



1L03: File Services vom Einstieg bis zu Enterprise Lösungen

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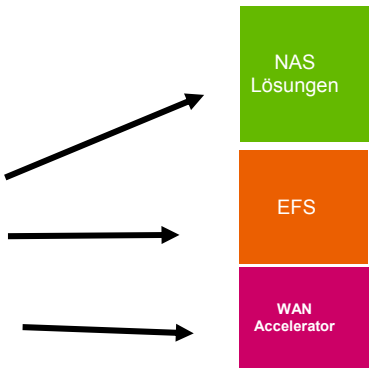


Agenda



HP File Services

- HP NAS Lösungen
- HP Enterprise File Services
- WAN Accelerator



NAS Lösungen

EFS

WAN Accelerator

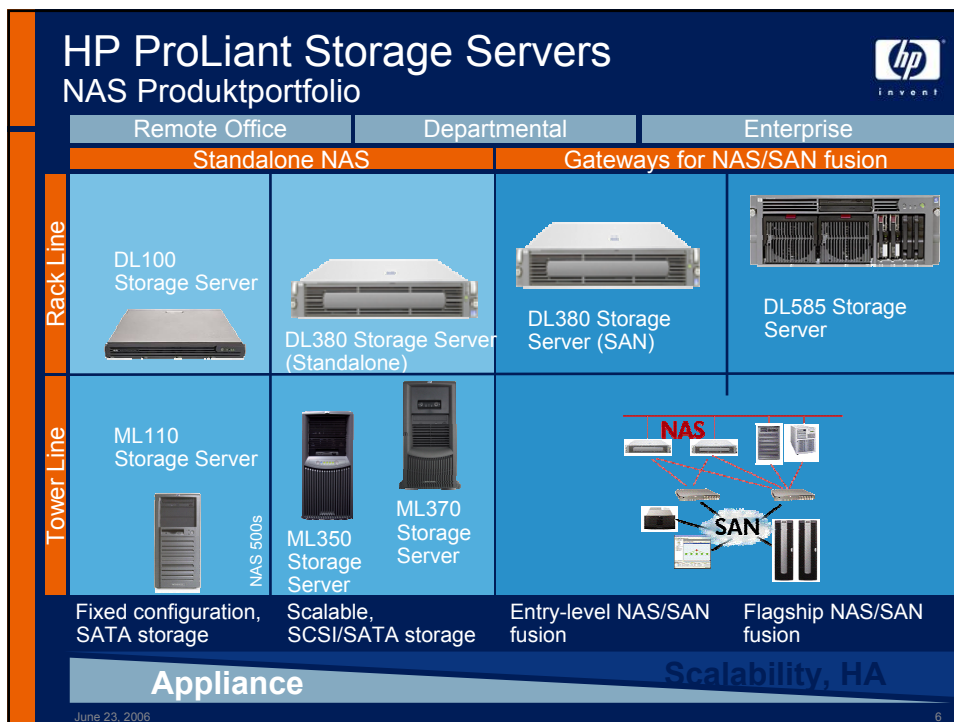
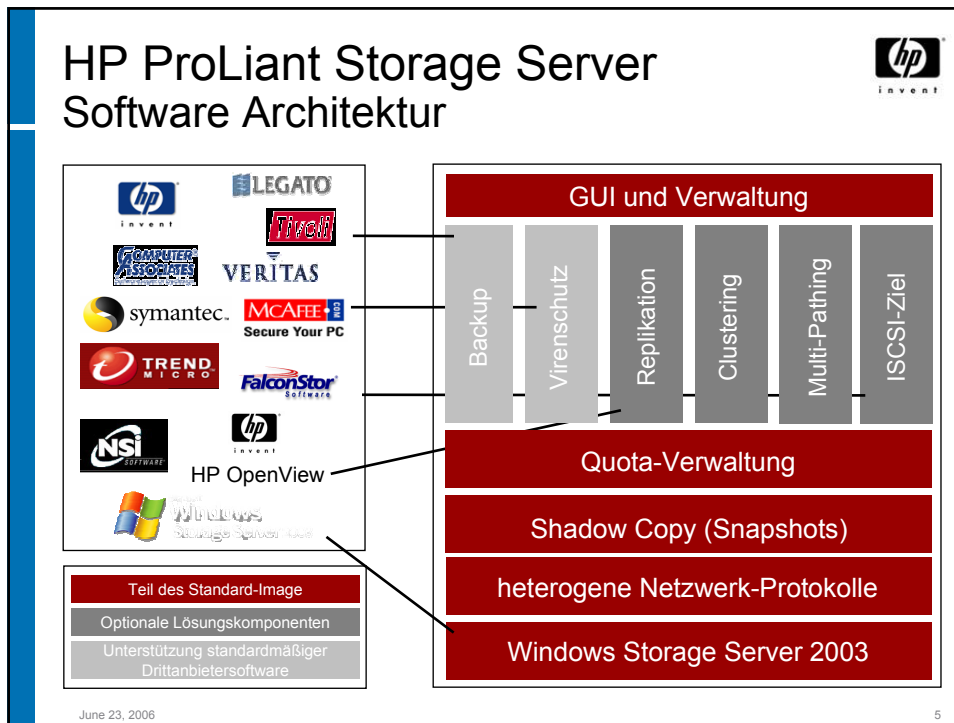
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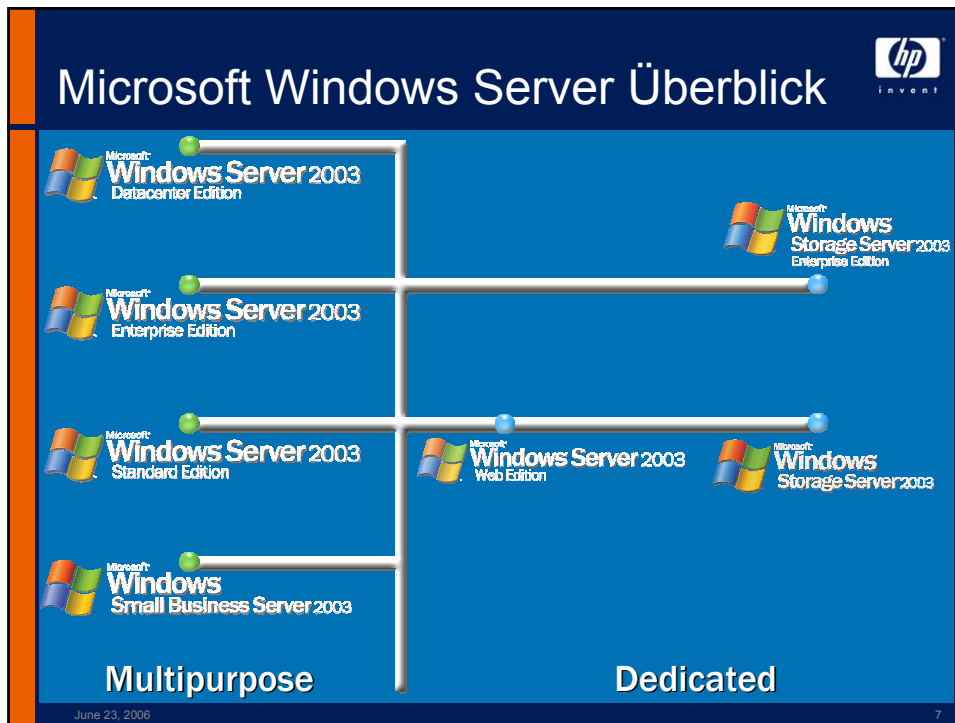
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HP StorageWorks Portfolio

Infrastruktur	IP-Netzwerk FC SAN Switch-Topologie EFS WAN Accelerator Core und Director-Switches Director und Edge Switch-Topologien	Services & Lösungen
NAS & Storage Arrays	Enterprise File Services Windows Storage Server MSA-Familie EVA-Familie XP-Familie	
Band- & optischer Speicher	Eigenständige Laufwerke Autoloader Medien Virtual Library System Bibliotheken MSL EML ESL optische UDO Systeme	
Software & Archivierung	Portfolio für Speicherressourcenverwaltung • Geräteverwaltung • Speicherverwaltung • Storage Essentials • Array-basierte Software Portfolio für ILM und Archivierung • Schützen und Wiederherstellen • Aktive Archivierung mit Schwerpunkt auf Wiederherstellung • Lösungen für das gesamte ILM Portfolio: ISVs, FSE, RISS, MAS	

HP ProLiant Storage Server (NAS)





The slide lists three key differentiating features of Windows Storage Server 2003 R2: Single Instance Storage, Index Based Search, and File Server Performance Optimization. The HP logo is in the top right corner.

