



# Windows Server 2003 R2 Enterprise Edition

## Selecting a Platform for Your ERP System

*Microsoft Corporation*

*Published: January 2007*

---

### **Abstract**

In past years, many organizations have chosen to build their business systems on Mainframe, Midrange, and the UNIX/RISC platforms. Now, as the life cycles of many of these legacy platforms come to an end, these organizations are choosing to migrate their critical business systems to Microsoft® Windows Server™ 2003 R2 Enterprise Edition with Microsoft SQL Server™ 2005. Through replatforming to the Microsoft Windows Server™ infrastructure, organizations currently running Enterprise Resource Planning (ERP) applications on other platforms can achieve improved performance, greater reliability, and reduced costs—while maintaining the enterprise capabilities they have today. Because of its reliability, performance, low total cost of ownership, manageability, and security, Windows Server 2003 R2 Enterprise Edition with SQL Server 2005 provides a superior platform for the ERP systems of today and tomorrow.

**Microsoft**

*The information contained in this document represents the current view of Microsoft Corporation on the issues discussed as of the date of publication. Because Microsoft must respond to changing market conditions, it should not be interpreted to be a commitment on the part of Microsoft, and Microsoft cannot guarantee the accuracy of any information presented after the date of publication.*

*This White Paper is for informational purposes only. MICROSOFT MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, AS TO THE INFORMATION IN THIS DOCUMENT.*

*Complying with all applicable copyright laws is the responsibility of the user. Without limiting the rights under copyright, no part of this document may be reproduced, stored in or introduced into a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), or for any purpose, without the express written permission of Microsoft Corporation.*

*Microsoft may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering subject matter in this document. Except as expressly provided in any written license agreement from Microsoft, the furnishing of this document does not give you any license to these patents, trademarks, copyrights, or other intellectual property.*

*Unless otherwise noted, the example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted herein are fictitious, and no association with any real company, organization, product, domain name, email address, logo, person, place, or event is intended or should be inferred.*

*© 2006 Microsoft Corporation. All rights reserved.*

*Microsoft, Active Directory, Visual Studio, Windows, Windows Server, and Windows Server System are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.*

*All other Trademarks are the property of their respective owners*

---

## Contents

<b>Introduction</b> .....	<b>1</b>
Key Platform Selection Criteria .....	1
<b>Microsoft SQL Server and Windows Server: The Platform of Choice for ERP</b> .....	<b>3</b>
Windows Server Reliability.....	3
Enterprise-Class Performance and Scalability.....	4
The TCO Advantage .....	5
Windows Server Provides a Flexible Application Platform for ERP Systems .....	9
Tools to Simplify Administration .....	9
Interoperability .....	10
Enterprise-Class Security.....	11
The Migration Experience .....	12
UNIX Migration .....	12
Migration from Mainframe and Midrange Platforms.....	14
<b>Microsoft as a Strategic Partner</b> .....	<b>16</b>
Resources for Migration.....	16
The Microsoft Community .....	16
<b>Summary</b> .....	<b>19</b>
<b>Related Links</b> .....	<b>20</b>

---

## Introduction

Enterprise Resource Planning (ERP) systems have become pervasive throughout the business world—supporting critical business functions such as supply chain, inventory, business process, and customer relationship management. The benefits of this technology have been well established, offering competitive advantages such as reduced business cycles, lower operating costs, and greater accuracy. The choice of platform is extremely important and greatly affects the total cost, efficiency, and future extendibility of an ERP system.

In past years, many organizations have chosen to build their business systems on Mainframe, Midrange, and the UNIX/RISC platforms. These combinations have provided good platforms for large-scale business applications for many years. However, as the life cycles of these legacy systems come to an end, these organizations are choosing to migrate their critical ERP systems to other equally reliable, yet less expensive platforms.

This paper presents a framework to help IT architects and decision makers evaluate and select a platform for deploying or upgrading their ERP systems. By applying this framework as a tool for comparing ERP systems running on the Microsoft Windows Server™ 2003 R2 Enterprise Edition platform with Microsoft SQL Server™ 2005 to ERP systems based on other platforms, this paper helps IT professionals make a more informed decision.

## Key Platform Selection Criteria

Microsoft has heavily invested in understanding and meeting the needs of both its desktop and enterprise customers. Now that ERP systems have evolved to serve a mission-critical role, Microsoft understands the imperative that these systems be deployed on a platform that provides a rich feature set that assures the following:

- **Reliability:** As an organization becomes more dependent on an ERP application, the reliability of that system becomes critical. Any unplanned downtime can lead to reduced productivity and lost revenue. Integrated ERP systems are expected to run full-time, ensuring that users and customers have access to information on demand.
- **Scalability:** The platform of the ERP application must also be able to easily handle growing amounts of data and large numbers of concurrent users while still maintaining reasonable response times and allowing for future growth. In a constantly changing environment, the ability to add capacity with minimal downtime or risk to system integrity is absolutely essential.
- **Security:** With increasing volumes of sensitive data such as customer and financial information stored on ERP systems, organizations must take every possible measure to maximize security. However, managing a secure environment presents an increasing challenge as an organization and the systems on which it depends grow in complexity. Moreover, with today's extended organizations involving suppliers and customers increasingly linked together, managing security can be overwhelming and costly without the right infrastructure. Microsoft has addressed this need with a mature and widely adopted technology for identity management, data integrity, and protection from intentional attack.
- **Low Total Cost of Ownership (TCO):** Beyond the lure of low cost of acquisition, an organization needs to consider the total cost of ownership (TCO). This cost includes investments in hardware, operating system, database, skilled support staff, and network

infrastructure. Next to reliability and scalability, TCO has been identified by many businesses as the most important consideration.

- **Interoperability:** The decision to deploy or upgrade an ERP system is frequently accompanied by other hardware and software upgrades. As a result, it's common for legacy information systems to coexist as new technology is incrementally deployed. The resulting heterogeneous environment in today's organizations makes it challenging to efficiently support interoperability. Microsoft's response to this need is a set of powerful, award-winning management tools that support the integration of your existing legacy systems with the Microsoft platform.
- **Ease of Manageability:** Managing an ERP system can be difficult. It is important for an organization to choose a platform that provides robust tools to easily tune their system. While contributing to a low TCO, an easily managed system can also ensure an organization the best reliability, scalability, and security its platform allows.

