



IBM Tivoli Storage Manager FastBack v6.1 Solution Overview

Joseph Lee

Security Specialist

Nexus Solutions Ltd



Agenda

- Business continuity – challenges and costs
- Creating an effective recovery management plan
- Introducing Tivoli Storage Manager (TSM) FastBack v6.1
- Customer case studies
- Tivoli Storage Manager FastBack for Workstations
- What's new in TSM FastBack v6.1
- Summary



Business continuity depends on data recovery

- Business-critical data exists throughout the enterprise:
 - Application servers in the data center
 - Remote and branch offices
 - Employee workstations
 - Disaster recovery sites
- Businesses of all types are facing unprecedented challenges to keep more information available, all the time
 - They can't afford to lose any data, and they can't afford to be without it for very long
 - Losing access to data causes downtime
- The costs of downtime and lost data are escalating:
 - Lost revenue streams and customer confidence
 - Embarrassment in the marketplace
 - Contract penalties, regulatory fines, legal action and even jail

What can go wrong?

- Deleted files
- Corrupted database
- Virus/hacker attack
- Disk crash
- Server crash
- Local disaster
- Regional disaster

Can you quickly recovery from each?



Is your critical application data adequately protected?

- Traditional once-a-night backup leaves up to 24 hours of your most recent data at risk
 - How much data will you lose if your database server crashes at 5 PM?
 - How much will it cost you to re-create those transactions?
- It can take many hours or days to perform a full restore from traditional backup systems
 - How much application downtime can your business tolerate?



Recovery Point Objective:
How much data can you afford to lose?



Recovery Time Objective:
How much downtime can you afford?

Relatively short downtime has a significant cost

- The value of data and requirements for availability are steadily increasing.
- How much revenue do your business critical applications generate per hour?
- How many business critical transactions will be lost per minute of downtime?

Business Operations	\$ Revenue per Hour	30 Seconds of data is worth
Manufacturing	\$1,610,000	\$13,417
Finance	\$1,495,000	\$12,458
Retail	\$1,107,000	\$9,225
Pharmaceuticals	\$1,082,000	\$9,017
Healthcare	\$636,000	\$5,300
Utilities	\$643,000	\$5,358

Source: MetaGroup



The problem is getting worse

- The problem is getting worse
 - Data continues to grow exponentially
 - New applications are proliferating
 - More distributed data in remote/branch offices
 - Mergers and acquisitions will continue
- We all need to do more with less:
 - Reduced budget and headcount
 - Increasing regulatory and corporate governance requirements
 - Greater service level requirements



Do you need a smarter, more comprehensive recovery solution?

Things to consider when creating an effective data recovery plan

- Wide range of applications and data types
 - Documents, databases, e-mail, CAD, medical imaging
- Wide range of things that can go wrong
 - Lost file, corrupt database, virus, disk crash, server failure, local or regional disaster
- Widely distributed data
 - Regional data centers, remote and branch offices, mobile users
- Have you considered the recovery times that the business requires on a per-application basis?
- Will the cure kill the patient?
 - Typical 'high-availability' solutions are very expensive, complex to manage, proprietary



Recovery management challenges

- Meeting service level objectives and providing continuous availability of valuable files
 - Including email and mission critical application data
- Waiting for data to be restored
 - It can take hours or days to restore a large system
- Trying to restore data that wasn't backed-up
 - Once-a-night backup = 24 hrs of data at risk
 - Unreliable manual backup processes
- Shortage of skilled data administrators to manage influx of disparate data
 - What about data in remote/branch offices?
- Shrinking backup windows
 - Difficult to back everything up within allotted 'down time'



Delivering next-generation recovery management with Tivoli Storage Manager FastBack v6.1

Tivoli Storage Manager FastBack addresses the complexities of data recovery






- The different types of data and applications in your environment
- The types of data disasters you're likely to face
- The location of the data
- Recovery Point Objectives
 - How much data can you risk?
- Recovery Time Objectives
 - How long are you down?
- Impact of the solution on the business (costs, bandwidth, application availability, etc.)

