

Virtualization & The Changing Datacenter Storage Profile

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Virtualization Is On A Roll

Server virtualization is becoming a mainstream technology among IT buyers

- Cost saving from server consolidation
- Rapid provisioning of new servers
 - New apps in hours/days not weeks/months

IT professionals are very bullish on future use

- People are saying this is a great idea
- Virtualize where ever possible

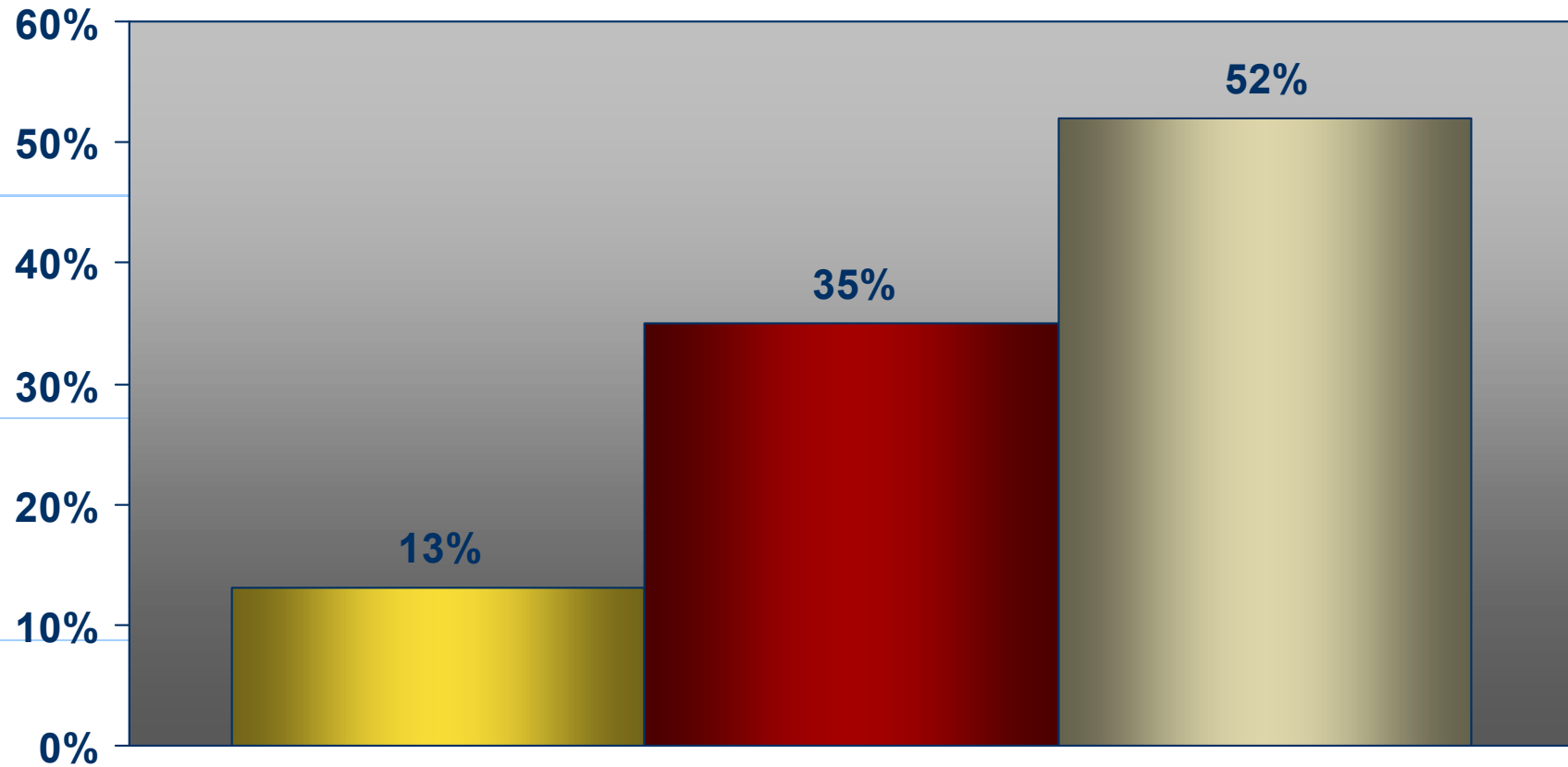
Server virtualization is impacting storage

- Strong server & storage virtualization correlation
- Brand new capacity & connectivity implications



