

## WHITE PAPER

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# Optimizing Infrastructure: The Relationship Between IT Labor Costs and Best Practices for Deploying and Managing the Office System

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## EXECUTIVE SUMMARY

In this IDC white paper, we look at the impact that IT infrastructure optimization and best practices can have on the information worker (IW) infrastructure, specifically by deploying productivity suites (e.g., Microsoft Office) and managing email and content collaboration environments.

CIOs are under tremendous pressure to reduce IT costs while improving services to the business and end users. New generations of employees who grew up in the information age are entering the workforce. Communication, collaboration, and business productivity tools are becoming increasingly powerful and are required by the businesses to stay competitive in their core and recruiting markets. To understand what it takes to be successful, IDC conducted a research project to determine what successful organizations are doing right to achieve these goals. This research was conducted in 2005 and 2006 and focused on 141 for-profit enterprises in North America with 1,000–20,000 PCs. Each organization was interviewed about its IT assets, IT staffing levels, and management practices. The research also captured metrics about the quality and timeliness of IT services. The goal of the research was to identify best practices that could provide guidance to other firms desiring to improve IT operations.

This document is one in a series of IDC white papers based on research across a total of 141 North American organizations. The study was based on a subset of 100 organizations interviewed about the three solution areas that represent the core elements of IW infrastructure. All email questions required the respondent to be running Microsoft Exchange. Advanced questions about content collaboration required the respondent to be running Microsoft Windows SharePoint Services. The survey results presented here reflect the experiences and costs observed by organizations deploying the 2003 release of Microsoft Office. Similar advantages may be observed by organizations adopting 2007 Microsoft Office through the application of the best practices and infrastructure design discussed in this paper and further improved for the 2007 Office release.

The research focused on three metrics of the IT infrastructure. Together, these three metrics describe the value equation for IT infrastructure:

- ☒ **IT costs** are calculated as the costs to deliver core IT services (file and print, directory and networking, security, and email services) to internal company users. IT costs consist of the cost of the server hardware and software amortized over three years and the annual IT labor costs to manage the server hardware and software (OS and application). IT labor is defined as the ratio of IT full-time equivalents (FTEs) to users who use the server services multiplied by a fully burdened IT labor rate of \$53 per hour.

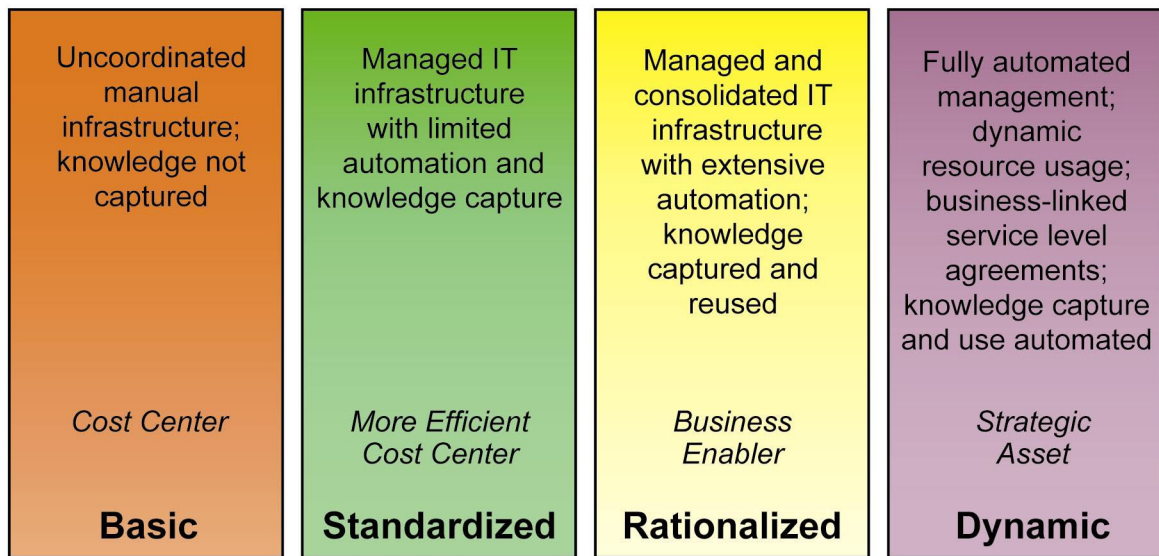
- ☒ **Service levels** represent the quality and timeliness of IT services delivered to the business. Service levels involve many variables, including the number of hours each year that a server is unavailable to users. This is the key measure that IDC has used to define service-level value.
- ☒ **Business agility** describes the IT department's ability to adapt to changing business conditions. As a proxy for business agility, IDC chose the time it takes to deploy a new server to expand a server-based service.

