



Die Daten-Infrastruktur für das DataCenter der nächsten Generation

Dennis Peter

Regional Manager West

Central Europe Region

Über uns: Global bewährt.



Über 30.000 Installationen weltweit

Über 10.000 Kunden

ein Produkt in
der 10. Generation

Kunden in allen Branchen und Größen

konzeptionell: **Software-defined Storage**
Hyper-Converged

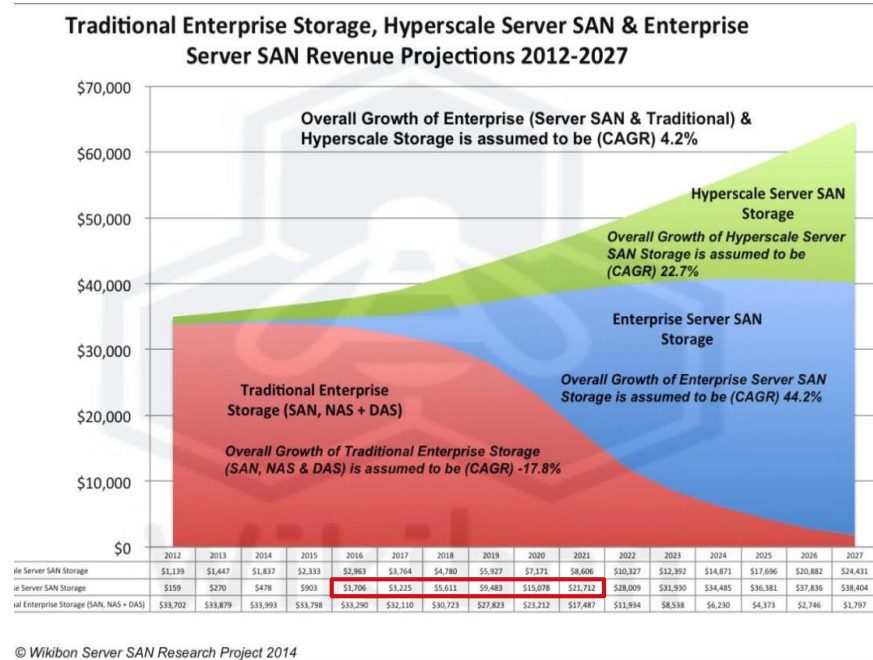
technologisch: **Speicher-Virtualisierung**
Parallel I/O



- Australien
- Deutschland
- Frankreich
- Japan
- UK
- USA

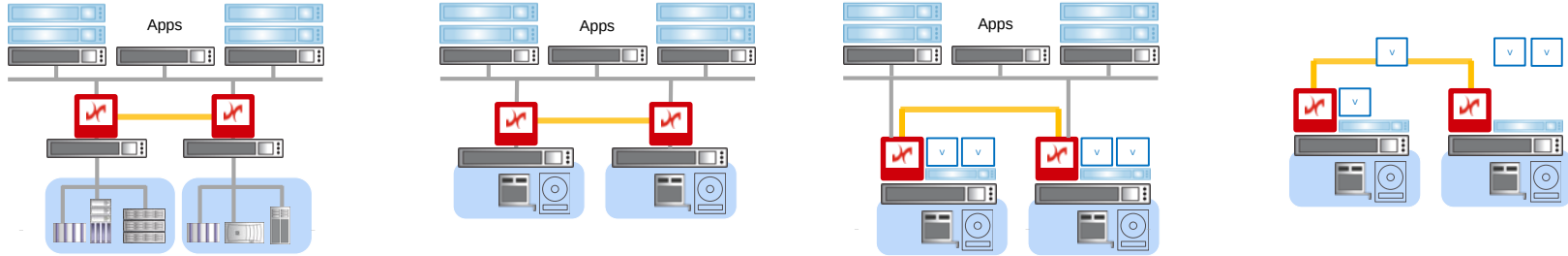
Aktuelle Marktzahlen und Trends

- Solide Marktprognosen für integrierte (konvergente und hyper-konvergente) Systeme
 - **50 %** p.a. laut Gartner
 - **33 %** p.a. laut IDC
- **45 %** der Befragten evaluieren den Einsatz von hyper-konvergenten Systeme
- Der Markt bewegt sich rasant vom traditionellen Speicher-Array weg



