



Still from the film "The Thief Lord"
Image courtesy PICTORION das werk

Case Study
Intel® Server
Compute Blade
Blade Servers

Digital-Image Processing Firm Enjoys Advantages in Productivity and Competitiveness with Intel® Blade Servers

PICTORION



Challenge

Rapid growth at PICTORION das werk led the Munich-based firm to seek a new server infrastructure supporting its creative professionals and their high-end 3D-rendering work. Applications were not optimized for the then-installed platform, leading to performance and stability problems. Expansion into new offices motivated the need for more power and space efficiency. The firm also needed to control server management costs.

Solution

PICTORION das werk deployed two Intel® Blade Servers with 14 blades and one Intel Blade Server with 2 blades, and replaced half of its client workstations with systems based on the Intel® Xeon® and Intel® Pentium® processors.

Business Value

Since deployment of the Intel Xeon processor-based Blade Servers, PICTORION das werk has enjoyed 15 percent less unscheduled server downtime, leading to increases in productivity and faster turnarounds for customers. The deployment has also saved the firm up to 90 percent of server administration costs and more than EU 20,000 yearly in power and maintenance costs. Assessing these benefits together, the firm projects an ROI payback time of just three years.

Configuration

A modular computing architecture consisting of blade servers from the Intel Blade Server Family (ModularPower 710B20, 14 x SBXL52) with Dual-Core Intel® Xeon® 3GHz processors running Microsoft* Windows* 2000 Server and Red Hat* Linux*.





Photo courtesy Roger Beck,
PICTORION das werk

“With the performance offered by the Intel® Blade Servers, and the fact that our rendering applications were optimized for an Intel platform, we knew we could count on greater stability because we wouldn’t have to run the servers beyond their capacity.”

Roger Beck,
Chief Information Officer,
PICTORION das werk

After its founding in 1995, Munich-based PICTORION das werk GmbH grew rapidly to become one of Germany’s leading providers of pre-and post-production digital-image processing. Today, the firm provides a global clientele from the advertising, music, film, and television industries with creative and technical work in 3D animation, digital negatives, digital grading, editing, recording, and scanning. Through a subsidiary specializing in digital-audio production, PICTORION das werk also provides a full range of services related to sound recording and sound mixing for film and television. Through another subsidiary specializing in mobile post-production, the firm provides presentation preparation, film drafts, layout editing, cut-down of commercials, A/V dubs, DVD production, compression, and image and sound research.

The firm’s 150 employees work from offices in Munich, Hamburg, Berlin, Düsseldorf, Frankfurt, Cologne, and Vancouver, B.C., Canada.

Challenge

PICTORION das werk has contributed its artistry and technical know-how to productions ranging from television commercials to feature films such as “The Pianist,” “The Best Man,” and “Beyond the Sea.” To understand the challenges involved in the work done at PICTORION das werk, Roger Beck, Chief Information Officer, cites two examples:

- For a feature film on West Germany’s historic 1954 World Cup victory, the firm recreated the image of the iconic Wankdorf Stadium in Bern, Switzerland, and of a “live” audience of 64,000 spectators, which appeared for a total of 50 minutes of the film. To achieve the desired quality, lighting technicians performed up to eight test renderings and three or four online previews for each of 150 separate frames—with the rendering of a single frame typically requiring about three minutes of computation time. This process required the work of 12 lighting technicians for seven months.
- For the award-winning feature film “The Pianist,” composers performed up to nine test renderings and 40 online previews for each of 120 frames. This required the services of up to nine composers for nine months.

As Beck points out, to successfully deliver 3D special effects to the big screen requires talent, dedication, and a lot of hard work on the part of the firm’s creative professionals. It also requires render-farm technology with the capability to handle both volume and growth—a capability that at one point was simply not part of the firm’s currently installed technology.

“In the early 2000s, PICTORION das werk grew rapidly, adding clients, projects, offices, and creative professionals, who needed to share their work among those offices,” Beck explains. “That’s when we recognized that we needed render-farm servers offering greater reliability, power and space efficiency, and manageability than the firm’s currently installed technology.”

For example, as the available software for high-end rendering began to mature, it became obvious to Beck and his colleagues that the rendering applications in use—primarily Wavefront Maya* and Pixar RenderMan*—would run faster on an Intel-based server platform than on the then-installed platform. “The applications were really optimized for Intel and not for the processor technology we were using, so we had to push the servers harder than we should have,” Beck explains. “The resulting stability problems from overheating meant we could never rely on a given rendering job to get done when it was supposed to.”

A related problem was the sheer volume of servers needed in a given office. “At times we might need 40 servers to render a single image,” Beck says. “Depending on their location and configuration, these servers would overheat and fail on a regular basis.”

Trying to maintain communications and efficient data transfer between large numbers of servers posed another problem—that of manageability. “Just imagine the wiring involved, and the management headache when one of the servers needed replacement,” Beck says. “Moreover, with the explosive growth of data that we experienced, we needed a server infrastructure that could be upgraded quickly and easily for greater rendering and preview power. We needed a more manageable approach, one that would not require the replacement of entire machines.”

Solution

The turning point came when PICTORION das werk signed on to develop the 3D special effects for "In the Name of the King: A Dungeon Siege Tale," scheduled for release by Brightlight Pictures in 2007. After evaluating servers based on Intel® Blade Server technology and others, Beck and his colleagues elected to implement three Intel® SBXL52 Compute Blade Servers based on the Intel® Xeon® 3GHz processor.

Performance was one factor. "With the performance offered by the Intel Blade Servers, and the fact that our rendering applications were optimized for an Intel platform, we knew we could count on greater stability because we wouldn't have to run the servers beyond their capacity," Beck explains.

