

## Buying a Small Business Server

Most small businesses with 10 or more employees will face the task of buying a computer server, or adding to their existing inventory. Servers are most commonly used as central file repositories where users can easily share documents, but they can do many other tasks as well from print and mail serving to performing system-wide backups. Other key applications include hosting databases, running group-ware (such as calendar programs and customer relationship management software), and serving a company Web site or intranet. For creative studios or departments, a server might hold large image, video, and music libraries.

The type of server you choose should reflect the number and type of applications you want to run on it, and the number of users (clients) it will have. Many common applications such as print serving, sharing office documents like Word and Excel files, and running calendar programs impose such light processing demands that a single low-cost server may be able to handle your entire company with ease. Other tasks, like hosting large databases or image libraries, require more processing horsepower along with big, fast hard disks and capacious network pipes to match.

Servers are basically specialized PCs, and they run the gamut of speeds and capacities just as desktop workstations do. Nevertheless, they are a breed apart, designed to be secure (to protect your valuable company data) and fault-tolerant (to be available continuously). Servers also offer remote-management tools, so that an IT person can log in from a desk or workstation and check usage, diagnose problems, and perform routine maintenance such as adding new users or changing passwords.

After determining the functions you need your server(s) to perform, and the number of users you will have, you'll need to select a server operating system, such as Windows, Linux, or Mac, and choose the hardware to run it on. If you're upgrading existing servers, you'll probably want to talk to a consultant who will advise on the best value for money solution. For new servers, you're free to pick the combination of software and hardware that best meets your needs and budget. Don't assume that because you have PCs, you are locked into Windows; both Linux and Mac servers can handle Windows clients with aplomb, and tend to be much cheaper overall. Seriously consider adopting Linux as your server solution. The [U.S Department of Defense \(DoD\)](#) approves the use of the Open Software Source (OSS) model because of the superior reliability, security and ongoing support advantages. [Is it true that the DoD loves Linux?](#)

## Server Operating Systems

You can run a basic Linux server using an existing PC which will provide file and printer sharing plus hardened security and Remote Desktop for administration over your network. It is definitely the cheapest way to go for small group needs because there is no additional cost per client. Similarly, a basic Mac OS X machine can work as an economical file and print server for small mixed networks of Macs and PCs. Mac OS X does a better job of cross-platform support than Windows. You can run PC application files on your Linux or Mac server, such as a Microsoft Access database, however you'll still need to access it with a Windows client PC.

If your business has more than a few employees, you should move up to a full-fledged server OS like Linux. We do not recommend the Microsoft Windows Small Business Server, both the Standard and Premium editions because of security and scalability reasons. A Web server should not exist on the same hardware as the company secure files / database nor a mail server such as Exchange. These servers need to be run separately in their own space which require special security needs such as a demilitarised firewall zone. For this reason it makes it expensive to implement a properly designed solution with Microsoft servers. Additionally Microsoft charge extra for every client computer that is connected to their server(s). Think carefully as to your requirements – do you really need to use Exchange? Here is one company who had a nasty experience with SBS 2003 and the Windows Software Update Service (WSUS) which took them down for 4 days <http://forums.whirlpool.net.au/forum-replies.cfm?t=1306167>  
There are many good alternative group-ware and calendaring solutions available running under Linux.

There are reasons to choose a Microsoft Windows Server such as a key application that does "server side" processing. Examples of this are the Microsoft SQL database. When purchasing a new server it is important to decide whether your key application can run as Open-source using the free rock solid databases running under Linux or whether you are "locked in" to a proprietary solution. This is the most important upfront decision you can make - the difference in cost of ownership will be many thousands if not tens of thousands of dollars over the coming years.

If you don't need the specific services made available by the Windows Server family, such as Exchange and SQL database support, consider buying a Linux server (or an Apple XServe if you run a cross-platform network). Many large equipment vendors including IBM, HP, and Dell offer Linux server software as an OEM alternative to Windows Server.

Some Linux servers are free and open-source, but we recommend buying a supported product aimed at small business, such as the Red Hat Enterprise Linux or the free equivalent Centos Operating System fully supported by Business UX. With these products, the software tends to be inexpensive and you pay mostly for the level of technical support you need. All are designed to support networks of Windows clients, and all include services such as e-mail, group calendaring, backup, recovery, and file and print sharing.

Finally, consider your IT personnel resources when choosing a server OS. Part-time system administrators may be more comfortable with the more common Windows environment than with Linux, though experienced users may find that Linux requires less work to administer. Before deploying a new system, take advantage of the administrator training that server vendors generally offer, and budget realistically for the amount of technical support you'll need. For small business servers, software and support are the major expenses. Hardware is generally a small part of the total cost of ownership unless you're running a Web server farm or high-def video editing shop with enormous storage needs.

## **Server Hardware**

Once you know what application software and server OS you'll be running, you're ready to look at hardware. Most buyers select a server OS/hardware combination from a major vendor like Dell, HP, or IBM, or a package assembled by an IT consultant or reseller.

