

SANmelody™ Application

Affordable Remote Data Replication

Your Data is as Valuable as Anyone's

You know very well how critical your data is to your organization and how much your business would be impacted were that data to become unavailable because of a major IT outage.

Organizations typically rely on traditional tape backup to guard against this eventuality. More comprehensive disaster recovery (DR) solutions that automatically maintain up-to-date copies of data at a remote location are desirable, but are often unaffordable for two reasons. Either the solutions require very expensive equipment on both ends, or they require modifications to every host with critical data. The former is beyond the scope of the small to medium size enterprise, the latter is host-invasive, complex and difficult to manage.

Now, however, DataCore has introduced an affordable, low cost but effective solution that brings real centralized DR capability within the reach of any organization, no matter how small.

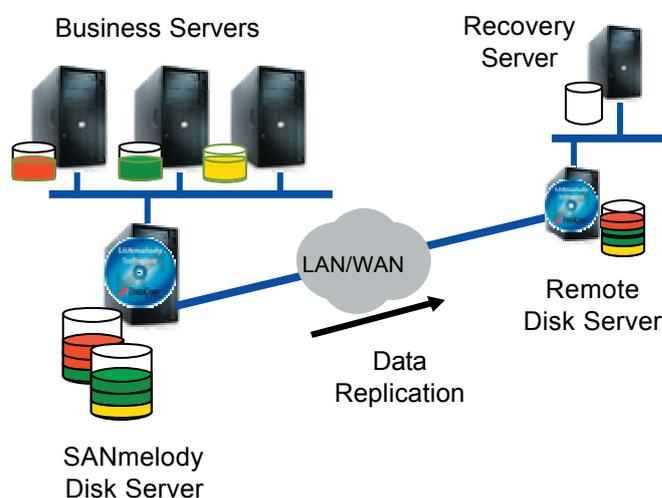
Our SANmelody™ shrink-wrap package converts a PC server into a "Disk Server" whose added disk capacity and data protection features are accessible by application servers (email, web, database etc) over an Ethernet LAN or Fibre Channel SAN. From a DR perspective, the Disk Server may be configured to automatically and transparently replicate critical data from any of the servers to remote site.

Replication Using Your Existing Assets

A standard Windows PC can be converted into a dedicated Disk Server in minutes by installing DataCore's SANmelody software. The resultant Disk Server can then be used to serve disk space over the LAN to business critical application servers in your network. The additional disk space appears to be coming from additional internal disk drives. By adding the SANmelody Asynchronous IP Replication option, you can replicate any of these Disk

Server volumes to a distant Disk Server whether it be hundreds of yards or hundreds of miles away; Only a conventional IP LAN or WAN is required to connect the two sites.

Replication of data is fully automatic and, once initial synchronization is complete, only changes to the data are transmitted, keeping network traffic (and transmission costs) to a minimum.



Easy to Manage Disaster Recovery Configuration

One of the major advantages of the SANmelody approach is that, unlike host based solutions, the replication of data is focused on and performed by collaborating SANmelody Disk Servers. This means that there is no need to install resource-hungry and costly software on each of your business servers.

Because the SANmelody Disk Server manages the underlying storage for your business servers, it becomes a central point of control for those volumes. When an application updates a Disk Server managed volume configured for automatic replication, the SANmelody software will also transmit the data blocks to the remote site. This simplifies management, as there is only one point of administration, rather than having to configure each application server separately to achieve the same goal.

Replication is performed for only those volumes you choose so data transmission can be kept to a minimum. Changes to the configuration, such as enabling new business servers to exploit the Disk Server and replicating additional volumes, can be carried out at any time non-disruptively, creating an easily managed and expandable DR environment.

Easy Recovery of Data

Should disaster strike one of your critical servers, or application data corruption occur, you can be confident that the remote replica of your data can be used for recovery purposes. This can be achieved in many ways. The simplest is to combine asynchronous replication with SANmelody's Snapshot option to capture point-in-time images at the remote site that you can fall back to.

