University of London International Programmes
CO2222 Data communications and enterprise networking
Coursework assignment 2 2015–16

Statement

This coursework assignment aims to develop your skills in designing a large network based on a set of requirements.

Learning objectives

- To be able to turn a set of requirements into a network design.
- To be able to identify and evaluate different network components.
- To be able to identify and evaluate different network architectures.
- To be able to present the findings in the form of a concise report.

Introduction

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 10Mbps.

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, and 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 and compare these three ways in terms of scalability and likely compatibility with new technologies which 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 which you would use to compare and evaluate any proposals which might be made by suppliers or service providers bidding to supply the links.

(ii) Identify two contenders in your region who would be 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?

Deliverables and marking

Your report should contain between 2,000 and 3,000 words.

Please submit **one** pdf document which is named using the following convention:

FamilyName_SRN_COxxxxcw#.pdf (e.g. Zuckerberg_920000000_CO3323cw2.pdf)

- **FamilyName** is your family name (also known as last name or surname) as it appears in your student record (check your student portal)
- **SRN** is your Student Reference Number, for example 920000000
- **COXXXX** is the course number, for example CO1108, and
- **cw#** is either cw1 (coursework 1) or cw2 (coursework 2).

It must contain the following section headings and numbering scheme:

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

[END OF COURSEWORK ASSIGNMENT 2]