

Storage Decisions

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## Next Generation Backup Hardware RFP

**Arun Taneja**  
Founder, Taneja Group

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## Agenda

- The State of Disk Backup
- Backup Solution Taxonomy
- **The RFP Process: Defining Strategic Objectives Key Evaluation Criteria by Solution Type**
- Final Thoughts

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## What's Going On In Backup?

- Continued data explosion
- Disappearing backup windows
- Poor metrics and visibility
- Increased pressure to hit RTO/RPO goals
- New external Compliance requirements
- Competing new technology choices

Existing data protection paradigm is at the breaking point!



**We Feel Your Pain!**

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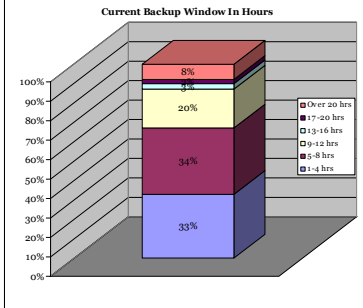
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## What Backup Window?

*"Hitting backup windows is by far the biggest challenge. As we grow our disk capacity 25% every year...the capability of backing up to tape does not keep pace. We have to change."*

Data Center Director  
Information Services



Hours	Percentage
1-4 hrs	33%
5-8 hrs	34%
9-12 hrs	20%
13-16 hrs	9%
17-20 hrs	8%
Over 20 hrs	3%

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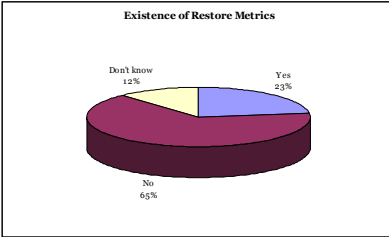
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## Disk: Excuse To Create Restore Metrics!

- Most users lack ability and resources to collect detailed restore metrics.
- Disk-based backup solutions can make it easier to manage and measure restore success.



Response	Percentage
No	65%
Yes	23%
Don't know	12%

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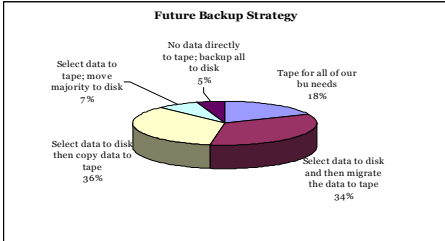
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## Tape: It's Still Your Friend!

**Users tell us that tape remains entrenched and will co-exist with disk.**



Strategy	Percentage
Select data to disk then copy data to tape	36%
Select data to disk and then migrate the data to tape	34%
Tape for all of our bu needs	18%
No data directly to tape; backup all to disk	5%
Select data to tape; move majority to disk	7%

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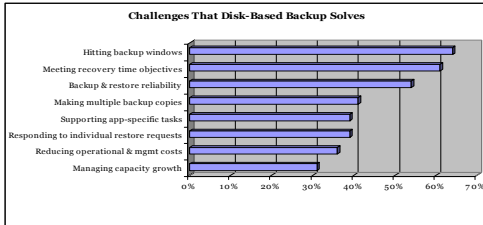
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## Is Disk Your Silver Bullet?

Disk is expected to solve the 'meat and potatoes' of data protection according to your peers:



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## Disk Backup Solutions Taxonomy

53% of users surveyed will deploy or plan to deploy disk in 2004. But how?

3 Major types of Disk-based Backup Solutions:

1. Secondary "Disk as Disk" Platforms
2. Virtual Tape Appliances
3. Continuous Backup Appliance



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## "Disk as Disk" Platforms

### Disk as Disk Approach #1: ATA arrays

- Low-cost storage platforms aimed specifically at secondary storage environments
- Flexible, modular capacity deployments
- Existing backup application is used to back up data in disk format.

Representative vendors: EMC CLARiiON, LSI, Nexsan

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## "Disk as Disk" Platforms

### ***Disk as Disk Approach #2: Data Reduction Platforms***

- Dedicated ATA platforms reduce ratio of primary to secondary data.
- May or may not integrate with existing backup software
- Leverage data factoring and/or CAS technologies to eliminate data redundancy

**Representative vendors:** Avamar, DataDomain

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## Virtual Tape Solutions

- Solutions that leverage software and hardware to emulate or virtualize traditional tape backup and restore processes on a disk-based storage platform
- Transparent to the backup application
- Non-disruptive to the existing backup environment

**Representative vendors:** ADIC, Diligent, Quantum, NearTek, Sepaton

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## Continuous Backup Appliances

- Solutions that provide the ability to roll back to ANY previous time in the stored data's history to stage a recovery
- Focused on protecting databases and other mission-critical applications
- Can require application level integration

**Representative vendors:** Revivio, StorageTek (EchoView)

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## The Merciless PICK RFP Process



- **P**rioritize your top operational objectives for data protection.
- **I**dentify solutions in one or more specific sub-segments based on your priorities and targeted applications.
- **C**ompare specific vendor offerings against key functional and economic requirements.
- **K**ill every vendor that doesn't meet your functional and economic hurdles!

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## Operational Objectives: What Challenges Matter?

Frame data protection pains in context of application and business requirements. What's the challenge?

- Backup reliability?
- Recovery speed?
- Window availability?
- Restore requests?
- Application integration?
- Media management?
- Where is your data protection budget?
  - Evaluate from a 24-36 month growth profile




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## Operational Objectives: Where and When To Go Disk?