To determine an organization's optimization level, IDC mapped best practices against IT costs, service levels, and agility. This approach allowed IDC to identify which best practices had the most significant impact on lowering IT costs. IDC segmented the 141 organizations into groups that are collectively defined within a framework known as the Infrastructure Optimization (IO) model (see Figure 1). Microsoft was the lead developer of the IO model, an operational benchmark for gauging the maturity of a company's IT infrastructure. Under the IO model, organizations are segmented into the following four groups:

- ☒ **Basic.** These organizations are the least efficient performers and have high costs and average service levels and agility. These organizations typically use few of the best practices defined in this paper. Twenty-three percent of organizations in this study are categorized as Basic.
- ☒ **Standardized.** These organizations have somewhat better IT costs with similar service levels and agility when compared with Basic firms. They leverage some of the easier-to-implement best practices. Sixty-three percent of organizations in this study are categorized as Standardized.
- ☒ **Rationalized.** These organizations have very low IT labor costs and show modest improvements in service levels and agility compared with Basic and Standardized firms. They use many IT best practices and automate and standardize wherever possible. Fourteen percent of organizations in this study are categorized as Rationalized.
- ☒ **Dynamic.** These organizations shift the focus from cost reduction to enabling business with optimal service levels and agility. Dynamic organizations may even choose to accept best practices that increase costs to optimize service levels and agility. Few Dynamic organizations exist today, largely because many of the prerequisite technologies are not available from a single vendor and must be assembled from an array of technologies from multiple vendors. No organizations interviewed for this research qualified as Dynamic.

**FIGURE 1**

Microsoft's Infrastructure Optimization (IO) Model



Source: Microsoft, 2007

**IMPACT OF IT OPTIMIZATION ON OFFICE SYSTEM**

**Infrastructure Costs**

**Microsoft Office**

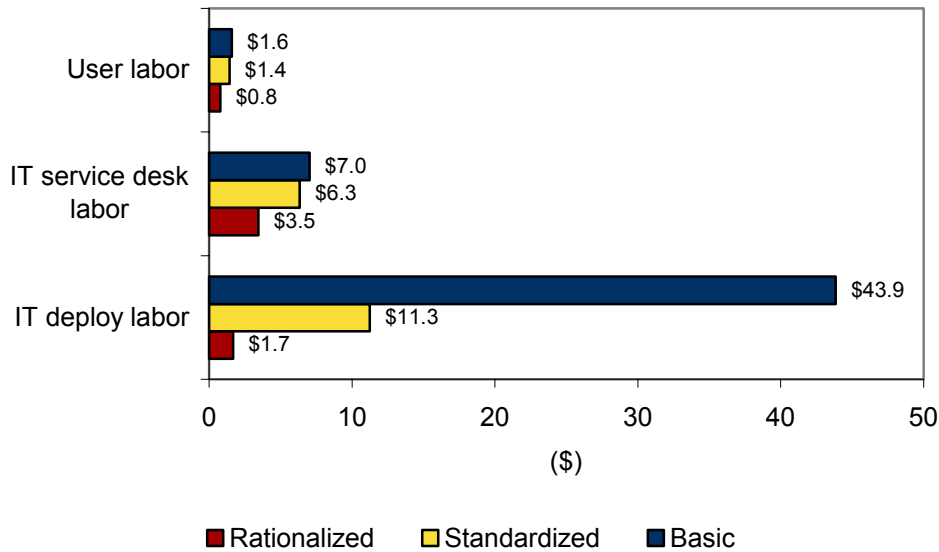
In analyzing the impact of best practices for deploying Microsoft Office, IDC looked at the following cost elements related to infrastructure optimization levels:

- User labor:** The cost of lost productivity (based on salary) due to service desk calls associated with Office deployment
- IT service desk labor:** The cost of IT service desk staff responding to service desk calls associated with Office deployment
- IT deployment labor:** The cost of IT staff specifically engaged in Office deployment

Figure 2 shows the costs per user associated with Office deployment within the organizations studied. In a Basic environment, the cost per user was \$52.50. In a Standardized environment, the cost per user was \$19, 64% less than in a Basic environment. In a Rationalized environment, the cost per user was \$5.90, 69% less than in a Standardized environment and 89% less than in a Basic environment. These significant overall cost differences can be attributed to the use of best practices that are identified later in this white paper.

