FR

Guide Pratique

Haute Disponibilite & Backups

Regle 3-2-1, snapshots et restauration

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Sommaire

1. Regle 3-2-1

- 3 copies des donnees (original + 2 sauvegardes)
- 2 supports differents (SSD local + NAS)
- 1 copie hors site (cloud : Backblaze B2, S3)
- Tester la restauration = seule vraie validation

2. Snapshots Proxmox

```
# Creer snapshot :
qm snapshot 101 avant-upgrade --description "Avant kernel 6.8"

# Restaurer (VM arretee) :
qm stop 101
qm rollback 101 avant-upgrade
qm start 101

# Lister / Supprimer :
qm listsnapshot 101
qm delsnapshot 101 avant-upgrade

# Backup programme (Proxmox UI) :
# Datacenter > Backup > Add
# Schedule: daily 02:00 | Retention: 7 daily
```

3. Proxmox Backup Server

- Installer PBS sur serveur dedie (ISO proxmox.com)
- Proxmox VE > Datacenter > Storage > Add > PBS
- Deduplication + compression + backups incrementaux
- Retention : 7 daily, 4 weekly, 3 monthly

4. Backup volumes Docker

```
#!/bin/bash
BACKUP_LOCAL="/mnt/nas/backups/docker/$(date +%Y-%m-%d)"
mkdir -p "$BACKUP_LOCAL"

backup_service() {
    tar czf "${BACKUP_LOCAL}/${1}-$(date +%Y%m%d).tar.gz" "$2"
}

backup_service "ghost" "/mnt/docker-data/ghost-blog/content"

docker stop vaultwarden
backup_service "vaultwarden" "$HOME/docker/vaultwarden/data"
docker start vaultwarden

backup_service "uptime-kuma" "$HOME/docker/uptime-kuma/data"
```

5. rclone vers Backblaze B2

```
# Installer rclone :
curl https://rclone.org/install.sh | sudo bash

# Configurer B2 :
rclone config
# > New remote (n)
# > Name: b2
# > Provider: Backblaze B2
# > application-key-id + application-key

# Sync vers cloud :
rclone sync /backup/docker/ b2:mon-bucket/docker/ --progress

# Cout B2 : ~0.006$/Go/mois
```

6. Test de restauration

```
# Proxmox : restaurer sur VM ID 999 (test)
# Datacenter > Backup > Restore > VM ID=999

# Docker (VM de test separee) :
mkdir -p /test/ghost-blog/content
tar xzf /backup/ghost-20260312.tar.gz \
    -C /test/ghost-blog/content/

mkdir -p /test/vaultwarden/data
cp /backup/vaultwarden-20260312.db \
    /test/vaultwarden/data/db.sqlite3

# Verifier que les services demarrent et fonctionnent
```

7. Monitoring backups

```
#!/bin/bash
BACKUP_DIR="/mnt/nas/backups/docker"
MAX_AGE_HOURS=25

LAST=$(find "$BACKUP_DIR" -maxdepth 1 -type d -name "20*" | sort | tail -1)
AGE=$(( ($(date +%s) - $(stat -c %Y "$LAST")) / 3600 ))

if (( AGE > MAX_AGE_HOURS )); then
    echo "ALERTE: Dernier backup a ${AGE}h"
fi

for f in "$LAST"/*.tar.gz; do
    tar tzf "$f" > /dev/null 2>&1 || echo "CORROMPU: $f"
done
```

8. Cluster Proxmox HA

```
# Minimum : 3 noeuds + stockage partage (Ceph/NFS)

# Creer cluster (noeud principal) :
pvecm create mon-cluster

# Rejoindre cluster :
pvecm add IP-NOEUD-PRINCIPAL

# Statut cluster :
pvecm status && pvecm nodes

# HA pour une VM :
# Datacenter > HA > Add > VM ID: 101
```

Article complet : botum.ca/haute-disponibilite-backups/

Site : www.botum.ca -

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