
FORRESTER®

FORRESTER®

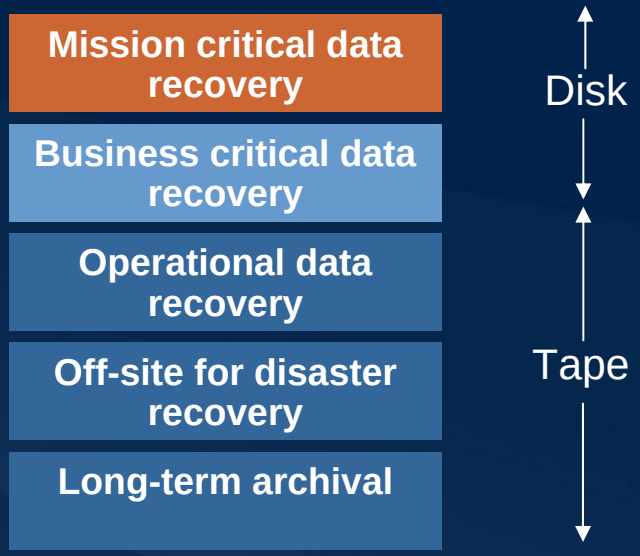
Customer Requirements For Holistic Disk & Tape Protection

Stephanie Balaouras
Senior Analyst
Forrester Research

Summer 2007

The role of disk and tape

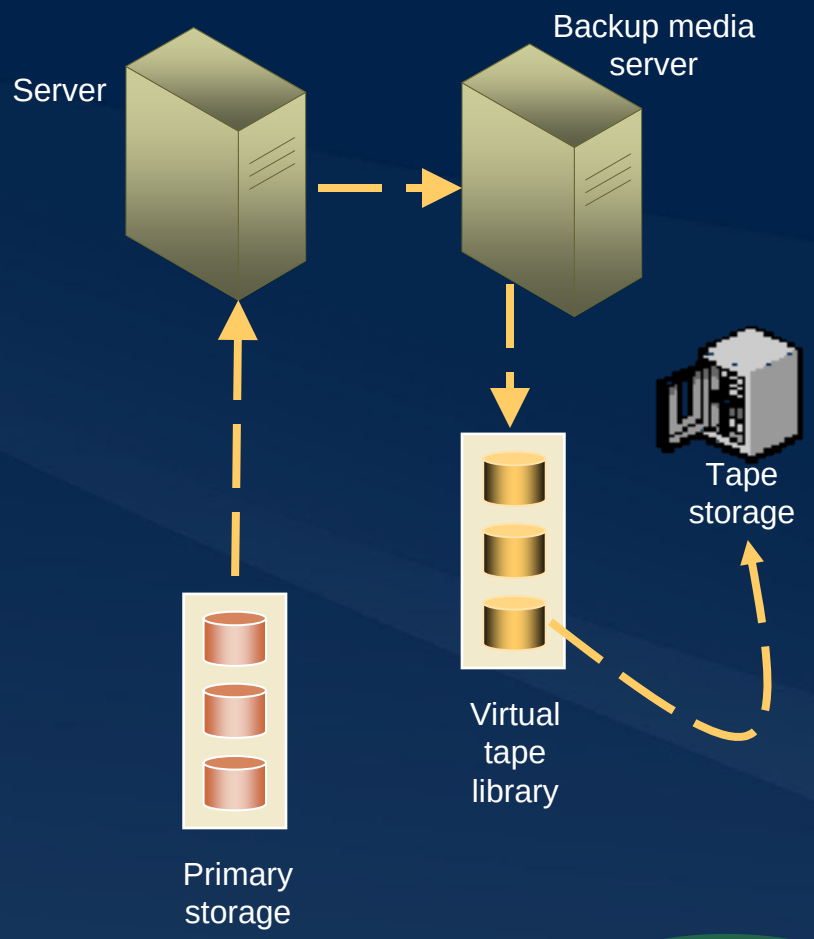
- Disk is used as an interim step before vaulting to tape
  - » Reduces backup window
  - » Improves recovery while data is still stored on disk.
- Tiered approach
  - » Disk is used for mission critical applications
  - » Tape is used for business critical and less critical applications
- Determined by recovery time requirements
- Tape for offsite disaster recovery and long term archiving