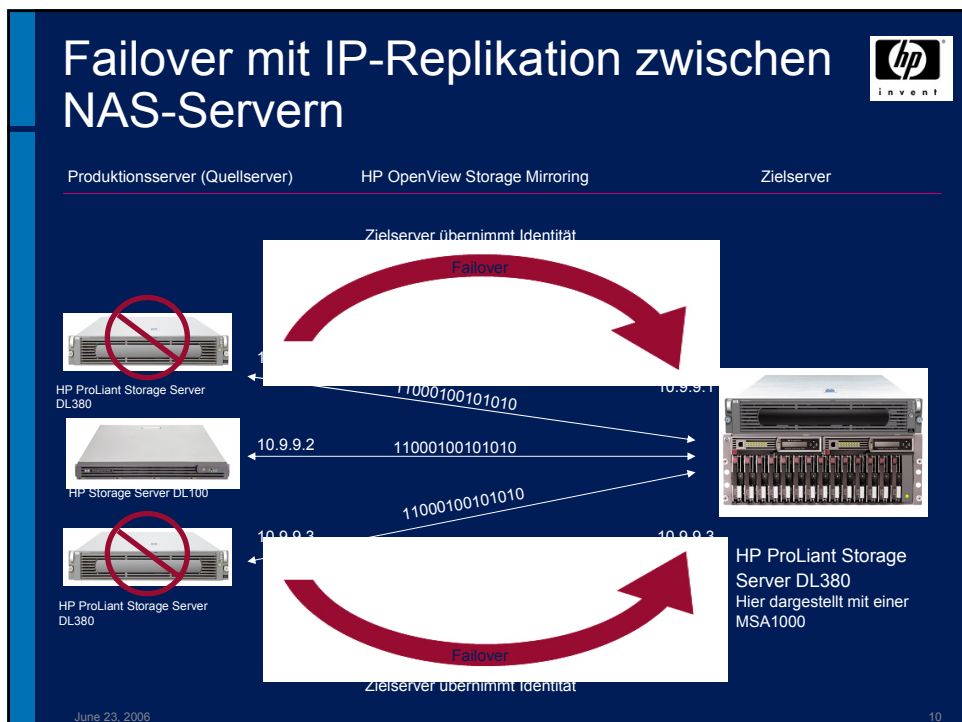
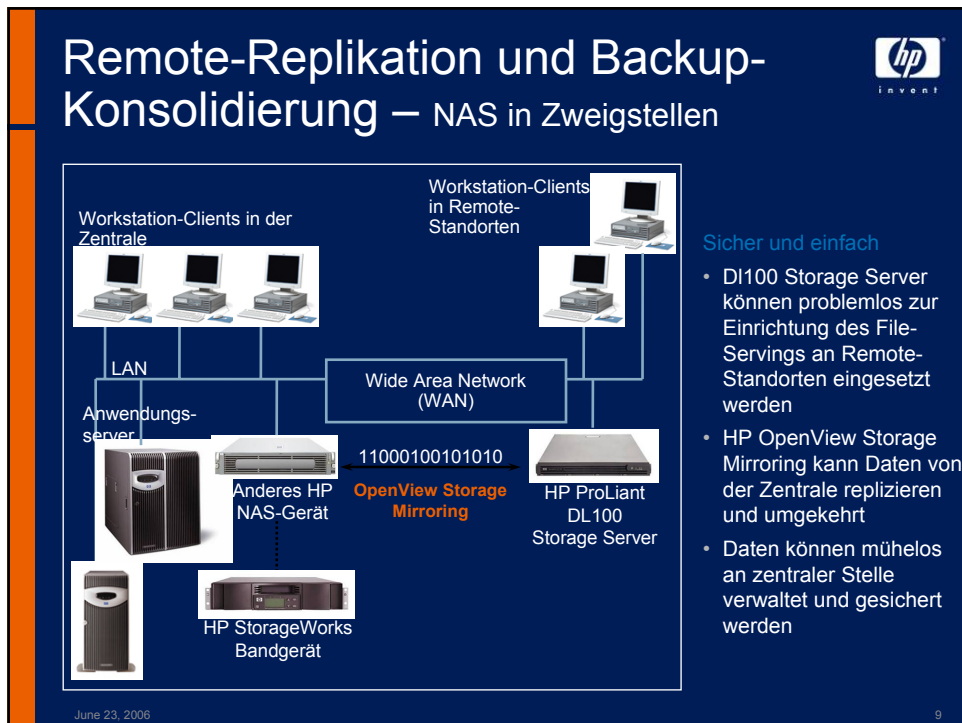
Unique WSS2003 R2 Features

