WHITE PAPER

Improving the Way Branch Offices Compete, Connect, and Control Costs

Sponsored by: HP

Raymond Boggs
Jean S. Bozman
Randy Perry

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EXECUTIVE SUMMARY

In today's economy, companies with branch operations are finding that maintaining productive and smoothly running business operations in their branch offices is absolutely mission-critical. The branches are the places where the business meets the end customers — places such as retail outlets, bank branches, sales and service operations, and local branches of nationwide pharmacies that fill patient prescriptions. The branch delivers customer service and receives revenue on behalf of the entire corporation. That's why frequent updates from branch systems and rapid reports of local business issues need to be continuously available and supported by local computer systems.

No longer the remote outposts of the business that merely rebooted local servers and periodically backed up files to tape, today's branches are local "engines" of commerce. They are connected to central headquarters — and to other branches — by high-speed network links. That improvement in bandwidth has made all the difference: That is why the servers, storage, software, and all of the networking links must be up and running, all the time, to maintain business momentum and local in-branch employee productivity. In many branches, the IT systems may not be up to date or easy to manage.

IT systems — servers, storage, networking, networked PCs, and printers — carry mission-critical applications and corporate data, but they must be affordable to acquire and easy to operate on a day-in, day-out basis to effectively support the business. Further, given the way branches must quickly adapt to changing business conditions, these IT systems must be resilient and flexible because they may be redeployed to fit changing business conditions or provisioned with new software as needed.

Leading midsize companies are succeeding at both upgrading IT support and reducing IT costs for the branch. As discussed in the following pages, IDC research with small and medium-sized businesses (SMBs) and branch offices shows that well-targeted technology upgrades, coupled with a rigorous program to standardize and improve IT practices at a company's remote locations and headquarters, can deliver substantial business value and could reduce total annual IT costs in the branches by over 30%.

Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 www.idc.com

HP's ProLiant servers can play a role in this type of improvement. They have been widely deployed in branch offices both in the United States and in the rest of the world and are now getting a technology refresh with the introduction of the G6 and G7 generations of ProLiant servers. Compared with earlier generations of ProLiant servers, these new G6 and G7 servers offer faster performance, enhanced management, improved energy efficiency, and new financial terms for acquiring the servers through purchase or lease. As such, these systems are optimized to support branch businesses, which are facing a period of economic challenges on a scale that has not been seen for many decades.

Branch Offices and Advanced Technology

As firms of all sizes look to reduce costs and to position themselves for future growth, they often find it difficult to identify and to deliver effective technology resources that can support those business needs.

Improving organizational efficiency is especially important. The coordination of IT resources in multiple branch locations can be a major challenge for many companies that have branch operations. This issue is more immediate and compelling when merger/acquisitions are involved, for two primary reasons:

- There may be overlap in branch office coverage so that some branch consolidation or combination of branch roles is appropriate in today's economy.
- Even where there is no overlap in branches that are distributed across geographic areas, different levels of IT resources are likely to be deployed in different branch locations.

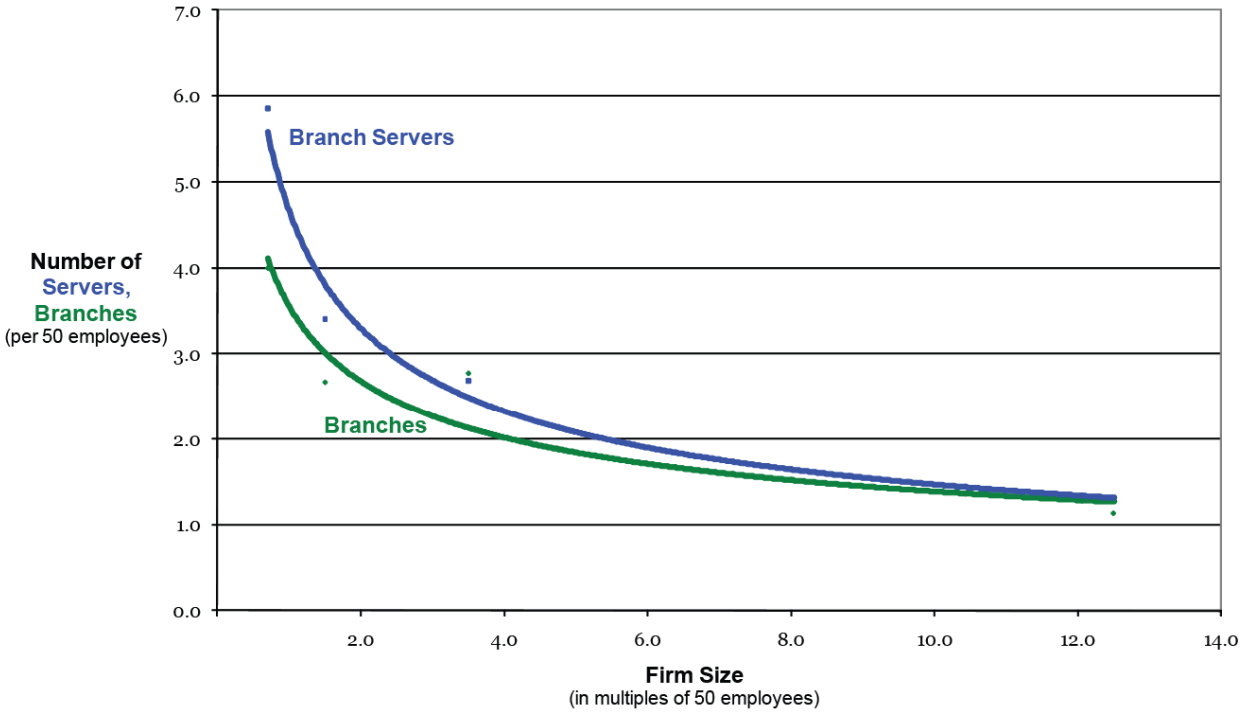
The challenges associated with managing branch offices in an environment that continues to move ahead with economic uncertainty can be quite frustrating to IT managers and business managers. Therefore, the entire enterprise must apply a unified approach to managing branch businesses and branch IT infrastructure. Branch offices bring the products or services of the business to a broader available market, but rising IT costs may undercut the business benefits of branch expansion.

