

## WINDOWS SMALL BUSINESS SERVER 2003

# OUT-OF-THE-BOX ROI FOR SMALL BUSINESSES



### **Abstract**

Small business owners face the constant pressure to do things faster, better and cheaper. When it comes to technology investments, there is little margin for error. New IT solutions have to be not only simple to install, operate and maintain but they must start paying for themselves straight out-of-the-box. For emerging businesses return-on-investment (ROI) is not a mathematical abstraction; it is a matter of survival. This white paper describes a survey of 25 United States-based users of Microsoft Windows Small Business Server 2003 and quantifies their ROI through both traditional valuation methods and through their user experiences. The results clearly demonstrate that Microsoft Windows Servers deliver the simplest, affordable network solution for small businesses.

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## Overview and Summary

Adoption of productivity-enhancing server technology by small businesses has been hampered by concerns about costs, security and complexity. Windows Small Business Server 2003 was designed to address these issues head-on. The result is a full-featured, multipurpose network operating system that provides small businesses with all the great features the big guys use—e-mail, secure Internet connectivity, business intranets, remote connectivity, support for mobile devices, file and printer sharing, backup and restore capabilities, and an application platform for collaboration—at an affordable cost with none of the hassle.

Available in two editions—Standard and Premium—Windows Small Business Server 2003 has everything businesses with fewer than 50 PCs need to secure their networks and communicate and collaborate, both internally and externally. The Standard Edition includes Windows Server 2003; Microsoft Exchange Server 2003; Windows SharePoint Services and the Microsoft Shared Fax Service. The Premium Edition includes everything in the Standard Edition plus Microsoft Internet Security and Acceleration (ISA) Server 2000, Microsoft SQL Server 2000, and Microsoft Office FrontPage 2003.

To quantify how Windows Small Business Server 2003 is providing benefits to early users, Lawrence Associates LLC conducted business value studies at 25 businesses over a three week period in August and early September 2003.

The findings from this user survey are dramatic. Although Windows Small Business Server 2003 is new, customers are extremely pleased with the advantages and value they have realized as a result of deploying the product. They are also very enthusiastic about the future potential value and advantages they will realize. For the small and mid-size companies surveyed, Windows Small Business Server 2003 is providing:

- **Exceptionally high return on investment (ROI)**  
ROI for the surveyed companies averaged 947% and ranged from a low of 63% to a high of more than 2000%.
- **Improved customer responsiveness**  
Many customers stated that they expect an increase in revenue due to the ability to respond more quickly and more effectively to customers as a result of SBS 2003.
- **A complete, affordable network solution**  
Windows Small Business Server 2003's unique package of technology and innovative management tools allow small business customers and technology providers to instantly create a faster and more efficient business environment straight out-of-the-box.
- **The ability to be more 20% more productive**  
The surveyed companies say their employees can now perform an average of 20% more revenue-producing tasks.
- **Improved quality of life**  
Not quantifiable in financial terms but many respondents cited the ability to do business securely from wherever they happened to be—at home or on the road—while knowing that their data is protected as a major benefit of using Windows Small Business Server 2003.

## Finding the Business Value

Virtually all of the companies surveyed reported that deploying Windows Small Business Server 2003 had already led to dramatic gains in business value, as reflected by:

- Increased responsiveness to customer needs and requirements
- Improved productivity through reduction in task work and increased output
- Additional time to focus on core business issues, and not on disruptions caused by IT infrastructure failures or security breaches

Value was further expressed in terms of the impact in the ability to protect and increase revenues and the ability to avoid and reduce costs.

Surveyed customers pointed in particular to four key benefits enabled by Windows Small Business Server 2003:

### 1 Ease of setup & operation of Windows Small Business Server 2003

**Windows Small Business Server 2003 was designed to make setup and operation a snap. Whether companies have a few technical people who can handle administrative duties in addition to their usual jobs or farm out administration to a services organization, they will find that administrative tasks have been greatly simplified. Windows Small Business Server 2003 includes management tools that administrators can use remotely. For end users, the product suites include client tools that let users access the suites' features from connected desktops or from the Web.**

**W&E Baum is a small family business of about 20 people specializing in the production of donor walls, trees of life, awards and plaques. The company was pleasantly surprised to discover that setting up Windows Small Business Server 2003 took far less time than anticipated.**

