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LOCATION: SWANSEA

LLEOLIAD: ABERTAWE

LEVEL 6

LEFEL 6

EXAMINATION PERIOD
MAY 2015

CYFNOD ARHOLIADAU
MAI 2015

MODULE CODE: M3X8644, M3X8533
Network Management

TIME: 2 HOURS

ANSWER THREE QUESTIONS OUT OF FOUR. EACH QUESTION CARRIES EQUAL MARKS.

Equipment or materials required – None

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ANSWER THREE QUESTIONS

1. First Exam Question

(a) State what is network Management?

(2 marks)

(b) Name the five areas of network management of the ISO model. Explain each area in detail.

(15 marks)

(c) SNMP v3 provides several compelling advantages over previous versions. Critically evaluate SNMPv3.

(8 marks)

2. Second Exam Question

(a) You have been asked by Me and You Ltd (MYL) who is upgrading its network infrastructure that consists of 4 departments to build an enterprise WLAN. Each department operates in a different subnet for ease of identification and network management.

i. Propose a WLAN design for each department at MYL. The maximum number of users in any department is 30. The IP network address used is 172.17.21.0 and subnet mask 255.255.255.0.

(10 marks)

ii. Outline all the necessary requirements that would be needed for the new design and provide a labelled network diagram to aid in your proposal.

(12 marks)

iii. State any assumptions made

(3 marks)

3. Third Exam Question

(a) With the aid of a diagram explain the four basic building blocks of the IPsec framework?

(18 marks)

(b) Please explain the roles of the components shown in figure 1 (below).

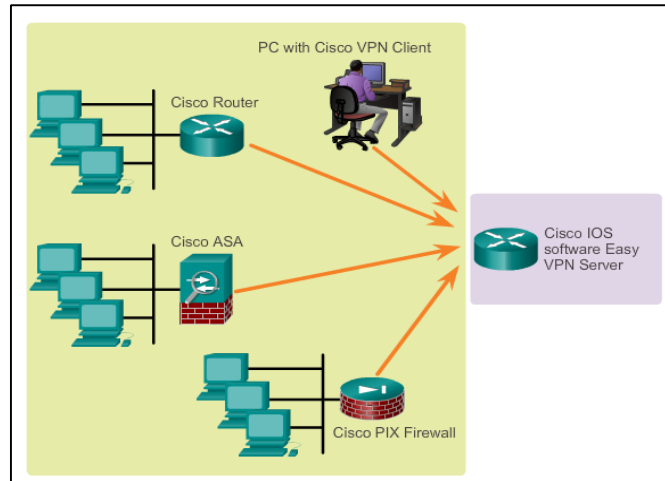


Figure 1

(7 marks)

4. Fourth Exam Question

- (a) Imagine you are working on the computer networking team of a small company and you realize that an unauthorised system has successfully connected to the wireless access point. All you know at the outset is the IP address of the wireless system. Figure 2 shows the network diagram.

