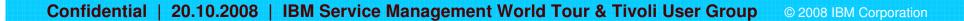


# Il nuovo nato nella famiglia Tivoli Storage Manager



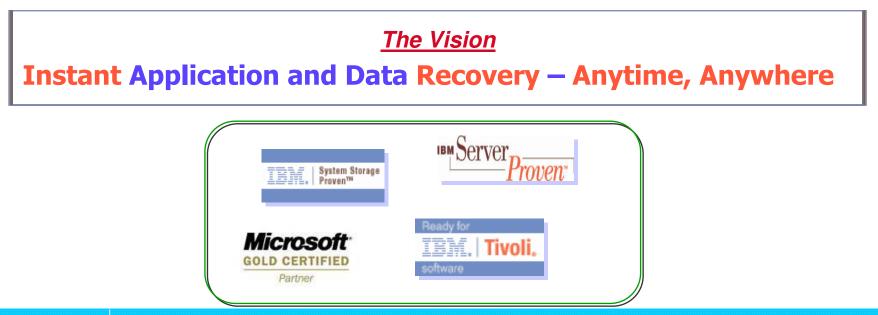


## General overview TSM FastBack / FilesX

- Company was established in 2001
- R&D center is in Israel
- First software release was IIN 2004



- Approximately 150 customers WW with 60 customers in Israel
- FilesX acquisition closed April 21, 2008
- TSM FastBack Announced on July 29, 2008





## FastBack Addresses these Challenges

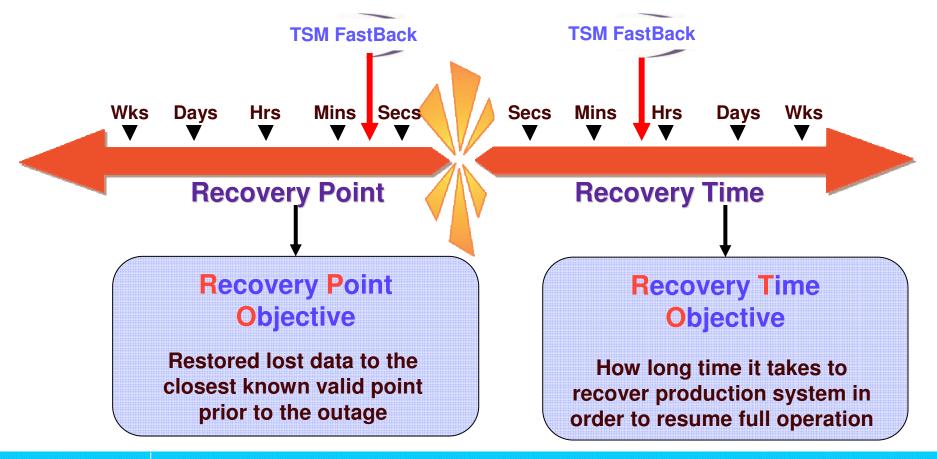
- Shrinking backup windows
- Various applications
   Service Level Requirements
- Shrinking Recovery Time (RTO)
- More granular Recovery Point (RPO)
- Lack of IT skills in small business and Remote Offices or Branch Offices (ROBO)

- Elimination of backup windows
- Near zero recovery time
- Reduce back-up data with block level incremental forever
- CDP on-demand<sup>™</sup>
- Customizable RPO by Application
- Centralized management of de-centralized data, with secure data transfer
- Easy to install and use; one-click restore



## TSM FastBack: solution Highlights

- Software based solution that minimizes Recovery Time of MS Servers
  - Fully operational within Hours and regardless the size of protected data
  - Full access to ANY data right after 1% of recovered data





## TSM FastBack: solution highlights

#### Protection

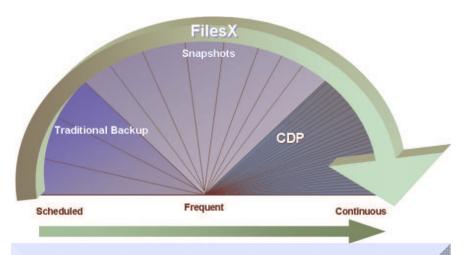
- Disk-based, Block-level, Incremental-forever
- Windows Applications and Filesystems
  - SQL, Exchange, Oracle, SAP and more
- VMWare support
- Lightweight client
- No backup window required
- Policy-based capture schedule
  - CDP on Demand<sup>™</sup>

#### Recovery

- Granular any data object
  - File, folder, volume, system
- Point-in-Time rollback
- Instant Restore
  - · Instant access, background restore
- Recover Anywhere At the branch, DR site, Data Center

#### **Cost Effective**

Eliminates the need for tape backup in the remote office



#### Adaptive protection:

Dial up the level of protection your application or fileserver requires

#### **Disaster Recovery Protection**

- Disk-based protection and recovery
- Encryption in flight
- Bandwidth & storage efficient
  - Incremental replication
  - Scheduling
  - Compression