European Server Virtualization

Adoption of Virtualization by Installation Period, 2008

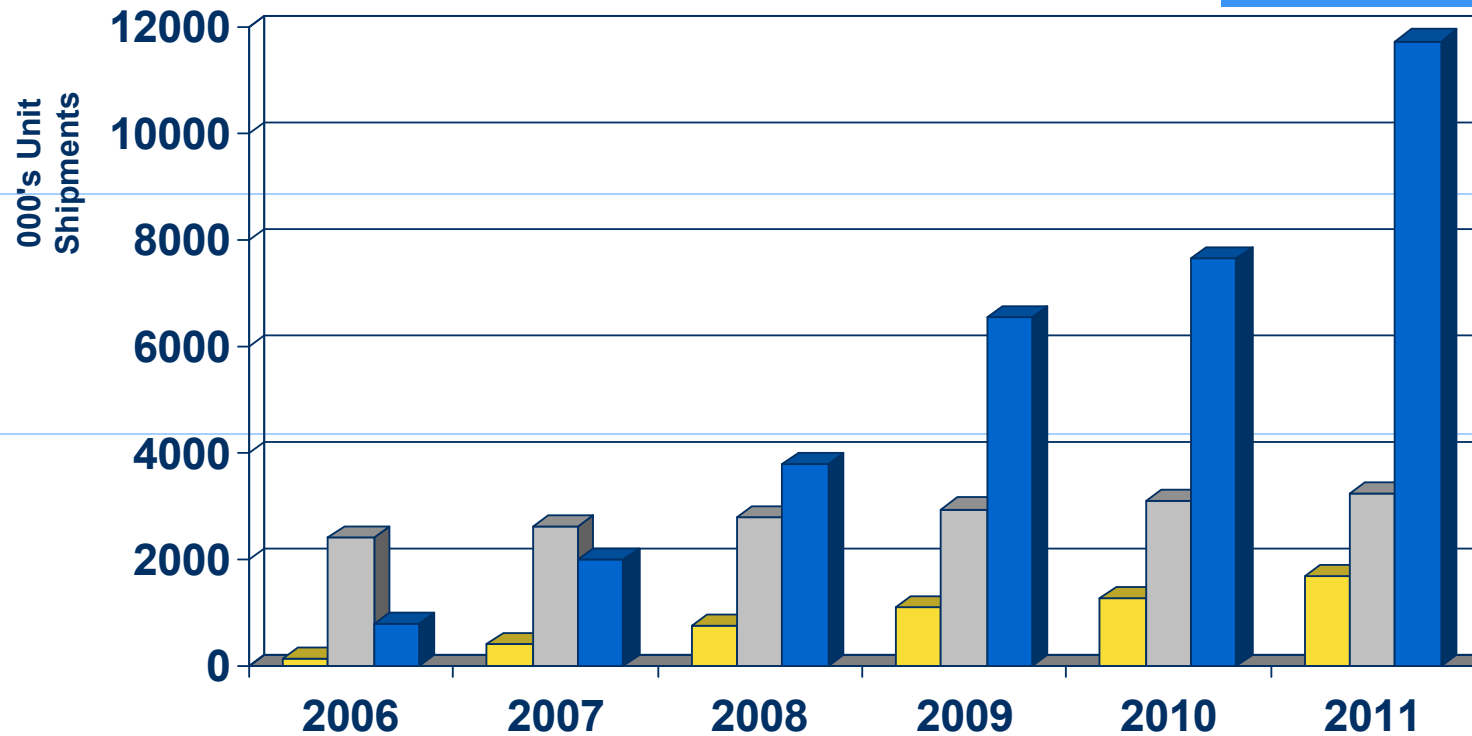
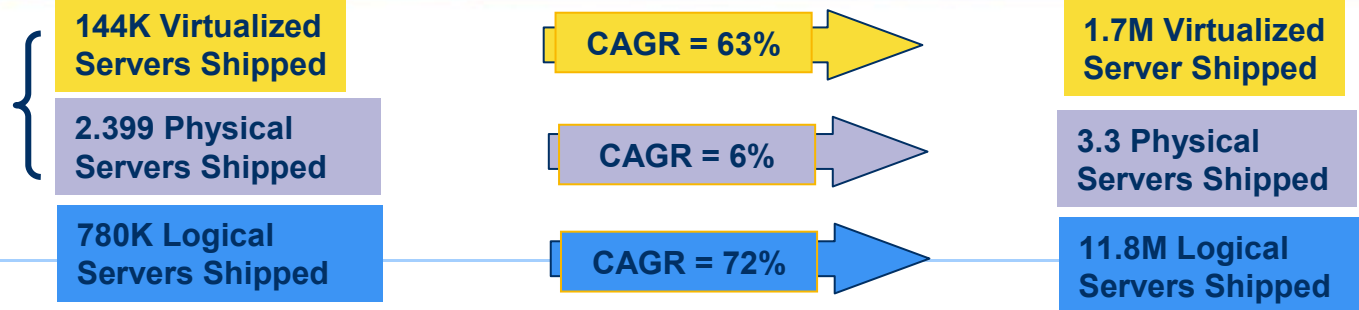