**“We’ve installed and upgraded lots of older versions of Small Business Server so we planned for as much as a week for installation,” said Marc Harrison, who handles technology for Baum. “We were thrilled when we came in on Sunday and had everything up and running in three hours. The company was open for business on Monday.”**

**The remote management feature enables W&E Baum’s technology services partner to receive a daily health report for proactive management of the client system, while many things can be easily handled by Baum without the partner’s assistance.**

**In the past, Baum had been uncomfortable allowing access to employees and exposing the company to potential viruses. Because of the improved reliability and security of Windows Small Business Server 2003, the company has now created a portal that allows customers to make changes to their orders over the internet.**

### 2 Automatic protection of the IT infrastructure

**Windows Small Business Server 2003 is built on Microsoft Windows Server 2003, the operating system that has increased available services by 275 percent while mitigating attacks against the server by 60 percent. Wizards simplify security settings and help to ensure all the necessary security steps are taken. Windows Small Business Server 2003 includes an internal firewall and also supports external firewalls. In fact, Windows Small Business Server 2003 contains tools that protect your business automatically.**

**Increased confidence in the IT infrastructure represented 12% of the identified benefits in the survey. The increased stability and security of Windows Small Business Server 2003 leads to a reduction in IT issues, allowing for saving in the expense for IT support. It will also reduce distractions precluding key employees from attending to core business issues.**

**Center for Health Training** is a health and human services consulting and training firm with 20 desktops providing research, training, and technical assistance to public health agencies in the Northwest.

IS manager Roberta Laird identified numerous examples of how Windows Small Business Server 2003's data protection features are saving the company money. The Volume Shadow Copy feature has led to a 2-5 man-day reduction in rework of lost documents per year. System reliability has reduced the need for service calls and the tape backup is saving \$1,000 a year in support costs. The elimination of server reboots saves 20 employees ten minutes per week. The company has seen a 50% reduction in IT management time and costs (from 4 hrs to 2 hrs per month of consulting fees at \$95 per hr.) and (from 4 hrs to 2 hrs per month) of internal support time.

### **3 Employees can perform more revenue-producing tasks**

**Windows Small Business Server 2003 comes loaded with dozens of productivity enhancement tools that allow employees to find and share documents easily, collaborate on projects, automate many routine tasks, and access the workplace remotely. Productivity gains represented 82% of the identified benefits.**

Before deploying Windows Small Business Server 2003, **The Fischer Group**, was bogged down in paperwork. In order to ensure accurate information was available to handle customer inquiries, the food services industry manufacturer's representative, kept copies of all pieces of paper supporting every transaction, including purchase orders, acknowledgements, customer notes, and so on. As a result, document management involved handling the same documents repeatedly and required personnel whose primary task was to manage the large volumes of paper files. Files were accessible only during business hours (8-5), and employees who needed a particular document could simply hope that it was in the right place.

General Manager Gene Austin anticipates that using Windows SharePoint Services, a preconfigured internal Web site solution that serves as the central repository of all project information— documents, contacts, tasks, discussions, and more— will save the company 15-20% of the time spent going to file cabinets, searching for and retrieving information. The ability to share documents electronically will help facilitate customer inquiries and help ensure that the company is always on top of its orders, has information at its fingertips, and can support additional business from its customers.

### **4 Increased Customer Responsiveness**

**Windows Small Business Server 2003 allows small businesses to reach more customers and service them better. Improved customer responsiveness represented 6% of the identified benefits and is anticipated to lead to both retention and generation of revenues. Increased customer responsiveness resulted from better internal access to shared data and remote access/mobility.**

**C&S Sales** is a marketing collateral and promotions company. The key to expanding its customer base is the ability for its outside sales representatives to work on custom orders with existing and prospective customers. Custom orders drive larger order size and higher margins. Its sales organization is set up in teams with inside customer service representatives assigned to outside sales reps.

