

2. Same PVE Machine Dedicated Drives (Requires 1 Machine)

In this strategy we will use different storage drives for our backups. We assume a Proxmox environment from which you want to backup the virtual machines. What we will do is

1. Create a Proxmox PBS VM on our main PVE machine
2. Pass through the drives to the PBS VM (1 drive would suit but a mirrored pool would of course be best). This prevents the ZFS on top of ZFS problem.
3. Then schedule backup jobs to our PBS on the same machine but stored on separate drives

This method is especially great if you have a system that allows for multiple drives for storage. For instance an ATX case would be great for this. You could have for instance a mirrored ZFS pool for production and then a third drive or mirrored pool dedicated solely to backups. So yes if you just have a small mini pc that has no options for drive expansion then this method won't be for you.

Pass Through the Drives

Benefits

Performance Impact: A PBS VM on the same system can experience noticeable performance degradation during large backup operations, as it competes for disk I/O and CPU cycles with production workloads. A bare metal PBS system provides guaranteed performance without contention.

Reliability: With a bare metal deployment, if your production hypervisor or its storage fails, your backups remain completely separate and accessible. A VM-based approach creates a single point of failure at the host level.

Practical Trade-offs: The VM approach makes sense for smaller deployments where backup windows are outside peak production hours and where cost is a primary concern. Bare metal becomes more attractive as your backup volume grows or if downtime tolerance is very low.

Enhanced Data Protection

- **Isolation from Hardware Failures:** Storing backups on separate drives protects against data loss due to hardware failures or corruption in the production environment.

- **Corruption Prevention:** If the production drives become corrupted, backups on different drives remain intact and accessible.

Improved Security

- **Threat Isolation:** Keeping backups on different drives enhances security by isolating them from potential threats that may affect the production environment.
- **Access Control:** This separation allows for stricter access controls, reducing the risk of unauthorized access to backup data.

Backup Integrity

- **Consistent Availability:** Backups stored on different drives ensure that they are available even if the primary system experiences downtime or issues.
- **Disaster Recovery:** In the event of a disaster, having backups on separate drives facilitates quicker recovery processes, minimizing downtime.

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