

Transitioning to a Server

How to move a small business from an ad-hoc to a server-based network.

One of the main reasons that many small businesses don't use a central server is a lack of understanding of what a server is and how to add one to an existing network. Fortunately, the barriers to entry for small businesses have never been lower.

The first step is figuring out what the server will do. A server that's simply going to handle file and print serving for an office with ten users doesn't need lots of RAM and or disk space, but it does need enough to handle the tasks for today while being expandable enough to handle tasks that might not even be on the horizon yet. As a safe bet, a minimum specification might be a single- or dual-core CPU, 1 gigabyte of RAM, and two SATA drives in a RAID 1 configuration.

During the selection process, there may be a choice between a pedestal or tower server and a rack-mount server. If this is the business's first server, it's unlikely that a server rack or equipment rack will be on hand, so a tower server might be the best bet for now. Tower servers are only slightly larger than normal desktops and can be placed under a desk or in the corner of an office. Make sure that the server has adequate airflow and climate controls. Many tower servers can later be converted to rack-mount servers if your computing infrastructure grows.

If there are more users and more applications for the server, the main places to add capacity is storage and RAM. Bring the storage to a RAID 5 array of at least three disks, and maybe add another gigabyte or so of RAM to make certain that there's enough headroom for your application. Most entry-level servers will handle at least 4 gigabytes of RAM, which should be more than enough for most small businesses.

Multiple-core processors expand the power of a server significantly, as they can handle simultaneous operations far better than single-core CPUs. If your server will be running databases in addition to file serving, printer serving, e-mail tasks, and other processor-intensive applications, you'll need at least a dual-core CPU, such as an Intel Xeon 5110. A quad-core CPU will give you even more headroom to allow for future applications and services.

Also try to gauge the amount of data you're going to be storing, and remember that you have to back that data up to tape. If you add two 250-gigabyte drives in a RAID 1 array, you'll have a total of about 225 gigabytes available for file storage. Most small businesses won't need anywhere near that amount, but headroom is always nice.

SERVER BACKUP STRATEGY

When you are determining how much disk space to add and planning the tape backup strategy, remember that you only need to back up the files on the server, not the entire available space on the storage array. So if you have

225 gigabytes available but are only using 25 gigs of that space, you're only going to be backing up 25 gigs to tape. This means that smaller and cheaper tape drives -- such as a DAT solution that can store 36 gigabytes per tape, uncompressed -- can be used. For most small businesses, it really pays to be able to fit all the data onto a single tape, since this simplifies the tape backup plan significantly and streamlines the whole backup operation.

Tape backup drives and tape sizes are specified with two numbers -- for example, a DAT 36/72 drive. This means that the tape can store 36 gigabytes of data without using compression, and in a perfect world, could store up to 72 gigabytes with 2-to-1 compression. In reality, though, it's almost impossible to achieve 2-to-1 compression, so hedge your bets by relying on the lower number.

Disk backup is also a viable alternative to tape, and devices such as the Dell RD1000 use removable hard drives rather than tapes to store backup data. The major benefit of removable disks is speed: They're much faster than tape in both backing up and restoring data.

Once you've determined your backup plan, you'll need to create a tape rotation plan that will result in tapes being reused every few weeks, with the most recent backups being brought home or to another location for security.

With enough storage on the server, you can even back up your users' desktops and laptops to the server, and then back up that data to tape. This can come in very handy when laptops are damaged or lost. No matter what, implementing a solid backup strategy is an absolute requirement to prevent against catastrophic data loss.

Another option for backups is to take advantage of a third-party service -- an online backup company. This type of backup is an option if you don't have a lot of data to back up and have reasonable upstream bandwidth to support the significant amount of data that will be sent to the online backup provider on a scheduled basis.

THE OPERATING SYSTEM DECISION

Now, once you've determined the hardware specs for your server, it needs an operating system. Most small businesses use Microsoft Small Business Server, which offers file and print serving, directory and domain services, as well as e-mail, Web serving and a host of other applications. Microsoft SBS is designed to be used by small businesses, which means that it tries to fit a lot of functionality into a small footprint and doesn't scale very well. This isn't a problem for a majority of small businesses -- especially ones that are just adding their first server. As the business grows, it's likely that it will outgrow Microsoft SBS, but it's a good place to start.

Microsoft SBS isn't cheap. It generally runs around \$1000 for a licensed copy of Microsoft SBS 2008. That's probably more than the cost of the server hardware, so be sure to factor that expense into your budget. There are Linux solutions that provide similar functionality to Microsoft SBS for less cost, but they aren't as mainstream and

can take more effort to implement for those unfamiliar with their design.

Also, be aware of the existing network, and put some thought into upgrading the network switch to a gigabit switch if necessary. Most small businesses have a single 100 megabit switch that doesn't require any configuration, so replacing this with a new gigabit switch will greatly enhance the perceived speed of the server to the users, even if the workstations don't have gigabit network adapters, since the server will have a gigabit interface.

After the server has been selected and delivered, the server, network and the desktop systems will need to be reconfigured for the new infrastructure. Though with practice, plus some trial and error, you can probably handle the setup yourself. Still, it's a good idea to hire a consultant to handle the transition. And make sure to teach one or more employees the basic administrative tasks involved, such as adding users, using the tape backup software, and so on. Also, though it's possible to handle data backup in-house, make sure that you've lined up a skilled person to call upon for remote help should problems occur.

As with any business tool, there are certain tasks that the server can perform, but moving those functions to the new server might not be a good idea. Though many businesses find it advantageous, for instance, to host their own e-mail, transferring it from their current service provider, they probably won't want to try to host their own Web site. The Web site hosting provider will have faster and more robust Internet access than the business location, and the Web site will be faster and more available if it stays there than if it moves to the new server.

That, in a nutshell, is all you should need to know about server-based computing, at least for now. Adding a server to a small business network isn't necessarily a complex task, but the benefits are significant, and adding a server to your small business is a big step in growing your small business.