Before the deployment of Windows Small Business Server 2003, and specifically its Windows SharePoint Services capabilities, C&S's outside sales reps were spending too much time on order replenishment and fulfillment transactions. Their customer service representatives (CSRs) were also inundated with the paper and tasks associated with order fulfillment transactions. By deploying SPS and developing a self-service collaborative environment between their customers, outside sales and inside customer service reps, C&S eliminated the need for the outside sales reps to handle the replenishment and fulfillment transactions and reduced the time CSRs spend on fulfillment transactions by 30 to 40%. This translated into multiple benefits for C&S and its customers.

Customers' orders are now filled sooner, thus improving customer responsiveness, and the sales teams can now focus on the larger, custom high-margin orders. The company expects that these benefits will equate to an increase in sales of approximately 5% and in an avoidance of costs of between \$15,000 and \$20,000 per CSR per year.

## Detailed Results Summary and Analysis

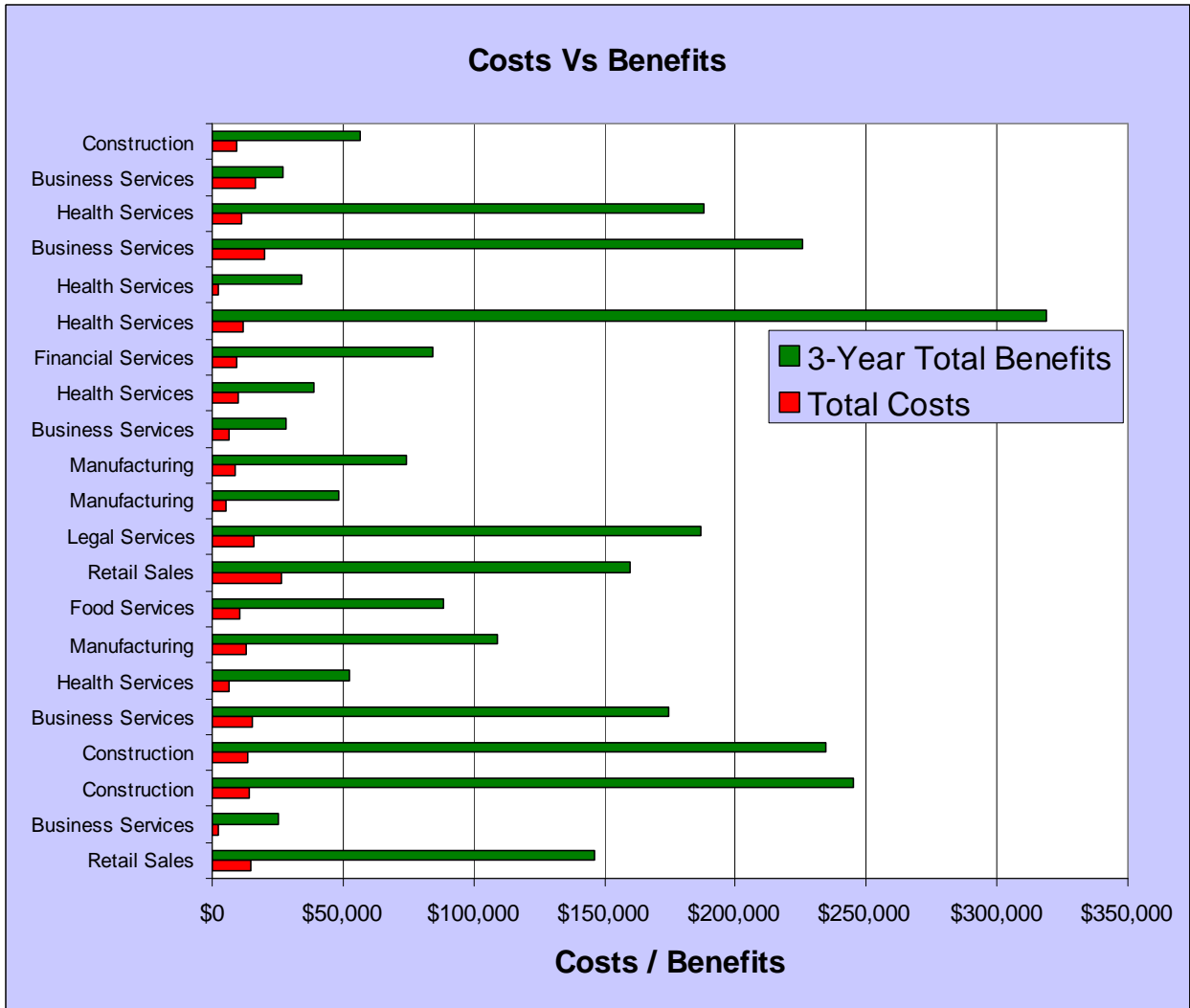
### Summary Table with Payback based on software and hardware costs:

