Modernize your backups today with Veeam

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Introduction

As your business embarks on its journey to meet the backup challenges of today and tomorrow, Veeam® is ready to help you modernize your backups with key capabilities in Veeam Availability Suite™, providing distinct business value across three categories:

Future Proof	**Automate to free up resources and people**	**Reuse Data**
Confidence that you are always protected, even as your environment evolves. Extend backups to cloud, across any data and platform.	Intelligent automation ensures workloads are protected and infrastructure configurations are correct for successful backup and verified recovery.	Empower your backup data to do more! Leverage deep data mining and 3rd party integration to unearth additional business insights and greater overarching security.

Veeam maintains a design and usability mantra of being simple, flexible and reliable, delivering Cloud Data Management™ through protection that will scale and evolve with your business. Veeam Availabilty Suite will keep your teams freed up to work on things that matter and take advantage of the gold mine of information that lies dormant in your backup data. Now you can accelerate your business with the insights and agility needed to remain competitive in today's digital landscape.

Introduction

Veeam Backup & Replication

delivers powerful and reliable data protection capabilities that scale effectively for cloud, virtual and physical workloads for all major platforms and enterprise applications.

Veeam Availability Suite

Veeam's flagship solution that makes data management simple, flexible and reliable. It combines the backup and recovery power of Veeam Backup & Replication™ with the real-time monitoring and automation provided by Veeam ONE™.

Veeam ONE

provides complete visibility into cloud, virtual and physical workloads through monitoring and reporting, protecting against potential problems before operational impact.

Veeam Backup & Replication sits at the heart of Veeam Availability Suite and acts as the cornerstone of Veeam's Cloud Data Management strategy. Designed to be simple, Veeam Backup & Replication has just a few key components that make up its core architecture.
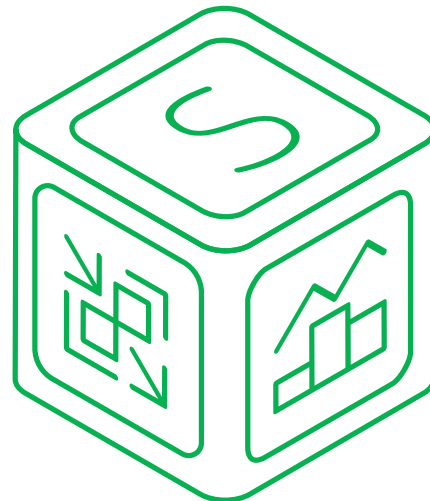
Future-proofing

- Tackling unstructured data

- Keeping data safe from ransomware

- Master the 3-2-1-1-0 Rule

Introduction

As data and applications become even more distributed over time, data is now spread across not only your physical data center, but also across the cloud and Software as a Service-based (SaaS-based) platforms. Legacy backup designed to service on-premises applications on physical devices will struggle to succeed in the hybrid and multi-cloud environments that are rapidly being adopted. As a result, legacy backup will cost you time and valuable resources while leaving your data at risk.

As you embark on your journey to the hybrid cloud and beyond, we realize that there are many things, both new and legacy, that require protection, and can live in all kinds of places across the cloud and your virtual and physical infrastructures. Currently, there is an ongoing shift for companies to switch IT to an OpEx model, focusing less on capital expenditures. However, not everything that you have will go to the cloud. Some assets may have regulatory or performance needs that can only be achieved in a hybrid cloud model. Since the hybrid cloud is the perfect blend of security and availability that enables nearly every business on the planet, Veeam's focus is on delivering modern backup while still maintaining the flexibility to meet even the most stringent of your protection requirements.

Tackling unstructured data

A major, albeit silent, problem that all companies share is one that will drive your future backup and recovery strategies; this is unstructured data. What is unstructured data you ask? Typically, unstructured data is the data that we as humans and machines in the IoT generate nearly every moment of each day. While applications and databases are very much structured in the way they store data, unstructured data follows no rules at all. Often rich in media and random text documents, unstructured data has little to no oversight on its creation or growth and is commonly stored on Network Attached Storage (NAS). A legacy solution would require you to perform NDMP dumps to storage which leaves no opportunity to perform granular recovery without bringing all the data back. A modern solution like Veeam Availability Suite looks at the data for what it is and focuses specifically on tackling unstructured data protection to help meet backup windows and recovery objectives, without sacrificing speed or wasting additional storage. With projections suggesting that unstructured data will be most of the world's data soon, taking hold of the problem now in a modern way will pay dividends in the future as this type of data continues to grow and dominate the world's storage.