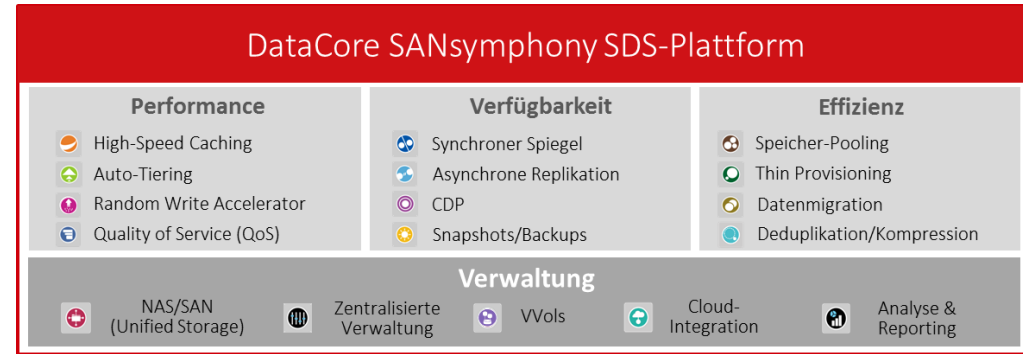
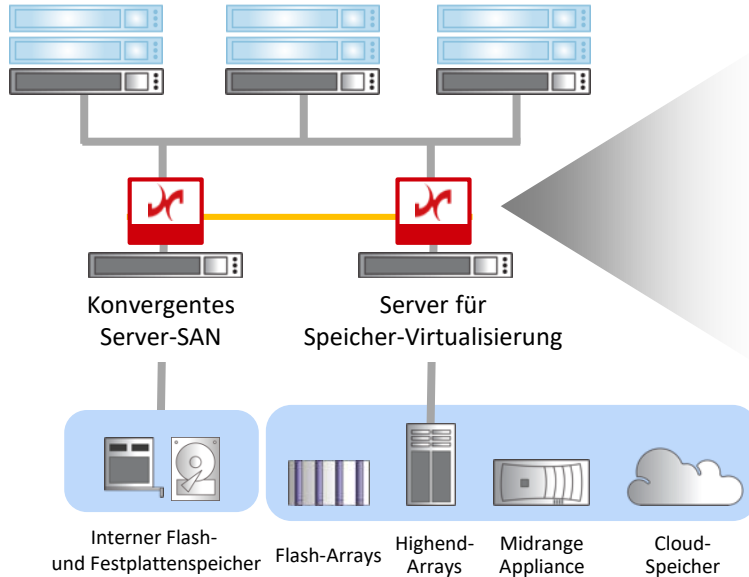
Quellen: Wikibon, Gartner, IDC, DataCore

DataCore adressiert das gesamte Anwendungs- und Infrastrukturspektrum



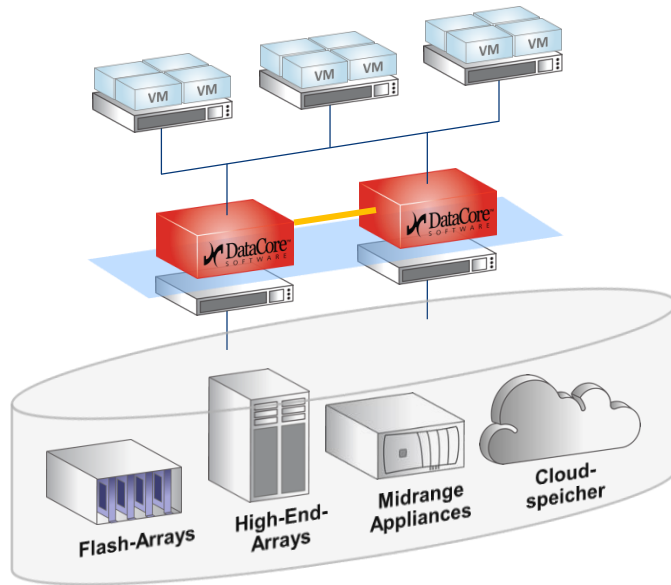
Software-Defined Storage Virtualisierung	Converged (Server SAN)	Hybrid-Converged	Hyper-Converged
Integriert, verwaltet und optimiert bestehende Speichersysteme	Nutzt internen Speicher, reduziert die Komplexität und unterhält den Compute-Level separat	Konsolidiert alle Funktionen auf kleinster Stellfläche mit höchster Leistung sowie externer Speicher-Bereitstellung	Konsolidiert alle Funktionen auf kleinster Stellfläche mit höchster Leistung

Bereitstellung von DataCore SANsymphony SDS . . .