	Total Company			Per User		
	Average	Minimum	Maximum	Average	Minimum	Maximum
# of Users	20	4	45			
Software Costs (Server & Client Access Licenses)	\$2,003	\$419	\$3,995	\$104	\$88	\$173
Total Costs (Investment)	\$11,651	\$2,357	\$26,396	\$626	\$315	\$1,448
Total Annual Benefits	\$40,409	\$8,372	\$106,186	\$2,113	\$410	\$5,366
Total 3-Year Benefits	\$121,227	\$25,116	\$318,559	\$6,338	\$1,230	\$16,099
Net Benefit	\$109,576	\$10,499	\$306,850	\$5,712	\$477	\$15,342
ROI (3-Year Net Benefit / Total Costs)	947%	63%	2621%			
Payback Period Based on Software & Hardware Costs (Months)	2.4	0.5	11.3			
Payback Period Based on Total Costs (Months)	4.9	1.3	22.0			

- Analysis includes 3 years of benefits. We believe that, on average, customers will benefit from SBS2003 for over 3 years.
- "Total Annual Benefits" include all expected (not potential), incremental, easily quantified benefits. This study did not include benefits that were possible with the customer's prior environment – only benefits that are enabled by new Windows Small Business Server 2003 capabilities/features.
- "Total Costs (Investment)" includes all incremental hard and soft costs necessary to purchase, install, support, and utilize Windows Small Business Server 2003.
- Costs and benefits were not discounted to adjust for the time value of money to simplify the analysis. We do not believe this has a material impact on the results.
- The average payback represents that number of months before the initial investment was recouped. Payback was calculated using straight-line cash flows. All costs are assumed to occur at the beginning of the project and benefits are spread evenly throughout the 3-year life of the project.
- ROI is calculated as follows: (Total 3-Year Benefit – Total Costs) / Total Costs.

## Summary of Results by Participant

<b>Participant Industry</b>	<b>Number of Users</b>	<b>Total Costs</b>	<b>3-Year Total Benefits</b>	<b>3-Year Net Benefits</b>	<b>Payback Period (Months)</b>	<b>ROI (Net Benefits/ Costs)</b>
Retail Sales	20	\$14,913	\$146,063	\$131,149	3.7	879%
Business Services	4	\$2,357	\$25,116	\$22,759	3.4	966%
Construction	30	\$14,258	\$245,109	\$230,851	2.1	1619%
Construction	30	\$13,744	\$234,563	\$220,818	2.1	1607%
Business Services	35	\$15,610	\$174,656	\$159,046	3.2	1019%
Health Services	8	\$6,369	\$52,594	\$46,225	4.4	726%
Manufacturing	40	\$13,152	\$109,013	\$95,860	4.3	729%
Food Services	20	\$10,509	\$88,594	\$78,085	4.3	743%
Retail Sales	45	\$26,396	\$159,891	\$133,495	5.9	506%
Legal Services	30	\$16,058	\$186,722	\$170,664	3.1	1063%
Manufacturing	5	\$5,186	\$48,265	\$43,079	3.9	831%
Manufacturing	15	\$8,558	\$74,363	\$65,804	4.1	769%
Business Services	10	\$6,261	\$28,125	\$21,864	8.0	349%
Health Services	18	\$9,850	\$38,914	\$29,064	9.1	295%
Financial Services	15	\$9,535	\$84,375	\$74,840	4.1	785%
Health Services	20	\$11,709	\$318,559	\$306,850	1.3	2621%
Health Services	8	\$2,521	\$34,116	\$31,595	2.7	1253%
Business Services	14	\$20,268	\$225,389	\$205,121	3.2	1012%
Health Services	22	\$11,313	\$187,922	\$176,609	2.2	1561%
Business Services	22	\$16,563	\$27,063	\$10,499	22.0	63%
Construction	15	\$9,535	\$56,363	\$46,828	6.1	491%



