



Software Defined Enterprise

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The intersection of traditional & new IT



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Future ready Enterprise



workload ready
Oracle | SAP | Microsoft

virtual infrastructure ready
VMware | Microsoft

cloud ready
VMware | Azure | Red Hat Open Stack

big data optimized
Hadoop | Cloudera

Traditional IT model

New IT model

GLOBAL INSURANCE CO

"Our business is built upon analyzing risk. The speed at which we can process and analyze information IS our competitive advantage"

Dell Oracle Acceleration Appliance

- Certified, engineered solutions
- Enterprise availability
- Modular growth path minimizes disruption & improves TCO

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UNIVERSITY HOSPITAL

"Caring for people means seeing people, solutions that improve the productivity and mobility of our staff means better patient outcomes"

Dell Engineered Solutions

- Validated end-to-end solutions
- Lower risk and faster time-to-market
- Validated through Dell Solutions Centers
- VDI partnered with CC and Services

FINANCIAL SERVICES CO

"I want the benefits of the public cloud model with the security and control of my traditional infrastructure."

Dell Cloud Solutions

- Innovative, open, private cloud solutions
- Enterprise-grade, extended lifecycle support
- Co-engineered, predictable

CONSUMER TECH START-UP

"We are insight alchemists, deriving value from vast oceans of user data. We must cost effectively store, manage, & process it to stay in business"

Dell Big Data

- Affordably transform operations without starting over
- Easy, affordable, scalable & highly-optimized Hadoop solutions
- Strategic partnerships with SAP HANA

Future ready Enterprise

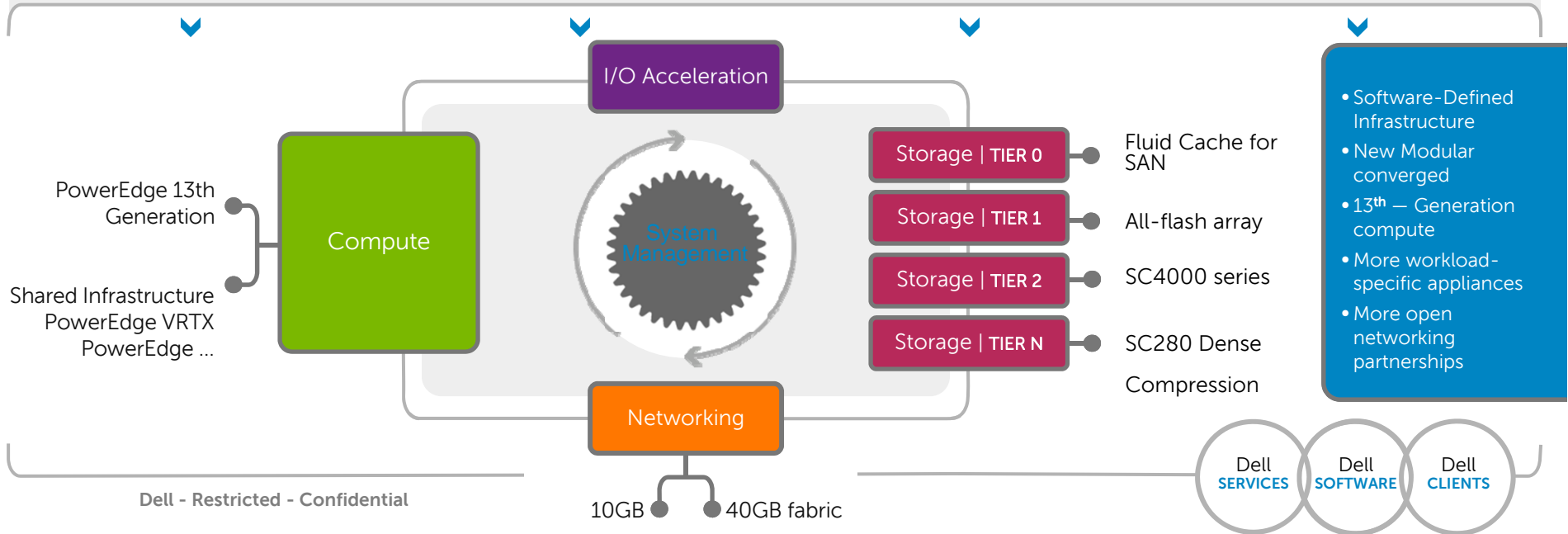


workload ready
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virtual infrastructure ready
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big data optimized
Hadoop | Cloudera



