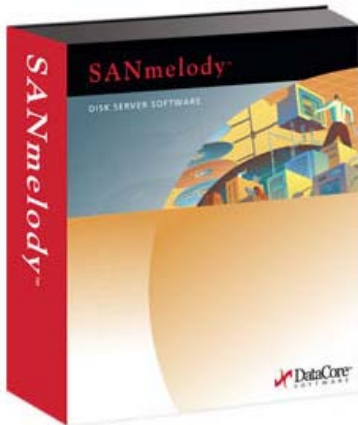




A disk server is the one place from which all disk space may be allocated, protected, managed, and backed up. As the illustration below highlights, all the other servers get their data from the disk server using convenient and inexpensive Ethernet connections. Thanks to a communications standard called iSCSI, the server applications access pooled Virtual Capacity disks as if it were a local internal drive. No application changes are required to take advantage of the centralized storage services.

Windows, Linux, UNIX, NetWare and MacOS applications all can take advantage of the added disk space. Optional software modules address high-availability as well as host-independent point-in-time snapshots, 'true' auto-provisioning of disk space (Virtual Capacity), and remote replication and disaster recovery over IP WANs.



Benefits – Productivity, Value, & Savings

Better utilization, lower overall hardware costs, fewer burdens on your staff and greater productivity all add up to generate cost savings and quick payback on ROI. Centralizing storage administration, consolidating storage resources and concentrating backup and replication efforts on one server takes less effort and less time than having to bounce back and forth between several machines. And when it comes time to add more disk drives, upgrade application servers, or simply add another host, DataCore's SANmelody disk servers eliminate much of the disruption and complexity.

The DataCore SANmelody Difference:

- It's an affordable way to gain the benefits of a SAN. You can start small and grow, transform your standard PC servers and disks into a full-blown FC or Ethernet iSCSI SAN.
- It's one of the fastest iSCSI systems on the market, with typically no need for iSCSI accelerators.
- It supports both Ethernet iSCSI and FC, providing ultimate flexibility and growth. Unlike limited iSCSI appliances and storage arrays, customers get a choice on growth and can mix and match.
- It offers record-breaking disk performance acceleration and price/performance. And it typically accelerates disk workload performance by a factor of 2X plus (e.g., low-cost SATA disks).
- Enhanced performance means more work gets done in a given timeframe; a critical differentiator for multimedia and streaming applications as well as transaction-oriented workloads.
- It is built on proven technology already deployed and supported over the last seven years in hundreds of major accounts and data centers worldwide.
- It's simple to operate and installs in less than 20 minutes. Productivity from the get go, with powerful disk management, performance acceleration, metrics and monitoring tools.

DataCore offers full-featured SAN productivity, for a lot less.

- **Simple** -- Add disk space inexpensively without downtime or hassles
- **Powerful** -- Record-breaking performance, faster workloads and disk backups and recovery
- **Affordable and flexible** -- SATA, Ethernet iSCSI and FC SAN
- **Save money** -- Stop wasting disk space; instead, add greater productivity and uptime

If You Have a...

- File server
- Database server
- Mail server
- Web server

Then You Need A "Disk Server"



Advanced Features in SANmelody Version 2.0

Base Capabilities

The base software package enables you to transform a general purpose PC server into a Powered by DataCore™ disk server with the following essential features:

- **iSCSI disk emulation.** Serves well-behaved virtual disks to popular operating systems using standard iSCSI protocol over Ethernet. Supports allocation requests from Windows *Virtual Disk Service (VDS)*.
- **iSCSI CHAP Mutual Authentication.** Provides iSCSI application server login security
- **IPsec Data Security.** Provides secure iSCSI data packets.
- **iSNS.** Provides simple iSCSI target discovery
- **Support for numerous types of disk drives.** Supports any disk drives qualified for Windows (i.e. SCSI, EIDE, Fibre Channel, SATA, etc.) and transparently bridges between the drive interface and the iSCSI or optional Fibre Channel host connection.
- **I/O read and write caching.** Uses the server's local memory (RAM) as a cache to improve application response time.
- **Secure LUN allocation (access controls).** Prevents unauthorized host access to virtual disks not explicitly assigned to them.
- **Virtual LUNs.** Divides or aggregates physical disks to meet various capacity requirements.
- **Intuitive administrative GUI.** Uses *Microsoft Management Console (MMC)* Snap-ins for simple point and click configuration and management (see Figure 1).
- **Performance displays.** Leverages Windows' built-in *Performance* to trace SANmelody-specific performance counters.
- **Event logging.** Assists in troubleshooting via Windows' built-in *Event Viewer* and event log.

Optional Modules

More sophisticated storage control requirements are addressed by licensing one or more of the following advanced options:

- **Fibre Channel disk emulation.** Serves well-behaved virtual disks to popular operating systems using Fibre Channel connections. Supports allocation requests from Windows *Virtual Disk Service (VDS)*.
- **Auto Failover (HA) Option¹**
Synchronously mirrors writes between a pair of SANmelody disk servers using iSCSI or Fibre Channel connections. Both disk servers may actively process I/Os with ohandling primary paths for some of tvolumes and secondary paths for others. In the event of a failure, the companion servtakes over with the mirrored volumes. Client application servers must be adequately configured with qualified multi-pathingdrivers to take advantage of this automatic failover feature. Each disk server must bseparately licensed with the HA option.
- **NOTE:** DataCore's MPIO driver for Windows supports client application servers configured with either FC or iSCSI channels
- **Full Function Snapshot Option.** Point-in-time snapshots are generated using copy-on-write technology for selected virtual volumes. Additional features provided:
 - **Complete Images (CI)**
 - **Image Updates (IU)**
 - **Source Updates (SU)**
 - **Command Line Interface (CLI)**