### Results by Value Type

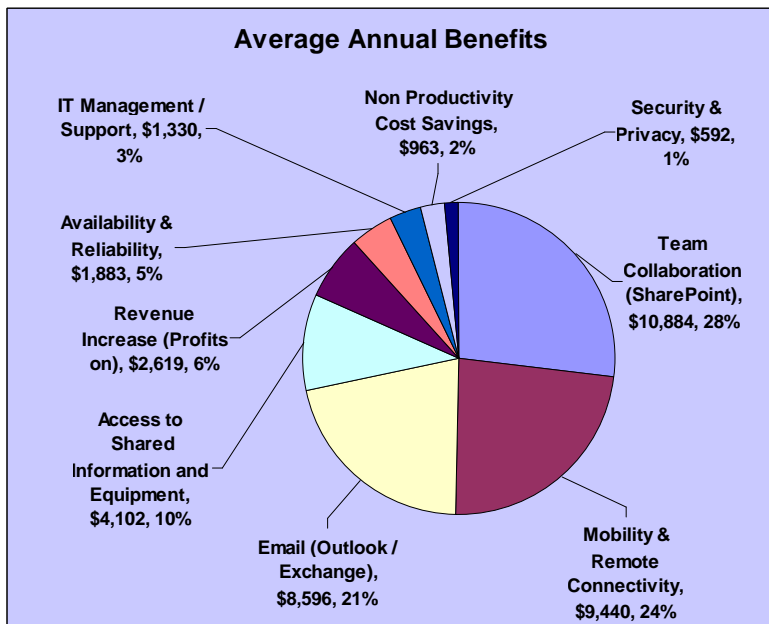
	Total Company			Per User		
	Average	Minimum	Maximum	Average	Minimum	Maximum
Quickly Set Up & Easily Operate	\$2,294	\$0	\$11,859	\$114	\$0	\$441
Automatically Protect	\$2,475	\$0	\$14,063	\$178	\$0	\$851
Enable Employees to Get More Done	\$33,022	\$4,688	\$87,500	\$1,639	\$227	\$4,375
Reach More Customers & Service Them Better	\$2,619	\$0	\$50,000	\$182	\$0	\$3,571
<b>Total</b>	<b>\$40,409</b>	<b>\$8,372</b>	<b>\$106,186</b>	<b>\$2,113</b>	<b>\$410</b>	<b>\$5,366</b>

### Benefit Comments

- For some study participants, benefits included expected benefits, not just benefits experienced to-date.
- All benefit data came directly from the study participants. In some cases Lawrence Associates encouraged the interviewee to provide more conservative data. In no cases did Lawrence Associates add in or increase benefits.
- Benefit was calculated by determining the net savings or increase in profits to the company. For organizations that recognized an increase in revenues, the return on investment was calculated based on margin as opposed to gross revenues. The margin used was 10% of revenues

## Results by Benefit type

	Total Company			Per User		
	Average	Minimum	Maximum	Average	Minimum	Maximum
Team Collaboration (Windows SharePoint Services)	\$10,884	\$0	\$46,406	\$515	\$0	\$2,367
Mobility & Remote Connectivity	\$9,440	\$0	\$56,250	\$497	\$0	\$2,813
E-mail (Outlook / Exchange)	\$8,596	\$0	\$70,313	\$408	\$0	\$2,344
Access to Shared Information and Equipment	\$4,102	\$0	\$29,531	\$219	\$0	\$1,477
Revenue Increase (Profits on)	\$2,619	\$0	\$50,000	\$182	\$0	\$3,571
Availability & Reliability	\$1,883	\$0	\$14,063	\$157	\$0	\$851
IT Management / Support	\$1,330	\$0	\$7,594	\$57	\$0	\$330
Non Productivity Cost Savings	\$963	\$0	\$6,000	\$58	\$0	\$300
Security & Privacy	\$592	\$0	\$10,500	\$21	\$0	\$350
<b>Total</b>	<b>\$40,409</b>	<b>\$8,372</b>	<b>\$106,186</b>	<b>\$2,113</b>	<b>\$410</b>	<b>\$5,366</b>



### Team Collaboration (Windows SharePoint Services)

Windows SharePoint Services provide a centralized location for users to easily work together and share documents. For example, users can post documents into shared document libraries, view the company's vacation calendar, enter a request to the Help desk, and participate in a survey or discussion group. With Windows SharePoint Services/Meeting Workspace, users can share real-time documents and meeting materials.