Tackling your biggest challenges

Quickly deliver IT
on demand

Deploy
enterprise
applications
anywhere

Accelerate
applications

Provide choice but
offer a **turn-key**
solution

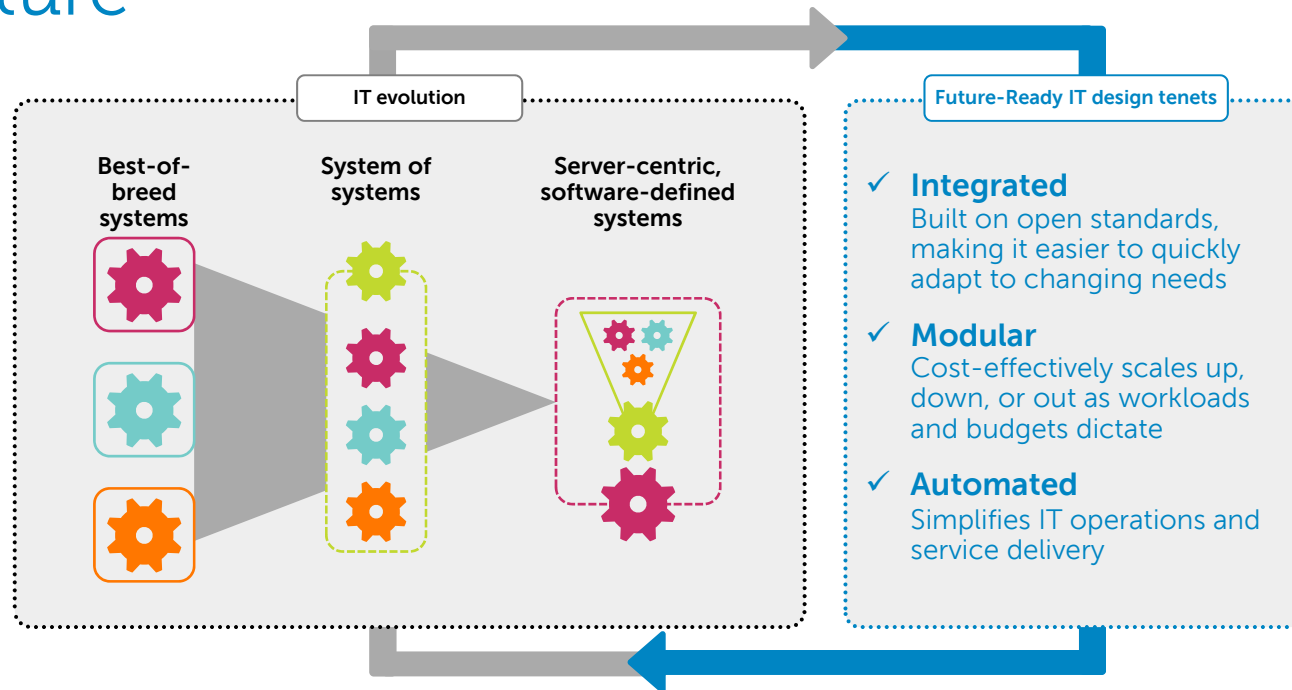


Software Defined Enterprise

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A flexible software-defined foundation for the future

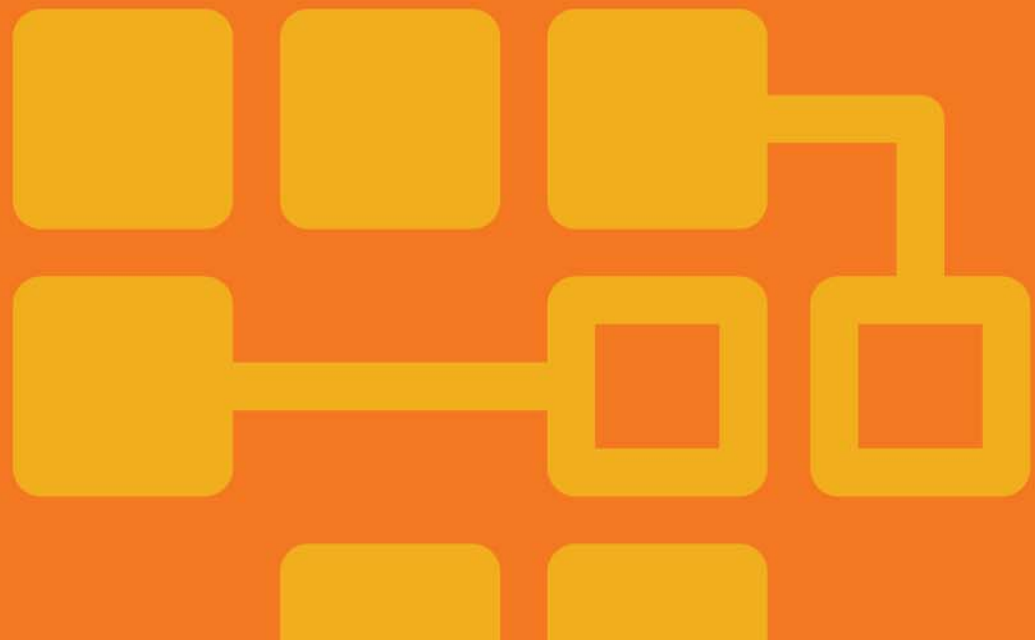


Hardware-accelerated | Software-defined | Standards-driven



Dell Storage

The evolutionary approach



Software Defined Storage: Types

Software virtualization	Software overlay	Software Independent on HW	Software Only
EqualLogic Compellent HP EVA HP 3PAR ...	IBM SVC/Storwise FalconStor Hitachi HDS StorageSpaces ...	Nexenta StorageSpaces ...	Nutanix vSAN HP LeftHand Simplivity ...
SW RAID	Connect „old“ storage	Cheap & Deep	RAIN
Traditional Storage connectivity approach			Server & Storage