**FIGURE 2**

Office Deployment Costs per User by Optimization Level



n = 84

Source: IDC, 2007

### ***Email Infrastructure Management***

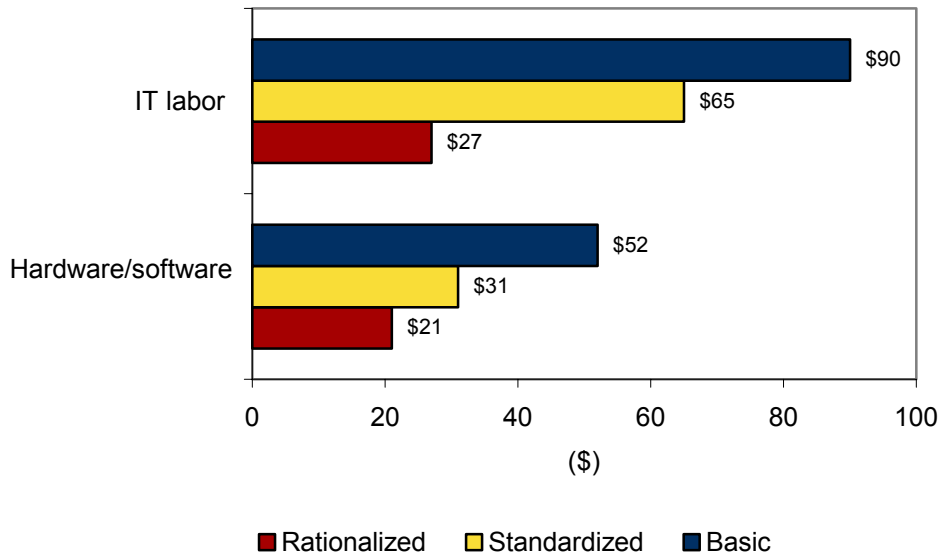
In analyzing the impact of best practices for managing email environments, IDC looked at IT labor and hardware/software costs.

Figure 3 shows the costs per user associated with email environments within the organizations studied. In a Basic environment, the annual cost per user was \$142. In a Standardized environment, the cost per user was \$96, 33% less than in a Basic environment. In a Rationalized environment, the cost per user was \$48, 50% less than in a Standardized environment and 66% less than in a Basic environment. These significant overall cost differences can be attributed to the use of best practices that are identified later in this white paper.

Email operational environments were further subdivided into Basic (no remote users) and Intermediate (remote users). At each optimization level, remote users tended to have 19–20% higher IT support costs than users working in an office environment.

**FIGURE 3**

Email - Annual Total Costs per 100 Users by Optimization Level



n = 89

Source: IDC, 2007

***Content Collaboration***

In analyzing the impact of best practices for managing content collaboration environments, IDC looked at IT labor and hardware/software costs.

To be considered an Intermediate collaboration environment, at least 50% of information workers have to have the following capabilities:

- Upload documents to a team site for Web-based file sharing
- Check documents in and out of a content management system
- Search for documents and other corporate information using a centralized index and search engine
- Receive automatic alerts and notifications when centralized managed documents and other corporate content are added or changed
- Save documents and other corporate content to centrally managed storage

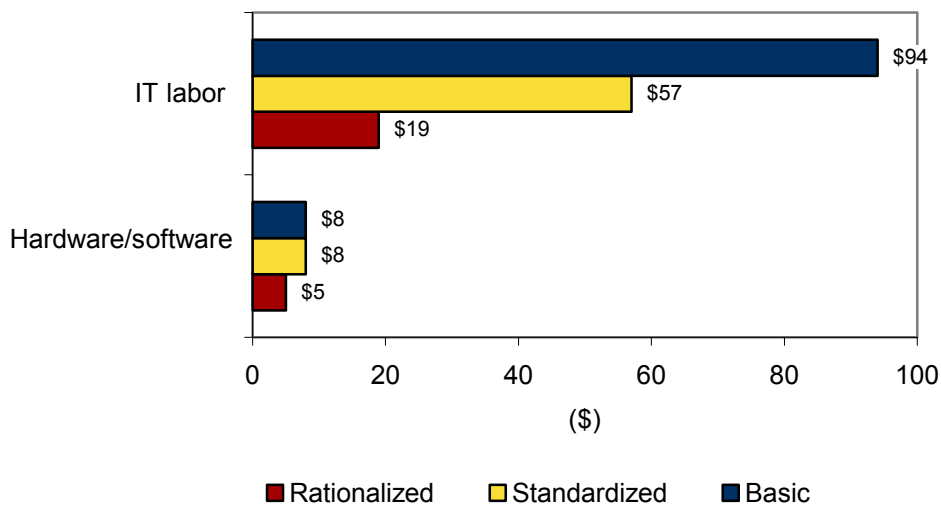
Collaboration operational environments were further subdivided into Basic and Intermediate levels. Figure 4 shows the costs per user associated with content collaboration environments within the organizations studied.