Furthermore, by integrating the remote Disk Server with your existing backup software and SANmelody Snapshot you can automatically trigger tape backup at the remote location creating an offsite vault for your backup tapes without the need for expensive and time consuming courier services¹.

Underlying High Performance and Robust Technology

By using SANmelody Disk Servers as the basis for a low cost DR solution, you are taking advantage of the best price / performance alternative on the market today. Industry benchmarks and customer experiences have shown that DataCore's software running on off-the-shelf servers outperforms conventional proprietary storage arrays and at a fraction of their price.

Further Advanced Options When You Need Them

Other optional SANmelody Disk Server modules address advanced features such as redundant disk servers, Fibre Channel host connections and auto-provisioning. Any of these advanced features can be added when the need arises.

For more information please contact DataCore Software Corporation or check out our online store at www.datacore.com



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¹ See SANmelody Application Note on Backup Integration for more information

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Avoiding Disruptive Backups

Data Protection Without the Interruptions

Regular data backups are essential, but they are also very disruptive and time consuming, especially as the volume of information grows and the process gets longer and more complicated. Then there is the question of data recovery – how reliable is it and how quickly can it be done?

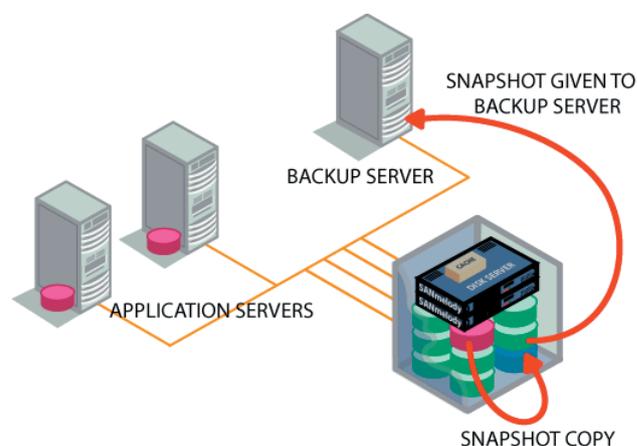
DataCore offers a simple and effective solution that will let you achieve your data protection and recovery objectives without having to frequently interrupt your business applications. The solution takes advantage of backup products you already have in place.

Central to DataCore's approach is the use of a Disk Server – a general purpose PC capable of making its disk space available to other application servers such as email, web, and database machines. A standard Windows PC can be converted into a dedicated Disk Server in minutes by installing DataCore's SANmelody software. The Disk Server can maintain up-to-date copies of each application server's internal disk drives to recover quickly from a failed drive or a damaged server.¹

Disk Snapshots Take Place of Daily Backups

Disk Servers can be configured to periodically generate daily 'snapshots,' or point-in-time copies, of critical volumes on separate disks – eliminating the need for daily tape backups. The snapshots may be mounted just like a removable drive to rapidly restore an application to a known good image from the previous day.

Where conventional tape backups can disrupt application processing for several hours, an online snapshot only requires a brief application pause to record the current state of the data. Immediately after a snapshot is taken, the 'live' source volume is released and applications may resume updates. SANmelody then captures subsequent changes to the data in real-time on a separate volume. This process dramatically reduces the time to create a "backup copy."



Offload Weekly and Monthly Tape Backups as well

While the principal advantage of SANmelody snapshots is having a backup copy to quickly fall back on, you'll find that your longer term tape backup regiment also improves. Disk servers enable weekly and monthly backups to proceed in the background using the offline snapshots, rather than the live production data. This technique enables tape backups to occur in the background while applications run uninterrupted.

¹ Refer to the SANmelody Application Scenario titled "Expansion Disk Space that Multiple Servers Can Share"

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Expansion Disk Space that Multiple Servers Can Share

If one server runs out of capacity, soon others will, too

You have applications spread across multiple machines: mail servers, application servers, database servers, file servers and web servers. What do you do when the database server runs low on disk space, and there's no more room for expansion? Many will buy another database server. But think twice - if you continue down this path, chances are that you'll soon have to buy another mail server and file server for the same reason. This isn't the best way to spend your precious IT budget.