Integrated stack from entry level to enterprise

Dell Storage | Workload driven, software defined

Acquire >>

Integrate >>

Accelerate >>

 **EQUALLOGIC**

2008

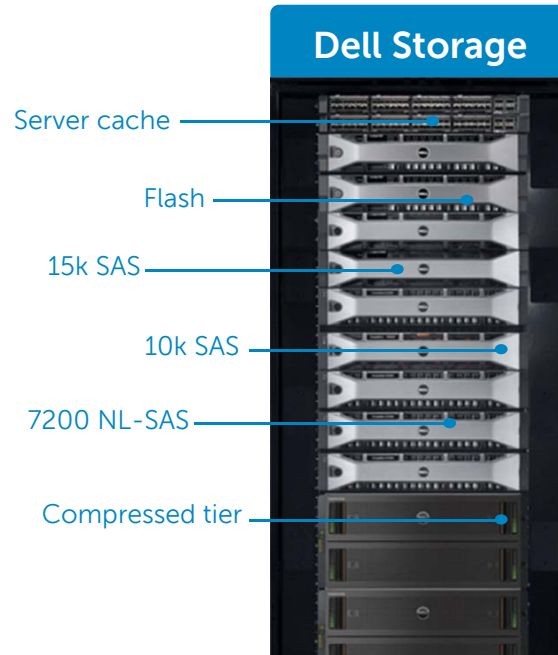

ocarina™
networks
2010


RNA
networks
2010


EXANET
Scalable Available Fast
2011


compellent
2011

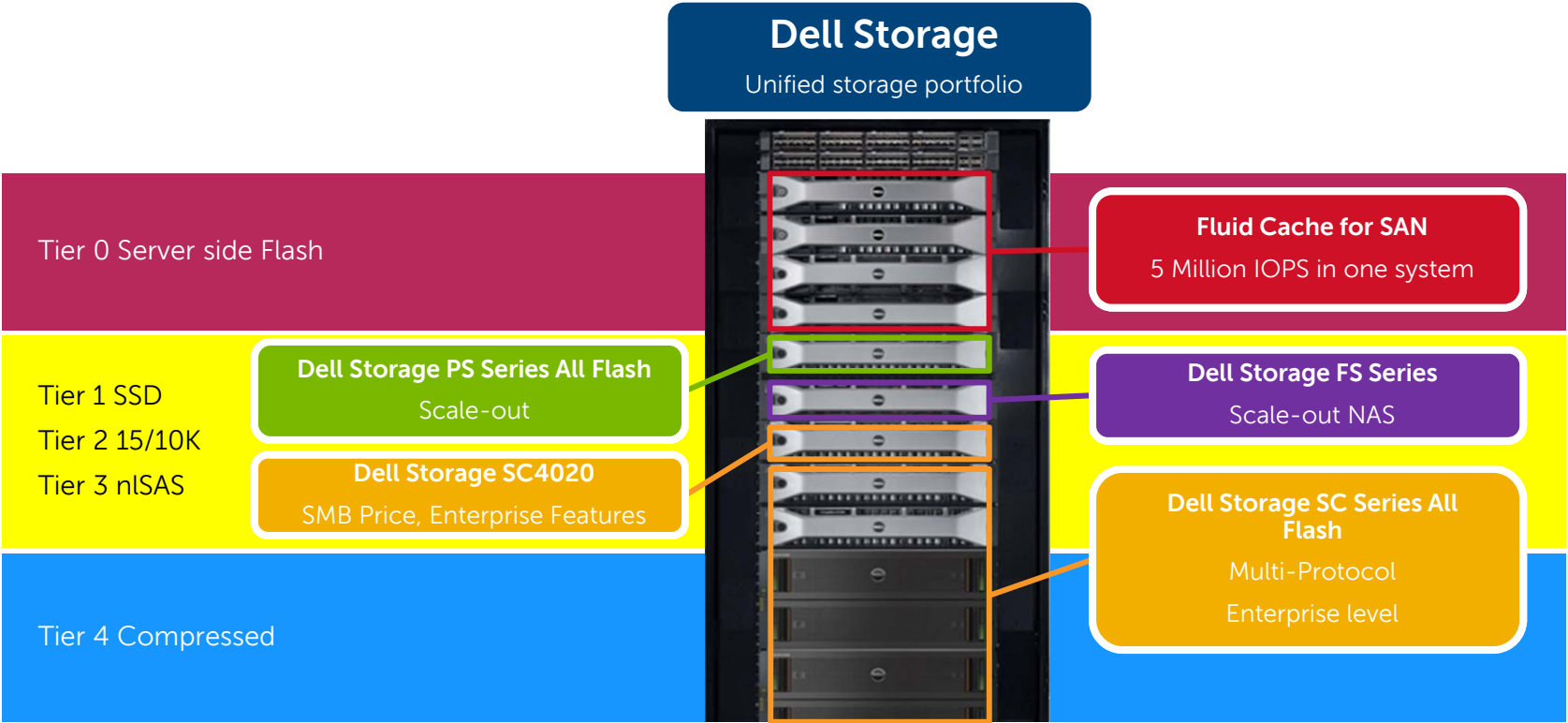
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- Unified architecture
- Scale up and out
- Intelligent data placement
- Automated orchestration
- QOS
- Common management
- Software-defined abstraction



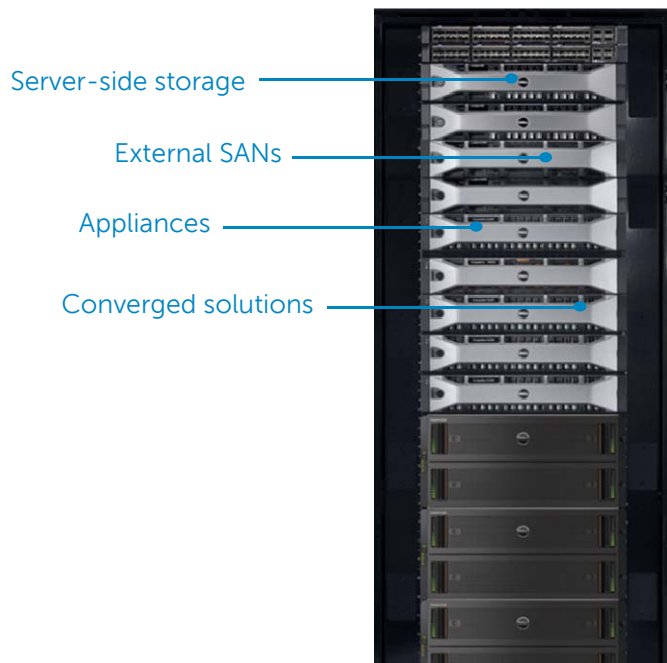
Dell Storage Portfolio Today



Evolve current IT, embrace new IT

Customer-driven path

Current IT



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Physical to virtual
to software-defined

