**OBJECT FIRST**

3 Reasons Ootbi* is Best Storage for Veeam

* Out-of-the-Box Immutability

Veeam customers need secure, simple, and powerful storage

Veeam customers are refreshing their on-prem backup storage and seeking a secure, simple, and powerful, ransomware-proof solution. They want fast backup and support for Instant Recovery, ensuring the highest levels of data protection without requiring extensive security expertise.

Admins face limitations with legacy solutions like DAS (Direct-Attached Storage), deduplication appliances, or Hardened Linux Repositories, which are not explicitly optimized for Veeam. These options often compromise security and efficiency, necessitating expertise and skilled technical staff to manage effectively.

Secure

Powerful   **Simple**

— Veeam Customer Needs   — Legacy Solutions
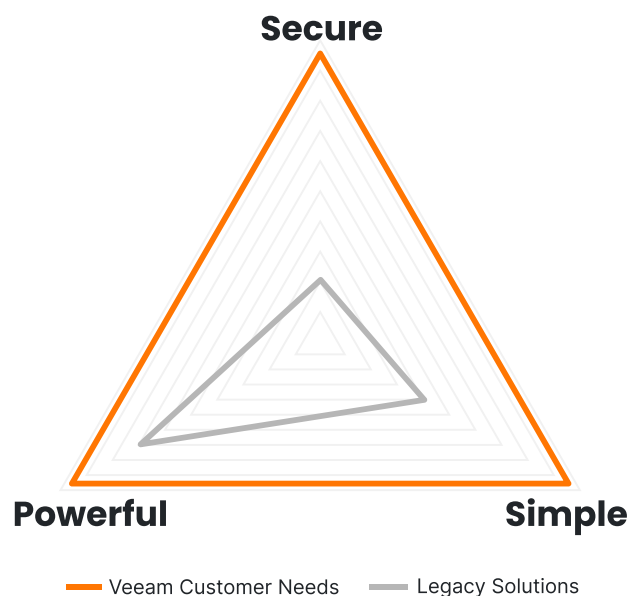
Veeam Customer Options for On-Prem Storage
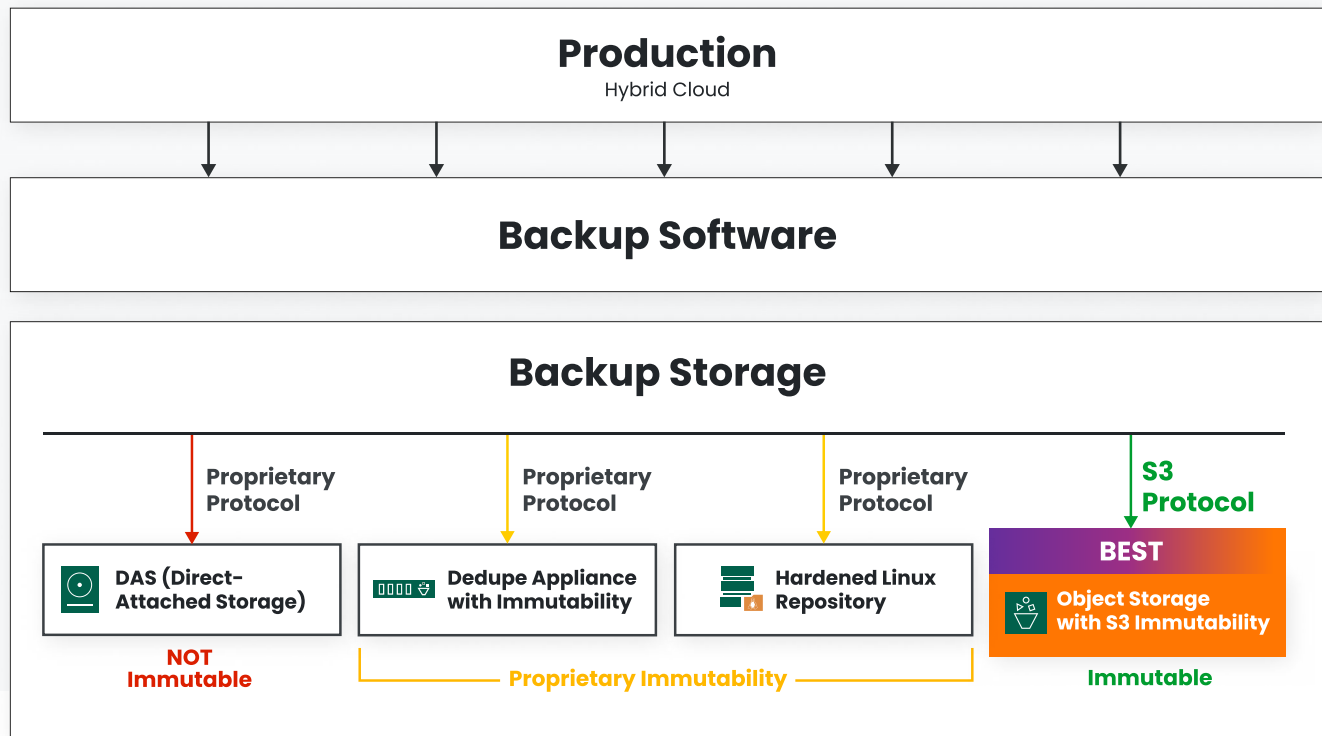
Direct Attached Storage

