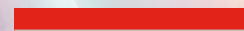




Die Lenovo Storage Systeme

Wolfgang Lacher – Lenovo Datacenter Group Channel Leader



Freitag, 30. Juni 2017



+ Das Lenovo Portfolio umfasst das gesamte Rechenzentrum

World Class, end-to-end Data Center portfolio, delivered as Discrete or as Integrated offerings

Server



Lenovo

- Rack & Tower
- Mission Critical: X6
- Dense: NeXtScale & ThinkServer
- Blades: Flex System

Storage



Lenovo

- SAN: S Series, V Series
- SDS: DX8000C, DX8000N, DX8000D
- Scale-out: GSS
- Direct Attach & Archive

Hyper-converged



Lenovo NUTANIX

- ROBO: HX1000
- SMB: HX2000
- Compute Heavy: HX3000
- Storage Heavy: HX5000
- High-Performance: HX7000

Networking



Lenovo JUNIPER NETWORKS

- Embedded
- Top of Rack
- Campus and Core
- Storage Switches
- Networking OS

Engineered Solutions

Cloud



Big Data



Client Virtualization



Database & Analytics



HPC

Computer Eng.



Oil and Gas



Risk Analysis



Weather



Deep Learning



Hyperscale

Rack Scale Arch.



Compute & Warm Storage



Application Optimized



Lenovo

ThinkAgile

1. Solution-centric approach to IT
2. Rack-level solution
3. Ease of config, deploy, manage
4. Seamless mgmt. framework
5. Optimized ROI by workload
6. Reduced OPEX w/ consolidated, familiar mgmt. tools



Lenovo

Discrete offerings

1. Broad datacenter offerings; servers, storage, networking
2. Highest configuration flexibility
3. Open and optional networking
4. Simplified and open mgmt



Lenovo

End to end services that span from basic to consultative engagements

Lenovo Storage Portfolio:

SAN



V5030 / V7000



V3700 V2

DS2200 / DS4200 oder DS6200



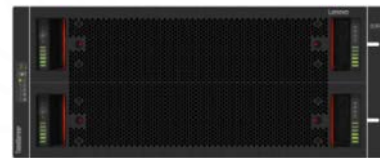
DAS



E1224 / D1224



E1212 / D1212



D3284

SDS HCI



DX8200N



DX8200C



DX8200D

Tape



TS 3200 Tape Library



TS 3100 Tape Library



TS 2900
Autoloader



TS 2360



TS 2270



TS 2260

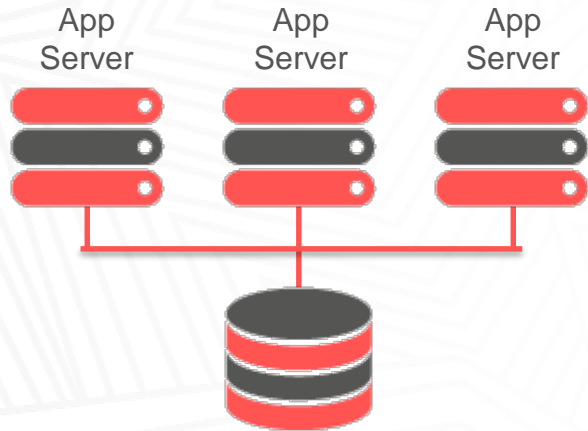


TS 2250

+ Traditional Storage, SDS and HCI Definitions

Traditional Storage

Dedicated storage hardware with its own dedicated storage software.

