

**OBJECT
FIRST**

White Paper

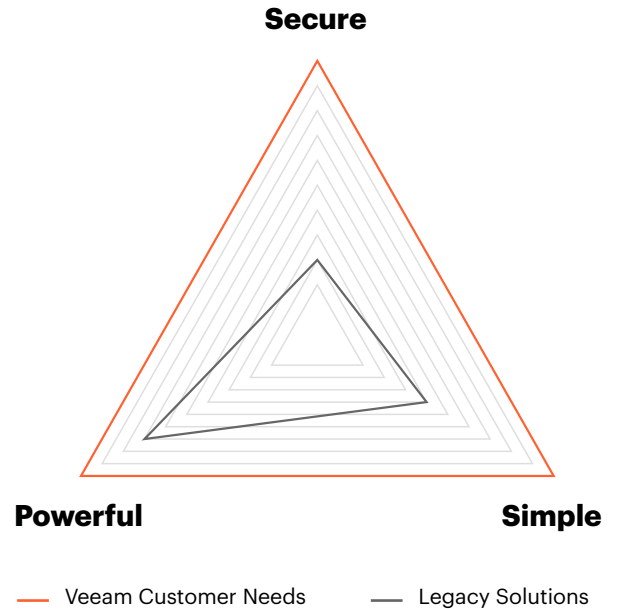
3 Reasons Ootbi^{*} is Best Storage for Veeam

*** Out-of-the-Box Immutability**

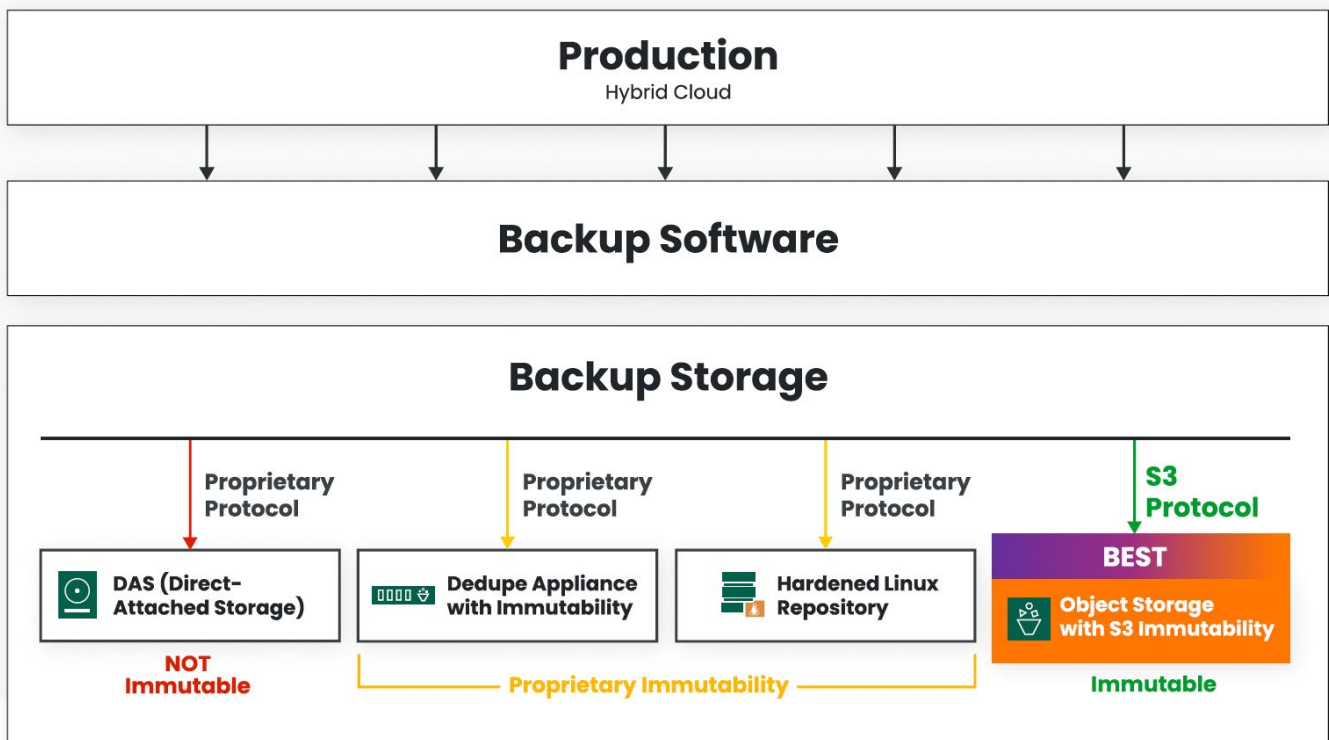
Veeam customers need secure, simple, and powerful storage

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 with no security expertise required.