Direct Attached Storage (DAS), which delivers file and block storage, has been the standard for decades. It can be as powerful as the hardware it runs on and requires very little training or experience to implement. But this comes at the cost of weak security. Because DAS does not offer immutability and is not separated from the Veeam Backup & Replication server, an attacker who gains access to the host by exploiting an OS or application vulnerability can access all data on that system. DAS is no longer suitable to be a backup storage target because of these security weaknesses (see Figure 2).

Deduplication Appliances

Dedupe appliances make an excellent long-term retention target as a Capacity or Archive Tier for Veeam. Still, every admin knows that data restoration rehydration can significantly slow Veeam Instant Recovery performance. Deduplication appliances make data encryption choices complex and may expose and compromise raw Veeam backup data in the event of a breach. Installation requires expertise in the product or demands a white-glove installation to get the most out of the storage, not to mention that security is often an add-on with no simple options for out-of-the-box Veeam integrated immutability. They do not meet modern security demands and should never be the first choice for recovery when a ransomware event occurs.

Veeam Hardened Repositories

The Veeam Hardened Repository (VHR) is one of the more recent additions to the Veeam admin's storage options, and it excels at being secure, so long as you have domain expertise in security and Linux, and time to keep it up-to-date. VHRs are by far the best choice of the three options examined. However, the amount of work required to set them up, keep them secure and updated, and perform to expectation is not practical for most Veeam admins in the mid-enterprise to take on in addition to their day-to-day responsibilities.

	Direct Attached Storage	Deduplication Appliances	Veeam Hardened Repository
Secure	❌ **No.** It does not offer immutability and is located in the same operating environment as the backup software, with no separation of Backup Software and Backup Storage.	❓ **Variable.** Immutability is an afterthought, not integrated with Veeam's workflow. It requires manual configuration and security expertise and makes data encryption choices complex.	❓ **Variable.** It varies based on the user's security and Linux expertise. Elevated privileges, including root access, are generally granted and necessary for setup and routine maintenance, meaning such solutions are not Zero Trust.
Simple	✅ **Yes.** Due to its legacy, all technical professionals understand how to utilize this fundamental storage.	❌ **No.** Requires either a white-glove service or training to configure. Expertise in both storage and security is necessary to maintain.	❌ **No.** Even with ISO deployments, expertise in security and Linux is required to configure and maintain. The customer is responsible for ensuring compatibility of the hardware, firmware and software stack after every update of each element. Scaling is not straightforward.
Powerful	❓ **Variable.** It can be as powerful as the hardware it runs on.	❌ **No.** Great for archiving large volumes of data and long retention periods. Veeam Instant Recovery is especially slow due to the time required to rehydrate the deduplicated data.	❓ **Variable.** It can be as powerful as the hardware it runs on. Does not use S3 for optimized performance, management and security features in Veeam.

None of these options fulfills the Veeam admin's need for a simultaneously secure, simple, and powerful solution.

They need the Best Storage for Veeam.

