HPE RMC 6.0: Extending Beyond Copy Data Management

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If you've worked in IT, you know that a large percentage of your company's data has been copied at least once, and often multiple times, to meet the needs of various use cases. Whether it's backup copies for data protection, archival copies for compliance, or clones for test/dev or analytics, any particular set of data is likely to have spawned one or more copies. While these copies are nearly always made for a good reason, in many organizations they have spiraled out of control, creating a copy data sprawl that is tough for IT to get its arms around, let alone manage. As copies of data have proliferated, so have the pain points of greater storage complexity, footprint and cost. The performance of production databases also suffers as copies are made for secondary applications.

It is these very issues that copy data management (CDM) is designed to address. CDM solutions focus on eliminating unnecessary duplication of production data to reduce storage consumption, generally through the use of data virtualization and data reduction technologies. The results can be compelling. Nearly one-third of the companies that Taneja Group recently surveyed have either adopted CDM solutions or are actively evaluating them, looking to achieve benefits such as reduced storage costs, faster data access, and better data visibility and compliance.

But while first-generation CDM offerings have proven helpful, they are not keeping up with the demands of new technologies and user requirements. In particular, Flash and Cloud bring new data management opportunities and challenges that cannot be addressed by traditional CDM solutions. User needs and expectations for CDM are also expanding, moving beyond just policy-based snapshot management among homogeneous arrays.

As we've learned in our research, next-gen CDM must meet a new set of user needs driven by Flash and Cloud innovations, including support for heterogeneous arrays, greater but less hands-on control of copies based on intelligent policy-based automation, and coverage of new use cases across the data lifecycle, such as test/dev, reporting and analytics. Customers are also looking for integrated solutions that combine CDM with data protection and other secondary storage functions.

As we'll see, HPE Recovery Manager Central (RMC) 6.0 provides all these capabilities and more. In fact, we'll argue that the updated RMC 6.0 offering has helped to make HPE a leader in the data management space, streamlining costs and enriching the experience of HPE customers while still delivering on the backup and recovery features that RMC is well known for.

## COPY DATA MANAGEMENT IN THE FLASH AND CLOUD ERA

The cloud, flash media, and improved snapshot technologies have opened up whole new possibilities for storage, while completely altering the economics of traditional approaches to data center storage. Flash has delivered a whole new level of storage performance for demanding applications, and is now finding its way into secondary storage while reducing power, space and administrative complexity. At the other "capacity" end of the spectrum, the public cloud offers highly scalable and resilient storage for backup, archive and test/dev/analytics use cases, at a low, entry-level cost point. With respect to on premises storage and private clouds, as storage density has increased, so have array snapshot capabilities: whereas most arrays used to have limits on the number and frequency of snaps, today's arrays enable a virtually unlimited number of snapshots, allowing organizations to protect key data on a near-continuous basis.

But these technologies come with a cost: the need for more intelligent data protection and copy data management, across multiple, heterogeneous storage platforms and storage tiers. Flash performance is enabling a whole new set of data-driven applications, though its high levels of speed and throughput come at a significantly higher cost than commodity hard drive storage. While it comes at a low entry-level cost, public cloud storage creates an environment in which data copies can and do multiply. On-premises copies are also growing: with array snapshots now nearly "free" from a storage capacity/cost standpoint, they have tended to proliferate in many organizations.

All of these copies need a home, and economics dictate that secondary and tertiary data should reside on lower cost storage. This is driving the need for multiple heterogeneous storage platforms and tiers in a company's IT arsenal, to meet the needs for different use cases and applications. To keep storage costs in check and rein in complexity, what's needed in the flash/cloud era is a way to better manage data, reducing the size and frequency of copies, and allowing copy data to be placed in the tier, system and location where it makes the most sense, all without the need for ongoing, hands-on management.

To get a better handle on user needs, Taneja Group asked a large sample of IT managers what they would like to see in their copy data management solution, and the top capabilities are shown in Figure 1 below. Not surprisingly, fewer data copies and reduced storage costs top the list. Buyers are also looking for better data visibility to improve compliance, as well as a framework in which to consolidate multiple storage use cases, including backups, object storage and shared file services, while improving and automating copy management across the data lifecycle. Outside traditional IT functions, solutions must also address fast-growing use-case scenarios such as dev-ops workflows and automating the creation and management of test/dev copies.