New IT

Scalable solutions for
private cloud and XaaS

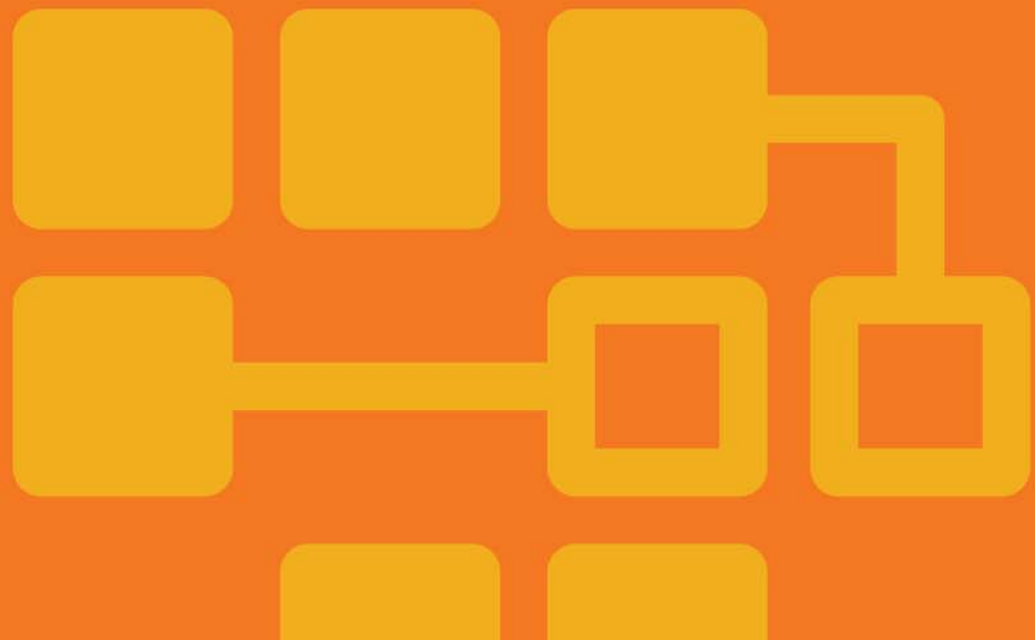
Hyper Converged

Software-only
solutions



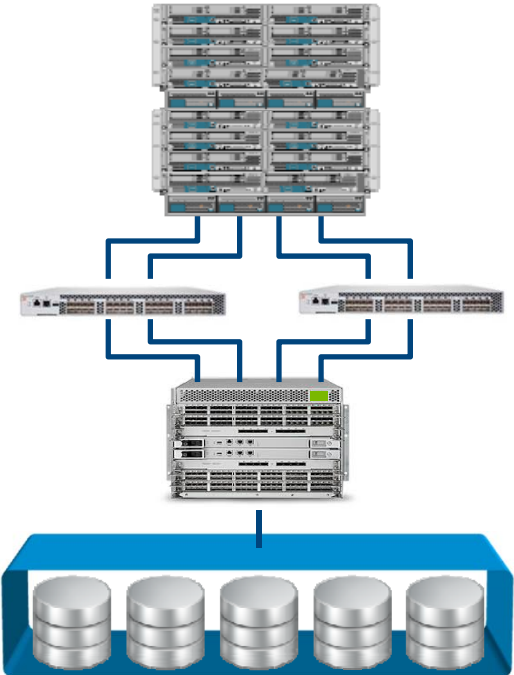
Dell Software Defined Storage

The revolutionary approach



Nutanix Purpose Build for Virtualization

Traditional Infrastructure



Web-Scale Converged Infrastructure



Q4
Dell XC Web-Scale
Converged
Appliance

✓ Compute ✓ Storage

- Software-based...
- High performance
 - Linear scalability
 - VM-centric design



Predictable Economics and Growth



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- Google like unlimited scale-out
- In-line Deduplication & Compression
- Hypervisor agnostic (VMW,MS,KVM)
- Single pane of glass for virtualization
- No Fork-lift upgrades
- No downtimes
- Build in Tiering
- T0 Server side storage



Dell SDS Strategy: Differentiated partner solutions



NUTANIX



Storage Spaces

nexenta

vmware V SAN

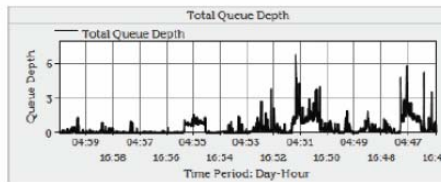
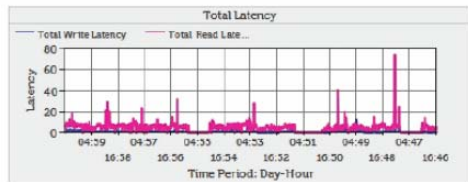


How to choose the right storage ?

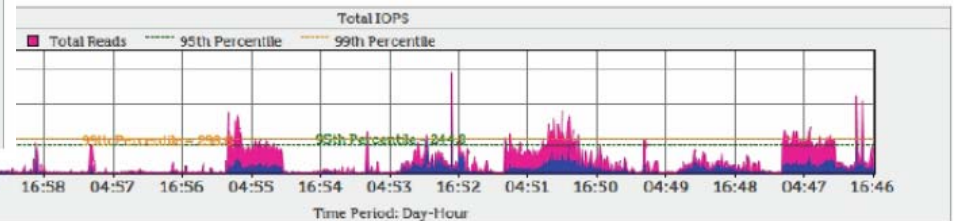
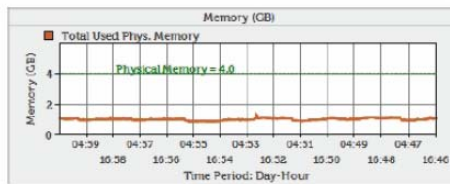
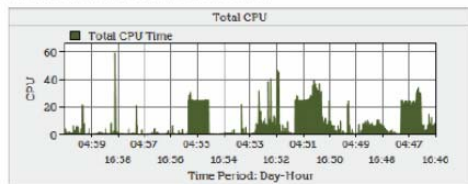
DPACK

Individual Server Report: [REDACTED]	
Operating System:	Microsoft(R) Windows(R) Server 2003, Standard Edition Service Pack 2
Time Recorded:	6 Day(s) 23 Hour(s) 56 Minute(s), 10/27/2011 - 11/3/2011
Collector Version:	0.9.2.201797

