Sun and Open MPI: Investing in Innovation and the Community

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Sun joins the Open MPI community!

- Sun's 10 years of MPI implementation
- Sun and HPC
- Sun's history of openness and innovation
- Contributions to the Open MPI community
- Collaborations with the Open MPI community
- Future work
Sun's history with MPI

- Acquired Thinking Machines' Globalworks team in 1996
- Six releases of ClusterTools product 1996-2006
  - MPI optimized for Sun
  - Full MPI-2 implementation
  - Optimized collectives for fat nodes
  - Thread safety
  - Cluster Run-time Environment
- ClusterTools 6 released in March 2006
  - Solaris 10
  - Sparc and AMD64
  - Dtrace examples
Sun and HPC

- Tokyo Institute of Technology (TiTech)
  > Installed in three weeks
  > 10,480 AMD processor cores / 38+ TFlops
- Eight spots in Top 500
  > TiTech (7th), USC (24th)
- HPCS Phase II participation
- New line of HPC AMD64-based products
  > X2200 M2
  > X4500, x4600
  > Sun Blade 8000
- Sun Benchmarking Center
- Sun Grid
Open MPI – Another step in Sun's history of Openness and Innovation
Contributing to the Open MPI Community

- Sun started contributing bugfixes in July
- In August, the first three new functionalities were contributed:
  - N1GE plug-in for launching Open MPI jobs with N1GE
  - Dtrace example scripts
  - Sun packaging scripts
- Sun continues to develop the uDAPL Byte Transfer Layer component of Open MPI by making it more complete, robust, and performant
  - send/recv functionality initially contributed by Indiana U
  - RDMA functionality
- Sun plans to contribute user documentation and man pages
Collaborating with the Open MPI community

• Testing infrastructure
  > Unified correctness testing
  > Unified performance testing
  > Shared query-able test data

• uDAPL

• Many more opportunities!
Future work with the Open MPI community

- Optimized collectives on fat nodes
- Open RTE utilities
- MPI I/O
- Robustness and fault tolerance
- http://www.sun.com/hpc