- Läuft auf x86-Standardservern im Datenpfad
- Zusammenfassen und virtualisieren von internen, direkt angebundenen **und externen Speicher**
- Umfassendes Set an Speicherdiensten

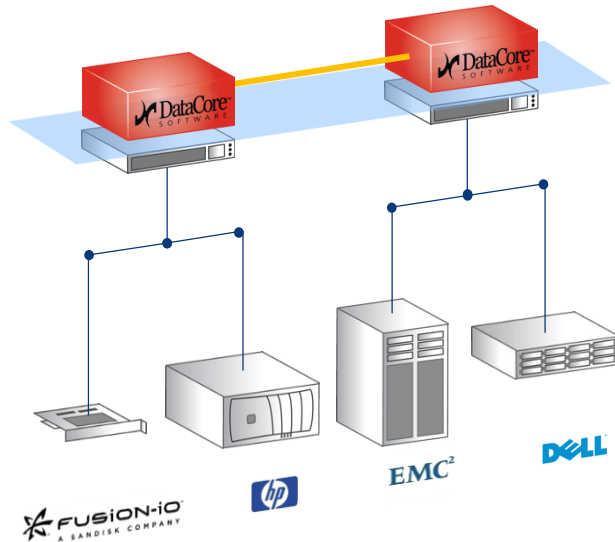
Virtualisieren externer Speicherhardware



Grundlagen der DataCore Speichervirtualisierung

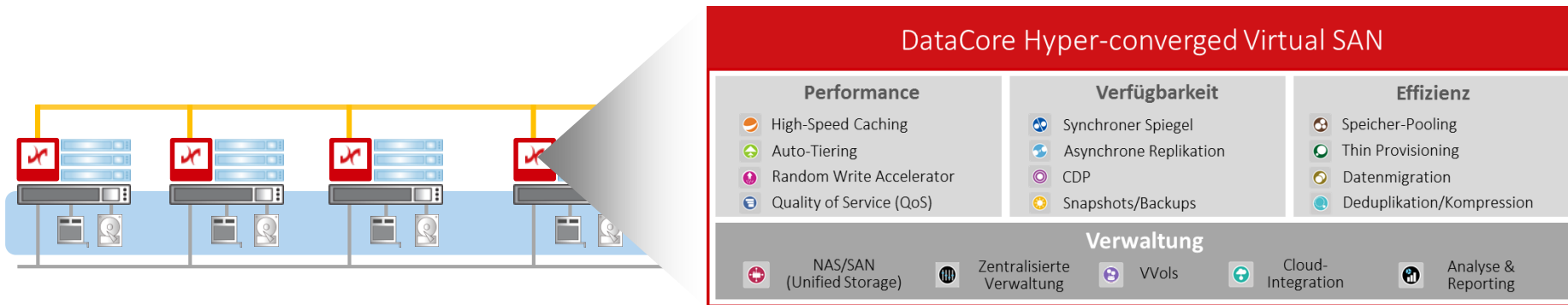
- Läuft auf x86-Standardservern
- Ein Set von einheitlichen Speicherdiensten für alle Speichergeräte
- Die gesamte Speicherkapazität in einem einzigen Pool verhindert Verschwendung von Kapazitäten
- Nahtlose Kommunikation unterschiedlicher Speichersysteme – weniger Komplexität, weniger Ausfallzeiten
- Kein Single-Point-of-Failure durch Datenreplikation
- Stufenlose Skalierbarkeit ohne die Festlegung auf einen bestimmten Hardwarehersteller

Geräteübergreifendes synchrones Spiegeln



- Daten werden zwischen unterschiedlichen Speichersystemen synchron gespiegelt
- Replikation, Failover und Failback zwischen unterschiedlichen Plattformen
- Nahtloses Verschieben von Daten zu einer anderen Plattform

... und von DataCore Hyper-converged Virtual SAN



- Läuft auf x86-Standardservern im Datenpfad
- Zusammenfassen und virtualisieren von internem und direkt angebundenem Speicher
- Umfassendes Set an Speicher-Services

Eine Softwareplattform für jede Speicherhardware



UNIFIED ENTERPRISE STORAGE SERVICES

VERFÜGBARKEIT

-  Synchrones Spiegeln
-  Asynchrone Replikation
-  CDP
-  Snapshots / Backups

PERFORMANCE

-  High Speed Caching
-  Auto-Tiering
-  Random Write Accelerator
-  Quality of Service (QoS)

