Network Design Paper
IT 280 – Data Communications Systems – Winter 2008

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The purpose of this paper is to demonstrate that you can design a simple household network and explain it on paper.

1 Deliverables

The main deliverable is a blinded PDF file. Turn-in is accomplished by visiting my quiz website (http://quiz.cis.byuh.edu/) and uploading the PDF as shown in class.

The PDF should have a cover page (the first page of the PDF) that must identify yourself by name and state the title of the assignment and the date. The cover page will not be seen by the grader until after the grade is assigned. The rest of the PDF must be blinded and is the part that will be graded. The quiz website includes more instructions and links for how to create a PDF file.

When you visit the quiz website (http://quiz.cis.byuh.edu/), you must log in using your CES netid and password. Then you should find IT 280 Term Paper listed on your menu. Select it. Find the upload button. Submit your paper.

The due date is midnight, Friday night, February 22, 2008.

Late work will *not* be accepted. Turn in the best thing you can by the deadline.

2 Blinded Paper

There is an academic tradition of blinding papers for review. What this means is that professors, when they publish, must submit their paper to a journal or a conference. The journal people will send out the paper to reviewers. The reviewers will not know whose paper they are evaluating. The reviewers are "blind" to the identity of the author. This is to keep things fair. Also, the author usually will not know wo is doing the evaluating. In that case the author is "blind" to the identity of the reviewers. The journal, of course, will know who both of them are. The resulting review is called a "blind review" or a "double-blind review" depending on the process and on how precise the description is.

Your paper must be blinded in the sense that besides the cover page, the rest of your paper must not reveal who you are. That way the reviewer (me) will be able to grade it without any bias caused by knowing that you are my favorite student (or not).

3 Title

The title of the paper shall be "Home Network Design for X" where X is replaced by the name (or description) of the person for whom the network is intended, however use something like "my family" instead of identifying yourself. Typically this should be your parents or your family, but other alternatives are acceptable. This person is your client.

The finished paper shall be printed on normal printer paper using margins of 1.25 inches left and right, top and bottom. The font shall be Verdana (if it is available), nine or ten points. The lines shall be single-spaced. It is expected that the paper will be about five pages in length, but longer or shorter is okay as long as you meet the other requirements. (If your paper is very short, make sure you understood the requirements properly.)

4   Network Diagram

One entire page of the paper shall be a diagram of the proposed network, created using Microsoft Visio or an equivalent software package of your choice.

You can see Scott Mikolyski to get a copy of Visio to be installed on your own personal computer. It is available to us through the Microsoft Developers Network.

5   Current Situation

Include a section called "Current Situation" that describes the existing situation at your client's house. Assume (or pretend) that your client already has three computers and a printer. Two of the computers are desktop models without wireless capability. One is a laptop that has wireless capability. The printer is an inexpensive laser printer (e.g., low end "Brother"). Currently the printer is attached to one of the desktop computers, and anyone wishing to print must do so from that machine.

6   Goals

Include a section called "Goals" that states your goals.

Your task is to bring in Internet into the house and to connect the three computers into a local area network. The printer should become a stand-alone network printer that can be used from any computer without the other computers being turned on. Each computer should be able to surf the Internet at the same time that the other computers are in use.

You must also provide Network Attached Storage (NAS, also known as a File Server) on your network. The storage should hold at least 100 Gigabytes, but 500G or 1T would be better.

Optionally (to make things more realistic) you can include other network-based features such as security cameras or household control features, such as devices to turn on and off the lights, or lock and unlock doors, or serve music or video.

7   Proposal

Include a section called "Proposal" that spells out your exact recommendations.

Go onto the Internet or visit one or more actual computer stores. Select the exact components you think might be appropriate. List each component. Give its name, manufacturer, model number, price, and other important features. Explain briefly why this component is being recommended. (What does it do? Why do we want it? Was it the cheapest?)

Include absolutely everything besides what was listed in the Current Situation.

8   Installation Instructions

Include a section that explains how to set up this network, assuming that the recommended items have been acquired.

Give a step by step set of instructions suitable to be followed by someone who is reasonably intelligent but has not had a networking class. Tell where to put things. Tell how to connect them. Tell how to configure them. Tell how to verify that the network is operating properly.

9   Grading

This paper is worth 50 points, which is 5% of your final grade.

Points are earned for completing major parts of the assignment.

Clarity: Can I understand what you are saying? (Clear, a little confusing, a lot confusing)

Workability: Do you have a workable network design? (It would work, it has minor problems, it has major problems)

Illustration: Do you have a Visio diagram that illustrates it? (Impressive, Adequate, Confusing)

Components: Did you specify the exact components recommended? (Specific, General, Nebulous)

Installation: Do your installation instructions convince me that you know what you are talking about? (Clear and workable, unworkable, confusing)

You should be able to get most of the points by doing a reasonable job. You will lose points if you don't complete the task.