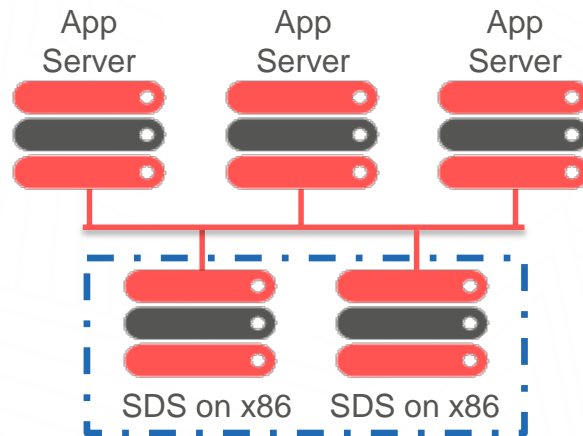


Storage Server with Storage Software



Software Defined Storage (SDS)

Storage software stack on x86 servers - offers full suite of storage services (including dynamic allocation of storage data) on underlying hardware.

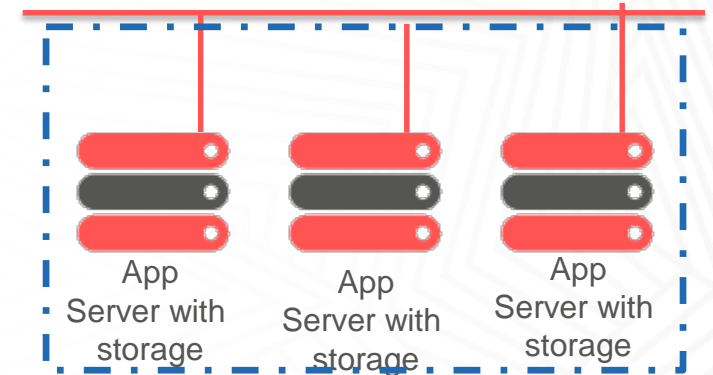


Storage software on x86 servers - accessed by application servers



Hyperconverged Infrastructure (HCI)

Software stack with consolidated compute, storage, and virtualized resources + orchestration SW on x86 servers. Runs applications.



Virtualized compute + storage building block - plus application SW



+ Revolutionize Storage Economics

Storage Strategy

1. Price/Performance leader
2. Innovative SDS solutions via StorSelect industry-leading partnerships

SAN
DS Series, V Series



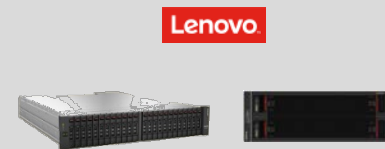
SDS
StorSelect



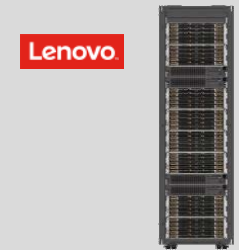
Fibre Channel
SAN Networking



Direct Attach & Archive
D/E Series, Tape



HPC Storage
GSS



Lowest price / IOP
per independent SPC¹

56% lower \$TB/year²,
50% lower CAPEX³

Designed for **99.999%** measured uptime

1.5x capacity of competition⁴

Part of Engineered HPC solution

1 - For price / performance optimized category. Traditional Entry SAN offerings consist of controller-based configurations will a total price up to \$25,000. The SPC-1 Executive Summary and Full Disclosure Report (FDR) are available at: http://www.storageperformance.org/results/benchmark_results_spc1_active/#a00181
2 - Gartner 2016 IT key metrics data
3 - vs. traditional storage
4 - Lenovo Storage D3284 as of Sept 2016 compared with HP D6000

+ DS Series Positioning

Common SW Stack, Common HW Chassis, Drive Trays & Power Supply

Best Value for SMB

DS2200

- Target 100K IOPS
- Up to 96 drives
- 12Gb Host & BE
- 2U12/2U24

Best Value with Improved Performance

DS4200

- Target 235K IOPS
- **2x faster than S3200**
- Up to 240 drives
- 12Gb Host & BE
- 2U12/2U24

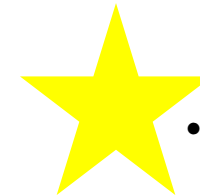
- SPC-1 benchmark planned as proof point (\$/GB leader)