IDC research shows the nature of the dilemma faced by companies with branch office operations. As the total number of branches grows, the number of servers and the relative complexity of the networks linking the branches together increase.

However, IDC's SMB research shows that the smaller the firm, the more branches per number of total employees and the more branch servers per number of employees (see Figure 1). The increasing number of employees per branch makes the problem of branch IT management more acute. Small firms with fewer than 50 employees carry an outsized number of branches and branch servers compared with the number of branches and branch servers that are managed by companies with 250–999 employees.

FIGURE 1

Number of Branches and Servers by Company Size



Number of Employees	20–49	50–99	100–249	250–999
Mean Number of Branches	2.8	4.0	9.7	14.1
Mean Number of Servers	4.1	5.1	9.4	16.2

n = 400

Source: IDC's 2010 *U.S. Small and Medium-Sized Business Survey* (*U.S. SMB Survey*)

Please note that the numbers in Figure 1 and subsequent figures and tables may not be exact due to rounding.

In some of the smaller businesses, which may not have full-time IT staff in place, branch offices may not even have a server in place; instead, they may rely on headquarters-based equipment. Midsize or larger firms may have servers in every branch, but few firms have IT staff in place in every branch. As a result, remote support becomes essential to ensure that business within the branches is running smoothly. And as part of that remote support process, central site IT must make sure that the same technology is available in every location, ensuring that policies and practices can be executed uniformly across the organization. The more similar the deployments are, the easier they will be to manage — and the greater the likelihood that branch operational costs can be reduced.

The changing nature of IT use, combined with the flexible ways that different company locations may deploy technology, means that a company's IT environment may exhibit signs of IT sprawl — with many servers and storage devices deployed in

places that physically were not intended to support so many devices. Rapidly rising power/cooling and management costs will often help to identify which branches need a technology refresh — or an updated IT environment.

For these reasons, removing, simplifying, and streamlining branch operations from a business perspective are just as important as adding, enhancing, and upgrading systems from an IT perspective. The coordination of activities across branch locations, with centralized IT management, is the ultimate goal of these kinds of evaluations across branches, though one that can take time to achieve.

Firms of different sizes have a variety of IT priorities they hope to address in the coming 12 months, but IDC research with midmarket firms reveals a remarkable degree of agreement about the importance of network security and network management. Improving network security and management continues to be a top IT priority, cited by over one-third of midsize firms. The fact that these companies are especially attuned to these concerns suggests that rather than having found the answer, these firms are increasingly concerned about the problem. Branch support would be a natural extension of this priority, and the fact that it remains on IT staff "to do" lists affirms that the issue is not an easy one to address.

Fortunately, several trends in the IT domain can be leveraged to help address these goals. First, the network is improving, providing more bandwidth for data, voice, Web-enabled applications, and video. Second, increasingly intense competition between the top IT vendors is driving down average systems costs. Finally, one of the dimensions of that competition includes the provision of financing capabilities that make it easier to purchase or lease new systems.

Still, the prospect of buying new technology during challenging economic times is a daunting one for many companies. To make it happen, businesses must gain agreement between corporate senior management and IT management on how they can align technology objectives with business goals. Establishing priorities for investment that will provide almost immediate benefit while setting the stage for long-term growth can make all the difference in an increasingly competitive environment. In many cases, investing in new branch system technology will make it possible for businesses to reduce overall ongoing costs in the branch, when considering both IT and business operations.

Technical Challenges in Branch Offices

Branch offices of both midmarket firms and large enterprises share some of the same technical challenges due to the need to maintain frequent updates to central site locations and to support local IT services for the branch itself.

Often, the branch depends upon the central site, or on other branch locations, for access to centrally maintained databases or access to Web serving resources supporting business operations. These networking problems affect local server operations, but this can be remedied through improvements in network connectivity and in redundant links to the other key locations, maintaining high availability and business continuity.

Frequently, the branch experiences frustration with regard to network latency caused by difficulties with its WAN connection to a central site. If the link is not working properly, then local data can get out of synch with the central site database — and lack of frequent updates can slow business orders as well. Data stored at the branch, unless stored correctly and securely, can put the company's data at risk as well. Security and data protection practices in branch operations typically fall below headquarters' standards because thorough branch security policy implementation requires people with the training and available time — a rarity at most branches. Also, branches that do not back up local data as regularly as headquarters can find that this lack of replicated data magnifies data recovery problems in the event that a natural disaster or a major failure should occur with the loss of critical data.

