Open MPI: Collaborate to Innovate

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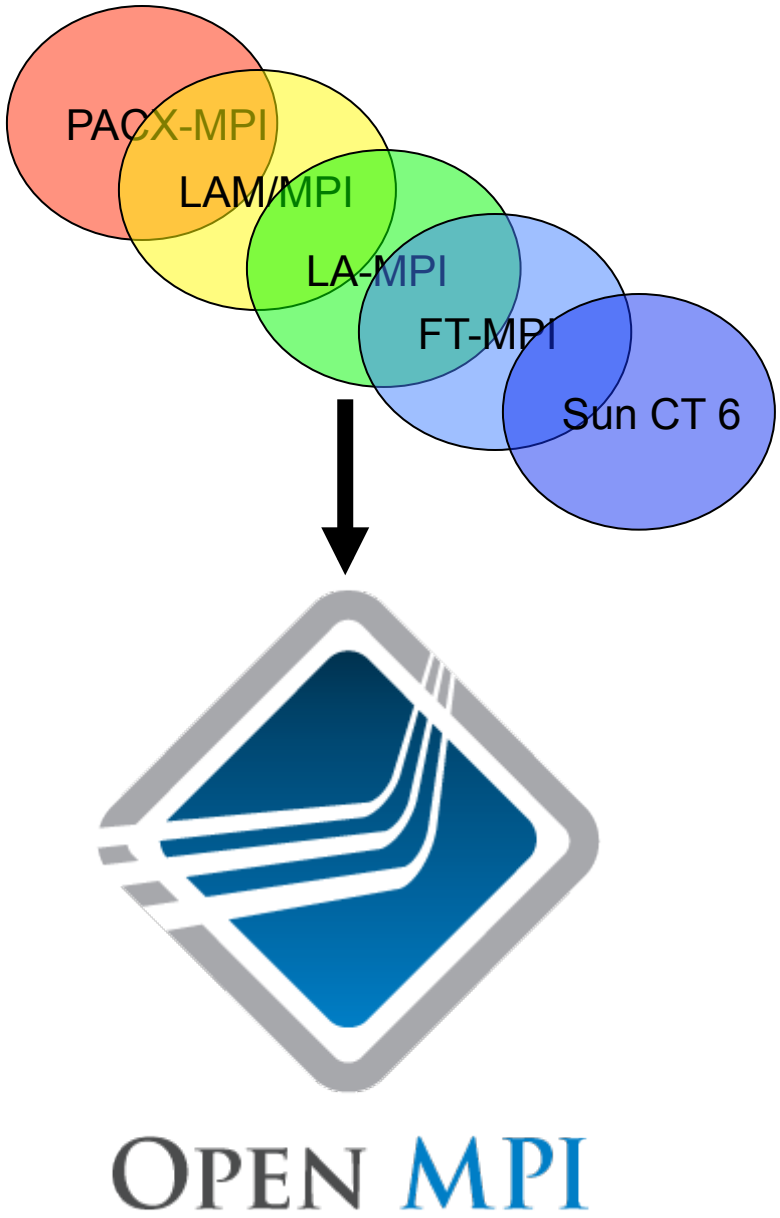
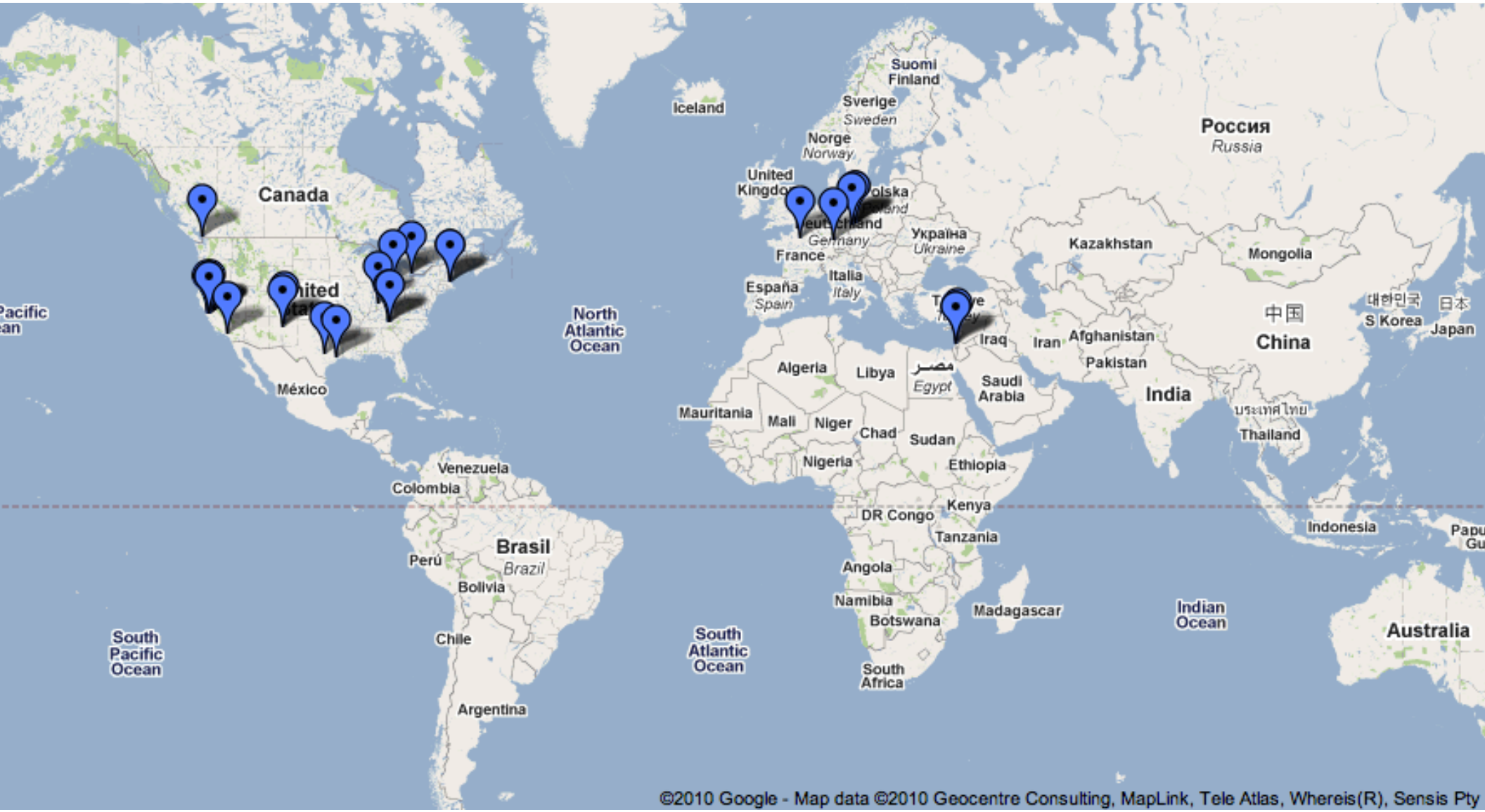
Open MPI is…