Best Performance for Value in the Industry

1st to Market

DS6200

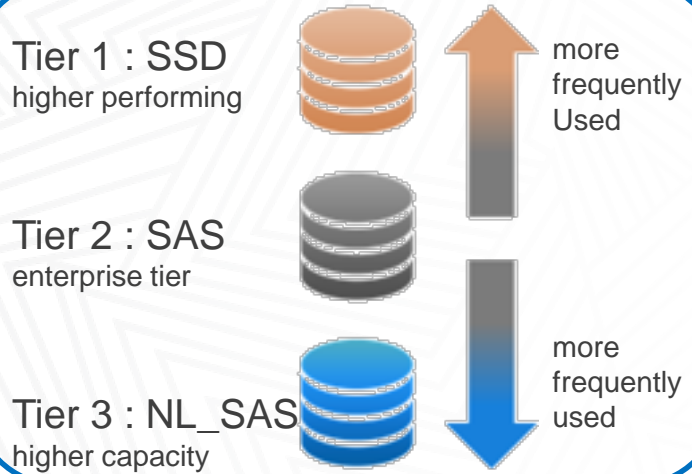
- Target 375K IOPS
- Up to 240 drives
- 12Gb Host & BE
- 2U24



- Breakthrough performance & scale at best-in-class pricing
- SPC-1 benchmark planned as proof point (\$/IOP leader)

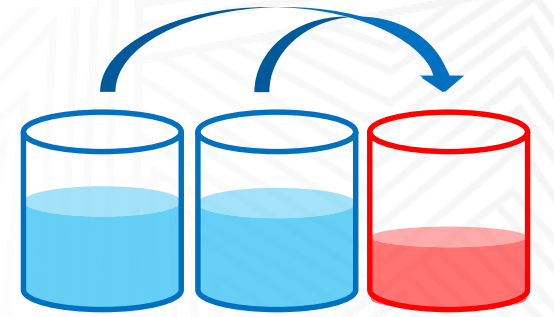
+ Storage Funktionen

DATA TIERING



REBALANCING

improves performance by distributing I/O requests



RAPID RAID REBUILD

increase data RAID restoration speed rebuilding only used data and not the full RAID set



READ CACHING

to accelerate the fulfillment of future requests for the data



THIN PROVISIONING

Allocating space when data is written to disk



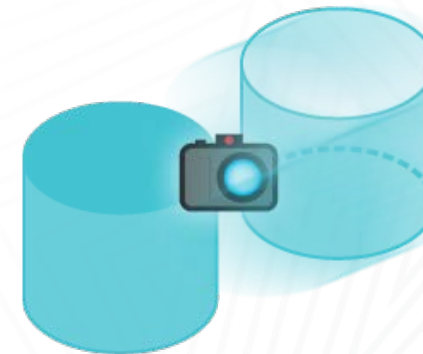
STORAGE POOLING

pooling drives and make them look as if they were all part of a single pool of disk space



SNAPSHOTS

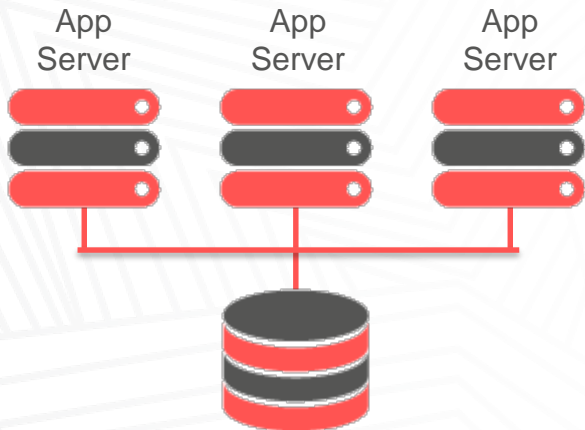
state of a system at a particular point in time