There are three key differentiating features that are available ONLY in Windows Storage Server 2003 R2:

- Single Instance Storage
- Index Based Search
- File Server Performance Optimization

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HP iSCSI Feature Pack

Application tier: Exchange, SQL

Client tier

Private Gb LAN

Public LAN

Application data

Client data (public shares)

Client data (private shares)

Storage tier: HP ProLiant Storage Server (expandable), HP StorageWorks tape device

Best-of-breed entry-level storage consolidation

- NAS traditionally for file serving to clients; application servers traditionally host storage internally (DAS)
- NOW: consolidate client and application data in a NAS storage server
- Create a storage tier to serve both client and application tiers
- No Fibre-Channel SAN required for block-level data

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Vorteile von NAS-Lösungen

NAS: schnelles und einfaches **Deployment**

NAS: effizientes und effektives **Management**

NAS: **Konsolidierung** von File-Systemen mit umfangreichem Wachstumspotential

NAS: Nutzen von **Industrie-Standards**

NAS: **Skalierbarkeit** durch NAS/SAN Fusion

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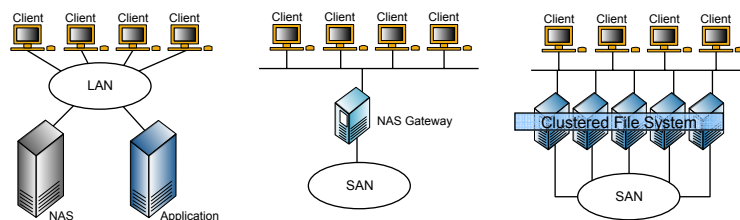


HP EFS Clustered Gateway (NAS)



Market Trends.

Anforderungen an Enterprise File Services



Pro

· Höhere Performance für File Serving durch gemeinsamen Speicher und Unterstützung verschiedener Protokolle

· NAS Gateways können für größere Verfügbarkeit geclustered werden
· NAS Hardware Redundanz und geringe Skalierbarkeit über Prozessoren oder Memory

Clustered für Hochverfügbarkeit, Skalierbarkeit und Performance

Contra

· Limitationen bzgl. Skalierbarkeit, Bandbreite und möglicherweise für Backup

· Skalierbarkeit beschränkt sich auf den Gateway; Failover Zeiten können signifikant sein

· Nicht alle „Clustered File Systems“ bieten dieselben Vorteile und Performance

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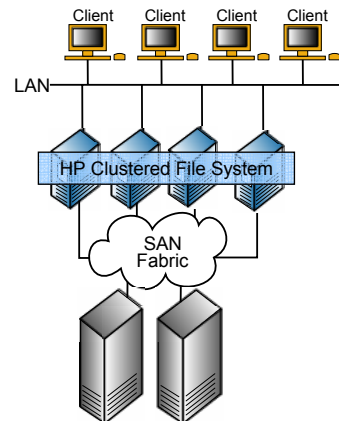
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HP Clustered Gateway: Architecture Overview



- Multiple Windows 2003 or Linux servers can form a single logical Windows NAS Cluster – like a large virtual server
- All file servers can cache and serve all files – no hotspot problem
- Clients are load-balanced across all file servers
- HP Clustered Gateway is fault tolerant
- HP Clustered Gateway is operationally efficient:
 - One set of files to backup
 - Backup up the shared storage, not each server
 - One copy of files can be shared across all servers (no replication required)

-> HP and Third Party Storage certified!