A 2003 study by META Group followed companies that had replatformed their UNIX-based ERP systems to Windows Server 2003 with Microsoft SQL Server.<sup>1</sup> This study showed savings for these companies of more than 50 percent in several intangible areas, such as accessibility and responsiveness, with savings in tangible costs and IT staff time of nearly 25 percent. A more recent study by Alinean, Inc. echoes these results, demonstrating that the increased manageability of SQL Server 2005 on Windows Server 2003 can assist in dramatically reducing a company's TCO.<sup>2</sup>

- **Partner Ecosystem:** Deploying or upgrading an ERP system can be a complex task. To reduce risk and optimize results, specialists who offer extensive experience and a strong history of performance are essential. A strong ecosystem of partners also provides great flexibility for adapting and adopting new systems and technologies. Microsoft's extensive partner ecosystem makes it easy and cost-effective to choose from proven, world-class system integrators, with a support network that provides global coverage. With 750,000 Microsoft partners<sup>3</sup>, more than 300,000 Microsoft Certified Support Engineers (MCSE), more than 1.8 million Microsoft Certified Professional (MCP) certification holders,<sup>4</sup> more than 6 million developers, 2,200 user groups, 400 community Web sites, and the largest community of independent software vendors (ISVs) worldwide<sup>5</sup>, Microsoft technology fosters the largest and most active global ecosystem of partners, community participants, and vendors.

Beyond these factors, it's also important to reduce risk by choosing proven platform technology that has been successfully deployed and tested in the largest number of, most varied—in terms of both type and size, and most demanding business environments in the world. This proven success is the assurance that Microsoft offers its customers as the world's premier software provider. Windows Server 2003 R2 Enterprise Edition takes the best of Windows Server™ technology and makes it easier to deploy, manage, and use. It's simply the fastest, most reliable, and most secure Windows operating system Microsoft has ever delivered. Together with SQL Server 2005, Windows Server 2003 R2 Enterprise Edition offers a flexible, scalable, and easily managed platform for your ERP system and assures you of the lowest possible TCO.

---

1 Migrating Unix ERP Installations to a Windows Server Environment: A Qualitative Assessment of Business Impact, Meta Group, August 2004

2 Microsoft SQL server and Oracle® Database: A Comparative Study on Total Cost of Administration (TCA), Alinean Inc., May 2006

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

4 <http://www.microsoft.com/learning/mcp/certified.asp>, Nov 15, 2006

5 <http://msdn.microsoft.com/isv/default.aspx>

---

## Microsoft SQL Server and Windows Server: The Platform of Choice for ERP

### Windows Server Reliability

Today's applications require round-the-clock availability. Superior reliability is a challenging goal that must be enabled by the platform as well as by the specific architecture, sizing, and predeployment procedures. Finally, service level agreements (SLAs) provided by the systems integrators that stand behind the integrated hardware and software stack provide the last word in assuring customers of performance in terms of uptime and responsiveness under load.

With a range of new and improved features including memory mirroring, Hot Add Memory, and eight-node cluster support, the Windows Server 2003 family of operating systems is the most reliable operating system family Microsoft has ever offered. Despite increased demands on servers of all types and ongoing threats to system reliability, Microsoft continues to enhance its server architecture to meet customer needs for reliability. Beginning with its Trustworthy Computing Initiative and extending to an array of user services available through Microsoft and its partners, Microsoft is committed to the reliability of Windows Server 2003 R2 Enterprise Edition.

Windows Server 2003 R2 Enterprise Edition and SQL Server 2005 provide a robust foundation for ERP applications by providing enterprise-class reliability and performance. Microsoft has worked hard to create a system that will maximize application uptime and ensure the performance and scalability to meet the business needs of CRM and ERP users. Currently, more than 58,000 SAP installations are running on Windows Server. That number is more than all other platforms combined. Nearly two-thirds of new SAP installations are deployed on Windows Server family and over 40 percent of all new SAP installations are deployed on Microsoft SQL Server.<sup>6</sup>

Windows Server 2003 R2 Enterprise Edition can help minimize system downtime. Windows Server and SQL Server have built-in self-healing features and simplified diagnostic capabilities that act to minimize downtime. Microsoft Cluster Services (MSCS), provided with Windows Server 2003 R2 Enterprise Edition, provides high availability and scalability for mission-critical applications such as databases, messaging systems, and enterprise applications. Multiple servers (nodes) in a cluster remain in constant communication. If one of the nodes in a cluster becomes unavailable as a result of failure or maintenance, another node immediately begins providing service, a process known as failover. An ongoing study by Microsoft partner Unisys clearly demonstrates the results of this push toward platform reliability. Their July 2004 study shows an amazing average uptime of 99.996% for the Windows Server platform. In fact, 78 percent of the systems tested delivered a full 100 percent availability. Their conclusion: Unisys servers running Microsoft Windows Server 2003 "match or beat the availability of the best datacenter-based UNIX/RISC systems."<sup>7</sup>

---

<sup>6</sup> <http://www.microsoft-sap.com/>

<sup>7</sup> Achieve 99.996% Availability and More with Cost-Effective, Non-Clustered, Windows Datacenter-Based Servers, D.H. Brown associates, Inc., July 2004



Unilever, based in the UK and the Netherlands, is a global consumer products company with more than 400 brands, generating some U.S. \$50 billion a year in sales from operations in 100 countries. The ability to achieve superior uptime coupled with excellent performance under heavy loads convinced Unilever to move their SAP database from an Oracle\UNIX platform to SQL Server 2005 running on Windows Server 2003 Enterprise Edition. Unilever ran a rigorous proof of concept to test the new platform. The new platform not only met their strict reliability requirements, it also maintained performance levels under twice the current data load of Unilever United States.

Unilever tested their SAP supply chain system in a proof of concept at Microsoft SQL Server labs in Redmond with a 1.5 terabyte database. “Frankly we were a little bit shocked with the performance and the results,” said Neil Cameron, CIO of Unilever. “We repeated the tests and tried a number of variants and we came to the conclusion that SQL Server was very much an enterprise-grade database.”

Enterprise-grade reliability was a key requirement of Unilever as it considered replatforming its SAP supply chain infrastructure. Speaking of the need to achieve at least 99.999 percent uptime, Cameron says, “Our service level agreements require five nines, and there are times when even five nines isn’t enough.” Says Chris Turner CTO at Unilever, “The testing we have done has shown no weaknesses. We couldn’t break it. SQL Server 2005 on Windows Server 2003 met all the criteria that we have for our business.”<sup>8</sup>

### Enterprise-Class Performance and Scalability

Windows Server 2003 R2 Enterprise Edition delivers reliability while also providing excellent performance and scalability. Windows Server 2003 R2 Enterprise Edition delivers significant improvements in server throughput for all major workloads. By taking advantage of these improvements, companies can meet increasing IT needs with minimal time and expense. These improvements are the result of low-level optimizations in multiprocessor synchronization, scheduling, and memory management—changes that affect all workloads—as well as many higher-level enhancements that improve throughput for specific workloads.