Some interesting statistics for every minute of the day:

Social Media	Communication
Snapchat: Over **500k** photos	Text messages: **16M**
Youtube: Over **5M** video	Emails: **156M**
Instagram: Over **500k** photos	Gifs in chat: **15k**

Photos/Video	Services
Measured in **trillions**	Uber services over **50k** trips
300M get uploaded to Facebook daily	**600** new page edits happen to Wikipedia
Currently over **300M** items on Instagram	Spotify adds over **15** new songs

Comprehensive differentiation

Flexibility

There are many types of NAS systems with many protocols and versions that are used to present unstructured data. With v10 NAS backup, we can protect not only small-to-medium-sized business (SMB) and NFS shares, but also Windows file servers and Linux file servers.

Changed file tracking

The unique functionality that v10 NAS backup brings to these challenging NAS environments is changed file tracking. This functionality enables you to perform fast incremental backups of NAS environments, allowing you to easily achieve backup objectives.

Snapshot-friendly

One of the advanced backup capabilities we are delivering in v10 is the ability to perform flexible backups directly from storage snapshots created by enterprise-grade NAS devices on either primary or secondary storage. This gives you even more ways to further enhance the performance and speed of NAS backup.

How Veeam NAS backup works

Component

The first component to mention is **file proxies.** File proxies are the muscles that allow for throughput of data from source to target. They're scalable and software-defined with no requirements for new hardware or dedicated appliances to achieve scale.

The key differentiator is **changed file tracking,** which maintains the footprint of the source file share and is stored in something we call a **cache repository.** This **cache repository** keeps track of all objects that have changed between each backup, resulting in ultra-fast backup processing.

In our NAS engine, we wanted to ensure the ability to tier off older file versions onto cheaper storage types such as deduplication devices or object storage. This methodology provides the ability to keep a short-term retention close to the production data set for days. Then, to meet with regulations and retention demands, you can leverage the public cloud for longer-term retention and archives.

NAS recovery capabilities

To achieve the outcome you desire, flexibility in recovery remains an important part of modernizing your backup strategy. By having the ability to recover at the level that the situation requires, you can continue to meet recovery objectives, even when dealing with massive amounts of unstructured data.

Restore entire share

This option is most useful when there is a complete loss of your file share or a major outage. When this happens, this option allows for a complete restore of the latest version of all files with security and permissions intact.

Restore individual files and folders

This restore type provides you with the ability to restore individual files and folders with additional visibility to see all available file versions, making the selection of versions you wish to recover a simple and flexible task.

Rollback to a point in time

Quick rollback gives you the ability to roll back to the last known good configuration or backup. This means that any modified file since the last backup can be reverted.

Keeping data safe from ransomware

It has been said that by failing to prepare, you are preparing to fail — and when it comes to ransomware, this could not be truer. In the past, ransomware was something that only happened to other people but today, the question is no longer if — but when. Are you prepared for ransomware?

We now know that the only true way to defeat ransomware is to prevent it from entering your systems altogether. Some organizations have great control over the data that enters their environments and some have less due to the nature of their business. In addition to ensuring that your data is protected and recoverable, Veeam provides additional capabilities that will bolster your data protection today and as you move into your future state too.

Key capabilities for preventing ransomware include:

- Creating backup copies that can be made immutable in object storage

- Meeting not just the 3-2-1 Rule, but expanding to the 3-2-1-1-0 Rule

- 24.7.365 monitoring for malicious file activity that could affect or infect your backups

To remain the most protected, you should follow the 3-2-1 Rule which means you must have at least three copies of your data, stored in two locations, with at least one being kept off site. Let's add to that with another "1" to the rule where one of the media is offline and a "0" to show that the backup was verified and ready for recovery. The offline storage options listed below highlight several options where you can implement an offline or semi-offline copy of the data to truly remain protected against online threats from ransomware.

Master the 3-2-1-1-0 Rule

Recover from any scenario, especially ransomware attacks!