= =

**DR Site** 

## Current TSM FastBack Offerings

#### **TSM FastBack**

- Disk-based, block-level, incremental-forever technology
- Frequent or Continuous Protection
- Near-instant data restore from virtually any point-in-time, anywhere in the environment
- Policy-based "Selective Replication" for off-site recovery
- Highly-efficient use of WAN and storage resources

#### **TSM FastBack for Microsoft Exchange**

 Recover any e-mail object: message, attachment, calendar entry, contact, tasks, notes

#### **TSM FastBack Bare Machine Recovery**

- Restore the OS volume on dissimilar hardware
- Great tool for cost-effective Business Continuance and server migrations

#### **Benefits**

App / File Servers

- Eliminate the need for "backup windows"
- Improve RPO & RTO of critical applications while reducing storage, bandwidth and labor costs

**TSM FastBack Server** 

Replication

- Reduce the risks of losing critical information
- Provide fast recovery and immediate access to data
- Recover only the data assets you need

#### **Attributes**

- Easy to install and manage (set it and forget it)
- Network and storage efficient
- Application-aware: Exchange & SQL
- Scalable to any size environment
- Integrates easily with tape solutions (e.g. TSM)



## Continuous Data Protection (CDP)

- ✓ True Block level CDP (I/O Based)
- $\checkmark$  Can achieve zero RPO
- ✓ Set RPO per application
- ✓ Delta from (incremental) snapshots
- ✓ Configurable protection periods
- ✓ Enabled per volume
- ✓ Intuitive GUI
- Protects Windows FileSystems and Windows Applications



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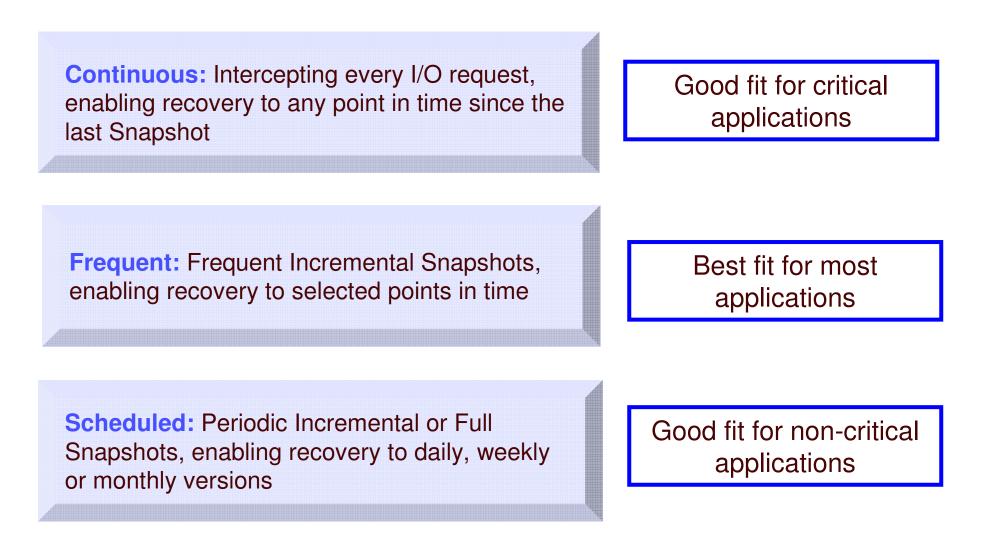
Single backup solution offers:

✓ CDP

- ✓ Frequent Snapshot
- ✓ Scheduled Protection



### **TSM FastBack - CDP On Demand™** Enables Tiered Recovery Services from one Repository





## Mount Snapshots as a Virtual Volume

- Quickly mount any snapshot volume from the local or remote (replicated) repository, as a virtual volume on the server (read-only)
- Mount snapshots into virtual volumes, without actually restoring the files.

Configuration	Snapshots Monitor	Recovery	
F	ile-level Restore		File and folder-level restore through the network (CIFS)
Vol	ume-level Restore		Single volume restore
Bare	Metal / Disk Restore		System level or disk level restore, Bootable CD is required for Bare Metal
Xpress	Mount /Instant Resto	re	Mount snapshots. Instant restore of volumes

Example use:

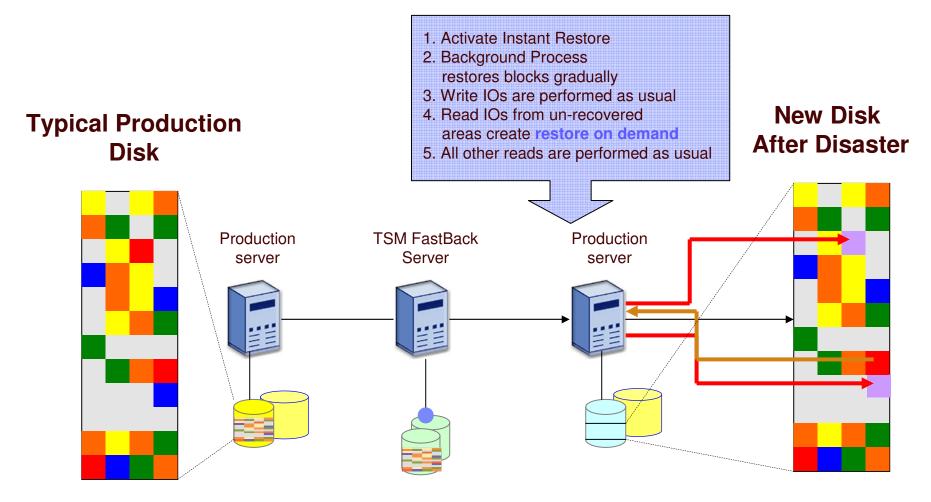
- MS SQL table restore
- You can mount virtual volume with a backed up database and recover anything you need without restoring the volume to disk.
  - When a database is backed up it resides on the TSM FastBack repository, so a virtual volume containing the database can be mounted on any SQL server.
  - Mount a backup volume and attach the database to SQL without the need to restore.
  - User can manipulate data using native database tool

- ✓ Access from anywhere
- ✓ Select any saved snapshot
- ✓Any point in time
- ✓ Mount as a Virtual Drive



## **Instant Recovery**

Instant Restore allows users to start using applications on the same disk to which the volume is being restored, while the restore operation is still in process.





## **TSM FastBack Repository**

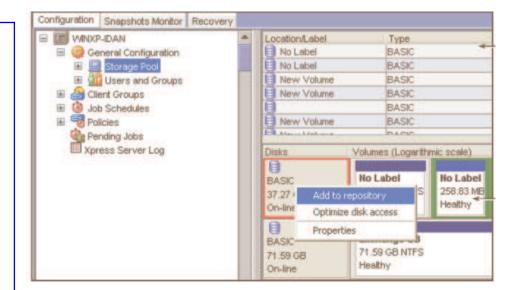
- TSM FastBack is a Disk to Disk solution
- Block level data is copied to the repository from the production servers
- Storage management UI lets you create and manage repositories and monitor the storage layout
- Server can be up and running during repository maintenance and management
- If the Repository fills to its capacity, the next snapshot attempt will fail and the system will notify the user that new snapshots cannot be taken.

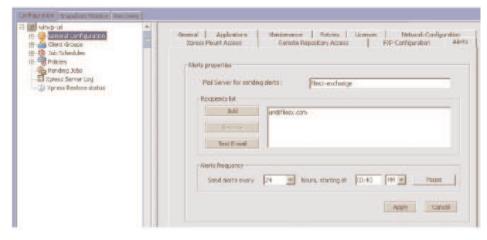
#### Server supports several types of repositories

Location	Advantages	Disadvantages
Local Hard Drive	<ul> <li>Stand alone dedicated storage for images</li> <li>Can detect FS Corruptions &amp; recovery</li> <li>Inexpensive</li> <li>Fast compared to network disks</li> <li>Accurate capacity management</li> <li>Central management</li> </ul>	<ul> <li>Vulnerable, no fault tolerance</li> <li>A dedicated disk is required</li> <li>Only MS Basic disk</li> </ul>
SAN Storage	<ul> <li>Fast</li> <li>Fault tolerant</li> <li>Managed</li> <li>Can detect FS Corruptions &amp; recovery</li> <li>Instant recovery over the SAN by any machine connected to the SAN</li> <li>Accurate capacity management</li> <li>Central management</li> </ul>	Expensive
Network Storage	<ul> <li>Storage agnostic - NAS or any network location</li> </ul>	<ul> <li>Appropriate accesses rights must be assigned</li> <li>Capacity management is not accurate</li> <li>No detection of detect FS corruption or failures</li> <li>No central management</li> </ul>
Volume / Folder	<ul> <li>Flexibility, no need for special dedicated disk</li> <li>Can be on MS Dynamic disk with MS fault tolerant e.g. Mirror or RAID5</li> </ul>	<ul> <li>No accurate capacity management</li> <li>No central management</li> <li>Must be large enough to hold snapshot (full or incremental)</li> <li>A large number of volumes/folders may harm the restore and recovery performance</li> </ul>

## **Repository Management**

- Manage Disk Space
  - · Easily add and remove disks to the repository
- Control Disk Utilization
  - Can define the critical repository usage threshold
  - Can configure threshold notification on repository usage to alert the user
  - When this threshold is reached
    - ✓ Repository Status field in the status bar turns red
    - ✓ A warning is logged into the Server Log
    - ✓ Email notification sent
  - Each time level increases by 5% notifications sent again







