

CS 6504: Advanced Networking

Homework #2

Due: Tuesday, September 18 by 5PM
(Slide underneath the door of Room 2209 KWII)

Textbook:

High Performance TCP/IP Networking: Concepts, Issues, and Solutions
Mahbub Hassan and Raj Jain
ISBN 0-13-064634-2

1. Go to the TOP500 List at <http://www.top500.org/>
 - a. Figure out what percentage of the list is made up of certain types of interconnects *based on their contribution to the TOP500 List in terms of Linpack floating-point operations per second (FLOPS)*.
 - b. How is this different from what was asked in HW #1, i.e., find out what percentage of the list is made up of certain types of interconnects?
 - c. What insights can you glean about the different network interconnects based on your answers to (a) and (b)?
2. With the movement from CISC back to RISC, what was done with all the extra transistors given that RISC reduced the need for transistors yet Moore's Law doubles the number of transistors every 18 months? (This is *not* a trick question.)
3. Due to changes in technology trends, research and development in computer architecture went from RISC to CISC and back to RISC.
 - a. What specific change(s) in trends caused the above RISC/CISC/RISC cycle to occur?
 - b. Identify at least one other way that technology trends have affected research and development in computer science.
4. Explain exactly how the destination node of a TCP connection can advertise a window (awnd) that is 132,000 bytes in size.
5. Relative to the *proper citing* guidelines posted at the following web link: <http://people.cs.vt.edu/~feng/cs6504/documents/ProperCiting.pdf>, do you think that Appendix C of your textbook (pp. 345-347) plagiarizes references [317] or [318], which are listed on page 364 of the textbook? If yes, why? If no, why not?

You should have already decided on a final project by now. Your next assignment will be to turn in a 2-3 page proposal on Tuesday, September 18 that provides details of what you propose to do, e.g., what background research you have done, what your approach will be and why, what resources you will need, and so on.