Also, with ever-increasing data growth, branch offices can run out of disk space. The lack of local storage pooling and the use of the traditional approach of separate, external shared storage devices each capable of reaching their limits are contributing to increased costs and complexities and a consequent lack of effective capacity utilization and ability to maintain service levels.

Connecting to Headquarters

Speedups in network bandwidth, combined with improving capabilities of servers and storage devices, have improved communications between the headquarters offices, and the branches — even making it possible for employees to access data on central site servers via virtual desktops that are supported and maintained by central site IT staff. In recent years, some applications that were running in the branch just a few years ago have been moved elsewhere in the network — and so network capabilities are vital to ongoing business operations. In retail locations, for example, any outage in the network, or in the local server connecting to that network, can be a showstopper, at least during a short period of downtime.

That is why branch technology solutions, including servers, storage, and networking devices, must be deployed in ways that help to avoid causes of downtime — through the use of pretested software, resilient hardware with swappable components for quick replacement, and local training in the use of servers — making them easier to maintain on a daily and weekly basis. Provision of adequate backup and restore capabilities also helps to ensure smooth operations over time. Finally, the availability of local support, whether from IT staff or from nearby channel partners, is another factor in improving uptime and continuing business operations.

OPTIMIZING BRANCH OPERATIONS

Not the Parts, But the Way the Parts Work Together

Infrastructure solutions that keep the branch running smoothly pose a challenge for firms because they involve more than just gathering the right piece parts and plugging them together. Assembling a full server solution certified to work the same way every time involves labor-intensive effort to make sure all the elements of the solution work together well. This means that everything must interoperate well: the server plus

packaged or custom-built applications; system-level software; security software to protect against hackers and to ensure ID authentication; and storage management software, including provisioning for data replications and data backup/recovery. The full branch IT solutions must also provide secure and consistent integration with corporate databases, transactional updates to company headquarters' applications, companywide email, and support for local printers and desktop PCs within the branch.

Finally, firms must implement standardized branch IT operations that do not vary from branch to branch, or from office to office, within an enterprise so that the server solution can be deployed and maintained in a consistent way. Proven templates for successful, pretested solutions can deliver that element of repeatability to branch office solutions as they are rolled out across multiple branch office locations.

HP has decided to partner with Microsoft to provide Windows Server 2008 R2 Hyper-V to branch operations, along with Microsoft System Center Data Protection Manager, to ensure complete data backup capabilities. At the same time, HP is working with a wide array of ISV partners, more than 200 in all, to develop templates that can successfully install applications within the branch — and do so in a consistent way that can be repeated with each branch installation. This addresses the variation in IT staff skill sets across branches, ensuring that software can be installed the same way, which improves availability of applications. Finally, HP is leveraging up to 70 "Solution Blocks," which are software-based solutions, and working with customers and HP channel partners to install the software, provision new servers, and maintain the solutions over time, reducing ongoing operational costs for IT staff.

Widening the IT Support Network

Branches need not be limited by difficulties in hiring IT staff with all of the correct skill sets for all technologies. Enlisting the help of channel partners as centers of expertise to extend the onsite IT skill sets is a good approach to ensuring smooth IT operations. In addition, new technologies allow remote monitoring of local branch office servers from channel partners' offices, further extending the system management capabilities of branch IT staffers.

Templates for a variety of infrastructure solutions provide rapid deployment and ensure that effective file storage and print management, as well as IT connectivity to central headquarters, are all well-documented and repeatable across branch offices. Besides being solution specific, they are specific to the size of the business because small branches (with fewer than 25 employees) have different processes than midsize branches (with up to 50 employees) and regional branch offices (with up to 100 employees). For example, small branches may be more focused on the availability of file and print services and support for PCs, and these small branches may need to find creative low-cost, high-availability solutions. However, midsize branches may be more focused on scalability of applications and smooth operations for a company email system and reliable data backup and recovery.

Large regional branches function more like a midsize business, in terms of the applications and databases being supported, but they typically have fewer IT staffers and smaller IT budgets than midsize enterprises.

DIFFERENT SIZES, DIFFERENT NEEDS

Scenarios for Branch Use of IT Technology

All branches — whether small, midsize, or large — are seeking ways to drive out costs and drive up employee productivity.

Small Branch

Small branch offices, with fewer than 25 employees on staff, typically have very few onsite IT personnel, with several business-focused employees able to combine their roles with specified IT tasks. These local IT-aware employees often work closely with value added resellers (VARs) and channel partners to deploy new infrastructure solutions. When local IT staffers go on vacation or attend a conference, the smooth operations in the office depend on other types of employees within the branch who have a basic knowledge of how to restart systems or know how to call upon VARs or systems integrators (SIs) to help to restore normal data processing in the event of hardware or software failure.

For all of these reasons, reliable servers, storage devices, and network devices are important factors in the small branch — but so are printers (local and networked printers) and maintenance of PC desktops connected by a LAN.

Medium-Sized Branch

Medium-sized branches can have up to 50 employees, and the computing tasks are more demanding due to the higher number of end users and end customers who are accessing the systems. Corporate email is likely to be a strong focus of onsite IT, along with maintaining branchwide applications; this is especially true for store systems in retail operations and for local servers in the branch offices of financial institutions or banks.

