

Pearson **Higher Nationals in** **Computing**

ASSESSMENT BRIEF

Unit: 2 Networking

Brief Number: 1 & 2

First teaching from January 2018

Issue 1



Higher National Certificate/Diploma in Computing

Assessment Brief

Student Name/ID Number	
Unit Number and Title	2: Networking
Academic Year	
Unit Tutor	
Assignment Title	
Issue Date	
Submission Date	
IV Name & Date	

Submission Format

The submission is in the form of an individual written report. This should be written in a concise, formal business style using single spacing and font size 12. You are required to make use of headings, paragraphs and subsections as appropriate, and all work must be supported with research and referenced using the Harvard referencing system. Please also provide a bibliography using the Harvard referencing system. The recommended word limit is 2,000–2,500 words, although you will not be penalised for exceeding the total word limit.

Unit Learning Outcomes

LO1 Examine networking principles and their protocols.

LO2 Explain networking devices and operations.

Assignment Brief and Guidance

XYZ Insurance (Pvt) Ltd. is a small scale organization located in Galle, which offers insurance, Investment and other facilities to the public. Established in 2015, the company is now looking forward to network their departments for better collaboration of services.

The building consists of two floors and a car park at the basement. The floor plan of office sections is as follows.

1st floor

Insurance Department

This department has a section head (Separate Cabin for Head) department head and another partition of ten computers which one of them has a printer and only the department head have internet connectivity. Three photocopiers are there in this section.

Investment Department

There are four counters which has six computers and two printers. Also department head and another two executives are there in three cabins. One photocopier is located.

2nd floor

Marketing Department

This department have four cabin with department head and a senior executive cabins are located near them. Further two bill printing printers attached to two computers.

Admin Department

This area has five computers which also has two all in one photo copiers. Also department head and two senior officers reside in one partition.

You are employed as a Network Engineer and have been asked to investigate and explain networking principles, protocols and devices.

You will need to produce a report for the GM that includes the following:

1. An introduction to provide an overview of your report.
2. Comparison of networking principles, protocols and devices, including benefits and constraints of different network types and solutions, the impact of network topology, communication and bandwidth requirements, effectiveness of networking systems, operating principles of networking devices and server types and networking software.

Explain the suitable topology for given scenario and justify your answer by considering efficiency and utilization of selected network system.

Learning Outcomes and Assessment Criteria		
Pass	Merit	Distinction
LO1 Examine networking principles and their protocols		LO1 & 2 D1 Considering a given scenario, identify the topology protocol selected for the efficient utilisation of a networking system.
P1 Discuss the benefits and constraints of different network types and standards. P2 Explain the impact of network topology, communication and bandwidth requirements.	M1 Compare common networking principles and how protocols enable the effectiveness of networked systems.	
LO2 Explain networking devices and operations		
P3 Discuss the operating principles of networking devices and server types. P4 Discuss the inter-dependence of workstation hardware with relevant networking software.	M2 Explore a range of server types and justify the selection of a server, considering a given scenario regarding cost and performance optimisation.	

Higher National Certificate/Diploma in Computing

Student Name/ID Number	
Unit Number and Title	2: Networking
Academic Year	
Unit Tutor	
Assignment Title	LAN Design & Implementation
Issue Date	
Submission Date	
IV Name & Date	

Submission Format

The submission is in the form of an individual evidence portfolio. This assignment can be completed as a group, but each student must produce their own portfolio, which will contain:

- A LAN design plan and blueprint and justification document.
- A fully completed test plan including an evaluation of results and recommendations for improvements to LAN.
- A proposed and justified maintenance schedule.
- Evidence of an implemented network.

You are required to make use of headings, paragraphs, subsections and illustrations as appropriate, and all work must be supported with research and referenced using the Harvard referencing system.

Unit Learning Outcomes

LO3 Design efficient networked systems.

LO4 Implement and diagnose networked systems.

Assignment Brief and Guidance

Call Management (Pvt) Ltd is an upcoming call centre. It has 03 floors with the head at Colombo and the other is located in Kandy.

The setup of the head office in Colombo is as follows:

- **Floor 1:**
 - Reception Area
 - Marketing Department (10 employees)
 - GM's Room
 - Customer Interview Area – with Wi-Fi facilities
- **Floor 2:**
 - Calling center for UK clients - 100 computers
 - Video conferencing room
 - Training center with 20 computers
 - Accounts Department (03 employees)
- **Floor 3**
 - Calling center for Australia clients - 80 computers
 - Auditorium – with Wi-Fi facilities
 - The Server Room with the IT team

The requirements of the Call Management (Pvt) Ltd are as follows:

- All departments' computers of the office are to be integrated in to a centralized network. Name –callma.com.
- All computers in the office are to be integrated in to a child entity of the main domain which supposed to be designed under (a).
Name – Floor3.callma.com
- Finance department should be kept independently in separate non-centralized environments.
- The Auditorium of each branch and Customer Interview Area are to be equipped with Wi-Fi connections which are limited only to their respective sites.

You are the Network Engineer of Call Management (Pvt) Ltd, and assigned with the task of plan, design and implement a network solution for your own organization.

Part 1 Design efficient networked systems

- Prepare a written step-by-step plan of how you are going to design a Local Area Network including a blueprint of your LAN.
- Justify your choice of devices for your network design.
- Produce a test plan to evaluate this design for the requirements of bandwidth and cost constraints as per user specifications.
- Justify the security requirements and quality of services needed for selection of accessories.
- Suggest a maintenance schedule to support the networked system.

Part 2 Implement test and diagnose networked systems

- Implement a networked system based on your prepared design.
- Conduct verification with e.g. Ping, extended ping, trace route, etc.
- Record the test results and analyse these against expected results.
- Investigate what functionalities would allow the system to support device growth and the addition of communication devices.
- Discuss the significance of upgrades and security requirements in your recommendations.

Learning Outcomes and Assessment Criteria		
Pass	Merit	Distinction
L03 Design efficient networked systems		
<p>P5 Design a networked system to meet a given specification.</p> <p>P6 Test and evaluate the design to meet the requirements and analyse user feedback.</p>	<p>M3 Install and configure network services and applications on your choice.</p>	<p>D2 Design a maintenance schedule to support the networked system.</p>
L04 Implement and diagnose networked systems		
<p>P7 Implement a networked system based on a prepared design.</p> <p>P8 Document and analyse test results against expected results.</p>	<p>M4 Recommend potential enhancements for the networked systems.</p>	<p>D3 Use critical reflection to evaluate own work and justify valid conclusions.</p>