

## Decus 2006

Verwaltung großer  
Plattenspeicher unter Windows

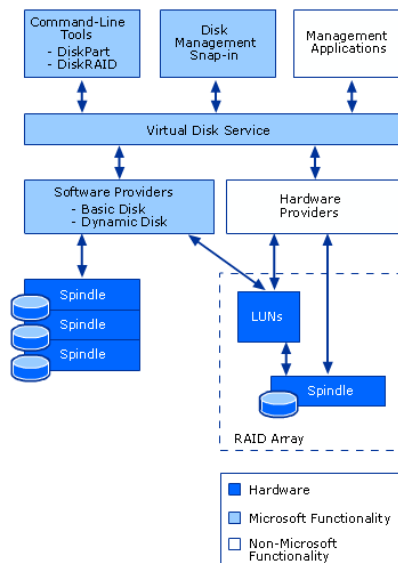
## Agenda

- VSS, SCSF, SAN, iSCSI....  
– Was, wo, wann – und vor allem, wie!
- Storage Essentials: End-to-end Storage  
Verwaltung

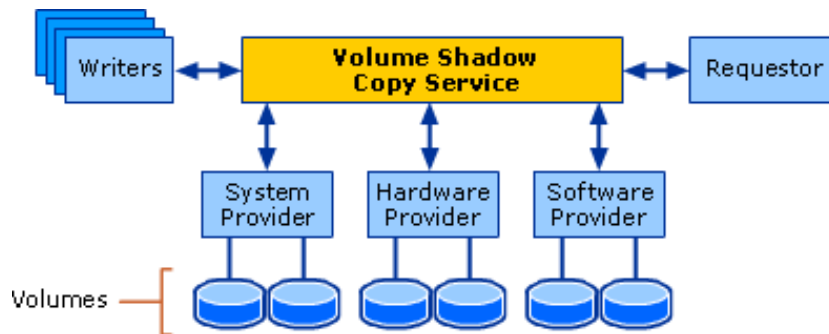
## Die Basis

- Windows DiskManager
  - Initialisieren von Festplatten
  - Format, Convert, etc.
- Windows Diskpart
  - Commandline tool zu DiskManager
  - Vergrössern von Partition und Filesystem
  - 64-sector disk alignment

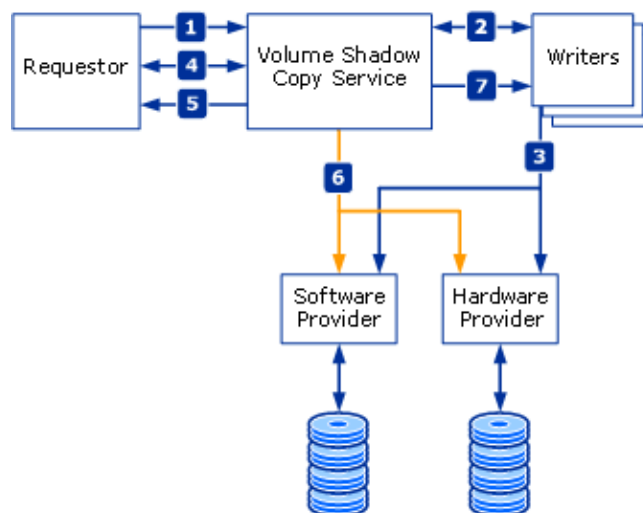
## Virtual Disk Service (VDS)



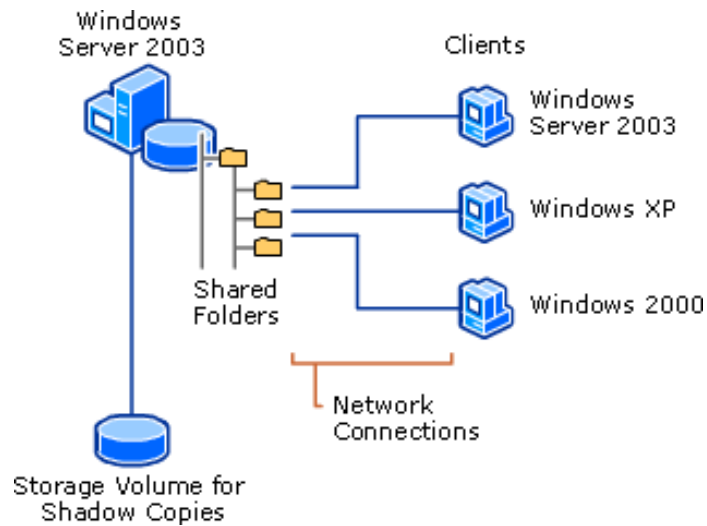
## Volume Shadow Copy Service (VSS)