ERP applications also require a platform that is scalable. Windows Server 2003 R2 Enterprise Edition and SQL Server 2005 were engineered with scalability in mind. When discussing scalability, it is important to distinguish between the different modes of scaling. There are two different modes of scaling known as scale up and scale out. Windows Server 2003 R2 Enterprise Edition with SQL Server 2005 provides excellent support for each.


Scaling up is accomplished by adding additional resources to a single computer to allow an application to service more requests. The most common ways to do this are by adding memory (RAM) or using a

<sup>8</sup> <http://www.microsoft.com/casestudies/casestudy.aspx?casestudyid=200037>

faster CPU. Windows Server 2003 R2 Enterprise Edition offers another exciting scaling up option, using a 64-bit (Itanium) processor, thereby giving a wider data highway that provides more throughput.

Scaling out is accomplished by adding servers to a server farm (group) to make applications scale by spreading the processing among multiple computers. Windows Server 2003 R2 Enterprise Edition natively implements scaling out with the network load balancing (NLB) technology. When a server center is scaled out, it will require management software (such as NLB) or hardware to distribute requests among the member nodes. You can add to the server cluster by simply installing a new system preloaded with the software. This approach lets you grow and shrink your applications' capacity by simply adding and removing standard commodity servers.

The Windows Server platform is now SAP R/3 certified at 93,000 concurrent users on SQL Server 2005 with an average response time of less than two seconds.<sup>9</sup> This record-breaking 64-processor benchmark demonstrates the scalability of the Windows Server platform with SQL Server 2005, and is more than three times the number of concurrent users certified with SQL Server 2000.

	<p>When the world's largest express transportation company, FedEx Express (FedEx), moved from a UNIX-based analysis solution to SQL Server 2000 Analysis Services running on Windows Server 2003, they achieved a tenfold increase in query performance with an 80 percent decrease in cost of ownership.</p> <p>FedEx uses its business intelligence solution to support strategic decision making, analyze marketing campaigns and shipping volumes, and to design special services for select customers. The move to SQL Server 2000 Analysis Services enabled FedEx to achieve these goals faster and with better scalability than their previous solution while actually reducing costs.</p> <p>According to Scott Matthews, Finance Manager at FedEx, "Our move to Analysis Services paid for itself within six months through lower maintenance and operating costs."<sup>10</sup></p>
---	---

## The TCO Advantage

Windows Server 2003 R2 Enterprise Edition with SQL Server 2005 provides superior reliability and scalability for your ERP application as well as significantly lower TCO. Through reducing the hardware, server software license, and maintenance costs associated with business application deployments and upgrades, Windows Server 2003 R2 Enterprise Edition can provide immediate cost benefits. This Microsoft solution can also substantially reduce the ongoing maintenance and administration costs associated with business application platforms.

When discussing the TCO of a system, one must consider many factors, including hardware, software, staffing, training, deployment and migration, scalability, and uptime. The Windows Server platform can reduce the TCO enough to provide a compelling reason to replatform. This TCO advantage has been demonstrated by a number of independent studies. A study by Meta Group shows that the total cost of hardware maintenance and additional annual costs for a Windows-based system are significantly less

<sup>9</sup> <http://www.microsoft.com/sql/prodinfo/compare/sap/sapsales.msp>

<sup>10</sup> [http://www.migrationforunix.com/downloads/success/FedEx\\_SQL\\_Server\\_2000.doc](http://www.migrationforunix.com/downloads/success/FedEx_SQL_Server_2000.doc)

than the costs of a Solaris UNIX-based system.<sup>11</sup> By replatforming to Windows, according to this study, an organization can reduce total platform costs by more than 50 percent with respect to Solaris in the first year alone. Over a three-year period, the Meta Group study shows that UNIX is more than three times the cost of a comparable Windows system for running ERP applications.

A study by NerveWire concludes that companies using SQL Server 2000 experience a 47-percent TCO savings versus a leading competitor's product.<sup>12</sup> According to the study, the greatest savings are found in daily, ongoing, database administration activities. These savings can be attributed to SQL Server's ease of use as compared to its competitors and the availability of trained SQL Server professionals.

Savings in administration costs is an ongoing theme in other studies as well. A 2006 study by Alinean, examines the total cost of administration (TCA) for Microsoft SQL Server 2005 and Oracle® Database 10g through interviewing one hundred directors of database administration and senior database administrators (DBAs) from a wide range of industries and company sizes. The study presents several findings. First, SQL Server DBAs manage over three times as many databases as Oracle DBAs. Second, SQL Server DBAs support over 20 percent more end-users than do Oracle DBAs. Third and most importantly, the annual cost of administering an Oracle database is over three and one-half times the cost of administering a SQL Server database.<sup>13</sup>

Further research by NerveWire reveals that replatforming to Windows Server with SQL Server can provide a 61 percent average return on investment (ROI)<sup>14</sup>. This study followed several companies migrating their ERP systems to SQL Server from a major competitor. Most of the companies included in this study replatformed their systems from UNIX-based systems to Windows Server at the same time. While the average ROI was 61 percent, one organization achieved a stunning 268 percent ROI.

As in previous studies, the main savings were achieved through hardware, software maintenance, routine maintenance, and administration. Additional savings were also realized through increased IT productivity.

