Backup and archiving need not to create headaches…

…new pain relievers are around

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Hot Spots in Data Protection
Hot Spots in Data Protection

60% of data growth p.a.
- Rising backup windows
- Too slow restore times
- Scalability of speed and capacity

Fractionized data protection landscape
- Isolated backup & archive systems
- Isolated management of disk & tape
- Non integrated remote locations
- Inflexible service levels (speed, capacity, costs)
- Enormous operational and maintenance efforts

High availability and disaster recovery
- Difficult to implement due to complex infrastructures
- Long distances and limited bandwidth


Many DCs have an organically grown, non consolidated data protection infrastructure
- Separate backup disk and tape systems for mainframes, UNIX and x86 servers
- Separate disk and tape systems for backup and archiving
- Complex compatibility dependencies of servers, software and disk / tape systems

Why is change mandatory?
- Much more hardware investments than necessary and poor utilization
- High costs and efforts for operation, maintenance and migration
- Inflexible service levels in terms of speed, capacity and costs
Data Protection Appliances simplify Consolidation

- All servers are connected to the Data Protection Appliance
- The DPA caches data and writes them onto back-end disk or tape systems
- Alternatively the DPA acts as final target (e.g. pure backup to disk)
- The data protection software solely interacts with the DPA and typically DPAs work together with all relevant software products
- This allows to radically consolidate disk and tape systems without the need to change data protection software, scripts or processes
Organizing disaster resilience between many server systems, several data protection software suites and disk or tape libraries is a complex task.

DPAs offer integrated replication or mirroring functionality radically simplifying the implementation of disaster recovery concepts.

This without changing the processes on the front-end side.
Business requires to have copies of local business data

However

- Local backups on tape can only be moved physically with high efforts
- Replicating local backups on disk to central data centers struggle with network bandwidth and costs
How to integrate remote locations

- Replace local backup to tape by backup to disk
- Utilize deduplication to reduce data by factor 10 or more
- Replicate deduplicated data to the DC significantly saving bandwidth

Use appliances for deduplication & replication
Backup vs. Archiving – Profile

Backup is about keeping versions of data for a limited time (days/weeks) to recover them in case of data loss or corruption.

Archive is about retrieving original, final data over a long period of time (years).

Sometimes backups are used as archives:
- but backups contain multiple data copies making archiving inefficient
- retrieval of specific data out of backups is difficult.

Separate backups from archives but share the hardware.
Data Growth and the HDD Gap

- Average data growth is 60% p.a.
  - 75% of data are backups / archives
- However new hard disks with more capacity come at slower pace
- Price per GByte will probably decrease less fast as it used to be

Recommendations
- Use deduplication for better disk usage
- Balance disk and tape
- Be careful with a disk only strategy
- Unify the management of disk and tape for more flexibility regarding speed, capacity and costs

2008 – first 1.5 TB disk
2009 – first 2 TB disk
2010 – first 3 TB disk
2013 – first 4 TB disk
2014 – first 5 TB disk

Balance disk & tape - caution with disk only approaches
Recommendations for reshaping data protection systems

- It is key to heavily consolidate and pool data protection landscapes.
- Data Protection Appliances (DPA) allow quick efficiency gains.
- The more you can consolidate, pool and manage with one DPA the higher the savings, the higher are flexibility and reliability gains.

Questions to ask

Hard disk development lags behind data growth
- Use technologies like deduplication to increase disk utilization.
- Be careful with a disk only strategy and balance disk and tape.

Separate backups from archives logically but pool the physical data protection systems for both.

Radically consolidate by using Appliances.
Fujitsu‘s Data Protection Strategy
Fujitsu’s Data Protection Strategy and Portfolio

- Fujitsu builds complete data protection solutions based on own products, products from technology partners and comprehensive service offerings
  - Core are ETERNUS CS data protection appliances which are optimized target systems to radically simplify backup and archiving
  - Tape libraries from Fujitsu and partners deliver cost effective data retention
  - Data protection software from partners manage backup and archiving processes
ETERNUS CS Data Protection Appliances

Radically simplifying data protection
ETERNUS CS Data Protection Appliances

**ETERNUS CS800** - Optimized for
- cost efficient backup to disk
- easy integration of remote locations

**ETERNUS CS High End** - Optimized for
- Complete consolidation of backup and archiving infrastructures
- Unified management of disks, dedup disks and tape targets
ETERNUS CS High End – Objectives

