

Next Generation Backup

Why EMC²? Why DeDuplication?

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Ongoing Market Transformation



Today's Data Protection Reality



Pressure to meet the changing needs of the business

- Data growth is immense
- Companies want more data protected
- Time required for backup is expanding
- Backup hampered by tape's unreliability and poor performance
- Virtual machines pose unique backup challenges
- Increasing volume of data at remote offices
- More data stored locally on desktops and laptops

The Usual Answers



- Backup to tape, or stage to disk, and then archive to tape
- Manually move tapes offsite for disaster recovery

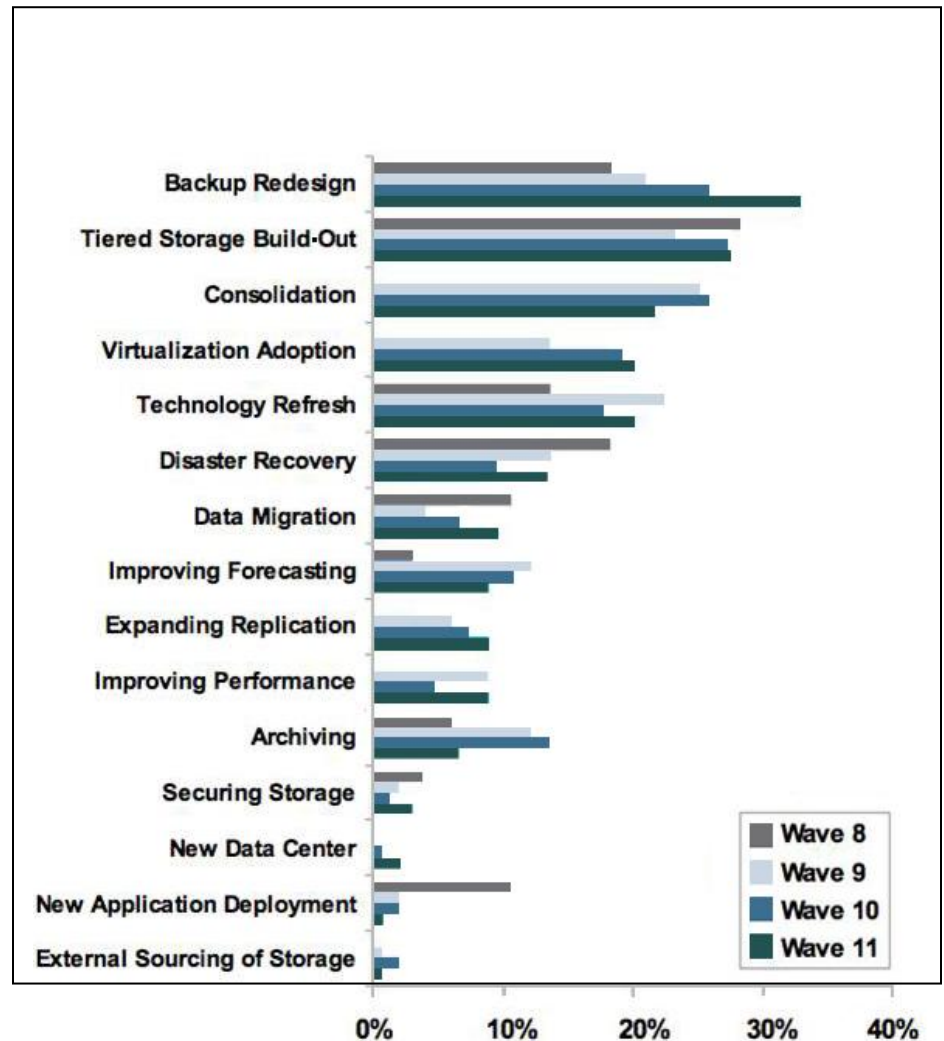
Traditional backup and recovery

- Inefficient and slow, ~200% of primary data moved across the network weekly
- Tedious, multi-step recovery process
- Risks the loss or theft of unencrypted tapes in transit
- Data is difficult to recover and leverage