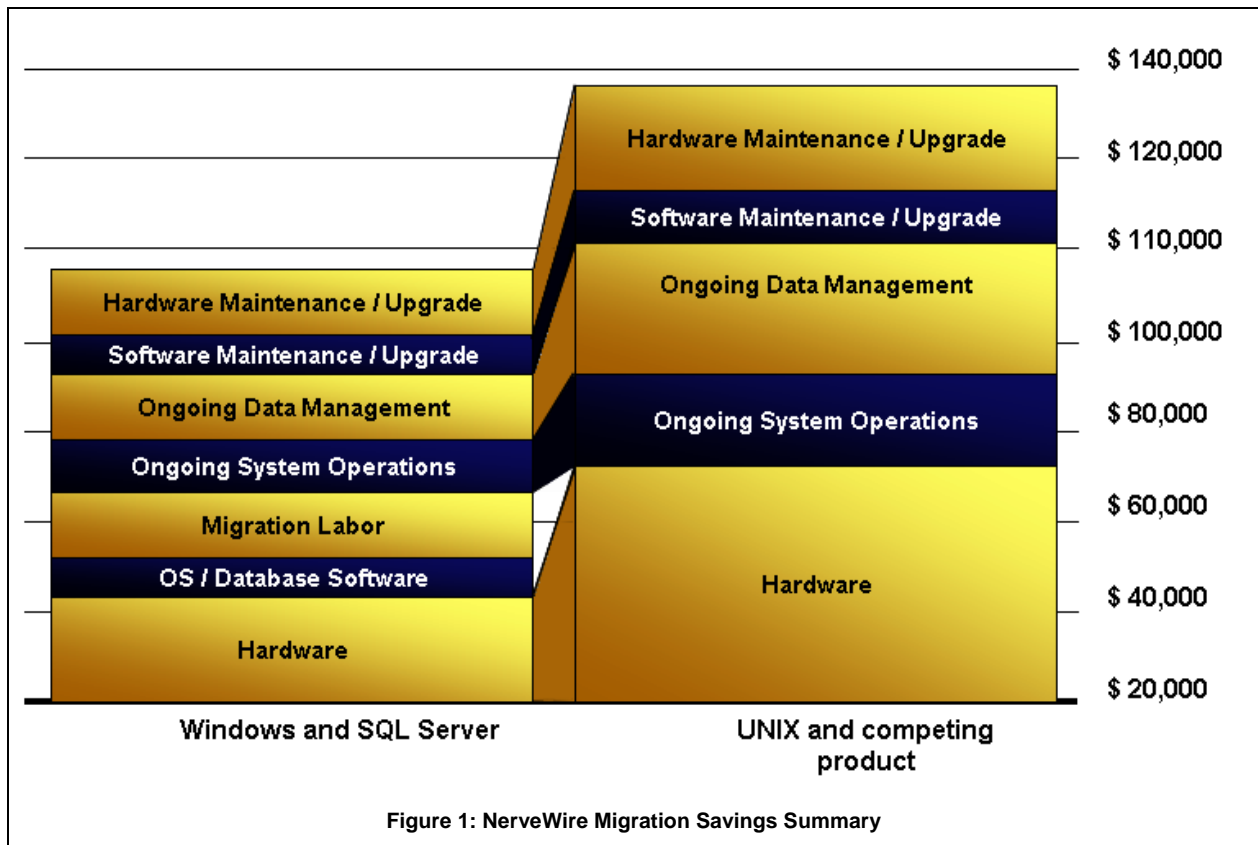
---

11 The Impact of OS/Platform Selection on the Cost of ERP Implementation, Use and Management, Meta Group, 2001

12 Strategic IT Initiatives: TCO Benefits of SQL Server, NerveWire

13 Microsoft SQL Server and Oracle® Database: A Comparative Study on Total Cost of Administration (TCA), Alinean, Inc., May 2006

14 Strategic IT Initiatives: Moving ERP Systems to SQL Server Yields Substantial Savings, NerveWire



Microsoft offers a wide range of products and tools that greatly ease the complexity of managing an ERP system, providing impressive productivity gains and allowing your IT staff to focus on higher value activities. Independent research by NerveWire and Meta Group, cited previously, show that DBAs and OS specialists can be between 33 percent and 45 percent more productive on an ongoing basis on the Microsoft platform compared to UNIX.

Microsoft Server 2003 R2 Enterprise Edition with SQL Server 2005 can also produce dramatic savings in developer productivity. A 2006 study by 3 Leaf, LLC. shows that database application developers are more productive with SQL Server 2005 and Visual Studio® 2005, than with Oracle Database 10g and Oracle JDeveloper. In this study, application developers, working independently, were given the same baseline application and asked to add identical features. The SQL Server 2005 developers were able to complete the task in one quarter of the time the of the Oracle developers. For organizations, this translates into faster time to market and lower cost to develop applications.<sup>15</sup>

A study by IDC shows several important advantages Windows Server possesses over Linux in the area of people cost, the most important of which is the scarcity of Linux professionals relative to the number of Microsoft certified professionals.<sup>16</sup> The lesser availability of qualified Linux professionals tends to drive up their salaries and, in turn, the TCO of Linux as an ERP platform. In fact, this study shows that for database professionals, Linux cases reported 52.4 percent higher in-house staffing cost than did SQL Server cases. In addition, Linux relational database management system (RDBMS) users reported

<sup>15</sup> Comparing Enterprise Development Productivity: SQL Server 2005 versus Oracle Database 10g, 3 Leaf LLC., January 2006

<sup>16</sup> Microsoft SQL Server Versus Linux Enterprise RDBMS in Enterprise Computing : Comparing Costs in Development Cases, IDC, 2003


using, on average, “32.5 percent more full-time equivalents (FTEs) for database development tasks than did their SQL Server counterparts.” The study goes on to cite that the Linux RDBMS produces a 46.8 percent higher overall cost than SQL Server running on comparable hardware.

A new study by Mercer Management Consulting sheds additional light on the decisions of companies to migrate from UNIX to Windows Server. Titled “Driving Lower TCO and Rapid ROI through UNIX Migrations,” this study finds that IT organizations are choosing Windows over Linux and other flavors of UNIX when migrating from UNIX servers as part of an effort to improve key business processes.<sup>17</sup>

The findings of this report debunk the widespread misconception that platform costs drive the economics of a migration decision.

According to John Wenstrup of Mercer Management Consulting, around 80-85 percent of the cost of migration consists of labor associated with migration and post-migration management. “The total cost of the entire hardware and software platform—including maintenance costs—tends to only be 15 to 20 percent of total migration costs. Even more interestingly, the upfront acquisition cost of the software platform—e.g. the operating system—is only about 2 percent of the total migration costs, and even with ongoing software maintenance cost, is only around 5 percent of total cost.”<sup>18</sup>


The Mercer study continues by quoting one head of IT architecture as saying, “Our CIO wanted to lower IT costs by moving a key SAP application from the back-end and integrating into a front-end web server. He originally wanted to stay with HP-UX but I convinced him to look at Windows. When we did the analysis, we found that running HP servers on Windows was by far the lowest total cost solution—even vs. Linux—and the migration to Windows was fully supported by SAP.”

