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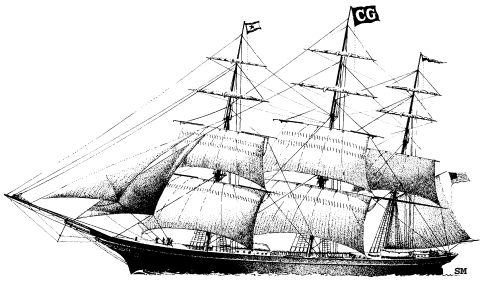

Navigating Information Technology Horizons℠

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EMC RecoverPoint V3.0 Asks "*Why Not Both?*" to CDP and Remote Replication

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Management Summary

If you have a mobile phone that also sends and receives e-mail, you know how convenient it is to have a two-in-one appliance. It saves space and power and is easier to manage. Moreover, it is a good combination of related but distinct capabilities. A phone and e-mail are complementary forms of electronic communication that work more efficiently together.

In this spirit of multiple uses, EMC now supports concurrent continuous data protection (CDP) and remote replication in the latest version *RecoverPoint* – a first for an enterprise-class data protection solution. RecoverPoint is a Fibre Channel SAN-based platform that protects data in heterogeneous environments. At the local site, it delivers CDP with instantaneous recovery to any point in time and full read-write access. At the remote site, it provides asynchronous replication for granular, near-CDP recovery.

RecoverPoint Version 3.0 has several new features:

- **CDP and remote replication for the same data through one appliance** – The capabilities are separately licensed, so an enterprise customer could deploy either or both. Adding one later involves only a software upgrade.
- **Support for an array-based splitter in EMC's midrange *CLARiiON CX3* series** – RecoverPoint now offers the choice of running splitters on hosts, intelligent switches, or a CLARiiON array. The benefits of the array-based splitter include iSCSI host support, additional operating system support, support for *VMware* support using VMFS, and simplified, flexible deployment.
- **Enhanced JAVA GUI management console** – This new console offers additional consolidated graphical views and is more intuitive to use. It allows administrators to manage local CDP and remote replicas from a single pane.
- **Support for high-performance 4 Gbit/s Fibre Channel connections**

Like phone and e-mail, CDP and remote replication are distinct but related technologies. Both protect enterprise data, though from different types of failures. CDP enables fast recovery from operational and logical failures (i.e., data corruption), while replication protects against major system failures and local and regional disasters. Having both in one appliance offers additional value and convenience.

RecoverPoint V3.0 is scheduled for availability in March 2008. Read on for details.

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Remote Replication and CDP

Remote replication and continuous data protection (CDP) are technologies for protecting data and ensuring business continuity. It is no secret that modern business runs on information. Enterprise applications, e-mail, Internet – they all depend on robust and reliable data access. With no single way to protect data that works in every situation all of the time, enterprises employ a variety of technologies, each with their respective strengths.

Remote replication maintains a complete copy of data on disk at a remote site. As the source data changes, so does the target. Like a spare tire in the trunk, if the source data becomes unavailable for some reason, a current or nearly current copy is available at the remote site to resume operations. It protects from local and regional system failures or disasters, like fires, floods, electricity, or network outages. Replication can be *synchronous* or *asynchronous*, depending on the level of protection, performance, and distance required.

Continuous data protection (CDP) is a newer technology that captures data changes in a journal and enables data recovery to virtually any prior point in time. CDP solutions protect data objects ranging from block images to logical objects, such as file systems, files, mailboxes, and messages. Its main benefit is fast recovery from data corruption, viruses, or user errors by rebuilding from a consistent checkpoint just prior to the failure. CDP images may also be used as a source for non-disruptive backups and application testing and development.

Replication and CDP are distinct but complementary technologies. Both protect data, though from different types of failures and disasters. Replication enables recovery from physical failures and disasters, while CDP is for operational and logical failures (i.e., data corruption). Many enterprises will want to use one or both as appropriate for different classes of applications and data.

EMC RecoverPoint Version 3.0

EMC RecoverPoint V3.0 is a SAN-based platform for concurrent CDP and remote replication in heterogeneous enterprise environments. It offers two data protection technologies in one appliance. At the local site, RecoverPoint delivers CDP with instantaneous recovery to any point in time and full read-write access. At the remote site, it provides asynchronous replication for granular, near-CDP recovery, which EMC refers to as *continuous remote replication (CRR)*. These capabilities are bi-directional and both sites can replicate to each other. They are also priced separately, so enterprises can deploy either or both.