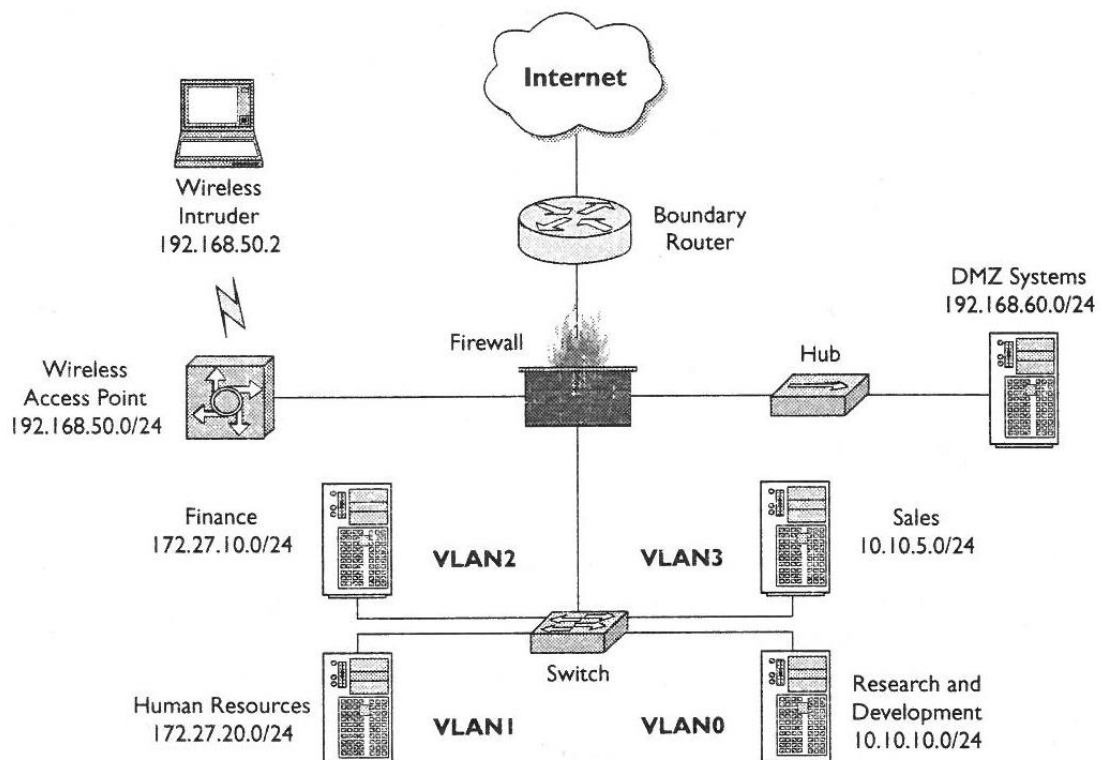


Figure 2: Wireless Intrusion network diagram

You have used the Argus scanning tool to collect session data on all interface of the firewall/gateway. The session Data from the Wireless Segment is given below in figure 3. The **new IP address** which appears from the scan result is in **bold**.

Time	Proto	SrcAddr	Sport	Dir	DstAddr	Dport
SrcPkt	DstPkt	SrcBytes	DstBytes	State		
1. 18:22:43	tcp	192.168.50.2	10634	7>	172.27.20.3	22
15	14	1418	1208			FIN
2. 18:22:56	tcp	192.168.50.2	10637	->	172.27.20.3	22
29	22	3842	4064			FIN
3. 18:23:22	tcp	192.168.50.2	10639	->	192.168.60.3	22
3039	2719	369110	1047369			EST
4. 18:24:22	tcp	192.168.50.2	10639	->	192.168.60.3	22
8440	4981	838844	2742726			EST
5. 18:25:23	tcp	192.168.50.2	10639	->	192.168.60.3	22
7494	3656	763472	1948248			EST
6. 18:26:23	tcp	192.168.50.2	10639	->	192.168.60.3	22
379	576	39966	65308			EST
7. 18:27:23	tcp	192.168.50.2	10639	->	192.168.60.3	22
205	307	21678	22754			EST
8. 18:28:26	tcp	192.168.50.2	10639	->	192.168.60.3	22
8384	3712	825652	3006732			EST
9. 18:29:32	tcp	192.168.50.2	10639	->	192.168.60.3	22
98	123	10268	9850			FIN

Figure 3: Session Data from the Wireless Segment

i. You are required to:

1. Examine the Argus data and state if you can track the Attackers movement.

(3 marks)

2. From what you have learnt in your Network Management module, analyze and evaluate the company network diagram and list all the flaws you can identify in the design.

(5 marks)

3. Redesign the company network to make it more secure to avoid a similar occurrence in the future. Explain your design.

(8 marks)

4. Can a network be 100% safe from internal and external threats? Give your reasons.

(3 marks)

5. State some best practices that a Network Administrator need to adopt to prevent network downtime, optimize bandwidth and devices, and to prevent both internal and external attackers.

(6 marks)