FORRESTER®

Benefits of a virtual tape library (VTL)

- Non disruptive
  - » Use tape emulation to integrate into existing backup applications, processes, procedures.
  - » Maximize existing investments in tape technology
- Performance
  - » Faster backups, significantly faster restores than tape
  - » Faster than conventional disk subsystems used in backup
- Manageability and flexibility
  - » Low management overhead
  - » Easily share VTL with multiple backup applications and servers



VTL integration with physical tape

- VTLs should maximize existing tape investments and seamlessly integrate disk and tape holistically
  - » Some VTLs more readily support the creation of physical tape directly from the VTL as well as maximize tape media utilization
  - » Direct physical tape creation requires the ability of the VTL to maintain the media catalogue and the ability to move data to tape independent of the backup application.
  - » Otherwise, direct physical tape creation requires extensive integration with each individual backup application
    - – Typically this is limited to a few Tier 1 backup vendors

FORRESTER®

VTL integration with physical tape continued

- Key benefits of direct tape creation
  - » Offloads tape vaulting from the media server
    - – Frees up media server for more backups and restores, reduces the # of required media servers
  - » Offloads the creation of duplicate tapes from the media server
    - – Provides disaster recovery protection and offloads the media server
  - » Increases tape media utilization
    - – Reduces costs
  - » Provides the ability to share physical devices transparently to hosts and media servers
    - – Enables tape consolidation, shields hosts from changes in tape technology and reduces costs

FORRESTER®

VTL integration with tape security

- A majority of enterprises still rely on offsite tape vaulting for components of their disaster recovery strategy.
- Reports of lost or stolen backup tapes can seriously damage corporate reputation.
- In the US, new state privacy laws (i.e. California state law SB 1386) require firms to report the loss of any customer data – unless it was encrypted.
  - » Affects any enterprise conducting business in CA
  - » 39 states have passed similar laws

FORRESTER®

VTL integration with tape security continued

- Tape encryption is now a default best practice and encryption of data at rest on disk is a growing requirement. There are several methods for encrypting backup data
  - » Backup application encryption
  - » Specialized storage security appliances (VTL must support appliance encryption when creating tape directly from the VTL)
  - » Tape drive encryption (VTL must support tape drive encryption when creating tape directly from the VTL)
- Key considerations when selecting an encryption technology:
  - » Key management
  - » Performance impact
  - » Ability to encrypt disk and tape
  - » Cost

VTLs and disaster tolerance

- In order to survive a primary site failure, firms must duplicate their critical data to an alternate site.
- In addition, most enterprises are highly distributed, critical data also resides at multiple remote sites
  - » Consolidating backups from remote sites to a central site is an important initiative for most enterprises
- Key disaster tolerance requirements
  - » Global management of distributed VTL appliances
  - » Data duplication capabilities between VTL appliances either through replication, electronic vaulting, or remote duplication of physical tapes
  - » Ability to duplicate data in several configurations including 1:1, many:1, bi-directional, selective replication

VTLs and data migration/investment protection

- Enterprises increasingly have the requirement to store more and more data for extended periods of time (sometimes 10 years or longer)
  - » Regulatory compliance
  - » Data retention of intellectual property (especially for long lived assets)
  - » Data preservation (important for government archives, universities, libraries, museums
- When storing data for long periods, enterprises must worry about media life and media format obsolescence.
  - » The media itself (magnetic disks, magnetic tape) simply won't last forever
  - » Media formats change every 18 months. Typically tape is read compatible with only the previous two generations.