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Manageability



- Single System Image – Manage the cluster as a whole from anywhere with mxconsole.
- Standard/Familiar OS Tools (YaST, MMC, etc)
- HP-SIM Integration – Manage as you would the rest of your HP ProLiant
- ProLiant Management Home Page & iLO (built-in)
- HP ISEE support (built-in)
- HP StorageEssentials integration (July '06)

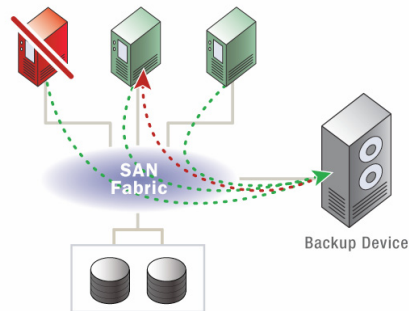
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Unlimited Backup Windows



- Any One server can back up all file systems – even in a 16 node cluster
- Backup the shared cluster file systems, not the nodes – fewer admin jobs
 - Step 1: Snapshot in Storage array
 - Step 2: Mount snapshot in cluster
 - Step 3: Backup snapshot
 - Easily automated
- Users have continuous uninterrupted access to live data at all times
- Only one copy of backup software license required
- Use standard administrative tools and backup products (eg, Veritas)



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WSS Edition Protocol Support



- CIFS
 - Fully Symmetrical
- NFS
 - “Shared Nothing” Clustering (same as NetApp)
 - V2, V3 (UDP, TCP), V4 coming
 - Future: Failover, Fully Symmetrical
- Additional Protocols
 - FTP, HTTP
 - Others as supported by Windows Storage Server
- No additional licensing costs for all protocols

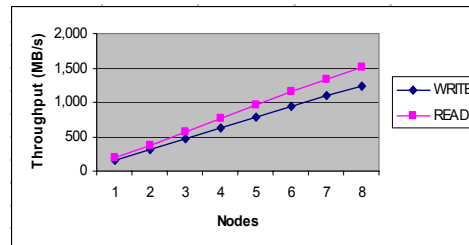
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Clustered Gateway Windows: Scalability



- Windows Client Traffic is Load-Balanced
 - Client mounts are spread across all nodes
 - All servers can cache and serve all files—no hotspot problem
 - DFS spreads incoming clients
- Incrementally Scalable to >1GB/s
 - Can start with small cluster, add servers as load grows
 - Grows to 16 servers for huge bandwidth
 - Can refresh old hardware with new—no need to match hardware specs in cluster
- Uses standard components (servers, storage, CIFS protocol)



# Servers	Mbytes/Sec.	Scale Factor	Scaling Coefficient
1	157	1.00	100%
2	310	1.97	99%
3	465	2.96	99%
4	620	3.95	99%
5	775	4.94	99%
6	930	5.96	99%
7	1,088	6.99	100%
8	1,243.0	7.92	99%

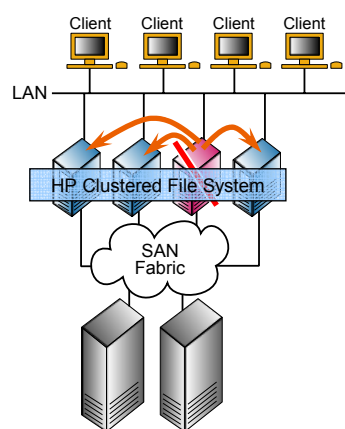
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HP StorageWorks Enterprise File Services Clustered Gateway



HP StorageWorks Lösungen bieten höhere Verfügbarkeit, Skalierbarkeit und Performance für das File Serving



- **Verfügbarkeit**
 - Alle Knoten überwachen sich gegenseitig
 - voll transparentes Failover – bewahrt die Statusinformationen des Clients
- **Skalierbarkeit und Performance**
 - Zusätzliche Knoten können hinzugefügt werden bei fast linearen Performance Zuwachs
 - Unterstützt bis zu 16 Knoten
 - Aufrüstung ohne Systemtausch
- **Speicherskalierbarkeit**
 - Skalierbarkeit sowohl für File Serving als auch für den Speicher
 - Snapshot Integration mit EVA Disk Arrays

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HP EFS WAN Accelerator

Kurzbeschreibung

Was ist es?

