ASSIGNMENT SUBMISSION

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| --- | --- |
| Due date: | Thursday Week 11 (2PM AEST) |
| Part: | Written Assessment |
| Weighting: | 30% of total assessment. |
| Submission: | Electronic (see course website for details) |

**Instructions**

While it *should not* be necessary to use literature/online resources to complete this assignment, please ensure you cite and reference any such materials using the Harvard format.

**DO NOT** copy content directly from either the text or Internet resources: this assignment is to be in your own words. **You will lose marks if you do not use your own words!**

Please complete your assignment using **this** submission template file, inserting your responses where indicated.

**DO NOT delete the marking criteria page** – changes are permitted to the formatting of other pages including the headers and footers.

|  |  |
| --- | --- |
| **Please fill in the following details:** | |
| **Student Name** |  |
| **Student Number** |  |

# Week One

**Assignment Question:**

A ping message can be used to test the reachability of a host (such as Google with IP address 8.8.8.8) on an Internet Protocol (IP) network.

List the steps a ping message takes to get to a host and what layer of the network communication process each step relates to.

**Your answer:**

**Your question:**

**Your sample answer:**

# Week Two

**Assignment Question:**

NQ-Real Estate has 8 workstations in a wired LAN with a 100 Mbps switch. It was suggested to the admin officer to replace the switch with a wireless Access Point (AP) that uses the 802.11ac standard and operates at 1 Gbps. Assuming all workstations were simultaneously using the LAN, would the AP deliver faster or slower speeds to the users? Explain your reasoning by including estimates of effective bandwidth for each case.

**Your answer:**

**Your question:**

**Your sample answer:**

# Week Three

**Assignment Question:**

Describe the difference between a network’s physical topology and its logical topology and explain the advantages and disadvantages of a physical star topology.

**Your answer:**

**Your question:**

**Your sample answer:**

# Week Four

**Assignment Question:**

NQ-Real Estate’s facilities in Hermit Park, Townsville, are two office buildings 150 meters apart, each with its own LAN. To connect the two networks, the budget-conscious facilities manager suggests using Category 6 of Unshielded Twisted-Pair Cable.

* Explain why this is not a suitable advice
* Give two other media connectivity options, outline their advantages and disadvantages

**Your answer:**

**Your question:**

**Your sample answer:**

# Week Five

**Assignment Question:**

Complete the following table by nominating the network layer names and the protocols associated with the following tasks:

* Ensure that the information sent by the web server reaches your browser
* Route messages between your PC and the server over the Internet
* Allow the web browser software and the web server software to understand the messages sent between them
* Encapsulate data in frames

**Your answer:**

Complete this table:

|  |  |  |
| --- | --- | --- |
| **Task** | **Layer** | **Protocol** |
| Ensure that the information sent by the web server reaches your browser |  |  |
| Route messages between your PC and the server over the Internet |  |  |
| Allow the web browser software and the web server software to understand the messages sent between them |  |  |
| Encapsulate data in frames |  |  |

**Your question:**

**Your sample answer:**

# Week Six

**Assignment Question:**

Internet Protocol version 6 (IPv6), the most recent version of the Internet Protocol (IP), is the communications protocol that provides an identification and location system for computers on networks and routes traffic across the Internet. As of 31 December 2017, the percentage of users reaching Google services with IPv6 reached 22.6% for the first time in regular measurements, growing at about 5.8% per year, although varying widely by region. As of December 2017, about 33% of Alexa Top 500 web servers support IPv6.

Explain how it is that IPv4 and IPv6 can co-exist (dual-stack IP implementation) in the same network and describe two technologies that enable this.

**Your answer:**

**Your question:**

**Your sample answer:**

# Week Seven

**Assignment Question:**

A switching table below has the following entries:

|  |  |
| --- | --- |
| MAC Address | Port # |
| 00-25-2A-00-00-01 | 4 |
| 00-25-2A-00-10-FC | 1 |
| 00-25-2A-00-00-2B | 2 |
| 00-25-2A-00-11-21 | 3 |
| 00-25-2A-00-10-0F | 3 |

Port 3 is connected to a hub.

The following events occur:

* The entry for 00-25-2A-00-00-01 expires.
* An additional device (00-25-2A-00-10-5D) is connected to the hub on port 3.
* A new virtualised machine (00-25-2A-00-10-6C) is started on the server connected to port 2.
* Device (00-25-2A-00-10-0F) is disconnected from the hub on port 3 and connected to port 5.

Draw the switching table at the end of these events. The order of entries is unimportant:

**Your answer:**

Complete the following table:

|  |  |
| --- | --- |
| MAC Address | Port # |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**Your answer:**

**Your question:**

**Your sample answer:**

# Week Eight

**Assignment Question:**

It is well known that, the wireless signal of a Wi-Fi network is not confined to a cable as in a traditional network but instead is broadcast through the air. Recently, public Wi-Fi hotspots can be found everywhere, such as airports, hotels and coffee shops. Users can log onto the Internet with their mobile device. Along with convenience, public Wi-Fi hotspots can also provide an easy way for some attackers, like identity thieves and cybercriminals, to attack the wireless network or the users.

Please state two kinds of attacks that may occur in public Wi-Fi networks and provide an effective way for users to address the security issues when they access public Wi-Fi on their computer or mobile device.

**Your answer:**

**Your question:**

**Your sample answer:**

# Week Nine

**Assignment Question:**

Cloud computing is an information technology (IT) paradigm that enables ubiquitous access to shared pools of configurable system resources and higher-level services that can be rapidly provisioned with minimal management effort, often over the Internet. Cloud computing relies on sharing of resources to achieve coherence and economies of scale, similar to a public utility.

Cloud-computing providers offer their "services" according to different models. Explain the three basic service models including one example for each.

**Your answer:**

**Your question:**

**Your sample answer:**

# Week Ten

**Assignment Question:**

NQ-Real Estate has special management software that only runs on Windows. The admin officer has a problem that his desktop was replaced by a MacBook Pro running macOS. How could virtualisation help to solve this problem? What type of virtualisation would be used? Give an example of the name of a product that could be used.

**Your answer:**

**Your question:**

**Your sample answer:**

**MARKING SHEET - DO NOT DELETE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Assignment Question** | | **Student Question** | |
| **Criteria** | **0** | Incorrect/No Response | **0** | No question provided or minimal attempt |
| **0.5** | Limited /Partially incorrect response **OR** response is not in the student’s own words | **0.5** | Simplistic question/sample answer that does not demonstrate an understanding of the topic area **OR** sample answer is not in the student’s own words |
| **1** | Correct response but could have more detail | **1** | Good question that has some challenge, but could be more challenging and/or the sample answer needs more detail/explanation |
| **1.5** | Excellent response with good detail | **1.5** | Excellent and challenging question with a detailed sample answer |
| **Week** | **Marks Awarded** | | **Marks Awarded** | |
| **1** |  | |  | |
| **2** |  | |  | |
| **3** |  | |  | |
| **4** |  | |  | |
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| **Comments:** | | | | |