Figure 1: Most Important Capabilities Required in a Copy Data Management Solution
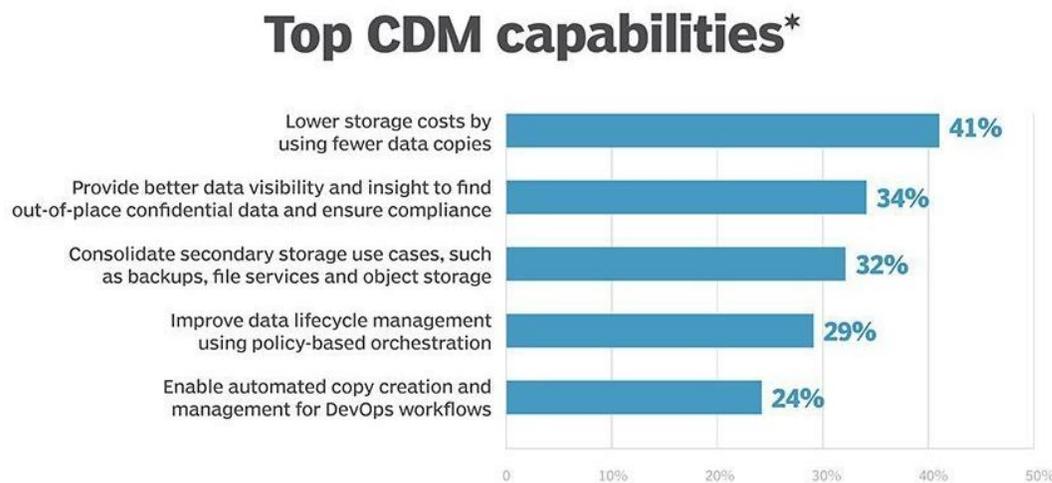
SURVEY OF OVER 300 IT PROFESSIONALS, MULTIPLE SELECTIONS ALLOWED   *SOURCE: TANEJA GROUP*

Given these requirements, customers need an approach and solution that goes beyond CDM 1.0 to address the requirements for managing copy data in the flash and cloud era. In addition to supporting copy data management between homogeneous platforms, next-gen solutions must enable and optimize copy management between heterogeneous sources and destinations. This includes the ability to cost-optimize copies of data across primary arrays and secondary storage, for example between all-flash arrays for primary data and hybrid arrays for secondary data, to ensure low-latency access to hot or highly active data and cost-effective storage for less active data. For a growing number of use cases, the cloud tier will also play a role, e.g. for archive or disaster recovery. Solutions should enable companies to reduce the number of copies on primary arrays, place more copies on secondary platforms, and move even more copies to the cloud, especially for data that requires longer retention periods.

To more effectively manage copy data and optimize placement, CDM solutions need to provide intelligent, user-definable policies that specify the frequency and retention of each type of copy based on the needs of each use case and application. For example, the copy management policy will likely be different for backups on secondary storage than it is for local, array-based snapshots or for DR copies in the cloud. Once defined, policies should be applied automatically, both to reduce human error and the need for manual intervention.

To preserve existing IT investments and minimize disruption, solutions should of course have the ability to fit easily into any customer environment, for example by integrating with major backup software tools. Finally, customers we've spoken with insist on one other strategic consideration: rather than simply delivering a point solution for copy data management, CDM offerings should provide end-to-end data management for the whole range of customer use cases, from copy data management to data protection to long-term archival, as well as primary storage. Few IT shops today can afford to accommodate yet one more toolset for a specific task or function, so integrated solutions are the rule of the day.

In our survey of the market, we've found that few CDM products even come close to addressing these needs today. But one CDM solution stands out in this space: HPE Recovery Manager Central 6.0. Let's look at the unique capabilities of the RMC 6.0 offering and explore how RMC helps satisfy user requirements for CDM and data protection across the data lifecycle, both today and tomorrow.

HPE RMC 6.0: COPY DATA MANAGEMENT FOR THE NEXT ERA

The release of the sixth generation of HPE RMC establishes the application as one of the premier data protection and copy data management platforms in the industry. HPE RMC is included for free with any HPE 3PAR or Nimble array. Today's CDM platforms, while optimizing the number of copies of data, typically manage the copies within the sphere of a set of homogeneous devices. However, HPE RMC goes further and supports copy management between heterogeneous storage devices and targets including HPE 3PAR, Nimble, StoreOnce, and Cloud Bank Storage. Snapshot-consistent data copies are transferred between these devices at high speed by only sending unique, changed blocks. This mix-and-match approach not only helps to optimize cost, but also expands the use of CDM to address a wide range of use cases across the data lifecycle, including long-term backup and archive, disaster recovery, test and development, and basic cross-array migration. Figure 2 below shows a solution overview of how RMC plays a central role in copy data management within or between HPE storage devices.