OOTBI
Best Storage for Veeam

Today, businesses need a purpose-built, ransomware-proof, on-prem storage target that integrates seamlessly with Veeam and guarantees the security of its backups. Ootbi, which stands for out-of-the-box immutability, is secure, simple, and powerful by design and delivers a ransomware-proof primary storage target that was purpose-built to be the best storage for Veeam.

The Veeam Data Platform embraces S3 Object Storage as a primary backup target. Ootbi supports Veeam's "direct-to-object" functionality, leveraging industry-standard S3 object storage security and immutability while providing high-performance backup. It also fully supports Veeam Smart Object Storage API (SOSAPI) for simplified management.

Best Storage for Veeam

OOTBI

Out-of-the-Box Immutability

Secure

Out-of-the-box immutability. Zero Access for destructive actions.

Simple

15 minutes to deploy and scale. No security expertise required.

Powerful

Lightning fast up to 8 GB/s. Supercharged Instant Recovery.

Ransomware-proof
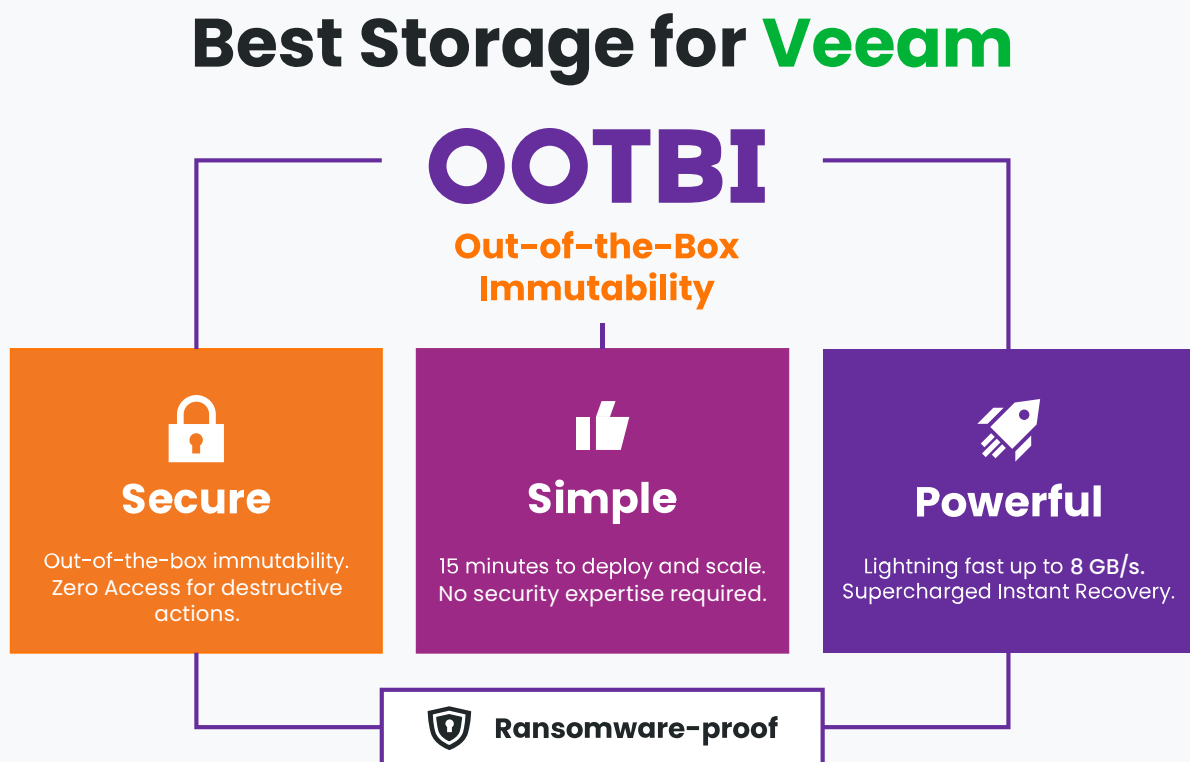
Zero Trust Data Resilience (ZTDR)

Zero Trust, Zero Trust Architecture, and the Zero Trust Maturity Model are modern IT security paradigms developed and endorsed by numerous security organizations, including CISA and NIST. At its core, Zero Trust replaces the "perimeter security" approach, which is no longer effective in hybrid cloud, mobile, and remote work. The Zero Trust framework is being adopted as the new IT security standard by the US government and mid- and large enterprises worldwide, especially in data-sensitive industries like banking, healthcare, technology, manufacturing, and others.

