

Taking App-Consistent Snapshots for VMware Environments

Rubrik delivers backup, instant recovery, replication, and archival in one infinitely scalable fabric. Rubrik Converged Data Management collapses physically separate hardware and software resources—like backup software, replication, storage, and catalogs—into a single fabric that scales up to thousands of nodes.

DELIVERING DATA PROTECTION WITH MINIMAL DISRUPTION TO PRODUCTION

For VMware environments, Rubrik utilizes vSphere APIs for Data Protection (VADP) to create a snapshot of the VM disk file and Changed Block Tracking (CBT) to query only changed blocks, minimizing the cost of ingest. Designed as a distributed architecture, Rubrik linearly scales throughput performance and parallel processes ingest streams as more nodes are added to the cluster. Rubrik also utilizes flash to rapidly ingest data to minimize any impact to production workloads.



GRANULAR RPO

Increase the number of recovery points without timing out apps.



DATA CONSISTENCY

Maintain app and transactional level consistency.



SAVE TIME

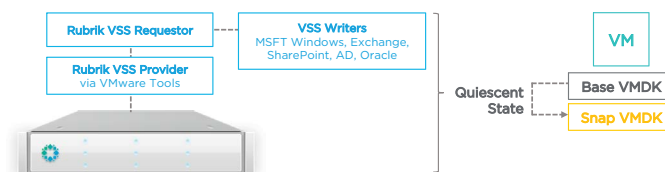
Take app-consistent snapshots quickly and reliably.

MAINTAINING DATA CONSISTENCY FOR VIRTUALIZED TRANSACTIONAL APPLICATIONS

An application-consistent snapshot not only captures all of the VM's data at the same time, but also waits for the VM to flush I/O operations and transactions in process (unlike a crash-consistent snapshot). To backup transactional applications installed on a Windows server (SQL, Exchange, Oracle), Rubrik utilizes Microsoft's native Windows service VSS. While VMware offers VSS support, Rubrik introduces its own native VSS Provider via VMware Tools to create and manage snapshots of VM disk files.

HOW IT WORKS

Rubrik's VSS requester and writers coordinate to provide a stable system image from which to back up data. Once the requester queries the writers for information about the files to be backed up, the Windows VSS service quiesces all writers and freezes I/O operations. Rubrik's VSS Provider instructs the ESXi host to take a VMware snapshot. Following the backup, the Windows VSS service resumes normal operations and confirms with Rubrik's VSS Provider that the VMware snapshot was successfully taken.



ELIMINATING THE EFFECTS OF VMWARE APPLICATION STUNNING

When backing up highly transactional applications in VMware environments, customers can experience lengthy snapshot windows and application time-outs. Producing a snapshot of a VM disk file requires the VM to be quiesced (“stunned”), a snapshot of the VM disk file to be ingested, and deltas to be consolidated into the base disk. Lengthy snapshot windows and application time-outs occur when this process “stun-ingest-consolidate” is not efficiently managed.

Rubrik eliminates the effects of application stun with the help of:

- Flash-optimized ingest that linearly scales as more nodes are added to the cluster (faster ingest)
- Reduction of data hops due to convergence of traditionally disparate software and hardware, such as backup software, proxy servers, deduplicated storage, etc. (simpler architecture)
- Rubrik’s VSS Provider offered through VMware Tools (better application integration)
- Rubrik’s consolidation process, which throttles the number of operations to avoid overwhelming the ESXi hosts (better task management)

As a result, customers can take VM-level snapshots of applications with high change rates and at greater frequencies for more granular recovery.

For more information on object recovery for Microsoft applications, see Rubrik’s [Instant Object-Level Search & Recovery](#).

ENVIRONMENT SUPPORT

- Application-aware backup and recovery is available through Microsoft VSS integration for Microsoft Windows 2012/2008 R2, Microsoft Exchange Server 2010/2013, Microsoft SharePoint 2013, Microsoft SQL Server 2008/2012/2014, Microsoft Active Directory in Windows Server 2012/2008 R2, Oracle Database 12c R1 and 11g R2
- Virtualization Hypervisor: VMware vSphere 5.1, 5.5, 6.0 (VMs can run all operating systems and applications supported by VMware)
- Hybrid Cloud Services: Amazon S3, NFS, Object Stores (Cleversafe, Scality)
- Storage protocols: NFS, iSCSI, and internal/external local storage devices supported by ESXi

WHAT OUR CUSTOMERS ARE SAYING

“Our highly transactional SQL databases required lengthy snapshot windows, which prevented us from having crash-consistent snapshots. With Rubrik’s fast ingest, we are able to take VM-level snapshots of applications with high change rates and at greater frequencies for more granular recovery.”

— Red Hawk Casino

“Rubrik was the only solution to help us eliminate the application stun effect on our SQL databases. Because the system can quickly ingest data, we can now take VM-level snapshots of SQL and do these at greater frequencies for more granular recovery.”

— Protected Trust

DON'T BACKUP. GO FORWARD.

Want to see more? Contact info@rubrik.com for a 15-minute demo. Visit www.rubrik.com and follow [@rubrikInc](https://twitter.com/rubrikInc) on Twitter.