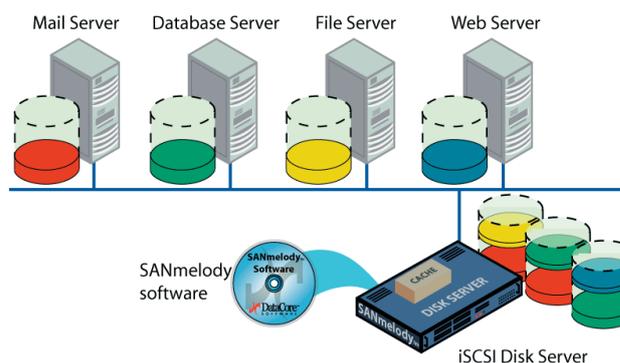
A much more cost-effective solution is available from DataCore. Our SANmelody™ shrink-wrap package turns a general purpose server into an expansion "disk server" from which other systems can draw capacity.

The SANmelody disk server approach buys you several unique benefits:

1. Surplus capacity in one disk server is available to any other application that needs it. Unlike a second database server, disks are no longer dedicated to a single application.
2. When the next machine runs out of capacity, you don't need to buy yet another application-specific server.
3. There's no need to license and deploy another instance of the application just to address a capacity issue.

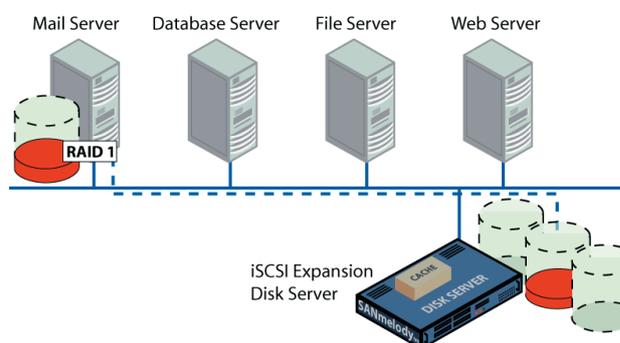
Plug and play ease

You can install and configure SANmelody software in just minutes. Your existing servers connect to the expansion disk server using an Ethernet LAN. The additional disk capacity appears as if it comes from internal disk drives. No application changes or application licenses are required to take advantage of the new space.



Ideal for Growth, Extra Security & High Availability

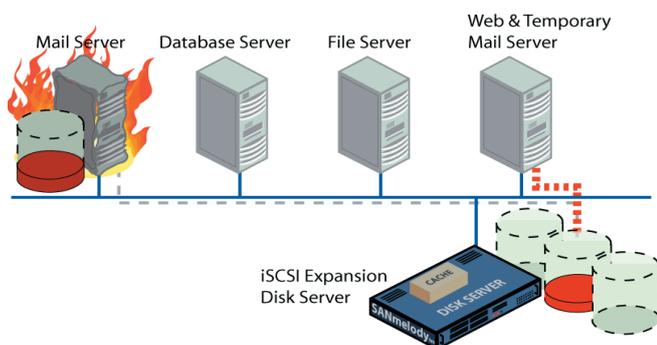
Although data growth is often the primary justification for buying more storage, more and more businesses are acquiring capacity specifically to store online copies of critical data for enhanced security and data availability. A disk server makes it easier to achieve those benefits in a cost-effective manner.



Using a technique called data mirroring or RAID-1, each time an application saves data to disk, the host operating system transparently stores the data on a local disk volume as well as

on a completely separate disk volume provided by the disk server.
Should either volume fail, the other copy takes over immediately as a real-time backup.

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Although RAID-1 can be used across two drives inside an application server, it does little good if the server catches fires, gets wet or simply malfunctions. Having a mirrored copy on a separate disk server, ideally in a different room, increases protection levels and enables you to recover the data by simply connecting a replacement machine to the disk server and reassigning the critical volumes. It's just like rebooting the original application server after an unexpected outage.

