Type of assessment: Course work

For a given scenario (see Appendix), you are required to produce a report using

Data Communications paradigms.

Where evidence of Packet Tracer simulation is required, this must be included in

the form of screenshots with a clear explanation. The report must be submitted

online via the UWL Blackboard portal

Acceptable formats: Word or PDF

Please do not submit zipped files.

Due date: Friday, 9

th June 2023, 5 pm

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Assessment and Grading Criteria

Title Report on the given scenario, utilising Data

Communications paradigms.

Task details

summary

From the given scenario (given below in the appendix section),

you will be required to propose solutions to the given

requirements, with recommendations.

You will submit a report (word or pdf format).

The report should not be more than 12 pages, excluding

references. It should be presented with title page in 16-point bold

font, headings of 14- point bold font, and the main body with 12-

point font.

Please use font ‘Times new Roman’ throughout the report.

Please adhere to the following basic structure:

❖ Title, Author Information

❖ Abstract

❖ Introduction

❖ Main body

❖ Conclusion

❖ References

Where Packet Tracer simulation is required, screenshots to

illustrate the topology and end-to-end connectivity must be

provided.

Criteria Issues Mark

(100

marks)

Marking

breakdown

where

appropriate

Analysis of

the given

problem

(10 marks)

❖ Clear understanding and

analysis of the problem/task.

10

Solution

(60 marks)

❖ Understanding of key

network and data

communication principles.

10

❖ Correct networking standards

and conventions. 10

❖ Understanding of the role of

network services, protocols,

devices, and network

architecture.

10

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❖ Familiarity with basic

mathematics and statistics to

some network and data

communication scenarios.

❖ Understanding of

client/server application.

❖ Meets all required

functionalities

10

10

10

Documentation

(30 marks)

❖ Documentation is easy to

read with academic rigour,

and credible references.

30

Timing of feedback: within 15 working days

Grade descriptors

In addition to the assessment criteria above the following table may assist you in understanding how we arrive at

your final mark. Indeed your final mark should agree with the following grade descriptors, but note that the

assessment criteria are the main means of assessment.

Mark Descriptor

0-39% Limited conceptual understanding with possible structural deficiencies. Restricted use of theory within

module. Inappropriate argument leading to unreliable and invalid conclusions/recommendations

40-49% Some confusion in purpose & aims of evaluation. Some overall structure and conceptual

understanding. Fair use of theory but arguments sometimes irrelevant, illogical or with unsupported

assertions.

50-59% Demonstrates a limited but accurate level of understanding presented in a mostly descriptive manner.

The answer contains relevant interpretation and critical understanding especially at the upper end of

the marking range.

60-69% Demonstrates accurate knowledge and understanding of the subject presented in a coherent manner.

The answer contains evidence of application and interpretation. At the upper end there is evidence of

thoughtful and measured critical evaluation.

70-79% Demonstrates a clear, comprehensively researched understanding of relevant material with some

element of critical evaluation. Shows initiative in approach and rigour in the handling of information.

Demonstrates originality of thought together with interpretation and application to the relevant sector

80% or

above

The answer is analytical and critical. The assignment demonstrates scholarship through a depth of

insight and understanding of relevant material, which is logically structured, accurate and well

referenced. Originality of thought and application is evident.

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Appendix

Task:

A newly established ACME Corporation has recently acquired offices in the UK,

India, and the US. The number of employees in each office is 300, 200, and 100,

respectively. The network resources are scarce; therefore, the network design

should be as such that they are used efficiently (Hint: Subnetting required)

Each branch office has three departments i.e. IT, HR and Finance. These three

departments should have different broadcast domains, and departments should

communicate with each other (Hint: VLAN configuration required). The

company is in the process of setting up its communication and network

infrastructure, computers, servers, databases, e-mail, and file sharing facilities.

The company requires sharing of technology resources across all offices. The

company needs to operate in a very secure environment (Hint: Recommend

security measures). Their workforce is also using mobile devices to conduct their

“Business as Usual” (BAU) activities.

As a Network Administrator, you are assigned the responsibility of connecting

different offices using networking paradigms (Hint: Routing protocols required).

A topology diagram must be created using Packet Tracer tool. Evidence of

successful end-to-end connectivity must be provided and a report on your selection

of technologies must be produced. The devices and protocols you chose to set up

the scenario mentioned above must be clearly documented in the report, including

the rationale behind choosing them. Optional: You can also provide budgeting.

Furthermore, the company has asked you to recommend cloud-based services

(e.g. Email, File share, IIS etc.) using AWS. You are not required to setup servers

on AWS but provide recommendations in your report. You are required to compare

your selection with other available options, their advantages and disadvantages

and give an in-depth analysis of what you have proposed.

Based on the given scenario above, what recommendations will you suggest to

ACME Corporation for such implementation? Necessary assumptions can be

taken to justify your solutions.

Consider the following points when completing this assignment:

❖ Evaluate and explain the operating principles of commonly used networking

devices, their characteristics and performance. Define networking

standards and communication with OSI Model

❖ Propose and justify a network infrastructure solution for the given scenario

❖ Use routing algorithms to connect network nodes

❖ Evaluate and explain choices for hardware and software such as cloudbased servers.

❖ Discuss security recommendations as ACME corporation is extremely

particular about security implications.

❖ Provide credible references from books, journal articles, conference papers,

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technical articles and vendor websites (e.g. cisco). Please do not use

Wikipedia and other blogging websites (e.g. Quora). Where the information is

taken from a source, in-text citation must be provided. Do not copy and paste and

write in your own words to avoid plagiarism.

Plagiarism Warning: Plagiarism is a serious academic misconduct. We have our

methods of finding a plagiarised work. Protect your work. Do not copy from

someone and do not let anyone copy your work. If found plagiarising, severe

penalties may incur subject to the decision made by the disciplinary committee.