

SUCCESS STORY

OIL SERVICES COMPANY REDUCES HARDWARE COSTS AND OPTIMIZES APPLICATION PERFORMANCE

BAKER HUGHES AT A GLANCE

COUNTRY

United States

INDUSTRY

Oilfield Services

COMPANY PROFILE

Baker Hughes serves the worldwide oil and natural gas industry with reservoir consulting and products and services for drilling, formation evaluation, completion and production.

BUSINESS SITUATION

Baker Hughes was seeking a way to optimize performance for their scientific, financial, and information worker computing needs while combining infrastructure to control costs and streamline management for their mixed IT environment.

SOLUTION

Baker Hughes began migrating their high-performance computing (HPC) infrastructure from Red Hat to SUSE Linux Enterprise from Novell and Windows HPC Server 2008 to create an integrated workstation and HPC environment.

OVERVIEW

Every day in oil-producing basins around the world, Baker Hughes experts evaluate customer needs, engineer systems to match each application, and deliver advanced technologies that reduce risk and improve productivity related to hydrocarbon extraction. Relying on multiple compute clusters across the company to support key workloads, Baker Hughes was seeking a way to optimize performance of their scientific and financial applications while reducing hardware costs and streamlining IT management. The Microsoft and Novell interoperability solution for high-performance computing (HPC) was an ideal fit for the company's heterogeneous environment. By switching from Red Hat to SUSE Linux Enterprise from Novell, Baker Hughes now has a platform that is interoperable with Windows HPC Server, giving them an integrated workstation and HPC environment that reduces hardware costs while increasing application performance.

SITUATION

With a broad set of products and services that help address complex oilfield challenges, Baker Hughes requires multiple HPC solutions that support a variety of scientific and financial applications. The company's BD3 application, developed in-house, recreates a lab test environment by simulating the dynamic performance of a drilling bit as it bores through the Earth's surface. Supported by the Baker Hughes Houston Technology Center, the HPC solution had evolved organically to support the specific computational needs of BD3 and the group's heterogeneous environment. With through-put for BD3 taking two full weeks, the Houston team needed a solution that could provide more capacity, increase application speed, and perform under peak demands while maintaining real-world accuracy. Like other HPC solution groups across the company, the Houston team also needed to streamline IT management and reduce the growing costs of hardware required to support the HPC environment. The opportunity to migrate the Houston Technology Center's Red Hat systems to SUSE Linux Enterprise from Novell was an appealing solution, which allowed them to gain the benefits of the Microsoft and Novell interoperability partnership. "After Novell had supported our migration all the way to the production environment, the proof of concept for dual boot of Windows HPC Server and SUSE Linux Enterprise demonstrated how easy it was to switch between operating systems," said Tom Gardosik.

BENEFITS

- + With a more cohesive environment in place, Baker Hughes saves money on hardware by supporting multiple operating systems and clustering techniques.
- + By migrating from Red Hat to SUSE Linux Enterprise from Novell and Windows HPC Server 2008, Baker Hughes leverages the interoperability work between Microsoft and Novell to gain greater application performance and improve operational efficiency.
- + End users can take advantage of their infrastructure with minimum change to their existing workflow, while developers can more easily create service-oriented HPC applications.
- + The interoperable solution simplifies management for IT administrators, allowing them to focus on one set of management tools for their heterogeneous environment.
- + Products and Technology: Microsoft Windows HPC Server 2008, SUSE Linux Enterprise from Novell

SOLUTION

With SUSE Linux Enterprise from Novell and Windows HPC Server, the Houston Technology Center could begin taking full advantage of both Windows and Linux technology to gain an integrated workstation and HPC environment that reduces hardware costs while optimizing applications. The clusters for engineering simulation now enable larger modeling with more accuracy, deliver on turnaround time, and scale up with demand, giving scientists more simulations and more design options. An average simulation that may have run for eight hours on a single CPU now translates to one hour on an eight-processor cluster, or just 20 minutes on a 24-processor cluster. Since the migration, the BD3 application now simulates cutters drilling rock at a run time of only one hour, which is reduced from two weeks. By implementing SUSE Linux Enterprise from Novell and Windows HPC Server, Baker Hughes also benefits from the joint collaboration work between Microsoft and Novell, providing proven interoperability for end users, application developers, and administrators.

BENEFITS

By leveraging users' existing skills and integrating with the tools they are already using, the Novell and Windows HPC solution allows Baker Hughes to accomplish more, in less time, and with reduced effort. While optimizing applications and reducing hardware costs, the solution has given administrators an integrated turnkey HPC cluster solution that has helped simplify setup and deployment tasks, ease day-to-day management using built-in diagnostics, and achieve more efficient cluster utilization. The solution has been integrated seamlessly with existing IT infrastructure and supports the organization's established policies. For the company's application developers, the solution provides integrated tools that dramatically increase productivity, making it easier to create service-oriented HPC applications that leverage HPC standards. End users now get seamless integration with workstation applications and their existing collaboration and workflow solutions, with more secure job execution and data access. IT resources can be adjusted to specific user needs and the organization can take advantage of more third party tools. With the success achieved in the Houston Technology Center, Baker Hughes is planning to standardize its HPC solutions across the organization. "With the Microsoft and Novell interoperability solution, we now have the luxury of being hardware agnostic. Our users' needs drive our hardware investments, rather than letting our hardware drive our users' workflow," said Tom Gardosik.

““With the Microsoft and Novell interoperability solution, we now have the luxury of being hardware and OS agnostic as we assemble computing clusters and provision them into our resource pool. This technology will enable us to deliver far more benefits to our business users with minimal additional investment.”

Tom Gardosik
High Performance Computing
Group Lead,
Baker Hughes

FOR MORE INFORMATION

For more information about the Microsoft and Novell interoperability partnership, please visit www.moreinterop.com.

For more information about Baker Hughes products and services, please visit <http://www.bakerhughes.com>.

The Microsoft-Novell Agreement

On Nov. 2, 2006, Novell and Microsoft announced a series of agreements to jointly build, market, and support new solutions to improve interoperability, deliver powerful new virtualization capabilities, make Microsoft and Novell products work better together, and give customers peace of mind that both companies stand behind the products they deliver. More information about the Microsoft and Novell agreement, including other customer announcements, can be found at <http://www.moreinterop.com>.

About Novell

Novell delivers infrastructure software for the open enterprise. Novell is a leader in enterprise-wide operating systems based on Linux and open source and provides the enterprise management services required to operate mixed IT environments. Novell helps customers minimize cost, complexity and risk, allowing them to focus on innovation and growth. For more information, visit <http://www.novell.com>.

About Microsoft

Founded in 1975, Microsoft (NASDAQ: MSFT) is the worldwide leader in software, services and solutions that help people and businesses realize their full potential.

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