- IT Appliances auf Basis bewährter HP ProLiant Server
- Installation im Remote Office und DataCenter
- Beschleunigt CIFS, NFS, HTTP, FTP, MAPI Datentransfer
- Transparent zu Clients und Servers ("In-band" or "Out-of-band")
- Verbessert:
 - Caching
 - Kompression
 - Latency
 - Traffic Analyse
- Ersetzt die Notwendigkeit der Replizierung ganzer Datensets und erlaubt die Konsolidierung
- EFS WAN Accelerator Manager dient der Konfiguration und dem überwachen aller Knoten

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HP StorageWorks EFS WAN Accelerator

Business Cases



Remote Office IT Konsolidierung

- Konsolidiert und eliminiert verstreute FileServer
- Konsolidiert und eliminiert verstreute MailServer
- Konsolidiert und Eliminiert verstreute Autoloader
- Eliminiert Remote Office Tapes
- Zentralisiert Backup-Aufgaben

Bandbreiten Optimierung

- Reduziert WAN Verkehr
- Reduziert CIR
- Verhindert Bandbreiten-Upgrades
- Schafft Grundlage CITRIX-Projekte (Server,...), VOIP

File Sharing in LAN-Geschwindigkeit

- Schneller, größere Daten teilen
- Reduziere doppelte Datenhaltung

Vereinfachung der IT Infrastruktur

- Eliminiert Remote Office Backup
- Eliminiert Replicated File Systems
- Vermeidet Outsourced IT Services
- Reduziert Distributed Servers
- Vermeidet Offsite Media Storage

Verbesserung der WAN Application Performance

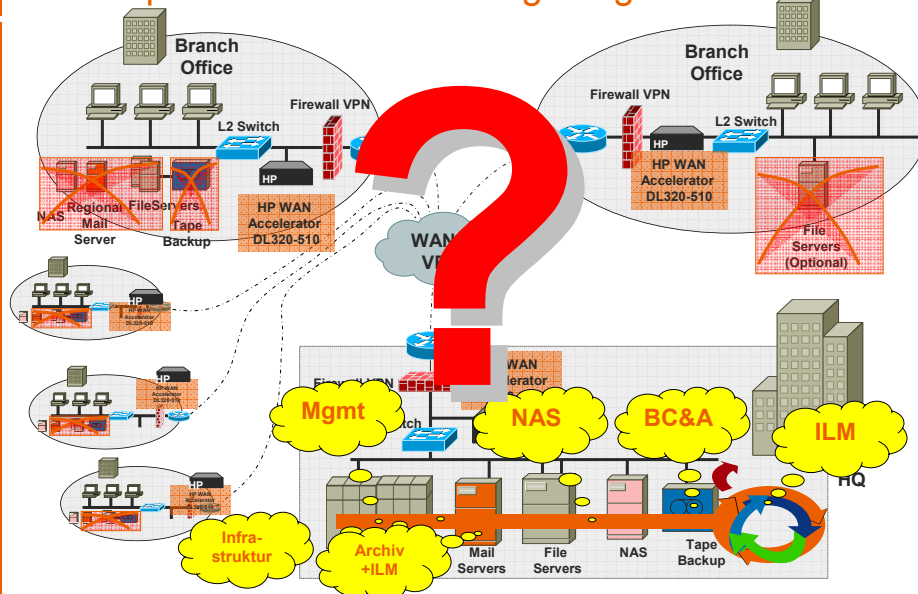
- Beschleunigt Web basierende Applikationen
- Beschleunigt Dokumenten Management
- Beschleunigt Messaging Applikationen
- Ermöglicht kurze Backup Fenster