Security and data protection experts, Numberline Security and Veeam, have proposed Zero Trust Data Resilience (ZTDR), explicitly extending Zero Trust principles to Backup and Recovery infrastructure. More information is available at: Zero Trust Data Resilience: Secure Backup and Recovery Architecture — A Pragmatic Approach to Zero Trust by Veeam.

Backup infrastructure inherently has a large attack surface, requiring read and write access to production systems. ZTDR requires that the backup infrastructure be segmented into multiple resilience zones, such as Backup Software, Primary Backup Storage, and Secondary Backup Storage — each with its own reduced attack surface. In this case, the Backup Software may still have an exposed attack surface, but the Backup Storage can have a minimal attack surface. This is achieved by limiting communication to an industry-standard S3 protocol (See Figure 1).

Aligning with ZTDR principles, Object First recommends strengthening your backup storage security by implementing these key measures:

1. **Segmentation:**

   - Separation of Backup Software and Backup Storage.
   - S3-native security, least-privilege access, IAM, and MFA.

2. **Resilience Zones:**

   - Multiple data security domains or resilience zones to ensure multi-layered security.
   - S3 communication protocol with minimal attack surface for Backup Storage.

3. **Immutability:**

   - S3-native object storage immutability.
   - Zero access to root and OS, protecting against malicious or compromised administrators.
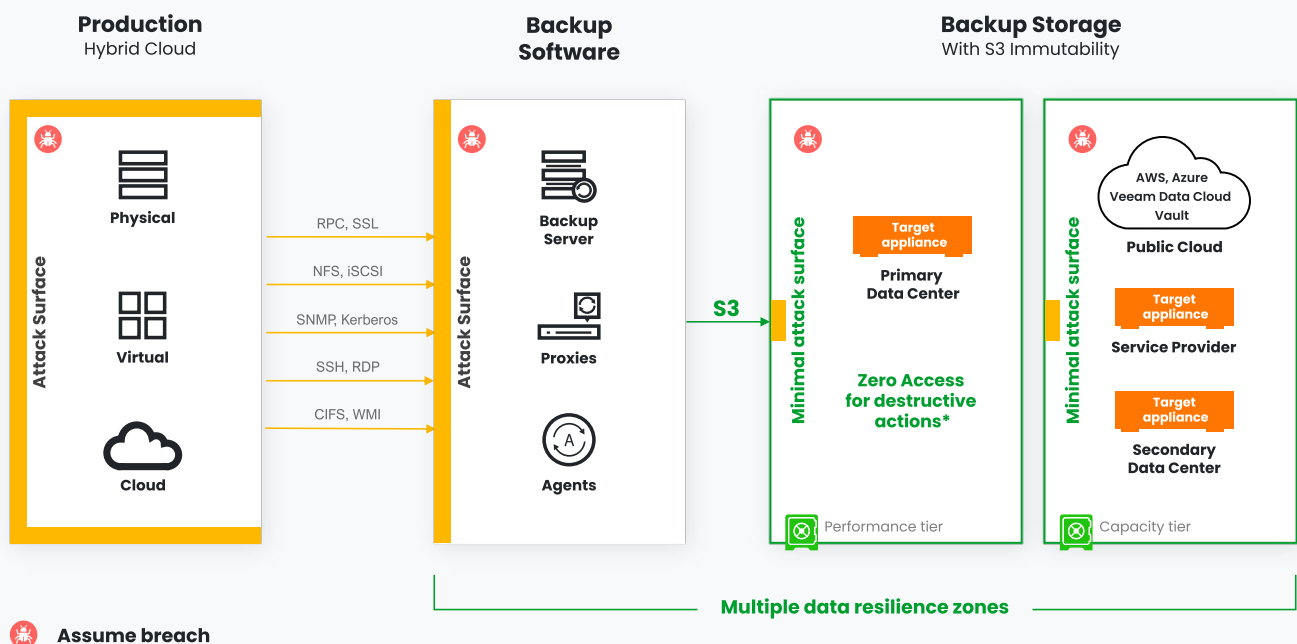
3 Reasons Ootbi is Best for Veeam