	<p>SAP software is mission-critical to the Lockheed Martin Missiles and Fire Control unit. When they needed to improve the performance of their SAP systems while reducing costs, they chose to replatform their existing previous UNIX-based solution on Microsoft SQL Server 2005 and Windows Server 2003.</p> <p>“SQL Server had become a more powerful, enterprise-ready solution since we first adopted Oracle,” says Brent Ekhart, SAP Technical Systems Manager at Lockheed Martin, “and we thought the combination of Windows Server and SQL Server could lead to significantly lower costs.”</p> <p>Before the migration, Lockheed Martin consulted with other large manufacturing companies that had made similar migrations. Lockheed Martin’s detailed projections indicate that they can expect to reduce costs by 41 percent over five years in areas of software, hardware, and maintenance.<sup>19</sup></p>
---	--

<sup>17</sup> Driving Lower TCO and Rapid ROI through Unix Migrations, Mercer Management Consulting, September 2006

<sup>18</sup> Q&A: Mercer Management Consulting on Driving Lower TCO and Rapid ROI Through UNIX Migrations,

<http://www.microsoft.com/presspass/features/2006/sep06/09-25Migration.msp>

	<p>When service provider NaviSite tested for a PeopleSoft Enterprise Portal 8 deployment for one of its customers, it found that the Red Hat Linux operating system could not accommodate enough users on the customer's chosen hardware.</p> <p>NaviSite evaluated Windows Server 2003 with Internet Information Services 6.0 side by side with Linux. They found that the Microsoft solution eliminated the need for additional hardware and accommodated more users while being easier to support. NaviSite also felt that the greater availability of engineers familiar with the Microsoft platform would further reduce the cost of the Microsoft solution. "Because Linux would have required additional servers to achieve the stability and scale we desired...it was clear to us that Microsoft would provide us more for our money," said Mark Clayman, Senior Vice President of Service Delivery for NaviSite.<sup>20</sup></p>
---	---

## Windows Server Provides a Flexible Application Platform for ERP Systems

In addition to scalability, availability, and cost benefits, Windows Server 2003 R2 Enterprise Edition and SQL Server 2005 provide additional compelling advantages for those looking to replatform their ERP applications. Windows Server 2003 R2 Enterprise Edition provides a suite of tools to simplify administration, support interoperability with existing UNIX systems, and deliver enterprise-class security. In addition, leading ERP company SAP is a strong Microsoft partner and provides many tools for integration with the Windows platform. These advantages provide additional reasons to choose Windows Server for your ERP application. Simply put, Windows Server 2003 R2 Enterprise Edition is as an enterprise-class platform for business applications that lowers the overall TCO while maintaining high levels of reliability and performance.

### Tools to Simplify Administration

The combination of Windows Server and SQL Server assists in reducing IT complexity and simplifying system management. Windows Server 2003 R2 Enterprise Edition enables administrators to effectively manage distributed systems from a central point. Management tools, such as Windows System Resource Manager (WSRM) and the Group Policy Management Console (GPMC), provide for rapid configuration changes and necessary updates across multiple deployments. Windows Server 2003 R2 Enterprise Edition also provides tools to assist administrators in assessing their security and in applying required fixes. Graphical tools and wizards, such as the Microsoft Baseline Security Analyzer 2.0, reduce the learning curve and increase productivity in various tasks.

Windows Server 2003 R2 Enterprise Edition further eases administration and lowers TCO by providing tools and utilities to automate routine tasks. Self-tuning capabilities allow ERP business applications to run optimally with little manual input. The automation of management tasks eliminates time-consuming

<sup>19</sup> <http://www.microsoft.com/casestudies/casestudy.aspx?casestudyid=1000003802>

<sup>20</sup> <http://www.microsoft.com/casestudies/casestudy.aspx?casestudyid=48578>

manual activities, such as backup, scheduling, and monitoring. Windows Server 2003 R2 Enterprise Edition also offers new cluster-aware tools to simplify cluster management. All of these features translate into less time and money spent in the maintenance and upkeep of your system.

### **Interoperability**


Windows Server 2003 R2 interoperates with other systems through its adherence to industry-standard technologies such as XML and the SOAP protocol. For many organizations, next to availability, scalability, and TCO, a reliable, smooth migration of their critical ERP business systems is the most important consideration in a replatforming decision. Microsoft has made a commitment to supporting UNIX applications on Windows Server 2003 R2 Enterprise Edition and provides a suite of applications, partners, training, and guidance to ensure the success of your business system migration.

Windows Server 2003 R2 Enterprise Edition provides powerful management tools that allow the integration of your existing UNIX systems with Windows Server. Windows Server 2003 R2 Enterprise Edition can run applications written for variants of UNIX. Developers can simply recompile their POSIX-compliant source code for their custom-developed UNIX applications and then execute those API calls directly through the Windows system kernel. This provides for integration with existing custom applications, allowing for a more incremental migration if so desired.

Windows Server 2003 R2 Enterprise Edition also offers manageability components that enable organizations to simplify network administration and account management across both platforms, including Active Directory®-based identity management for UNIX. Network file services allow the seamless integration of file and print services across UNIX and Windows systems, reducing administration time, complexity, and cost. Using the interoperability technologies provided by Windows Server 2003 R2 Enterprise Edition, a UNIX-based workforce can migrate to Windows Server incrementally and take advantage of existing UNIX skills to become productive quickly on Windows Server 2003 R2 Enterprise Edition.<sup>21</sup>

---

<sup>21</sup> <http://www.microsoft.com/windowsserver2003/r2/unixinterop/whitepaper.msp>

	<p>When RadioShack, one of the best-known electronics retailers in the world, updated its 11-year-old UNIX-based point of sale system, it chose Windows Server 2003 Enterprise Edition over Linux because the platform offered lower long-term costs, less risk, better strategic alignment, enjoyed better vendor support, and provided support for incremental migration from UNIX.</p> <p>“Windows Server System offered several advantages [over Linux], including the ability to consolidate our in-store servers by 50 percent—from 10,200 to 5,100—and a savings of several million dollars in hardware, software, systems management, and support costs,” says Ron Cook, Vice President and Chief Technology Officer for RadioShack.</p> <p>According to Cook, RadioShack selected Windows Server 2003 Enterprise Edition not only for their immediate cost benefits, but also for their long-term possibilities. “We’re going to be on the Windows platform for years to come, and we’re betting that Microsoft technology will be the best option for helping our business be profitable and highly competitive.”<sup>22</sup></p>
---	--

### Enterprise-Class Security

Microsoft is committed to security and continues to invest heavily to improve the security of its products. In an industry beset with security issues, Microsoft continues to prove an attractive choice. In the second half of 2005, Red Hat issued 130 security bulletins for vulnerabilities. During that same period, Windows Server 2003 issued just 30.<sup>23</sup> In other roles, as well, Windows Server 2003 has been shown to have far fewer vulnerabilities than Red Hat linux.<sup>24,25</sup> In addition, when vulnerabilities have been discovered, Microsoft leads the industry in providing timely fixes. Microsoft’s average of 25 days between the discovery of a vulnerability and the release of a fix is less than half of the next closest competitor.<sup>26</sup>

To reduce potential attack surfaces, Microsoft now preconfigures offerings to the strongest security-enhanced options by default. For example, Windows Server 2003 R2 Enterprise Edition does not install Internet Information Services (IIS) by default. As another example, by default, SQL Server is installed without network access.