Likewise, the ability to connect to other branches or to corporate headquarters becomes more visibly important in the medium-sized branch. Network bandwidth is literally the lifeline to the rest of the business because it provides key connectivity to remote branches and to headquarters. These types of sites keep a close watch on networking issues, whether those issues are caused by local telecommunications carriers or by in-house connections to long distance lines.

Regional Branch

Regional branches can be quite large, with up to 100 employees. The computer operation in these regional branches often resembles that of a midsize enterprise. Regional branches are likely to have a large number of small servers, including some that are aging in place, which is why system consolidation projects are seen as ways to reduce operational costs in these branch offices, leaving them with fewer servers to maintain.

In some cases, installing blade infrastructure (supporting servers, storage, software, networking, power and cooling) is one way to reduce the server sprawl caused by the proliferation of many small, tower-based standalone servers or older rack-optimized servers over the years. By consolidating workloads onto fewer server "footprints" or by consolidating workloads onto blades, these branches can manage these workloads more effectively than before, demanding less intervention from IT staffers on a daily basis and reducing downtime.

HP'S CONVERGED INFRASTRUCTURE SOLUTIONS FOR BRANCH CONSOLIDATION

HP is delivering new Branch Office Solutions built on Converged Infrastructure (CI), aimed at delivering business benefits over the life of the technology. Converged Infrastructure brings the technology building blocks — servers, storage, and networking equipment — closer together, avoiding the need for onsite system integration that could result in one-off "builds" of branch office servers. This is a full-spectrum approach to IT infrastructure solutions, making them easier to acquire, to deploy, and to maintain over the entire infrastructure life cycle. This approach is becoming more important as the economy remains uncertain, making it more difficult for branch offices to buy the infrastructure solutions (e.g., servers, storage, PCs, networked printers, and other networking devices) they need to support growing business requirements. Mindful that acquisition of new technology solutions is challenging for midsize firms and the branch offices within those enterprises, HP is providing the following for its branch office solutions:

- **"Recipes" for channel partners.** HP has highly customizable infrastructure solutions that combine server, storage, management and data protection software, networking, PCs, and printers. These reference solutions are being provided to HP channel partners to speed deployment of consolidated branch offices. Because the components of these solutions have been tested against many operational conditions, they will be easier to support and maintain in the branch office site.

- **Rightsizing of solutions.** HP has designed solutions for branch operations of different sizes: small (with fewer than 25 employees), midsize (with 25–50 employees), and regional (with up to 100 employees). Sizing for the branch size is important because it provides the appropriate amount of data processing power, storage, and bandwidth capacity, and it does so for the right of number of users in order to optimize system response time to boost branch end users' productivity.

- **Ease of use in management tools for system administrators.** IT staff costs must be contained — and the ratio of system administrators to servers and the ratio of administrators to other types of managed devices (e.g., storage, networked printers, networking devices) must be improved, if possible. Recognizing that system management must be simplified, and easy to learn, for branch offices, HP is providing integrated software tools that can be used within the branch or at a channel partner site or an enterprise central site to manage branch servers remotely.

- **Improved financial terms for branch offices.** The continuing economic uncertainty has made it more difficult than before to acquire or lease new technology. HP Financial Services is providing financial terms, including zero percent financing, and improved lease provisions to make it easier to acquire new technology — or to refresh server technology — compared with earlier generations of HP ProLiant servers.

- **Improved network support for branches.** HP networking solutions improve networking links between branches and from branches to headquarters. Support for industry-standard links, including 10GbE and Fibre Channel, allows servers to

send data to other servers and to local or remote storage devices. The networking solution for branches integrates accelerated, survivable branch communication (HP AllianceONE); security (HP A-Series Routers and HP TippingPoint); wireless; video distribution; and unified communications and collaboration (UC&C) applications. Unified management and centralized policy administration reduce the need for branch office IT staffing and support-related travel.

- **More effective pooled storage for growing storage demands.** HP's Storage solutions, such as StorageWorks P4000 Virtual SAN Appliance (VSA) Software, can help branches deal more effectively with growing data demands by pooling storage resources and achieving better capacity utilization along with more effective storage management functions. For example, with VSA solutions, branches can transform server disk drives into a virtual iSCSI SAN.

HP Services for Branch Consolidation

Business operations need to be protected, and repairs or upgrades, if needed, must be handled as quickly and reliably as possible. Midsize companies need to support a range of products — PCs, printers, servers, storage, and software — and they need quick response times to avoid downtime affecting end customers at point-of-sale locations. That is why HP and its channel partners are providing services and support that are tailored to the business needs of branch offices.

Because of the wide range of businesses across vertical market segments and geographic locations and the size of the branch office (number of employees per site), HP and its channel partners offer a range of support services, which can be customized to meet company-specific requirements. Following are brief descriptions of the primary services and support offerings for branch offices:

- **HP Installation Service** offers support for installation of HP-branded products at branch offices. HP and its authorized channel partners will also supply software and HP-supported third-party products.

- **HP Support Services** provides integrated hardware and software support services. HP Services engineers provide direct support, including onsite hardware services and software support via the phone on a 24 x 7 basis, based on a services contract, over a specified time period.

