

Re: rsync backup to ext3-formatted usb flash drive?

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- *From:* Brian Wells <[blue\\_guy\\_213@xxxxxxxxx](mailto:blue_guy_213@xxxxxxxxx)>
  - *Date:* Mon, 11 Aug 2008 18:39:12 -0700
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Thanks to Shachar Or and Ted Hiltz for the suggestions, I might try them sometime (particularly the nested filesystem idea, that's very clever :)

My main reply, below, is to Rick.

On Mon, 2008-08-11 at 18:33 -0400, Rick Thomas wrote:

On Aug 11, 2008, at 4:25 PM, Brian Wells wrote:

I'm looking at an alternative utility, `svn-backup-dumps`, in the same package. I could do ~800 full backups, or many more incremental backups with a full backup here and there, before running out of space. That would only write most blocks once or twice, and once it filled up I could erase old backups with only one write and reuse it, right? (If I do this, should I reformat to FAT so the controllers won't be confused?)

The inodes are going to be your problem in an ext3 filesystem, not the data blocks. Keep that in mind. So you should be trying to control the number of writes per inode. One way to get a better handle on that is by using the "noatime" mount option. Or switching to FAT, if your backup system supports FAT as a destination filesystem.

USB flash drives are not expensive -- `cdw.com` advertises a variety of 4GB drives for US\$15-\$20, and they aren't the cheapest by a good shot. No matter what you finally wind up doing, I'd still plan to replace the flash drive at least once a year. That works out to about 5 US cents/day.

Rick

Looks like you caught some wishful thinking on my part. I guessed that the inode blocks would still take a lot of writes, hence "most blocks"

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instead of "all blocks"; but I don't know enough details about whether inodes in ext3 are kept close together (i.e. in the same block) or not.

If they are not, then adding new files should create inodes in another block, which shouldn't cause excessive writes to any single block. (The access time change might, though.) Again, I don't know enough to be sure, but I was hoping it might be so.

Interestingly, while I was researching on the web I found another issue: the journal that ext3 keeps. Quoting <http://en.wikipedia.org/wiki/Ext2>

---Begin Quote---

ext2 is still recommended over journaling file systems on bootable USB flash drives and other solid-state drives. ext2 performs fewer writes than ext3 since it does not need to write to the journal. As the major aging factor of a flash chip is the number of erase cycles, and as those happen frequently on writes, this increases the life span of the solid-state device. Another good practice for filesystems on flash devices is the use of the noatime mount option, for the same reason.

---End Quote---

So it looks like there's another factor that might run the drive into the ground. Wonderful, I think I see why most people keep FAT on them.

On the noatime issue, GNOME in etch mounts the drive automatically for me when I plug it in; I'm not sure how to configure GNOME to use custom mount options, short of unmounting and remounting manually every time I stick the drive in. I think I'm also seeing one kind of reason that many people hate automagical GUIs. Can someone point me to the docs?

Thanks,  
Brian

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