MPI Advance

Supporting Next-Generation MPI Functionality in Advance

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What is MPI Advance?

- A collection of compatible MPI extensions (called “Previews”)
- What is a “Preview”?
  - Features new to MPI
  - Innovations of existing ideas
- Build tools to turn Previews on/off
- Designed to facilitate faster testing of new ideas, optimizations, etc.

Why Are We Making MPI Advance?

- Each MPI Standard often introduces several new features
  - Features that may not be available on all implementations/platforms
  - MPI Advance will provide applications with long-term support for features
- MPI standards can take years to come out
  - Next standard will probably be released in 2027
  - Need to demonstrate feasibility of ideas before MPI Forum acceptance

- A single, organized, and carefully engineered repository of compatible MPI Extensions

MPI Advance is in it for the Long Haul

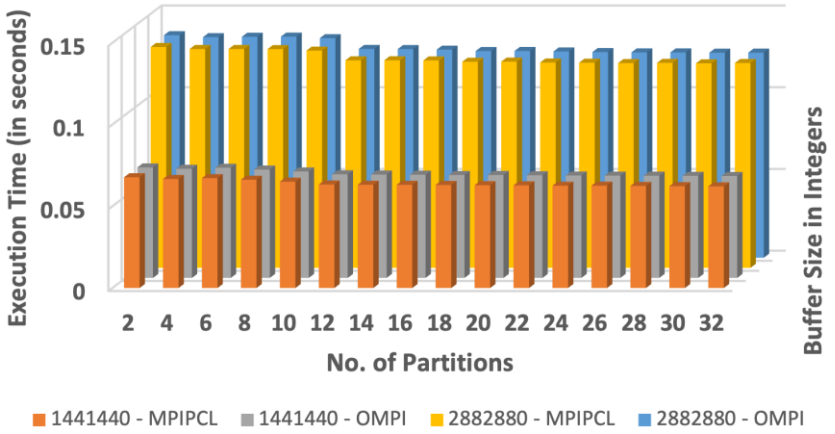
- MPI Advance will act as a “early access” library
  - Help foster community feedback, best practices, and early adoption
  - Provide initial implementations for production MPIs to compare with
  - Demonstrate use cases, examples of new features
- Don’t want a lot of small, MPI extension libraries that are hard to use, mutually incompatible, and/or difficult to maintain.

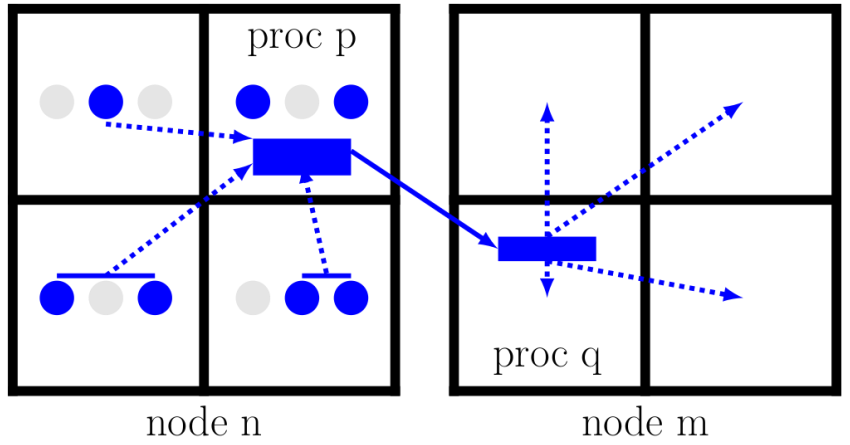
Who Can Contribute?

- Anyone!

Initial Previews

- MPIPCL
  - Implementation of the new partitioned point-to-point functions in MPI
  - Exists as a layered library on top of persistent point-to-point functions
- New Neighborhood Collectives
  - Implemented data aggregation optimizations
  - Amanda Bienz's work shown earlier today
- ExaMPI





Any Questions?

Thank you!