

4. Remote Backups

Now, regardless if you have setup your backups via method 1,2 or 3 it is still advised to have a remote backup in place. This is also known as a disaster recovery backup in the case of your house burning down, a flood, your setup gets stolen or come up with another crazy reason your stuff would be gone. In that case you wished you had a remote backup in place. In this chapter we will discuss just that

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1. Remote PBS

2. Remote S3 Storage

Deduplication Capabilities

Remote PBS is generally better if you're looking for performance, cost efficiency, and faster recovery times—especially if you have control over both your local and remote PBS instances on reliable networks. You get PBS's full optimization for backup workflows.

S3 is better if you prioritize cloud-based redundancy, geographic distribution, vendor lock-in avoidance, or if you lack a reliable remote location for another PBS instance. The higher costs may be worth it for extreme durability and geographic resilience.

For most setups with control over infrastructure, PBS-to-remote-PBS is the superior choice due to better performance and lower costs.

When PBS-to-PBS is Better

- Bandwidth efficiency: Deduplication before transmission saves significant bandwidth for remote replication
- Storage efficiency: The remote PBS instance benefits from ongoing deduplication across all backups
- Recovery speed: Direct PBS-to-PBS transfers and restores are typically faster than S3 retrieval
- Cost: Less storage consumed on the remote side due to deduplication

When S3 Might Be Acceptable

- Geographic distribution: S3 offers geo-redundancy and availability across regions
- Disaster recovery: Completely separate infrastructure from your PBS systems
- Compliance: Some regulations prefer data in cloud object storage
- Simplicity: Less infrastructure to manage

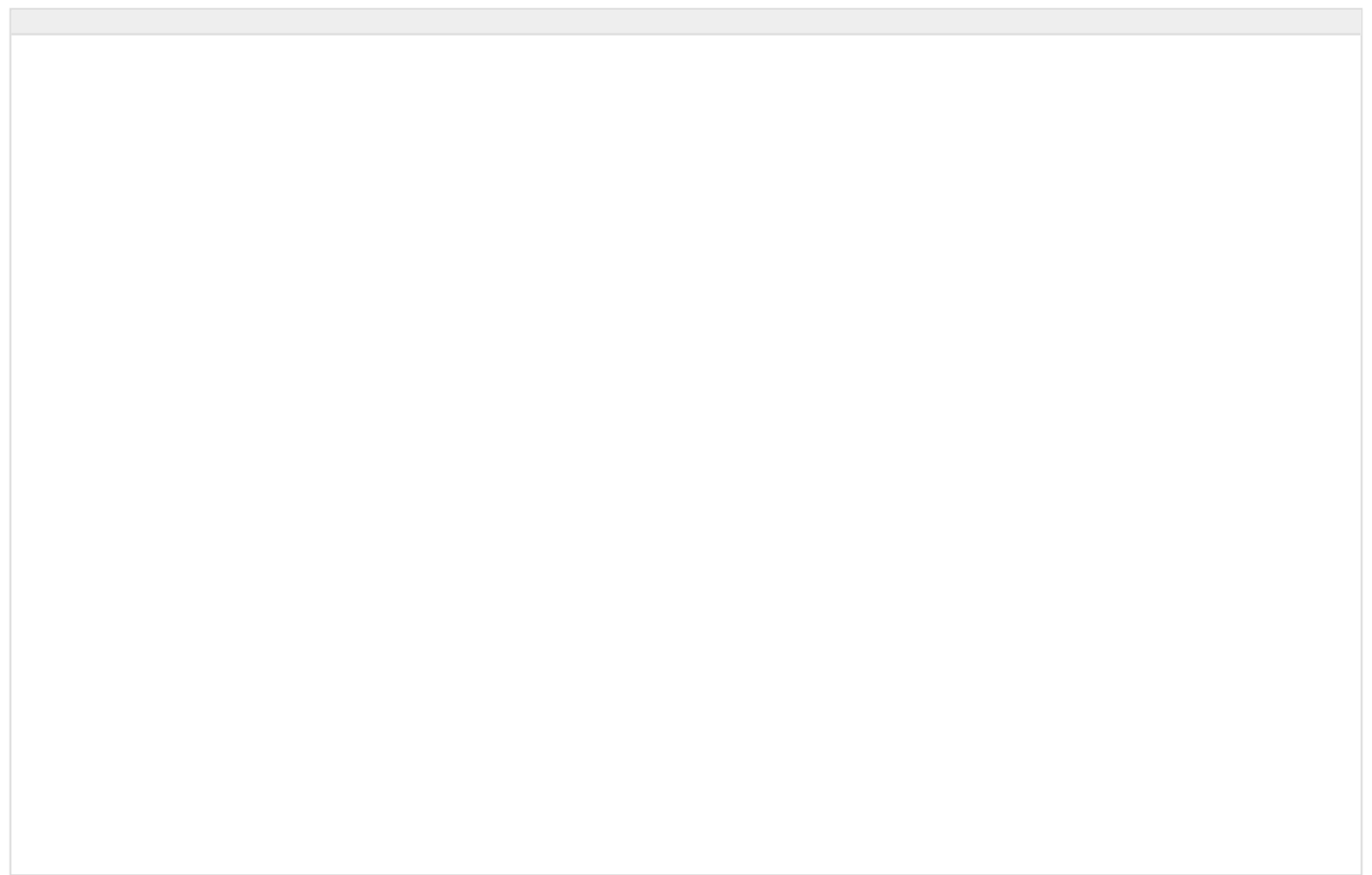
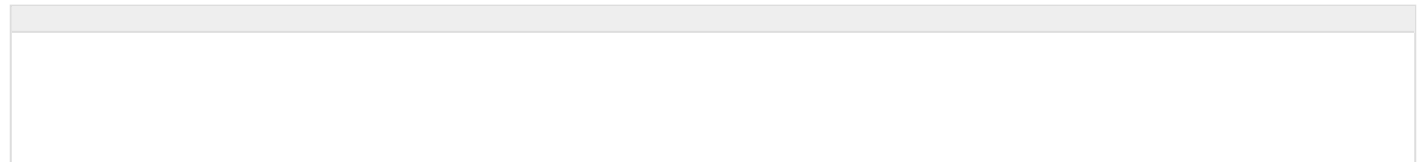
For most scenarios, you're right that another PBS system is superior for deduplication efficiency and performance, but S3 still serves valid use cases, particularly for geographic separation and disaster recovery scenarios.

