CECS 327 Assignment 4 - Communication

20 points

Assignment Description. Answer the following questions from the Chapter 4 reading from your textbook. Be through and complete with your answers. You *may* work on these questions with a partner (no more than two working together), but **both** students must submit the document individually on Beachboard Dropbox along with both students' names on each submission.

1. Why are transport-level communication services often inappropriate for building distributed applications?
2. Assume a client calls an asynchronous RPC to a server, and subsequently waits until the server returns a result using another asynchronous RPC. Is this approach the same as letting the client execute a normal RPC? What if we replace the asynchronous RPCs with asynchronous RPCs?
3. Would it be useful to also make a distinction between static and dynamic RPCs? Why?
4. Describe how connectionless communication between a client and a server proceeds when using sockets.
5. Suppose that you could make use of only transient asynchronous communication primitives, including only an asynchronous receive primitive. How would you implement primitives for transient synchronous communication?
6. With persistent communication, a receiver generally has its own local buffer where messages can be stored when the receiver is not executing. To create such a buffer, we may need to specify its size. Give an argument why this is preferable, as well as one against specification of the size.
7. Give an example where multicasting is also useful for discrete data streams.
8. How could you guarantee a *maximum* end-to-end delay when a collection of computers is organized in a (logical or physical) ring?
9. How could you guarantee a *minimum* end-to-end delay when a collection of computers is organized in a (logical or physical) ring?
10. Despite that multicasting is technically feasible, there is very little support to deploy it in the Internet. The answer to this problem is to be sought in down-to-earth business models: no one really knows how to make money out of multicasting. What scheme can you invent?

Deliverables. Submit the answers to the questions on **Beachboard Dropbox** by the indicated due date and time. Acceptable file submission formats are: .txt, .rtf, .odt, .doc, .docx, or .pdf.