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.



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.

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 |  <p>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.</p> |  <p>Variable. Immutability is an afterthought, not integrated with Veeam's workflow. It requires manual configuration and security expertise and makes data encryption choices complex.</p> |  <p>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</p> |
| Simple |  <p>Yes. Due to its legacy, all technical professionals understand how to utilize this fundamental storage.</p> |  <p>No. Requires either a white-glove service or training to configure. Expertise in both storage and security is necessary to maintain.</p> |  <p>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.</p> |
| Powerful |  <p>Variable. It can be as powerful as the hardware it runs on.</p> |  <p>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.</p> |  <p>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.</p> |

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

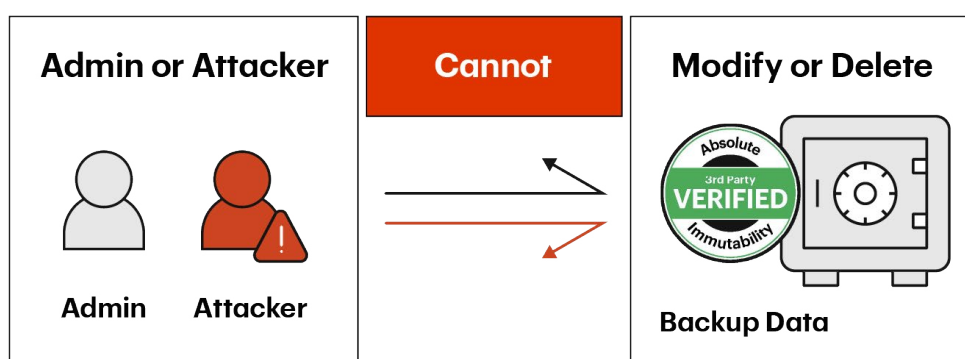
They need the Best Storage for Veeam.

Absolute Immutability

Absolute Immutability is essential for safeguarding backup data against increasing ransomware threats. It protects sensitive information, ensures compliance with regulations, and maintains data integrity during legal processes—but most importantly, it ensures recoverability and resilience.

If 'immutable' data can be overwritten by a backup or storage admin, a vendor, or an attacker, then it cannot be considered an Absolutely Immutable storage solution.

Understanding the core concept of Absolute Immutability will help separate secure backup systems from empty vendor claims. This core concept—and the definition of Absolute Immutability—is allowing Zero Access to destructive actions. Nobody—even the most privileged admin or attacker with access to backup storage—can modify or delete data.



Practical implementation of Absolute Immutability requires adherence to three core principles:

- **S3 Object Storage:** A fully documented, open standard with native built-in immutability that enables independent penetration testing and verification.
- **Zero Time to Immutability:** Backup data must be immutable the moment it is written.
- **Target Storage Appliance:** A dedicated target storage appliance segments storage from backup software, and removes the risks associated with DIY self-managed backup storage during operations—particularly during setup, updates and maintenance. It requires little-to-no security expertise from a customer and shifts full responsibility to a vendor.

By following these 3 principles, organizations can assure Absolute Immutability and thereby ensure that whatever happens—ransomware, insider threats, or credential breaches—backup data remains protected and recoverable.