- Virtualised Installed Base**
- Servers purchased in past 12 months virtualised**
- Planned server purchase in next 12 months to be virtualised**

Source: IDC's 2008 European Server Virtualization Survey

n = 301

Western Europe Physical, Virtualized and Logical Server Shipment Forecast, 2006-2011

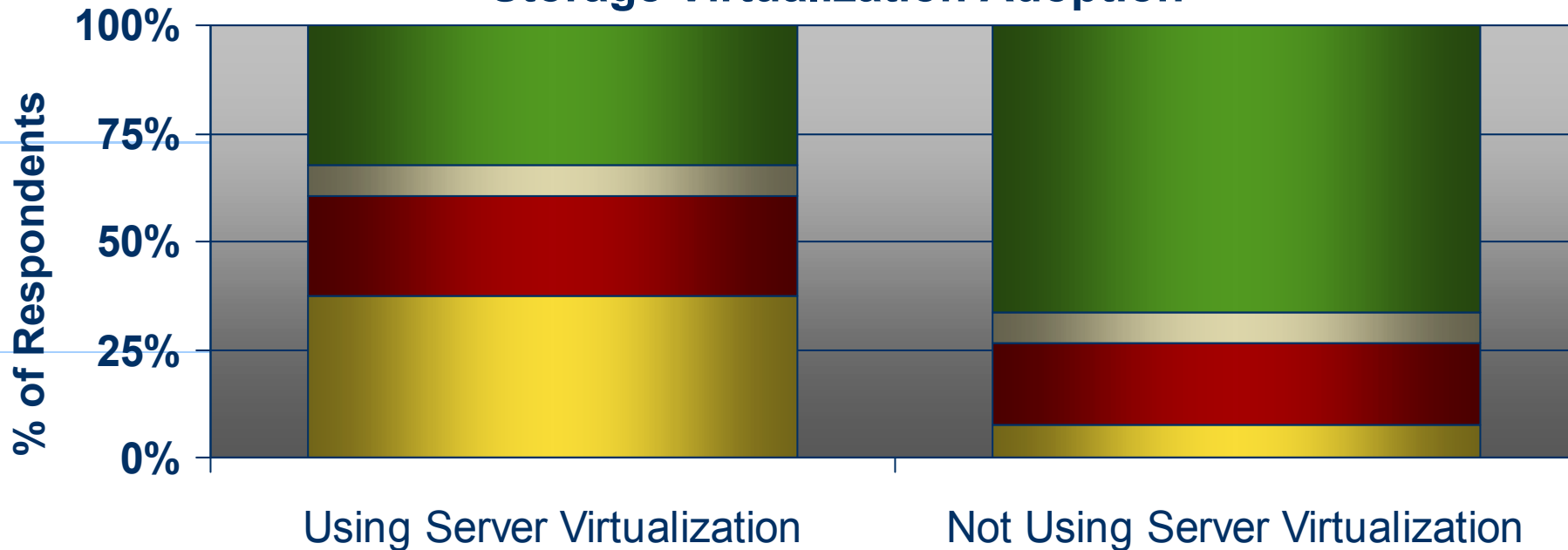


■ Virtualized Physical Servers
 ■ Physical Servers
 ■ Logical Servers

Correlations between Server & Storage Virtualization



Storage Virtualization Adoption



- Not Currently Using & Don't Plan to Use in Next Year
- Evaluated But Decided Not to Use
- Currently Evaluating Stg. Virtualization
- Currently Using Stg. Virtualization

N: 502

Q. Does your organization use or plan to use storage Virtualization products?

Server Virtualization and Storage: Three Numbers to Remember



-50% = Number of servers in the Data Center
(10% unchanged, 90% consolidated)

2X = Increase in SAN-connected servers

+10% = Increase in networked storage capacity

(Apps being consolidated often not the big storage consumers)

Real World Impact of Server Virtualization?



