

Prioritized Mutual Exclusion support for RT - CORBA

Goals

Supporting prioritized mutual exclusion on a distributed system by way of implementing the extensions to known protocol for prioritized mutual exclusion for distributed systems. The extensions are meant for intent locking support coupled with read, write and upgrade lock modes.

Current

Porting of the simulator on AIX is done and problems for synchronization are solved. Modifications in simulator for MPI routine calls are being made.

Work Done (During Last Month)

- Poster submission to JGI 2002 which came through.
- Studied MPI routines primarily and understood the type of changes required in the simulator to use MPI library.
- Experimentation with the enhanced simulator and getting results
 - Solution of network latency simulator problems and making it functional.
 - Decision about the new request mix, and logical values of inter-request waiting times, length of critical section and network latency.
 - Porting the simulator to AIX successful recently. The problems encountered with synchronization under AIX were solved. AIX has slightly different operational characteristics than SunOS and LINUX.
 - Porting of simulator to LINUX and running simulations on AMD machines.
- Modification of Naimi's simulator considering better criteria for comparison.
- Running simulations for Naimi's *same functionality*, Naimi's *pure* protocols and our protocol on AMD machines
- Submission to ICDCS 2003 with the newer results which suggest that extensions for hierarchical locking don't add any overhead in terms of message complexity or request latency.

Future Work

- With the synchronization problem solved, TCP/IP calls should be replaced by MPI calls.
- Running the simulations on NCSC facilities using MPI and collecting results for parallel arena.
- Submit for IPDPS 2003 with the new results and claims for high performance.
- Help required for the type of claim that can be made for IPDPS.
- Help required to understand the future directions and planning accordingly.