*Key Enablers:* Windows SharePoint Services

*Summary of Findings:* Windows SharePoint Services offers huge benefits because it provides a centralized location for employees to find out what is going on as well as a portal for collaboration and communication with customers and internal departments. Being able to create individual Windows SharePoint Services portals also improves centralized documentation pertaining to business units. Windows SharePoint Services was not included in Microsoft Small Business Server 2000.

## **Mobility & Remote Connectivity**

Remote connectivity provides remote access to shared network resources, e-mail, and desktop using Internet-enabled computers or mobile devices. Users can connect securely via a VPN connection or through Outlook Web Access.

*Key Enablers:* Remote Web Workplace; VPN

*Summary of Findings:* Complex VPN set up is no longer required with the Remote Web workplace. Besides e-mail, companies can utilize a variety of features remotely now, all with 2 clicks "Connect to desktop" and "Computer Name".

## **E-mail (Outlook/Exchange)**

Internet e-mail based on the Exchange Server 2003 provides a messaging solution for Internet and intranet e-mail and integrates with Microsoft Office Outlook 2003 for scheduling meetings or having online conferences. In addition, Exchange Server 2003 provides users with remote Web access to e-mail, scheduling, and contacts through Outlook Web Access.

*Key Enablers:* Outlook - Reading Pane, pop-up announcements, improved layout, SmartFolders, thread compression, adaptive junk e-mail control; e-mail access and usage control (prevent a recipient from forwarding, printing, editing, and extracting message content); enhanced user permissions (Information Rights Management); Exchange Server 2003

*Summary of Findings:* Reduced time managing, organizing, and reading e-mail; reduced time managing e-mail/document security (less need for voice and face-to-face meetings; less time reacting to information leaks)

## **Access to Shared Information and Equipment**

This feature allows company users to store and share information on network drives. It also provides the ability to access/share printers, fax services, and other network resources.

*Key Enablers:* Shared Files/Folders; SQL Server 2000 available in the Windows Small Business Server 2003 Premium Edition.

*Summary of Findings:* Files and folders readily accessible; improved communication between locations; increased speed of the system.

## **Availability and Reliability**

Windows Small Business Server 2003 backup solution helps companies easily and successfully back up their servers and guides them through the restore process, ensuring the success of their backup strategy. The backup solution prompts the administrator to create a backup strategy and leads them through the process of deciding what to back up, when to perform backups, and where to store the backup information. By default, it backs up all of the data on the server that is needed to completely restore that server.

*Key Enablers:* Volume Shadow Copy Service and Backup Configuration Wizard

*Summary of Findings:* No data losses since installation of Windows Small Business Server 2003; not having to reboot the server 3-4 times each week prevents downtime; will save dollars used to purchase backup software from third party application vendors.

## **IT Management/Support**

Windows Small Business Server 2003 provides enhanced tools to monitor server activity and receive performance and usage reports in e-mail or online. Most importantly, the server and client workstations can be monitored remotely.

*Key Enablers:* Remote monitoring and control; advanced security; preconfigured management consoles; firewall; backup and restore; Active Directory, Software restriction policies, Client Setup features/wizards.

*Summary of Findings:* Improved on-going maintenance of server (set-up, monitoring, security, etc.); improved on-going maintenance of client PC's (monitor and control usage, install software, resolve issues, set up client PC's, add users, etc.); performance reporting feature - excellent for IT personnel. Usage reporting with Windows Small Business Server 2003 is excellent and was lacking in previous versions.

## **Non-Productivity Cost Savings**

Non-Productivity cost savings include reduction in IT support costs, reduction in travel costs, reduction in telecommunications costs.

*Key Enablers:* Windows Small Business Server 2003 Backup Configuration Wizard, Software Restriction Policies, system reliability, remote access.

