

University of London

Computing and Information Systems

CO2222 Data communications and enterprise networking

Coursework assignment 2 2018–19

Introduction

This coursework assignment aims to develop your skills in designing and costing a simple network solution based on a set of requirements.

Learning objectives

You should be able to:

- turn a set of requirements into a network design
- identify and evaluate potential network suppliers
- cost a design using a network provider's price list.

Tasks

A large university has recently purchased a new building that consists of a ten-storey office block in the centre of town. Each level is to be turned into teaching and administrative space, housing up to 100 computers per floor. Each floor is to have its own network that may be isolated from the other floors, but all interconnected via a suitable backbone. Each user is to have a nominal data rate of 100Mbps.

Task 1: Suggest two possible ways in which the individual LANs may be implemented and select one of them, with a suitable justification as to why you have chosen that one in preference to your other method. Produce a reasonably detailed design. You should specify the technology to be used and the main components (e.g. hubs, routers, etc.) to be used, but you do not need to specify actual branded products (e.g. Cisco model xx).

Task 2: Describe three technically different ways in which the university could implement the backbone needed to link the individual LANs into a single whole. Compare these three ways in terms of scalability and likely compatibility with new technologies that are either on or just over the horizon.

Task 3: The university has six other campuses of varying size, spread around the city. Each of the sites is no more than six kilometres from one of the others and/or the new building. Each site supports a series of 100Base-T local area networks linked to a single 100Base-T switch on the site. It wishes to acquire facilities to provide links between the sites using high speed (>100Mbps) connections.

- (i) Identify four criteria that you would use to compare and evaluate any proposals that might be made by suppliers or service providers bidding to supply the links.
- (ii) Identify two contenders in your region who are likely to be chosen to supply the links and compare these two contenders in terms of the four criteria identified in (i).

- (iii) Your comparison of the two contenders should show a preferred supplier. What topology is the chosen supplier likely to adopt to link the sites?
- (iv) What will be the cost of your preferred solution in terms of initial outlay and annual rental charges?

Deliverables and marking

Your report should contain between 2,000 and 3,000 words and be submitted in **.pdf format**.

Please submit **one** pdf document, which is named using the following convention: YourName_SRN_COxxxxcw#.pdf (e.g. MarkZuckerberg_920000000_CO2222cw2.pdf)

- **YourName** is your full name as it appears on your student record (check your student portal)
- **SRN** is your Student Reference Number, for example 920000000
- **COXXXX** is the course number, for example CO2222, and
- **cw#** is either cw1 (coursework 1) or cw2 (coursework 2).

It is important that your submitted coursework assignment is your own individual work and, for the most part, written in your own words. You must provide appropriate in-text citation for both paraphrase and quotation, with a detailed reference section at the end of your assignment (this should not be included in the word count). Copying, plagiarism, unaccredited and/or wholesale reproduction of material from books or from any online source is unacceptable, and will be penalised (see [How to avoid plagiarism](#)).

Your report must contain the following section headings and numbering scheme:

Section No	Heading	Contents	Marks
1	Introduction	Set the scene for the designs.	5 marks
2	LAN Design	Details of the two designs, including a diagram for each. Detailed design for the chosen architecture.	30 marks
3	Backbone Design	Details of the three alternative backbone designs, including a diagram for each.	30 marks
4	WAN Design	Solutions for the WAN, details of possible suppliers and costings.	30 marks
5	Conclusions	Summarise the main benefits of the design	5 marks
		Total	100 marks

[END OF COURSEWORK ASSIGNMENT 2]