## **Repository Management**

#### Backup retention policy

- You can set up the number of snapshot generations the system retains
- This number of snapshots will always be available for restoration
- Older snapshots beyond this number may be cleaned up

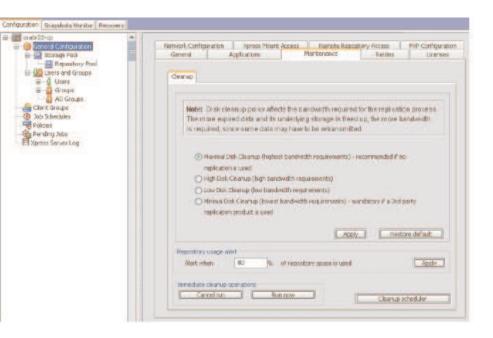
#### Cleanup Configuration

Scheduled repository cleanup

#### Chain Erase

- Snapshot chains are series of snapshots of the same volume in the same policy. They can be manually removed by rightclicking on a snapshot in the Monitor tab, and selecting
- Gives you manual control over the snapshots that are kept and also gives a manual way of controlling the repository size if needed





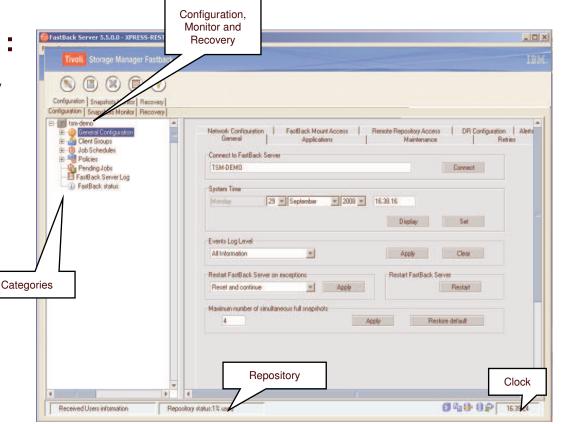




## TSM FastBack - User Interface

#### **Centralized Management for :**

- Managing the snapshot repository
- Scheduling snapshots
- Performing volume level restores
- Determining the result of backup jobs
- Monitoring which snapshots are completed, in-process and pending
- Monitoring system events
- Configuring and managing user group privileges and security authentications for specific users



 This is the interface used for all activities except for Exchange IMR and monitoring remote DR replication activity



## TSM FastBack - Shell CLI

- Can be thought of as a command line API (application interface) to TSM FastBack Server and TSM FastBack Mount
- Can access most TSM FastBack function from the command line called TSM FastBack Shell
- Can be used to automate some tasks, and to perform complex integration with third party tools
- TSM FastBack Shell provides three modes of operation:
  - Interactive mode: A menu-guided mode recommended for the less experienced users
  - Command line mode: In this mode, individual commands, command types, tags and parameters are entered
  - Script file: Used to execute multiple commands written in an ASCII text editor
- Example: to add an incremental job named Accounting\_Daily, that will run every working day (from Monday to Thursday), every 2 hours, between 07:30 to 20:30
  - TSM FastBackShell –c job add –jname Accounting\_Daily [-start "01-19-2004 07:30"] [- interval 2:00] [-exclude from 21:00 to 07:00] [-type inc] [-schedule 32]



## TSM FastBack for Microsoft Exchange

#### Item Level Recovery of MS-Exchange

- Explorer-like GUI
- E-mail messages & attachments
- Contacts and calendars
- Tasks and notes
- Mailboxes
- Recover objects from corrupt EDBs
- Supports Microsoft Exchange:
  - ✓ 2000
  - ✓ 2003
  - ✓ 2007

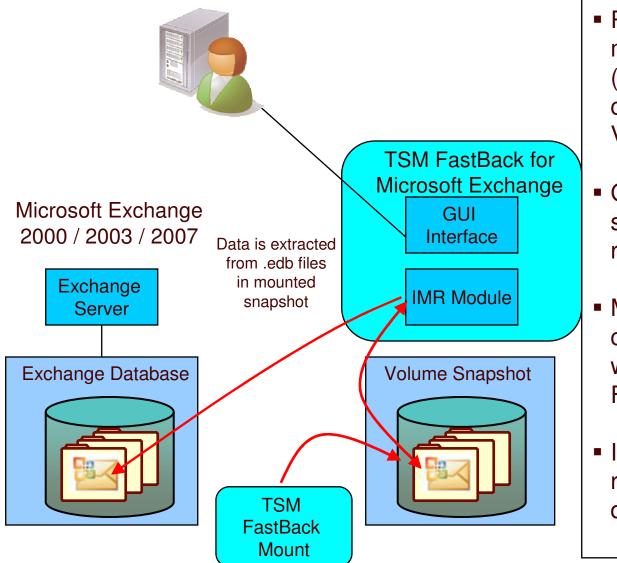
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- Greatly improves the efficiency of Exchange administrators
- Provide object restores in minutes rather than hours, days
- Helps administrator raise SLA's by eliminating downtime