New Features in RecoverPoint V3.0

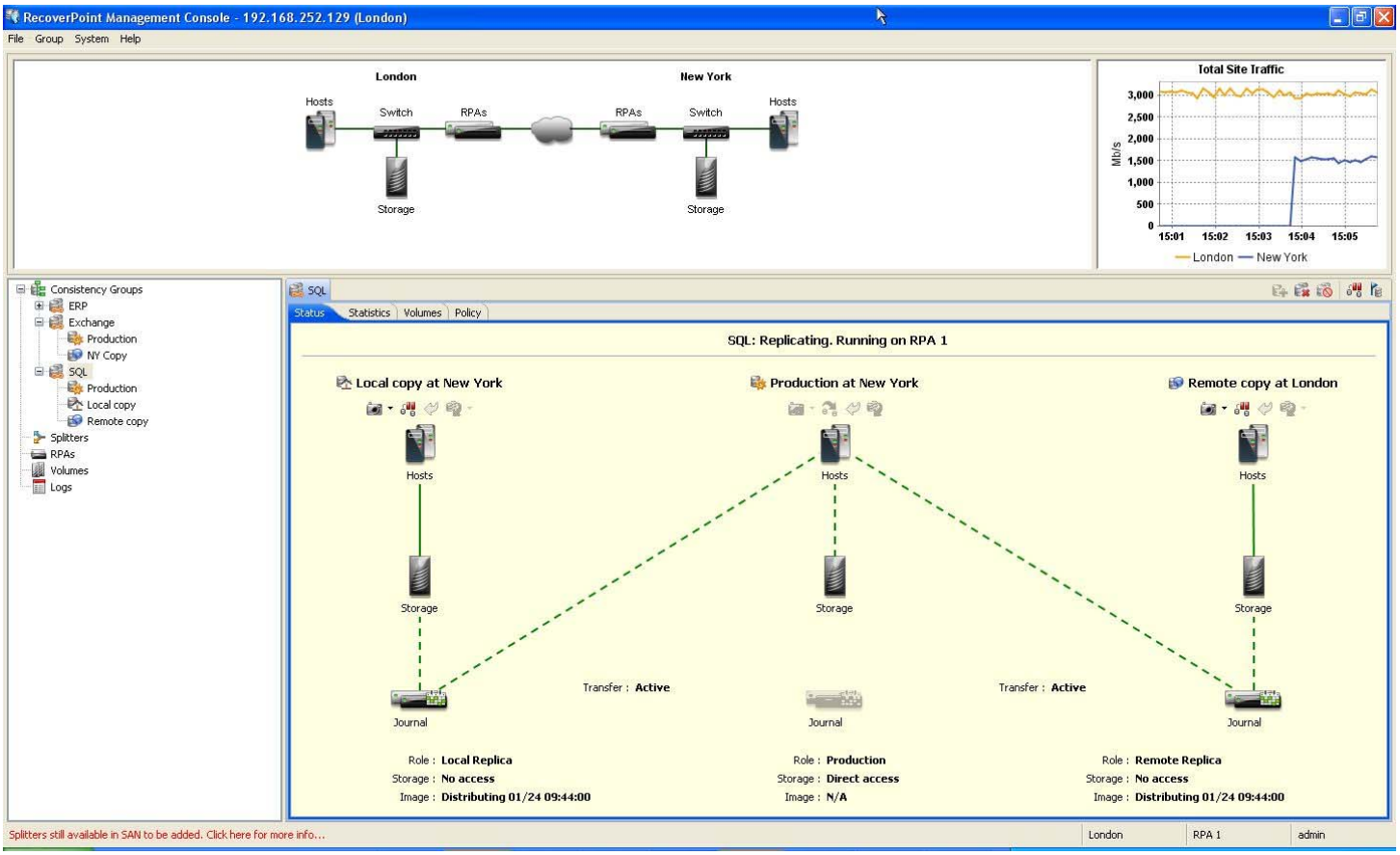
First, RecoverPoint delivers CDP and CRR concurrently for the same data through one appliance. RecoverPoint previously supported either of these technologies (CDP or CRR), but not both, for a given data set. The new concurrent local CDP and remote CRR approach is a comprehensive recovery model, supporting operational recovery at the local site and disaster recovery at the remote site for all protected data. Moreover, an enterprise that deploys RecoverPoint with only CDP or CRR today has the option to add the other feature in the future. This addition would involve only a software upgrade, as opposed to purchasing another point product.

Second, RecoverPoint V3.0 adds support for a splitter integrated into the EMC's mid-range *CLARiiON CX3* series of storage arrays. A splitter is software code that sends a copy of each write operation to the RecoverPoint appliance, which then processes it for CDP and/or CRR. RecoverPoint now supports splitters on hosts, intelligent switches (Brocade, Cisco), and the CLARiiON CX3 series. The new CLARiiON-based splitter is integrated into the array's *FLARE* operating system. It offers several benefits:

- Support for iSCSI hosts connected to the Gigabit Ethernet ports on CLARiiON.
- Data protection for all operating systems supported by the CLARiiON array.
- Support for *VMware* virtualized environments using VMFS – protecting individual virtual machines and ESX servers[1].