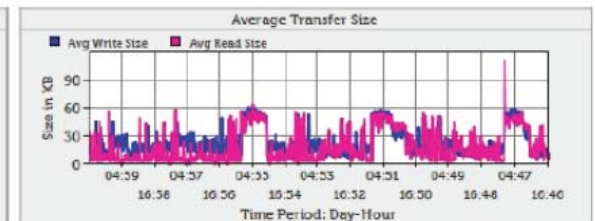
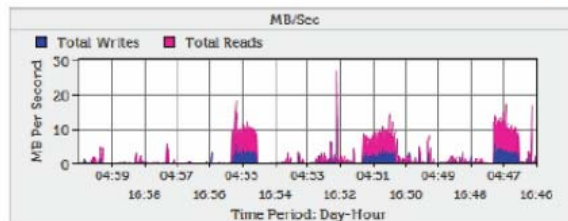
Output Summary:		Output Summary:	
Throughput	27.0 MB/sec Peak	Average IO size	Read:34.9 KB / Write:37.1 KB
IOPS	248.0 at 95%, 329.3 at 99% and 862.0 at peak	Latency	74.7 ms Reads and 12.5 ms Writes
Read/Write Ratio	62% Reads / 38% Writes	Peak Queue Depth	6.7
Local Capacity	1023.7 GBs	Peak/Min CPU	59% / 0%
Free Capacity	416.3 GBs Free	Peak/Min Memory	3.1 GB / 2.6 GB
Used Capacity	607.4 GBs Used	Peak/Min Memory In Use	1.4 GB / 0.9 GB



Information Related to the Server



- Free of charge
- Non invasive
- Partner friendly
- Consultative sales leadership



Dell Software Defined Networking

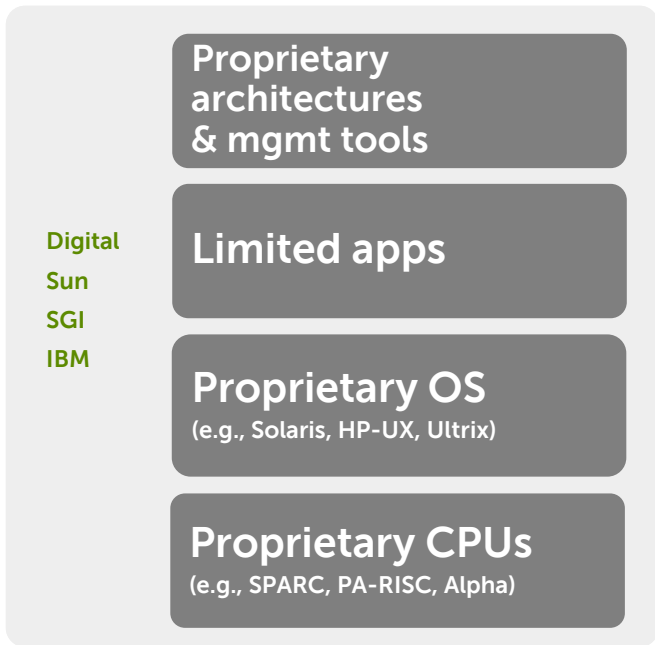
Dell Open Networking



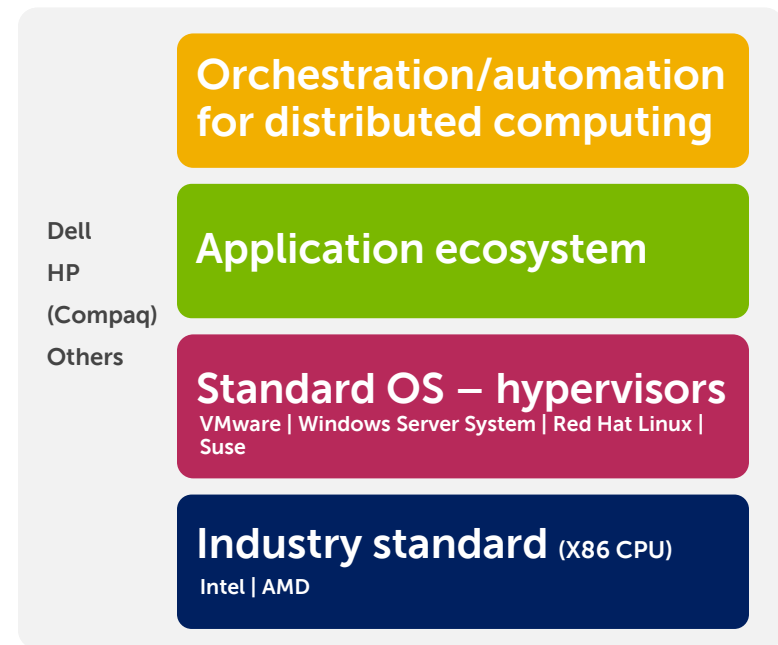
Compute paradigm **shift** over last 20 years

The dis-aggregated server model changed the landscape

Mainframe /proprietary model



x86 servers model today



Networking market **vs.** server & storage market

Open Networking will benefit customers ...

