CS78 Spring 2006

Due Date: 28th April 2006

Classic Paper Review 1: "The Design Philosophy of the DARPA Internet Protocols"

Please review this paper. A pointer to it is on the course web page. Please answer the questions below and feel free to use additional reference material (e.g., from the citations). We assume you will write at least three pages in response to the questions below. We will have a discussion on the paper in x-hour on **Tuesday 2nd May 2006**. Attendance is expected.

Questions

1. Consider the goals for the Internet architecture discussed in the paper. Clark lists the goals in the order of importance at the time. Would you consider this a good order today? If you could make one change to the list of goals (e.g., change a priority or add a new goal) to meet the new demands of today then what would that change be? You might consider how the Internet has evolved when thinking about this question. What are the limitations of today's Internet for example. There is no correct answer to this question but take a position and argue your point either way.

2. Summarize the approach of "fate sharing" as described in the paper. Describe an alternative approach to implementing reliability which does not adhere to the fate sharing concept. Give an example scenario when the alternative you described would be more appropriate as opposed to this fate sharing model.

3. The choice to do retransmissions at the end-points of a connection rather than at intermediate nodes is an important design decision of the Internet. This decision can lead to inefficient use of network resources. Do you think this is a good design choice in this respect. Justify your answer.

4. Please contrast Clark's paper to another important or interesting network architecture paper that you can find on the web. Clark's paper is a highly cited and important historical paper that explains the foundations of today's Internet. Use google scholar to find another important network architectural paper that cites Clark's paper; examples of these are the papers, "A delay-tolerant network architecture for challenged internets" or "Developing a Next-Generation Internet Architecture" (see links on the course website). Please do not use these example papers but find your own and briefly discuss its contribution and importantly contrast it to Clark's original Internet design. What are the big differences if any.