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Verteilte Standorte

Kostenspar- und Konsolidierungsmöglichkeiten



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HP EFS WAN Accelerators

A multi-pronged approach

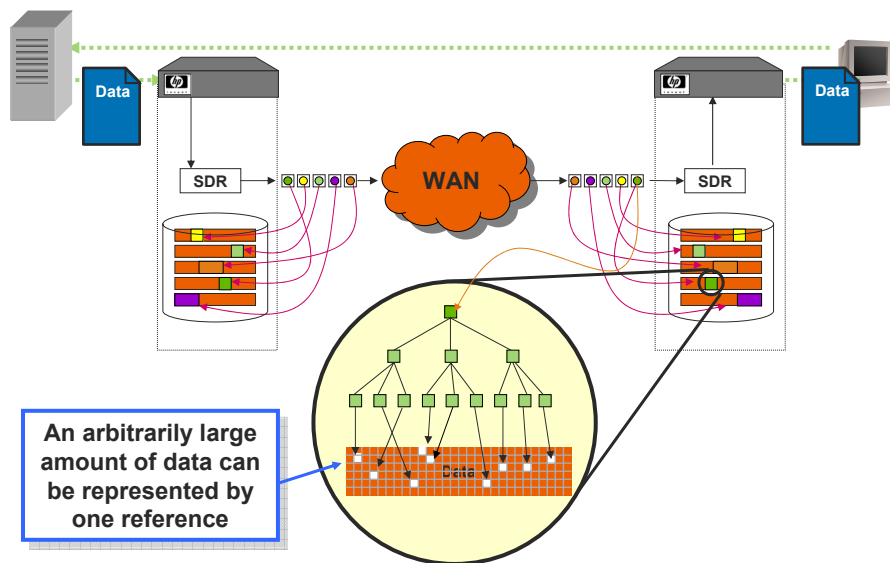


Technology	What does it do?
Auto detection & interception	Easy installation and configuration
Scalable Data Referencing (SDR)	Bandwidth optimization
Virtual TCP window expansion	TCP latency optimization
Transaction prediction	Application protocol latency optimization
Transparent pre-population	Improve performance for "cold" data

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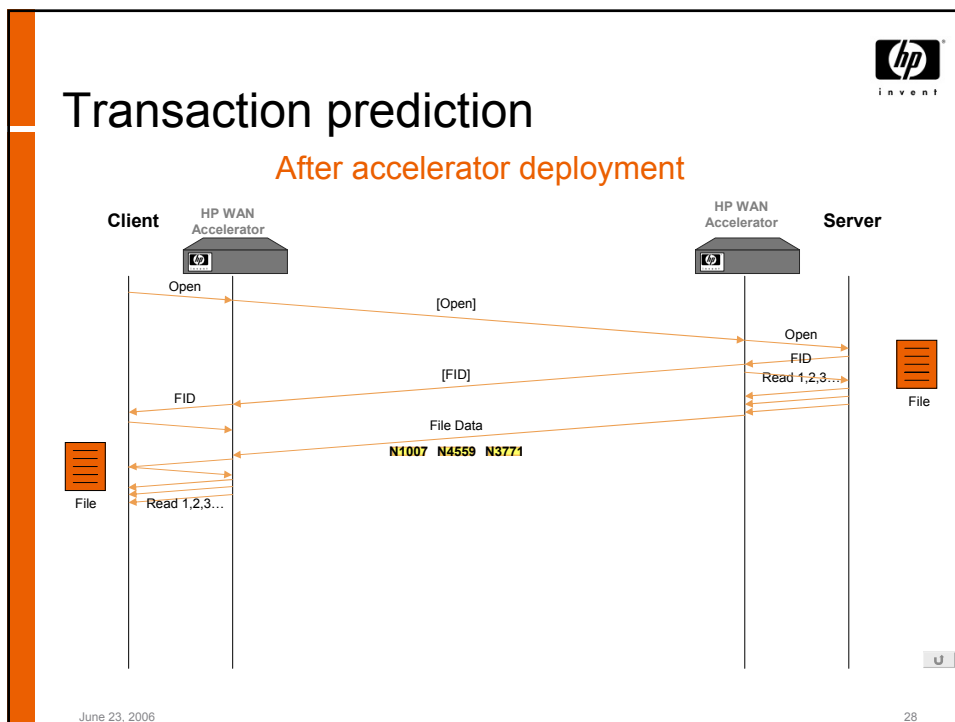
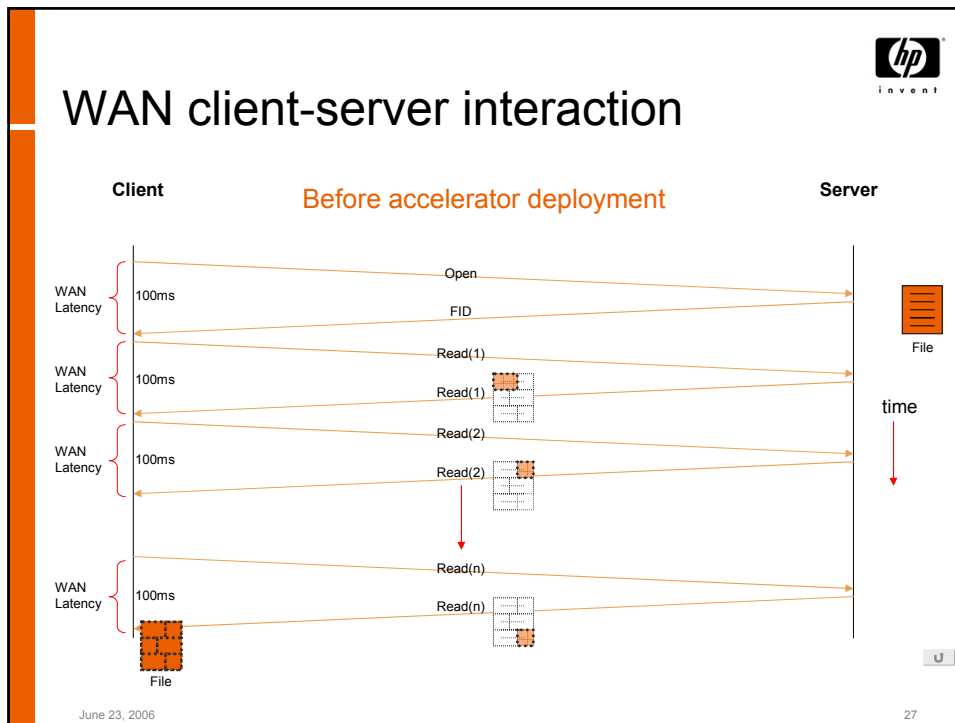
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Scalable Data Referencing (SDR)



