

Lab 2: Implementing a reliable and ordered multicast protocol

Description

Students should write a system that provides reliable and ordered multicast between at least three machines. The network protocols students can use are TCP and/or UDP. The number of machines in the system can be fixed. Students do not need to consider the failure of computers (but processes may fail). The multicast protocol needs to satisfy the following requirements:

- Reliability: Integrity, Validity, Agreement.
- Ordering: All machines should agree on the order of all received messages.

The system may consist of two programs:

1. speaker: a program sends out broadcast messages.
2. listener: a program receives messages.

Both programs should run simultaneously on all machines.

Reports

Deadline: May 22, 2006

When finishing, students send an email with “DSII06” in the subject to the course assistant (phuong@chalmers.se). The email must contain the followings:

1. Working programs, together with their source code, that satisfy the aforementioned requirements. The source code must be clear and well structured.
2. A report that includes:
 - A protocol design in which students should answer at least the following questions: which network protocol, TCP or UDP, is used? Why does the protocol satisfy the requirements? What kind of ordering does the protocol provide?
 - A description of the system that gives information about how it implements the protocol design.
 - A description of how to compile and execute the programs.

Students may use C, C++ or Java to implement the system. Students can work in groups of at most 2 students.