Note: TSM FastBack provides automatic discovery of volumes associated with Exchange and SQL



## Item Level Recovery for Exchange



- Restore of individual mailboxes or mail items (messages, contacts, calendar) via Virtual Volume
- GUI facilitates easy selection of items for restore
- Mailboxes or mail items can be viewed or copied without Exchange or TSM FastBack servers
- Intact items can be restored from corrupted database backup



### Item Level Recovery for Exchange

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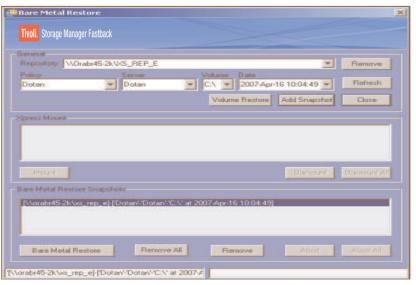
## TSM FastBack for Bare Machine Recovery

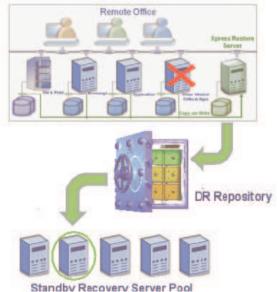
#### Wide MS servers support

- TSM FastBack supports Bare Machine Recovery on both 32 and 64 bit operating systems and processors
- Full access within minutes
  - With Instant Restore technology, data volumes are made available as soon as the recovery process starts

#### Support for dissimilar hardware

- Recover on a similar server, to a completely different server, or to a Virtual Machine
- "N-to-1" standby server ratio:
  - One standby server can provide cover for many production servers
  - Cost-effective 'high availability' alternative







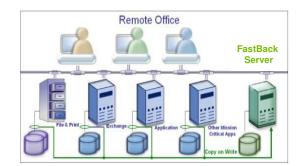
### **TSM FastBack – Disaster Recovery**

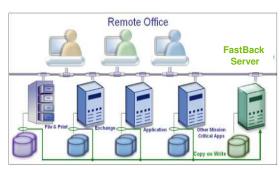
- Central Vaulting of Backup Copies
  - Replication and consolidation of snapshots to a central location as part of a disaster recovery system
  - Block-level, incremental forever

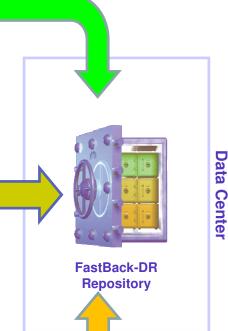
#### End-to-end security

- Encryption in transit
- Can encrypt and compress
- Individual Virtual Vault for each office
- Replication Method
  - FTP based replication
  - Replication does not interfere
     with backup operations









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### **TSM FastBack – Disaster Recovery**

#### Scheduled, policy-based transfers

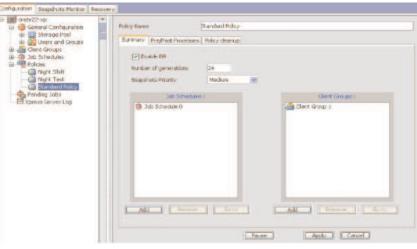
- Allows selective and scheduled replication of the backup repository to a DR site
- Selective Replication Not all backups must be replicated
- Bandwidth can be utilized better by scheduling DR to low activity hours
- Optimize WAN resources

#### Fully Automated

• No manual intervention required

#### Monitoring

- Central Control Station enables monitoring of replicated snapshots at a central location
- Recover Anywhere
  - At the branch, DR site, Data Center
  - File or Volume restore, Instant Restore
  - Disaster or Operational Recovery



#### **Policy based DR protection**

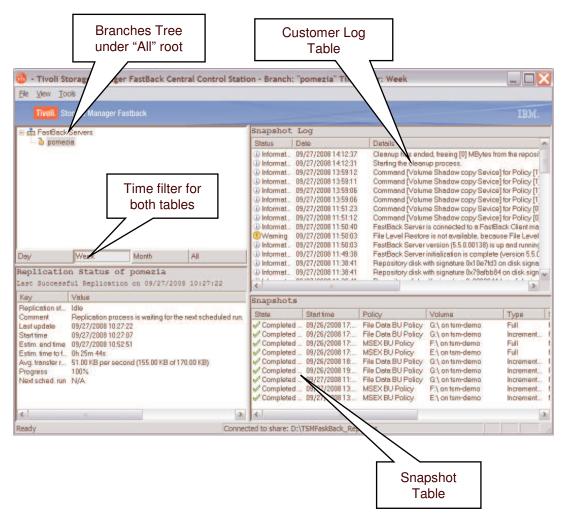
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#### Centralized monitoring of all DR activity



## **TSM FastBack - Central Control Station**

- Used to Centrally manage DR
- Installed at a central backup office
- It allows browsing for snapshots and events that arrive from branches
- It provides information filtering, based on branch and time criteria
- Show the DR status and launch Management UI for a specific branch.





