MPI3 RMA

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MPI-3 RMA

- Presented an overview of some of the issues and constraints at last meeting
- Homework read Bonachea's "Problems with using MPI 1.1 and 2.0 as compilation targets for parallel language implementations", http://upc.lbl.gov/publications/bonachea-duell-mpi.pdf
- Called for alternative proposals; several volunteers but no activity on mailing lists
 - Note that we're waiting on proposals
- Breakout will be used to sign up members and to identify subgroups to develop proposals
- Possible topics
 - ◆ Address issues in Bonachea's paper (e.g., memory model, address-space accessibility)
 - Exploit different memory models (e.g., cache coherence or other consistency models)
 - Minor updates (e.g., need for put-ack)
 - Extending accumulate to some kind of user-defined operations
 - ◆ Extending accumulate to support read-modify-write operations
 - Active message (and why not with threads/point-to-point?)



MPI RMA Breakout



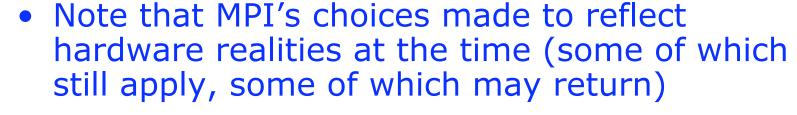
Agenda

- Sign up for the MPI3 RMA Mailing list!
- Status of Efforts Launched at last Meeting
- Call for new topics
- Discussion of possible topics



Issues Raised in Bonachea's Paper

- Address-space accessibility
 - Collective creation
 - Potential limitations on passive target window memory
- Memory model
 - Erroneous vs. undefined behavior
 - Local updates vs remote updates
- Passive target allows only one target process
 - cannot easily atomically update memory owned by several processes





Exploit different memory models

- Specialization for cache coherence
- Specialization for release consistency, etc.



Minor updates

 Option to turn off the required ack for put



Extending accumulate to some kind of userdefined operations

- Homogenous platforms only?
- Limit to some datatypes (e.g., integers)?



Extending accumulate to support read-modify-write operations

- Fetch and increment
- Compare and swap
- Transactional memory (e.g., update or not, atomically)



Active message

 Why not with threads and point-topoint?

