

Assignment 3

NET 3006 – Enterprise Network Management

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Due date: April 4, 2015 (on CULearn at 11:55 pm)

Question 1 – RMON (10 marks)

Describe what is the idea and the benefits of the time filtering mechanism, how does it affect the traffic? Give an example and explain it.

Question 2 – Fault management (20 marks)

Use Figure 1 to answer the following questions:

- Identify the problems and the symptoms and draw a labeled causality graph
- Derive the correlation graph, the correlation matrix and determine its radius. Is this codebook resilient to noise? Explain how many spurious/lost symptoms your system can afford

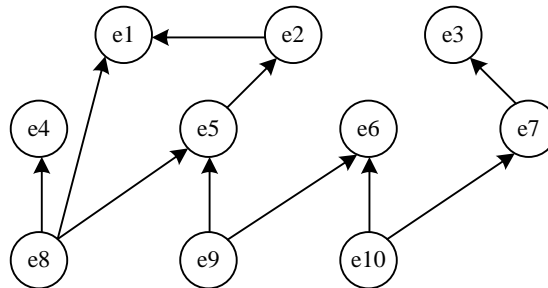


Figure 1: Graph for question 2

Question 3 – RMON (3 marks bonus)

A NMS is connected to a network via a single 10MB/s (MegaByte/sec) Ethernet interface. The manager is responsible for monitoring 10,000 network nodes including routers, switches, hubs and systems. The network is organized into 10 subnetworks of 1000 nodes each. The NMS is interested in checking (every two minutes) whether a device is up and running or down. To do this, the management station uses SNMP to query each device every two minutes. We assume that each individual request message is 2000 bytes and each reply message is also 2000 bytes.

- What is the traffic load generated on the manager's Ethernet link for the management traffic? What percentage of the link capacity is this?
- How much management traffic on each subnet?
- Consider that the architecture is changed to include RMON devices on each of the 10 subnetworks. We want to avoid the excessive polling from the manager and instead use the RMON features to watch for problems locally. Describe how this could be done?
- What is the traffic load generated on the manager's Ethernet link for the management traffic in your new network? Percentage of capacity?
- What about the individual subnets? How much management traffic on each subnet?