3. RustFS remote setup

Source: <https://medium.com/@VasiliGrigolaia/how-to-backup-proxmox-to-aws-s3-the-modern-way-pbs-4-0-99c5c501c693>

Offsite Managed PBS

Your Proxmox backups live on the same server as your VMs. Maybe on the same disk array. If that server catches fire, gets cryptolocked, or eats its ZFS pool, your backups go with it. Offsite backup fixes this, but choosing the right offsite approach in 2026 isn't straightforward. This guide covers every realistic option and helps you pick one.



Key Takeaways

- Managed PBS hosting is the fastest path to offsite backups with zero infrastructure overhead
- S3 object storage (B2, Wasabi) works with PBS 4.0 but adds egress costs and is still a tech preview

- Self-hosting PBS on a VPS gives full control but costs more time than money
- Veeam supports Proxmox since v12.2 but skips LXC containers and requires Windows
- The right choice depends on your data volume, technical skill, and how much time you want to spend on infrastructure

Why Offsite Backups Matter for Proxmox

Local backups protect you from accidental deletion and disk failures. They don't protect you from ransomware that encrypts every reachable volume, a datacenter fire, a stolen server, or a disgruntled admin who wipes the RAID array.

Proxmox Backup Server already handles incremental, deduplicated backups brilliantly. The missing piece for most homelabs and small businesses is getting a copy out of the building. The [3-2-1 backup strategy](#) puts it simply: at least one copy offsite.

The question is how.

Option 1: Managed PBS Hosting

Managed Proxmox Backup Server hosting means someone else runs a PBS instance for you. You point your local PBS at their remote, create a [sync job](#), and encrypted backups replicate on schedule. No VPS to maintain, no storage to provision, no security to harden.

Providers: remote-backups.com, Tuxis, and a few smaller operators.

How it works

Your local PBS creates a sync job with `--encrypted-only` targeting the remote PBS. Only encrypted chunks transfer. The remote side handles deduplication, verification, and pruning independently. You get server-side verification without egress costs.

Pros

- 5-minute setup via PBS GUI
- Native sync jobs, pruning, and verification
- Flat-rate pricing with no egress fees
- [Client-side encryption](#) means the provider never sees your data
- No servers to maintain

Cons

- Higher per-TB cost than raw storage (€8.50/TB vs €3-5/TB for object storage)
- You depend on the provider's infrastructure and uptime

For most Proxmox users, this is the fastest path from "no offsite backup" to "offsite backup working."

Option 2: S3 Object Storage with

PBS 4.0

PBS 4.0 introduced S3-compatible datastores as a tech preview. This means you can point a PBS datastore at an S3 bucket from providers like Backblaze B2, Wasabi, IDrive e2, or Hetzner Object Storage.

How it works

You configure an S3 endpoint in PBS, provide access keys, and PBS writes backup chunks as objects. From PBS's perspective, it behaves like a local datastore backed by remote storage.

Pros

- Low per-TB storage costs (\$5-7/TB/month depending on provider)
- No server infrastructure to manage

- Scales to massive datasets without provisioning

Cons

- S3 datastore support is a tech preview, not production-ready
- Verification downloads all chunks (egress costs)
- No server-side deduplication (each chunk is a separate S3 object)
- Restores incur egress fees
- API rate limits can slow operations on large datastores

The [Backblaze B2 comparison](#) breaks down the real-world cost when you include verification and restore egress.