In a Basic environment, the annual cost per user was \$102. In a Standardized environment, the cost per user was \$65, 37% less than in a Basic environment. In a Rationalized environment, the cost per user was \$24, 63% less than in a Standardized environment and 77% less than in a Basic environment. These significant overall cost differences can be attributed to the best practices identified later.

At each optimization level, organizations without remote users tended to have 35–40% lower IT support costs.

**FIGURE 4**

Collaboration - Annual Total Costs per 100 Users by Optimization Level



n = 74

Source: IDC, 2007

## Relationship of Best Practices and IT Optimization

### ***Office Deployment Best Practices***

From its research, IDC has determined there are certain key best practices associated with Office deployments that improve IT performance and contribute greatly to an organization's IT optimization level:

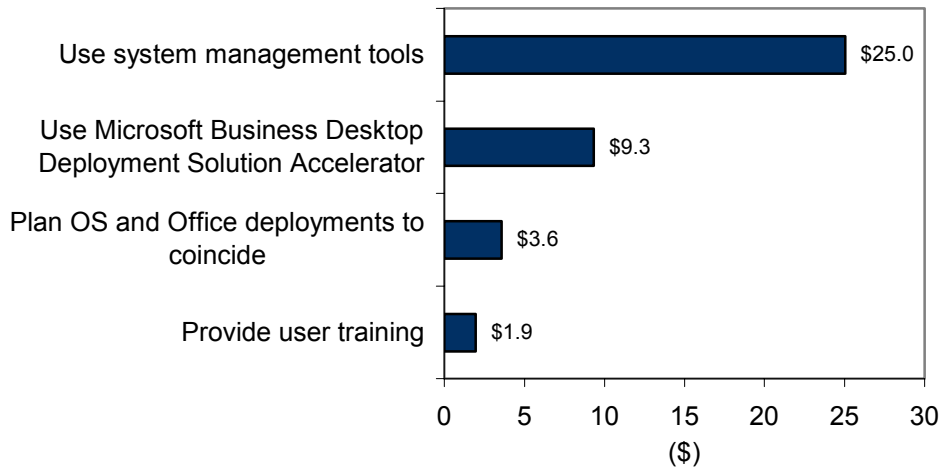
- ☒ **Use system management tools.** By using system management tools for Office deployment and management, IT departments can leverage experience with these tools for other deployments and to deploy Office to each PC in a consistent and reliable manner. With a mature (Rationalized) desktop management infrastructure and processes, the upgrade of existing hardware with a new application (such as Microsoft Office, as researched here) becomes very cost-effective. Customers with a rationalized desktop management infrastructure can provide their business new and improved tools for all desktops in a rapid and cost-effective manner.

- ☒ **Plan OS and Office deployments to coincide.** The OS and Office have many dependencies and shared requirements, so deploying them in a coordinated manner can minimize the costs to users and IT. Both deployments often require or benefit from higher processor, storage, and memory hardware capabilities achieved through PC replacements or upgrades. More important, deploying Office as an embedded part of the core OS image enables the Office upgrade to piggyback on the OS upgrade.
- ☒ **Use Microsoft Solution Accelerator for Business Desktop Deployment (BDD).** Using tools and step-by-step guidance from Microsoft when deploying Office can enable IT departments to benefit from Microsoft's extensive knowledge and expertise. By the time most customers start deploying Office, Microsoft has learned from deploying tens of thousands of seats internally, and from tracking deployments at early adoption sites. Additionally, BDD is supported by the technical reference of the Office Resource Kit (ORK), which is constantly updated with new articles supporting the deployment and support of Microsoft Office installations. This resource enables organizations to take advantage of the latest learning, guidance, and practices to optimize their environments.
- ☒ **Provide user training.** Costs associated with responding to help desk calls and troubleshooting problems involving individual users can be minimized by providing sufficient training for users before and after deployment. By proactively highlighting key areas of the new versions of Office and anticipating user questions based on deployment pilots and user scenarios, offering one-to-many training in live and recorded sessions can significantly reduce the number of calls from individual users to IT help desks during which many of the same questions are asked over and over again. A number of specific resources were identified to assist in this practice: The eLearning library from Microsoft (available as a Software Assurance program benefit) provides training modules that can be targeted at specific groups of users. Microsoft Office Online (free to all users) provides a portal with training resources and job aids that integrates with the built-in product help and assistance library. Home Use Rights (also a Software Assurance program benefit) provide users with their own, personal copies of Office to use at home, extending the familiarization experience beyond the workplace.