Figure 2: HPE RMC Solution Overview
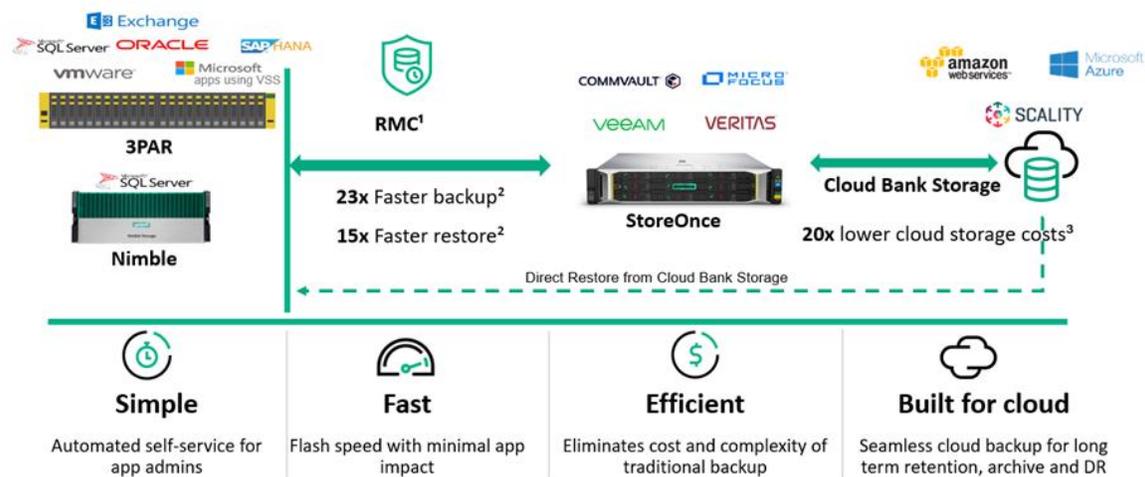
SOURCE: HEWLETT PACKARD ENTERPRISE

The key attributes and uses for HPE RMC are as follows:

- **Universal Policy Manager:** HPE RMC provides a central place for all copy management policies. Policies can be defined based on RPO/RTO objectives with built-in intelligence to automate numerous settings, enabling IT to meet rigorous SLAs with minimal resources. Complex multi-hop snapshot and copy policies can be enabled at the time of volume creation with one simple click without leaving the native provisioning platform.

- **High-Speed Local Backup and Recovery**: Array-based snapshots and replications provide fast, non-disruptive point-in-time copies of your data. But snapshots alone cannot deliver comprehensive backup as your snapshots will be lost if the storage system fails. HPE RMC integrates 3PAR and Nimble arrays with StoreOnce Systems to provide a snapshot-based backup service enabling near-instant, non-intrusive availability of local snapshots with the cost-effective reliable recovery of backups on a secondary medium. The HPE RMC direct backup approach bypasses traditional server backup techniques, providing up to 23x faster backups and up to 15x faster restores. Multiple HPE arrays can consolidate snapshot-based backups onto one larger StoreOnce system to make this approach even more cost-effective.

- **Efficient, Long-Term Backup and Archive in Native Array Format**: HPE RMC can optimize copies of data between and within all-flash storage (3PAR and Nimble), cost-optimized secondary storage (StoreOnce), and cloud object storage (Cloud Bank Storage target). RMC understands the native array snapshot formats to enable direct restores, translating data formats as needed between these heterogeneous sources and destinations. RMC can retain long-term copies of data on the most cost-effective storage available. HPE RMC is tightly integrated with 3PAR and Nimble to extract only the changed blocks, which eliminates transferring unneeded data. Even the first full backup transfer to a StoreOnce backup appliance is streamlined through zero-detect, deduplication, and compression.

- **Array-Integrated Copy Data Management**: RMC software is included with HPE 3PAR and Nimble primary storage. Though the RMC software is installed external to the array, the feature capabilities are seamlessly integrated in the array's element manager (e.g. HPE 3PAR SSMC). This is important for those customers that want advanced copy data management without having to learn a new interface. For instance, you can use SSMC to manage local and remote snapshots on local/remote 3PAR arrays, backups to StoreOnce, copies to Cloud Bank Storage, setting the frequency and retention of each copy – as well as recovering from any of the copies on any of the tiers – all from within the SSMC interface. Another benefit with integrated CDM is that the array administrator can see all the copies across all heterogeneous storage devices including on HPE Cloud Bank Storage and directly restore the version of choice without leaving the local interface. Figure 3 below shows how simple it is to restore a secondary copy directly to 3PAR using the RMC integration within the SSMC interface:

**Figure 3: HPE RMC native integration with 3PAR SSMC**

- **Test and Development**: HPE 3PAR and Nimble arrays support hybrid storage, giving customers the choice of using cost-optimized arrays for test and development and DR purposes. Many other flash-only arrays would require matching all-flash arrays for this purpose. HPE 3PAR and Nimble arrays also support the concept of zero-copy clones, making these arrays very efficient at providing a local copy of data to be used for analytics, testing and/or development. HPE RMC is the one place that can pull all these CDM use cases together through one common interface or set of APIs.

