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# BACKUP

before you go forward

BY LORNE CHERRY

**L**ook me straight in the page and tell me that if your hard drive took a swan drive right now, you wouldn't be up the !\*+&% creek?

I thought so.

My subject this time isn't pretty and it isn't fun. After all, implementing a consistent and technologically sound back-up strategy won't win you any cash, clients or Cleos. And it's certainly not as fun as creating luminous green drop shadows in *Photoshop*. But it just might save your creative butt.

So here's a little 8-point test to see if you need help (answer yes or no):

1. The most important drop down menu on your Mac is the "Find" command. When you *do* use it, you're constantly amazed at all the dark and dingy corners that inhabit your hard drive.
2. You're convinced that important files are really intelligent beings that never want you to know just exactly where they are.
3. Unlabeled Jaz and Zip disks now replace your unlabeled SyQuest cartridges in the unlabeled cabinet.
4. Your hard drive was full, so you bought another one last month. Now it's full too.
5. The number of Post-It notes on your monitor is only exceeded by the number of important phone numbers buried somewhere under unimportant papers.
6. No one in your office, including you, has ever seen the top of your desk.
7. You can't find your electronic organizer. (*Hint: it's with your keys.*)
8. You're going to back up everything — tomorrow.

If you answered yes to more than two of these questions, you're a disorganized procrastinator — just like most creative people I know. Don't feel bad — I got eight out of eight.

And backup is all about being organized and setting up a routine that is strictly adhered to.

That said, here are some practical hints on choosing a reliable and consistent backup strategy. We'll also preview today's most popular and reliable backup tools and toys, so you can make this as painless as possible.

### **A THREE LEVEL BACK-UP STRATEGY — DISASTER PREVENTION, REDUNDANCY AND DAILY ARCHIVING**

Your backup strategy should consist of three levels, some of which cross over to the next level.

By far the most neglected and improperly implemented — “disaster prevention” and “hardware redundancy” backup — should never be confused with routine “storage and archiving of files”. You must make disaster prevention backup part of your daily and weekly routine in order to protect your assets from theft, fire, or the more likely hard drive failure or virus attack.

Disaster prevention also means implementation of redundant systems, especially in the case of networks. A failed server will grind your business to a screeching halt faster than the loss of any client or self-inflicted mismanagement wound.

#### **LEVEL 1: DISASTER PREVENTION**

DAT drives still remain the standard for full network backup, workstation backup, and disaster prevention, as DATs hold gigs of data, are cheap and very reliable. DAT is also getting faster, larger, and, unfortunately, more complicated — there are at least three major formats, some of which are not compatible with earlier DDS 1 standards.

The widely accepted DDS 3 format can compress up to 24 GB on one tape and is the most popular new format. DDS 2 drives are also quite popular — a little slower than DDS 3 and a little cheaper. But the price gap is so slight that you should opt for the latter format. A word of caution: those of you who are still running DDS 1 may have some compatibility problems when trying to read your old tapes on a new drive.

So don't wait until it gives up the ghost to replace it. I've already had two customers come in with DDS 1 tapes and a failed drive. It was really tough to find them a replacement DDS 1 drive, as they are no longer manufactured in quantity.

Quantum's new DLT 4000 is faster still than DDS 3 and can hold up to 40 GB per tape, while the DLT 7000 holds up to 70 GB. These drives are suitable for backing up large networks. The calculation to determine if you need one of these behemoths is easy: add up all the disk space on your server and connected workstations, multiply by two, and if you get more than thirty or so gigs, you'll need the larger format soon.

Then there's the story about the company that made meticulously complete backups every night with the internal

tape drive on their server. The tapes were stored in a cabinet next to the server, but, since thieves show little discretion, they took the backup tapes along with the server. I'm sure that unfortunate theft victim now stores one full copy of the backup off premises, just like you do — right?

Those of you who practice safe computing probably use the rotation method for backup. That is, at least nine tapes. Once a week do a full backup (1 tape), incremental backups every night (7 tapes); and, most important keep one full backup tape off premises (1 tape).

I don't recommend CDR's for disaster recover backup — 640 MB will not backup your entire hard drive. (This recommendation will take an about face by this time next year when the 4 GB+ DVD format begins to take a foothold. Until then, stick with tape.)

#### **LEVEL 2: REDUNDANCY**

If you're just looking into setting up a network or are upgrading your present server, then you should be familiar with the term “redundancy”. Large IS departments with multiple servers and large databases rely on redundancy to keep their systems up 24 hours a day. Impending hardware failure is backed by a second redundant system, designed specifically to take over when the primary system fails. Some of the strategies used by large companies can be adopted by you — especially if you are running a client server environment.

I finally trashed our three year old clone server (which has had head crashes and power supply failures on three occasions) for a name brand (Acer) server. Most important, this new server is designed to remain on all the time through redundancy in the two components that fail the most in servers, the hard drive and the power supply.

#### **WHICH RAID IS RIGHT?**

When considering the design of a new server, mirroring the drives is not usually the answer, since it slows the data read and writes down considerably. Neither is a RAID configuration that writes to two drives simultaneously, as you are halving the MTBF (mean time before failure) rate of the drive system and thus your overall reliability.

You want a RAID 4 or 5 configuration — writing to two drives simultaneously, *and* writing parity information to a third drive at the same time. The third drive allows the system to continue to function (although much slower) if one drive crashes. If the server features “hot swappable” drive bays then you can replace the crashed drive without skipping a beat. The RAID system will automatically rebuild the array into its previous state.