Figure 5 shows the best practices at work and the lower costs associated with using them in the organizations studied.

**FIGURE 5**

Office Deployment Best Practices and Annual Cost Differences



n = 74

Source: IDC, 2007

### ***Email Best Practices***

From its research, IDC has determined that there are certain key best practices associated with email environments that improve IT performance and contribute greatly to an organization's IT optimization level. Note that the costs discussed here represent organizations with a range of email capabilities. Basic email lacks support for HTML and remote access, whereas Intermediate email supports them.

Figure 6 shows the following best practices at work and the lower costs associated with using them in the organizations studied:

- ☒ **Use system management and monitoring tools.** Email users tend not to show appreciation to IT when email is running smoothly and only speak up to complain when email is slow or down. Accordingly, IT departments use tools to manage and monitor email servers to identify and resolve problems before downtime occurs and users notice. This approach avoids the costs of responding to IT help desk calls from users and the productivity costs that email downtime can cause users.
  
- ☒ **Consolidate physical server sites through server virtualization.** Today's email servers can support thousands of users per server, yet in many organizations email servers are spread across decentralized work sites. Companies focusing on reducing their operational costs are engaging in multiple activities to optimize email server resources per hardware investment to include consolidation onto fewer physical servers within fewer datacenters, consolidation within workloads and consolidating the workloads themselves onto a smaller number of operating system images, planning and initial steps to support virtualization, and clustering servers to deliver more reliable services.

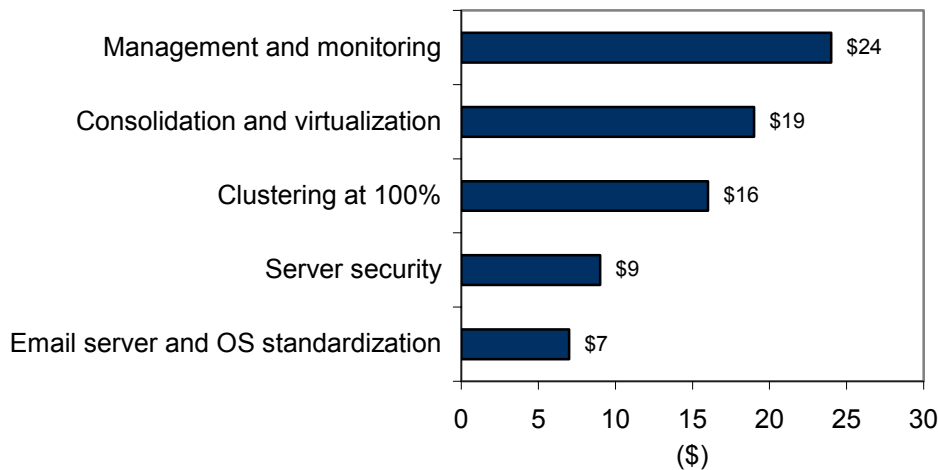


Consolidation and virtualization reduce hardware, software, and IT labor costs by reducing the number of physical servers requiring attention and providing additional time to fix problems before users experience downtime and start submitting trouble tickets to IT help desks. Many organizations have experienced and reported that utilizing Cache Mode in the Outlook client (version 2003 and newer) has reduced server loads and enabled further consolidation as well as improved the end-user experience, providing offline email access.

- ☒ **Cluster 100% of servers.** By clustering email servers through shared storage, when one server fails or needs to be taken offline, IT departments can avoid user downtime by having a second server take over hosting the email user mailboxes without any delay. This approach avoids the costs associated with user downtime, complaints to IT help desks, and IT staff time needed to transfer data between email servers that are not clustered.
- ☒ **Monitor server vulnerability for potential threats.** Designed for maximum ease of use in sending emails and file attachments from anywhere to anywhere in the world, email environments are attractive targets for people looking to cause mischief or actual harm to email servers and content. When users experience viruses, spam, denial-of-service attacks, and other malicious code that slows or stops their ability to communicate, they contact IT to get the problems resolved as quickly as possible. Through effective real-time monitoring of email servers for a broad range of potential threats, IT can identify threats as soon as they occur, providing the chance to fix the problem before users are affected and notice.
- ☒ **Standardize on one platform and version.** Due to the continuing legacy of email servers deployed at the business unit or departmental level further complicated by merger and acquisition activities, organizations may be supporting multiple email platforms. In addition, organizations often are supporting two or more versions of the same email platform for long periods of time due to differences among business units or departments regarding the need for the latest version's features or overall budget and IT staff availability to complete upgrades.