## **TSM FastBack Target Markets**

### **Mission Critical Application Protection**

- ✓Continuous Data Protection for Mission Critical Applications
- ✓ Ensuring continuous application availability

### **SMB** Market Data Protection

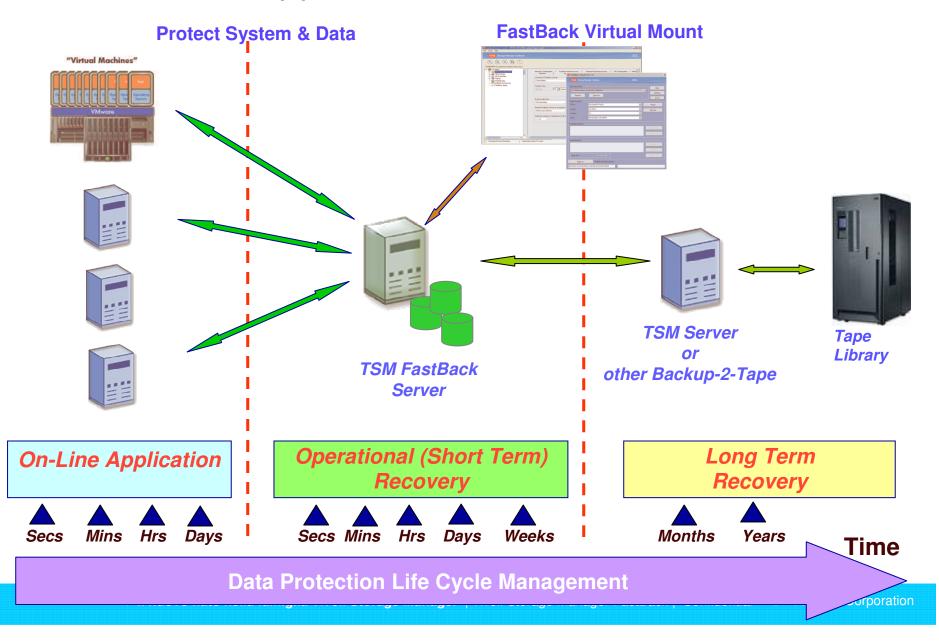
- ✓ Strong Windows and Microsoft Exchange capabilities
- ✓ Cost Effective replace for tape backup
- ✓ Simple to set up and use

### **Remote Office Protection**

- ✓No need for trained IT staff
- ✓N to 1 Bare Machine Recovery (Physical to Virtual)
- ✓ Consolidating backup & recovery into the main Data Center