3	**2**	**1**	**1**	**0**
Different copies of data	Different media	is off-site	is offline air-gapped or immutable	No errors after backup recoverability verification

Maintain backup visibility and security

Considering the sharp increase of companies embracing cloud storage over the past few years, one can assume that you are already or are planning to adopt this cost-saving paradigm for long-term data archival. Unfortunately, there have been cases where ransomware made it into the backups where it patiently waited to be restored later when it would then encrypt the company's production data and request a payment for the encryption key. To remain protected against these types of attacks, Veeam takes advantage of S3 Object Lock technology to render the backup copy immutable — that is unable to be altered or deleted — where it will safely wait for recovery while you continue to focus on the things that drive your business and focus less on your long-term backup copies and the future of your recovery.

Veeam ONE is prepared to help you combat ransomware and malware through a series of alarms that help to identify abnormalities occurring in your environment that may be signs of malicious activity.

Recover with confidence

In the event that you do have to revert back to an older backup, a modern backup solution will present you with options that ensure you will prevent re-infection during restore. Veeam Availability Suite offers specific capabilities to ensure your safety when you need it most:

- Instant VM Recovery® to get back online fast in the event of an attack

- Performing a secure restore to scan for malware prior to performing recovery into production

Instant VM Recovery, pioneered by Veeam 10 years ago and made even faster with more scale in Veeam Availability Suite v10, allows you to not only instantly recover an entire VM. To make things simple, any Veeam backup can be instantly recovered to VMware — regardless of the data source. To accelerate your road to recovery even more, you can perform multiple instant VM recoveries simultaneously.

But remember, it's not only about getting the data back. It is equally important that the data is safe, clean and ready to return to production. Secure restore provides you with a reliable way to determine if your copy data that's being restored to production is in a good state and free of malware that could potentially be hiding in your older backup data. Prior to the recovery, Secure restore will scan the selected backup for any malware and act based on the settings you choose.

Automate to free up resources and people

- Ensure that everything is being protected

- Backups tested here while you work

Introduction

If you are like most IT organizations, you struggle with scale. Not with the scale of the environment, but the struggle with scaling your team to perform all of their necessary duties to ensure that your data is being protected while mitigating the constant inflow of user requests.

One challenge has always been around making sure that all your assets are being protected so that you are ready to recover when faced with disaster or massive data loss. In the days of physical only, this was not as much of a challenge, but virtualization and now the cloud are adding to this challenge, since developers and application administrators can instantiate new servers at will. These assets need protecting, but how can you help when you don't have immediate visibility into these systems?

Ensure that everything is being protected

Veeam ONE can be configured to monitor for new assets as they are added to the environment to ensure that they are protected. In addition, to help you focus on what's most important, Veeam ONE will constantly monitor the backup state, warnings and failures so that it can notify you when action is needed and help you understand the reasons why your workloads are not being protected.

What gets measured, gets done

A second challenge that all companies are subject to is regulatory compliance. A modern backup solution aids you in becoming and remaining compliant with the regulations based upon your industry and geography, while also helping you plan for future storage needs.

Veeam ONE offers comprehensive reporting specifically on compliance so that you know where your data is at all times. Remain compliant by grouping objects by location and using reports that list data sources grouped by production location and violations to data sovereignty.

With regulatory compliance driving longer retentions for data, storage capacity planning for the future is typically a task associated with anxiety and manual calculation. In addition to these calculations, how do you determine which departments should be helping by sharing of storage costs in the data center?

Veeam ONE makes chargeback a simple, automated report. IT departments can use this report as an instrument to raise awareness within the organization and demonstrate costs associated with provisioning VMs and storage. The report helps calculate a budget share of allocated virtual infrastructure resources for each application owner, department or business unit within an organization, helps justify the IT budget and assesses the amount of future funding requests.

Your data protection solution should be your eyes when you are busy elsewhere

Infrastructure and backup health are paramount to not only keep the business running, but to ensure that you can meet compliance targets. Without successful backups, you lose your ability to recover when needed and retain data for compliance and business health purposes.

Again, Veeam ONE can help modernize your solution by not only providing the insights into activity and usage that we discussed previously, but by always keeping a watchful eye to monitor for problems before they become serious issues. In addition to the 24.7.365 monitoring Veeam ONE provides, it can also solve the most common issues that interrupt backups in an automated fashion, which allows you to not only sleep at night but to focus your time more effectively during the workday.

