
Understanding Online Backup

Several companies use technologies to offer online backup services, and DigiVault in particular is suitable for corporate use. Advantages include secure offsite backup and convenience.

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Technologists get passionate about their work from time to time, and much of what they say is taken with the proverbial pinch of salt as a result. This is sometimes justified and sometimes not, but one mantra which cannot be overstated is the need to back up everything all the time. There are a number of ways of doing this but most are flawed in that they will fall foul should your premises ever burn down or the fireproof box containing your backup disks get stolen.

The obvious way to get around this problem is to back up remotely. This can be done in a number of ways and there are a number of caveats to observe as well. The easiest means by far of backing up online is to set up a leased line, ISDN or some other sort of fast networked link to a remote server, and transfer data to it at the end of every working day, weekly or at whatever interval your company prefers. However, this is not always appropriate; it will entail extra hardware and servicing of it, and it is clearly a non-starter for a company that has only one site in the first place. It is useful, therefore, to consider what the various third parties in the business offer their customers in terms of backup service.

Online Companies

There are three major suppliers of offline backup at the time of writing, although there will doubtless be more shortly since the companies currently in the field have enjoyed some notable success. For the smaller organisation and the simpler backup the main players are Netstore (www.netstore.net) and Atrieva (www.atrivea.com); the larger system may be better directed at DigiVault (www.hays-him.co.uk), part of Hays Information Management. Connected Online (www.connected.com) has also been complimented on its security in the past, and US users might want to consider it instead of UK-based Netstore, which now uses the same software and interface. The companies themselves will not unencrypt your data, so your security should not be compromised. Most of them use military-strength encryption so that, were your files to be intercepted in transit, they would be indecipherable without your key codes.

They all work in the same basic manner. A company rents space on a server and, subject to a handful of clauses designed to keep obscenity out, they can upload whatever they wish. In the event of a crisis you can restore either online, or by paying for a CD of everything you have put on the third party's server. Encryption, compression, and wizards to help find files that have been backed up are all part of the standard service, and most if not all of the online backup people will have remote backups themselves - so if your office burns down at the same time as (for example) Netstore's HQ, you should still be assured of a copy of everything you had on the remote service at the time of your last backup.

All four companies mentioned above specialise only in the PC/Windows world. Each has stated that it is looking into the demand and feasibility of expanding beyond that, into Unix and even Macintosh; none has an announced product as yet.

DigiVault for Corporates

It is worth looking at the DigiVault service in some depth, since it has been promoted as being geared towards the corporate user rather than the consumer. Like all the remote backup companies, it offers Delta Blocking as part of its

technology. DB is a technology that ensures that only those elements of a file that have been changed are uploaded online, instead of the entire file. This is particularly important in corporate environments in which a network manager does not wish to cause a bandwidth problem by uploading an entire database every time a single new record is entered.

Splitting the data is achieved by splitting the first file upload into small sections called Deltas, so that when the file is backed up after a change only the altered Deltas are uploaded. The other backup systems have similar intelligence built in, but it's not all as good as DB - for example, Netstore will scan a client system and ensure that it backs up only the files that have changed, but will then default to making a copy of an entire file.

DigiVault claims their technique reduces the time that would be spent on a normal backup by some 95%, and the software tells the administrator how much time has actually been saved each time automatically - a feature which appears to have more to do with marketing than with any performance benefit. One definite business advantage, however, is that different versions of documents can be retrieved - if the draft of a sales report that was backed up a week ago was actually better than the one drafted two days previously, the Delta technology will have a date-stamped copy of the week-old version that can be retrieved instead of the current one.

DigiVault's main advantage as compared to its competition is that it has been built from the ground up to cover LAN data as well as that of a standalone PC. The other companies have the capacity to handle increasingly large volumes of data and will duplicate a file structure, but all the drives will appear as if they were on a single computer - they don't duplicate a LAN's exact topology.

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Remote vs Standard Backups

Remote

Many of the services allow for Delta Blocking to ensure that only changes are recorded.

Intelligent file selection - several of the online backup services will automatically ignore non-essential files (such as clipart) and not back them up, to ensure better network efficiency.

Hands-free backup and installation, allowing minimal user intervention at every stage

Diminished workload while backing up and point-and-click restoring, so that everything can be restored the following day.

It is virtually impossible to damage your backups.

You always have an offsite copy.

Standard

Tape drive technology rarely offers this, but since it does not use Internet connection resources it doesn't have to.

Depending on the software this feature can also be found in the tape backup arena.

Again, similar automation possible in tape backup as long as administrator is certain tape will be in place and removed for secure storage thereafter

Much more involved process including loading tape, initiating program, removing the tape and storing it again - not onerous but easy to neglect when under time pressure.

Corrupted drives and snapped tapes are not as common as the alarmists would have people believe, but they certainly happen.

You would be well advised to make an additional offsite copy.

Smaller Systems

Other services are better geared for the smaller system. Atrieva, for example, has a good front-end. It makes it clear on its Web site that it welcomes business customers as well as the domestic variety, and it will back up Web pages; however, it won't allow for the wholesale backup of a server and all its files. The company has recently been examining the logistics and possible pricing for such a service; this will mean a full-blown move into the business backup environment and, no doubt, is something the company does not want to rush.