EFFIZIENZ

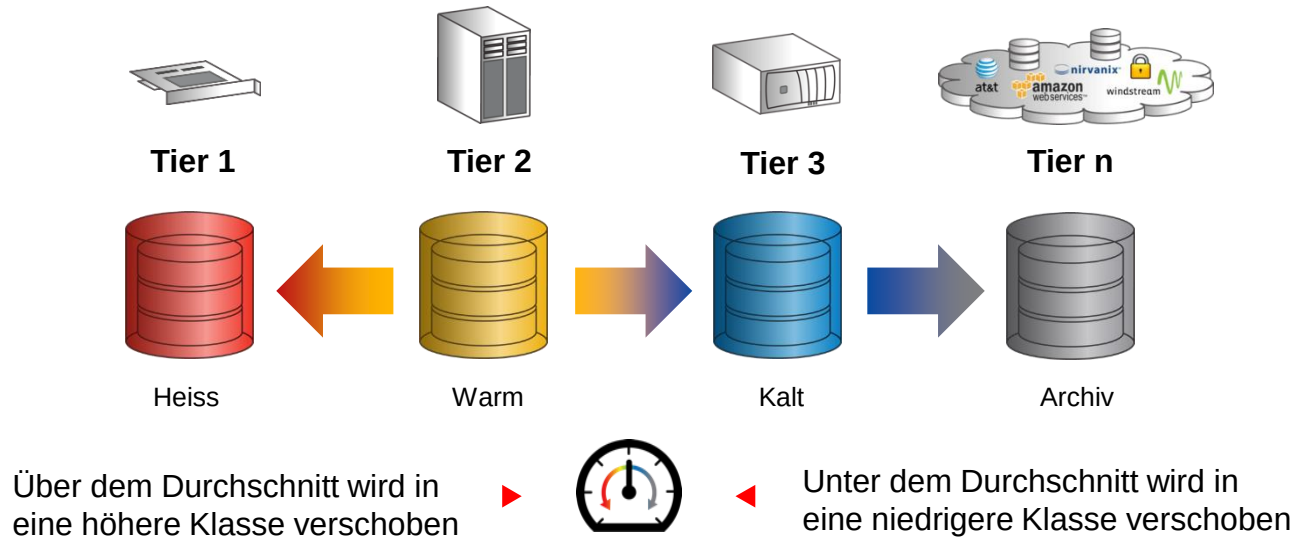
-  Speicher-Pooling
-  Thin Provisioning
-  Daten-Migration
-  Deduplication/Compression

MANAGEMENT

-  Zentrales Management
-  Analyse & Reporting
-  VVols
-  NAS/SAN (Unified Storage)
-  Cloud Integration

Auto Tiering – dynamisch optimierte Ressourcen

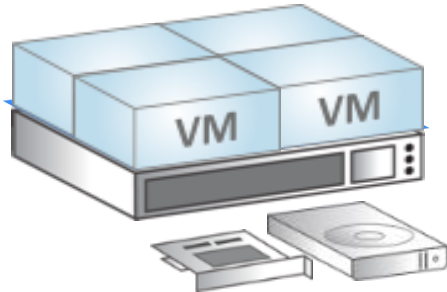
Erstellen von bis zu 15 Speicherklassen



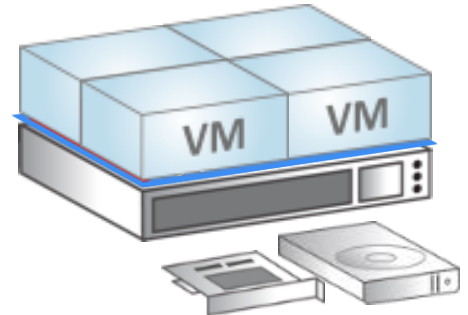
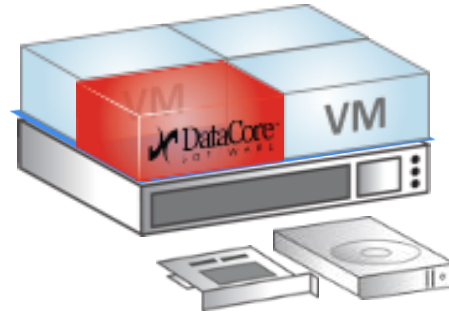
Wertet Daten auf Blockebene aus, sodass Daten aus einer einzigen Anwendung sich auf mehreren Speicherklassen befinden können.

DataCore Virtual SAN Lösung

Server-Virtualisierung



Hyper-Converged ~~System~~ Lösung



Nicht immer ist Hyper-konvergenz eine Enterprise Lösung!

Performance

- Unzureichende Performance und Antwortzeiten bei wichtigen Anwendungen
- Fibre-Channel-Flexibilität wird von Hyper-konvergenten Systemen nicht unterstützt

Verfügbarkeit

- Immer mehr „Boxen“ zur Unterstützung von Metro-Clustern erforderlich

Gesamtbetriebskosten (TCO)

- Begrenzte Möglichkeiten zur Skalierung
- Nutzung bestehender Infrastruktur nicht möglich
- Eingeschränkte Auswahl
- „Silo‘ed – Infrastruktur“

SPC ist die Basis für auditierte Vergleichstests im Storage-Umfeld

DataCore's SPC-1 Price-Performance™

Weltrekordresultat bei Hyper-converged!

