Backup made easy

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About me

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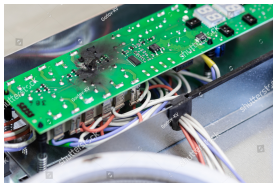Work Platform engineer @ uni software plus GmbH

Experience Linux Sysadmin, DevOps

Why backup? II

Have you ever. . .

- lost a storage medium or device?

- had a disk die on you?

- called dd if=/dev/zero of=/dev/xxx with the wrong device?

- run rm −rf / var as root?

- run rm −rf .*?

- dropped the wrong database?

Objectives I

Recovery Point Objective (RPO)

maximum acceptable interval during which transactional data is lost from an IT service

aka - How much data are you willing to lose?

Recovery Time Objective (RTO)

The amount of time elapsed between disaster and restoration of business functions

aka - How long until the data is back for use?

Objectives II

Data security

Who has access to the backup data, how safe is the backup location against loss?

Data retention

How far back can backups be kept? Is there enough storage?

Integrity

Is the backup's medium still ok, are the files kept the same as copied from the source?

Objectives III

Monitoring

Is the backup process completed without error, and on time?

Self-Service

Can the backup be accessed without administrator intervention? Do you protect against a user "Oopsie" and/or complete failure?

Further info [8], [5, pp. 793]

Borgmatic

Frontend for Borg Backup
https://www.borgbackup.org/

https://torsion.
org/borgmatic/

Features I

- Encryption

- Compression

- Deduplication

- Database integration

- Block device backup (no file based restore!)

- Notifications

- Multiple backup locations

- Raw borg backup commands callable

Features II

- SystemD units/timers

- Include/exclude lists

- Browseable archives via FUSE mounts

- Selective restore with standard (rsync, cp, etc.) commands

- Complete restores

- Backup targets only need SSH (with sshfs) [3]

- GUI alternative - vorta [7]

Limitations

- Unix-based OS (Workarounds exist, but aren't pretty)

- No role based seperation of concerns

- No ready made restore media/procedures

- No server-based scheduling

- No file based restore on block based backups

- No ready made self service solutions

- No volume shadow copy style backups

Alternatives I

Excerpt of [9]

- Restic [6] rather close competitor to Borg, Windows supported

- Amanda [1] „Enterprise ready", lots of moving parts, GUI, Windows supported

- Bacula [2] „Enterprise ready", lots of moving parts, GUI, Windows supported

- Duplicati [4] Windows supported, GUI

Alternatives II

Commercial, enterprisey solution examples

- EMC Networker

- Commvault

- HP Data Protector

- IBM Spectrum Protect (aka TSM)

- Veeam

```
[fuero@t470]: ~/dev/talks/borgmatic/lab-$ # Launch the tmux se
```

Ideas for the adventurous

- Backup pod's volumes in Kubernetes via an injected container
- Server-side scheduling with client-side exposed SSH server
- Automatic filesystem snapshot creation and backup with a suitable filesystem and snappy
- Automatic backup before system updates with package manager hooks
- Backup remote systems to your computer via SSHFS

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