

Workout.com



## Fitness-oriented Web portal enjoys rapid launch, solid operation using the Microsoft Windows DNA 2000 platform.



*Technical executives at Workout.com have used the Microsoft Windows DNA 2000 development platform to deploy the world's largest online library of graphical workout programs and illustrated exercises. With the help of Vertigo Software, Inc., a Microsoft Certified Solution Provider, the Workout.com development team spent just 45 days creating a solution featuring more than 1,000 images and 500 workout programs. Since then, developers and administrators alike have been consistently pleased with the simplified management and outstanding levels of availability and reliability available through Windows DNA 2000.*

### Situation

If you were going to launch a Web site devoted to helping people develop smarter health and fitness habits, what better time to do it than just three weeks before the turn of the millennium? That's when Workout.com went live, although the date had less to do with the resolution-making season than with a do-or-die deadline imposed by the investor, Enter Net Development. "Our first-round funding came through in late October, but with a very specific condition attached," says Chief Technical Officer Don Van Patten. "If we wanted the money, we had to deploy the site within 45 days."

So Van Patten and his team got down to work, with the help of the Microsoft Windows 2000 operating system, the Microsoft Windows DNA development platform, and a strong team of developers from Vertigo Software, Inc., a Microsoft Certified Solution Provider. On December 10, 1999, their work paid off. As scheduled, Workout.com came online that day with an offering of more than 1,000 images and 500 workout programs. By January 1, 2000, the site had received 400,000 page hits, and since then traffic has grown to the point that the company is projecting 7 million page hits for the month of April. To date, Workout.com has increased its Web farm from two to four servers and is poised for another increase in the near future. "It's a good thing the Windows 2000 platform is so flexible, manageable, and scalable," Van Patten says. "Otherwise, we just couldn't have done it."

Van Patten acknowledges that Windows 2000 wasn't the first idea that came to mind when his team began considering its platform options. "Facing such a tough deadline,

### Solution Overview

#### Customer Profile

A company and Web site devoted exclusively to exercise and working out, featuring the world's largest online library of interactive graphical workout programs and illustrated exercises.

#### Business Situation

First-round funding stipulated that the site be launched in 45 days, which pressured executives to select a platform and begin work quickly.

#### Solution

Using a solution based on the Windows DNA 2000 platform, Workout.com met the deadline with a site featuring more than 1,000 images and 500 workout programs and since then has witnessed 40 percent monthly growth in traffic. Initial development required barely a third the cost of an alternative platform, Workout.com has doubled its Web farm easily, and it is maintaining high performance and an enviable record of availability.

#### Software and Services

Microsoft COM+  
Microsoft Commerce Server 2000  
Microsoft SQL Server 7.0  
Microsoft Windows 2000 Server  
Microsoft Windows 2000 Terminal Server  
Microsoft Windows Media Technologies

#### Partners

Vertigo Software, Inc.  
5 West Richmond Avenue Point  
Richmond, CA 94801  
Tel.: (888) 345-0125 or (510) 236-0125  
Email: info@VertigoSoftware.com  
Web site: <http://www.VertigoSoftware.com>

we thought hard about Unix, Solaris, and Windows NT for our operating system and Java Server Pages for our Web platform, because we were familiar with those technologies,” he says. “But we soon realized that a whole Java package would require diverse platforms and servers. We also learned that some Open Source methods didn’t seem to be working.”

The team then began evaluating Windows 2000, which was available in beta release at the time. “We liked the performance and scalability improvements it offered over Windows NT, but we didn’t know any developers who were experienced with it,” Van Patten says. That changed when they viewed a demo Web site based on Windows 2000 and created by developers from Vertigo. “We were blown away by what they had managed to do with the technology in a very short time,” he adds.

Van Patten soon recognized that a solution based on Windows 2000 would be much more cost-effective than any other alternative. “No matter which angle we targeted—hardware, software, engineering skills, management—we figured that a Windows 2000-based solution would cost barely a third of what we might spend on a solution based on Unix, Solaris, or Java,” he says. “Moreover, we wanted the Vertigo team to do our site, and we knew that they were interested in Windows DNA and experienced in Microsoft technologies.”