<sup>22</sup> <http://www.microsoft.com/casestudies/casestudy.aspx?casestudyid=53982>

<sup>23</sup> Source: Vendor’s Public Security Bulletins as of 12/31/2005

<sup>24</sup> “Role Comparison Security Report: Web Server Role”, Security Innovations. Study period Jan 2004-Dec 2004

<sup>25</sup> “Role Comparison Security Report: Database Server Role”, Security Innovations. Study period Mar 2004-Feb 2005.

<sup>26</sup> Is Linux More Secure than Windows, Laura Koetzle, Forrester Group, March 19, 2004

The Windows Server 2003 R2 Enterprise Edition product is also designed for security in deployment. Windows Server architecture features an automatic update feature, which helps users stay current on security updates. In addition, as part of the Microsoft Strategic Technology Protection Program<sup>27</sup>, and in response to direct customer need for a streamlined method of identifying common security misconfigurations, Microsoft has developed the Microsoft Baseline Security Analyzer (MBSA). This tool enables users to scan one or more Windows-based computers for common security misconfigurations. MBSA scans a Windows-based computer and checks the operating system and other installed components, such as IIS and SQL Server, for security misconfigurations and the latest recommended security updates.

According to the CERT Coordination Center, a center of Internet security expertise located at Carnegie Mellon University, “Most intrusions result from exploitation of known vulnerabilities, configuration errors, or virus attacks where countermeasures were available, including most major Internet worm/virus events. Countermeasures are available for most exploited vulnerabilities, but are they deployed? For systems and networks affected by these events, the answer is generally ‘no’ or ‘not consistently.’”<sup>28</sup>

Microsoft understands that clear and effective communication with users is critical to providing enterprise-class security. Toward this end, Microsoft has created a system for providing customers with timely security updates. The Security Bulletin Notification Service enables customers to receive timely and accurate information directly from Microsoft about worms, viruses, and other security events. It represents one of the first steps taken to help customers determine if an event is relevant to their environments, how and when to download and deploy the security updates, and how the software updates or security updates affect their overall IT infrastructures. Customers can sign up to be notified through e-mail when the latest security bulletins are posted. Different versions of the bulletins exist for both IT professionals and home users.

Finally, the Microsoft Trustworthy Computing Initiative<sup>29</sup>, now in its fifth year, continues to pay dividends for customers. According to Paul F. Roberts, writing for EWeek.com, Microsoft has “transformed itself from an IT security laughingstock to an industry leader and advocate for secure development practices.” He continues, “Holes in Windows are fewer and harder to find.”<sup>30</sup>

## The Migration Experience

### UNIX Migration

A final and important factor to consider when choosing whether to migrate an ERP application to a new platform is the experience of others. It is important to understand the reasons for migration but also to learn from those who have already migrated. According to research firm IDC, Windows has captured 45 percent of UNIX migrations, making it the leading platform for UNIX migration overall. Moreover, the pace of UNIX migration to the Windows Server family is accelerating.<sup>31</sup> In 2005, IDC reported that worldwide revenues for the Microsoft server product line surpassed UNIX server revenues for the first

---

<sup>27</sup> <http://www.microsoft.com/security/default.aspx>

<sup>28</sup> CERT, 2003

<sup>29</sup> <http://www.microsoft.com/mscorp/twc/default.aspx>

<sup>30</sup> Microsoft's Blue Hat Shows It's Serious About Security, Paul F. Roberts, EWeek.com, October 31, 2005

<sup>31</sup> Understanding UNIX Migration: A Demand-Side View,” IDC, January 2006

time ever.<sup>32</sup> Given this strong trend of migration from UNIX to the Windows Server family, it is reasonable to see what we can learn from previous UNIX migrations.

In July, 2004, META Group published a white paper<sup>33</sup> providing a detailed survey of 24 IT and business decision makers who have migrated their SAP or PeopleSoft ERP applications from UNIX to the Windows Server platform. This survey covers companies with revenues ranging from under 200 million to more than 5 billion dollars. The results of this survey are both surprising and enlightening.

The survey asked respondents about both their migration expectations and their views on benefits gained from migration. In some cases, the expectations and results were very similar. The average migration period (7 months) was in line with expectations (6.4 months). In the past several years, the implementation time for implementing an ERP application on the Windows Server platform has dropped dramatically.

In a more surprising find, META Group reports that as a result of migrating to Windows Server, the organizations' IT groups report a reduction of more than 20 percent in the number of required servers after migrating, with one respondent reporting a reduction of more than 50 percent. Given that these numbers come with a slight rise in the number of ERP users and increased requirements for post-migration ERP application versions, META Group suggests that "taken together, these two factors would indicate that Windows Server performance is more than adequate in the majority of cases."

In addition, the survey demonstrates that Windows Server can achieve time savings for staff in the areas of support, training, performance monitoring, and vendor management, with one respondent reporting time savings of more than 10 percent across all areas. Nearly half of those surveyed saw "reductions in training requirements, end-user support, and downtime."

More than half of those responding reported that the migration went as planned and offered no surprises, with one project consultant reporting, "The biggest surprise was how well the new systems are working. It is working much better compared to what we had anticipated."

A more recent survey, by Ideas International (IDEAS), relates the experiences of three enterprise UNIX customers that migrated to Windows Server.<sup>34</sup> Each of these customers had different reasons for migrating and different concerns, but each found the Windows Server platform viable for UNIX business-critical workloads. According to the study, customers had positive experiences and confidence in reliability, and discovered that interoperability between Windows and UNIX "does not present major difficulties for users who migrate from one platform to the other". IDEAS concludes that "migrating to Windows Server and Itanium can help to reduce costs due to lower hardware expenses and manageability improvements gained by standardizing on one operating system."