We highly recommend that you avail yourself of reseller expertise in translating your server needs into hardware specifications. Resellers can tailor systems to your exact circumstances and ensure that your server system grows with your business during the system's expected life. Even if you don't buy from a particular reseller, you can get good advice to take elsewhere. As a starting point, both your application software (a database or an e-mail server, for example) and your server OS will have recommended system requirements for a given number of users.

Specific considerations include number and type of processors (32- or 64-bit; Intel or AMD), amount of RAM, number of internal drive bays, and server design (tower or rack-mount). Intel's Xeon and AMD's Opteron processors are the standard for servers, and most servers come with at least two processors (each with dual or quad cores), which helps them handle multiple tasks and users efficiently. For storage servers, you'll want options such as hardware RAID support and external expandability, too.

At one end of the scale, a simple file-and-print server for 25 users should run just fine on an inexpensive system employing one dual-core Xeon and 1GB or 2GB of RAM. Since this setup would be used to store critical files, we would recommend using a mirrored RAID array to provide protection against drive failure. Moving up, an e-mail and collaboration server for up to 75 users, running Linux, might employ two dual-core Xeon processors with up to 4GB of RAM. And for a heavily used CRM database serving 250 clients, you might select two or four dual-core Xeons with up to 16GB of RAM. At the high end, dividing the workload across multiple servers - a technique called clustering, becomes more efficient. Load-balancing software is used to manage them.

If you will be using multiple servers, consider purchasing rack-mount models for ease of access and clustering applications. Tower models generally provide more drive bays and options, and they can be a more flexible choice if you have only a couple of servers.

Finally, don't neglect to investigate the warranty and support policies for your hardware and for the server OS. They will likely be of different lengths and from different vendors. For small businesses, which may rely on one or two servers for everything from handling e-mail to sharing documents and printers, downtime can be disastrous. Invest in same-day on-site service if possible, and guard against power outages by using an uninterruptible power supply.

Here is an article entitled “Five Reasons Linux Beats Windows for Servers” written by Katherine Noyes of PCWorld

Linux is eminently better suited to server use than Windows is--better than most any other competitor, I'd argue. Why? Let's count the ways.

### **1. Stability**

Linux systems are well known for their ability to run for years without failure; in fact, many Linux users have never seen a crash. That's great for users of every kind, but it's particularly valuable for small and medium-sized businesses, for which downtime can have disastrous consequences.

Linux also handles a large number of processes running at once much better than Windows does--that's something, in fact, that tends to degrade Windows' stability quickly.

Then there's the need for rebooting. Whereas in Windows configuration changes typically require a reboot--causing inevitable downtime--there's generally no need to restart Linux. Almost all Linux configuration changes can be done while the system is running and without affecting unrelated services.

Similarly, whereas Windows servers must often be defragmented frequently, that's all but eliminated on Linux. Let your competitors endure the plentiful downtime that inevitably goes hand-in-hand with Windows; trusty Linux will keep you up and running and serving your customers around the clock.

### **2. Security**

[Linux is also innately more secure than Windows is](#), whether on the server, the desktop or in an [embedded environment](#). That's due largely to the fact that Linux, which is based on Unix, was designed from the start to be a multi-user operating system. Only the administrator, or root user, has administrative privileges, and fewer users and applications have permission to access the kernel or each other. That keeps everything modular and protected.

Of course, Linux also gets attacked less frequently by viruses and malware, and vulnerabilities tend to be found and fixed more quickly by its legions of developers and users. Even the six-year-old kernel bug that was recently fixed, for instance--an extremely rare instance in the Linux world--had never been exploited.

Internally, meanwhile, users of a Windows system can sometimes hide files from the system administrator. On Linux, however, the sys admin always has a clear view of the file system and is always in control.

### **3. Hardware**

Whereas Windows typically requires frequent hardware upgrades to accommodate its ever-increasing resource demands, Linux is slim, trim, flexible and scalable, and it performs admirably on just about any computer, regardless of processor or machine architecture.

Linux can also be easily reconfigured to include only the services needed for your business's purposes, thus further reducing memory requirements, improving performance and keeping things even simpler.

### **4. TCO**

There's no beating Linux's total cost of ownership, since the software is generally free. Even an enterprise version purchased with corporate support will be cheaper overall than Windows or other proprietary software, which generally involve user-based licensing and a host of expensive add-ons, especially for security.

Same goes for most of the tools and [applications that might be used on a Linux server](#). The overall TCO simply can't be beat.

### **5. Freedom**

With Linux, there is no commercial vendor trying to lock you into certain products or protocols. Instead, you're free to mix and match and choose what works best for your business.

In short, with all the many advantages Linux provides in the server realm, it's no wonder governments, organizations and major companies around the world--including Amazon and Google--rely on the open source operating system in their own production systems.

If you're looking for a Linux distribution to run on your business's servers, you'd do well to consider [CentOS](#) (or RHEL, the paid version from [Red Hat](#) that CentOS is based on), [Slackware](#), [Debian](#) and [Gentoo](#).