**FIGURE 6**

Email Best Practices and Annual Cost Differences



n = 89

Source: IDC, 2007

### ***Content Collaboration Best Practices***

From its research, IDC has determined there are certain key best practices associated with content collaboration environments that improve IT performance and contribute greatly to an organization's IT optimization level. Note that the costs discussed here represent organizations with a range of content collaboration capabilities. Basic content collaboration relies on shared file servers; Intermediate content collaboration relies on Microsoft Windows SharePoint Services, which support richer collaborative team sites. Best practices include:

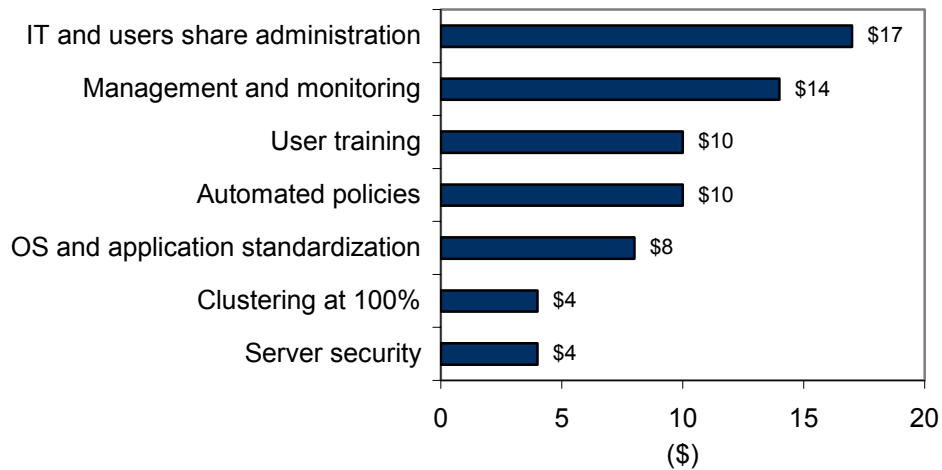
- ☒ **Have IT and users share administration.** Unlike email that is best served by IT departments to users, content collaboration is best run as a partnership between these two groups. Often, the users know best how they wish to set up the sites and who to invite for content collaboration. IT staff can help best by setting up the environment and providing some basic services to keep the environment operating smoothly. If either is given sole responsibility for content collaboration, the result is either IT staff-administered sites with higher IT labor costs because users are regularly asking IT staff for help or user-administered sites that may lack consistency and are not used in the most optimal way.
- ☒ **Use Active Directory as the corporate "address book."** Authenticating through AD enables end-user collaboration and allows the IT staff to efficiently and conveniently administer and secure the content collaboration environment.
- ☒ **Use system management and monitoring tools.** By using tools to manage and monitor content collaboration servers, IT departments can identify and resolve problems as they arise, before downtime occurs and users notice.
- ☒ **Provide user training.** Unlike email services, which are ubiquitous today, the value and use of content collaboration team sites are not familiar to every user, and they may be used poorly or infrequently as a result. By training users on the function, operation, and support available, IT departments can help users get started and anticipate questions that would otherwise be answered one by one by the IT help desk.
- ☒ **Implement automated backup and archiving policies.** Content located on collaboration sites that are initially set up by IT and then left to users to operate and extend team sites is at risk of being lost due to insufficient attention being paid to regular backup and archiving. Users are accustomed to relying on IT to protect content found on other collaborative systems, such as email. It is therefore important for IT to implement policies that back up and archive content collaboration sites without user involvement.
- ☒ **Standardize on one platform and version.** Content collaboration capabilities are available from a variety of sources, including standalone products and services, embedded functionality in operating systems, and content management and portal solutions. As a result, organizations often support multiple platforms for content collaboration. This requires IT staff to acquire and maintain proficiency in supporting various environments. By limiting content collaboration to one platform and one version of that platform, IT departments can reduce support and training costs and streamline the process of launching new team sites as users need them.

- ☒ **Cluster 100% of servers.** As with email, clustering content collaboration servers through shared storage avoids the costs associated with user downtime, complaints to IT help desks, and IT staff time needed to transfer data.
- ☒ **Monitor server vulnerability for potential threats.** As with email, effective real-time monitoring of content collaboration servers helps IT to identify threats as soon as they occur and hopefully fix problems before users are affected.

Figure 7 shows most of these best practices at work and the lower costs associated with using them in the organizations studied.

