Restic: High-Availability Backup Strategy for Immich and Syncthing

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(Simplified & Practical Edition – Generic Template)

Overview

This is a clean, generic template of a proven, simple backup strategy using a dedicated Vault LXC and Restic with REST server.
Separate repositories for different services, easy user looping, and direct pruning — minimal complexity, maximum reliability.

Infrastructure (Example Layout)

Host / Service	Example IP	Role	Example CTID
Proxmox VE Host	192.168.50.10	Hypervisor, ZFS storage	-
Immich LXC	192.168.50.142	Production Immich application	142
Syncthing LXC	192.168.50.135	Multi-user Syncthing instance	135
Vault/Restic LXC	192.168.50.220	Backup controller	220
NAS	192.168.50.80	Restic REST server (listening on 10.20.20.80)	-

Read-Only Mount Points in Vault LXC

Example ZFS Dataset on Host	Mount Point in Vault LXC	Purpose
`/tank/subvol-142-disk-1`	`/source/immich`	Immich library/uploads
`/tank/subvol-135-disk-2`	`/source/syncthing-alice`	Syncthing user Alice
`/tank/subvol-135-disk-3`	`/source/syncthing-bob`	Syncthing user Bob
`/tank/subvol-135-disk-4`	`/source/syncthing-charlie`	Syncthing user Charlie

Configured on Proxmox host with read-only mounts (`ro=1`).

Restic REST Server on NAS (10.20.20.80:8000)

Two separate repositories:

- `/photos` ? authenticated with user `photos-backup`
- `/sync-main` ? authenticated with user `sync-backup`

`--append-only` is **not** used, allowing the backup client to handle pruning directly.

Generic Backup Script Template

Place this in the Vault LXC as `/root/backup-mountpoints.sh`:

```
#!/bin/bash
# Simple backup script template for Immich + multi-user Syncthing

# --- CONFIGURATION: IMMICH ---
IMMICH_REPO="rest:http://photos-
backup:StrongPhotoPass2025@10.20.20.80:8000/photos"
IMMICH_PASS="StrongPhotoPass2025"

# --- CONFIGURATION: SYNCTHING ---
SYNC_REPO="rest:http://sync-
backup:StrongSyncPass2025@10.20.20.80:8000/sync-main"
SYNC_PASS="StrongSyncPass2025"
```

```
echo "--- Backup Started: $(date) ---"

# ==========================================
# 1. IMMICH BACKUP
# ==========================================
echo "Backing up Immich..."
RESTIC_PASSWORD=$IMMICH_PASS restic -r $IMMICH_REPO backup
/source/immich \
    --host immich-server --tag "auto" --verbose

# Prune Immich repo
RESTIC_PASSWORD=$IMMICH_PASS restic -r $IMMICH_REPO forget \
    --keep-last 3 --keep-daily 7 --keep-weekly 4 --prune

# ==========================================
# 2. SYNCTHING BACKUP
# ==========================================
echo "Backing up Syncthing Users..."
USERS=("alice" "bob" "charlie")

for USER in "${USERS[@]}"; do
    echo "Processing $USER..."
    RESTIC_PASSWORD=$SYNC_PASS restic -r $SYNC_REPO backup
"/source/syncthing-$USER" \
        --host syncthing-server --tag "user:$USER" --verbose
done

# Prune Syncthing repo (once for all users)
RESTIC_PASSWORD=$SYNC_PASS restic -r $SYNC_REPO forget \
    --keep-last 3 --keep-daily 7 --keep-weekly 4 --prune

echo "--- Backup Finished: $(date) ---"
```

Security hardening:

```
chmod 700 /root/backup-mountpoints.sh
chown root:root /root/backup-mountpoints.sh
```

Automation & Scheduling

Crontab in Vault LXC (`crontab -e`):

```
0 3 * * * /root/backup-all.sh
```

Log rotation (`/etc/logrotate.d/restic`):

```
/var/log/restic-backup.log {
    daily
    rotate 14
    compress
    missingok
    notifempty
}
```

Security Model

- Isolation: Production containers (Immich & Syncthing) have no network access to the NAS backup storage.
- Read-Only Access: Vault LXC cannot modify or delete live data.
- Immutability: --append-only on REST server prevents deletion of snapshots even if Vault is compromised.
- Encryption & Integrity: Restic encrypts all data and performs cryptographic checks.

Recovery Examples

```
# List Immich snapshots
RESTIC_PASSWORD=StrongPhotoPass2025 restic -r rest:http://photos-backup:...@10.20.20.80:8000/photos snapshots

# Restore latest Immich
RESTIC_PASSWORD=StrongPhotoPass2025 restic -r ... restore latest --target /tmp/restore-immich

# List only Bob's snapshots
RESTIC_PASSWORD=StrongSyncPass2025 restic -r ... snapshots --tag user:bob

# Restore Bob's data
RESTIC_PASSWORD=StrongSyncPass2025 restic -r ... restore latest --tag user:bob --target /tmp/restore-bob
```

This template preserves the simplicity and effectiveness of your working setup while keeping all identifiers generic and secure. Copy, adapt, and deploy confidently!

Revision #7

Created 2025-12-21 14:21:34 UTC by Carsten

Updated 2026-02-14 15:37:12 UTC by Carsten