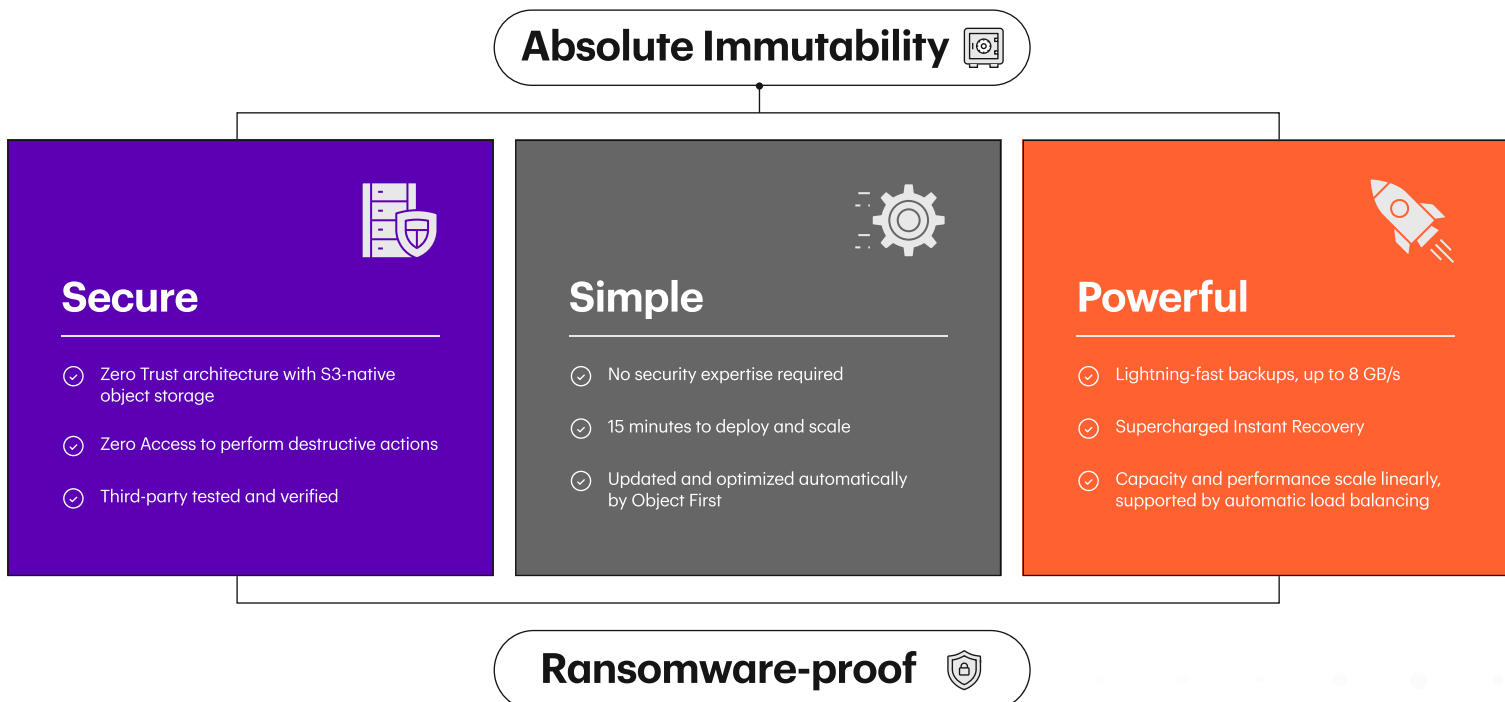
Secure-by-design and secure-by-default, Object First allows Veeam admins to implement Absolute Immutability for unbreakable backup and recovery.

Object First Ootbi—Simply Resilient

When ransomware strikes, the future of your business hangs in the balance. In that moment, recovery matters most—getting back up and running as fast as possible, without unwanted complexity. Everything depends on how you decide to approach data resilience. We make resilience simple with immutable backup storage that's purpose-built for Veeam. When your business, reputation, and career are on the line, Object First is your ultimate defense against ransomware.

Object First is built on Zero Trust best practices and is third-party tested to be secure, is simple to deploy and manage with no security expertise required, and is powerful enough to supercharge Instant Recovery and scale with your business.

When your backup storage is this secure, simple and powerful—you and your organization become Simply Resilient.



