

NAKIVO - As the Best Backup for VMware

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In brief

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Today is the time when virtualization has become a new paradigm in the modern computing world. The idea of virtualization suddenly opened the way for massive virtual implementations, as if under the motto "Virtualize or Die". This fast-developing trend inevitably brought its own data protection issues, just like with hardware environments.

Once you have your VMware virtual infrastructure in place, the issue of your data protection would hardly leave the scene with VM backup as its primary element. So what are the challenges and choices? There are many things to consider, and too little space in this post to discuss them, but our general advice is to follow VMware backup best practices to build your own data protection system.

Some time ago, many backup administrators did not feel inclined to change their traditional backup strategy, treating a virtual machine the same way as a physical machine. With a virtualization avalanche spreading over the globe and the dramatic growth of individual virtual infrastructures, this approach proved wrong, entailing inevitable system bottlenecks.

Recognizing VM backup contingencies, VM backup software vendors worked hard to meet market demands. The resulting solutions have seen multiple improvements since their early days, and the most advanced of them, like NAKIVO backup for VMWare, have impressively much to offer. The product combines the most innovative technologies with global best practices. Take a peek at the aces NAKIVO Backup & Replication has up its sleeves.

Forever-Incremental Backup and Full Synthetic Mode

NAKIVO Backup & Replication relies on the forever-incremental backup method combined with the full synthetic mode of storing VMware backups in the backup repository. This allows you to perform fast, reliable, and full recovery of your VMware VMs and application objects while keeping storage space and load on the production network relatively low.

Image-based, Agentless, Application-aware VM Backups

NAKIVO Backup & Replication creates image-based backups. That means your entire VMware VM is captured during backup, and the VM backup reflects the system's state at a certain point in time; that is, it contains not only files and folders but also system configuration, applications, discs, and all related data. Therefore, you can instantly restore the virtual machine to its actual point if some disaster strikes your infrastructure.

Another good point is that modern image-based solutions need no software agent installed on source and target hosts. NAKIVO Backup & Replication integrates seamlessly with your VMware virtual infrastructure via VMware vStorage API for Data Protection (VADP) and interacts with it without engaging any assisting software.

Besides its image-based approach to VMware backup, NAKIVO Backup & Replication creates "application-aware" or, in other words, application-consistent backups. It means that backups capture not only complete VM image/snapshot but also allow applications to complete their pending transactions and flush memory data to disk so that they are in a consistent state when the snapshot is taken, freezing the system for an instant.

When the snapshot is complete, the applications resume running. Restoring an application-aware backup to bring such applications to a consistent state requires no additional effort.

Changed Block Tracking

While VMware provides its proprietary tools, VM backup software vendors leverage them. For example, Changed Block Tracking (CBT) is designed to facilitate incremental backups, and NAKIVO Backup & Replication fully uses this VMware feature through the VMware Data Protection API. The CBT module monitors changes in the VM data blocks and makes records in a specific changed block tracking log file.

The advantage of using VMware Changed Block Tracking is that it helps NAKIVO Backup & Replication perform forever-incremental backup much faster and improves the efficiency of the entire backup process.

Reducing Storage Space and Network Workload

Storage space may be a VMware backup issue since VM backups may grow dramatically, pushing the infrastructure maintenance budget up. However, NAKIVO Backup & Replication handles storage space with impressive accuracy, engaging several techniques to reduce the size of the storage content. One of these techniques stipulates skipping unnecessary data while performing VMware backup: the product automatically excludes swap files and partitions, which usually go in bulk into VM backup and produce extra load on the network and consume a large amount of storage capacity.

Other techniques for reducing backup repository size are global data deduplication and compression. The data deduplication feature handles raw data while performing VMware VM backup by excluding backup data blocks, which are identical to those already available in the backup repository. The data compression feature's name speaks for itself. Moreover, it provides for faster data transfer via a network.

Automatic SQL and Exchange Log Truncation

Transaction logs may periodically become a bottleneck for running database apps or VMware backup jobs. These files can fill up the storage space and cause premature termination of transactions or even take your system down by blocking all incoming transactions. To prevent transaction log jams, NAKIVO Backup & Replication is equipped with transaction log truncation tools for both Microsoft SQL Server and Microsoft Exchange.

Thus, during VMware backup, you can select all VMs or specify individual VMs. In addition, the product will automatically perform truncation of log files on the original VM after completing a VM backup job.

Screenshot Verification

Screenshot verification is an innovative technology available in NAKIVO Backup & Replication, which allows for verifying the integrity of VMware VM backups. This feature is performed due to the built-in Flash VM Boot technology, which presents VM backup as RDM disks in virtual compatibility mode and mounts them to a newly created VM. NAKIVO Backup & Replication instantly recovers a VM from its VMware backup, waits for the OS to boot, takes a screenshot, and emails it in a report to the administrator as proof of the consistency and integrity of the above VMware VM backup.