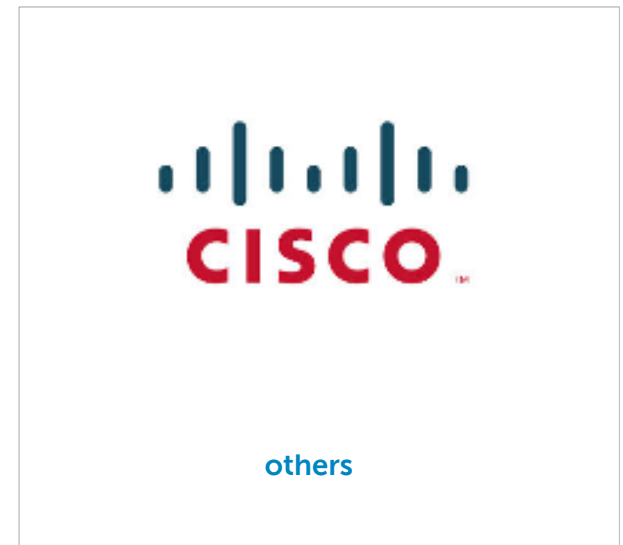
Servers



Storage



Networking

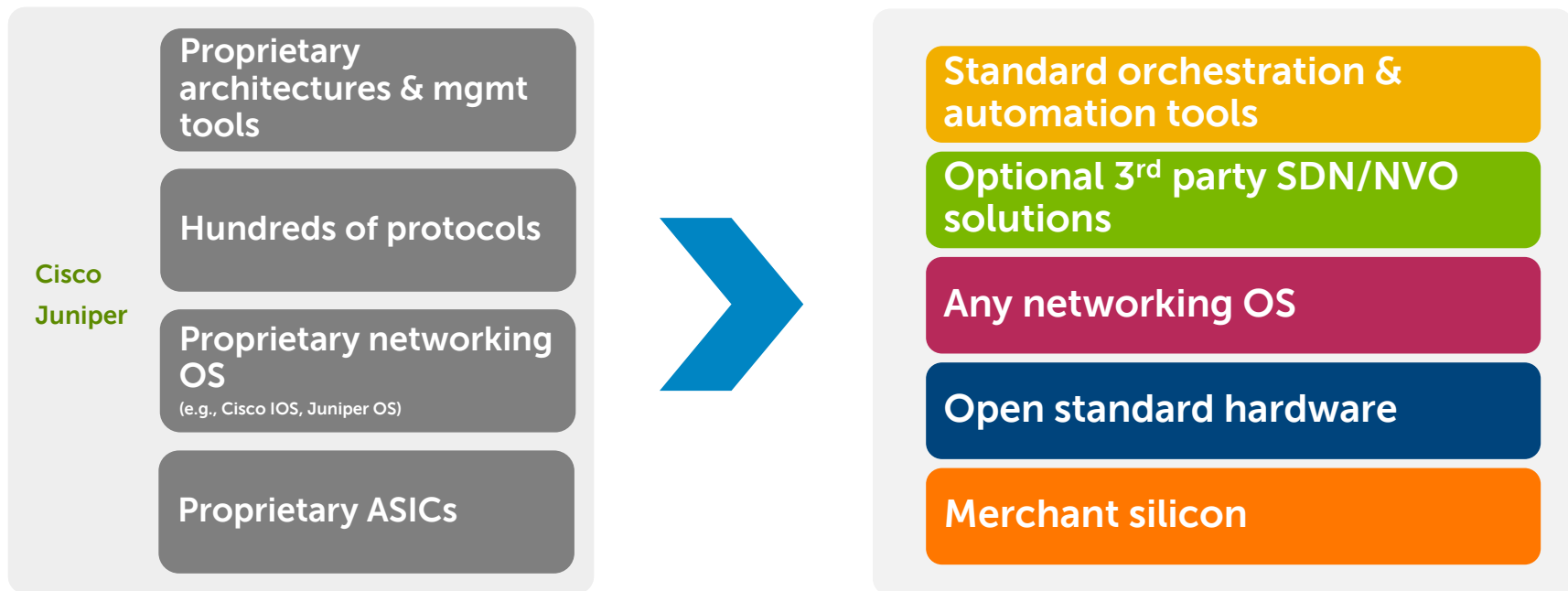


Open solutions foster innovation, a competitive marketplace and choice for customers



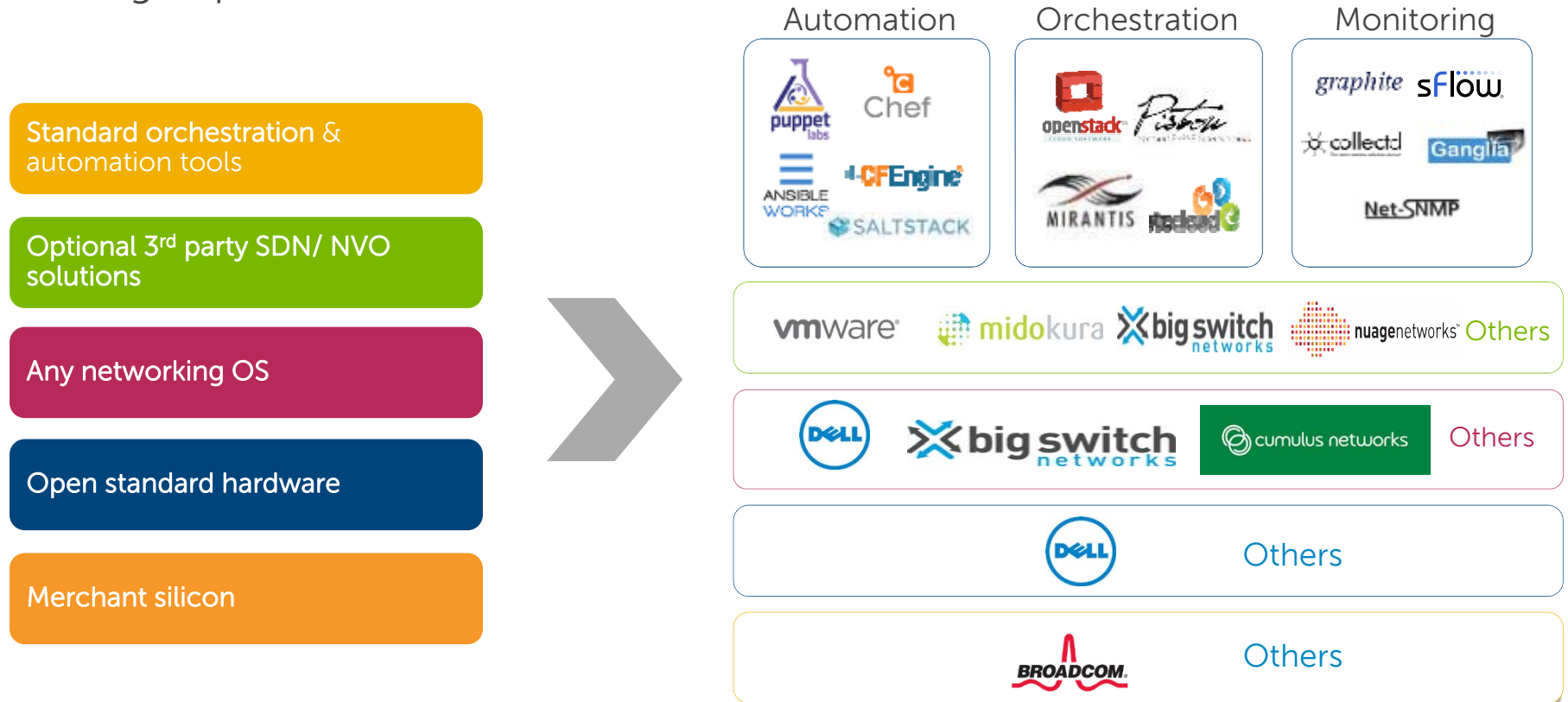
Future: shifting the paradigm in **layer 2-3** switching