**FIGURE 7**

Content Collaboration Best Practices and Annual Cost Differences



n = 74

Source: IDC, 2007

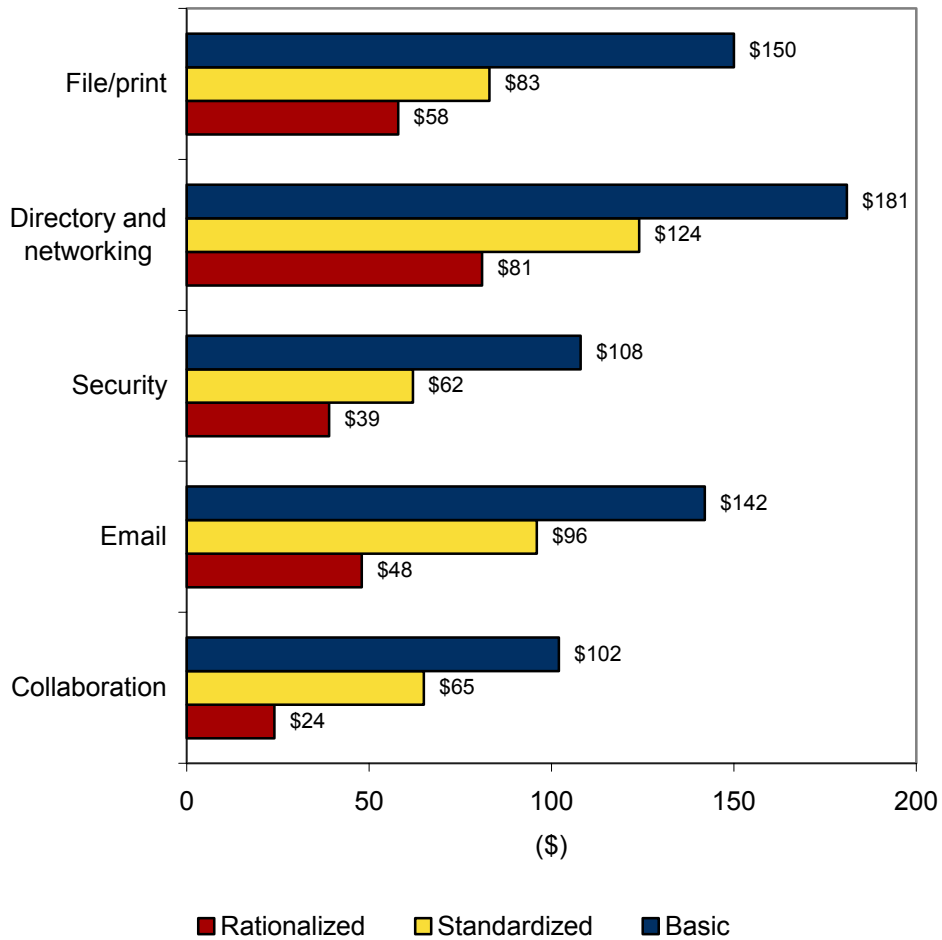
## IMPACT OF INFRASTRUCTURE OPTIMIZATION ON SERVER COSTS

Figure 8 shows server-related IT costs per year for the five workloads needed to provide users with core IT services within the organizations studied. The comparison covers staffing costs associated [with hardware and software configuration, disk and file management, traffic management, planning and performance tuning, image management, hardware maintenance and software deployment, application management, security, problem resolution, and more.

On average, IT costs were 37% lower in a Standardized environment than in a Basic environment. In a Rationalized environment, IT costs were 43% lower than in a Standardized environment and 65% lower than in a Basic environment. These lower costs result from the streamlining of IT operations through the use of best practices and more common software stacks across servers.

**FIGURE 8**

Annual IT Cost per User by Workload and Optimization Level



n = 106

Source: IDC, 2007

## ESSENTIAL GUIDANCE

Based on the research conducted for this study, IDC offers the following guidance for organizations that are interested in optimizing their Office, email, and content collaboration software deployment and management through best practices. In addition to considering each of the individual best practices for Office, email, and content collaboration described previously, organizations should focus on three best practices that are common to all IW solutions:

