

rsnapshot

A Simple Backup Solution

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A Few Questions

Have you ever
had a total
disaster?



Have you ever
had an operating
system fail?



Have you ever
deleted a file you
didn't want to?

#rm -rf /

Severity & Frequency

- Major disasters tend to be infrequent but are totally destructive:
 - High levels of data destruction
 - Low frequency of occurrence
- Small accidents tend to be very frequent but of low importance:
 - Nuisance level of damage
 - High frequency of occurrence

How Do You Backup?

- Home made script 45%
- Don't backup 21%
- BackupPC 8%
- Bacula 8%
- **rsnapshot 7%**
- A commercial application 6%
- Amanda 2%

<http://www.debian-administration.org/polls/129/>

What is rsnaphot?

rsnaphot is an open-source near-Continuous Data Protection backup solution in the replication/snapshot family.

Traditional

- Discontinuous data protection: nightly or weekly backups
- Not possible to restore between backups
- Often difficult to restore from without sophisticated management software
- Backups typically made off-line to tape or other similar medium
- Well understood and cheap

“Modern”

- Continuous Data Protection
- All saved changes are journalled or logged
- Possible to restore any file from any point in time
- Recovery is “on demand” in real-time
- Typically backups are replicated to a file system before off-lined to tape
- New and potentially very expensive

Near-CDP

- Near-CDP is CDP like but IS **NOT CDP**
- Regular snapshots throughout the working day but not continuous
- Snapshots stored on on-line in a file system not off-line
- Relatively cheap, now that disk is cheap and networks are fast – several implementations
- Integrates with traditional backup solutions

Why rsnapshot?

- Lightweight application:
 - Easy configuration
 - More sophisticated than a DIY solution
 - Less sophisticated than BackupPC
- Near-CDP better for real-world scenarios

What is rsnapshot made from?

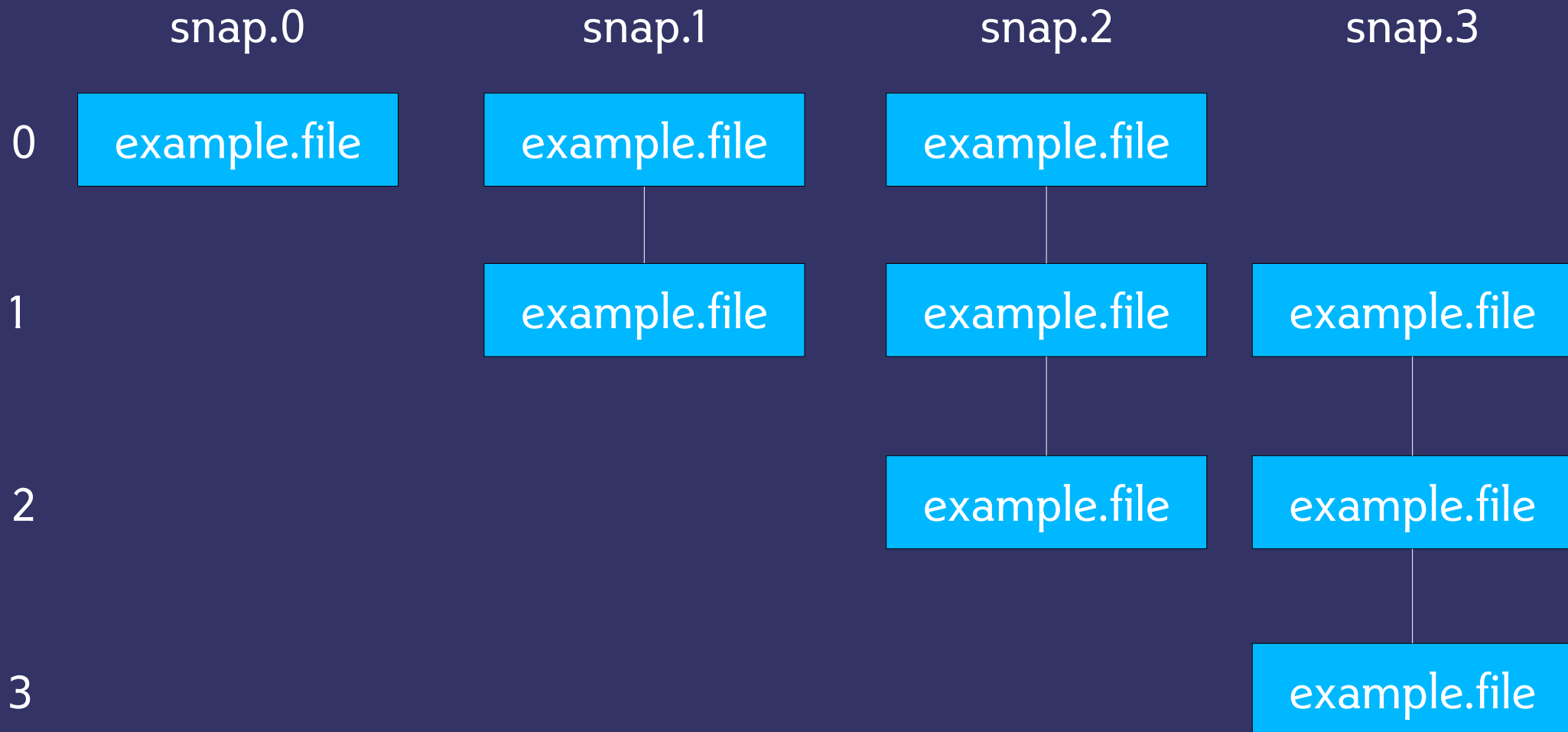
- Uses commonly used components of any GNU/POSIX system:
 - Perl
 - rsync
 - File system “hard links”
 - logrotate
 - Standard GNU/POSIX commands
 - Open SSH (if you want remote)

