

“Ten Easy Network Questions” - So You Think You Know Your Network?

Robin Tasker (r.tasker@dl.ac.uk)

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Introduction

This document is targeted at each GridPP site and specifically to those with responsibility for networking issues. It is intended to be brief and light-hearted but is provided as a challenge with the purpose of ensuring that the reader really understands their local network and, as importantly, knows who to speak to when the going gets tough. If you want to drive the network hard, this stuff is for you!

Answer the following questions using your skill and judgement but conferring with you local and Institutional network support staff is allowed. Actually it's encouraged! Share your answers with your GridPP colleagues.

Question 1

Provide the name and contact details of your local (Departmental) and Institutional network support staff.

Question 2

Provide details of the responsibilities, together with the demarcation of those responsibilities, of your local and Institutional network support staff.

Question 3

What is a Regional Network Operator (RNO), and why does this matter to you?

Question 4

What is SuperJANET4? And more importantly what is SuperJANET5?

Question 5

Draw a simple diagram showing your local (Departmental) network and sufficient of your Institutional network such that you can trace a line from *your* end-system to the connection from your Institutes network into the RNO infrastructure.

Question 6

On the diagram produced in answer to Question 5, show the capacity of each link in the network and provide a note against each link of its contention ratio.

[Hint! Just how many 100Mbits/s links are being fed into that 1Gbits/s uplink?]

Question 7

On the diagram produced in answer to Question 5, colour and distinguish the switches and routers and for each device provide a note of its backplane capability.

[Hint! Just how many [frames per second | packets per second] can the backplane shift?]

Question 8

What is the average and peak traffic flow between your local (Departmental) network and the Institutional network?

What is the average and peak traffic flow between your Institutional network and the RNO?

What is the total capacity of your Institutional connection to the RNO?

What are the upgrade plans for your local (Departmental) network; your Institutional network and the network run by the RNO?

Question 9

Do you believe in IS Security? Does your Institute believe in IS Security?

Do you believe in firewalls? Does your Institute believe in firewalls?

On the diagram produced in answer to Question 5 colour in the firewall(s) (or other security devices).

Provide information of how changes are made to the rule set of the firewall.

Provide a note of the capacity of this device and what happens when that capacity is exceeded.

Question 10

What is the best performance you can achieve from your end-system to an equivalent system located in some geographically remote (and friendly!) Institute?

For your end-system:

Do you understand the kernel, the bus structure; the NIC; and the disk system?

Do you understand TCP tuning and what it can do for you?

Do you understand your application and what it can do to your performance?

Conclusions (and Answers)

I hope that with the completion of this exercise you will have a clearer understanding of the components of your network that affect your work. Furthermore that you have pieced together the end-to-end path upon which you are reliant, and better understand the many issues that affect performance. Most of all I hope you have built up a set of contacts that can help you to make your network work for you.

And as for the answers?

Well they're probably out of date already! So keep talking.