+ Traditional Storage, SDS and HCI Definitions

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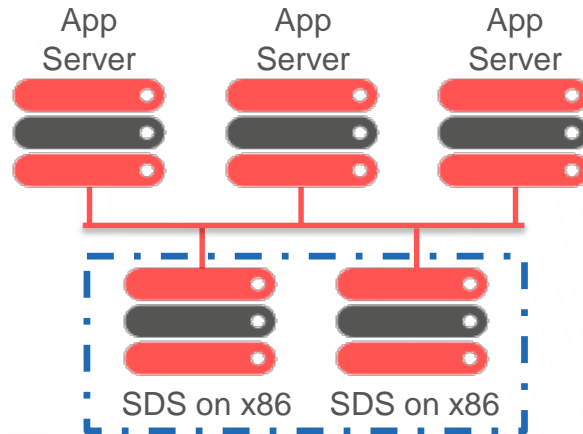


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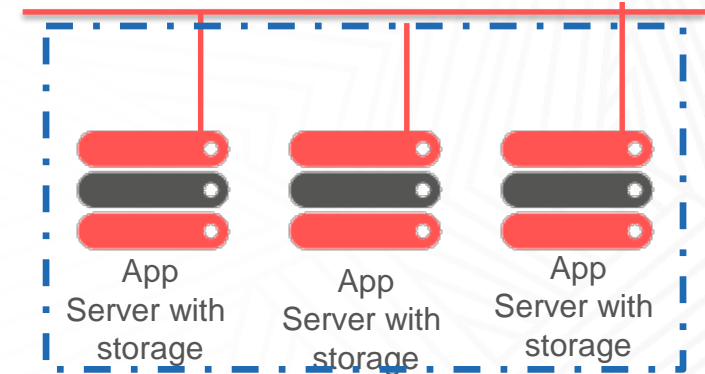


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Virtualized compute + storage building block - plus application SW



+ Lenovo SDS StorSelect– Überblick



DX8200N



DX8200C



DX8200D



StorSelect Software Defined Storage Portfolio

Lenovo Offering

Data Type

Value Proposition

Primary Use Cases

Usage Focus

DX8200N

 ○ SDS Performance SAN

○ Block & File

○ Capex Savings
 ○ Enterprise Scale
 ○ Flash Support

○ Transactional DB, Email
 ○ Near-line Archive

○ Scale-up File storage
 ○ Transactional apps

Block & File Storage

DX8200C

 ○ SDS Backup & Object


○ Object Storage

○ Storage mgt of objects
 ○ S3 Standards Based
 ○ Capex Savings -\$.01/GB

○ Backup/Archive
 ○ Public/Private Cloud
 ○ Media Content Store

○ Large Sets of Unstructured Data
 ○ Service providers

Object Storage

DX8200D

 ○ SDS Virtualization Mgmt

○ Block & File

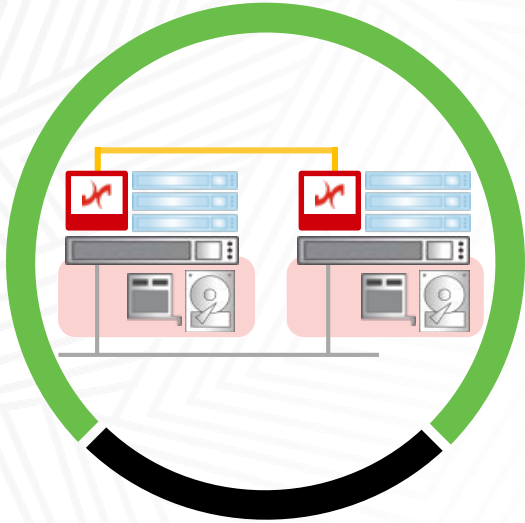
○ Increased Productivity
 ○ 10X Performance Increase
 ○ 75% Cost Reduction

○ Heterogeneous Storage Management
 ○ Transactional databases, Analytics, ERP, CRM