Backup Redesign Hot Spots

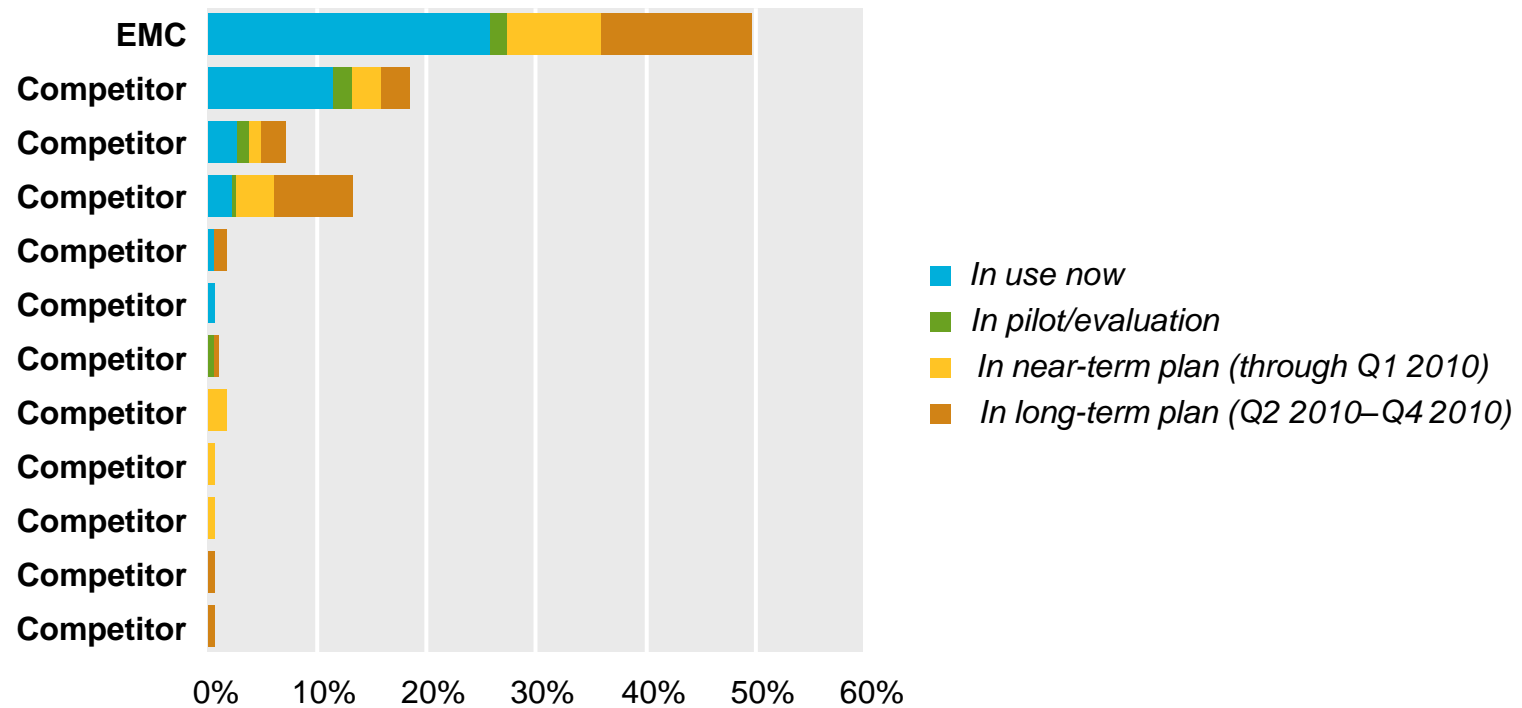
What are your top storage initiatives?