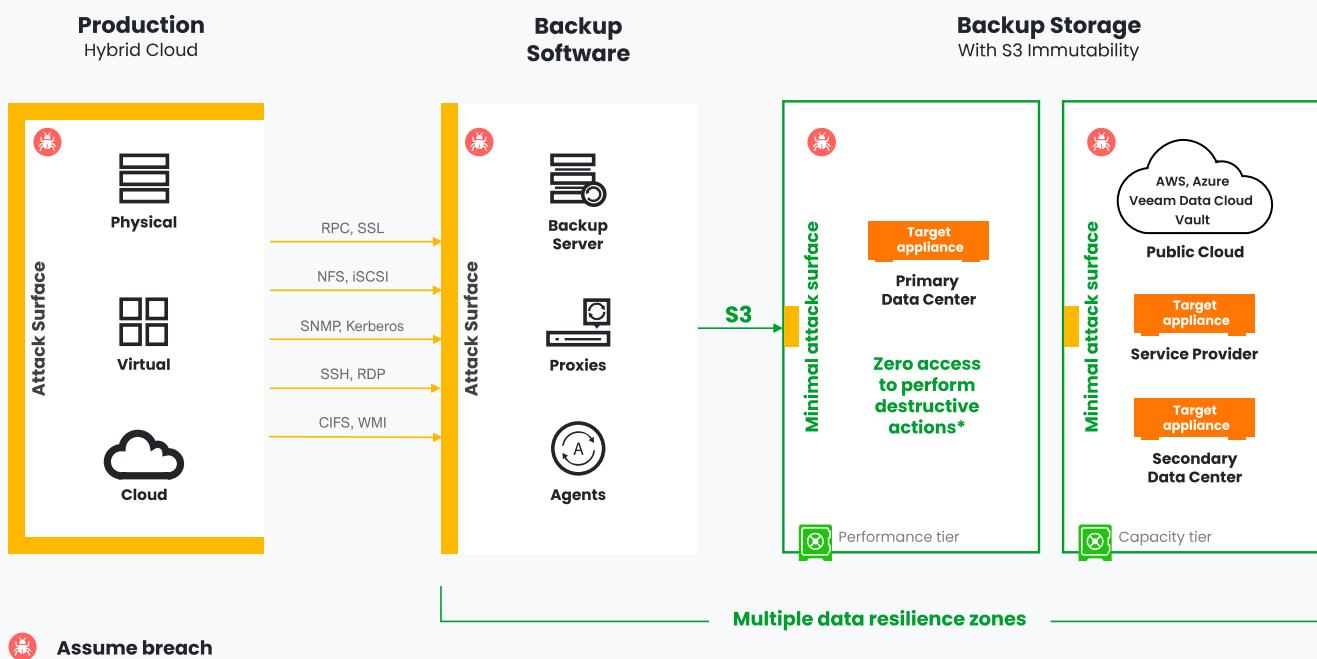
3 Reasons Ootbi is Best for Veeam

1. The Best Storage is Secure

Ootbi is Secure by Design as defined by Cybersecurity and Infrastructure Security Agency (CISA). It was built around the latest Zero Trust security principles, which follow an “Assume Breach” mindset that accepts individuals, devices, and services attempting to access company resources are compromised and should not be trusted. Ootbi utilizes S3 Object Lock to enable immutability and runs on a hardened Linux operating system with zero access to perform destructive actions to the BIOS, OS, storage application, or data policy. Due to its architecture as a secure-by-default appliance, Ootbi is inherently separated from the Veeam Data Platform, unlike legacy solutions such as DAS, creating the proper segmentation between Backup Software and Backup Storage layers to ensure ransomware resiliency.

Figure 1

Zero Trust Data Resilience (ZTDR) architecture Segmentation of backup software and backup storage



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

1. The Best Storage is Secure continued

Here's why Ootbi is best for Veeam:

- **S3 native immutability** and communication protocol over HTTPS ensures secure communication and encrypts all network traffic between Veeam and Ootbi.
- **Third-party tested** with results publicly published for complete transparency.
- **Follows IT security best practices** by utilizing the open S3 architecture, which implements a standards-based approach that's validated by external testing rather than trusting "black box" secure storage.
- **Secure-by-Default** with hardware form factor guarantees separation from the Veeam Backup & Replication server, creating multiple resilience zones.
- **Zero Access** to perform destructive actions against the BIOS, OS, storage application, or data.



Secure

Zero Trust architecture with S3-native object storage

Zero Access to perform destructive actions

Third-party tested and verified

2. The Best Storage is Simple

Ootbi is an object storage appliance that reduces management complexity with built-in hardware redundancy and automatic updates. It takes less than 15 minutes to configure, requires zero security expertise to manage, and does not require additional setup or namespace adjustment at the Veeam layer when scaled.

