

Nationwide Insurance: Using virtualization as a foundation for innovation

Overview

■ **Business Challenge**

Faced with the need to build a new, multimillion-dollar data center to cope with server proliferation and seeking to streamline application development and daily operations overall, Nationwide Insurance instead made a strategic decision to move to a flexible, virtualized IT environment.

■ **Solution**

Nationwide deployed two IBM System z™ mainframes running Linux.® The solution is a cornerstone of Nationwide's strategy of moving all new development to virtualization and J2EE as a means of "future-proofing" its IT environment.

■ **Key Benefits**

- *US\$15 million cost savings anticipated over three years*
- *85-90 percent server utilization*
- *80 percent reduction in environmental costs*
- *Web hosting costs lowered by 50 percent*



The server proliferation issue

Most large corporations face the problem of server proliferation. With the servers in use at a major company typically numbering in the thousands, costs related to purchase and support can be very high, especially in an era of rising energy costs and increasing IT usage related to new applications and services.

Nationwide Insurance, a Fortune 500 company and one of the United States' leading underwriters, is no different. Like other large insurance companies, Nationwide has a mixed IT environment that includes both traditional, mission-critical mainframe-based applications and enterprise applications running on distributed servers.

“The ability to flexibly add capacity wherever we need it changes the whole mindset of the developers. It promotes out-of-the-box thinking, because the risk cost is so low. What virtualization really gives us is a strong foundation for innovation.”

– Buzz Woeckener, manager of Linux, Nationwide

Virtualization offers more than cost savings

Business Benefits

- Provides anticipated cost savings of US\$15 million over three years
- Enables server utilization of 85-90 percent
- Reduces environmental costs by 80 percent
- Lowers Web hosting costs by 50 percent
- Leverages investments by using development/testing hardware for business continuity
- Promotes cost savings through reduced licensing fees and avoidance of investment in new facilities and additional equipment
- Simplifies and speeds server provisioning, enabling developers to try out new ideas quickly and with very little risk, thereby fostering innovation

“Rapid provisioning lets us try things that we’d never have considered attempting before.”

– Buzz Woeckener

This mixed environment comes from the nature of Nationwide’s business. From an IT standpoint, the insurance industry requires high-speed transaction processing to handle the tremendous amount of activity, such as policy verification and claims handling, associated with serving millions of policyholders around the clock. This kind of workload is best done by mainframes. Other kinds of workloads, such as enterprise applications or Web servers, do not warrant the use of a mainframe, and so are normally deployed on smaller, distributed servers. As the business grows, however, the number and variety of these smaller servers begins to increase, until it becomes unsustainable.

“We were facing the same problems that any company our size has to deal with,” says Buzz Woeckener, manager of Linux for Nationwide. “We were running out of floor space, cooling and electricity, and our servers were drastically underutilized.”

There were productivity issues as well. Server provisioning—the activity of allocating capacity to a new task—took anywhere from weeks to months, which was stifling application development. “It simply wasn’t worth the risk to try out new ideas most of the time,” Woeckener says. “The costs, should a given project not pan out, were too high.”

Changing course to save money

In 2005, it became evident that unless a new direction was taken, Nationwide would have to update the power and cooling at its Tier 4 data center and possibly build a new data center at a cost of millions of dollars to accommodate growth. To avoid this expenditure and to address the underlying proliferation issue, Nationwide made a major strategic decision: to deploy a virtualized infrastructure.

The new environment is based on IBM System z mainframes and key technologies including IBM z/VM® virtualization software, IBM WebSphere® middleware and IBM DB2® database, which Nationwide analysis had shown could deliver a much faster, and much greater, ROI than other platforms due to its inherent cost of ownership savings. These savings, according to Woeckener, come in large part from reduced licensing fees. In a situation like Nationwide’s, where there are thousands of servers in use, the cost of software licensing is considerable. But because of the way license fees are calculated—by processor—a solution that can employ a few very powerful processors to replace many individual servers can result in significant license fee savings.