- **Prioritize target application data based on:**
  - Level of mission-criticality to the business
  - Relative cost of data loss
  - Growth rates
  - Effectiveness of existing approaches
- **Consider the future role of tape in your backup infrastructure**
  - Maintain the same tape architecture for some applications?
  - Migrating away from tape?
  - Shift to tape for long-term archival only?

Be tough! Disk backup rarely justified across all applications!

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Identify Your Potential Solution		
	Benefits	Considerations
Disk as Disk Platforms	Improved backup/ restore performance and reliability	<ul style="list-style-type: none"> <li>● May require additional backup application modules</li> <li>● Management of N arrays</li> <li>● Backup policies</li> <li>● Disruption Tolerance</li> </ul>
Virtual Tape	<ul style="list-style-type: none"> <li>● Non-disruptive</li> <li>● Improves backup/ restore performance and reliability</li> </ul>	<ul style="list-style-type: none"> <li>● Closed architectures</li> <li>● Tape library/format support</li> <li>● Translation capabilities</li> </ul>
Continuous Backup	<ul style="list-style-type: none"> <li>● Any point in time recovery</li> </ul>	<ul style="list-style-type: none"> <li>● Targeted to mission-critical apps</li> <li>● "Crash-consistent"</li> <li>● Disruptive</li> </ul>

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<h3>Key Evaluation Criteria: Product Deployment</h3> <ul style="list-style-type: none"> <li>● <b>Where will this solution reside in the infrastructure?</b> <ul style="list-style-type: none"> <li>• New connectivity issues</li> <li>• New software and management integration issues</li> </ul> </li> <li>● <b>How will the solution interoperate with my existing backup infrastructure components?</b> <ul style="list-style-type: none"> <li>• Server platforms</li> <li>• Switches and Directors</li> <li>• Tape units and tape formats</li> <li>• Management frameworks</li> <li>• Remote office considerations</li> </ul> </li> </ul>		

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<h3>Key Evaluation Criteria: Backup Application Support</h3> <ul style="list-style-type: none"> <li>● <b>Ensure that your backup application is compatible with your hardware platform.</b> <ul style="list-style-type: none"> <li>• Will data be backed up in tape or disk format?</li> <li>• Advanced disk backup modules may be required to take full advantage of "Disk as Disk" solutions such as concurrent reads/writes.</li> </ul> </li> <li>● <b>Understand any required changes to existing backup policies and procedures.</b> <ul style="list-style-type: none"> <li>• Job rotation schedule</li> <li>• <u>Data retention</u>: staging and cloning policies</li> <li>• Media management</li> </ul> </li> </ul>		

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### Key Evaluation Criteria: Manageability and Scalability

- **What configuration management and monitoring tools come with the hardware?**
  - Is the device supported by your existing SRM/SAN management products?
  - Verify SNMP, CIM/SMI-S Compliance
- **Think about who will be managing the new device.**
- **How easy is it to scale capacity within, outside of the box?**
- **How do you manage 2,3,4, N platforms?**
- **Long-term: Do you want to combine replication + backup?**

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### Key Evaluation Criteria: Performance

- **Scrutinize vendor performance benchmarks.**
- **Make sure that you are comparing like solutions.**
- **Compare performance improvements versus legacy solutions across all dimensions (worksheet).**
- **Measure against backup windows and RTO.**

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### Key Evaluation Criteria: Data Reduction

- **Primary to secondary data ratio is typically 10:1.**
- **Vendor claims come with fine print! Drill deep.**
- **Compare solutions on their ability to reduce quantity of secondary data.**
- **Understand where in backup process data reduction happens.**



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### Key Evaluation Criteria: System Fault Tolerance

- **Validate that all critical systems components are redundant and hot-swappable:**
  - Power, Fans, Controllers, Drives
- **Ensure RAID Support**

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### Key Evaluation Criteria: Corporate Viability

- **Start-ups are driving innovation, but users should conduct full due diligence before purchasing.**
- **Seek out production customer references.**
- **Understand support and warranty coverage.**
  - Is support delivered by a trusted third-party provider?
- **Does the vendor have partnerships, joint support agreements with other ecosystem players?**
- **Ask start-ups to put code in escrow.**

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### Key Evaluation Criteria: Economic Value

- **Expect to pay some premium for disk based backup versus tape**
- **"TCO" components include:**
  - Direct hardware, software expense
  - Additional expenses incurred resulting from the deployment
  - Backup administration costs
  - Real savings resulting from data reduction technology
  - Soft savings in backup windows, and overall backup reliability and restorability

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## Solution specific "Gotchas!"



- **Secondary "Disk as Disk" platforms:**
  - Disk frag. issues when used with legacy backup app
  - Management of multiple arrays can be cumbersome
- **Virtual tape appliances:**
  - Validate supported tape formats and tape libraries.
  - Proprietary data formats
- **Continuous backup appliances:**
  - "Crash consistent" is not equivalent to being "application consistent".

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## Final Advice to Users

- **Develop a 24-36 month data protection strategy.**
- **Evaluate and deploy disk-based backup hardware incrementally and on an application-specific basis.**
- **Justify economics based on TCO metrics.**
- **There is no such thing as "disruption free"!**

**Contact Us For Assistance!**  
[tanejagroup.com](http://tanejagroup.com)




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## Thank you. Questions?

Mr. Taneja will be available at the Ask-the-Experts booth in the Exhibit Hall:

Monday 4-5 PM  
 Tuesday 4-5 PM

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