Here's why Ootbi is best for Veeam:

- **Zero expertise is required for configuration.** Setup requires 3 IPs (two physical and one cluster IP 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.
- **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.
- **Reduces administrative complexity** embedded within typical storage solutions. Object First assumes security and operational risks, offloading security operations and optimization to its team.



Simple

NO security expertise required

15 minutes to deploy and scale

Updated and optimized automatically by the Object First

3. The Best Storage is Powerful

The Object First Ootbi fleet was designed to deliver secure, simple, and powerful storage for every backup use case from small businesses to large enterprises, providing unbeatable immutable backup storage. Each hardware offering in the Object First fleet provides an object storage appliance optimized for backup and recovery operations for Veeam backup data.



Powerful

Lightning-fast backup, up to 8 GB/s

Capacity and performance scale linearly

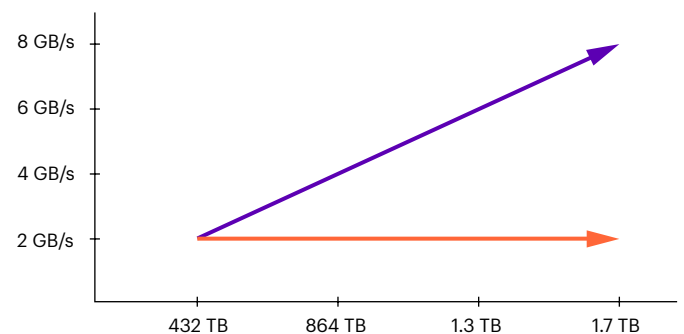
Supercharged Instant Recovery

Automatic load balancing

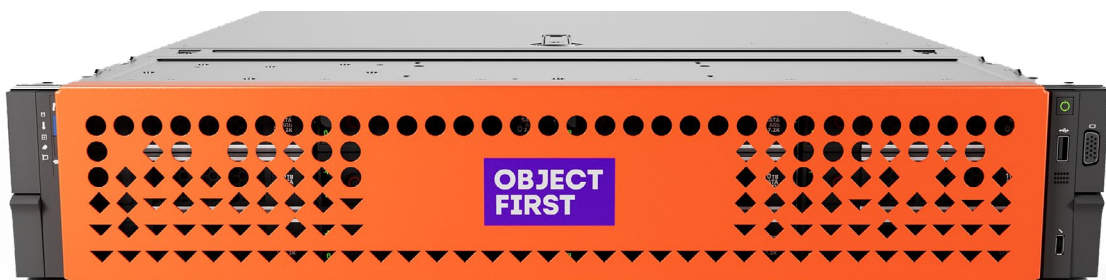
Object First Ootbi

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- **Nodes can be mixed and matched as desired**
- **Performance scales linearly and automatically**
- **1 GB/s on a single node to 4 GB/s on a four-node cluster (Note: 432 TB node offers 2 GB/s ingest speeds and up to 8 GB/s on a four-node cluster)**



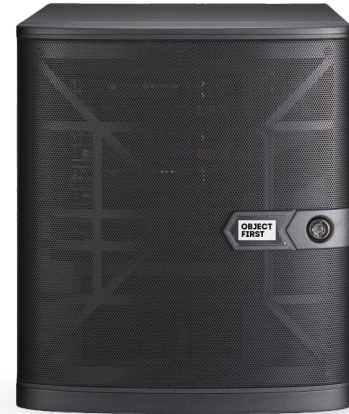
— Performance + Capacity — Management Overhead



Object First Ootbi Mini

The fleet's newest (and smallest) member is the Ootbi Mini appliance. Ootbi Mini is designed for smaller remote and branch office locations (ROBO) and edge environments. Available in 8, 16, and 24 TB capacities, it comes in a convenient desktop tower form factor, and can be clustered with other Ootbi Mini devices.