Creating VM Backup Appliance Based on NAS

NAS (Network Attached Storage) servers are gaining popularity as independent storage devices equipped with several built-in features. NAKIVO co-operates with world-leading NAS manufacturers, such as QNAP, Synology, ASUSTOR, and Western Digital, implementing state-of-the-art storage technologies by turning a NAS into a VM backup appliance.

Thus, you get an all-in-one device combining backup software, hardware, storage, and various VM backup options. In addition, backup data is saved directly to NAS disks, bypassing the overhead of CIFS and NFS network protocols, which makes the VMware backup process extremely fast without creating an extra workload on your network.

LAN-Free Data Transfer and Direct SAN Access

Running VMware backup jobs imposes a heavy workload on the network since large amounts of data are transferred. This may affect your routine business operations. To optimize VMware backup traffic, NAKIVO Backup & Replication offers you LAN-free data transfer technology based on the Direct SAN Access and HotAdd techniques.

The Direct SAN Access mode relies on reading and transferring data directly from a SAN storage device over a Fiber Channel or iSCSI, ensures a much higher speed of your VMware backup operations, and greatly improves the VMware backup performance overall.

Another option, the HotAdd transport mode, is designed to read your VM data directly from VM data stores through the storage I/O stack, bypassing the host's TCP/IP stack. A snapshot of a source VM is "hot added" as a virtual disk to the VM that runs VM backup software. This technique also improves VMware backup performance.

Backup Copies Offsite and to the Cloud

A good VMware backup practice ensuring VM backup protection is to have an extra copy of your VM backup data in a secondary repository offsite or in the cloud. NAKIVO Backup & Replication can automatically copy your VM backups to a designated offsite location or the cloud (AWS or Azure). As a result, your data will be safe, even if your whole data center is down or struck by a disaster.

Network Acceleration

Since LAN and WAN links are often slow due to limited bandwidth, NAKIVO's Network Acceleration feature based on data compression and traffic reduction techniques speeds up your VMware backup jobs by up to 2X in LAN and WAN networks, which makes a lot of sense, if the backup data is transferred to a backup repository located offsite or in the cloud.

Data Encryption

Transferring and keeping VMware backups offsite, as recommended by backup best practices, requires some precaution against exposing your sensitive data to a potential threat of unauthorized access. Encrypting your VMware backup data before sending it to some offsite repository would be a sound step in your data protection policy. NAKIVO Backup & Replication includes the encryption feature based upon the industry-standard AES-256 encryption algorithm.

Below are examples of enabled product features: App-aware mode, Network acceleration, and Encryption.

Calendar Dashboard and Flexible Job Scheduler

In the Calendar dashboard of NAKIVO Backup & Replication, you can see your past, current, and future VMware backup jobs in a traditional calendar view. In addition, the Calendar dashboard displays the actual and predicted duration of each VMware backup job at specified dates and times. As a result, scheduling new jobs is easy; you can insert them in free time slots to avoid overlaps.

This feature also establishes multiple schedules for a specific VMware backup job, so it can run at different times, best fitting your infrastructure workflow.

Multi-Tenancy Mode and Self-Service

NAKIVO Backup & Replication supports multi-tenancy by allowing you to create and manage isolated groups or, in other words, tenants within one product deployment. It provides an easy and cost-effective VMware backup service to your departments or customers through individual portals to transfer VM backup tasks control and handling to multiple virtual machine backup administrators. This feature provides an excellent opportunity to develop your Backup-as-a-Service (BaaS) and Disaster-Recovery-as-a-Service (DRaaS) businesses.

VM Backup Automation

With NAKIVO Backup & Replication, all your VMware backup operations can be easily automated. You do not have to bother and put much effort into routine task management. Your virtual infrastructure prioritized areas will always be protected in the form of entire VM containers - resource pools, hosts, clusters, etc. Any VM newly created or moved to such containers is automatically included in the related pre-scheduled VM backup job.

You can also go much further in automating your business processes. The product provides HTTP APIs for its customized integration with other software solutions.

Instant Granular Recovery of VMs, Files, and Application Objects

With NAKIVO's innovative technology, you can browse, search, and recover any VMs, files, Microsoft Exchange, SQL Server, and Active Directory objects directly from deduplicated and compressed backups without restoring the entire VM first. This feature needs no agent and works for all types of VM backup, including VMware backup.

Best Backup for VMware: Summary

Dedicated to integration with VMware solutions, NAKIVO Backup & Replication is a set of state-of-the-art VMware backup technologies combined in a single product. The product improves your VMware backup performance and recovery, enables fine-tuning your optimal Recovery Point Objective (RPO) and Recovery Time Objective (RTO), and provides for the efficient use of storage and network resources.

Besides the features mentioned above, NAKIVO Backup & Replication has much more to offer, including horizontal and vertical scaling and your environment to support higher workloads.

As a flexible VMware backup and disaster recovery tool, NAKIVO Backup & Replication provides seamless integration with your VMware infrastructure. It ensures the smooth and well-balanced performance of your data protection system.

Therefore, download the full-featured Free Trial of the product or request a Live Demonstration.

References

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