- **HP Care Pack Services** is an offering of services that are packaged to meet a range of budget targets, depending on the size of the branch office and type of business. These services are designed to be affordable, and they are tailored to the specific needs of the branch office that has signed up for them. Although branch offices may be replicated across a specific enterprise or organization, there is a large degree of variation in IT requirements for a branch office. For this reason, HP addresses services and support needs both directly and indirectly (through partners) and provides a range of services and price points. HP also helps branch office organizations "navigate" to their closest HP channel partners, facilitating timely and local response when service is requested. This approach allows branch office customers to sign up for the amount of services required, along with the specified amount of response time for their IT infrastructure.

G6 and G7 Servers: Addressing Cost of Ownership

As described previously, most branch offices have inherited the IT infrastructure that they use every day to support business operations in the branch, including point-of-sale systems, sales and service CRM systems, store systems, and customer service systems. The use of aging systems, and of components based on older technology, has led to rising power/cooling problems, underutilization of existing systems, and proliferation of devices that were not designed to work together. In recent years, these IT issues have surfaced quite clearly, and systems vendors, including HP, have developed servers based on multicore, energy-efficient processors that are more powerful and more efficient than older generations of server technology. These devices, when deployed with "best practices" proven to reduce setup time, support strategies aimed at improving branch operations in terms of both IT operations and business results.

Technical Features of the G6 and G7 Servers

The technical features of the G6 and G7 server product lines support more efficient IT operations. The full line includes rack-optimized servers, blade servers, and freestanding tower servers, which are often deployed as store systems or branch office systems. Following is a brief synopsis of the technical capabilities of G6 HP ProLiant servers:

- **Dynamic Power Capping.** HP Dynamic Power Capping dynamically sets, or caps, the power that is drawn by the servers. Customers can preset the power limits for each type of server usage (workload dependent), which supports reallocation of power and cooling resources in the server racks. This technology addresses the problem of overprovisioning energy to servers in the datacenter.
- **Sea of Sensors.** HP calls its monitoring of the G6 servers through the use of 32 "smart sensors" located throughout the server "the sea of sensors," which is designed to improve system-wide energy efficiency. This "HP Sea of Sensors" tracks thermal activity, as it occurs in real time, within the server enclosure. Among the server components controlled and dynamically adjusted are fans, memory, and input/output processing.
- **Common Power Supplies.** HP is using what it calls the Common Power Slot design, which leverages four power supplies to support servers running a wide range of workloads (e.g., types of applications and databases). By matching the power supply to the workload, power use is appropriately allocated, and wasting of power can be minimized.
- **Insight Management.** HP's Insight Control Environment (ICE) management console is now being "bundled" with the HP ProLiant hardware. The console can be used to monitor the physical and virtual servers from a console that is located within the datacenter — or at a remote site. This type of intensive monitoring has the potential to significantly reduce operational expenses. A 2010 IDC study of seven firms implementing ICE found that the firms increased their server-to-administrator ratio by an average of 40%.

The new G6 and G7 generations of HP ProLiant servers provide improved performance, improved price/performance, enhanced management, and improved energy efficiency compared with earlier generations of ProLiant server technology. HP's G6 and G7 servers are based on Intel Nehalem-generation Xeon 5500/5600 quad-core processors, which Intel announced as providing two to three times more performance than earlier generations of the Intel Xeon 5400 series processors. Branch offices that are consolidating workloads onto a smaller number of server "footprints" for more efficient IT operations will find the G6 and G7 generations of ProLiant technology more useful in addressing ongoing operational expenses than earlier generations of technology.

Key factors in the improved Xeon performance are an integrated memory controller and a new technology, QuickPath Interconnect (QPI), which replaces the front-side bus (FSB), the traditional connection to I/O and to off-chip resources. At the same time, Xeon 5500/5600 processors operate using up to 40% less power, which reduces heat dissipation, allowing multicore server systems to be densely packed in the datacenter while reducing cooling requirements.

These technical features provide a number of business-level advantages:

- Lower administrative overhead associated with server setup, monitoring server performance monitoring, power consumption management, server heat detection and control, and remote server management via enhanced administration support and automation tools means lower IT staff costs per application.

- More performance and capacity in the servers allow consolidation of workloads that have been running on a number of smaller servers, many of which were dedicated to running just one application or database at a time. The ability to "gather up" applications and databases — and to run them on a smaller number of servers — reduces management and operational costs related to IT staff. A 2010 IDC study of Insight Control users found that firms could reduce physical servers by up to 95% via virtualization and consolidation and then, as a result, reduce compute infrastructure administrative expenses by up to approximately $70,000 for every 100 users.

- Full support for virtualization allows these applications to run side by side on a virtualized server. The business advantages of this approach include isolation of applications, which reduces downtime, and more efficient use of server resources, many of which have been running at 10–20% utilization in today's branch offices. With virtualization, levels of resource utilization may reach 50–80% or more, supporting the business more efficiently than before.

- More on-board memory, faster links to storage resources, and support for Intel Xeon 5500/5600 quad-core processors combine to provide more horsepower for these servers, resulting in the ability to support more end users, with improved service levels, than in previous generations of HP x86 servers. Technology has been packaged in a way that makes more powerful "engines" more accessible to branch office business units than before.

- Energy efficiency at the processor level and the systems level results in reduced power/cooling costs to the business — with the new servers drawing 40–50% less power than earlier G5 series ProLiant servers. This saves on utility bills for the business — and thus reduces costs to the branch business units.

