

Flexible IT building blocks

Built from cost-effective, standards-based components, high-performance computing (HPC) clusters offer a practical alternative to proprietary supercomputing systems for parallel processing needs. Spurred by excellent price/performance and scalability, HPC clusters are entering the data center in unprecedented numbers.



By partnering with best-of-class hardware and software companies and fully qualifying solutions, Dell simplifies the purchase, deployment, and management of HPC clusters

Standards-based HPC clusters are fast becoming the new building blocks of IT infrastructure for many diverse customer applications. Numerous organizations are opting to construct clusters from Intel® processor-based Dell™ PowerEdge™ servers.

Dell helps make HPC clustering accessible to customers with varying levels of expertise. By partnering with best-of-class hardware and software companies and fully qualifying solutions, Dell simplifies cluster purchase, deployment, and management of HPC clusters—helping remove barriers to entry. Bundled cluster solutions from Dell include a complete set of HPC cluster components in a single package to streamline the design, ordering, and deployment process. These bundled HPC clusters are supported on both Red Hat® Linux® and Microsoft® Windows® Server 2003 operating systems.

Dell supports HPC cluster deployments in four primary vertical markets: energy and energy services, bioinformatics, automotive, and financial. Compagnie Générale de Géophysique, a global services oil company, has linked more than 3,000 Dell PowerEdge servers into HPC clusters that analyze seismic data, helping to identify and model oil and gas reservoirs around the world. In the bioinformatics sector, which includes the pharmaceutical industry, HPC clusters expedite drug discovery. The National Center for Supercomputing Applications (NCSA) plans to network an HPC cluster of more than 1,450 PowerEdge servers to study the human genome and drug design processes, while at Stanford University, the Bio-X program employs a Dell HPC cluster for researching Alzheimer's disease and cancer.

The automotive industry uses Dell HPC clusters to perform stress analysis, design mechanical features,

and test crash worthiness—enabling manufacturers to improve the comfort and safety of vehicles. HPC clusters are also gaining ground as a tool for financial modeling and risk analysis. An emerging fifth application—data mining—will employ HPC clusters to analyze large amounts of data, potentially providing a better understanding of market dynamics.

As HPC clusters continue to transform the data center, Dell and its partners are committed to providing a convenient, varied choice of HPC cluster building blocks to support a variety of customer needs. By providing the low cost, high availability, and scalability that customers associate with HPC clusters—along with turnkey solutions and affordable Dell service and support—Dell is helping organizations scale out IT infrastructure to meet dynamic business and research challenges. **D**

REZA ROOHLAMINI