*Summary of Findings:* Significant reduction in IT support costs; reduction in travel and telecommunication costs

## Revenue Increase

This category is used to capture the potential improvement to revenue resulting from efficiencies gained by having cutting edge IT infrastructure. An efficient IT infrastructure can allow companies to focus on their business and profit growth instead of trying to solve IT disasters.

*Key Enablers:* Better access to information (Shared Folders), improved communication/coordination (Exchange, SPS).

*Summary of Findings:* Quicker response to customer inquiries - increase in revenue resulting from the ability to respond more quickly to customer needs; productivity efficiencies helps company employees spend time on marketing and gaining new customers

## Security and Privacy

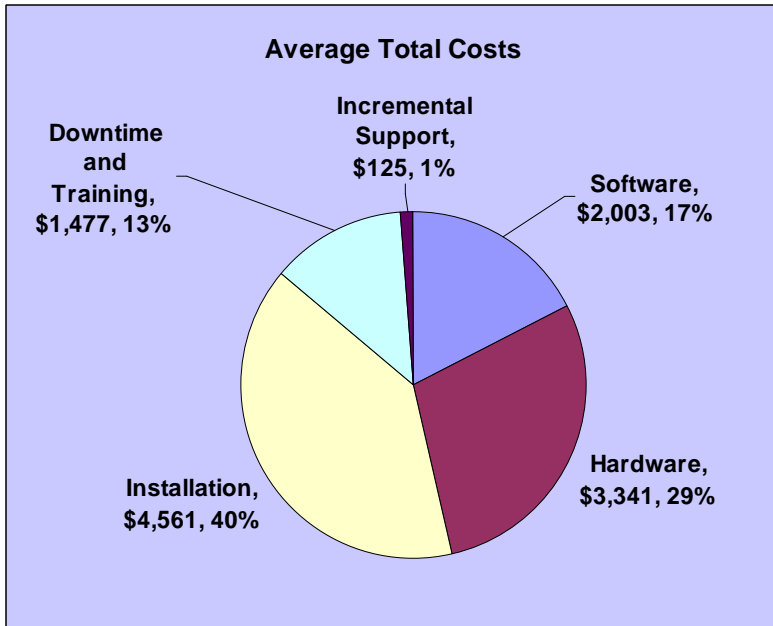
Windows Small Business Server 2003 provides enhanced features relating to security intrusion, unauthorized use, data loss, etc.

*Key Enablers:* Software restriction policies; Outlook security; server firewall; requires Office 2003 - Permissions (Information Rights Management) restrict access and usage control (prevent a recipient from forwarding, printing, editing, and extracting document information)

*Summary of Findings:* The layer of security in the Exchange server will result in secure and easier management of e-mail communications; International and multiple location businesses can communicate securely; software restriction policies save unauthorized access to company resources.

## Costs

	Total Company			Per User		
	Average	Minimum	Maximum	Average	Minimum	Maximum
Software	\$2,003	\$419	\$3,995	\$104	\$88	\$173
Hardware	\$3,341	\$0	\$10,300	\$190	\$0	\$515
Installation	\$4,561	\$390	\$13,050	\$248	\$43	\$743
Downtime and Training	\$1,477	\$125	\$4,688	\$76	\$14	\$156
Incremental Support	\$125	\$0	\$1,160	\$6	\$0	\$65
Total	\$11,507	\$2,357	\$23,378	\$623	\$315	\$1,448