The Theory

- Create a “snapshot” of your files with rsync
- On subsequent runs use rsync to hard link files between the previous run and the current run
- Use logrotate to shuffle the snapshot stack deleting the oldest in the stack
- snapshot.0 is always the newest, each additional snapshot.n+1 is one snapshot older

http://www.mikerubel.org/computers/rsync_snapshots/

Snapshots



Installation

- Is in the common repositories, for example on Debian:
 - `$ sudo aptitude install rnsapshot`
- Or download directly from www.rsnapshot.org
- You will need rsync, perl and logrotate as a minimum

Configuration

- Everything is configured by default from a single text configuration file and one `cron.d` file:
 - `/etc/rsnapshot.conf`
 - `/etc/cron.d/rsnapshot`
- Additional configuration files can be created for specific purposes
- Additional filter rules can be created to configure includes & excludes for `rsync`

/etc/rsnapshot.conf

- The Debian package defaults are pretty good and should work out of the box
- Format is simple key value settings:
 - Keys are separated from values by **tabs NOT spaces**
 - Directories must end with trailing slash

Snapshot Root Directory

```
#####  
# SNAPSHOT ROOT DIRECTORY #  
#####
```

```
# All snapshots will be stored under this root directory.
```

```
#
```

```
snapshot_root    /srv/snapshots/
```

```
# If no_create_root is enabled, rsnapshot will not automatically  
# create the snapshot_root directory. This is particularly useful  
# if you are backing up to removable media, such as a FireWire  
# or USB drive.
```

```
#
```

```
no_create_root  0
```

External Program Dependencies

```
# LINUX USERS: Be sure to uncomment "cmd_cp". This gives you
# extra features.
#
cmd_cp          /bin/cp

# Uncomment this to specify the path to rsnapshot-diff.
#
cmd_rsnapshot_diff  /usr/bin/rsnapshot-diff

# Specify the path to a script (and any optional arguments) to
# run right before rsnapshot syncs files
#
cmd_preexec       /etc/cron.daily/50-svn-hotcopy

# Specify the path to a script (and any optional arguments) to
# run right after rsnapshot syncs files
#
#cmd_postexec     /path/to/postexec/script
```

Backup Interval

```
#####
#           BACKUP INTERVALS           #
# Must be unique and in ascending order #
# i.e. hourly, daily, weekly, etc.     #
#####
```

```
interval      hourly  8
interval      daily   7
interval      weekly  6
#interval     monthly 3
```

Backup Points

```
#####  
### BACKUP POINTS / SCRIPTS ###  
#####
```

Lapin-Bleu

```
backup /home/          lapin-bleu/  
backup /etc/           lapin-bleu/  
backup /usr/local/     lapin-bleu/  
backup /srv/www/       lapin-bleu/  
backup /srv/archive/subversion lapin-bleu/
```

Wombat

```
backup root@wombat:/home/      wombat/  
backup root@wombat:/etc/       wombat/
```

Fennec

```
backup root@fennec:/home/      fennec/  
backup root@fennec:/etc/       fennec/
```

/etc/cron.d/rsnapshot

```
# This is a sample cron file for rsnapshot.
# The values used correspond to the examples in /etc/rsnapshot.conf.
# There you can also set the backup points and many other things.
#
# To activate this cron file you have to uncomment the lines below.
# Feel free to adapt it to your needs.
#
#Min      Hour      DoM      Month     DoW      who      command

01        6,12,18-23 *        *         *         root     /usr/bin/rsnapshot hourly
15        20        *        *         *         root     /usr/bin/rsnapshot daily
25        20        *        *         1         root     /usr/bin/rsnapshot weekly

#30       2         1        *         *         root     /usr/bin/rsnapshot monthly
```