- ☒ **Invest in and use system management tools and best practices.** IT departments need the tools and the information to plan for smooth operations and to be ready to respond to changing circumstances. Without adequate management tools, up-to-date processes, and modern software products taking advantage of and supporting them, organizations incur the risk and costs of taking action in environments without knowing what is happening and relying on inconsistent and resource-intensive manual processes.
- ☒ **Provide user training.** This best practice ensures that the other key stakeholders in IW solutions, the users themselves, are prepared for and know what to expect from the software being deployed for their benefit. It also helps to answer most of their questions in a more efficient way than waiting until questions arise and users submit individual questions to IT help desks. Information workers rely on IW solutions throughout the workday, and the faster that users can become proficient in using improving and new IW solutions, the fewer questions and problems will arise that will require users to reach out to IT departments for help.
- ☒ **Leverage licensing benefits.** Customers who are eligible for Software Assurance Benefits should leverage the available benefits around support, consulting, and education. Specifically, Desktop Deployment Planning Services (DDPS) allow IT organizations to take advantage of qualified consulting resources to engage in a desktop management infrastructure discussion utilizing the Microsoft Business Desktop Deployment (BDD) methodology as a key part of the Core Infrastructure Optimization conversation.

Note that these and other best practices are not only about lowering IT labor costs. Organizations should consider implementing best practices even when they result in somewhat higher IT labor costs. Best practices enable IT departments to achieve higher levels of agility and service. Balancing the need to keep IT labor costs in check versus delivering services more quickly and with greater flexibility is a constant struggle.

## CHALLENGES/OPPORTUNITIES

### IT Optimization — A Long-Term Investment

The data presented in this IDC research indicates how broad the spectrum is between companies operating at the Basic level and those operating at the Rationalized level. (As we noted earlier, no firms qualified as Dynamic.) Infrastructure optimization is a continuum driven by the adoption of IT best practices and modern tools, and every company can improve dramatically through the implementation of policies and procedures automated through technology.

In reality, infrastructure optimization is not a single leap in IT advancement, but rather an ongoing process with a series of smaller steps. For example, Basic organizations should first become Standardized and may pause to allow their infrastructure and best practices to stabilize. They should focus on moving to Rationalized and Dynamic levels to take advantage of the largest potentials.

## CONCLUSION

The data collected in this study strongly suggests that customers should seek the level of IT optimization that gives them the best mix of benefits, cost reductions, and business agility, in accordance with IW business needs for deploying and managing Office, email, and content collaboration environments. In general terms, moving from a Basic to a Standardized level will reduce IT operational costs. Organizations that move to the higher level end up with a better managed environment that allows easier and faster adoption and deployment of Office, email users, and collaborative team sites in a shorter time window, consuming fewer IT staff resources in the process and achieving further cost reductions.

## APPENDIX

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### Methodology

For this series of studies, IDC conducted in-depth interviews with IT personnel at 141 organizations in total. For the information worker environments, data from 100 organizations on the deployment and management of Office, email, and content collaboration environments in the context of a comprehensive IT infrastructure was used. IDC developed a metric for the depth and consistency of each organization's use of IT. This metric was subsequently applied against a continuum of IT sophistication to position each company within a spectrum of IT optimization found in the industry.

In conjunction with this work, IDC collected data specific to the server environment to compare total IT labor costs within the context of an IT optimization model.

The interviews, which were conducted during the second half of 2006, were divided into discussions of specific topics. There were also separate discussions of IT labor, the IT adoption and deployment process, and outsourcing habits.

A key element of this study was the accumulation of staff cost data. IT staffing costs tracked include the following support activities:

- Hardware maintenance and configuration/reconfiguration
- Software upgrades and patching
- Backup, restore, and archive
- Recovering lost user data
- Troubleshooting

IDC tested the impact of best practices by comparing the IT labor costs of those companies using the best practice with those that did not. In most of the organizations studied, we found that lower costs were attributable to the interaction of multiple best practices. It was not possible to statistically tease out the exact IT labor impact of each individual best practice (single or compound) versus another. Therefore, IDC used its best judgment to prorate the relative IT labor savings attributable to each best practice. The data in this white paper is presented to enable the IT professional to weigh the cumulative value of adopting multiple best practices.

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## **Additional Resources**

In conjunction with this IDC white paper on desktop environments, additional papers available in this series are as follows:

- ☒ *Optimizing Infrastructure: The Relationship Between IT Labor Costs and Best Practices for Managing Windows Servers*, IDC #207568
- ☒ *Optimizing Infrastructure: The Relationship Between IT Labor Costs and Best Practices for Identity and Access Management with Active Directory*, IDC #204221
- ☒ *Optimizing Infrastructure: The Relationship Between IT Labor Costs and Best Practices for Systems Management Server*, IDC #205110
- ☒ *Optimizing Business Productivity Infrastructure: The Relationship Between IT Labor Costs and Best Practices for Managing the Windows Desktop*, IDC #203482
- ☒ *Optimizing Infrastructure: Generating Value Through Improving IT Operations with Best Practices*

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