“The software and maintenance costs add up to millions. And, of course, there are all the ancillary cost savings as well... floor space, cabling, switches, network administrators... it all adds up,” Woeckener notes.

Virtualization provides a significant performance boost for Nationwide’s overall IT environment, which translates into reduced response times and greater productivity. The consolidated servers run a version of Linux compiled to run on IBM System z. Combined with z/VM virtualization, this eliminates the physical separation of Linux servers and enables resource sharing. With a distributed infrastructure, enterprise and line-of-business applications on standalone servers interact with the mainframe via a conventional network infrastructure. But with Linux on z/VM, the virtualized servers are able to use the fast I/O of the mainframe directly, while at the same time taking advantage of the traditional mainframe strengths of reliability and high availability.

In addition to moving to Linux for new applications, Nationwide has also strategically decided on the use of the industry-standard Java 2 Enterprise Edition (J2EE) environment for all future application development, which is seen as a good way to ensure future extensibility and development of applications.

By consolidating workloads onto its virtualized infrastructure, Nationwide has replaced hundreds of standalone servers running various applications under several different operating systems, and also avoided having to purchase hundreds of new servers to handle growth. “Our virtualized environment is configured to handle the most important applications, but we still have a distributed infrastructure,” says Woeckener. “We’ve consolidated servers where it made sense to do so, but with a business like ours you’re never going to completely replace all of the distributed servers.”

The two System z mainframes that run the virtualized environment are located at two separate data centers. One of the mainframes runs the production environment consisting of enterprise, line-of-business and Web applications, and the other is devoted to application development and testing. The second mainframe also doubles as a disaster recovery resource. Data is replicated between the two sites on a 30-second delay. In this way, the investment in hardware is leveraged to provide business continuity with no additional outlay.

Key Components

Software

- IBM WebSphere Application Server
- IBM DB2
- IBM z/VM
- Linux

Hardware

- IBM System z
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Why it matters

A fully virtualized Linux environment running on IBM System z has saved Nationwide Insurance millions of dollars by eliminating hundreds of servers and avoiding the need to build a new data center, while at the same time providing performance increases. More importantly, the new environment has made the development of new applications far less risky through the rapid, low-cost and efficient provisioning of server capacity. This enables Nationwide developers to try new ideas that would otherwise not have been attempted, fostering innovation and out-of-the-box thinking.

The combination of cost savings and performance increases made virtualization on System z the best choice for Nationwide's needs, according to Woeckener. "We anticipate saving approximately US\$15 million over three years," he says. "We're seeing dramatic improvements across the board. An 80 percent reduction in environmental costs including power, cooling and floor space; hardware and OS support efforts cut in half; Web hosting monthly costs also cut in half through capacity optimization and overall server utilization running at 85 to 90 percent."

Rapid provisioning changes the mindset of developers

While the initial reason to deploy a virtualized environment was related to money, the new IT architecture's flexibility has provided a significant added benefit. It gives Nationwide's application developers much greater freedom thanks to the ease with which computing capacity can be allocated, or provisioned, to new workloads. This enables them to bring new services to market more quickly, which in turn drives competitive advantage.

With a distributed infrastructure, provisioning a new project can take days, weeks or even months. Equipment must be retasked, or new equipment purchased. As a result, the costs involved in testing new ideas can be prohibitive, which tends to stifle development.

"With the virtualized infrastructure," Woeckener says, "we can provision servers literally in minutes. That gives us the benefits related to rapid scalability that you might expect. For example, we premiered a high-profile ad during the Super Bowl last year, and we knew it would result in a usage spike on our Web portal. So we temporarily added capacity to the Web servers to handle it, very simply and easily."

It's the indirect benefit, however, that Woeckener highlights. "Rapid provisioning lets us try things that we'd never have considered attempting before. If something doesn't work out, well, no problem... we just take the capacity back and use it for something else, right away. The ability to flexibly add capacity wherever we need it changes the whole mindset of the developers. It promotes out-of-the-box thinking, because the risk cost is so low. What virtualization really gives us is a strong foundation for innovation."

For more information

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Armonk, NY 10504
U.S.A

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9-08
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