PERFORMANCE

**1,2 Millionen
SPC-1 IOPS™**

▲
**Höchste
Produktivität**

PREIS - LEISTUNG

**\$ 0,10
Pro SPC-1 IOPS™**

▲
**Beispiellose
Wirtschaftlichkeit**

ANTWORTZEIT

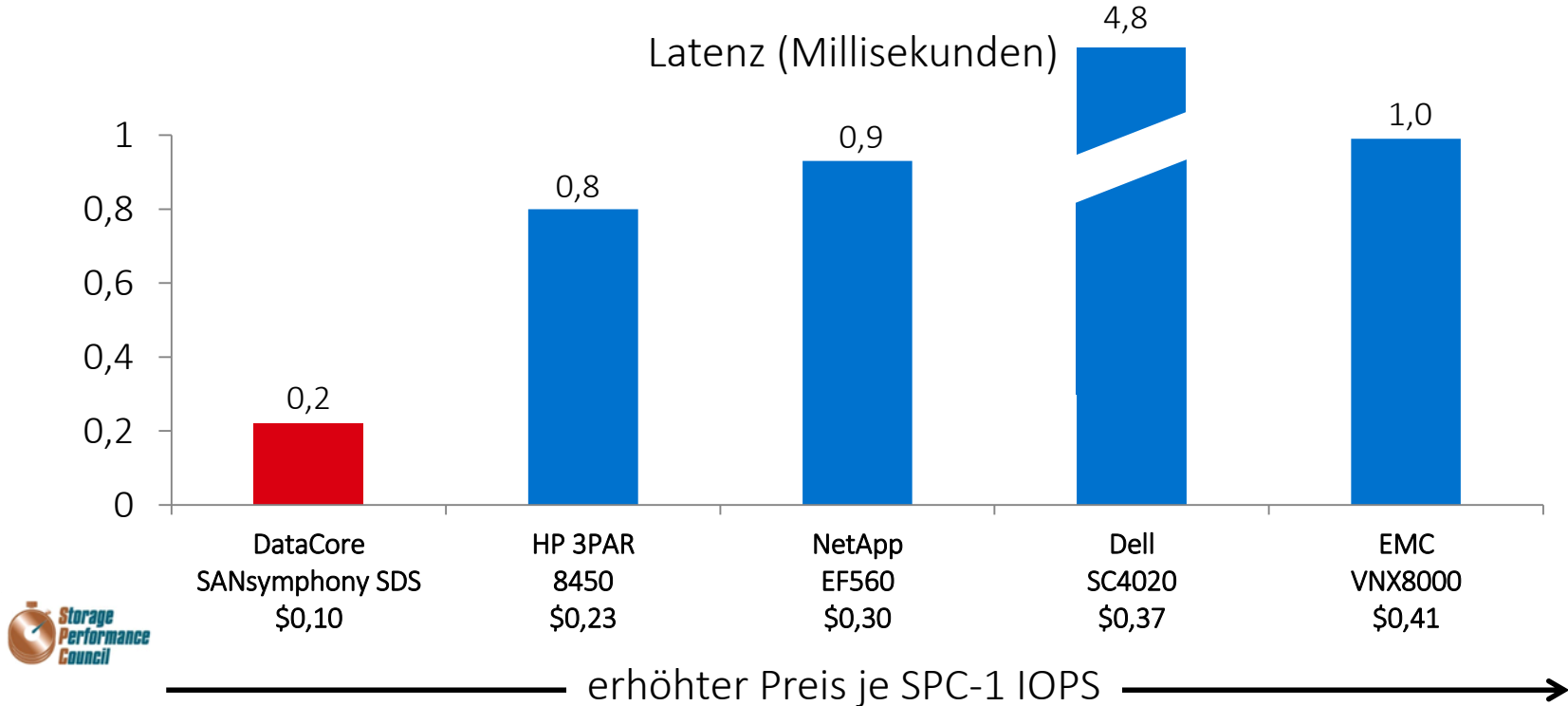
**0,22
Millisekunden**

▲
**Extrem performante
Applikationen**

2 Knoten Hyper-converged (gespiegelt)

* Stand Juli 2016

DataCore hat die schnellsten Antwortzeiten und die niedrigsten TCO*

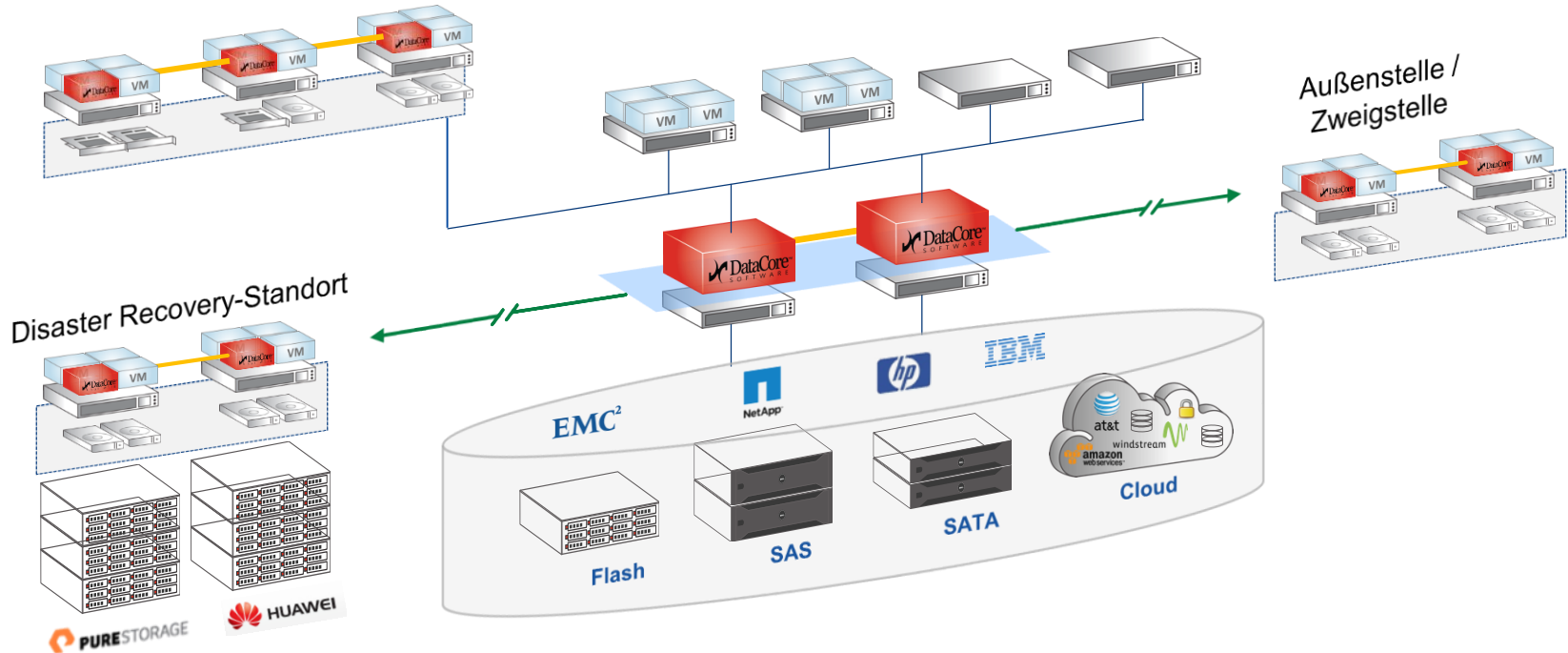


* Stand Juli 2016

Zukunftsweisend für Hyper-Converged Systeme (Hyper-Convergend neu definiert)

- DataCore hyper-converged kann ohne Einschränkung für unternehmenskritische Applikationen genutzt werden!
 - Geeignet für Oracle, MS SQL Server & SAP HANA
- Eliminieren des I/O Bottlenecks heißt höhere VM-Packungsdichte
 - Mehr VMs auf der selben Hardware für VDI & entsprechender Workloads

Eine Speicherarchitektur: SAN, Hyper-Konvergenz & Cloud



Zusammenfassung

- **Geringe Anfangskosten** und hoher Investitionsschutz . . .
... durch optimieren der vorhandenen Speicherlandschaft
- **Niedrigere Gesamtkosten** und einfaches Management . . .
.. durch gemeinsame Verwaltung von klassischem SAN und Hyper-Converged
- **Mehr Flexibilität** da Flash- oder SSD-Speicher keine zwingende Voraussetzung, . . .
... aber optional integriert werden kann
- **Mehr Wirtschaftlichkeit** . . .
... durch freie Auswahl und keiner Herstellerbindung bei der Speicher-Hardware
sowie bei Hypervisoren
- **Höhere Performance** bei unternehmenskritischen Anwendungen. . .
... Branchenführer bei Gesamt-IOPS - Kosten per IOPS - Latenz unter Vollbelastung