1. The Best Storage is Secure

Ootbi was built to support Zero Trust principles — including Veeam's recommended Zero Trust Data Resilience (ZTDR) architecture (See Figure 1), which assumes that individuals, devices, and services attempting to access company resources are compromised and should not be trusted. Ootbi follows Cybersecurity and Infrastructure Security Agency (CISA) recommendations* and embodies the principles of "Security-by-Design and -Default." Ootbi utilizes S3 Object Lock to enable immutability and runs its storage software on a hardened Linux operating system with a Zero Access for destructive actions to the BIOS, OS, storage application, or data policy. Due to the ZTDR architecture and secure appliance form factor, Ootbi is inherently separated from the Veeam Backup & Replication server, unlike legacy solutions such as DAS (See Figure 2), creating the proper segmentation between Backup Software and Backup Storage layers to ensure ransomware resilience.

Figure 1

Zero Trust Data Resilience (ZTDR) architecture
Separation of Backup Software and Backup Storage

Production
Hybrid Cloud

Physical

Virtual

Cloud

Attack Surface

RPC, SSL

NFS, iSCSI

SNMP, Kerberos

SSH, RDP

CIFS, WMI

Backup Software

Backup Server

Proxies

Agents

Attack Surface

S3

Backup Storage
With S3 Immutability

Minimal attack surface

Target appliance

Primary Data Center

Zero Access for destructive actions*

Performance tier

AWS, Azure Veeam Data Cloud Vault

Public Cloud

Target appliance

Service Provider

Target appliance

Secondary Data Center

Minimal attack surface

Capacity tier

Multiple data resilience zones

🐞 **Assume breach**

*to the BIOS, OS, the storage application, or data

*Cybersecurity and Infrastructure Security Agency. (2023). Shifting the balance of cybersecurity risk: Principles and approaches for security-by-design and -default. Retrieved from https://www.cisa.gov/sites/default/files/2023-04/principles_approaches_for_security-by-design-default_508_0.pdf

Figure 2

DAS — Direct-Attached Storage
NOT Zero Trust. No separation of Backup Software and Backup Storage.
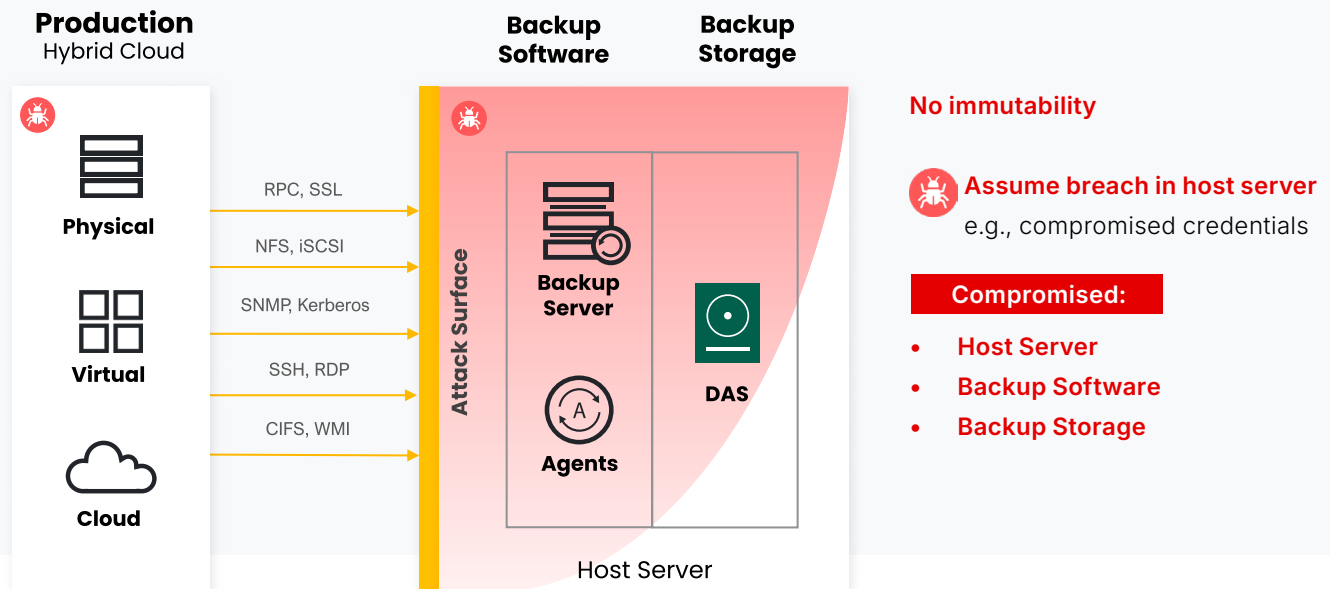
Here's why Ootbi's best for Veeam:

- **Industry-standard S3 immutability, security and communication protocol supporting Veeam Data Platform "direct-to-object" functionality.** Communication protocol over Smart Object Storage API (SOSAPI) with HTTPS ensures secure communication and encrypts all network traffic between Veeam and Ootbi.

- A hardened object storage appliance with **zero access** to perform destructive actions to the bios, operating system, storage application, or data.

- Veeam architecture and hardware form factor guarantee separation between the Veeam Backup & Replication server (Backup Software) and Ootbi (Backup Storage), with multiple resilience zones following **the Zero Trust model**.

- Least privilege 8 Eyes approach, where any administrative action that could lead to data destruction must be approved by two verified individuals at the customer site and two at Object First. This 8 Eyes principle ensures legitimacy and prevents unauthorized actions

- Continuously **third-party security tested** and validated, with **results** published for transparency.

Secure

S3 out-of-the-box
Immutability

A hardened storage target
with zero access
for destructive actions.

Separation of the Backup
Software and Backup
Storage layers

2. The Best Storage is Simple

Ootbi is an object storage appliance built for backup and, even more specifically, for Veeam. It takes less than 15 minutes to configure, requires zero security and Linux expertise, and no additional setup or namespace adjustment is needed at the Veeam layer when scaled.

Here's why Ootbi's best for Veeam

- **No-expertise-required configuration.** Setup requires 3 IPs (two physical and one vIP for the S3 endpoint), a username, a password, and an MFA setup. That's it!

- **Additional nodes can be added in minutes** with automatic scaling and load balancing. No change to Veeam Namespace or Backup Repository configuration is required.

- **Supports Veeam Smart Object Storage API (SOSAPI)** for simplified management.

- Notifications and updates are easily accessed from Object First servers. This ensures the Linux kernel and our proprietary object storage software is secure and up-to-date with QA-tested patches, mitigating the impact of zero-day vulnerabilities and exploits.

👍

Simple

NO security expertise required

15 minutes to deploy and scale

Updated and optimized automatically by the vendor

3. The Best Storage is Powerful

Ootbi is an object storage appliance built to deliver high-speed backup and recovery operations for Veeam data movers. Ootbi's capacity and performance scale linearly when adding additional nodes, supporting backup speeds up to 8 gigabytes per second (depending on node count and cluster configuration). Ootbi's cluster capacity can range from a single node with 20 TB to a maxed-out cluster of 4 × 432 TB, offering 1.7 PB of usable immutable storage. Nodes of any capacity can be mixed and matched, and Ootbi is designed to scale simply and efficiently when your organization needs to grow its immutable backup storage footprint.

Here's why Ootbi is best for Veeam

- **Optimized and tested for Veeam Instant Recovery operations at scale.**

- The 432 TB Ootbi node offers a dual-port 25G SFP+ NIC, while all other nodes offer a choice of dual-port 10G T-base or SFP+ 10G NICs. All Ootbi nodes parallelize incoming data streams, landing on an enterprise-grade NVMe that automatically load balances objects to the RAID 6 array.