- **Integration into many 3rd Party Environments:** HPE RMC is API enabled, which allows its
features to be natively integrated into enterprise applications and with backup ISVs. For instance, direct integration into VMware vCenter allows for VM-centric direct backups and restores (Figure 4 demonstrates how RMC is integrated directly with the VMware UI). These RMC for VMware backups can also be browsed using Veeam Explorer, a third-party application, which enables individual VMDK recovery or granular file recovery within any VM contained in that backup. API-based integration into SAP HANA, Oracle, SQL Server, and MS Exchange enables app-consistent backups and copies to Cloud Bank Storage. Finally, RMC also integrates into third-party backup applications such as Micro Focus Data Protector for those customers that prefer enterprise-wide backup solutions.

Figure 4: HPE RMC direct backup integration in VMware
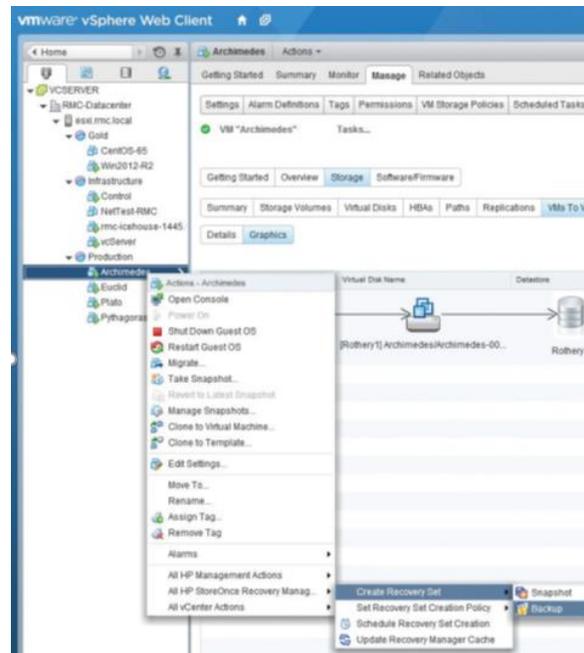
SOURCE: HEWLETT PACKARD ENTERPRISE

- **Basic Cross-Array Data Migration**: HPE RMC can be used to orchestrate efficient data migrations between HPE Nimble and 3PAR without the need for third-party tools. RMC can manage direct backups to HPE StoreOnce from one array type and then restore from StoreOnce to another type of array. Since the backups are efficient and fast, it becomes a simple, cost-effective way to transfer data from one HPE array type to another.

HPE RMC 6.0 has set a new bar for copy data management with its unique ability to orchestrate copies of data seamlessly across multiple HPE Storage systems. By providing it free with HPE primary storage products, HPE ensures that all its storage customers can take advantage of this powerful and flexible CDM solution.

TANEJA GROUP OPINION

Born in just the past decade, CDM solutions have been a boon to organizations looking to rein in the scope and complexity of rapidly proliferating copy data. Recently, however, new cloud, flash and array technologies have disrupted the market, further exacerbating the pressures that copy data is imposing on storage capacity and management complexity. First-generation CDM vendors have been slow to respond, leaving a gap in the market that has made it difficult for IT to adequately address their copy data management challenges.

With HPE RMC 6.0, HPE is effectively filling that gap. RMC 6.0 goes beyond typical CDM, enabling support between heterogeneous arrays and fully utilizing on-premises secondary storage and cloud tiers to provide a more holistic and cost-effective copy data management solution. Intelligent, policy-based automation allows RMC to take and execute decisions on behalf of the user, governing the frequency and retention of each type of copy and even the selection of backup speeds and targets. From a broader perspective, RMC 6.0 consolidates secondary data management functions into a single, integrated offering, allowing customers to more effectively manage their copy data while also relying on the product for backup and recovery.

HPE RMC 6.0 is a new addition to what's become one of the industry's most innovative storage portfolios, joining products such as HPE 3PAR, Nimble, InfoSight and StoreOnce to address the multi-faceted storage needs of the most demanding enterprise customers.