With these types of migration experiences, it's no surprise that the Microsoft server product line is now the leading platform for UNIX migration.<sup>35</sup>


---

32 IDC Press Release, "Worldwide Server Market Slows in 4th Quarter but Grows to \$51.3 Billion in 2005, Highest Revenue in 5 Years, According to IDC," February 22, 2006

33 Migrating UNIX ERP Installations to a Windows Server Environment: A Qualitative Assessment of Business Impact; July 28, 2004

34 Migrating Business-Critical Applications from UNIX to Windows and Itanium® 2-Based Servers, IDEAS Custom Consulting Services, January 2006

35 Understanding Unix Migration: A Demand-Side View, IDC, December 2005

 <p data-bbox="256 394 548 436"><b>Sony Ericsson</b></p>	<p data-bbox="613 201 1479 636">Sony Ericsson Mobile Communications, one of the world's leading mobile phone providers, was running its SAP enterprise resource planning software on a UNIX and Oracle platform—and wanted to improve reliability, get batch jobs completed during available time slots, and avoid hitting memory and performance limits. After considering a UNIX and Oracle upgrade, the company decided to migrate its SAP system to Windows Server 2003 Enterprise Edition and Microsoft SQL Server. As a result, reliability is up, with the company saving a day per year in unplanned downtime. Batch jobs are processed faster, database costs are reduced, and the company expects to gain tremendous flexibility to integrate the infrastructure with—and, thus, utilize its investment in—its existing Windows-based environment.</p> <p data-bbox="613 659 1479 800">“With Windows-based servers, we have choices for the future,” says Peter James, Sony Ericsson Director of Global IT. “My message to anyone considering a similar change is: don’t be afraid. There’s no reason not to move SAP to Windows—and a lot of very good reasons to do so.”<sup>36</sup></p>
---	---

### Migration from Mainframe and Midrange Platforms


UNIX is not the only legacy platform that runs ERP applications. For decades Mainframes and Midrange computers such as the IBM z/Series (S/390) and IBM i/Series (AS/400) have provided a platform for ERP applications. However, their architecture has not evolved to keep pace with market advancement; such as operational improvements which reduce the cost of hardware, software, and staffing or new application frameworks that drive application innovation. Hence, many organizations with applications hosted on Mainframe and Midrange computers have migrated to the Microsoft Windows Server platform. Additional evidence for this can be seen from the growing support by industry analysts and the growing ecosystem of vendors supporting the market for Mainframe and Midrange application migration.<sup>37 38</sup>

Microsoft Windows Server 2003 R2 and Microsoft server applications such as Microsoft SQL Server 2005 can deliver a reliable, scalable, and supportable infrastructure for the largest mission-critical applications providing an excellent target platform for a mainframe modernization program.

<sup>36</sup> <http://www.migrationforunix.com/downloads/success/Sony-Ericsson-SAP.doc>

<sup>37</sup> Midrange Alliance Program <http://www.microsoft.com/midrange>

<sup>38</sup> Mainframe Migration Alliance - <http://www.mainframemigration.org>

	<p>The Schwan Food Company, one of the world's leading branded frozen food manufacturers, needed an alternative to a mainframe, which was complex, costly, and unable to support the company's aggressive growth. Its solution: migrate its custom business applications to the Microsoft Windows Server 2003 operating system.</p> <p>Schwan eliminated its mainframe in a complete mainframe-to-Windows Server migration that will add more than U.S.\$1 million to its bottom line each year by reducing administration and development costs for increased efficiency, and increasing revenues by speeding time-to-benefit for new solutions.</p> <p>"We are constantly evolving our system, enhancing current applications and adding new ones. These solutions enable our people to do their jobs better, to generate more revenue and to reduce the costs of doing business," says Lisa Harmening, Senior Director of the Project Office at Schwan. "With Windows and .NET, we can save money and make money faster than we could with the mainframe."<sup>39</sup></p>
---	--

The benefits of choosing Windows Server 2003 R2 Enterprise Edition go beyond technology. The next section of this paper discusses the advantages of Microsoft as an enterprise partner, and how Microsoft can help an organization replatform its ERP applications and assist in meeting future business needs.

---

<sup>39</sup> <http://www.microsoft.com/casestudies/casestudy.aspx?casestudyid=1000003892>

---

## Microsoft as a Strategic Partner

In selecting a platform for the future, organizations rightly consider reliability, scalability, and TCO. But it is also important to choose the right partner for your enterprise needs. Microsoft has a history of stability, investment in technology, and long-term strategies for assisting businesses through innovation and new product delivery. With Windows Server 2003 R2 Enterprise Edition, Microsoft has provided an architecture that supports existing UNIX systems and provides a flexible environment for the speedy creation of future business solutions. Microsoft understands the technical issues involved with large-scale UNIX migrations, and has put together a global network of partners, professionals, and products to assist in your migration.

### Resources for Migration

Most replatforming today encompasses migrations from UNIX. To assist in ensuring a successful and swift migration of your business applications, Microsoft provides a set of UNIX migration guides. Illustrating the guidelines and best practices required to port existing UNIX systems to the Windows environment, these guides are based on the experiences encountered by Microsoft consultants working in the field as well as external organizations that have migrated ERP systems from UNIX to Windows. The content ranges from high-level guidance on UNIX migration solutions, to a focus on the people-and-process aspects of migration projects, to more technical discussions aimed at preventing common causes of project failure.

In addition to these guides, Microsoft provides packaged training seminars allowing an organization to quickly learn about the many advantages that Windows Server 2003 R2 Enterprise Edition offers. These seminars are targeted at UNIX administrators or UNIX developers and aim to rapidly turn UNIX masters into effective Windows users. These seminars build upon the user's UNIX knowledge and provide good training for moving from the UNIX world to Windows Server. Microsoft offers both short computer based training and labs and longer (3-4 day) classroom training.<sup>40</sup>

### The Microsoft Community

With Windows Server 2003 R2 Enterprise Edition, you receive not only a stable business systems infrastructure to meet your needs, but a global, active community of partners and vendors offering greater choice at competitive prices for services, applications, and support. The Microsoft community includes:

- 750,000 Microsoft Certified Partners worldwide.
- More than 300,000 MCSE professionals and more than 1.8 million MCP certification holders.
- More than 6 million developers.
- More than 2,200 user groups worldwide and more than 400 community Web sites.
- The largest ISV community worldwide, offering thousands of applications and devices.