- Secular shift from tape-centric to disk / network-centric approaches
- Enabler: Massive data deduplication and compression techniques
- Unabating growth of enterprise data overwhelms legacy infrastructure
- Server virtualization another catalyst



(10/31/08): Large Enterprise Sample. Wave 8 n=131, Wave 9 n=147, Wave 10 n=147, Wave 11 n=134.
* Note that due to multiple responses per interview, total exceeds 100%

Backup Data Reduction Deduplication Projects

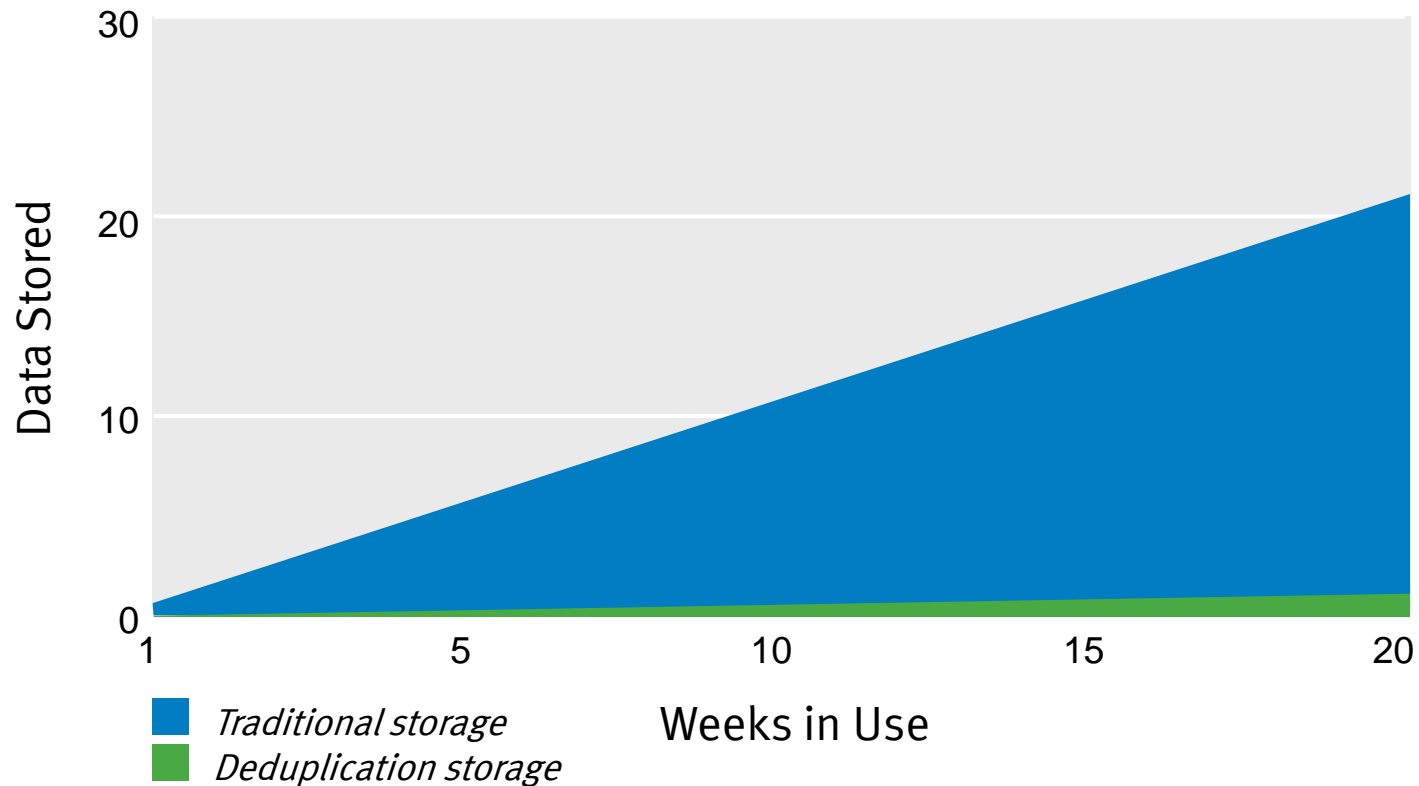


Source: TheInfoPro Wave 13 Storage Study (Q4 2009), January 2010. F1000 Sample: left and top right charts: n=183; lower right chart: n=76; lower right chart (row at bottom within lower right chart): n=37.

