Curtin University
Department of Computing

Computer Communications 200
Semester 1, 2016

Assignment

This assignment is worth 25% of the final mark. It consists of 2 modules, one on cnet programming and another one a written report based on your implementation.

Modules 1: Implementing Sliding Window Protocols using CNET (20%)

In this module, you are required to implement the "Sliding Window" protocol on a 7-node network. The topology of the network is given in Figure 1.

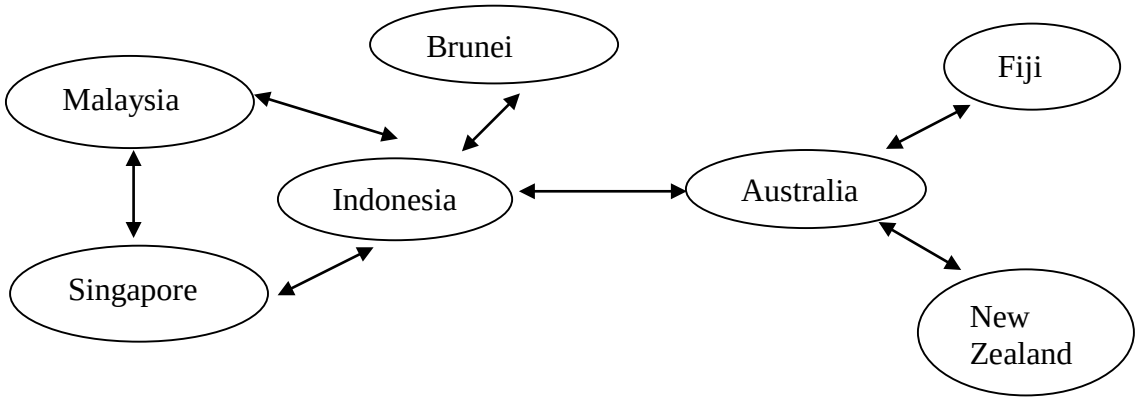

Figure 1

It is assumed that the nodes will communicate directly with each other if they are directly connected, otherwise the intermediate nodes will be used to relay the communications. No dynamic routing is required.

Please study the "stopandwait" sample files provided carefully, and build your work based on it. Your implementation should provide a mechanism for the nodes to address one another, and a service for the application layer to send message to a given destination address. Feel free to set the sizes of the sliding windows in each node as you wish but as a general guideline, the two *Switch* nodes, "Indonesia" and "Australia", should have bigger windows compared to the other nodes. Please note that you need to demonstrate the cases when the window is exhausted, so do not set the window size to be too big. In the display window of every node, it is required to display the source and destination of each

frame (which can be either a data or acknowledgement frame), while the sequence number are required on every data/acknowledgement frames.

Please note that you are NOT required to position the 7 nodes in geographically correct positions, i.e. we are interested in topology, NOT topography.

General information

Note that fragmentation is NOT required in any modules of the assignment, hence you should set the respective parameters to generate application layer message that will fit into a data-link layer frame.

Hints:
A template protocol specification file (assgn_template.c) is provided on Blackboard. In the protocol specification file, you will find the functions that reflect a layered architecture. You need to implement the data-link layer, the application layer, and a fixed routing network layer routines to complete this assignment. **Note that it is not mandatory to use the template in your assignment.**

Modules 2: A short report on your implementation **(5%)**

Write a short document (no more than 5 pages single space) describing your implementation of the "Sliding Window" protocol on the 6-node network. You need to describe the organization of your source code, and your implementations on some design issues such as sending, receiving, and re-transmission.

The total number of pages for your reports in this module should not be more than 5 pages, excluding the list of references. **You MUST adhere to the page limit**.

You must include a title page to show your name, your student number and your practical time, and declare your authorship for the report. The title page is not counted towards the 5 page limit.

Submission requirements:

Please create a directory in your home area, called ~/CC200/assignment, where ~ is your Unix home directory. Note that Unix is case sensitive. Please put the following files in each corresponding subdirectory:

1. A fully documented solution for the required protocol (source code), which is called assignment.c. Any supporting function must also be included.
2. Test topology file(s).
3. Output demonstrating that the simulation worked (using cnet's –o option).
4. A brief README to describe your files and how they should be run.
5. An electronic copy of the report in .pdf format.

All these files must be zipped into a single file and electronically submitted **via Blackboard** by **10 am, Monday 23th May, 2015**.

You MUST DEMONSTRATE and be ready to answer questions relating to your Assignment at your practical time during the week after the assignment is due (on 26th or 27th May).

Failing to submit the required files on Blackboard OR failing to turn up at the demonstrations will result in a mark of ZERO for the Assignment, and will be considered as not fulfilling the assignment, hence resulting in a mark of "F-IN" for the unit.

IMPORTANT NOTES:

- DO NOT set the permissions on your files to be globally readable.
- DO NOT modify the files in your assignment directory after the due date and time.
- **The assignment will require that all models/programs be complied and work on the machines in the labs. If you develop your CNET assignment on any other architecture, it will be your responsibility to ensure that the models/programs are ported correctly.** Please note that no technical help can be provided on cnet in other platforms.
- It is strongly advised that you start early. Do not leave this to the last minute.
- There will be NO cnet assignment-based question in the mid-term test or the final exam.
- **There will be absolutely no possibility of an extension of the due date.** Please refer to the Department's policy on Late or Missed Assessment: http://www.computing.edu.au/documents/latesubmissionguidelines.pdf.