When you select Windows Server 2003 R2 Enterprise Edition with SQL Server 2005, you receive a reliable, scalable, low-cost platform as well as the support of one of the foremost technology companies

---

<sup>40</sup> More information about Microsoft UNIX-to-Windows Migration Service Offerings can be found at the following location:  
[http://www.microsoft.com/technet/itsolutions/cits/interopmigration/enterpriseunix/imsepunix\\_7.msp](http://www.microsoft.com/technet/itsolutions/cits/interopmigration/enterpriseunix/imsepunix_7.msp)

in the world. Microsoft has created a suite of products and network of partners to ensure that your ERP replatforming will be a success that saves your organization time and money.

	<p>Computer retailer, CompUSA, upgraded its existing Microsoft SQL Server 2000 Analysis Services implementation to run on HP servers with the Intel Itanium 2 64-bit processor and running Windows Server 2003, Enterprise Edition with SQL Server 2000 Enterprise Edition 64-bit.</p> <p>This solution has given CompUSA an excellent return on investment. “We saw \$6 million ROI with just the first phase of our data warehouse, and that’s a very conservative estimate,” says Cathy Witt, Vice President and CIO for CompUSA.</p> <p>Expert guidance from Microsoft Consulting Services played a key role in the CompUSA solution. “Microsoft Services showed a passion for understanding our business,” says Doug Gray, Director of SAP and Data Warehouse Operations at CompUSA, “Microsoft Services provided the data warehouse experts. Along the way, their consultants transferred their skill sets and knowledge to our people so we could support the data warehouse when it was done.”<sup>41</sup></p>
---	---

---

<sup>41</sup> [http://www.migrationforunix.com/downloads/success/CompUSA\\_CS.doc](http://www.migrationforunix.com/downloads/success/CompUSA_CS.doc)



When the world's largest bookseller decided to create an enterprise business intelligence system, they chose Windows Server 2003 and SQL Server 2005 running on HP Integrity Superdome servers equipped with Intel Itanium processors. In the past, decision makers at Barnes & Noble faced serious challenges in gaining access to the data they needed to do their jobs. "On a busy day we can have anywhere from 3 to 4 million transactions. In the past it would be too time consuming and disruptive to operations to try and retrieve that data," says Lou Anne Leary, Vice President of Application Development.

Barnes & Noble tested a solution running on Windows Server 2003 with SQL Server 2005 Integration Services and compared it to results on an Oracle system running on a LINUX platform. They estimated that the extraction, transformation, and loading process would perform up to 200 percent faster on SQL Server.

Barnes & Noble's data warehouse and business intelligence solution delivers business information to decision makers in minutes rather than days or weeks. "We are currently processing anywhere between 1 million and 3 million sales transaction records, and it takes no more than 10 minutes to get the records into the data warehouse. That rate was not possible before," says Eliot Gardener, a project manager at Barnes & Noble.<sup>42</sup>

---

## Summary

Although the Mainframes, Midranges and the UNIX/RISC platforms have provided stable platforms for critical enterprise business applications, the life cycle of many of these systems is coming to an end. Organizations seeking cost savings, reliability, and scalability are looking to Windows Server 2003 R2 Enterprise Edition with SQL Server 2005 to replace these systems. The superior performance and low cost of the Windows Server 2003 R2 Enterprise Edition platform show that the game has truly changed since ERP systems first came to prominence on UNIX systems.

Microsoft has created a reliable, scalable, low-cost platform for your ERP application in Windows Server 2003 R2 Enterprise Edition with SQL Server. Through replatforming to Windows Server 2003 R2 Enterprise Edition, organizations currently running UNIX can significantly save on information technology costs during the next 5 years—all while maintaining the enterprise capabilities they have today. Windows Server 2003 R2 Enterprise Edition with SQL Server provides superb uptime and has a security record superior to that of Sun, SUSE, Red Hat, or Debian. As an enterprise partner, Microsoft offers business stability and a proven track record of innovation. Microsoft, through guides, partners, and products, offers a clear roadmap for replatforming your ERP systems.

Microsoft provides a complete solution for large-scale ERP applications. The flexible Windows Server technology provides reliability, security, and scalability in an environment that maximizes productivity and minimizes TCO. Microsoft incorporates technical migration guides, in-house and remote training, experienced partners, and third-party tools to ensure a seamless migration from the UNIX platform.

Windows Server 2003 R2 Enterprise Edition is the most reliable operating system Microsoft has ever offered. It delivers this reliability while also providing excellent performance and scalability for your ERP application as well as significantly lower TCO. Microsoft Windows Server 2003 R2 Enterprise Edition and Microsoft server applications such as Microsoft SQL Server 2005 can deliver a reliable, scalable, and supportable infrastructure for the largest mission-critical applications, providing an excellent target platform for any legacy modernization program.

Microsoft is committed to its customers and will continue investing to provide the finest tools and products to meet your business needs. Because of its reliability, performance, low TCO, manageability, and security, Windows Server 2003 R2 Enterprise Edition with SQL Server 2005 provides an ideal platform for the ERP systems of today and tomorrow.

---

## Related Links

See the following resources for further information:

Reliability:

- <http://www.microsoft.com/windowsserver2003/evaluation/overview/technologies/clustering.mspx>
- <http://www.microsoft.com/windowsserver2003/techinfo/serverroles/appserver/apprel.mspx>

Scalability:

- <http://www.microsoft.com/windowsserver2003/techinfo/serverroles/appserver/scale.mspx>
- <http://www.microsoft.com/WindowsServer2003/techinfo/serverroles/appserver/scalarch.mspx>

TCO:

- <http://www.microsoft.com/mscorp/facts/default.asp>
- <http://www.getthefacts.com>

Windows and Linux:

- <http://www.getthefacts.com>

Management Tools

- <http://www.microsoft.com/windowsserver2003/gpmc/default.mspx>
- <http://www.microsoft.com/windowsserver2003/technologies/management/wsrp/default.mspx>

Security:

- <http://www.microsoft.com/security/default.mspx>
- <http://www.microsoft.com/technet/security/tools/mbsawp.mspx>

Interoperability:

- <http://www.microsoft.com/technet/interopmigration/default.mspx>

Migration from UNIX:

- <http://www.microsoft.com/windowsserver/unix/default.mspx>
- <http://www.microsoft.com/UNIX>
- <http://www.microsoft.com/windows/SFU>
- <http://www.migrationforunix.com/default.htm>

Mainframe Migration:

- <http://mainframemigration.org/>
- <http://www.microsoft.com/midrange>

SQL Server:

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

SAP:

- <http://www.microsoft-sap.com>
- <http://www.duet.com>

Case Studies:

- <http://www.migrationforunix.com/customer-success.htm>