Ensuring Data Protection and Recovery in the 3rd Platform Era

Sponsored by: CommVault and HDS

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IDC OPINION

Today, the IT industry is experiencing enormous change from the client/server-based 2nd Platform to the 3rd Platform, which will be driven by greater integration with cloud, both public and private; convergence of networking and storage in a single rack; and, more importantly, software-based storage that will provide an abstraction layer that is much more content aware. The challenges posed to IT administrators shifting from the 2nd Platform to the 3rd Platform are exponentially greater than the challenges of the transition from the terminal/mainframe in the 1st Platform era. We have discovered that customers are grappling with these new considerations that are driving most of the current and new IT infrastructure deployments. The transition from the 2nd Platform to the 3rd Platform has major implications for the protection, recovery, and data management strategies of many companies, particularly large enterprises. Moreover, disk-based recovery mechanisms have been widely embraced by companies of all sizes to alleviate the bottlenecks associated with tape-based recovery and improve recovery time objectives (RTOs)/recovery point objectives (RPOs), especially in large application and highly virtualized environments. Disk-based recovery, particularly with the use of snapshots and clones, has been transformative in protection, recovery, and data management processes. As a result, clone and snapshot requirements have evolved to meet the needs of faster, more efficient operational recoveries of large data sets and are much more application aware, facilitating rapid disaster recovery.

Together, these trends pose a major challenge to the ability of most companies to back up, recover, or categorize their data at scale using their existing processes and traditional tools. Customers of all sizes are increasingly using snapshot and clone technologies to address time to recover and meet more timely recovery objectives. However, these technologies can be expensive and complex to manage, with separate tools from each array vendor. As a result, customers must perform many manual tasks and scripting to orchestrate the integration of the array snapshots with a consistent point in time for the application. CommVault and Hitachi Data Systems (HDS) have partnered to address these evolving data management challenges in the new 3rd Platform era. CommVault Simpana 10 is a singular data management solution for backup, replication, and archive from on-premise, off-premise, disk, tape, or cloud.
IN THIS WHITE PAPER

This IDC white paper explores the changing IT requirements in the 3rd Platform era and the protection, recovery, and data management challenges of enterprise customers. In addition, this white paper illustrates the benefits of CommVault IntelliSnap integration for HDS storage customers.

SITUATION OVERVIEW

Clone and snapshot technology use cases have evolved beyond backup and operational recoveries of data as customer needs have changed. Customers regularly try to leverage data protection, disaster recovery, data migration, content distribution, and new emerging use cases such as data conversion by using built-in array technologies. Today, snapshot and clone technology is widely sold and deployed with storage arrays designed for disaster recovery solutions or rapid recovery of critical applications. Customers using snapshot and/or clone technology approaches must evaluate the trade-offs with respect to performance, scalability, RPO/RTO, ease of deployment and use, intended use cases, performance, and cost. We have discovered that IT management has a wide range of snapshot and clone technology choices and must ascertain which solutions will best fit its infrastructure requirements to support new and legacy processes. It is critical that IT managers understand the implications of the available snapshot and clone options given their ever-changing business requirements and the evolution to the 3rd Platform.

In terms of usage, clones and snapshots are rarely tightly integrated with the data protection process because of the manual effort required to orchestrate each vendor’s technology. Customers are managing different technology approaches that are supporting existing or legacy applications and new applications. This poses many management challenges because there is no single set of tools or common user interfaces across the different arrays or applications. IT administrators need to use custom scripts in order to perform the snapshot process. A bigger challenge is to make the clone or snapshot technology application aware. Despite the prevalence and use of these technologies, it has been cumbersome to perform, manage, and orchestrate across different arrays and applications. A singular tool is needed to solve these challenges.

The Hitachi Data Protection Suite Powered by CommVault IntelliSnap Technology

HDS is a premier block-based primary storage array vendor, with a broad lineup of products principally designed for enterprise users. HDS has a set of native protection tools that are offered with its storage arrays for its legacy and new systems. Currently, Hitachi customers using these native tools may be challenged to manage them effectively in the face of growing data volumes, particularly from virtual machine (VM) sprawl, constrained system resources, and more aggressive recovery objectives. Also, the IT administrators using the HDS storage arrays must contend with manual protection policies that lack standardized recovery processes. The CommVault IntelliSnap technology integrates with the HDS array protection technology – ThinImage snapshots and ShadowImage clones. (Note that Hitachi sometimes refers to the ShadowImage cloning process as “In-System Replication.” In this document, we have used cloning terminology to avoid any confusion with WAN-based replication processes.)
Much of the complexity seen in the HDS-managed snapshots is derived from the command integration and pair management of devices, which at scale can quickly become cumbersome. HDS storage arrays leverage the Command Control Interface (CCI) to manage and configure array-based tasks, and without integrated scripts or application integration, these commands can be very manual. Furthermore, the CCI execution commands require proper Hitachi Open Remote Copy Manager (HORCM) files to be implemented for each host to manage the necessary device management internal to the array. Adding to the configuration complexity, a specialized, logical data volume must also be created on the storage array. Orchestrating the components of this process creates complexity, especially when a customer requires application or hypervisor integration for consistent data copies with the HDS snapshot process. This orchestration process is the responsibility of the customers that use both ThinImage (Copy After Write [CAW] snapshot technology) and ShadowImage (full data copy technology).

IntelliSnap technology orchestrates the clone and snapshot processes with key enterprise applications, such as Oracle, IBM DB2, SAP, and Microsoft SQL Server. Prior to issuing a data protection command to the storage device, the IntelliSnap software communicates with the application and ensures it goes into a proper hot-backup state. When the application is ready, IntelliSnap technology issues the command to either take the snapshot or split the clone off. The result is a data-consistent image that can be used for recovery purposes, test/dev work, reporting, and so on. And this is all done without the need for manual or special script creation.

