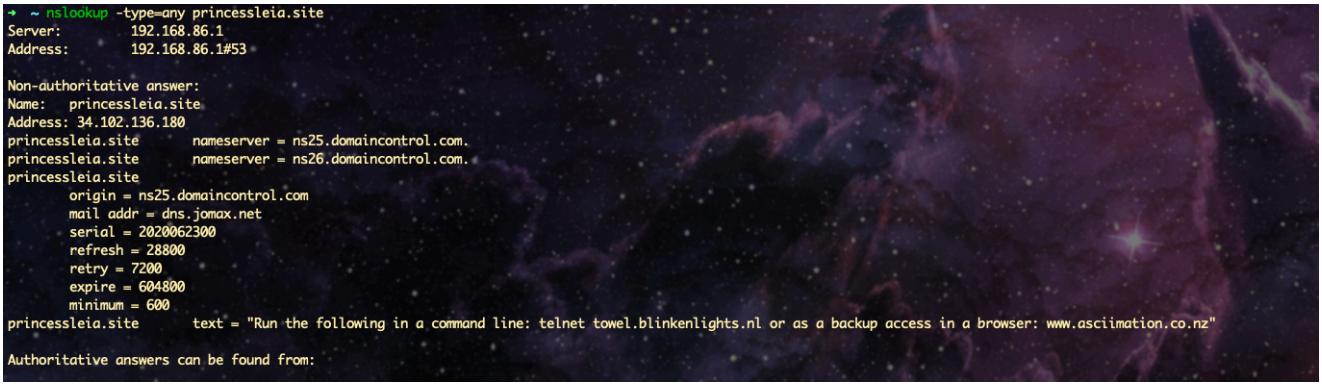
- The sub page of `resistance.theforce.net` isn't redirecting to `theforce.net` because it is using an incorrert CNAME, `theforce.net`.
- **Corrected DNS record:** `www.theforce.net`

- **Evidence:**

Mission 4

Issue: The Empire taken down the primary DNS server of `princessleia.site`.

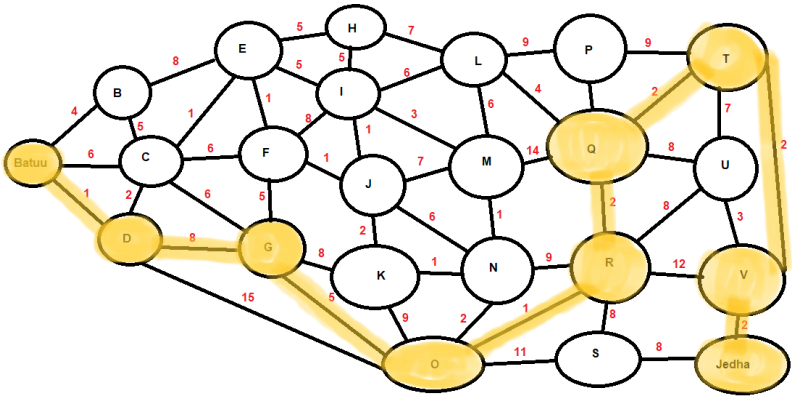
- The DNS server for `princessleia.site` is backed up and functioning.
- The Resistance is unable to access this important site during the attacks.
- The Resistance's networking team has provided the backup DNS server of: `ns2.galaxybackup.com`.
    - Instead of using the DNS server `ns2.galaxybackup.com`, the Resistance should be using either `ns25.domaincontrol.com` or `ns26.domaincontrol.com` .
- **Evidence:**



Mission 5

Issue: The network traffic from the planet of `Batuu` to the planet of `Jedha` is very slow.

- Avoiding planet `N`, the shortest path (or `OSPF`) from Batuu to Jedha is:
    - `Batuu` --> `D` --> `G` --> `O` --> `R` --> `Q` --> `T` --> `V` --> `Jedda`
    - **Total Time Count:** `23`



Mission 6

Issue: Due to all the attacks, the Resistance is determined to seek revenge for the damage the Empire has caused.

- Below you will find secret information from the Dark Side network servers that can be used to launch network attacks against the Empire.
- Dark Side's secret wireless key: `dictionary`

```
→  resources sudo aircrack-ng Darkside.pcap -w ~/wordlists/rockyou.txt
Password:
Reading packets, please wait...
Opening Darkside.pcap
Read 586 packets.

   #  BSSID              ESSID                     Encryption

   1  00:0B:86:C2:A4:85  linksys                   WPA (1 handshake)

Choosing first network as target.

Reading packets, please wait...
Opening Darkside.pcap
Read 586 packets.

1 potential targets

                               Aircrack-ng 1.6

      [00:00:00] 7425/10303727 keys tested (17437.75 k/s)

      Time left: 9 minutes, 50 seconds                          0.07%

                          KEY FOUND! [ dictionary ]


      Master Key     : 5D F9 20 B5 48 1E D7 05 38 DD 5F D0 24 23 D7 E2
                       52 22 05 FE EE BB 97 4C AD 08 A5 2B 56 13 ED E2

      Transient Key  : A9 5B 21 1D A1 8E 85 FD 96 49 5F B4 97 85 67 33
                       87 B9 DA 97 97 AA C7 82 8F 52 F0 EB C7 05 04 C0
                       A3 7E 31 7C B3 DF 24 D5 25 85 8E A7 35 14 03 00
                       00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

      EAPOL HMAC     : 6D 45 F3 53 8E AD 8E CA 55 98 C2 60 EE FE 6F 51
```

Network Table	Device 1	Device 2
IP Address	172.16.0.101	172.16.0.1
MAC Address	00:0f:66:e3:e4:01	00:13:ce:55:98:ef

Mission 7

Message received!

Evidence: