

Department of Information Technology
Academic -2021-22

Assignment No: 02

Subject: Network Design Lab

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Class/Batch: A/A2

Date of Performance:

Date of Submission:

Grade:

Signature:

Q.1 Design server for campus using DMZ
Ans Use the Networking > DMZ page to configure a demarcation zone or demilitarized zone (DMZ). A DMZ is a sub-network that is behind the firewall but that is open to public. By placing your public service on a DMZ, you can add an additional layer of security to LAN. The public can connect on service on DMZ to include any hosts that must be exposed to WAN.

Configuring DMZ

(1) To add a new DMZ, click Add. To modify the setting for a DMZ, click the edit icon.

(2) In Basic setting tab, enter the following:

- (i) Name: Enter name
- (ii) IP address: Enter subnet IP address
- (iii) Netmask: Enter subnet mask for DMZ
- (iv) Spanning tree: Check this box to enable spanning tree feature to determine if there are loops
- (v) Zone: Choose default DMZ zone or a custom DMZ zone to which DMZ is mapped.

(3) In the DHCP pool setting tab, choose the DHCP mode from the DHCP mode drop-down list.

(4) If you choose DHCP server as the DHCP mode:

- (i) Start IP: Enter starting IP address
- (ii) End IP: Enter ending IP address
- (iii) DNS 1: Enter the IP address
- (iv) DNS 2: optionally, enter the IP address secondary

(5) In IPv6 setting tab, specify IAG address for DMZ.

- (i) IPv6 Address: Enter the IPv6 address based on your network requirements.
- (ii) IPv6 Prefix length: Enter the number of characteristics in IPv6 prefix.

- (6) Click OK to save your settings.
- (7) click save to apply your settings.
- (8) If you want to reserve certain IP addresses for specified devices, go to the NETWORKING > DHCP reservations page. See configuring DHCP reservations.

Q.2

Ans The HR department needs 100 PCs, so it would need 100 IP addresses. Also, 2 addresses are reserved in any network, one for broadcast and one for receiving, so it needs a total of 102 addresses.
 $102 \approx 128 - 26 \approx 2^7$

Therefore the subnet would be $32 = 2^5$.

Similarly for the Finance Dept.

$$152 = 256 - 104 \approx 2^8$$

$$\text{subnet} : 32 - 8 = 24$$

for sales Dept.

$$200 + 2 = 202 = 256 - 54 \approx 2^8$$

$$\text{subnet} : 32 - 8 = 24$$

Therefore, the possible IP assignment would be

$$172.130.0.0 / 25 \text{ to } 172.130.0.127 / 25$$

$$172.130.1.0 / 24 \text{ to } 172.130.1.255 / 24$$

$$172.130.2.0 / 24 \text{ to } 172.130.2.255 / 24$$

Q.3

Ans Over the past decade or so, network monitoring tools have become one of the core resources of most IT administrators in large organizations. As network monitoring has become more popularized, the market has become oversaturated with new tools, making it

difficult to separate the good from the bad.

Key differentiators:

When looking for a network monitoring tool, there are a number of factors to consider in order to get most value for money.

- (1.) Real-time and historic network monitoring
- (2.) Customizable dashboards
- (3.) Visualization features such as charts and graphs
- (4.) Alert system
- (5.) User configured parameters
- (6.) Reports.

There are two best network performance monitor.

- (1) SolarWinds NETWORK performance monitor
- (2) Paessler PRTG