- **Object storage engineered explicitly to ingest and secure Veeam data** means no additional and unnecessary features or functionality to impact performance.
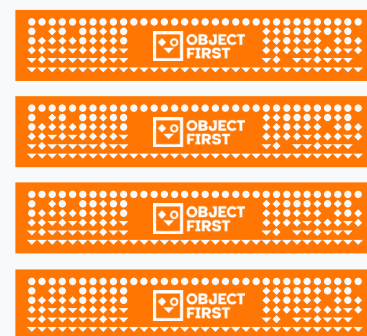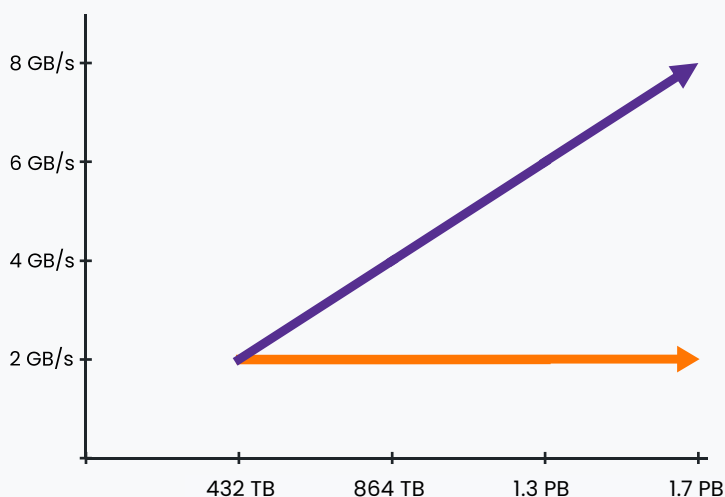

Powerful

Lighting fast backup

Supercharged Instant Recovery

Use of standard Veeam block size and encryption

Expand beyond 7 PB of usable immutable storage when multiple clusters are used as extents within a Veeam 12.1.2+ SOBR (Scale-Out Backup Repository).

■ Performance + Capacity ■ Management Overhead

432 TB	per node
1.7 PB	Total Usable Capacity
8+ GB/s	Performance

Immutability for Everyone

With our latest hardware and software updates, we are excited to make our Out-of-the-Box Immutable Storage available for even more use cases, with more power, and more value than ever. Object First continues to be the best—and most secure—storage for Veeam.

from 20 TB up to 7 PB* - Mix, Match & Scale

Best Storage for `Veeam`

ENTERPRISE

MEDIUM

SMALL

7 PB

| 20 TB | 40 TB | 64 TB | 128 TB | 192 TB | 432 TB |
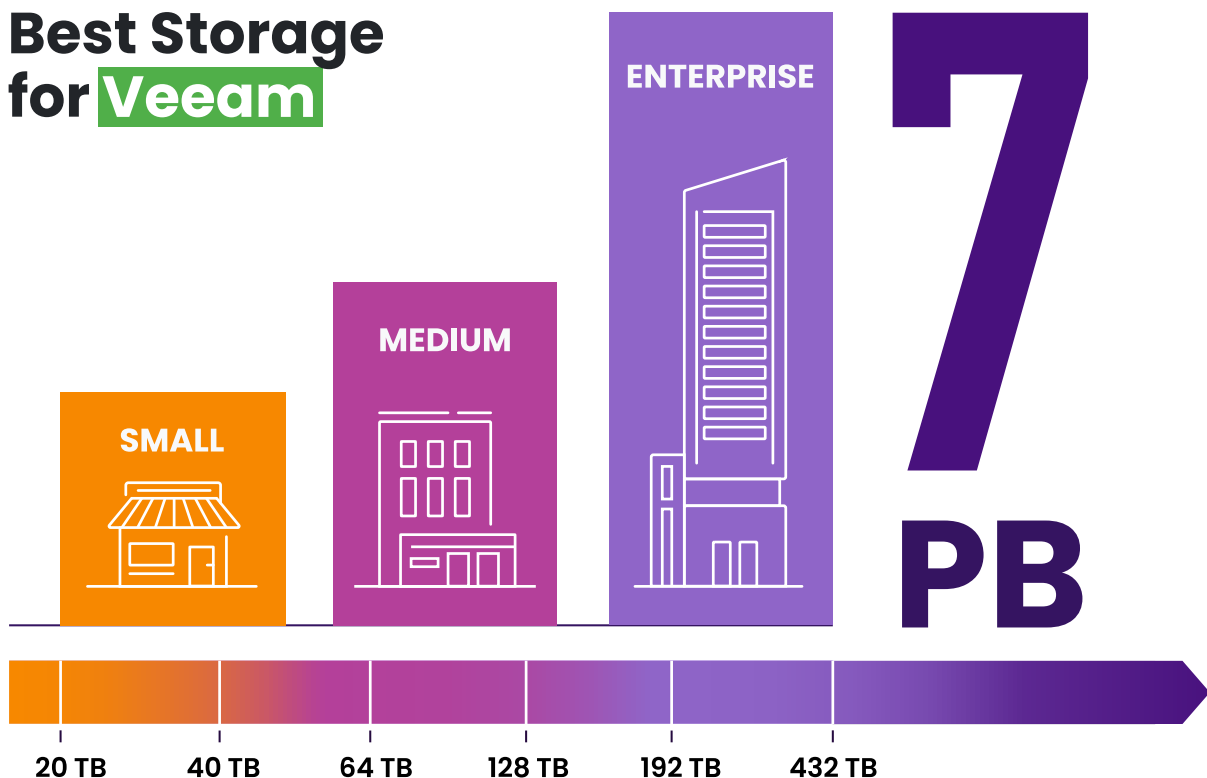
*7 PB capacity in Veeam Scale-Out Backup Repository (SOBR) configuration

