

Due Date for Submission: 16-4-2017

This assignment is to be carried out by each of you separately.

Problem: Give implementations of two total ordering atomic broadcast protocols as per the following guidelines. Find their performance using average number of messages per broadcast and average stability time.

1. No centralized server of any kind should be used for any purpose.
2. *network broadcasting* using class D IP address for broadcasting the messages must be used in at least one of the implementations.
3. For each node, the broadcast server process and the application processes should be implemented as separate processes (and not as threads of the same process).
4. Each broadcast server and its application processes must be on a separate PC, and a minimum of 3 PC should be used. Hard coding should be avoided as far as possible.
5. The application processes would enqueue messages at the broadcast server located in the same m/c according to some arrival distribution.
6. You may use any of the techniques discussed in the class to get a unique sequence number for each message to be broadcasted, but no centralized server should be used.
7. For determining the stability of messages, the choice is again left to you, and you may choose any of the techniques discussed in the class.
8. You can get two protocols using any combination of getting the sequence number and determining the stability time. Note that we have already fixed the broadcast mechanism.
9. Each application process should display each message along with its global message number and the application process number from which the message has been received. Note that this display is important and the messages should be displayed with sufficient delay between them.
10. Non-compliance to any of the guidelines above may mean that marks would be reduced.

References:

1. Richards Stevens, UNIX Network Programming, Vol. 1 & 2.
2. List of papers attached herewith. You can see some latest papers as well.

Submission: A tarred and compressed file containing the programs for the above problem using e-mail attachment is to be submitted. It should include a file that describes what has been implemented, and *how* the same has been implemented, i.e., how

are you getting the sequence number, how are you determining the stability, and what protocols have been used for implementation?