○ Virtualize existing storage
 ○ Automatic Tiering
 ○ Non-disruptive migration

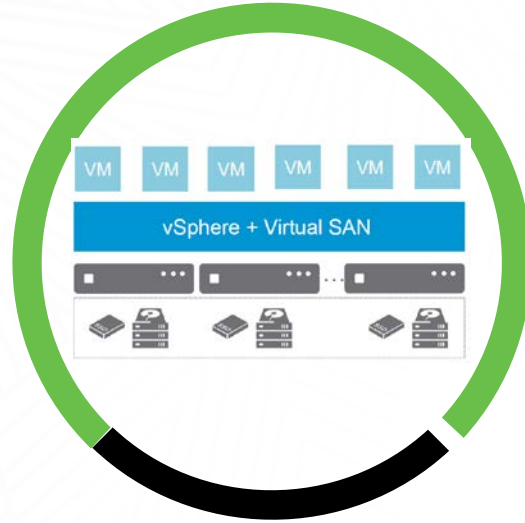
Ext Storage Virt/App Acceleration

+ Lenovo HyperConverged Lösungen



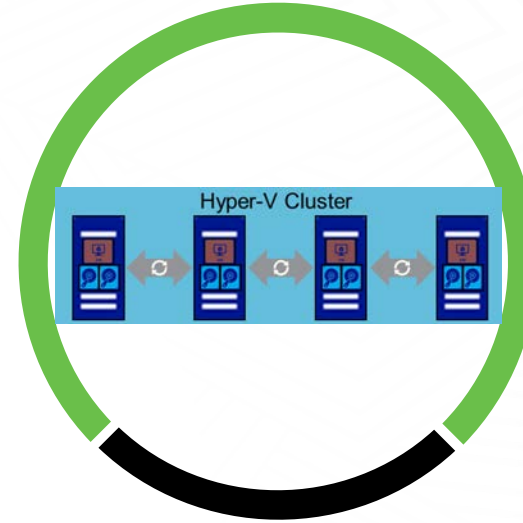
DataCore
SOFTWARE

Jahrelange **Erfahrung** mit SDS Lösungen.
Höchste **Performance** durch RAM Caching.



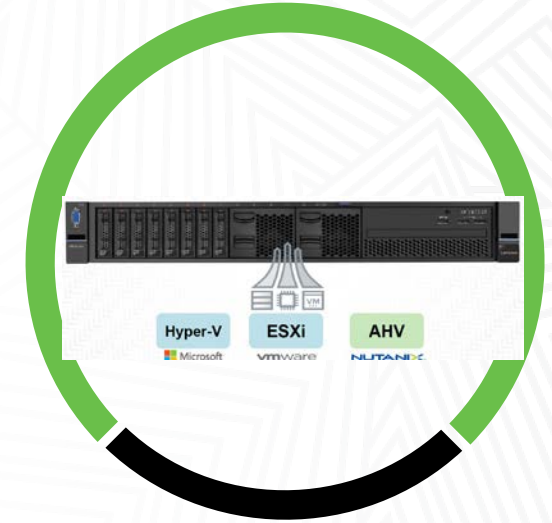
vmware
Virtual SAN

Bereits **im Hypervisor** integriert,
keine Installation nötig.



Microsoft
Storage Spaces Direct

Storage Erweiterung eines HyperV Clusters.
Basis von MS Azure & Stack.



NUTANIX
Lenovo

Geliefert als **Lenovo HX Appliance**,
Möglichkeit von **integriertem Hypervisor**.

