

## Plan Ahead: A Backup Needs Questionnaire

If you are a systems administrator considering the best way to back up your network, you probably have not given much thought as to how much information is really on that system. Even if all 10 machines in one area have 4GB available, how much of that storage are the machines using at any one time? How much of what is in use do you really want or need to save and back up? Of the data worth saving, how long do you need to keep it? (Do you really want or need to keep Joe's email exchange with his fishing buddies from two years ago?)

On the physical level, how much now exists? How much will be needed in the next year or during the next six months? Are the existing products scalable enough to accommodate them? Do you really need the big cool jukebox, or is it just... cool? You need thought, foresight, and prudent consideration to find the correct solution — in a word, planning.

I have put some thought and planning into coming up with a handy guideline for thinking about these issues. If you ask yourself these questions, and find out the real, hard answers, you will be well on your way to planning the right solutions for your enterprise environment.

1. How much data will be contained in a full backup? How much data changes on a daily basis? (Based on a percentage)
2. What is the expected growth in the next six months? In the next year?
3. What is the backup window? During the week or on weekends?
4. Will automatic twinning (automatic creation of duplicate tape copies) be required on the backup jobs?

5. What are the expected retention periods? Are there any specific legal requirements?
6. Is automatic offsite tape movement required? Desirable?

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7. Are there any other devices in use in the enterprise that might influence the decision allowing use of the same media?
8. How much money do you have in the hardware budget?

### DISCUSSION POINTS

Overall, one thing to consider is whether you need or want automated tape movement. In addition to multiple tape slots, a jukebox provides the ability to automatically mount a tape. The automatic tape arm will put as many tapes into place

as needed for the backup, without forcing a human administrator to be present to change each tape as it fills up. This is a big consideration for large amounts of data, whereas for small amounts the advantages are negligible.

A jukebox also allows 24x7 access to the media, which may or may not be of importance to you.

1. Volume varies dramatically between different shops. For instance, if you had a shop with 320GB of data to back up, a seven-slot library with DLT8000 drives (40GB native capacity) would not even be able to contain a full night's backup. However, if the library were linear-tape open (LTO) (with 100GB capacity), this library would be sufficient for a full backup, and several days of incremental backups, if they are about 10 to 20 percent of the base backups. On the other end of the spectrum, a small shop with 10 machines, each having a hard drive of 18GB, would be fine with locally attached tape drives and no jukebox.

This question also balances choosing between incremental or differential backup vs. full backup each time. This can mean the difference between backing up 100GB vs. 1TB of data. The amount of data vs. the number of devices will determine if you can do full base backup during the night or over a weekend. It also drives the frequency of the backups, both base and incremental — every day, every other day, or every week.

2. The average amount of growth I have found is 50 to 60 percent a

year, although 100 percent is not uncommon. Typically, people underestimate their needs for growth. If a client tells us they expect 10 percent growth, we know to expect 30 percent plus.

One factor to consider in forecasting the expected growth is the type of files that you are collecting. For instance, video files are much larger than character data files, therefore, you can expect greater growth.

3. This is just a simple equation dividing the volume of data needing backup by the backup window — the time available for backup. How many hours are available for the backup process during the weekends or during the week? Establish how many hours are available, and the amount of data that you are backing up within that window to determine how many tape drives you will need to accomplish the task.

4. Automatic twinning has its pros and cons. It allows you to automatically create an extra copy to keep offsite, as well as the original one in the tape library. This can be a big security bonus. However, to do this, a shop needs twice the tape drive capacity that it would normally use. The additional hardware resources are more costly; you must weigh this cost against the shop's need for the automatic copy.

5. Storage of backup is always an issue. For instance, if you have eight hours of backup a week, depending on the volume of data and the number of devices, this could be up to 10 pounds of data. A shop needs to balance the types of tape to the storage capabilities based on the needed retention periods.

Legal requirements vary by industry. The financial industry, for instance, is legally required to keep a client's data for seven years. That is a lot of tape to be holding on to. Due to the bulk, the system administrator usually makes provisions to store it offsite, rather than on the premises, creating more logistics that have to be taken into consideration.

6. Does the shop have to move tapes to a vault? If so, this must be planned for. The operations staff has to be trained to know how to eject the tapes from the library if there is only one copy (instead of making a second copy to be stored offsite). If the latter is the case, restores take longer from an offsite tape, and the shop must build this into the restore process. For example, it could take one day to turn around an offsite-stored tape restore vs. the instantaneous restore from an onsite-stored tape. The decisions should be consistent with all enterprise policies.

7. If a company has been using a certain type of media for a long time, this could influence their decision to keep using the old equipment and media. If they decide it is worth biting the bullet to invest in changing to a newer technology, they will still have to keep some old equipment around until all tape has been retired. If your tapes have expiration dates of several years ahead or better, it may make sense to stay with the old equipment.

If different branches of the company have different hardware, it may make restores much harder. Restores are easier if you have the same device types.

8. This really says it all! You can only consider every other aspect of assessing backup needs in relation to your budget. 



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