Snapshots may also be triggered from the *Volume ShadowCopy Service (VSS)* in Windows Server 2003 application servers

- **Auto Provisioning (Virtual Capacity) Option.** Just-in-time auto provisioning takes the guesswork out of LUN allocation. The Network Managed Volumes (NMV) option presents large virtual volumes to applications but only allocates disk blocks as the application consumes them.
- **Asynchronous IP Replication Option.** The Asynchronous IP Mirroring (AIM) option replicates selected volumes between a pair of disk servers using native IP connections over long distances. Each disk server in the AIM connection must be separately licensed with the SANmelody AIM option.

¹ Physical disk drives may be internal to the SANmelody disk server or housed in external enclosures. Please consult DataCore's SANmelody Technical Support web site for additional guidelines.

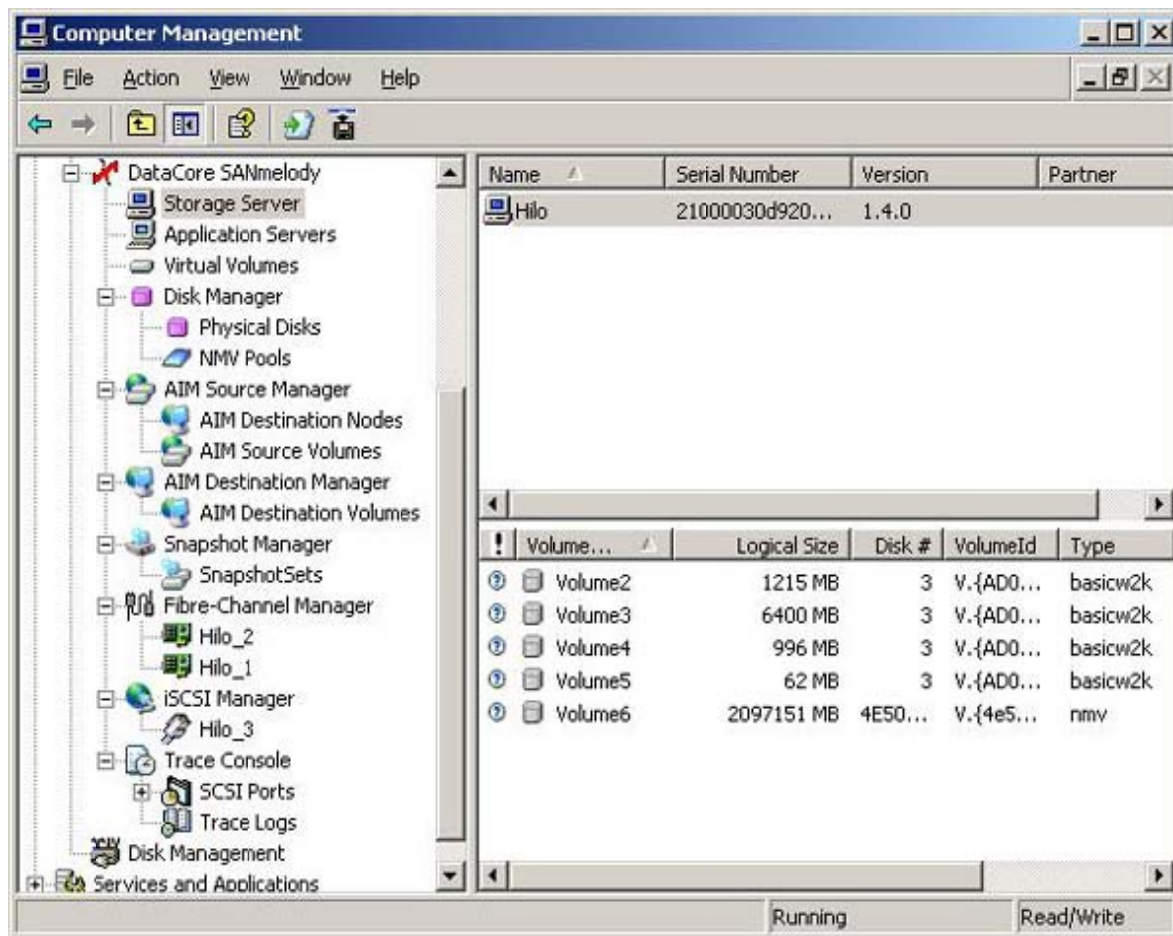


Figure 1 - Configuration, Operation & Management via MMC Snap-ins

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Disk Server Configuration

Minimum Hardware requirements:

- PC Server with 300 MHz CPU; Intel Pentium/Celeron family, AMDK6/Athlon/Duron family
- 512 MB of memory
- 65 MB available hard disk space
- Display VGA Monitor, Keyboard and Mouse
- Ethernet port

Supported Operating Systems (English versions only):

- Windows Server 2003 family
- Windows XP Home Edition or Professional Edition
- Windows Server 2000 family
- Microsoft .NET Framework Version 1.1 Redistributable Package (see FAQ 689)

Note: Hardware configurations are governed by license and support parameters.

To provide capacity to another application:

- Additional disk drive(s)
- Fibre Channel port (optional)

