



BACKUP SOFTWARE TECHNOLOGY
COMPARISON

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Backup Software Technology Comparison

There are more than enough backup and restore software applications out there. In fact we spend a good deal of time at Righteous trying to keep tabs on them all. There are well over one hundred backup software apps out there and we continue to discover more. We split these applications into three generations. These are: Legacy Backup Software, Online Backup Software, and Continuous Data Protection. Legacy Backup Software is the first generation of backup and restore utilities. It provides only basic file backups to disk or tape. Next came online backup utilities offering a huge leap forward in performance and disaster recovery. Online backup utilities still leave a lot to be desired. Today's data centers are using the latest in backup and restore technology called continuous data protection.

	Legacy Backup Software	Online Backup Software	CDP
Amount of Data Lost in a Disaster	Days	Days	Minutes
Backup Window	Hours or Days	Hours or Days	Seconds or Minutes
Open File Backups		Yes	Yes
Point-in-time Snapshots		Yes	Yes
Bare-Metal Restore		Yes	Yes

Legacy Backup Software

The first category is what we call legacy backup software. Legacy products include tape backup software and products from vendors like CA, Veritas, Commvault, Evault, and Iron Mountain, for example. Even free open source utilities like tar, rsync, and Amanda are competing in this space. These products simply copy files from one location to another. That location could be disk or tape. Some of these products have the capability to only copy the parts of files that have actually changed since your last backup instead of the entire file.

The major drawback of all of these legacy products is they read data by walking through the file system directory tree and looking for changed files. This method does not scale well and in some cases fails on servers with millions of files. These products also do not provide a consistent backup image since users are writing to the data during the backup operation. These products are also not very helpful when you have a catastrophic failure and have to restore from scratch. To recover from a disaster you have to first partition your hard disk, format it, reinstall the O/S, reinstall the backup software, then finally you can actually start restoring your data.

Online Backup Software

The second category of products is what we call online backup utilities. These work by reading your hard disk at the sector or block level. These include products like Acronis Trueimage, Symantec Live State, and ShadowStor. The advantage of these utilities is that they have no limits on the number of files because they read sectors directly off the hard disk. These online backup utilities usually have the added benefit of being able to produce a consistent point-in-time snapshot of your hard disk. And because they read disk sectors most products allow you to perform what we call a bare-metal restore. This means in the case of total catastrophe they can stream that backup disk image directly onto your

hard disk so disaster recovery is as painless as possible.

The major drawback of these utilities is that they must read all the allocated sectors on your disk and compare them to the sectors read in the last backup using checksums. This means they still take just as long as the legacy products to complete a backup. For most servers this translates to hours and sometimes even days. And this means weekly or daily backups at best.

Continuous Data Protection

In the last several years a market has emerged for what is called continuous data protection. CDP products have all of the advantages of online backup utilities, with one major difference. These products keep track of changes to the disk as they happen, and they do it with little or no overhead. This means instead of daily or weekly backups you can backup your busy server every hour or even every 30 minutes. Righteous's CDP Server product takes this to another level offering backups as frequent as every 5 or 10 minutes. This means if you have a disaster you have only lost 5 or 10 minutes worth of changes. Compared to hours or days this is a huge step forward for the IT industry. And for some businesses that difference translates to millions of dollars.

Continuous data protection for Windows and Linux servers is an emerging market and right now there aren't a lot of choices out there. In the Windows market you have: Microsoft DPM, Veritas/Symantec Backup Exec 10d, and Righteous CDP Server. As for Linux Righteous is the only CDP solution available.