Backups tested while you work

Backup testing is unfortunately something that falls by the wayside for many organizations, mainly due to the arduous time-consuming process that legacy solutions require for testing data. Without testing your backups, how can you meet service level agreement (SLA) requirements around recovery?

Veeam Availability Suite has the modern tools built-in to make backup testing a reality; and one that is automated, ongoing and measurable. Through the SureBackup™ capability, a live verification of each backup is performed where it is scanned for malware, booted up into a backup-isolated environment for automated testing and finally powered back off. Once this is complete, a report on recovery verification results is made available for review.

At this point we know that our backups are completing as planned, our data is protected from ransomware, we are following the 3-2-1 and 3-2-1-1-0 rules and we know that we are ready for recovery whenever and however it is needed. But what about all that backup data you generated? As previously mentioned, that backup data is a goldmine that is sitting dormant in your data center and is waiting to be used to accelerate your business.

One key facet of modernizing your backup is taking advantage of your backup data to accelerate your IT initiatives through operations that support development, patch testing, security analysis and data mining. Veeam Availability Suite comes packaged with a technology offering that goes beyond lengthy recovery operations to provide fresh data for your developers and application administrators.

Data reuse

- Enable your developers and IT personnel with FRESH data

- Automate security analysis and data mining with the Data-Integration API

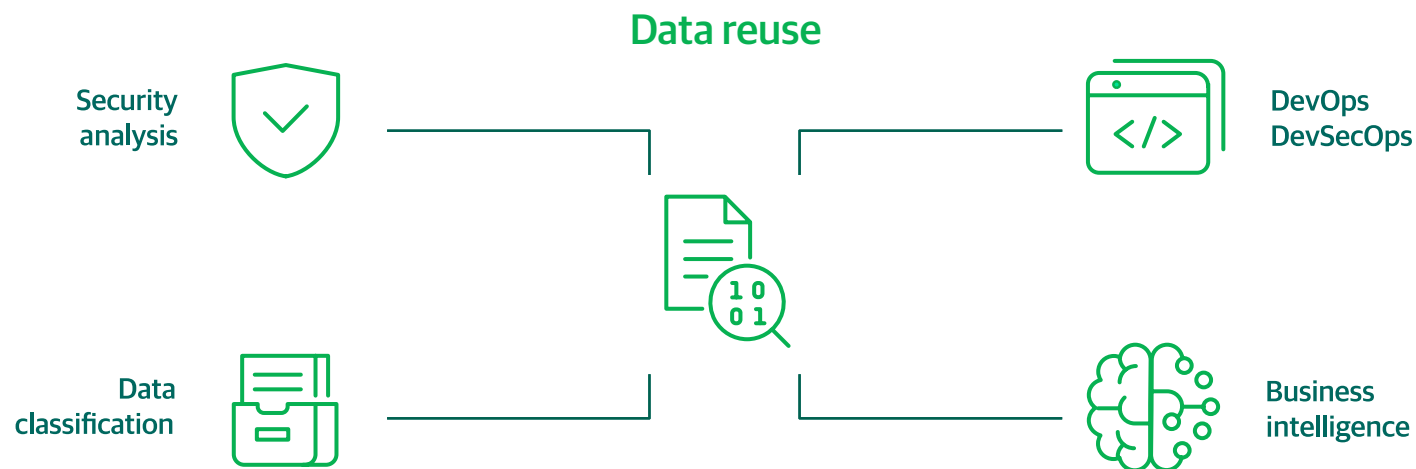## Enable your developers and IT personnel with FRESH data