Vertigo Senior Developer Chris Idzerda, who led the development work behind the demo Web site that so impressed Van Patten, says there’s a good reason for his company’s interest in Windows DNA 2000. “As specialists in application development for up-and-coming dot-coms, we’ve learned that with Windows DNA 2000 we can do our work in Internet time,” he says. “That’s why we’ve embraced Windows DNA 2000 as our development platform.”

## **Solution**

For development of the Workout.com site, Van Patten assembled a four-person team from Vertigo and Workout.com. The team designed a three-tier application with the Windows 2000 operating system and a database based on Microsoft SQL Server 7.0 Enterprise Edition. They also relied heavily on the following:

- Active Server Pages, for much of the client-presentation tier, server-side includes, and code sharing between site sections
- COM+, for interfaces between the presentation tier and the database tier, for all the business logic, and for Loosely Coupled Events such as certain user-assistance features
- Visual Basic, for business-logic components for managing fitness logs and for matching exercise programs to user profiles
- Visual Interdev, for round-trip internal deployment, debugging, and integrated database views

In addition, the team used XML to support variable data-type streams in the presentation of individual exercises and workout programs. Idzerda says XML, used with the three-tier architecture, was instrumental in meeting the initial deployment deadline. “XML gave us a very high-level way to modify columns, headings, data types,

and fields, and the three-tier architecture helps us to keep these modifications separate from the data layer,” he explains. “Otherwise, every change in the formatting would have required changing 30–50 server pages.”

Since deploying the Workout.com site in early December, Van Patten and his colleagues have watched its popularity skyrocket among exercise buffs, health and fitness professionals, and the general public. The site features in-depth content on health and fitness topics as well as fully customizable exercise programs designed by certified trainers. In addition, the site offers an online program editor that enables trainers and other users to develop new fitness programs based on the site’s vast collection of illustrations and videos. As of early March 2000, the site received an average of 125,000 hits per day with 3,000 unique users counted each week.

Workout.com supports this activity on four Web servers and one database server. The Web servers are running a pure Windows 2000 Advanced Server environment, and the database is running in a Microsoft SQL Server 7.0 environment.

## ***Benefits***

### ***A Manageable and Reliable Solution***

Now that the initial development cycle is over, Workout.com developers are focusing on day-to-day issues of management, reliability, and availability and on projects to enhance and grow the site. Managing the Workout.com site is relatively simple, says Van Patten, thanks to the Windows 2000 Management Console. “For example, to evaluate performance on an ongoing basis or log the data for later analysis we can easily set up a monitoring configuration,” he explains. “To do this kind of thing before Windows 2000, we would have to deploy new components and risk huge trial-and-error penalties.”

Workout.com is using Windows 2000 Terminal Server to ease the management burden for its geographically dispersed development teams, whose members reside in three different states. With this capability, engineers working remotely can configure, tune, and even reboot a Microsoft Windows 2000 implementation or install software upgrades.

As for reliability, the Workout.com development team found out just how important that is only six weeks into the deployment. That’s when Web sites across the world were hit by “denial of service” attacks that brought many of them down. Workout.com was hit, too, but without the dire results. For over two hours, the Web servers were maxed out and users had to wait over a minute to load the home page—yet all the software stayed up and running. This event underscored Idzerda’s confidence in the reliability of Windows 2000. “I feel any Unix server in the same circumstances would have been brought to its knees,” he says.

Whether it’s during a “denial of service” attack or simply a peak usage period on any given day, availability is critical to the ongoing success of a Web site like Workout.com. To maintain a high level of availability, the Workout.com team depends on Windows 2000 for its Network Load Balancing clustering support. “Theoretically our site will never have to be offline as long as we can manage upgrades with the cluster-

control processes and techniques available through Windows 2000," Van Patten explains.

Van Patten points to the launch of a recent promotional campaign to illustrate the ease of upgrading hardware in the Windows 2000 environment. "To meet the anticipated increase in traffic, all we had to do was to add two Web servers to the farm," he reports. "Better yet, when the promotion is over, we can leave them in the farm or redeploy them for other purposes with just a few mouse clicks."

