Computer Science

Loughborough University

Building Secure Networks (17COP502)
Lab Work Assessment

Ian Napier Semester 1

1 Deliverables from Practical Lab Work

The module involves learning about and the configuration of networks. Each example being a small version of an ISP (Internet Service Provider). Groups will configure routing, DNS (Domain Name System), Webservers etc and then interconnect these networks to form an internet using IPv4 and v6. Functionality to be provided will be:

- IPv4 and v6 on all devices
- An IGP (usually ISIS)
- IBGP and EBGP interacting with other groups
- A webserver
- DNS including links to the central DNS
- Email including servers and forwarding via central server

The lab workbook and its exercises are undertaken by students during the lab sessions of the module. Each group writes a single report which should encompass the following:

- A comprehensive description of the network that was built. The documentation must be detailed enough so that the network setup is reproducible from the information provided in the report. At a minimum this must include:
  - A diagram of your network and its links to those of other groups.
  - A description of everything you configured, including a copy of the startup-configuration.
- A reflective commentary on the decisions made; this would include answers to questions such as *"Why have you configured this?"* and *"Why is this connected here?"*. This demonstrates that you have understood the background to your actions. This section should be precise and concise, *i.e.* it should say everything the reader needs to know, without being too long. This can also include alternative ways that you may have considered doing things, but not had time to try out.

There is no set page limit for the report. Groups should consider the information they present and only include what is necessary for the assessment. The reflective commentary should be around 1,000–1,500 words. However, this is just a guide and should not be seen as a limit or a target.

Lab Demonstrations will be held at the end of the module. Each group will be given a chance to demonstrate their network and how it interworks with others. All demonstrations will take place at the same time. Information from the demonstration will be used to inform our reading of the reports and thence the mark awarded.

2 Marking Scheme

The report is a document reflecting on what you have achieved and experienced during the lab-assessment phase. It contributes to 40% of the overall grade. At the very minimum it must contain what you have done during the lab-assessment and a copy of the relevant configurations. The remainder of your grade will come from the in-class test.

Marks for the report are awarded according to the progress you made creating your network and the report write up:

50% Network Diagram: Comprehensive documentation of the network, including diagram, configurations, and any necessary text.

50% Reflective Report: Commentary on the network including decisions you made early on that you would make differently in future

3 Peer evaluation

We will use `webpa` for peer evaluation. This will allow us to gain each group member's opinion on the other group members' achievement against the learning objectives of the module and will be used to adjust the assessment results.

A Peer Assessment Questions and Answers

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Peer Assessment exists to provide some discrimination in marks
between differnet members of the same group.  We will use the webpa
system to determine this.

The questions will be based on the learning outcomes for the activity.
Questions are asked of one student to describe the abilities of
their peers.

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Q1. Describe what this student knows about the principles behind
the network you have created, including IP addressing, DNS and
Interior/Exterior Routing.

1. Nothing - they just sat and watched while the workers worked.

2. They can configure simple things, but anything like routing is
beyond their abilities.

3. Generally they know what's happening, but they have difficulties
with some of the detail.

4. The group could not have got to where they did without the
knowledge of this student.

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Q2. Describe what this student knows about the deployed services
on this network: web and email.

1. Nothing - they just sat and watched while the others worked.

2. They can configure a single server, e.g. a web server.

3. They can configure web, email and DNS, but had difficulties
debugging problems.

4. The group could not have got to where they did without the
knowledge of this student.

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Q3. How good was this student when it came to debugging the network?

1. Nothing - they just sat and watched while the others worked.

2. Occasionally they made a useful contribution.

3. They could help fix things when a problem was identified.

4. The group could not have got to where they did without the
knowledge of this student.

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Q4. How good are this student's unix skills?

1. They know nothing at all.

2. They can type commands, but aren't really able to determine what
should be typed.

3. They are confident, but not able to think beyond the simple cases.

4. Fantastic.

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Q5. Describe how much of the lab report is understood by this student?

1. None of it.

2. Some but less than 50%.

3. A large amount.
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4. Everything - the project depends greatly on their contribution.