Deduplication Dramatically Reduces Storage Capacity

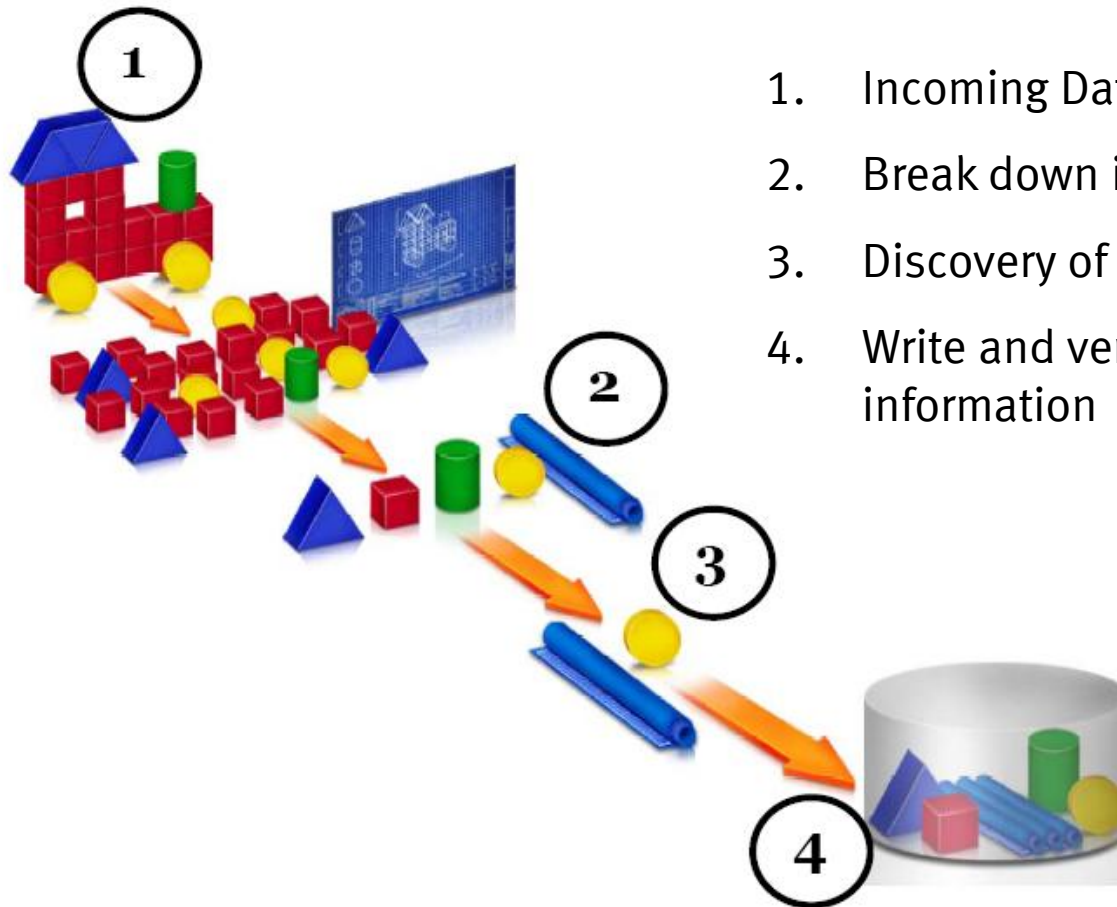
Deduplication

10–30 times less data stored versus fulls + incrementals with typical retention policies



Data Deduplication

How It Works?