What's NEW with Ootbi?

More Use Cases

It starts with the expansion of Ootbi use cases; we are offering smaller Ootbi appliances with 20 and 40 TB capacities and our largest box to date, which weighs in at 432 TB in a single node and scales up to 1.7 PB in a 4-node cluster! Mix and match Ootbi appliances of all sizes and generations in each cluster to meet your immutable backup storage needs—now, and as you scale.

More Performance

Our latest firmware is even more optimized for backup, yielding 10-20% increased backup and recovery speeds on all new Ootbi appliances. The enterprise-ready 432 TB box provides twice the performance of our other models, unlocking over 8 GB/s data transfer speeds on a 1.7 PB four-node cluster.

Additional optimizations now unlock generic S3 read/write speeds, offering additional flexibility for third-party data movers without sacrificing performance. Whether you are using our twice-as-fast 432 TB node or our smallest 20 TB node, you will enjoy faster, more flexible backup.

More Value

Hardware platforms, including ours, evolve over time. But that will not be a headache for Ootbi customers—your Ootbi installations are ready to expand with your data growth, as new and existing hardware can always be mixed and matched regardless of purchase date.

In addition, we appreciate that as your production storage footprint grows, so does your need for immutable backup storage. That's why we've designed our price model so that as you scale up in appliance capacity size, the price per TB decreases.

Object Storage is Best for Backup and Recovery

Object storage is best for Veeam data backup and recovery. Object storage's S3 native immutability, unlimited scalability, lower cost of storing large volumes of data, seamless on-premises-to-cloud data copy, simplified management, reliability, and availability made it our only choice when we built Ootbi.

Why object storage excels for backup and recovery use cases:

- **Immutability:** S3 native Object Lock. Secure, resilient, and purpose-built, it means data is isolated and untouchable.

- **Scalability:** Object-based systems anticipate horizontal scalability, which never sacrifices performance for capacity.

- **Up-to-date:** Bugs, quirks, or limitations of a traditional file system are absent in object-based architectures.

- **On-Prem-to-Cloud:** Secure and seamless on-premises-to-cloud data copy in S3 format with no overhead.

- **Reliability:** The S3 protocol has guaranteed data delivery (unlike SMB or NFS), so businesses get end-to-end data reliability.

- **Availability:** Natively solves many of the availability needs organizations consider when implementing backup storage and the 3-2-1 backup rule.

Other object storage vendors have designed their on-premises appliances for a different use case — distributed web-scale containerized enterprise applications — and optimized their S3 implementations to write small amounts of data in a large number of containers. Later, they retrofitted their solutions for the Data Backup use case, keeping the unneeded features and complexity. These solutions were not designed and optimized for Data Backup. Ootbi, on the other hand, has been specifically designed for the Data Backup use case, where large amounts of data need to be written in and read from one place. That is why Ootbi's object storage is simple and powerful for Veeam backup data.

Best for Veeam Backup

Ransomware-proof and immutable out-of-the-box, Ootbi by Object First delivers secure, simple, and powerful backup storage for Veeam customers. The appliance can be racked, stacked, and powered in 15 minutes.

Ootbi is built on Zero Trust principles and delivers S3 native immutable object storage designed and optimized for unbeatable backup and recover performance. Eliminate the need to sacrifice performance and simplicity to meet budget constraints with Ootbi by Object First.

When you think about Veeam, think about Object First.