THE BUSINESS VALUE RESULTS

Business needs are driving up demand for more efficient server platforms. Technology that is aging in place, after years of use, is not as powerful or as energy-efficient as today's server platforms, which are outfitted with multicore processors and low-power components. But the combination of so much computing power in small form factors is turning x86 servers into virtual minicomputers, capable of supporting hundreds of end users, and of running multiple applications at once — aided by virtualization that allows multiple operating systems to run side by side on the same physical server.

Today, many branch offices are consolidating workloads onto a smaller number of server "footprints," simplifying management, reducing IT staff requests, and making ongoing maintenance easier to sustain. These kinds of goals are within reach, given

the new technology available in the marketplace that improves performance, price/performance, and performance/watt through the use of multicore processors, high-speed networking links, and the use of software "hypervisors" that support many "virtual machines," or VMs, on one server.

IDC demand-side, customer-based data has found that the average number of VMs is rising over time, improving resource utilization on each server and isolating workloads within each VM, which improves system uptime. Several years ago, two to four VMs per physical server were the norm; today, the average number of VMs per physical server is six to eight or more — allowing businesses to consolidate workloads (e.g., applications, databases) that formerly ran on older technology built into less powerful IT systems.

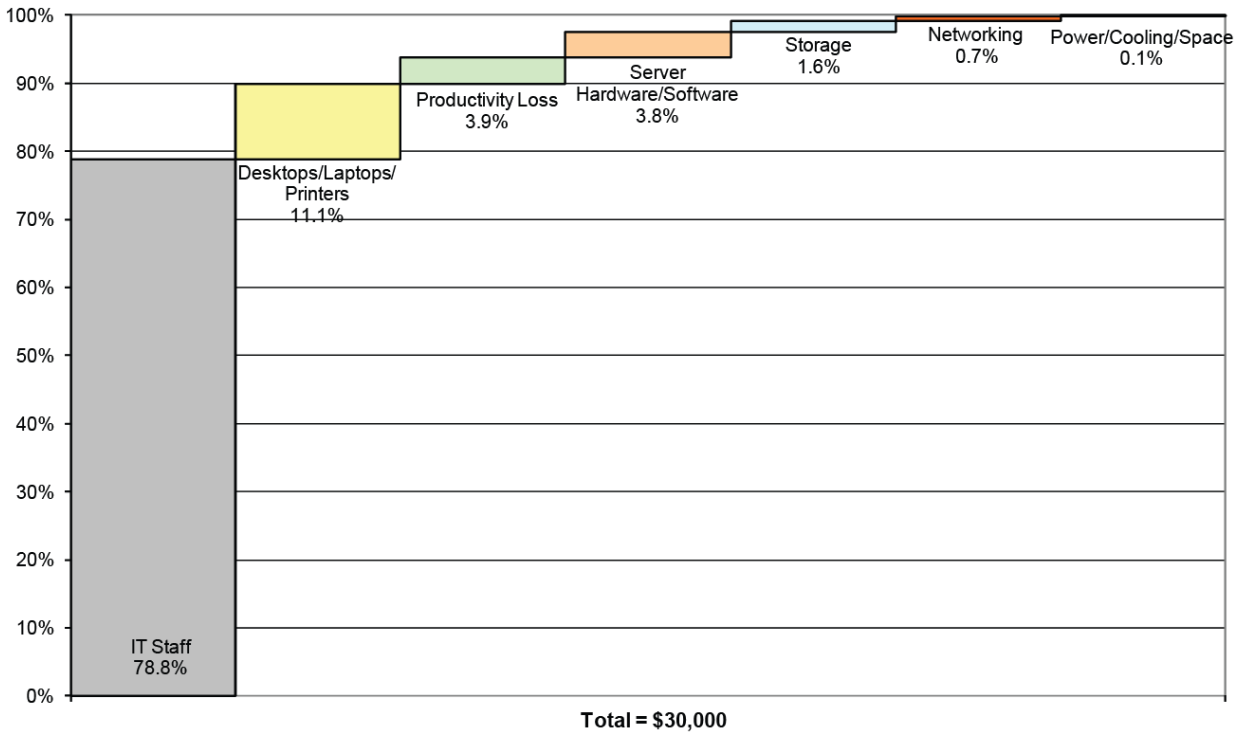
To quantify the value of these types of technology-enabled best practices in the branch, IDC used in-depth interviews from multiple surveys conducted over the past two years. The branches in the sample set vary in terms of numbers of users, PCs, and servers. However, these surveys revealed that all branches, when compared with the larger parent organizations, incur significantly higher IT staff requirements per user and therefore higher IT costs per user. To convey the effects of various branch solutions, we constructed from these surveys a prototypical or composite branch with:

- 25 clients — a mix of desktops and portables
- 0.41 servers — two-processor x86 servers running Windows
- 0.23 IT staff

Figure 2 illustrates the distribution of this prototypical branch's total IT budget across each IT operating cost category. The view includes only those costs for resources located at the branch (i.e., not costs from headquarters). Costs fall into the following types: IT staffing costs for IT staff operating in the branch or directly supporting only branch operations; hardware and software costs for servers located at the branch; networking costs that include networking hardware and software and bandwidth costs; storage costs for hardware and software; and other system costs for PCs and printers. As shown in Figure 2, annual cost per branch operation totals approximately $30,000, including systems, software, services, and IT employees.