VTLs and data migration/investment protection cont

- To deal with format obsolescence, enterprises will either need to maintain a museum of tape hardware or periodically convert the data to current formats.
- The ability to recall data from tape and migrate to newer formats non-disruptively and without impact to hosts and media servers is an important requirement for enterprises that continue to rely on tape.
- For long-term retention of data, tape is significantly more “green” than spinning disks
  - » Tape is removable and can be stored for extended periods

VTL integration with existing environment

- Backup is an ecosystem that includes backup applications, servers, networks, appliances, tape systems etc.
- When evaluating a VTL, integration with the existing environment is a very priority, this includes integration and support for the following:
  - » Operating systems (mainframe and open systems)
  - » Major tier 1 backup application vendors (NetBackup, Networker, TSM, CommVault etc.)
  - » Tape formats/tape drives
  - » Tape systems and robotics
  - » Integration with other software tools etc.
  - » Networking hardware (i.e. Fibre Channel switches, host bus adapters)

VTL integration with existing environment cont

- Verify the support and interoperability of the entire backup ecosystem, not just individual components.
  - » The combination of backup application, operating system, and VTL is particularly important to verify.
- Tape system and tape format support is very important if you require direct to tape physical creation.

VTL serviceability

- Like any hardware component in the data center, serviceability is critical.
- Enterprises must not only evaluate product features and functions but also a vendor's service delivery capabilities
  - » Non disruptive upgrades
  - » Hot swappable components
  - » Strong warranty
  - » 24X7 customer service support
  - » Geographic coverage
  - » Quality of local partners (partners are certified in vendors technology)

Fujitsu-Siemens CentricStor differentiation

- Integration With Tape:
  - » FSC is focused on integrating disk and tape holistically – not replacing tape.
  - » CentricStor has the most advanced integration with physical tape (direct physical tape creation, virtual tape mirroring, dual or multiple save, tape encryption support etc.)
- Advanced Tape Management
  - » Unlike other open systems VTL offerings, CentricStor handles all tape management for true tape virtualization
  - » CentricStor enables companies to easily move infrequently accessed data off spinning disk to tape for long-term data retention. This is important for companies that have concerns about power and cooling limitations.
  - » CentricStor 4.0 supports thin provisioning, the ability to show an endless number of drives and volumes to a backup application without physically reserving these resources.
  - » FSC is the first vendor to introduce thin provisioning in a VTL

Fujitsu-Siemens CentricStor differentiation cont

- High Availability:
  - » FSC can cluster CentricStor VTL nodes and supports automatic failover between nodes.
  - » Very few open systems VTL vendors have the ability to cluster VTL nodes
  - » CentricStor also supports non-disruptive upgrades, eliminating the need for planned downtime.
- Disaster Recovery:
  - Companies have the ability to stretch a CentricStor cluster across two data centers, cache is mirrored between nodes.
  - CentricStor can create multiple physical tape copies locally or remotely.
  - There is automated failover between geographically separated CentricStors nodes.
  - Very few open systems VTL vendors have these kinds of advanced DR capabilities.

Fujitsu-Siemens CentricStor differentiation cont

- Automatic Data Migration:
  - » CentricStor automates the process of migrating data from older tape formats to newer tape formats.
  - » This is critical for companies that are storing data for extended periods of time (years or decades) and must constantly address format and technology obsolescence.
- Disk and Tape Flexibility:
  - » CentricStor gives companies the ability to simultaneously use it as a disk library, cache residency or as a disk target only.
  - » This gives companies the flexibility to cost effectively maximize their use of disk according to their recovery point and recovery time objectives
- Scalability:
  - » CentricStor supports up to 1.5 million virtual volumes to 1.5 million and disk cache up to 1 petabyte
  - » This is critical as the avalanche of enterprise data continues to grow and companies seek to consolidate more backup data onto a single platform.

FORRESTER®

Fujitsu-Siemens CentricStor differentiation cont

- Global Management:
  - » Geographically diverse CentricStors are managed from a central console as a complete system.
  - » Most open systems VTL vendors are playing catch-up in this area.
- Ecosystem Integration and interoperability:
  - » Only VTL product offering in the marketplace that has native support for both mainframe and open systems.
- Service and Support
  - » World-class customer service and support
  - » Advanced VTL support and service with live monitoring, periodic health checks and advanced professional services.

Thank you

Stephanie Balaouras

+1 617.613.6440

sbalaouras@forrester.com

www.forrester.com

FORRESTER®