[1] Much like fabric splitter deployments, RecoverPoint integration with CLARiiON enables replication of the VMFS volumes and supported vmdk files. This allows the replicated environments to take advantage of all of the advanced capabilities delivered by VMware ESX server, including future support for Site Recovery Manager which will streamline and automate testing and failover of virtual server environments.

Figure 1 – RecoverPoint V3.0 Console



Source: EMC

- Similar benefits to fabric-based splitter, such as driver-free support for multiple, heterogeneous hosts, without the additional cost and complexity of intelligent SAN equipment

In short, this new array-based splitter offers a simple and flexible way to deploy RecoverPoint in CLARiiON environments.

Third, EMC enhanced the JAVA GUI console for RecoverPoint, so administrators can manage local CDP and remote replicas from a single pane. You can view a console snapshot above in *Figure 1 – RecoverPoint V3.0 Console*. The top shows a simplified graphical view of the local site in New York and remote site in London. The larger view shows details about the local and remote replicas and CDP journals. In the upper right, a graph displays network traffic for the RecoverPoint appliances. On the left, expandable categories display information and configuration settings for application consistency groups and other system resources. This revised console offers additional consolidated views than previous versions and is more intuitive to navigate.

RecoverPoint V3.0 now supports 4 Gbit/s Fibre Channel connections for higher performance. The general availability of RecoverPoint V3.0 is scheduled for March 2008.

Other Salient RecoverPoint Features

The RecoverPoint appliance connects to a Fibre Channel SAN and, through the use of splitters, tracks changes to protected data at the block level. This out-of-band appliance can protect data for any application as long as the associated host servers and storage are connected to the SAN. This flexibility allows enterprise customers to use different, even lower-cost storage for the local and/or remote replicas, though it is advisable to store the journals on arrays with equivalent performance to the production array in order to maintain application performance.

RecoverPoint tracks data in *consistency groups* to ensure applications may be recovered

quickly and without loss or corruption of data. A consistency group is a collection of LUNs to which operations must be performed together in order to maintain write-order consistency. In other words, a consistency group must be treated as a single entity. This feature is critical for applications with multiple volumes, such as databases. RecoverPoint supports consistency groups that even span multiple, heterogeneous storage arrays, or hosts. Protected data is crash consistent[2], at a minimum. RecoverPoint supports transaction-consistent checkpoints for immediate recovery to previous points in time through a programmable, command line interface as well as support for Microsoft's *Volume Shadow Copy Services (VSS)* and *Virtual Data Interface (VDI)*.

The RecoverPoint appliance connects to an IP WAN for remote replication and performs the translation between Fibre Channel and IP protocols. It uses data reduction and compression techniques to reduce bandwidth by as much as 15:1. RecoverPoint uses similar data reduction techniques for the journals to reduce the amount of storage required. Additionally, administrators can establish policies for prioritizing consistency groups and setting maximum bandwidth consumption rates.

As a solution for enterprise data protection, RecoverPoint is especially suitable for:

- Fast local recovery from data corruption and system failures by accessing any point in time.
- Recovery from local and regional disasters through failover to a remote site.
- Non-disruptive backups using a point-in-time image as the source.
- Non-disruptive data migrations.
- Application testing and development on images of production data.
- Data protection for heterogeneous host servers and storage connected to a Fibre Channel SAN.
- High rates of data change.

Conclusion

If your enterprise needs fast recovery to any point in time or failover to a remote site in case of disaster, RecoverPoint offers a two-in-one appliance for both of these requirements—with a single set of management tools and a single user interface. RecoverPoint is especially suitable for heterogeneous enterprise SAN environments because of its speed and flexibility. The new CLARiiON splitter opens the door for iSCSI hosts and simplified deployment on CLARiiON storage.

While remote replication is an established technology and CDP is newer and still earning its place in the data center, both are excellent technologies for data protection and business continuity and serve distinct purposes. The new RecoverPoint V3.0 begs the question, "Why not both at the same time?"

[2] A crash-consistent image requires replaying transaction logs to restart an application. A transaction-consistent image does not; it is immediately restartable.

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Michael Fisch **is Director of Storage and Networking for The Clipper Group.** He brings over eleven years of experience in the computer industry working in sales, market analysis and positioning, and engineering. Mr. Fisch worked at EMC Corporation as a marketing program manager focused on service providers and as a competitive market analyst. Before that, he worked in international channel development, manufacturing, and technical support at Extended Systems, Inc. Mr. Fisch earned an MBA from Babson College and a Bachelor's degree in electrical engineering from the University of Idaho.

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