Expensive? Yes. But I sleep better, and besides, drive prices have sunk almost as fast as Paula Jones' credibility.

CONTINUED

# DVD CD-ROM CD-AUDIO



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Dual redundant power supplies are similar in design to hot swappable drives with respect to their ability to be changed without taking the system down. Again, they are found in more expensive servers.

Which brings me to another important point on which I've been burned before.

Buy a name brand server; if it's a Windows NT or Novell network, Acer, HP, Dell and IBM are names you should be considering. You'll need their rock solid reliability and the available four hour or better response time if there is a hardware failure.

Apple is also getting serious in the server department with its new G3 fast-wide systems.

With Rhapsody around the corner and Apple's robust and tightly integrated hardware specifications, the G3 platform could finally make some inroads into the IS department as a server platform, or at least capture back some of the server market within the publishing market that Apple partially relinquished to NT.

And by the way, our Acer server (running Novell) was over \$12,000, with dual redundant power supplies and a hot-swappable RAID system. By comparison, a fully decked-out G3, similarly configured, would probably cost the same or even less.

My point? — Apple's new systems have full price parity with name brand PC's of equal build quality.

Too many of us price compare Apple products to no-name clones when it comes to things like proper cooling, power supply quality and overall build quality. And that's like comparing Apples to...well, lemons. Look inside your Mac and then look inside a no-name PC clone. You'll be surprised at the differences.

### LEVEL 3: DAILY ARCHIVING AND STORAGE

Competing for the day-to-day and workstation backup market are the ever-popular removable cartridge drives and CDRs. Jaz and Zip have scored clear victories and seem to outsell everything else by a 10 to 1 margin — at least at our store.

The new 2 GB Jaz drives are just beginning to reach distribution as I write this. Twice as expensive, twice the capacity and twice as fast. Lets hope they're twice as reliable.

"I lost 40 hours of work," they scream, as they switch from left brain creativity to right brain psychosis, while blaming their loss of data on everyone but themselves.

Visions of these irate customers waving corrupted Jaz and SyQuest cartridges in my face still haunt me on occasion. Too many of you "backup" to clear off your hard drive without making a second copy. You should be archiving files on recordable CD-ROM or tape as well. Remember folks, backup means *two* copies.

Looking like one of those discount surplus bins, the shelves of our tech room are littered with failed Jaz and Zip

drives that have made someone's life miserable. (One customer of ours has experienced a 90% failure rate with his Jaz drives.)

Even if I'm fair to Iomega by augmenting these stats with failures due to improper use (see below), these things still break down more than a rusty Chevette with 290,000 clicks on the odometer.

Iomega, are you listening?

Yet some customers have never had a Jaz or Zip failure in two years.

Following are some tips to help put you in that category and keep you from reaching for the Rogaine. Some of these Removable Drive Care and Feeding instructions have to do with that ongoing nemesis, SCSI; the others are peculiarities with Jaz and Zip themselves.

### TIPS FOR ZIPS 'N JAZ

- Use the same formatting utilities on all Jaz and ZIP drives and disks.
- Never remove the cartridge or attempt to remove it until it has fully spun down.
- Keep your SCSI chain short. Real short. Transfer problems on large files are an indication of impending disaster in SCSIland.
- All SCSI cables should be at least double shielded. Triple shielded is better still.
- "Break up" your SCSI chain by purchasing a separate SCSI accelerator card. Adaptec's 2040UW is a good choice, especially if you want to run Jaz drives and fast 7200 RPM external hard drives. (Zips don't really need the increased transfer rate provided by a fast-wide SCSI card.)
- If it's on a Jaz cartridge, it had better be somewhere else, too.
- Zips seem much more reliable than Jaz cartridges — and the disks themselves are almost bulletproof. Our company has less than 1/10% failure rate on the Zip cartridges we've sold, and that's out of a sampling of at least 10,000.
- If you've purchased a new G3 Mac with an internal Zip and you're having problems, try this little trick: as you restart the Mac, hold the little gray button on the ZIP in (until the Mac finishes loading all extensions). This painless procedure "resets" the Zip and has worked wonders on many supposedly "dead" Zips.
- If possible, keep all parts of a project together. There's no use finding all the pictures to that 16-page catalogue you did last year when the fonts are vacationing on some unknown SyQuest island. This also avoids the unnecessary spinning up and down of cartridges.
- If you've got 100 or more Zips lying around, it's time to get a Jaz; the cost per MB is less and they're much quicker.

Perhaps with these tips — along with Iomega's commitment to quality improvement (I'll be watching those new 2 gig drives) — the Jaz drive's passion for a long and healthy life will begin to match its skyrocketing popularity as the "next SyQuest 200".

If you follow the above prescriptions for disaster prevention and archiving, your need for Rogaine will lessen and you'll spend more time creating instead of re-creating. It's all part of being organized.

As for me? — there's little hope.

I once had an electronic organizer and I kept it with me wherever I went. And then one day I sat on it. \*

—Lorne

LORNE CHERRY IS PRESIDENT OF COMPUTER BUYER'S WAREHOUSE DIRECT AS WELL AS A WRITER WHO SOMETIMES FINDS TIME TO WRITE ABOUT HOW TECHNOLOGY AFFECTS OUR LIVES.

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