

Pearson
Higher Nationals in

Computing

Unit 2: Networking

Issue 1



Higher National Certificate/Diploma in Computing

Assignment Brief

Student Name/ID Number	
Unit Number and Title	2: Networking
Academic Year	2021
Unit Tutor	Mr. M I M Irshad
Assignment Title	Network Design for Graphicways
Issue Date	06.10.2021
Submission Date	05. 11.2021
IV Name & Date	Mr. K. Mohamed Ishraque

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.



Unit Learning Outcomes

LO1 Examine networking principles and their protocols.

LO2 Explain networking devices and operations.

LO3 Design efficient networked systems.

LO4 Implement and diagnose networked systems.

Assignment Brief and Guidance

Graphicways is a Graphics Design company, in business with small and medium size businesses. They heavily depend on emails for communication and file sharing with their customers. There are 25 employees, including part time and permanent employees.

Part of their IT infrastructure has been implemented as follow

- Every employee has an own workstation connected to the LAN and his/her work saved in that workstation alone
- A single SLT ADSL provides internet access to everyone without any filtering
- Once a design task is assigned to an employee, further communication with the customer is handled by that employee alone.

Graphicways faces numerous issues in their current structure, such as

- No data redundancy and no backup solution ,
- ADSL internet line is not stable.
- Customers have to depend on a single employee, and their work get delayed during the absence of the employee.

As a Network Administrator, you propose the following to mitigate and improve the structure,

- Bring two ftp servers, so every employee can back up their work at the end of the day.
- Internet filtering for efficient productivity
- Backup Internet line
- Migrate all email service to G Suite.
- Provide an in-house/cloud online portal where customers can view the work and share their opinion.
- Integrate Wireless as a part of the LAN



Submission Format

Part 1 (P1, P2, P3,P4)

Discuss various networking principles and options that can be used to build such a system, the discussion should include but not limited to

- The advantages and disadvantages of various solutions to achieve the goal.
- How each solution will affect the topology , bandwidth, protocols, availability, security, cost and communication
- The roles and function of each devices (eg router, server), technology (eg: cloud) and protocols involved in.

(Report)

Part 2 (P5,P7)

Identify a suitable solution for Graphicways. The solution should be derived from the previous task. Explain how your proposed solution will fulfil the expectation in the most efficient way.

The design part should cover the entire solution, Implement the solution in a virtual environment (you may omit certain parts (eg cloud solution) when implementing in the virtual environment)

(Report and Presentation)

Part 3 (P6, P8)

Test the backup solution and internet filtering, and document the following

- Authentication, Authorisation settings
- Internet filtering and bandwidth control
- Efficient backup strategy.

(Report with Screenshot and Presentation)

Part 4 (P7)

Explain how you will maintain the network in a healthy state, the report should include

- Device/Network Monitoring
- Support Plan
- Update/Upgrade plan

(Report)

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.	M1 Compare common networking principles and how protocols enable the effectiveness of networked systems.		
P2 Explain the impact of network topology, communication and bandwidth requirements.			
LO2 Explain networking devices and operations			
P3 Discuss the operating principles of networking devices and server types.	M2 Explore a range of server types and justify the selection of a server, considering a given scenario regarding cost and performance optimisation.		
P4 Discuss the inter-dependence of workstation hardware with relevant networking software.			
LO3 Design efficient networked systems			
P5 Design a networked system to meet a given specification.	M3 Install and configure network services and applications on your choice.		D2 Design a maintenance schedule to support the networked system.
P6 Test and evaluate the design to meet the requirements and analyse user feedback.			
LO4 Implement and diagnose networked systems			
P7 Implement a networked system based on a prepared design.	M4 Recommend potential enhancements for the networked systems.	D3 Use critical reflection to evaluate own work and justify valid conclusions.	
P8 Document and analyse test results against expected results.			