- Evolution of several prior MPI implementations
- Open source project and community
  - Production quality
  - Vendor-friendly
  - Research- and academic-friendly
- Based on collaboration and community



Open MPI World-Wide Members, Contributors, Partners

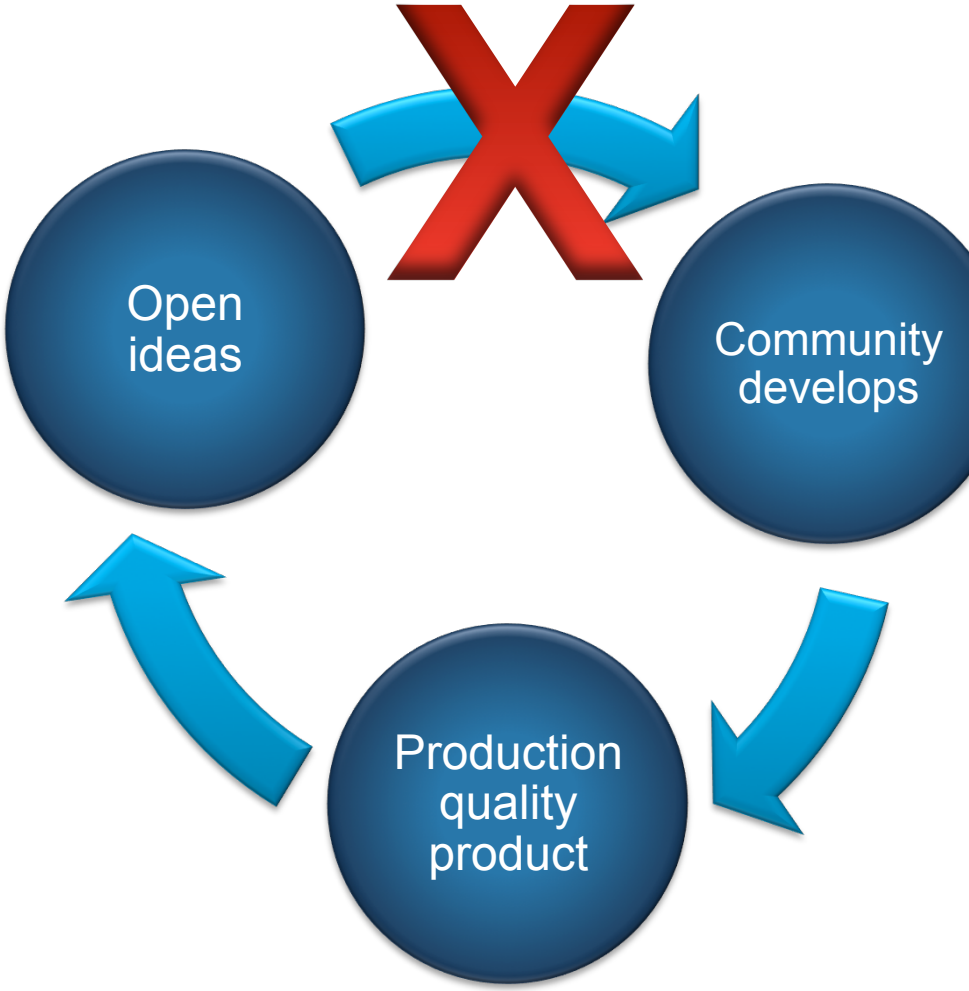


Why Community?

- Maximize all MPI expertise
  - Research / academia
  - Vendors
  - Customers, enterprise
  - …elsewhere
- Capitalize on years of HPC, MPI research and implementation experience
- **The sum is greater than the parts**

Community Cycle Drives Innovation

- HPC has long history of collaboration
  - Research / new ideas
  - Open information transfer
  - Fed back into production / real-world usage
- Researchers have ideas; industry has production capability
  - There are smart people in both!
- Without the cycle, it's just guesswork

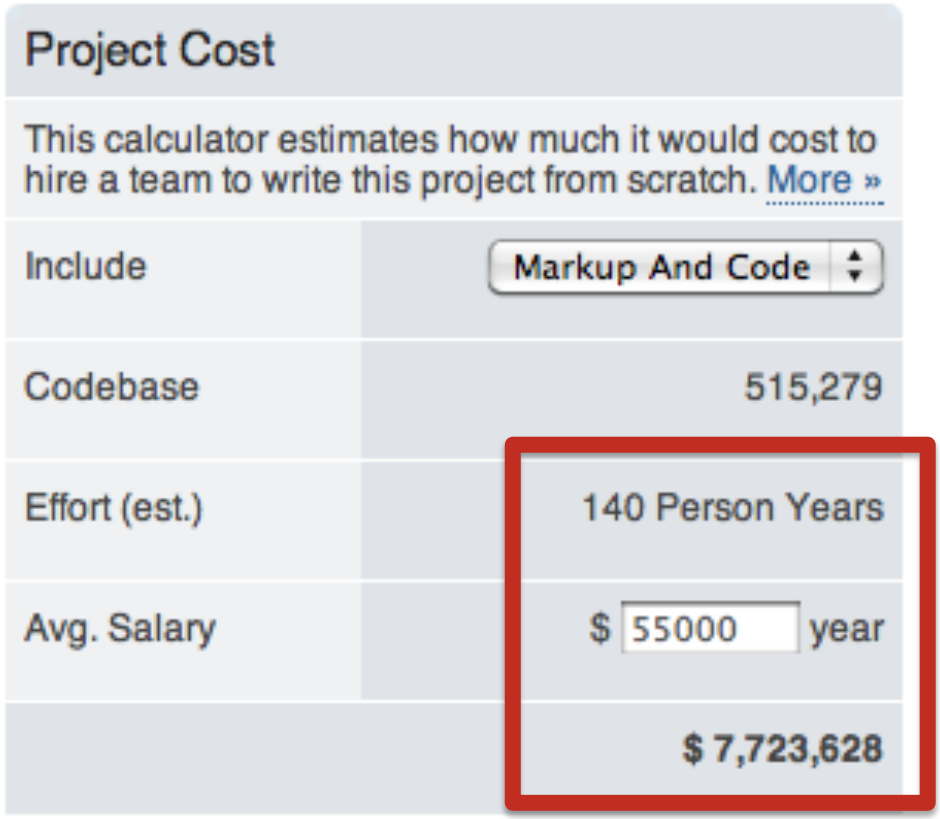


“Great discoveries and improvements invariably involve the cooperation of many minds.”