+ Lenovo Server Produktportfolio

Rack

1P – 1U



x3250 M6



RS160

2P – 1U



x3550 M5



RD550



RD350

2P – 2U



x3650 M5



RD650

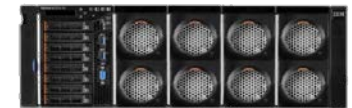


RD450

4P / 8P



x3950 X6



x3850 X6



x3750 M4

Tower

1P



TS150



x3100 M5



TS460

2P



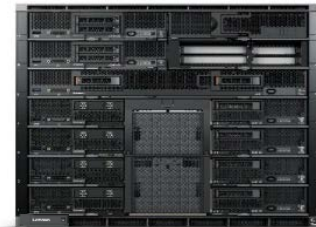
x3500 M5



TD350

Blade and Dense

Converged



Flex System



x240 M5

Flex I/O

Hyperscale



NeXtScale



nx360 M5

2U4N



n400



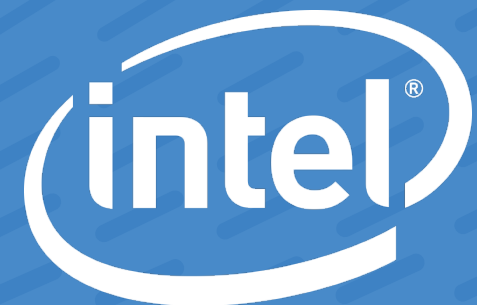
sd350



Product & Solution Days 2017

Lenovo™

Herzlich Willkommen in Salzburg am 20. Juni und Wien am
28. Juni 2017 beim Lenovo Product & Solution Day 2017



+ Agenda

9:00 – 10:00 Uhr:

EINTREFFEN TEILNEHMER / FRÜHSTÜCK

PCSD AGENDA
RAUM: „Weißer Saal“

DCG AGENDA
RAUM: „Salon“

10:00 – 10:15 Uhr:

Key Note – Lenovo Trends und Strategien
Bernhard Fauser (Director SMB/Channel Germany / Austria)

Key Note – Lenovo Datacenter Group definiert sich neu
Alexander Stanzel (Client Technical Manager – EMEA Enterprise)

10:15 – 11:15 Uhr:

Dynamische Veränderung mobiler Systeme: Design, praktisch, leistungsstark & zweckorientiert
Jens Uwe Behnke (BDM ThinkProduct)

Überblick ThinkSystem, Ausblick Purley
Paul Höcherl (Product Manager DCG, Central Region)

11:15 – 11:45 Uhr:

KAFFEEPAUSE / DEMO PRODUCT-POINTS

11:45 – 12:30 Uhr:

Mehr Produktivität für Ihre VR + AR Anwendungen
Ingo Gaßmann (Product Manager Workstation)

Überblick Lenovo Storage – von Block S & V bis StorSelect (SDS) und S-Storage News
Robert Bacci (BDM Storage)

12:30 – 13:30 Uhr:

MITTAGSPAUSE / DEMO PRODUCT-POINTS

13:30 – 14:30 Uhr:

Datensicherheit eingebaut - „Persistence Technology“ im ThinkPad schützt die Daten und ist konform der neuen EU-Regelung ab 2018
Jens Uwe Behnke (BDM ThinkProduct)

HYPERCONVERGED mit Lenovo - Systemmanagement von Lenovo Data Center Systems (mit Lenovo XClarity Administrator)
Thomas Gotthalseder (Advisory IT Consultant), Mario Pregeßbauer (Sales Engineer)

14:30 – 15:00 Uhr:

KAFFEEPAUSE / DEMO PRODUCT-POINTS

15:00 – 15:45 Uhr:

Lenovo Workstation - Power und Mobilität
Ingo Gaßmann (Product Manager Workstation)

Lenovos Komplettangebot für das Rechenzentrum
Paul Höcherl (Product Manager DCG, Central Region)

15:45 – 16:00 Uhr:

Financial Engineering – Veränderungen, Chancen und Lösungen mit LFS
Manfred Steuber

Lenovo Networking im Wandel - wohin geht die Reise?
Thomas Oppel (Senior Client Technical Architect)

16:00 – 18:00 Uhr:

NETWORKING – AUSKLANG – SNACKS



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- Campus and Core
- Storage Switches
- Networking OS

Engineered Solutions

Cloud



Big Data



Client Virtualization



Database & Analytics



HPC

Computer Eng.



Oil and Gas



Risk Analysis



Weather



Deep Learning



Hyperscale

Rack Scale Arch.



Compute & Warm Storage



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thanks.