Power efficiency was another factor. "Compared to other systems with similar levels of performance, the blade servers consumed 25 to 30 percent less power as a single render-farm," Beck adds.

"We figured this would help us to avoid the overheating that can lead to stability problems. It also would help us to control energy costs."

As for manageability, Beck says Intel Blade Server technology was a clear winner. "We liked the integrated nature of the blade server management technology, especially the integrated KVM switch." A related consideration was the compact form factor of the blade server chassis. "We calculated that a 14-blade server would require just half the space of a standard rack-mount 14-dual-CPU system and would require far simpler wiring as well," he adds. "All of these factors would help us to reduce maintenance time and cost."

Yet another advantage was the fact that a given blade could boot in either the Windows* or Linux* operating system. "On most projects we work in both environments depending on the application that is optimized for the task at hand, so it was vital to have servers that would support them both," Beck explains. "Such support also would enable us to deploy the best emerging applications in the future, whatever their operating-system environment."

In four days, a three-person deployment team from Munich-based Computer Partner Handels GmbH replaced the entire PICTORION das werk render-farm platform with Intel Blade Servers supporting Windows 2000 Server* and Linux and including Intel® Server Management 8. The team also took the opportunity to replace half of the firm's 150 client computers with desktop and portable Dell Precision workstations based on Intel® Xeon® and Intel® Pentium® processors and supporting Windows XP* and Red Hat Linux EWS*.

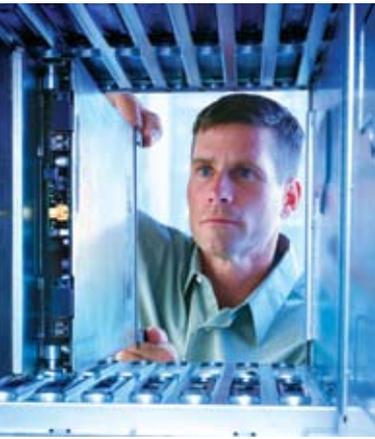
Other significant components of the PICTORION das werk creative-work technology infrastructure include external NAS-based storage servers and bonded gigabit networking with a 10-gigabit backbone; MySQL 4.3*, Oracle version 9*, and SQL Server 2000* databases; and Alias Wavefront Maya, Mental Images*, SoftImage XSI*, DigitalFusion*, 3Dmax*, Shake*, and After Effects* applications.

For the "Dungeon Siege" project, PICTORION das werk has installed two 14-blade database servers in Frankfurt and a two-blade front-end server in Berlin and connected them over a virtual private network mesh encompassing all six offices in Germany. For rendering, the 3D artists and lighting technicians submit "drops" from whichever PICTORION das werk office in which they are working. To render a single frame typically requires from five minutes to two hours.

Benefits

After the Intel Blade Server infrastructure was in place for just over three months, PICTORION das werk IT and creative professionals began reporting solid benefits from the implementation, particularly in the areas where the firm most needed improvement: reliability, power and space efficiency, and manageability. These benefits, in turn, are leading to business advantages for PICTORION das werk employees and customers.





"With Intel® Blade Servers, our creative professionals can be confident of a rapid rendering turnaround, can more easily meet aggressive deadlines, and can deliver a finished product to our customers that much faster."

Roger Beck, Chief Information Officer, PICTORION das werk

For more information, visit:
<http://www.intel.com/go/blades>

As Beck points out, the reliability and stability problems that PICTORION das werk endured with its prior render-farm servers are a thing of the past. "Now that we are using Intel Blade Servers the platform for which our rendering applications are optimized—we no longer have to push our systems beyond their 'comfort level.' Consequently, we have reduced unscheduled server downtime by 15 percent."

Beck estimates that with the greater reliability of the render-farm servers, the firm's composers, 3D artists, and lighting technicians are enjoying productivity gains of about 10 percent. He also feels that in the future they will be able to accomplish up to 30 percent more test renderings than they do now, in the same timeframe and for the same cost. "With Intel Blade Servers, our creative professionals can be more confident of a rapid rendering turnaround, can more easily meet aggressive deadlines, and can deliver a finished product to our customers that much faster," he says. "This helps the firm as a whole to provide better value to customers and enhance competitiveness."

Another way the Intel blade-based infrastructure is helping PICTORION das werk to boost its competitiveness is by providing a far more manageable computing environment than the firm had before—resulting in cost savings that the firm can pass on to customers. "In the past, the render-farm required about 20 hours per week of administrator time, while today the same tasks are handled in just one or two hours per week," Beck reports.

Further savings have been realized through the more efficient power consumption of the blade-based infrastructure—to the tune of EU 8,000 in the first year after deployment. Another EU 10,000 are saved in maintenance through the simplified wiring alone. According to Beck, "Considering the simplified management, administration, and maintenance of the blade-based infrastructure, PICTORION das werk expects to see a full return on its investment in just three years. That, on top of the productivity benefits for our creative professionals, makes the deployment of Intel Blade Servers a very smart investment for PICTORION das werk."

Lessons Learned

- *Intel Blade Servers have compelling economics compared to traditional discrete servers.* The TCO of the blade server approach was estimated to be roughly 20 percent less than a similar approach using traditional rack-mounted servers.
- *Wiring a large cluster system can be easy with Intel Blade Servers.* At PICTORION das werk, technicians completed the initial wiring of a 14-blade server—involving four power cables and four network cables—in just 30 minutes.
- *The reliability, productivity, and manageability advantages realized through Intel Blade Servers can lead to greater competitiveness.* With more-available servers, faster test renderings, and less costly administration, blade servers can help a firm provide its customers with more dependable, timely, and cost-effective products and services.

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