Alexander Graham Bell, 1877

Open Source is Not Free

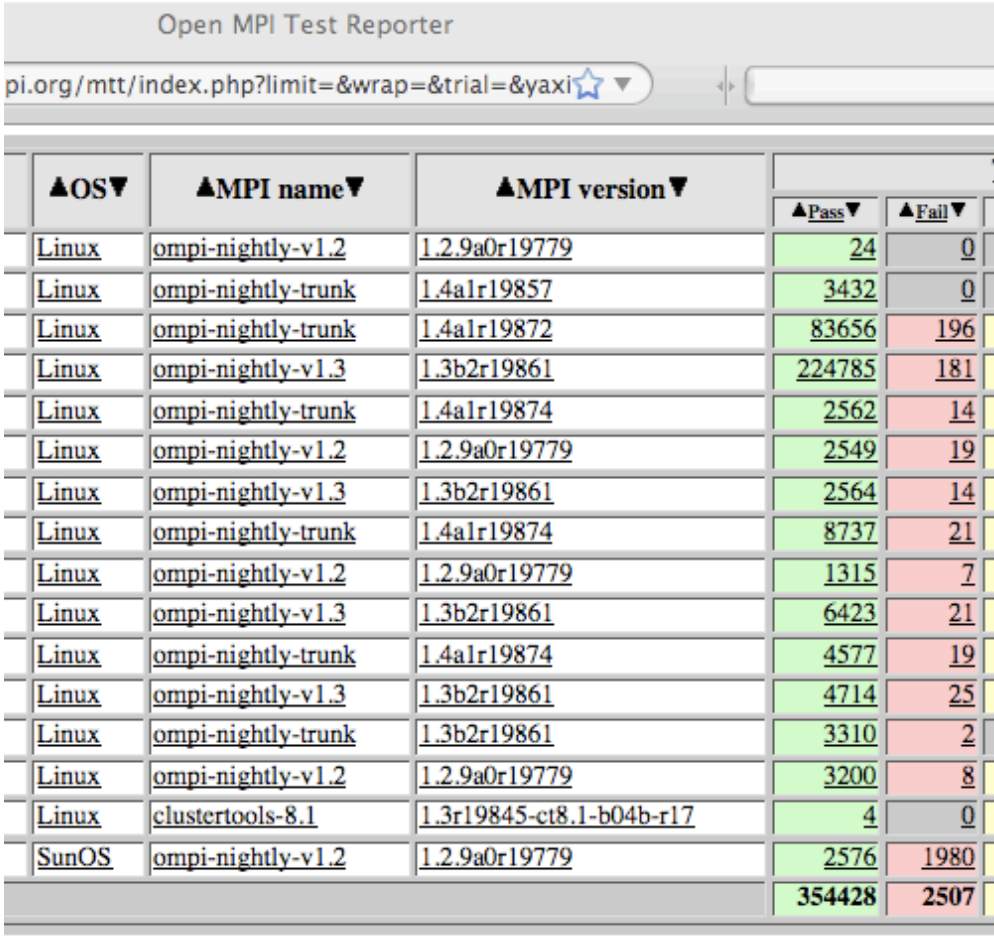
Ohloh.net default estimate of Open MPI cost



Spread Costs, Resource Requirements

Cisco's Open MPI Community Role

- Active development
  - Design, code
- [Very] Extensive testing
  - 100K's regression tests/night
  - Data fed back to community
- Logistics support
  - Collaboration, facilitation
  - Face-to-face engineering meetings
- Member, MPI Forum


Open MPI Test Reporter

pi.org/mtt/index.php?limit=&wrap=&trial=&yaxi

OS	MPI name	MPI version	Pass	Fail
Linux	ompi-nightly-v1.2	1.2.9a0r19779	24	0
Linux	ompi-nightly-trunk	1.4a1r19857	3432	0
Linux	ompi-nightly-trunk	1.4a1r19872	83656	196
Linux	ompi-nightly-v1.3	1.3b2r19861	224785	181
Linux	ompi-nightly-trunk	1.4a1r19874	2562	14
Linux	ompi-nightly-v1.2	1.2.9a0r19779	2549	19
Linux	ompi-nightly-v1.3	1.3b2r19861	2564	14
Linux	ompi-nightly-trunk	1.4a1r19874	8737	21
Linux	ompi-nightly-v1.2	1.2.9a0r19779	1315	7
Linux	ompi-nightly-v1.3	1.3b2r19861	6423	21
Linux	ompi-nightly-trunk	1.4a1r19874	4577	19
Linux	ompi-nightly-v1.3	1.3b2r19861	4714	25
Linux	ompi-nightly-trunk	1.3b2r19861	3310	2
Linux	ompi-nightly-v1.2	1.2.9a0r19779	3200	8
Linux	clustertools-8.1	1.3r19845-ct8.1-b04b-r17	4	0
SunOS	ompi-nightly-v1.2	1.2.9a0r19779	2576	1980
			354428	2507

Cisco's Open MPI Goals

Technical

- Promote standards
  - MPI Forum leadership
  - Cisco Unified Compute Servers (UCS)
  - Ethernet-based technologies
- Integrate with tools
  - Provide deep insight in to complex problems
  - Make parallel programming [a little] easier

Non technical

- Promote community
  - Conferences, tradeshows
  - Contribute on open mailing lists
- Partner with academics and researchers
  - Foster cutting-edge research
- Perform "community service"
  - Example: Fortran API maintenance

Open source is decided by those who show up

Come join us

Together we can innovate and discover

collaborate
to innovate