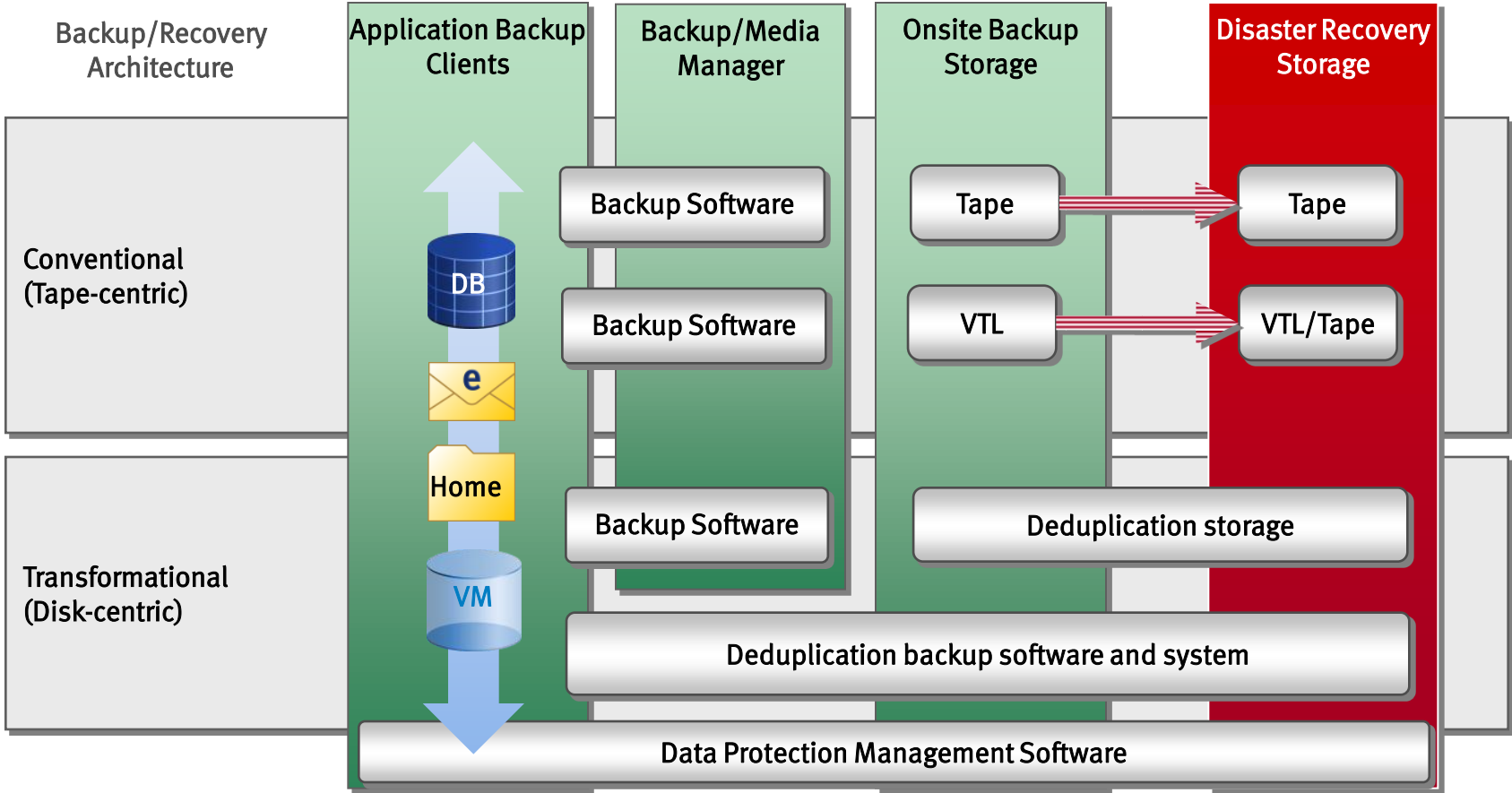
1. Incoming Data
2. Break down in variable segments (4-12KB)
3. Discovery of new segments
4. Write and verify index & segment information