/root/.ssh/config

```
Host wombat  
  Hostname wombat.iredale.net  
  user root  
  BatchMode yes  
  IdentityFile /root/.ssh/rsnapshot.id_rsa
```

```
Host fennec  
  Hostname fennec.iredale.net  
  user root  
  BatchMode yes  
  IdentityFile /root/.ssh/rsnapshot.id_rsa
```


/root/.ssh/authorized_keys

```
no-port-forwarding,no-X11-forwarding,no-agent-forwarding,no-pty,command="/root/rsnapshot" ssh-rsa AAAAB...== root@lapin-bleu
```

```
#!/bin/dash
#/root/rsnapshot
if [ "$SSH_ORIGINAL_COMMAND" =
    'rsync --server --sender -logDtprCRSe.iL --numeric-ids . /home' ]
then
    eval $SSH_ORIGINAL_COMMAND
elif [ "$SSH_ORIGINAL_COMMAND" =
    'rsync --server --sender -logDtprCRSe.iL --numeric-ids . /etc' ]
then
    eval $SSH_ORIGINAL_COMMAND
else
    exit 0
fi
```

What does it look like?

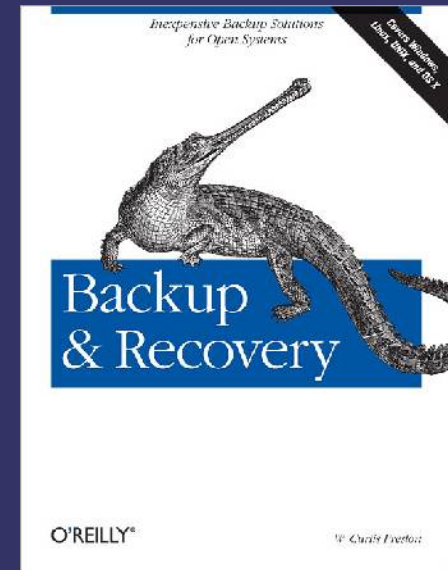
/srv/snapshots

```

drwxr-xr-x 5 root root 49 2008-07-30 21:01 weekly.5
drwxr-xr-x 5 root root 49 2008-08-11 21:01 weekly.4
drwxr-xr-x 5 root root 49 2008-08-15 21:01 weekly.3
drwxr-xr-x 5 root root 49 2008-09-08 21:01 weekly.2
drwxr-xr-x 5 root root 49 2008-09-15 21:01 weekly.1
drwxr-xr-x 5 root root 49 2008-09-22 21:02 weekly.0
drwxr-xr-x 5 root root 49 2008-09-25 21:01 daily.6
drwxr-xr-x 5 root root 49 2008-09-26 21:01 daily.5
drwxr-xr-x 5 root root 49 2008-09-27 21:01 daily.4
drwxr-xr-x 5 root root 49 2008-09-28 21:01 daily.3
drwxr-xr-x 5 root root 49 2008-09-29 21:01 daily.2
drwxr-xr-x 5 root root 49 2008-09-30 21:01 daily.1
drwxr-xr-x 5 root root 49 2008-10-01 21:01 daily.0
drwxr-xr-x 5 root root 49 2008-10-02 19:02 hourly.7
drwxr-xr-x 5 root root 49 2008-10-02 20:01 hourly.6
drwxr-xr-x 5 root root 49 2008-10-02 21:01 hourly.5
drwxr-xr-x 5 root root 49 2008-10-02 22:01 hourly.4
drwxr-xr-x 5 root root 49 2008-10-02 23:01 hourly.3
drwxr-xr-x 5 root root 49 2008-10-03 06:01 hourly.2
drwxr-xr-x 5 root root 49 2008-10-03 12:01 hourly.1
drwxr-xr-x 5 root root 49 2008-10-03 18:01 hourly.0

```

References



- Rsnapshot site:
 - <http://www.rsnapshot.org/>
- Rsnapshot articles:
 - <http://www.debian-administration.org/articles/217>
- Backup and Recovery by W. C. Preston:
 - <http://www.backupcentral.com/>
 - <http://oreilly.com/catalog/9780596102463/>

My Slide & Talk Resources

- <http://www.iredale.net/p/by-type/talk/>
- <http://www.hants.lug.org.uk/cgi-bin/wiki.pl?TechTalks>
- <http://www.slideshare.net/drajt/>

Thank You

Any
Questions?