Improve Your Productivity with Simplified Cluster Management
Agenda

- Overview – Platform Computing & Fujitsu Partnership
- PCM Fujitsu Edition Overview
  - Basic Package
  - Enterprise Package
- University of Tokyo Use Case
- Key Advantages
A Typical HPC Cluster

- Public Network
- Private cluster network – typically Fast Ethernet or G.E.
- Compute network, management, provisioning etc.
- DAS or SAN connected disk
- Head node / Installer node
- Hi-speed switch
- High-speed Application Message Passing Network or I/O Network (typically G.E., Infiniband or Myrinet)
Typical Cluster Management Solutions

Require customers to...

• Assemble disparate software components
  o Open source components
  o Multiple commercial components
• Certify each component individually
• Get support from multiple vendors

However, many customers...

• Lack Linux® OS commercial app support
• Experience different quality levels for each component
Introducing PCM Fujitsu Edition

- A pre-integrated, vendor certified, software product that enables the installation, management & usage of pre-packaged Linux® clusters
- Includes all the capabilities required to deploy, run and manage clusters with ease
- Appropriate for both small and large clusters.
- Represents Platform’s cumulative experience & best practices deploying and managing open HPC clusters
- Optimized and certified for Fujitsu systems
- A better way to deploy and manage clusters
PCM Fujitsu Edition - Basic Package

Cluster Provisioning
- Install certified clusters quickly and easily
- Manage node personalities
- Multiple provisioning modes, repository snapshots

Cluster Management
- Proactive alerting, configurable exception conditions
- Graphing & reporting, network analysis

Workload Management
- Feature-rich workload management
- Integrated web-based management & job submission
- Integrated commercial application support

HPC Developer Tools
- Best-in class parallel application development environment
- Open MPIs, benchmark tools & HPC libraries

Pre-tested, Certified, Supported
- Qualified with Fujitsu on a range of servers, storage subsystems & interconnect technologies
- Supported by a premier HPC support organization

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Web-Based Interface

Dashboard with Rack View
• Overview of the entire system
• Zoom in for detailed information

Rich Charts & Reports
• Correlate workload with system performance
• Short term views & long term trends
HPC Developer Tools

Key libraries & HPC components built-in, ready to run

- MPICH1, MPICH2 with Ethernet
- MVAPICH1, MVAPICH2 with Infiniband®
- OpenMPI with Ethernet, Infiniband and Myrinet®
- Atlas, BLACS for use with MPICH1, MVAPICH1 and OpenMPI
- MPIBLAS, ScaLAPACK for use with MPICH1, MVAPICH1 and OpenMPI
- FFTW V3
- HDF5 with MPICH1 and OpenMPI
- NetCDF
- MPI libraries integrated and tested with OFED 1.4
- An array of verification and benchmark tools:
  - Iozone, Bonnie++, Stream, Iperf, HPL with G77 for use with MPICH1, MVAPICH1 and OpenMPI
## PCM Fujitsu Edition – Enterprise Package

### Cluster Provisioning
- Install certified clusters quickly and easily
- Manage node personalities
- Multiple provisioning modes, repository snapshots

### Cluster Management
- Proactive alerting, configurable exception conditions
- Graphing & reporting, network analysis

### Workload Management
- Platform LSF
- Integrated web-based management & job submission
- Integrated commercial application support

### HPC Developer Tools
- Includes Platform MPI, the industry’s fastest MPI
- Best-in-class parallel application development environment
- Open MPIs, benchmark tools & HPC libraries

### Pre-tested, Certified, Supported
- Qualified with Fujitsu on a range of servers, storage subsystems & interconnect technologies
- Supported by a premier HPC support organization

Includes all of this functionality plus Platform LSF and the industry’s most advanced MPI, Platform MPI.
Platform LSF

- Fully-featured Platform LSF
- Pre-configured, ready to run
- Advanced features
- Integrated web-based management
- Job submission portal
- Application-centric interfaces
- GPU job scheduling

Workload management is built-in and ready to run.
The industry’s most advanced MPI

• Up to 40% faster than competing implementations
• Improved scalability, higher node counts
• Core-aware, multi-threaded
• Broad interconnect support
• Debugging and verification tools
• Support for third party debuggers
• Application tracing and timing tools included
• Simpler development models
• Use a single MPI and a single executable with a range of interconnects

More ISVs have standardized on Platform MPI and distribute Platform MPI than any other commercial MPI
Supported by Fujitsu & Platform, a premier HPC support organization:

- Pre-tested HPC solutions
- Significant investment in certification & validation
- Support “from the source” – developers on staff
- 7 x 24, around the globe
- Deep Linux & HPC competency

“I really don’t know how we would have done it without Platform and the support that we get.”

Dr. Athanasoulis, Harvard Medical School

“This was a great support experience for me. One of the best I have had. Even better considering the fact we are in different parts of the world.”

Major Asian Energy Corporation

“Thanks a lot. You saved me. All my budget for Platform Support over the past few years has yielded a return as good as gold.”

Prestigious US School of Public Health
Challenge:

- Anticancer drug development simulation took at least 3-4 years

Solution:

- Supercomputer with Fujitsu’s PRIMERGY BX922 S2 blade servers (38.3 teraflops) & PCM Fujitsu Edition (Enterprise Package) to develop drugs to treat cancer relapse and metastasis

Results:

- Use computer simulations to design genome-based antibody drugs for cancer – reduce drug side effects
- Shorten the design process to a few months from 3-4 years
Key Advantages

PCM Fujitsu Edition: Easy to use HPC cluster management solution

• Easy to deploy, run and manage
• Pre-optimized for performance
• Complete turn-key cluster solution
• User-friendly web-based interfaces
• Everything you need, included and pre-integrated
• Advanced workload management
• HPC developer tools
• Backed by a premier HPC support organization

Focus on your work – not your cluster!
Thank You!

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