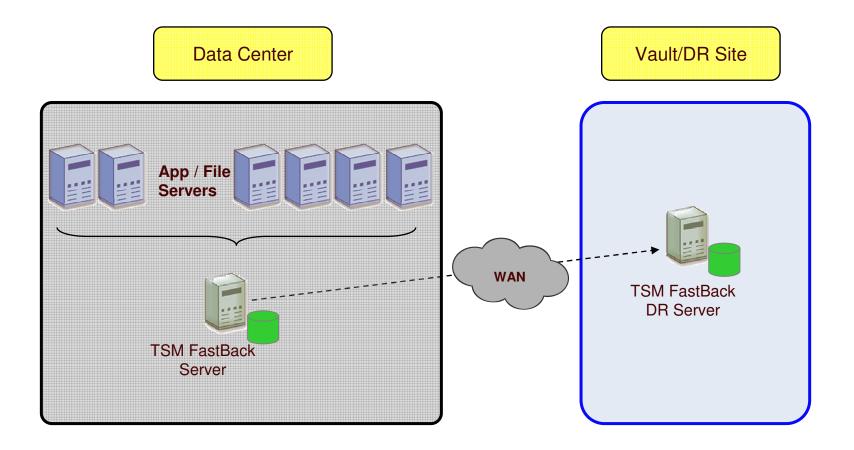


## **Mission Critical Application Protection**



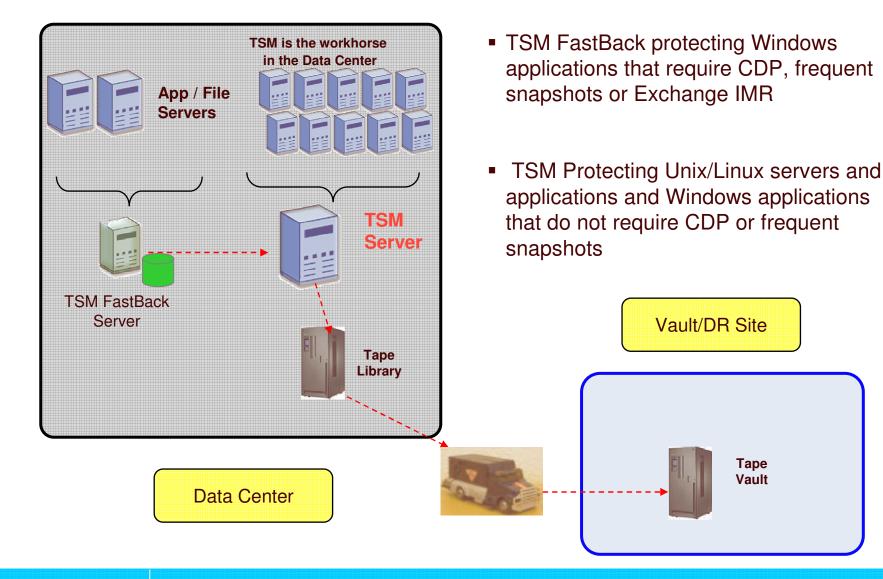


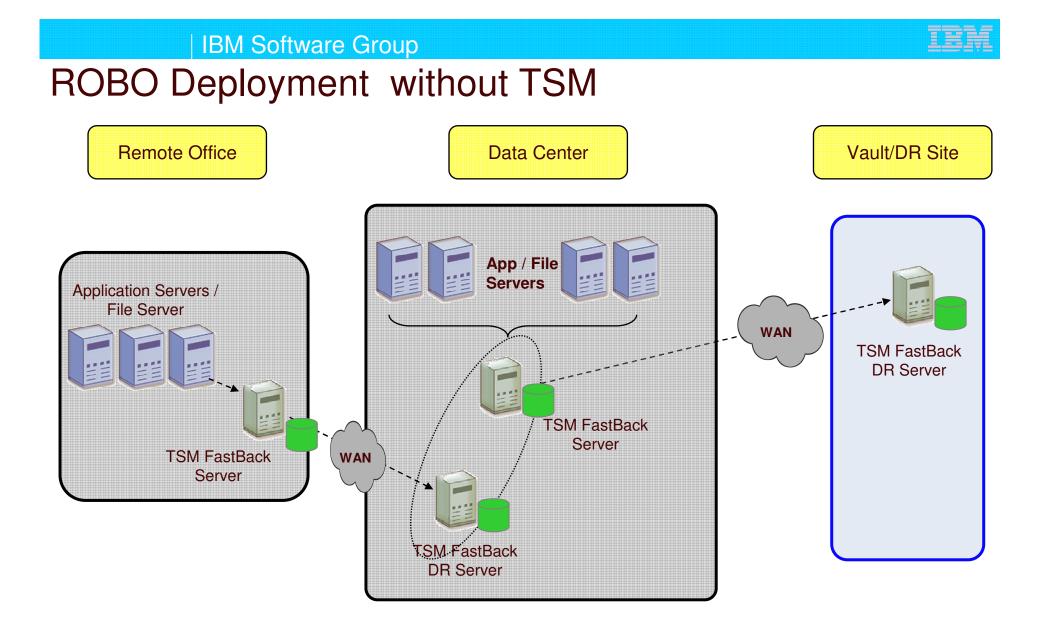
## Mid Market Deployment without TSM





## Mid Market Deployment with TSM

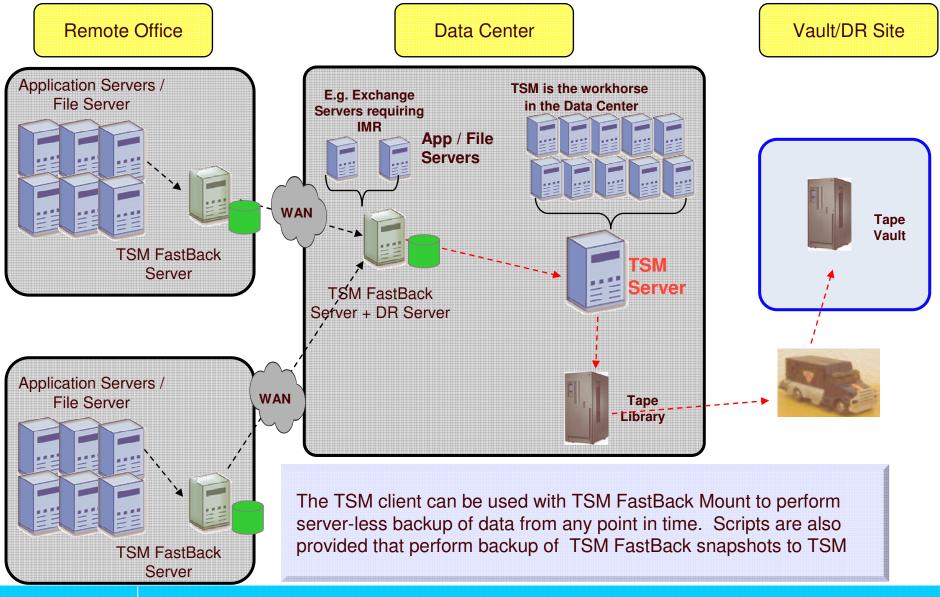




#### ROBO = Remote Office, Branch Office



## ROBO with TSM





### Complementing IBM's flagship Tivoli Storage Manager

#### **Enterprise Data Center**

TSM FastBack

Fast (near-instant) Recovery Deep protection of mission-critical applications

Near-zero data loss

#### **Tivoli Continuous Data Protection**

File-level CDP for desktops/laptops and mobile workers

#### Tivoli Storage Manager

Lowest TCO and ROI for Data center backup Extensive support for removable media (tape) Broad OS platform support Very large database (VLDB), application and SAP protection Hierarchical storage management Disaster Recovery management Superior scalability

#### SMB-Market and Remote Offices

TSM FastBack Disk-based protection of distributed data

Strong Windows and Microsoft Exchange capabilities

Block-level CDP

Simple to set up and use

**Cost-effective** 

Together delivering a more complete solution

Continuous Data Protection (CDP)

### IBM

### Caratteristiche e Benefici

	Caratteristiche	Benefici
	Backup incrementale a livello di blocchi	<ul> <li>Eliminata la necessità di finestre di backup</li> <li>Bassissimo impatto sui server applicativi - ideale per le macchine virtuali</li> </ul>
	Backup basato su politiche	<ul> <li>Consente di conciliare le esigenze di recupero dei dati con i costi di storage e la larghezza di banda per ogni applicazione protetta</li> <li>Possibilità di scegliere tra "Continuous Data Protection" (CDP) o snapshot periodiche/schedulate</li> </ul>
TSM FastBack	Backup su Storage Area Network (SAN)	<ul> <li>Processi di backup basati su SAN che non influiscono sulla rete locale (LAN)</li> </ul>
FasiDack	Application aware	<ul> <li>Supporto integrato per tutte le applicazioni Windows, compresi: MS Exchange, MS SQL, Oracle, DB2, SAP,</li> </ul>
