Dell’s High Performance Computing Cluster (HPCC) solutions can deliver the power and manageability required to efficiently perform today’s most advanced computational tasks. The powerful combination of Dell’s scalable solutions coupled with Microsoft® Windows® Compute Cluster Server 2003 offers a comprehensive HPCC platform distinguished by price and performance.

To streamline the development and implementation process, solutions are architected and validated in Dell’s HPCC labs. Dell engineers select the right components, from industry-standard building blocks, to develop a balanced architecture. As part of their standard validation process, the architectural components are integrated into a complete solution and undergo extensive testing to deliver an optimal solution to meet the customer’s performance and manageability requirements. This model is designed to enable rapid technology deployment and fast return on IT dollars.

As part of development testing, Dell engineers develop many of the best practices necessary to help streamline implementation and management of Dell solutions, including white papers, conference posters and case studies that are all available for download at dell.com/hpcc.
Dell servers and storage

Dell PowerEdge™ servers form the backbone of the HPCC solution. With high-performance features, Dell PowerEdge servers offer exceptional performance in compact form factors. Standards-based management tools simplify server operations, even from remote locations.

Dell PowerVault™ and Dell/EMC storage components offer a broad choice of cost-effective SAS and Fibre Channel hardware and management software. Dell storage solutions provide the perfect blend for data management and long-term storage scalability to meet a broad range of HPCC storage requirements.
Microsoft Windows Compute Cluster Server 2003

Microsoft Windows Compute Cluster Server (CCS) 2003 brings the supercomputing power to the desktop and workgroup level in a familiar Windows-based development environment. CCS accelerates time to insight by providing a high-performance computing platform that is easy to deploy, operate and integrate with existing infrastructure and tools.

Rapid node deployment and configuration
CCS offers rapid node deployment and cluster configuration, monitoring tools and policy-based scheduling, which provides a scalable, easy-to-use management environment. Features include automated setup, setup wizards for networking, remote installation services, node management, cluster security, and built-in job scheduler and MPI stack (fully compatible with MPICH2).

Improved integration
Designed to integrate seamlessly into your Windows infrastructure, CCS enables you to leverage your existing skills and technology for system and node management, workload management, user management and security. Plus, CCS uses Microsoft Active Directory® and Microsoft Management Cluster (MMC) 3.0 to provide a simple and familiar interface for managing and administering your cluster.

Role-based security
CCS uses Active Directory to enable role-based security for all cluster jobs and administration. All jobs run under the context and credentials of the submitting user. Credentials are stored with the job and deleted at the completion of the job.

Familiar Windows-based environment
Developers can easily utilize their existing Windows-based skills and experience to develop applications for CCS. Microsoft Visual Studio® 2005 includes support for developing HPCC applications, including parallel job development and debugging. And it is easier to port existing parallel applications with CCS’s integrated MPI layer based on the industry-standard MPI2 specification.

Dell Services
Dell offers a broad portfolio of services to maximize value from HPCC solutions. Best practices, proven processes and expertise in implementing standards-based technologies are used to achieve optimal system performance.

Planning and engineering support to help you develop a strategy
Dell’s planning services help integrate HPCC technology into existing or evolving IT infrastructure. Capabilities include environmental assessing, architecting and benchmarking a solution that helps ensure delivery of required functionality and performance.

Implementation services for fast deployment
Dell’s implementation services can accelerate the deployment of HPCC solutions, building a system to exact specification. With Dell’s “one-touch” factory build process, HPCC solutions are racked, cabled, crated and shipped ready to install. Dell’s expert project management and on-site deployment speed time to production. In addition, ongoing training, education and certification courses drive better management and use of new hardware to attain the benefits of standards-based technologies.

Ongoing support, when and where you need it
HPCC technology is central to operations. As a trusted partner, Dell can help minimize downtime and maximize efficiency. Dell’s HPCC enterprise services are designed to simplify the support process and speed time to resolution. This customizable service includes 7x24 telephone support delivered by specially trained HPCC experts, collaborative issue resolution with Microsoft, flexible on-site* response levels and technical account management for critical issue resolution.

*Service may be provided by third party. Technician will be dispatched if necessary following phone-based troubleshooting. Subject to parts availability, geographical restrictions and terms of service contract.
Service timing dependent upon time of day call placed to Dell. U.S. only.
The Ludwig Institute for Cancer Research selected Dell’s HPCC solution.

**CHALLENGE:**

The Australian branch of the Ludwig Institute for Cancer Research (LICR) needed to dramatically increase the processing power of its servers so it could analyze more research data faster.

**SOLUTION:**

Dell’s HPCC solution and Microsoft Windows Compute Cluster Server 2003 helped enable the facility to dramatically accelerate data analysis. Increased data analysis rates allow the facility to take on more and larger experiments in its search for protein markers and improved treatments for colon cancer.

**BENEFIT:**

Dell helped simplify the purchase, delivery and deployment of the new architecture.

“Everything was organized in a single quote and in a single delivery. Once it was delivered, everything was unpacked, installed, and up and running quickly. Dell delivered a complete solution, with its multiple components — the two sets of switches for the virtual LAN, the head node, the rack and the cabling — and it all worked together perfectly. The architecture that Dell Services designed was spot-on.”

*DR. ROBERT MORITZ, MANAGER OF THE LICR PROTEOMICS FACILITY*

Get started today

Contact your Dell account representative and start realizing the power of HPCC.

To learn more, visit dell.com/hpcc.