Quiz

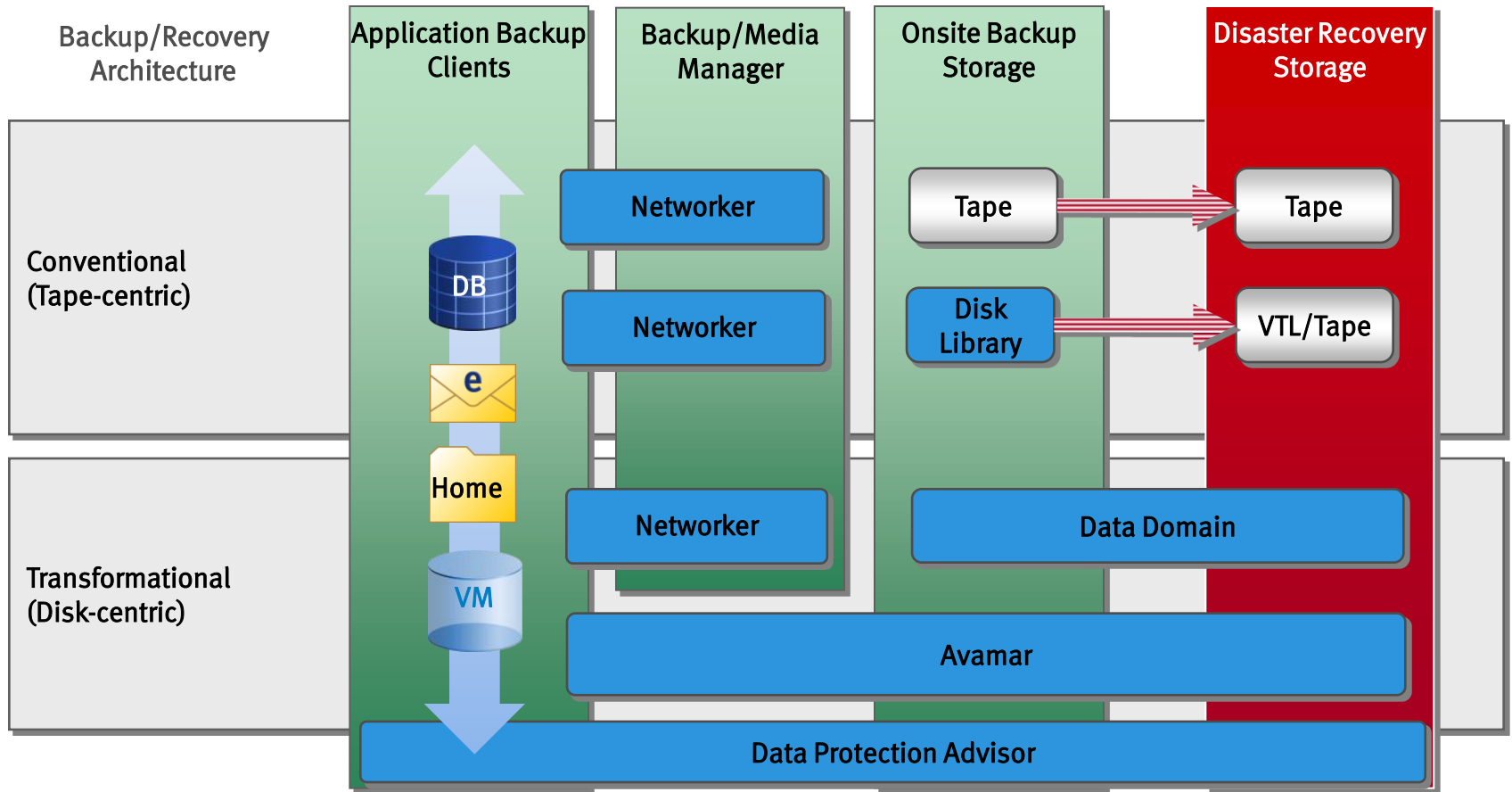
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**What does 8% say to you?
WW Dedupe customer
coverage in 2009**