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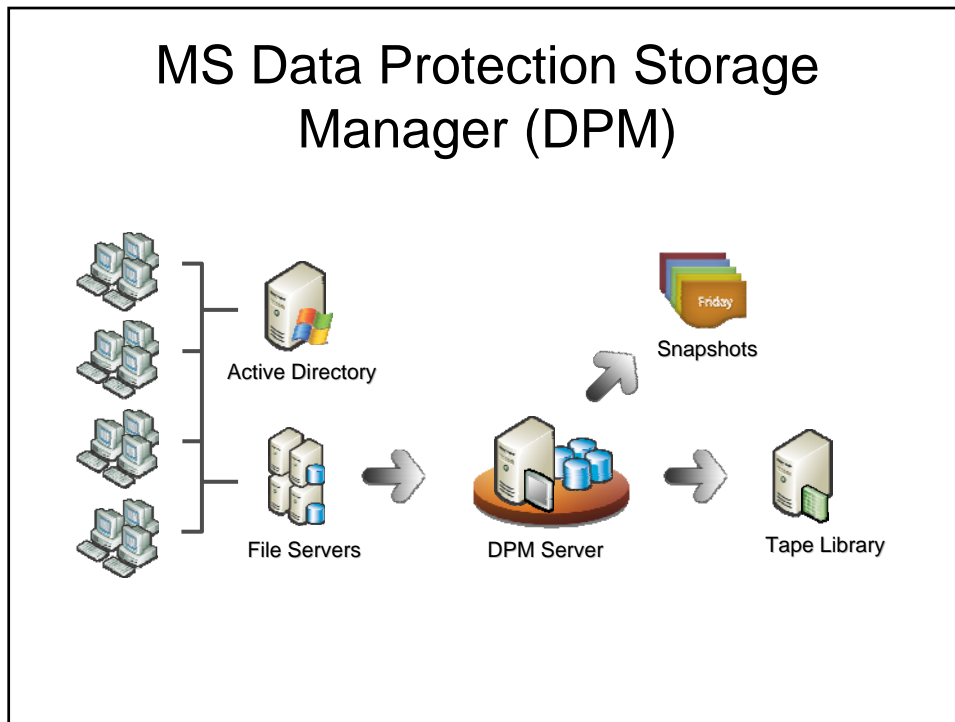
## Shadow Copy Shared Folders (SCSF)



## Erweiterte Storage Verwaltung

- Data Protection Manager (DPM)

Der Fokus von DPM liegt auf disk-basierter Datensicherheit und Wiederherstellung von Windows File Server mittels Replikation, Volume Shadow Copy Service (VSS) und einer prozess-gesteuerten Software Engine mit dem Ziel, Datenbestände jeder Groesse nahezu kontinuierlich und schnell bei geringen Kosten wieder herzustellen.



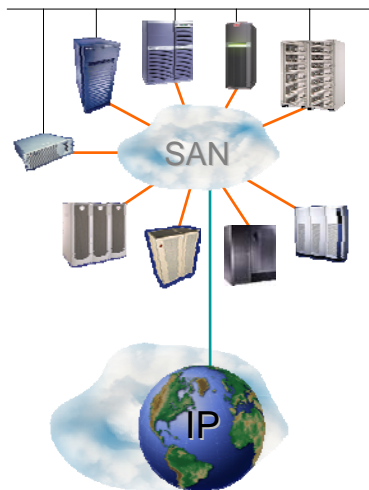
## MS Data Protection Storage Manager (DPM)

Mission: Enable the best disk-based data protection experience for the Windows Server System, resulting in improved operational efficiency, faster recovery, and lower costs.

### Key product features:

- Creates point-in-time snapshots and synchronizes byte level changes on Windows File Servers each hour - **reduces risk exposure by 96%** compared to daily backups.
- Gives end-users the ability to restore their own files from point-in-time snapshots resulting in **faster recovery and lower costs.**

## Windows iSCSI: Storage Meets IP



### ★ FCIP

- ✓ Implementiert FC Tunnel 'durch' IP Netzwerk
- ✓ verbindet FC SAN Inseln durch IP Fabrics

### ★ iFCP

- ✓ Fibre channel wird in IP Paket 'eingekapselt'
- ✓ Der Transport-Layer 'Fibre Channel' wird durch TCP/IP und Gigabit Ethernet ersetzt
- ✓ Verbindet FC SAN Domänen ueber IP Fabric
- ✓ Verbindet FC Geraete direkt mit IP Fabrics

### ★ iSCSI

- ✓ SCSI Protokoll innerhalb IP Pakete
- ✓ Verbindet iSCSI Server mit FC oder iSCSI Storage

## iSCSI: A Definition

- iSCSI is a SCSI transport protocol for mapping of block-oriented storage data over TCP/IP networks
- SCSI storage controllers generally identified for this application include disk, tape arrays and tape libraries
- The iSCSI protocol enables universal access to storage devices and Storage Area Networks (SANs) over standard TCP/IP networks

## Terminology

- iSCSI Node
  - Used for either the initiator or the target
- iSCSI initiator
  - The client running an iSCSI stack (software or hardware), requesting access to some storage
- iSCSI target
  - The device through which the initiator can access the FibreChannel storage device
- Network Portal
  - The interface on the iSCSI Node through which the IP communication is established.

## Initiator und Target in Windows

- Targets:
  - FalconStore iSCSI Feature Pack
  - Stringbean iSCSI Target (owned by MS)
- Initiators:
  - MS Initiator 2.01(aktuell: Mai 06), Freeware
    - <http://www.microsoft.com/downloads/details.aspx?FamilyID=12cb3c1a-15d6-4585-b385-befd1319f825&DisplayLang=en>
  - iSCS HBAs, z.B. HP, QLogic, Adaptec, etc.

## Storage in Windows 2003 R2 / WSS 2003 R2

- Single Instance Store (SIS)
- Full Text Index Search
- File Server Resource Manager (FSRM)
- Storage Manager for SANs (SMfS)
- Distributed File System (DFS-N & DFS-R)

## HP Storage Essentials End-to-End Storage Verwaltung

- Storage Management Initiative Specification (SMI-S)
  - SNIA Standard, hat zum Ziel, alle Storage Management ueber einen Interface Standard zu behandeln: SMI.