### ***Bigger, Better, Faster***

Like any successful Web site Workout.com is continually being enhanced and expanded, another reason Van Patten is happy with the decision to base the solution on Windows DNA 2000. "When it's time for enhancements, Windows DNA 2000 enables us to concentrate on our business logic and application-specific architecture rather than on the system architecture," he explains. "For example, Windows 2000 Component Services and Microsoft Message Queuing enable us to separate our application code cleanly into layers so we don't have to write transaction recovery code and protocols for layer interaction."

Idzerda concurs. "The way Windows DNA 2000 supports COM+ makes anything you do with it very extensible," he says. "We can scale up dramatically just by reconfiguring a few system features with the component services of Windows 2000 Advanced Server, instead of having to recode middle-tier components to support transactional processing and transactional process recovery. With these details handled in COM+, we don't have to keep reinventing the wheel."

Scaling the Workout.com site, whether for performance enhancements or for supporting more traffic, is also made easier thanks to the enterprise nature of Microsoft SQL Server 7.0. "For faster page views we can cache the entire database in RAM, so to support growth all we need to do is add more RAM," Idzerda points out. That's a lot less costly and time-consuming than developing specialized performance-enhancing algorithms or adding specialty hardware."

### ***Based on a Strong Foundation***

It's clear that the Workout.com developers haven't wasted any time in taking advantage of the capabilities that Windows DNA 2000 has to offer. The team also was one of the first—perhaps *the* first—to deploy a Web site using those technologies. "Quite a number of Web developers and managers told me that when we went live in early December, we were the only site on the Web to use the Windows 2000 platform," Van Patten reports. For this, he insists that the credit go to Vertigo. "Remember, back then very few people knew the Windows 2000 architecture well, but the engineers at Vertigo did," he notes. "Without them, we might not have been able to deliver the solution in time to meet the investor's deadline, nor would we have the strong and easily extensible foundation we do now."

Van Patten and his colleagues are busy building custom components for the middle tier and using Active Server Page technologies to deliver Web pages running on Internet Information Server 5.0. In future deployments these components will support

comprehensive Clickstream analysis, integration through message queuing, personalization, and shopping carts. They will rely on Windows DNA 2000 technologies such as Microsoft Application Center 2000, Microsoft BizTalk Server 2000, Microsoft Commerce Server 2000, Microsoft Component Services, Microsoft Message Queuing, and Microsoft SQL Server 2000.

The Workout.com team will also use Windows Media Technologies and streaming capabilities in Windows 2000 to implement streaming video, a feature in high demand by current users. The site offers dozens of compressed-format videos and has three video-stream servers ready to go live as soon as second-round funding is secured. Finally, to help maintain availability and reliability of the Workout.com site even as it dramatically expands its capabilities, the company is quickly implementing the clustering services built into Windows 2000 for Microsoft SQL Server. Immediate plans call for deployment of a database-server cluster using the beta release of Windows 2000 DataCenter "as soon as we can get our hands on it," according to Van Patten, who welcomes the day when the site no longer will rely on a single database server.

Van Patten says even as he and his colleagues work on ever-more-powerful enhancements and extensions to the site, they aren't worried about the additional responsibilities of running a rapidly growing Web farm. After all, he points out, they're using the same technology that got the whole thing launched in just 45 days.

### ***For More Information***

For more information about Microsoft products or services, call the Microsoft Sales Information Center at (800) 426-9400. In Canada, call the Microsoft Canada information Centre at (800) 563-9048. Outside the 50 United States and Canada, please contact your local Microsoft subsidiary. To access information via the World Wide Web, go to:

<http://www.microsoft.com/>

<http://www.vertigo.com>

© 2000 Microsoft Corporation. All rights reserved.

This case study is for informational purposes only. MICROSOFT MAKES NO WARRANTIES, EXPRESS OR IMPLIED, IN THIS SUMMARY. Microsoft, Visual Basic, and Windows NT (Add other products if necessary) are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Other product and company names mentioned herein might be the trademarks of their respective owners.