Backup & Recovery Architectures Are In Transition From Tape To Disk



Backup & Recovery Architectures Are In Transition From Tape To Disk



Future Is In Data Deduplication

Avamar

Integrated backup solution with source deduplication

Data Domain

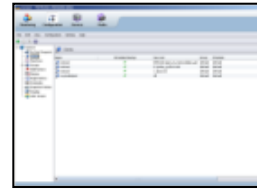
Deduplication storage systems

Disk Library

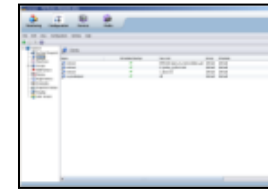
VTL

Backup Software

Avamar



NetWorker or 3rd Party

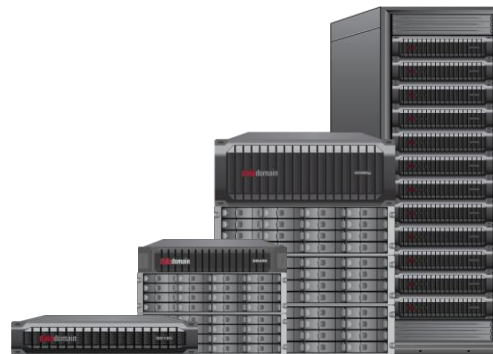


NetWorker or 3rd Party

Storage System



Avamar



Data Domain



Disk Library

In Backup: Source Or Target?

	Source	Target
Key Advantages	<ul style="list-style-type: none"> • Shrink backup windows; logical full backups in leading implementations • Minimize backup bandwidth 	<ul style="list-style-type: none"> • Minimizes software deployment time, risk, and disruption • Maintain backup software flexibility
Key Considerations	<ul style="list-style-type: none"> • Maturity, packaging and architecture vary widely • Partially replaces existing backup software • Not ideal for very large databases or applications with high change rates 	<ul style="list-style-type: none"> • Maturity, packaging and architecture vary widely • Does not improve backup software or ingest networks
Both	<ul style="list-style-type: none"> • Shift backup & DR from tape to disks and networks • Enable longer retention, immediate restore from disk • Can be required across spectrum of enterprise needs 	

Avamar Transforms Backup And Recovery



- Global data deduplication defuses the explosion of backup data
 - Fast, daily full backups through existing networks
 - Backup disk storage reduced by up to 50 times
- Alters the fundamental economics of disk versus tape
 - Accelerate shift to disk as primary medium for backup
- Key element of EMC's next-generation backup portfolio

Why Data Domain?



- Less disk to resource, less to manage
 - CPU-centric deduplication
 - Inline
 - Green
- Simple, mature, and flexible
 - Simple, mature appliance
 - Nearline tier: any fabric, any software, backup or nearline applications
- Resilience and disaster recovery
 - Storage of last resort
 - Cross-site global compression: data center or remote office

With Deduplication You Can...



Retain longer

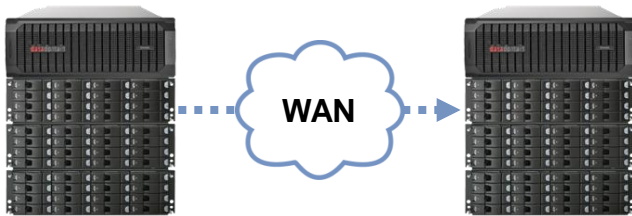
Keep backups onsite longer with less disk for fast, reliable restores, and eliminate the use of tape for operational recovery

Replicate smarter

Move only deduplicated data over existing networks with up to 99% bandwidth efficiency for cost-effective disaster recovery

Recover reliably

Continuous fault detection and self-healing ensure data recoverability to meet service level agreements



Quiz

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**What does 89% say to
you?**

**WW Dedupe customer
coverage in 2012**

Thank you

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deduped