Egress Costs Add Up Fast

Verifying a 2 TB datastore on B2 costs ~\$20 per run. Weekly verification adds \$80/month on top of storage. Budget for egress before committing to S3-based offsite backup.

Option 3: Self-Hosted PBS on a VPS

Rent a VPS from Hetzner, Netcup, OVH, or similar, install PBS, and sync your local instance to it. Full control, full responsibility.

How it works

You provision a VPS with enough storage, install PBS, configure ZFS or ext4, harden SSH, set up a firewall, and create a sync job from your local PBS to the remote instance.

Pros

- Full root access and control
- Can serve multiple PBS clients
- Reuse the VPS for other services
- Choose any provider and location

Cons

- You manage OS updates, PBS updates, and security patches
- ZFS on a VPS has quirks (no native ARC tuning, limited RAM)
- Monitoring, alerting, and maintenance are on you
- A misconfigured firewall or expired certificate means failed sync jobs you might not notice

The [self-hosted VPS comparison](#) has a detailed cost breakdown versus managed PBS.

Storage Box Workaround

Some users rent a Hetzner VPS plus a Storage Box, mounting the box via CIFS. This adds complexity and can cause reliability issues. See the [Hetzner Storage Box comparison](#) for details.

Option 4: Commercial Backup

Software

Enterprise tools like Veeam and NAKIVO have added Proxmox support. They bring features PBS doesn't have, but with trade-offs.

Veeam Backup & Replication

Veeam added Proxmox VE support in version 12.2. It handles VM-level backup with application-aware processing, centralized management, and multi-hypervisor support. But it requires a Windows server to run, doesn't back up LXC containers, and licensing costs scale with your VM count. There's no Community Edition for Proxmox.

NAKIVO Backup & Replication

NAKIVO also supports Proxmox VE. Similar feature set to Veeam with a different pricing model. Same limitation around LXC containers.

When commercial software fits

- You run Proxmox alongside VMware or Hyper-V and need one tool for all
- Compliance requirements demand application-aware backups (Exchange, SQL Server)
- You have budget for enterprise licensing

For Proxmox-only shops, PBS is purpose-built, free, and handles both VMs and LXC containers. Adding a managed offsite PBS target gives you the offsite leg without switching backup tools.

Option 5: DIY Physical Offsite

The old-school approach: run a second PBS at a friend's house, a colo facility, or a branch office. Connect via VPN and sync.

How it works

Set up a physical machine with PBS at a second location. Create a site-to-site VPN (WireGuard works well) and configure sync jobs over the tunnel.

Pros

- No monthly per-TB costs beyond electricity and internet
- True physical separation
- You control every layer of the stack
- Can be air-gapped (disconnect after sync for ultimate protection)

Cons

- Requires hardware at a second location
- Internet upload speed limits initial sync (use the [seed calculator](#))
- You maintain two physical machines
- Hardware failures at the remote site need physical access to fix
- Asymmetric home internet connections make initial seeding slow

This approach makes sense if you already have a second location and spare hardware. Otherwise, the upfront and ongoing effort is hard to justify.

How to Choose

Your best option depends on four factors:

Data volume: Under 5 TB, managed PBS or S3 storage both work well. Over 10 TB, per-TB pricing differences compound and self-hosting or DIY physical starts to make financial sense.

Technical skill: If you're comfortable managing VPS security, ZFS tuning, and PBS updates, self-hosting saves money. If backup infrastructure isn't where you want to spend your time, managed PBS removes that work entirely.

Budget: Raw storage is cheapest on S3 or Storage Boxes. But total cost of ownership (including time, egress, and risk) often favors managed PBS for datasets under 10 TB.

Compliance: If you need GDPR-compliant EU data residency, your options narrow to EU-based providers. If you need application-aware backup, Veeam is the answer.

Offsite Backup Options Compared

Factor	Managed PBS	S3 (B2)	VPS + PBS	Veeam	DIY Physical
Monthly cost (2 TB)	€17/mo	~\$12/mo + egress	€15-25/mo	License + storage	Hardware + power
Setup time	5 min	30-60 min	2-4 hours	Half day	Full day
Ongoing maintenance	None	Low	Monthly	Monthly	As needed
PBS native	Tech preview				
LXC container support					
Free verification					
Egress fees	None	\$0.01/GB	None	Varies	None

Wrapping Up

Every Proxmox setup needs offsite backups. The best option isn't the cheapest per GB. It's the one you'll actually maintain. For most homelabs and small businesses, managed Proxmox Backup Server hosting hits the right balance of cost, simplicity, and reliability. For larger environments or control-first admins, self-hosted PBS on a VPS gives maximum flexibility at the cost of your time.

Pick one. Set it up this week. Test a restore next week. That's the whole plan.