	Ripristino ''Point-in-time''	<ul> <li>Possibilità di torna a qualsiasi "point-in-time" per rimediare a cancellazioni involontarie, ad attacchi di virus, corruzioni, ecc.</li> </ul>
	FastBack Mount / Istant Restore	<ul> <li>Ripristino di singoli file dal repository di backup tramite funzioni drag- and-drop</li> <li>Dà il pieno accesso a qualsiasi volume nel giro di pochi secondi, mentre il processo di ripristino viene eseguito in background</li> </ul>

### Caratteristiche e Benefici

	Caratteristiche	Benefici
	Supporto per le sedi remote	<ul> <li>Aiuta a ridurre i costi dei sistemi di gestione dei backup</li> <li>Aiuta a migliorare i livelli di servizio relativi al backup e al ripristino</li> </ul>
	Integrazione con i nastri	<ul> <li>Sfrutta gli investimenti effettuati</li> <li>Solleva i server applicativi dall'impatto dei backup su nastro</li> <li>Integrazione con il resto della suite Tivoli Storage Manager</li> </ul>
TSM FastBack	Gestione centralizzata	<ul> <li>Gestisce centralmente tutte le operazioni di backup e ripristino</li> <li>Gestisce sia la sede centrale che le sedi remote</li> </ul>
	Automazione completa	<ul> <li>"Policy Engine" di tipo "Set it and forget it"</li> <li>Gestione automatica del repository dati</li> <li>Definizione del numero di snapshot che si vogliono mantenere</li> </ul>
	Disaster Recovery	<ul> <li>'Selective Replication' &amp; bandwidth optimization minimize WAN impact</li> <li>Secure transfer of data to the DR site eliminates the risk of losing tapes</li> </ul>
TSM FastBack for BMR	Bare Metal Recovery	<ul> <li>Ripristino di un intero sistema anche su server con hardware diverso incluse le macchine virtuali</li> <li>Ripristino in poche ore.</li> </ul>
TSM FastBack for Exchange	Item Level Recovery for Exchange	<ul> <li>Ripristina velocemente ed in modo granulare i singoli oggetti dell'ambiente Exchange.</li> </ul>



# Grazie per l'attenzione!



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