We believe IntelliSnap technology brings HDS customers a cohesive set of tools that allow for application-aware snapshots for rapid, granular recovery, reducing the RTO/RPO for critical applications. The ability to perform selective restoration of files or virtual machines allows users to quickly mount and browse a snapshot volume. For example, an HDS customer using IntelliSnap technology can now recover a single database table for Oracle Databases or a single email in Microsoft Exchange. We believe the CommVault IntelliSnap technology provides measurable benefits to HDS in terms of manageability, performance, and reduction of the complexity of protection and recovery operations.

**CommVault IntelliSnap Technology Benefits for HDS Customers**

- Uniform, centralized recovery workflows to help operationalize the recovery process
- Consistent operation across heterogeneous arrays, expanding the use of clones and snapshots across applications
- The ability to perform cascaded snapshots for increased performance, support new copy management workflows, and improve recovery time
- Improve RTO/RPO using ShadowImage with "Quick Restore" and "Quick Resync" options
- Provide a cohesive, easy-to-manage protection technology to large customers struggling with time- and labor-intensive protection processes
- A management layer that allows simplified and enhanced troubleshooting

We expect HDS enterprise customers will embrace IntelliSnap technology and enjoy the benefits of an enhanced set of data management tools to more closely align their recovery challenges and objectives as the complexity of their infrastructure continues to grow. Furthermore, HDS customers will need a more extensible set of data management and recovery tools as they grapple with the new challenges in the 3rd Platform era. IntelliSnap technology is a complementary add-on for an HDS array customer.
FUTURE OUTLOOK

We believe enterprise customers will be challenged to manage and safeguard their burgeoning data and infrastructure requirements in the new 3rd Platform era. We believe large enterprise customers will need greater scale, performance, and agility to meet their growing management, protection, and recovery challenges. Customers evaluating a new data management, protection, and recovery solution need to clearly ascertain if the tools will integrate and extend beyond the physical confines of their datacenter into the cloud – both public and private. In addition, any new solution or set of tools will need to have heterogeneous support for virtual infrastructure as well as for new and existing workloads. This has implications for the protection requirements as well. In the future, protection requirements will need to be much more scalable and easier to manage and have improved recovery performance. We foresee that protection and recovery will continually be challenged by incessant data growth, more aggressive RPOs/RTOs, and increased focus on application recovery and alignment with business objectives.

CHALLENGES/OPPORTUNITIES

The biggest challenge CommVault will face with its alliance with HDS for its IntelliSnap solution will be ramping up its sales engagement process and building more awareness of the IntelliSnap solution in the HDS channel. Currently, HDS offers a broad set of native protection tools as well as OEM protection and recovery products. We believe CommVault must help HDS correctly position the IntelliSnap solution among its own offerings and protection solutions it offers to its customers.

We believe the upside potential for both CommVault and HDS is very significant. HDS will provide CommVault an entrée into its large enterprise customer accounts. This would allow CommVault a greater opportunity to propagate not only the IntelliSnap solution but also the full Simpana platform to HDS enterprise-class customers, helping increase their ability to grow strategic integration and opportunity. For HDS, IntelliSnap technology brings together clone and snapshot tools that are easier to use and nondisruptively allow its customers to save significant IT management time and complexity.

CONCLUSION

The CommVault IntelliSnap software solution will offer HDS customers the ability to standardize through single-console management and automation of hardware snapshots across multiple storage arrays and physical or virtual servers. Also, the IntelliSnap solution provides HDS customers application awareness and faster recovery of their data. Furthermore, the IntelliSnap solution not only simplifies the management of snapshot creation and retention across multiple storage arrays but also provides granular recovery capabilities of individual files, messages, or objects. IntelliSnap software provides HDS with a common set of cohesive protection and recovery tools that will scale to accommodate HDS’ ever-changing data management challenges. We believe the CommVault IntelliSnap technology is well positioned to address the challenges in the new 3rd Platform era.
More importantly, we believe the HDS partnership will enable CommVault to grow and penetrate further into enterprise customer accounts. Also, the CommVault IntelliSnap technology will be the conduit for HDS customers looking to deploy a new, singular data protection and recovery solution. These customers will have an easier migration path to their full-featured Simpana 10 software suite. Currently, Simpana 10 software is available from HDS branded as the Hitachi Data Protection Suite. CommVault Simpana 10 software, under an integrated data management framework, brings together features that traditionally have been delivered as point-product solutions. We expect HDS customers that are looking for a new data protection and recovery solution will be enticed by a holistic approach that addresses their broader data management challenges.

We hear very consistently and often from customers that are grappling with adequately safeguarding their data in the context of rapidly virtualizing server environments, unabated data growth, and an increasingly diverse set of infrastructure requirements. This is exacerbated by the move to cloud-based computing. These trends pose major challenges to the ability of companies to back up, recover, or find their data in a timely manner using traditional tools. CommVault has always provided its customers with key capabilities to tame their backup and data management challenges. These capabilities consist of snapshot management, archive, deduplication, replication, search, and reporting, among others, and span physical and virtual environments, datacenters, remote offices, and end users as well as storage media, including heterogeneous disk, tape, and the cloud. In addition, CommVault allows its customers to bridge legacy architectures and processes for integrated operational recovery using IntelliSnap technology. We believe HDS customers will quickly understand the value that IntelliSnap provides for their operational recovery challenges. We believe this is a win-win situation for both CommVault and HDS customers.
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