Non-disruptive Expansion

Once in place, DataCore's SANmelody software also makes future disk expansion non-disruptive. You won't have to power down an application server to add more disk space. Instead, an intuitive GUI lets you assign disk server capacity to any application over the network with a few mouse clicks. The software maintains a pool of free space which can be carved into logical disks for the next needy client.

Advanced Options When You Need Them

Optional SANmelody software modules address host-independent point-in-time snapshots, redundant disk servers, auto-provisioning of disk space, and remote replication over IP WANs. You can start with the basic package, then upgrade to advanced features when the need arises.

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iSCSI Disk Array Tailored to Your Needs

Customized, Yet Affordable

If you're shopping around for an iSCSI storage array, then you've already figured out that there are currently very few hardware options.

Although there's clear need for Ethernet / IP connections to external storage devices, disk array suppliers are waiting for demand to peak before they start the assembly lines rolling. With good reason – retooling their proprietary arrays for iSCSI requires a large upfront investment in hardware and firmware. It also potentially cuts into their established high-margin Fibre Channel business. As a result, they keep the selection small. Unfortunately, you need product today.

DataCore gives you a fresh new way to address your storage requirements with iSCSI solutions.

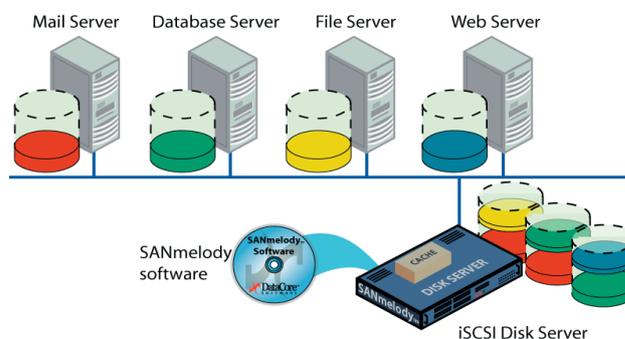
- ▶ Surprisingly, it starts with a choice of software – not hardware.

DataCore provides a practical and affordable software solution that transforms a general purpose server into a powerful, full-featured iSCSI disk array. You or your preferred solution provider can tailor the configuration to match exactly what you're after – at a very attractive price.

Choose the Features, Size the Hardware

The software approach really isn't all that radical when you realize that storage arrays are nothing more than proprietary "disk servers." What's different about DataCore is that we let you configure a disk server the same way you do a database server. First you pick out the software features you're after, and then you size the hardware platform to meet the workload.

With SANmelody software, you can configure your disk server using your favorite PC server platform, your preferred disk drives, even the network cards that have worked best for you.



Fastest & Best Price / Performance

Whether you look to industry benchmarks, vendor benchmarks or customer experiences – all have shown that DataCore's software running on off-the-shelf servers outperforms conventional proprietary storage arrays and at a fraction of their price. In fact, DataCore is best known for front-ending the world's largest arrays (EMC, HDS, IBM, HP, etc.) with our SANSymphony™ product. This large scale storage consolidation and automation software pools their storage capacity and accelerates I/O performance.

SANmelody software was derived from the same SANSymphony technology and adapted to operate as an alternative to proprietary storage subsystems. Specifically, it brings price/performance, flexibility and feature-function advantages over the common disk arrays.

SANmelody software comes in several price points corresponding to the capacity of the disk server and to the I/O workload being addressed.

High-Availability, Auto Provisioning and Replication Options

Optional SANmelody software modules address host-independent point-in-time snapshots, auto failover between redundant disk servers, auto-provisioning of disk space, and remote replication over IP WANs. There's also the option to add Fibre Channel ports alongside the iSCSI Ethernet ports for broader storage networking needs. You can start with the basic package, then upgrade to advanced features when the need arises.

Upgrade Hardware on Your Timetable

Unlike proprietary storage arrays, whose upgrade path is in the hands of the hardware manufacturer, SANmelody-equipped disk servers can be upgraded at will. For example, next year you may prefer to beef up the underlying server with another manufacturer's model – DataCore enables that choice.

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