- **Zero compromise in security or simplicity**
- **15-minute box-to-backup configuration**
- **Secure-by-default, no security expertise required**
- **Available through CapEx and Consumption acquisition models**

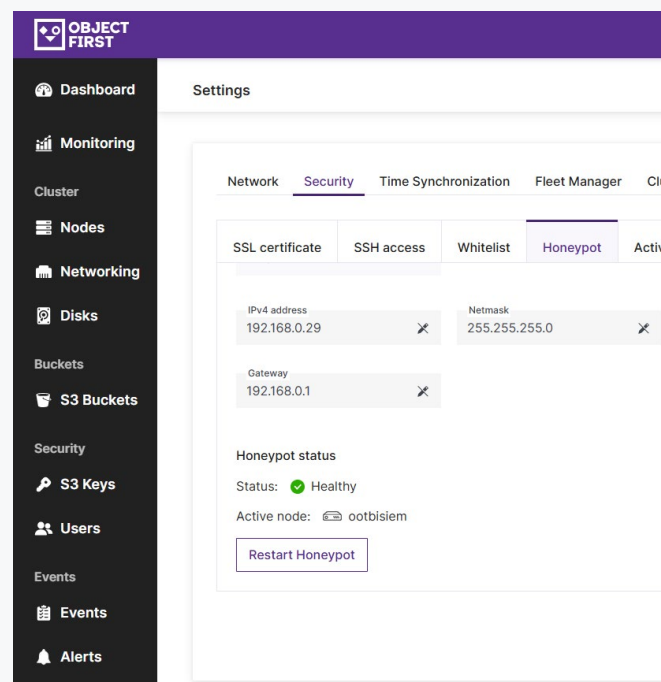


What's NEW with Ootbi?



Honeypot

With the release of appliance version 1.7, we added a new feature to help boost organizations' ransomware resilience further. Object First Honeypot is a two click solution that creates a targetable VBR decoy environment in a safe and restricted portion of the Object First appliance. Honeypot creates a sensor that detects when someone is trying to probe the environment and notifies all appropriate parties. This can help detect dwell phase cyber threats early and bridge the conversation between backup and security admins. With a two-click security addition included in all Object First devices, being Simply Resilient has never been more straightforward and accessible.



Flexible Acquisition Models

Get Absolute Immutability with Object First through your choice of acquisition model. Both CapEx and Consumption models offer updates to software, OS, and firmware, plus technical support and on-site service—for a fixed term with Capex (generally up to 5 years), and for the duration of your subscription with Consumption.

| | CapEx Traditional upfront purchase | Consumption* Pay-per-use subscription |
|---------------------------|---------------------------------------|--|
| Software, OS, and updates | ✓ | ✓ |
| Technical support | ✓ | ✓ |
| On-site service | ✓ | ✓ |
| Duration | Fixed term (up to 5 years) | Benefits last as long as your subscription |

* Available in USA, European Union, and United Kingdom

Choose Consumption for no upfront costs, no hardware refreshes to manage, and predictable monthly billing!

Pay for what you use, grow as you need

Backup capacity from 10 TB to 7 PB with no upfront payment, simple monthly billing and a 1-year subscription. Gain cost efficiency as you scale: the more you use, the less you pay per TB.**

** Storage usage is assumed to grow over time; reducing consumption is possible at agreement renewal.

Hardware refreshes included

All technology refreshes, service, support and software updates are included. You don't pay for appliances, you pay for what you use.