Vorteile von DataCore – das bestätigen unsere Kunden

Höhere
Performance



79 % der Nutzer
verbesserten die
Leistung um das
3-fache oder mehr

Reduzierte
Ausfallzeiten



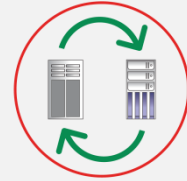
82 % der Nutzer
reduzierten
speicherbezogene
Ausfallzeiten um
50 % oder mehr

Verbesserte
Auslastung



82 % der Nutzer
reduzierten
speicherbezogene
Ausgaben um
25 % oder mehr

Niedrigere
Kosten



100 % der Nutzer
erlebten im ersten
Jahr einen
positiven ROI



SPIEGEL-Verlag Rudolf Augstein GmbH

Media, Hamburg, Germany

Company

- SPIEGEL-Verlag was established in 1947 and has its headquarters in Hamburg. In 2014 the Spiegel Group had a revenue of 285 million Euro and counted 1.100 employees. The news and business magazine DER SPIEGEL is one of Europe's highest reputed journalistic products with 800.000 copies weekly

Challenge

- High Performance, round-the-clock availability of archive and production data
- Maintenance and renewal problems with existing storage virtualization software vendor
- Opportunity to provide server/storage for short-term projects in an efficient way

DataCore Solution

- SANsymphony in a stretched cluster configuration on redundant Fujitsu Primergy servers with internal SSD and external SAS and SATA disk storage systems; 300TB storage capacity

Customer Benefits

- High Availability
- Multi-Vendor-Support
- CDP (Continuous Data Protection) and Snapshots
- Performance benefits through SSD integration and Auto-Tiering

DER SPIEGEL

Das deutsche Nachrichten-Magazin



"With DataCore we have every opportunity to set up our storage infrastructure flexible, regardless if we will expand our SAN, implement a Virtual SAN or migrate our data center in the future. We can react vendor independent according to our current needs."

Robert Kiehne, Gruppenleiter IT Systemmanagement



OSI Food Solutions Germany GmbH

Food Industry, Günzburg, Germany

Company

- US-based OSI Group is an international network of companies and production plants in the food industry, counting over 20.000 employees worldwide in 50 locations and 18 countries. OSI Food Solutions Germany GmbH has around 250 employees and is a meat processing company



Challenge

- Failsafe, cost effective shared storage for VMware vSphere, Citrix XenApp, SQL and the ERP system Microsoft Dynamics NAV (Navision)

DataCore Solution

- Since 2007 mirrored SANsymphony configuration in a 8 Gbit FC environment on two generations of HP servers and 3 storage generations of HP and HDS systems; today 2x24TB on HDS HUS130

Customer Benefits

- One Software platform for several Server & Storage Generations
- Ease of management by integration of DataCore in VMware vCenter
- Central SDS platform for synchronous mirroring with Autofailover, Auto-Tiering, Thin Provisioning, Caching-Technology, Reporting and Analysing Tools
- Downtime significantly reduced



“We now use DataCore SANsymphony for years and are completely satisfied with it. With our mid-sized company structures, an easy-to-use solution with good price-performance ratio is important to us. This is exactly what DataCore is doing. DataCore and VMware in conjunction help us to implement a common strategy despite the different requirements of our international locations”

Wolfgang Allgäuer, IT-Manager Infrastructure



Bitburger

Food & Beverage, Germany

Company

- The Bitburger Group is one of Germany's largest breweries. The 2,100 employees of the Group produce over 200 million gallons of beer. Bitburger is the market leader in Germany in the draught beer sector, and number two in total

Challenge

- Greater flexibility and performance for SAP R/3 and other business critical applications

DataCore Solution

- DataCore storage virtualization runs fully redundant on top of Hitachi Thunder Arrays
- DataCore synchronous mirroring, auto-provisioning and Snapshots

Customer Benefits

- Fail-safe, optimized utilization, greater performance



"Our new solution has no single point of failure... In the event of an error, no failures of the business-critical applications are expected due to the fact that we mirrored the hard disk systems in combination with doing regular backups. We can also now enjoy much more flexible administration of our storage capacity and get significantly better utilization of our resources."