### Cost Comments

- *Software*
  - Retail pricing for Windows Small Business Server 2003 Standard Edition is \$599 (including 5 Client Access Licenses). Retail pricing for Windows Small Business Server 2003 Premium Edition is expected to be \$1499 (including 5 Client Access Licenses). Retail pricing for each additional CAL is \$99.
  - Software cost included was discounted by 30% off the base license (the first 5 CALs) and 15% for each additional CAL. Discounts were used because this is a common practice and because the software will often be bundled with the hardware at much deeper discounts.
  - Survey participants did not purchase software, but estimated cost is included to model cost for future customers.
  - Average software cost in this study was \$1988.
- *Hardware*
  - Hardware to run Windows Small Business Server 2003 was included. A couple companies stated that they did not need any new hardware and were able to install it on existing hardware. Hardware costs often included redundancy, tape drives, extra power supply, backup software, 3<sup>rd</sup> party software, extra RAM, maintenance agreements, etc.
  - A few companies required client PC upgrades (RAM) or may have purchased some new client PCs to be able to take advantage of certain features. These costs are included.
  - In some cases hardware requirements were not known and average costs were used based on the number of users.
- *Installation*
  - Included costs to install hardware/software, configure the server, configure client PCs to work with the server, customization, and initial troubleshooting.
  - Included partner time at standard rates and internal staff time investment at fully-burdened hourly rate.
  - Total time for the consultant to completely install/customize the system ranged from a couple hours to over 50 hours. Internal staff time ranged from no time (for many) to around 50 hours.
- *Downtime and Training*
  - Included lost user productivity due to downtime during the installation. For most companies this was less than an hour per user.
  - Included formal and informal user/IT training on the new features of the system. For most participants, this was only a few hours.
- *Incremental Support*
  - For most companies, incremental on-going support (usually provided by the installation partner) is less than for their prior environment, so incremental support cost would be zero (it is a cost savings).

### Conclusion and Recommendations

In the in-depth studies of the companies completed for this report, there is compelling evidence that a migration to Windows Small Business Server 2003 provides rapid and significant return-on-

investment. With Payback Periods ranging from 1.3 months to two years and ROI between 63 percent to more than 2000 percent, small business owners are quickly recovering investments and realizing enormous benefits. Windows Small Business Server 2003 helps smaller firms extend their geographic reach, find new customers, and increase revenues while holding costs steady or decreasing them. Although it is not measurable in financial terms, the study suggests that the “portability” of Windows Small Business Server 2003, which allows small business owners to both work harder and spend more time on family activities, is a compelling factor in the purchase decision.

## **ACKNOWLEDGEMENTS**

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### Research and Analysis

Lawrence Associates LLC

### Microsoft Partners

Ross-Tek, Integrated Systems Solutions, Internal Computer Services, itSynergy, Harrison Technology Consulting, Silicon East, TotalNetNW, Industrial Modernization Center, Inc., Heartland Technologies, Tectura, Infinite Technologies Corp, RB Paulson Consulting, Network Support Group Inc., Master Mind Productions, Gray Computer Services, SeaDak Solutions, Infogroup Northwest,

### Participating Companies

Advanced Pediatrics, Ci Design, Fischer Group, C&S Sales, Glave & Holmes, Frazer, Ryan, Goldberg, Arnold & Gittler, Carolina's Choice, W & E Baum, Telesystems West, North Central Sight Service, Inc., Warner Implement, QuietWing Corp., Mortgage Works, Inc., Works Marine, Bennett Companies, Center for Health Training, Bellevue 1st United Methodist Church, Key Mechanical Company, Ever-Mark LLC, WorldWind Helicopters, Pacific Air Control, Silver Wing Tips, East Industries, Chess Financial, Game Face, Isomedia

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Lawrence Associates LLC is a premier boutique advisory firm focused on assisting clients to realize maximum value for their capital investments. Our approach to research and analysis is based on formal scientific, analytical and quantitative methods, and performed by credentialed, experienced professional analysts.

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**Andrew Hall** has eleven years of broad business experience – including six years as a strategy/management consultant in IT business assessments, business strategy, financial/value analysis, sales/marketing, supply chain management, business process improvement, product development, and people/project management. Prior to working with Lawrence Associates, Andrew managed and conducted business value and strategy engagements for Microsoft Consulting Services. Prior to Andrew's consulting career, he was responsible for strategic planning, marketing, operations improvement, and financial planning at an industrial equipment manufacturer for five years. He has an MBA and a B.S. in Mechanical Engineering.

**Ansa Varghese** has thirteen years of experience in the Internet and Data Communications industry in a variety of positions applying business and analytical approaches. Prior to working with Lawrence Associates, Ansa was a Senior Business Analyst and Product Development consultant in the Applied Research unit of Telcordia Technologies. She provided business guidance, strategy recommendations, and assessed the business implications of new technologies and solutions for profit growth, investment

programs, network design and capacity planning for network providers of Internet Protocol (IP) based products and solutions. Ansa has an undergraduate degree in Biology and Chemistry and graduate education in Information Technology and Financial analysis.

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