Make billing and management predictable

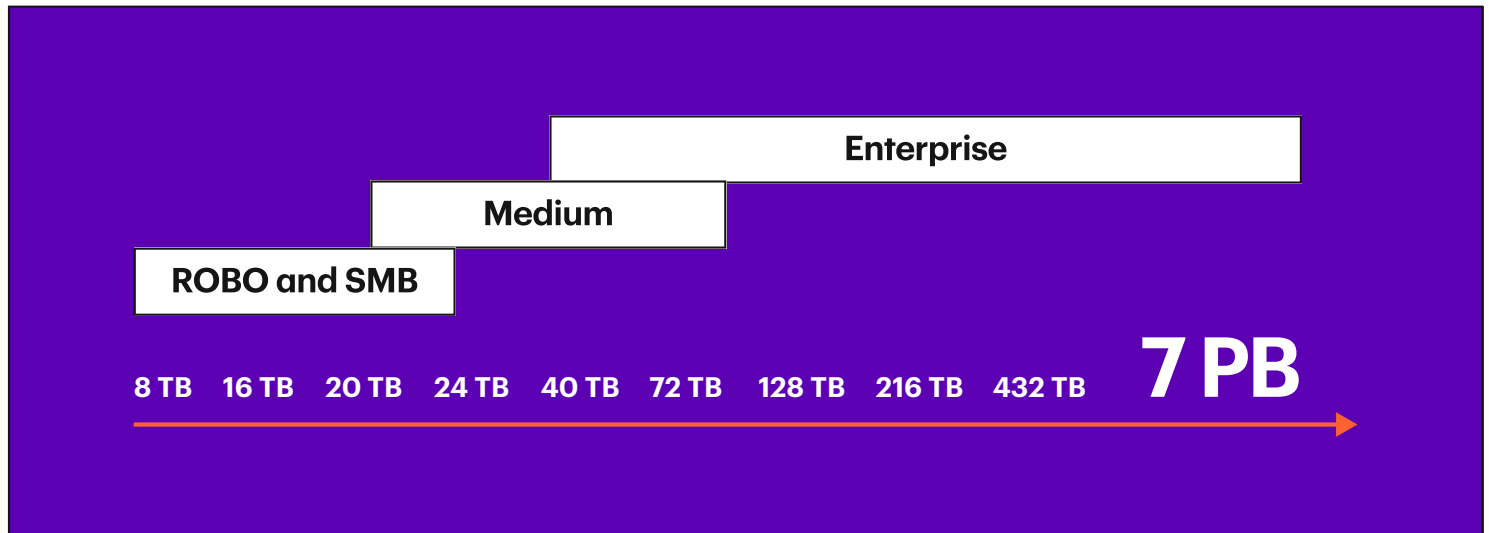
Get backup improvements faster, with no upfront outlay. Reduce risk of over- or under-sizing using Object First Storage Calculator, free expert support, and experienced partner network.

The Consumption model offers a minimum storage commitment of just 10 TB and is simple to adopt in three easy steps:

| | |
|------------|---|
| Step One | <ul style="list-style-type: none">Free consultation with Object First and Partner expertsPlan how much backup data you'll likely need over the coming years |
| Step Two | <ul style="list-style-type: none">Place your order with your Object First PartnerWe'll ship you an Ootbi appliance to install on-premises |
| Step Three | <ul style="list-style-type: none">You'll be billed a fixed monthly amount by your Object First PartnerIf your usage goes above the baseline capacity in any month, you'll be billed for it in the following month, on a per-TB basisWe agree adjustments to your baseline capacity as your needs grow |

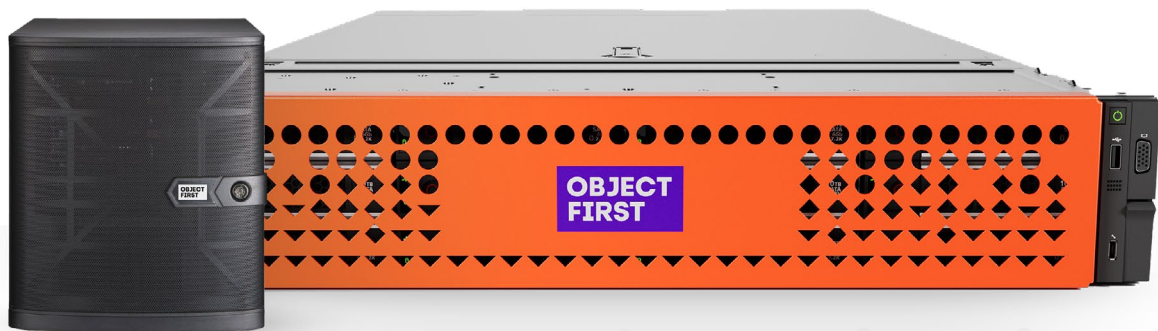
Immutability for Everyone

From 8 TB to 7 PB*



* 7 PB capacity in Veeam Scale-Out Backup Repository (SOBR) configuration

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.



Simply Resilient

When ransomware strikes, your future depends on data resilience. Object First is your ultimate defense—immutable backup storage that's purpose-built for Veeam. Our Zero Trust-based solution is third-party tested, requires no security expertise, and scales with your business. When backup storage is this secure, simple and powerful—you and your organization become Simply Resilient.

**When you think about Veeam,
think about Object First.**

**Simply Resilient
for Veeam**