The others have features that are worth considering. Netstore and Connected Online have virus checking as standard, which should be redundant for every serious business customer (although even if a virus were to get through, any .EXE files on the companies' servers are unlikely to be activated so the infection should have no means of spreading). Atrieva has a simple drag and drop interface which can cut down on learning curve time - although Netstore and Connected Online have improved on their interfaces recently, and shortened Atrieva's advantage. Atrieva is more portable between systems according to many reports, although, once armed with appropriate passwords and (downloadable) software, this writer at least had no trouble operating and managing Netstore from different PCs.

Backup Policies

As an aside, you will need to work out a backup policy and ascertain which files are mission-critical and which are not. All of the above named services will offer an initial backup of everything on a system, which will be useful if a business has unlimited resources to pay for the Internet connection time involved (the time taken for the first backup of even a single, reasonably-specified PC can exceed 24 hours). Administrators will be wary of possible bottlenecks, although it is useful to know that all the online backup companies mentioned herein will allow for a backup to be resumed from where it left off should the connection be cut by the user.

There will be files that no-one should need to back up. These include system and application files, which should be restorable from either floppies or CDs. Basically anything an employee has changed will be unique to that employee's computer and should be backed up; everything that is restorable through other means need not be backed up in this way. Application files, apart from anything, are highly unlikely to be retrievable from a backup copy since they mostly need to be installed and uninstalled using their own programs tailored for the purpose.

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Problems

Before embarking on any major program of online backup it is worth considering a couple of horror stories which have happened in business. One small business user of my acquaintance - we'll call him Fred - was in the habit of using the aforementioned NetStore, which appeared to work very well indeed with an ISDN connection. The evil day came when Fred's system suffered a massive and irretrievable crash, at which point Fred had to go to format C: on his company's installation and reinstall all of the applications, followed by restoring all the data. All the data was on Netstore's remote facilities.

However, when it came to an accounting system he had been using, the data refused to reappear on his screen when he had restored the application's data directory. There were a number of reasons for this. Firstly, Netstore backs up incrementally - so there are any number of similarly-named files around when it comes to a restore. These can all be seen when View All is selected from the Restore View menu - otherwise only the latest version will be visible.

Sifting through and finding which was the latest version was one issue facing Fred. The next issue was that his accounting system actually used its own proprietary archiving feature and refused to use its restore command to import data from a "bare" file. The support staff at the originator of the accounting system were unable or unwilling to comprehend that anyone would back up in any way that did not use the "backup" command from their own software. The issue was resolved, but took several days.

The problem is duplicated in a number of popular applications. If, for example,

it becomes important to restore a series of documents, then it is worth checking that the location of all the originals is in some way logical. Rogue users who use their own directory structures on their PCs or equivalents will inadvertently bury their data files, because a great many of the offline backup services will duplicate the file structure from the original PC network from which they are taken. This is one thing if a user called Janice has all her work in a folder called Janice's Files; it is another if she has given it a number or an obscure name, even in the best interests of security, and this can become a barrier to a "clean" backup. The matter becomes more complex when programs - and email programs appear to be the main culprits in this area - store things in places with non-obvious names or locations by default.

There are two ways of avoiding similar problems with online backups. One is to have a policy of practising restores in all of the applications whose data you are backing up; the second is to put in a rigid management practice with regard to directory structures to enable documents to be easily found once they are stored online.

Another element of online backup that should be borne in mind is that no open files will be backed up - so if the chairman is working on the vital shareholder report to save his position while the automatic backup is in process, his document will not be included in that backup. Some commentators have described this as unacceptable; they have yet to come up with a means of updating a file in real time during a live backup session.

iOra

One recent development that may have an effect on the future development of online backup for companies that do not wish to involve a third party in their data is Epsilon Technology - a system patented by British company iOra and incorporated into its SoftCD product. It works by creating an ultra-compressed amendment file that will contain the differences between an original CD-ROM and the updated data. This file is then stored on a Web server or network server of some description. It is then downloaded or emailed - the administrator can choose which - and software clients resident on the recipient's computer system will combine the amendments with the original CD-ROM - even in the absence of a writable CD-ROM or dedicated CD drive.

The example offered by iOra is a CD-ROM containing a company's sales support information for products worldwide. An original CD-ROM might contain 400 MB of data, and no administrator is going to want to update the whole disk simply because of the addition of, for example, a handful of slides. Timescales are cut down to minutes as opposed to hours. It uses two components: SoftCD Client and SoftCD Publisher. Publisher generates the files and Client decodes them. The company cites one customer that tried updating a publication by CD-ROM, email and SoftCD: the CD-ROM took the longest at two weeks to cover all customers, the email took 30 minutes but did not generate any cost savings, while SoftCD took two minutes and saved some 70% of the cost.

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The Future

This sort of replication technology is in its infancy and, at the moment, is firmly rooted in live applications rather than in backup. However, it does not take a great deal of imagination to work out that, given time savings and software to manage a CD-ROM jukebox rather than an update on a single CD, the opportunity should arise for internal network managers to take advantage of something that functions like Delta Blocker technology, which operates at the same speed as an Internet backup service, but which diminishes an organisation's reliance on a third party. For the moment, however, online is one of the better options for organisations wanting secure and affordable offsite backup.

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