- Simplifying and consolidating data protection systems
- One platform for mainframes, UNIX and x86 servers
- One platform for backup and archiving
- Providing flexible and extreme scalability for stepwise and complete consolidation
- Unified management of all target systems (tape, disk, dedup disk)
- Enabling flexible service levels regarding capacity, speed and costs
- Accelerating backup and restore times
- Integration capability into existing environments without the need to change software or processes

Unified Platform for complete consolidation
Unified Platform for Data Protection

- Virtualizes existing target* systems for backup and archiving
- Servers and data protection software “see” only one logical target system
- Enables to consolidate, to extend and to reshape existing environments without the need to change data protection applications and processes

*target systems: system where backup and archive data is written on (e.g. tape or disk library)
How ETERNUS CS High End Works

ETERNUS CS virtualizes disk and tape systems
- All servers “see” one huge, uniform target
- Data are written first to the disk cache
- Then to local or remote disk or tape libraries
- Alternatively, the disk cache acts as the final target

Uniform end-to-end management of backup-to-disk-to-tape/disk

Target systems:
- Mainframes
- UNIX Servers
- X86 Servers
- Virtual Tape (SAN, FC/FICON)
- File (NAS, CIFS/NFS)
- Disk Cache
- ETERNUS CS High End
- Tape Library (Type X, Y, Z)
- Disk System
- Dedup disk
ETERNUS CS High End serving all needs

Balancing capacity, speed and costs

- Tape
- Disk & Tape
- Disk (SAN)
- Disk (NAS)
- Dedup Disk

One solution for backup & archiving

- Backup
- Backup & Archive
- Archive

Enables disaster recovery by design

- Mirroring
- Dual Save
- Multiple Save
- Triple Save

Serving all distances & locations

- Replicate to 1 site
- Cascaded Replication
- Replicate to 2 sites
- Replicate to n sites
ETERNUS CS High End serving all needs

Balancing capacity, speed and costs

- **Lufthansa Systems**
  - Consolidated tape systems by using ETERNUS CS High End
  - Mixes backup-to-disk with backup-to-tape to balance speed of data access and costs

One solution for backup and archiving

- **Helsana**
  - Is extending ETERNUS CS High End for archiving in addition to backup consolidating the infrastructure

Enables disaster recovery by design

- **belgacom**
  - Implemented two site disaster recovery for backup data in a heterogeneous server landscape
  - ETERNUS CS High End drastically simplified DR implementation

Serves multiple locations

- **BBVA**
  - Replicates backup data between several locations in Spain and South America
  - Integrating backup of central and remote locations for highest data safety
Unique Scalability for Capacity and Performance

- modular grid architecture allows to flexibly add performance and capacity
  - Max 10 front-end processor nodes manage the data stream with servers (10 x 1.8 GB/s)
  - Up to 16 internal RAID systems build a disk cache or a disk target up to 3.6 TB capacity
  - Supporting up to 3 million volumes (logical tapes) or 2 billion files
  - Up to 10 back-end processor nodes manage data stream with target systems
  - Supporting 10 target systems (disk, dedup disk, tape systems)

Unique scalability enables a complete consolidation of the data protection environment
Virtual Network Storage (ViNS)

- Data access via Ethernet (CIFS, NFS) additional to SAN connectivity
- Large file system supporting 2 billion files without size limitations
- Support of Active Directory / LDAP
- New: ViNS only models
For enhanced disaster resilience ETERNUS CS High End supports

- Synchronous mirroring over two Data Centers (split architecture)
- Asynchronous replication over long distance to multiple sites
- Cascaded data replication from one system to a 2\textsuperscript{nd} to a 3\textsuperscript{rd}…
- Allows to integrate remote subsidiaries into central data protection concepts
ETERNUS CS800 – Data Protection for midsize IT

- Easy backup to disk through NAS functionality
- Needing up to 95% less disk capacity through deduplication reducing costs
- Easy disaster protection through automated replication
- Easy integration of local backups with other locations
Summary

- Fujitsu delivers complete solutions to heavily consolidate and simplify data protection environments
- They base on ETERNUS products from Fujitsu, products from leading technology partners and comprehensive Fujitsu service offerings
- Core of this offerings are ETERNUS CS data protection appliances allowing quick and substantial efficiency gains
- The ETERNUS CS product family offers unique value to customers in terms of scalability, flexible service levels and disaster resilience

Go for efficient data protection from Fujitsu