Opportunity for flexible, scalable, open, agile systems for rapid app deployment



Dell enables the **Open Networking Ecosystem**

Leverage open, innovative and best-of-breed solutions

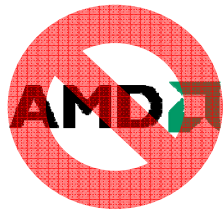


PowerEdge 13. Generation

Software Defined Ready

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13 Reasons for the PowerEdge 13th Generation

Adapt to your evolving workloads and data center



Next
Generation
Processors

Up to 30% more
performance





Haswell-EP & Grantley Platform Highlights

	Xeon E5-2600 v2 "Ivy Bridge-EP"	Xeon E5-2600 v3 "Haswell-EP"
Cores	Up to 12 Cores	Up to 18 Cores
AVX Support	AVX 1.0 8 DP Flops/Clock	AVX 2.0 16 DP Flops/Clock
Memory	4xDDR3 channels 1866 (1DPC), 1600, 1333, 1033	4xDDR4 channels 2133 (1DPC), 1866 (2DPC), 1600, 1333
QPI	8.0 GT/s	9.6 GT/s
TDP	Up to 130W Server; 150W Workstation	Up to 145W Server; 160W Workstation
Power Management	Same P-states for all cores Same core & uncore frequency	Per-core P-states; Independent uncore frequency scaling

Additional HSW-EP Features

- Virtualization Features
- Security Features

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DDR4 Memory

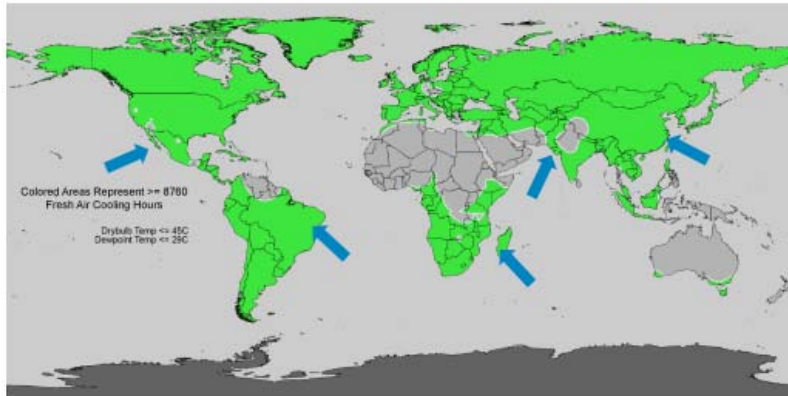
- 20% less power
 - DDR3 (1.5V) → DDR4 (1.2V)
- Faster memory frequencies
- Initially ~30% more expensive than DDR3

Key Platform Technologies

- P3700 Series SSDs:
"Fultondale" – PCIe* NVMe*
SSDs
- Networking: Fortville – support
PCIe3.0 for 10GbE/40GbE

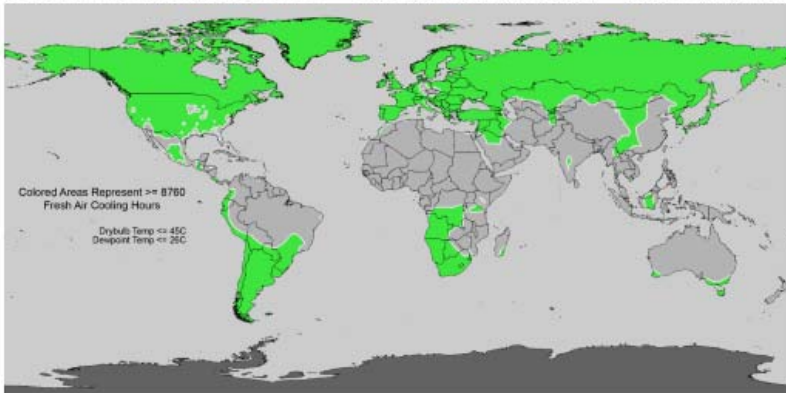
Fresh Air 2.0

Fresh Air 2.0 (C40/E45 – Continuous 40C / 45C Excursion Operation)



	Continuous Operation		≤1% of operational hours
Temperature	5 to 40°C		-5* to 5 and 40 to 45°C
Humidity	5% to 85%RH with 29°C dew point		5 to 90%RH with 29°C dew point

Fresh Air 1.0 (C35/E45 – Continuous 35C / 45C Excursion Operation)



	Continuous Operation	≤10% of operational hours	≤1% of operational hours
Temperature	10 to 35°C	5 to 10°C and 35 to 40°C	-5* to 5 and 40 to 45°C
Humidity	10% to 80%RH with 26°C dew point		85 to 90%RH with 26°C dew point



What our customers are saying...

"We decided to build a new datacenter based on free cooling and green energy, and the next generation of Dell PowerEdge technologies will offer us huge savings on air condition and power consumption."