UWE SILLER, IT Manager



TUI Cruises

TUI Cruises, Cruise Company, Hamburg, Germany

Company

- TUI Cruises was founded in April 2008. The company is a joint venture between TUI AG from Hanover & Royal Caribbean Cruises Ltd., the world's second largest cruise company

Challenge

- The customer required a high level of availability and security when implementing the server and storage infrastructure on the newly built Mein Schiff 3, Mein Schiff 4, Mein Schiff 5 and Mein Schiff 6 as well as replacing the IT systems on the two earlier ships

DataCore Solution

- The entire IT infrastructure is designed redundantly & is synchronously mirrored using DataCore software

Customer Benefits

- SANsymphony synchronously mirrors data, regardless of the manufacturer, model or technology of the connected storage hardware in order to ensure a high level of availability for systems on the ships. New and existing storage hardware can be easily integrated & its lifespan is extended
- SANsymphony offers fully developed storage services that can be used for data management & backup
- Well-engineered caching technology optimizes the performance of the underlying hardware



"Once you're at sea, the IT systems need to be absolutely reliable. That's why we only work with providers and products that we trust 100%. That includes DataCore and SANsymphony." Niels Heider. BSH IT Solutions



Stadtverwaltung Heidelberg

Government/Administration, Heidelberg, Germany

Company

- A large local municipal administration serving a community of more than 150,000 residents, and a requirement of servicing 2000 clients with 170 centralized servers.

Challenge

- Improve application data availability and security.
- Reduce time taken for backup and increase utilization of storage.
- Extend capacity cost efficiently and investment protected/future proofed.

DataCore Solution

- SANsymphony based architecture on the 4th generation of storage servers with storage hardware from 8 different vendors from the year 2000 until today

Customer Benefits

- Vendor & platform independence.
- Unified central platform with mirroring, storage classes, CDP.
- Flexible, easy management, capacity expansion and data migration.
- Higher productivity and efficient storage management



"It turned out that SANsymphony is the high performance, high availability and future proof solution that we hoped for. The advantage of DataCore's software approach is that when hardware is replaced the intelligence remains in the SAN. That saved us enormous efforts on data management for many years. Our SAN environment grows efficiently with the software: Evolution instead of migration." IT Manager, Manfred Leutz



Kliniken an der Paar

Healthcare, Aichach, Germany

Company

- Kliniken an der Paar, with hospitals in Aichach and Friedberg (Bavaria), has approximately 550 employees and offers 300 beds that generate a yearly revenue of around 42 Mio EURO. Main sectors are Internal Medicine, Accident and Orthopaedic Surgery and Visceral Surgery

Challenge

- Flexibility for continued data growth in the healthcare sector; high availability for administrative and medical systems; modernization of the IT environment within limited budgets

DataCore Solution

- DataCore SANsymphony on 2 redundant HP servers provisioning 9 TB of highly available disk capacity for more than 100 virtual machines (VMware vSphere; Hyper-V for Citrix virtual desktops)

Customer Benefits

- Fully redundant, highly available and flexible virtual infrastructure
- Reduced energy costs by 12.000 EURO per year & storage related spending by over 50%
- Reduced Storage-related downtime by over 90%
- 2 years without planned or unplanned downtime
- Turned 50% stranded capacity into free space

“DataCore gives us the necessary flexibility and makes us independent from performance and capacity limitations. Furthermore we benefit from big synergy effects through the virtualization of Storage and servers. The virtual infrastructure can be managed with low time effort and we have significant savings in energy consumption.” Bernd Burkhart, IT Director



Kliniken an der Paar





ATEGRIS

Healthcare, Mülheim an der Ruhr, Germany

Company

- ATEGRIS is a healthcare network that also serve as educational institutes for the Universities of Düsseldorf & Duisburg-Essen. Together they offer almost 30 specialised medical centres and 1100 beds

Challenge

- Disaster Recovery and High Availability with Transparent Auto-Failover for existing SAN hardware
- Capacity extension, greater system performance and excellent reliability
- Integration of existing storage infrastructure

DataCore Solution

- 2xDell PowerEdge R730 + SANsymphony, synchronous mirroring & auto-tiering
- 2x3,2TB Fusion-io PCIe-Cards integrated into DataCore servers
- Extension with 2x Dell Powervault MD3620 for 45TB SAS and SATA per data center site

Customer Benefits

- Fail-safe operation for more than one a year
- Cost effective SSD Integration with Automated Storage Tiering
- VMware VSphere Integration
- Reduced storage costs by 25% & Performance increased by 300%
- Routine management overhead reduced by 75% & unused capacity turned into free usable space



“The investment in the DataCore solution was definitely worth it because we are able to act in a very flexible manner, without dependencies, & our storage infrastructure can be adapted to our needs. With SANsymphony, we have a fail-safe and fast storage architecture & a comprehensive management that is a lot easier to handle.” Tobias Puhe, IT Operating Manager



VIELEN DANK

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