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RapidIO and Multicast: Investigations using a real-time chat [1]

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RapidIO is a packet-switched high-performance interconnect that is used in 4G/LTE base stations worldwide. It offers several useful features such as low latency, scalability, high availability and guaranteed delivery. This project aims to explore the multicast capabilities of RapidIO technology within a cluster. This is done by creating a chat application which uses RapidIO multicast to distribute chat messages across nodes. Chat messages are sent using multicast remote Direct Memory Access writes (rDMA), which enables one end point to directly write into memory of multiple remote end-points. A locking mechanism was implemented, which ensures only one node performs a multicast rDMA write, so that memory is not over-written. The one-way latency of multicast rDMA writes was then measured, so as to compare them with that of sequential rDMA writes.
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