You're providing centralized/shared storage support for servers that were previously off your radar (distributed DAS)

No longer 1 server = 1 application (more like 1:4 or 1:8 or more)

- This changes the dynamic for SAN connectivity
- Move from 4Gbs to 8Gb important but alone is not enough
 - QoS must also be a focus

This spurs need for storage solutions that support low costs and automated operations

- Server virtualization is the killer app for iSCSI
- Common management tools can help
- Block-level virtualization solutions that deliver automated and “thin provisioning” services

Block-level Storage Virtualization: Three Numbers to Remember



>40% = Improvement in effective capacity use
(not including any improvements from thin provisioning)

>30% = Reduction in migration, replication, back-up times

>50% = Decrease in server/storage administration times

- High end arrays and applications were always tightly controlled, but the new virtualized servers are the wild west
 - It's these midrange arrays that are now benefiting the most here

Continued expansion in block-level virtualization

- Key component in battle to minimize virtual server sprawl impact
 - Minimizing over-provisioning of capacity become especially valuable when your virtual server deployments are growing
- Clear boost to asset utilization
 - Data Dedupe & efficient copy services for images
 - Thin-provisioning
- Drives use of iSCSI-based solutions virtualized solutions
 - >50% of iSCSI-attached arrays connecting to virtualized servers

The Changing Data Profile

Market Shift in Types of Data Created

Structured, transaction-oriented data accounts for declining portion of storage needs

Explosion in fixed content data

- Secondary storage is the new primary storage
- Capacity over performance

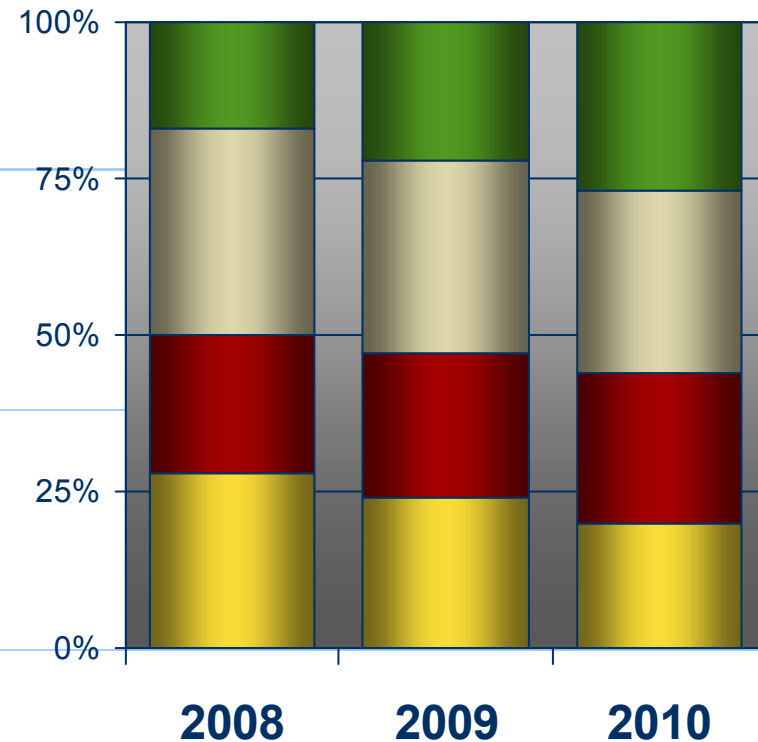
Compliance and analysis drive surge in replication

- Disk-based recovery
- Business analytics

Web 2.0 & hosting companies building large “depots” for content access and distribution

- “Content Depots” require Petabyte scale

Capacity by Data Type



- Content Depots
- Replicated Data
- Fixed Content
- Traditional Business Data

Secondary storage is fast becoming the primary disk storage asset

- This is true for capacity, spending & management burden
- 84% of European storage managers surveyed said they use disk for backup somewhere in their organization
- SATA accounts for 35%-40% of new array capacity shipped
 - 75% of new capacity in 2012

Content depots playing a pivotal role in new technology adoption

- RAID vs. Clustered Storage with Multiple Active Copies (C-MAC?)
- 10Gbps Ethernet
- Data centre built on more standard, modular components
- Serverization of storage starts here, but moves fast into the enterprise

Server virtualization is on a role and is clearly impacting storage

- When counting virtual servers, number of servers is actually accelerating (i.e., server sprawl)
- There is a strong correlation between server & storage virtualization adoption

Block-level storage virtualization can help control server & storage administrative burdens

Challenges are shifting from supporting traditional transactional applications into dealing with a new realm of data types

“Content depots” are playing a pivotal role in new technology adoption

Questions?



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