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## Backup storage solutions for data centers

We've all had that personal experience of losing hundreds of files and hours of work due to a computer crash right at the most inconvenient moment. Imagine a crash like that affecting a company that holds information computers pertinent to the survival of its place in the market. Backing up data, therefore, is not a new idea to come to the great minds of business owners and technical gurus, especially those that work with data centers. There are however, options that will suit different businesses in different ways, and having a working knowledge of the various backup solutions available will help guide the company in the right direction when it comes to avoiding such a great loss.

When choosing a backup storage solution, things to consider are:

**Just how much data are we talking about?** It may be that simpler methods won't do in your case, at least not in the long run.

**Will the data be expanding?** If so, choose an option that will grow with you and can be more adaptable to your needs as things take a different form.

**Are we dealing with top-notch security items?** If accountability is important and you can't afford the slightest possibility of a machine blowing up for one reason or another, don't compromise – get the best there is.

**Is this a group effort?** If different people working from different computers in company will need access to the same information at any given time during the day, you could save yourself a lot of trouble by preparing for that in advance.

**Have enough pocket change?** Depending on the size of your business, it may be that budget concerns will mark the end of the argument – buy as you need until you can afford (and actually require) more.

Backup storage solutions in a data center come in three forms: Direct Attached Storage (DAS), Network Attached Storage (NAS) and Storage Area Network (SAN).

**DAS** is the most basic and commonly-used type of backup system. External hard drives that attach to your home computer and allow you to plop memory onto them are examples of DAS. What you save stays on one server, and copies of those files also nest in the same server, but on a separate drive. That way, if your main drive gives you problems, or you do a reformatting, you always have an extra copy just to be safe. If your company is a small, local one (i.e. without branches physically distant from each other) DAS may be your simple, one-step solution. The down side is that your server may get extra busy storing files and running applications at the same time, which can slow things down. However, on the upside, when problems do occur, they can be dealt with in-house on the attached server. Keep in mind though that DAS is limited in capacity and once memory space runs out, it's out. If your company is growing, DAS may only be a temporary solution to your backup needs.

**NAS** is a solution that puts memory on a server separate from where applications are running. This increases speed and allows multiple users to access information from a hub. As indicated by its name,

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NAS runs on a network, and is therefore more suitable to businesses using networked computing. Its popularity has greatly increased, especially in light of its cost-decreases and return on investment. Management of the file storing server can be handled centrally in one location and not affect multiple servers that are being used for applications while maintenance is going on. Especially for computing systems in an office using multiple operating systems, NAS can act as a neutral file-sharing component to give access to work done by employees across the board.

**SAN** is an over-the-top backup system designed for very large businesses that require the ultimate in quickly transferring many files at the same time and connecting over long distances through a fiber channel. This method, though highly optimized, is still in development and lacks an across-the-board compatibility agreement that would make it more usable in the long run. Since it is more complex than either DAS or NAS, it usually falls as an option to those who can afford its novelty. Web-based companies, or those that conduct transactions online might require SAN backup because of the high level and frequency of data traffic.

Luckily, no matter what decision is made between the three, remember that often multiple systems can, and are often, used in conjunction with one another. For example, a company running DAS may also have NAS for certain operations. NAS can also appear where SAN is prominent. The first step would be determining the computing necessities of your businesses, and then assessing which backup system or combination of which, would suit you best.