Legacy backup solutions that offer no inherent sandbox capabilities require you to perform manual restores to isolated environments in order to perform development and testing, which requires many manual steps and a large amount of time to wait for the restore to complete. Due to this, organizations leveraging these legacy solutions struggle to provide fresh data, meaning data that is as close to the production state as possible.
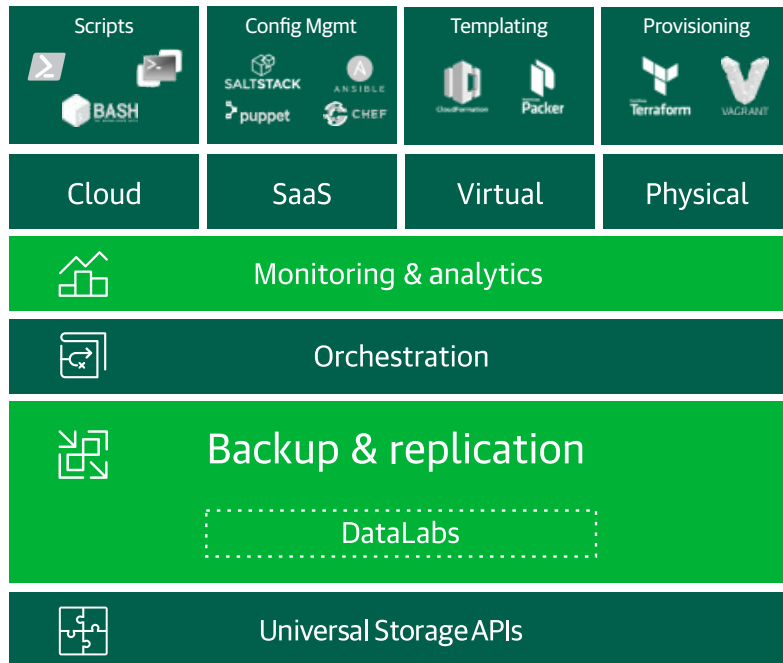
By taking advantage of the investment that you have already made in virtualization, On-Demand Sandbox™ leverages an isolated virtual lab to instantly start a VM directly from an image-based backup or supported storage snapshot. Within this environment you can safely test or develop against applications without worrying about disrupting production.

Automate security analysis and data mining with the Data-Integration API

Considering all that we have covered so far, it is not hard to see the importance of remaining secure in these times of ransomware, bad actors and their resulting data breaches. Veeam helps you address this head-on with an API that allows third-party integration into your backups and opens an expanding list of possibilities around reusing your data.

Use the scripts that best fit your operation to perform data mining, classification, security analysis, eDiscovery, data forensics and more to help you leverage this data in new and creative ways that help your organization reach its goals.

Data reuse

Security analysis

Data classification

DevOps DevSecOps

Business intelligence

Scripts	Config Mgmt	Templating	Provisioning

Cloud	SaaS	Virtual	Physical

Monitoring & analytics

Orchestration

Backup & replication

DataLabs

Universal Storage APIs

VeeamHub in the GitHub Community

GitHub → veeam

https://github.com/VeeamHub

QR code for Chef Cookbook

Summary

Backup modernization is both attainable and necessary to achieve the level of protection and flexibility required as we move more towards digital transformation. It will be key for your organization to adopt capabilities and best practices that deliver reliable protection with flexible restores. Automate as much of the process as possible to scale your abilities and to leverage your data through intelligent data reuse, helping you to move faster, with less errors, while maintaining data integrity and security. Veeam is committed to remaining not only a partner, but a trusted advisor throughout your data transformation journey by ensuring that you will always have the most modernized capabilities from the company that delivers simplicity, flexibility and reliability.

Learn more about Veeam Availability Suite and how Veeam can help you with your digital transformation journey today!

About the author

Billy Cashwell is Senior manager of product marketing at Veeam Software. He has over 25 years in the data protection industry with great experience in many roles ranging from IT admin, technical support, sales, and product management, primarily focused around data protection and recovery. At Veeam in marketing, Billy is extremely relationship focused and actively works for the customer and thrives on direct conversations and speaking with current and prospective Veeam customers.

About Veeam Software

Veeam® is the leader in Backup solutions that deliver Cloud Data Management™. Veeam provides a single platform for modernizing backup, accelerating hybrid cloud, and securing data. With 375,000+ customers worldwide, including 82% of the Fortune 500 and 67% of the Global 2,000, Veeam customer-satisfaction scores are the highest in the industry at 3.5x the average. Veeam's 100-percent channel ecosystem includes global partners, as well as HPE, NetApp, Cisco and Lenovo as exclusive resellers. Veeam has offices in more than 30 countries. To learn more, visit www.veeam.com or follow Veeam on Twitter @veeam.