- **Martin Zidek**, CTO, Master Internet



Dell PowerEdge RAID Controller (PERC9)

Drive the storage performance of your applications



PERC9: TOP – 5 Features

- 12Gbps SAS Capable
- Doubling of performance (IOPs): PERC8-375K →PERC9-750K
- Doubling of Cache
- Dual Mode capable – RAID & Pass-Thru
- Support for SAS Zoning – Dual PERCs at the server

Dell PowerEdge RAID controllers provide the value and performance required for all workloads

- S130 Software RAID
 - Now supports up to 8 hot plug SATA drives
- Value/Entry – H330
- Value Performance – H730
- High Performance – H730P & H830 (External)
 - Unsurpassed Performance- High IOPS and Low Latency
 - Workload Profiling
 - 4K native HDD support
 - End Device Frame Buffering Support
 - T-10 DIF – Improved end-to-end data protection with 8-byte Data Integrity Field addition on HDDs 9with controller support)
 - FIPS SED (Security) support
 - Comprehensive Embedded Management (Monitoring & Configuring)



What our customers are saying...

"With the next generation of PowerEdge servers, ... We saw an immediate boost of up to 100 percent in IOPS."

- **Pavel Soukup**, Head of IT, AVG



"The upgraded CPU, memory, and PERC capabilities will be very beneficial for our virtualization and Big Data platforms, and will help support our business-critical applications that have very data intensive workloads. This, combined with the virtualized storage capabilities in the box, will streamline our performance, leading to improved productivity and user satisfaction."

- **Xiao Ma**, System Integration Division,
Shanghai Zhejiang University Tuling Group Co.



iDRAC8 With Lifecycle Controller Features Embedded Automation

New Built-in Intelligence Automates Tedious Server Maintenance Tasks

40-60% Faster time to boot a server !

Template-based Server Provisioning

- Capture, define, edit and deploy/replicate server/chassis HW configuration settings
- **Benefits**
 - Simple and fast deployment/replication.
 - Setup once and replicate to many.

Automated OS Installation

- Automate scripted OS installation from a bootable ISO through iDRAC
- Automate OS deployment after HW preparation.
- **Benefits**
 - End to end deployment including prepare HW and OS deployment.
 - Setup once and auto deploy

"ZeroTouch" Deployment

- Dell servers are discovered and auto-configured over the network from XML files stored on network shares
- **Benefits**
 - No need for manual configuration, reducing deployment time and entry errors
 - Rack, cable and walk away! No special technician training required.

Control Baseline and Prevent

Complete Agent-free update for

Automated Support

Agent-free, Real-time RAID Mgmt

Secure Boot (uEFI)

13G: Protect your servers from Prying

OOB Performance Monitoring

iDRAC8 provides customers a real-time view of server performance w/o agents



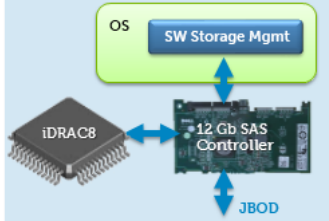
Agent-free, Real-time RAID Mgmt

Allows customers to manage PERC9 RAID Controller from iDRAC8 w/o OMSS agent

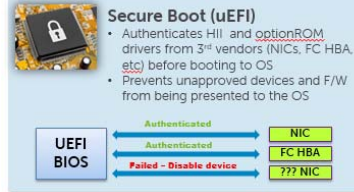


Agent-free, Real-time RAID Mgmt

Allows monitor controller devices OOB via iDRAC8



PERC F/W: Verified



13G: System er Retirement

configuration data (iDRAC, LC, and HDD user data (RTS+)



What our customers are saying...

*"In a 99.999 environment, you cannot have downtime longer than 5 minutes per year, which is very challenging to achieve when just rebooting a server takes more than 30 minutes!
Dell's next generation server feature set provides up to 60% shorter boot time than the previous generation.
This will improve our SLAs, and save administration time spent on regular maintenance."*

- **Martin Zidek**, CTO, Master Internet



What our customers are saying...

"Our IT HQ is located in the Czech republic, but our server deployments are all over the world, and this makes it challenging for us to keep up with our growing business.

With the 13th generation of PowerEdge servers and their new iDRAC and LifeCycle controller automated deployment features, we will be able to reduce deployment manpower by 50 percent and speed up deployment times!"

- **Pavel Soukup**, Head of IT, AVG



What was the 21st Century feature of PowerEdge 12G Servers ?

Scan this code!
And get immediate access to
extensive system information
and detailed how-to videos
using your smartphone.



What our customers are saying...

"With the NFC active bezel, Dell will revolutionize the way IT does physical asset management in the future! Our expectations are that we will have up to 80 percent faster asset inventory inspections on site."

- **Pavel Soukup**, Head of IT, AVG



Dell PowerEdge
13th generation:
Future-Ready IT



One more thing ...

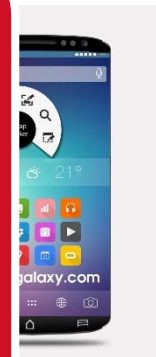
Microsoft
Windows Server 2003

Windows Server 2012 R2

Summer 2015 Windows Server
2003 will go End Of Life

Customer Data will be at risc

TIME TO ACT IS NOW !



Leadership that **benefits every customer**

Making powerful technology **more accessible and affordable**



Servers
#1

server provider in
North America,
Latin America,
China



Storage
#1

provider of iSCSI
storage solutions
and TB Shipped



Data center
#1

provider of
virtualized
data center
infrastructure



Search
4 of 5

top search
engines
worldwide
powered by Dell



Support
#1

in enterprise
services support



Cloud
#1

provider of cloud
infrastructure—
over 1M servers
shipped



Software
90%

of Fortune 1000
companies use
Dell software



Social
3 of 4

top social media
websites are
powered by Dell



Customers should
not worry about
building the ship,
but about sailing
to the right
destination

Redefining the economics of Enterprise IT





Děkuji za
pozornost

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Dell Solutions Tour 2014

Share ideas, discuss trends and discover
IT solutions of tomorrow.

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