FIGURE 2

Distribution of Branch Annual IT Costs by Category



Source: IDC's Business Value Research, 2011

These costs, especially the IT staff costs, concern midmarket business management, in part because of the sheer weight of IT cost and in part because of the problems and productivity loss that often occur in branch offices.

From PCs and printers to networks, servers, and storage, IDC customer-based research indicates that certain recurring problems cost real money for branches of each size (small and medium-sized companies) across geographic regions. Examples include:

- Nonstandard, older, or slower PCs and laptops lead to higher maintenance IT support demands and also lead to more downtime due to technology that ages in place.
- Non-network printing and local printing lead to problems with slow or interrupted printing, reboot requirements, and other maintenance issues.
- Slow and intermittent WAN connections to the central office can lead to interruptions, lost productivity, and a tendency for employees to keep data locally, instead of reliably backing up data at a central site or a disaster recovery site.

- Infrequent or late backups and recovery tied to the tendency to keep data locally rather than on the central home office server can lead to slow recovery in the event of system crashes and outages of various durations.

- Servers that have aged in place require more maintenance and therefore become difficult to reconfigure and maintain.

These factors, as well as others, lead to the business issues that are outlined in Figure 3. HP's server-based solutions directly address each of the issues shown.

FIGURE 3

Branch Business Issues, Impacts, and Solutions

Domain	Situation/Issue		Impact	Measure		HP Solutions
Server	Maintenance requires Home Office staff		System crashes	Lost productivity due to downtime due to server outage		New server with Windows 2008, bladed infrastructures, virtualization, consolidation, remote Insight support
	Late maintenance, versions		Slow recovery	IT administration of servers (FTE per set number of servers)		
	Server sprawl		Increased administration load	IT support for servers (FTE per set number of servers)		
				Servers per 100 users		
				Server utilization rate		
Data Storage	Local backup: sporadic, incomplete		Higher outage risk exposure	Storage cost per 100 users		Shared storage arrays, automated replication, continuous disk-to-disk deduped backup and recovery with archives to tape
	No offsite archiving		Lengthened recovery times	Storage utilization rate		
	Time-consuming restore from failure		Higher system admin support requirements	Lost productivity due to downtime recovery length		
	Disk storage constraints		Higher storage costs	IT administration of storage and backup (FTE per 100 users)		
Network	Slow connection to central office		Tendency to work data locally	% of business-critical data stored centrally and backed up		Upgraded networks (switches, cables, server client architecture, wireless access points)
	Interrupted sessions		Lost user productivity	Lost **productivity** due to downtime recovery length		
	Lack of secure guest wireless		Network risk as credentials exposed	Higher potential for transaction theft; IT administration time to recover, rework		
	Peer-to-peer network/low bandwidth	Results In:	Long recovery times after outage	Lost **productivity** due to network slowness or issues (per employee)	Resolved With:	
Security	No guest wireless / WEP shared		Unsecured local data	Lost productivity due to downtime due to data loss/malware		Security software, practices
	Unfirewalled data		Exposed credentials, data	Lost business due to insufficient security policy implementation		
PCs	Nonstandard		High support requirements	IT **administration** of desktops (FTE per 100 users)		Refreshed, upgraded PCs
	Uneven ages, OS		High maintenance costs	IT **support** of desktops (FTE per 100 users)		
	Comparatively slow		Downtime/low performance	Net PC **hardware** cost (purchase, maintenance costs per 100 users)		
				Lost **productivity** for PC issues (downtime) (per employee)		
Printing	Printers tied to PCs		Slow printing	Lost **productivity** from printer issues (per employee)		Network printer, centrally managed from server console
			Reboots required			

Source: HP and IDC, 2011

The technology solutions outlined in HP's Total Care solution include:

- Enhanced server infrastructures — with virtualization, remote Insight support, and Windows Server 2008
- Easier-to-access and more secure data — the ability to aggregate server storage into a virtualized pool of networked, shared storage arrays (StorageWorks P4000 Virtual SAN Appliance Software), disk-to-disk backup with continuous deduplication (duplicate files omitted for efficiency), and recovery capabilities
- Better, faster networks — upgraded networks with managed switches and wireless access points
- Improved security — better wireless management, central security policy management, easier virtual private network (VPN) connections, intrusion prevention implementation to fortify security
- Easier printing — network printing and central management via Windows Server 2008
- Upgraded and refreshed PCs and laptops

These HP solution offerings and others can help tremendously.

IDC Customer Research

IDC research regarding SMB and midmarket customers shows that the types of combined solutions described previously, when coupled with a rigorous program to standardize and improve IT practices at a company's remote locations and headquarters (also known as best practices from a business perspective), can deliver substantial business value and could reduce total annual IT costs in the branches by over 30%, as depicted in Table 1.

TABLE 1

Branch Annual IT Cost Reductions Enabled by Best Practices and Technology Solutions

		Savings from Best Practices and Technology Solutions for:							
$	IT Costs (Pre-Solutions)	PC	Printer	Network	Servers	Storage	Total Reduction	IT Costs (**Post-**Solutions)	% Reduction
IT staff	22,978	2,068	115	1,246	2,344	1,379	7,151	15,827	31%
Infrastructure*	5,491		45	137	483	465	1,130	4,361	79%
Power/cooling/space	28			1	11	1	13	15	54%
Productivity loss	1,129	78	13	296	355	55	797	333	29%
Total	**29,626**	**2,146**	**173**	**1,680**	**3,192**	**1,899**	**9,090**	**20,535**	**31%**

*Hardware, software, network, PCs, printers, etc.