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HP EFS WAN Accelerator

Key HP differentiators



Industry-leading technology:

- Combines 3 types of WAN optimization into one product (bandwidth, transport protocol and application protocol) while other solutions typically address only one (or at most two) of these
- Removes repetitive WAN traffic for all applications running on TCP (CIFS, NFS, HTTP, FTP, MAPI) while file caching solutions (Cisco, Tacit Networks) only optimize one type of traffic (file systems)
- Addresses both WAN bandwidth and latency issues, creating greater performance in overall throughput

HP ProLiant Hardware:

- Based on HP ProLiant Servers and can be managed as any ProLiant server for a smoother transition into a customer's environment
 - HP Systems Insight Manager—provides common fault, configuration, performance, and asset management across all HP server and storage assets
 - HP Lights-out technology—allows remote monitoring and diagnosis of the appliance even if the server has crashed or is otherwise not communicating

The HP Advantage:

- HP offers systems expertise and a complete breadth of products and services to deliver end-to-end solutions for enterprise customers with branch offices

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HP EFS WAN Accelerator

EFS WAN Accelerator Appliances



	DL320-510	DL320-1010	DL320-2010	DL380-3010	DL380-5010
Part Number	391683-B21	391684-B21	391685-B21	391686-B21	391687-B21
Install location	Remote office	Remote office	Remote office / Central office	Central office	Central office
WAN Link Support	512 kbps	2Mbps	4Mbps	10Mbps	45Mbps
Optimized TCP Connections	200	625	1300	2400	4000-5000
User Capacity (consolidated)	Up to 25	Up to 80	Up to 200	Up to 1200	Up to 1600
User Capacity (non-consolidated)	Up to 150	Up to 500	Up to 1100	Up to 3500	Up to 6000
Fan Out			Up to 20:1	Up to 50:1	Up to 150:1
Disk Storage	250GB	250GB	500GB	1.2TB	1.8TB
CPUs	1	1	1	1	2
RAM	1.5GB	1.5GB	2GB	3GB	4GB
RAID	No	No	Yes	Yes	Yes
Notes				Dual power supplies	Dual power supplies

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