Source: IDC's Business Value Research, 2011

Reductions in cost occurred for a number of reasons. Best practices and more advanced and integrated technologies reduced end-user productivity loss caused by downtime as outages and the time it takes to recover from outages decreased. The practices and technologies markedly reduced IT administration and support requirements for servers, storage, backups, recovery, and local PC and printer problem resolution. Issues due to malware, virus, and data loss also decreased. Overall productivity increased with network speeds, data access and application availability, and overall system performance. Table 2 details the reductions in IT staff costs; infrastructure costs; productivity loss; and power, cooling, and space costs for each of these best practices/technology solutions.

TABLE 2

Explicit Reductions in IT Costs Due to Best Practices/Technology Solutions (%)

Best Practice / Technology Solution	Reduction in IT Staff (Administration and Support) for This Domain	Infrastructure Cost Reduction	Reduction in Lost Productivity Due to Downtime Caused by Issues in This Domain	Reduction in the Power, Cooling, and Space for This Domain
Deployed branch **server** and server management	60	44	70	38
Centralized **storage** with disk to disk	76	50	40	9
Upgraded and managed **networks**	23	64	99	13
Comprehensive **security** measures*	12		60	
Standardizing all **PCs** on Windows 7	50		33	
Migration to a network **printer** with print management	25	23	66	

*Security includes improved management, deployment of firewalls, antivirus, antispyware/malware, VPN for remote connectivity, network access control, and intrusion detection.

Source: IDC's Business Value Research, 2011

As Table 2 shows, deploying new servers results in a 60% reduction in IT staff costs; a 38% reduction in costs associated with power, cooling, and space; and a 70% reduction in downtime, which directly impacts IT staff productivity. Improvements in security "best practices" also led to a 60% reduction in user downtime caused by security issues such as the presence of malware or computer viruses. It also reduced the IT staff time devoted to addressing security issues.

As also shown in Table 2, migrating to a network printer with print management leads to a more than 60% reduction in downtime for printers, a 23% reduction in costs for printer hardware and printer supplies, and a 25% reduction in IT staff costs. Further, Table 2 shows that network upgrades can reduce network-related infrastructure costs by 64%

and can lead to power, cooling, and space savings of more than 10%, while IT labor costs associated with networking infrastructure can be reduced by over 20%. Overall, network downtime dropped by over 60% as a result of upgrading the network links to the branch office.

CHALLENGES/OPPORTUNITIES

All IT vendors face challenges in selling new infrastructure (servers, storage devices, network devices, and software) during today's uncertain economic environment. HP is competing most closely with Dell and with IBM in the x86 server market on a worldwide basis. Although HP gains more revenue in this market worldwide and has more unit shipments worldwide than both of its top competitors, Dell and IBM have their strengths. IBM sells into SMBs via its channel partners, and Dell has added more channel partners to its "direct sales" model.

HP's strengths in consumer products, such as printers, PCs, and mobile devices (e.g., smartphones, tablets), help it to be well-positioned to sell into branch offices and SMB organizations, with strong brand recognition. As stated earlier, HP's widespread indirect distribution channel also extends the company's reach into these accounts, where HP faces competition regarding sales of x86 servers and sales of associated storage devices and support services. Customers are benefiting from this intense competition through reductions in system costs and innovative financing options that support workload consolidation onto fewer, more powerful servers.

By taking a server solutions approach and by providing pretested solutions based on HP Solution Blocks, HP is addressing ease of use and rapid deployment in branch office operations. By removing the uncertainty of combining software point products and by applying proved best practices, HP and its partners are removing causes of downtime that often surface at local branch offices — far away from corporate headquarters.

The full "market basket" of components to this integrated server solution, often installed or maintained by HP's indirect channel partners, addresses many of the key "pain points" of SMB organizations while improving availability of applications and containing operational costs. Importantly, HP is leveraging the capabilities of HP Financial Services to offer different forms of credit to branch offices, reducing acquisition and carrying costs to support upgrades/replacements during the downturn.

CONCLUSION

HP's introduction of the G6 and G7 series of HP ProLiant servers is bringing a new form of business value to branch office customers. Improvements in performance, price/performance, management, and energy efficiency of new generations of server technology (e.g., multicore processors, reduced power/cooling requirements) have the potential to change the financial evaluation of acquiring new servers. Consideration of opex savings, which have been rising in recent years, along with new financing options, can offset acquisition costs.

HP's focus on branch operations has resulted in highly customizable infrastructure solutions that can be replicated across branches or installed in any one branch office. The combination of server solutions, associated storage, management software, PCs, and printing and networking devices — often delivered and installed by local channel partners — and a range of new financial options from HP Financial Services now provide new alternatives to branch offices. At a time of increasingly strict budgetary constraints, branch offices are seeing increased demand for processing, data storage and protection, and networking efficiency and security. Midsize firms, many of which are consolidating branches, are looking to align IT costs with business requirements and will be exploring new ways to acquire technology during the downturn. HP's new solutions for branch offices are designed to address that new economic reality.