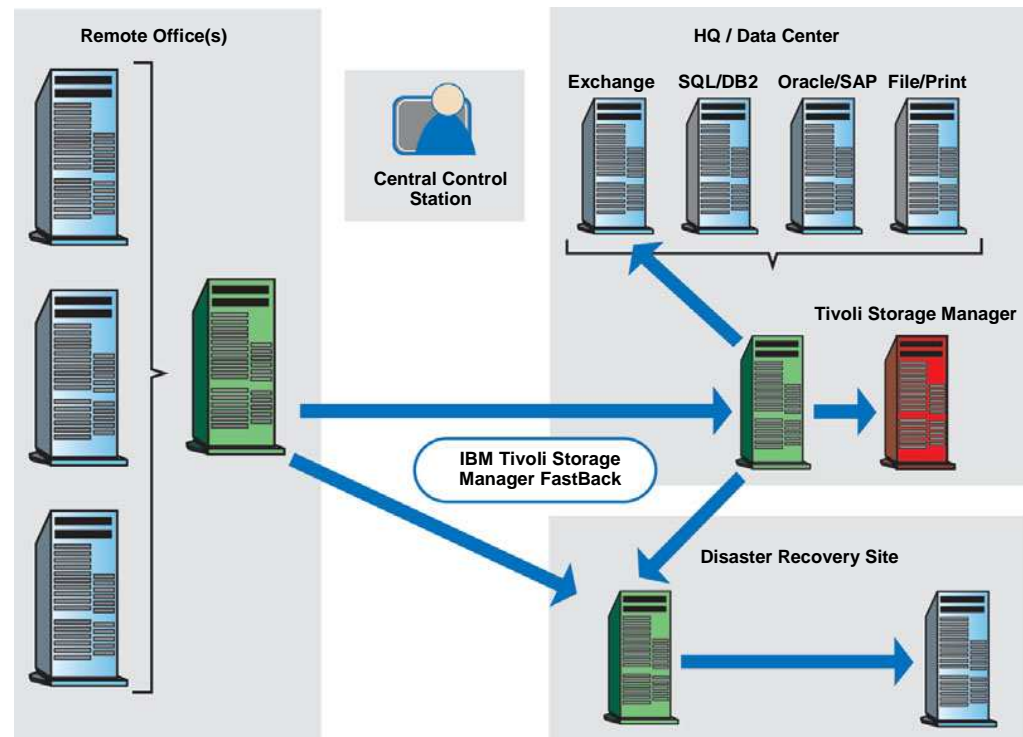


Introducing Tivoli Storage Manager FastBack v6.1

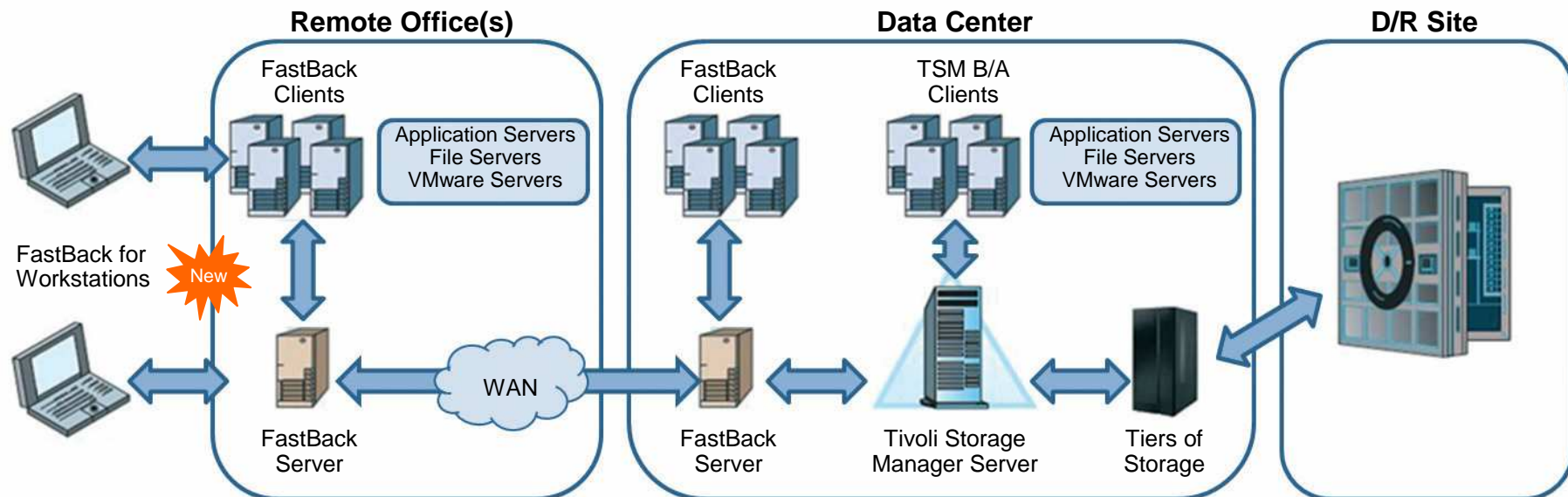


Introducing Tivoli Storage Manager FastBack v6.1

- Block-level, incremental-forever, continuous or scheduled backup for Windows and Linux  servers
- Near-instant restore of any type / amount of Windows application data
 - Near-instant access to Linux data via FastBack Mount 
- Integrated target-side data deduplication 
- Built-in 'selective replication'
- Comprehensive reporting, leverages Tivoli Common Reporting
- Tight integration with Tivoli Storage Manager 
- TSM FastBack for Workstations: optional protection for laptops & desktops 



TSM FastBack is part of IBM's Unified Recovery Management solution suite



- **Tivoli Storage Manager:** enterprise-class data management includes backup, archive, HSM, support for hundreds of devices and a broad range of operating systems
- **Tivoli Storage Manager FastBack:** next-generation backup and near-instant restore for critical servers; backup consolidation & disaster recovery for remote offices; and more ...
- **Tivoli Storage Manager FastBack for Workstations:** continuous data protection (CDP) for desktop and laptop systems with centralized management

Tivoli Storage Manager FastBack v6.1

Key Use Cases

- Improve availability of critical application servers in the data center
 - Protects Microsoft Exchange, SharePoint, SQL Server, Oracle, SAP, Lotus Notes, VMware and all other applications running on Windows and Linux servers*
- Comprehensive data protection and recovery for mid-sized businesses
- Automated backup, consolidation and Disaster Recovery for remote offices
- Advanced offerings for Managed Storage Service Providers

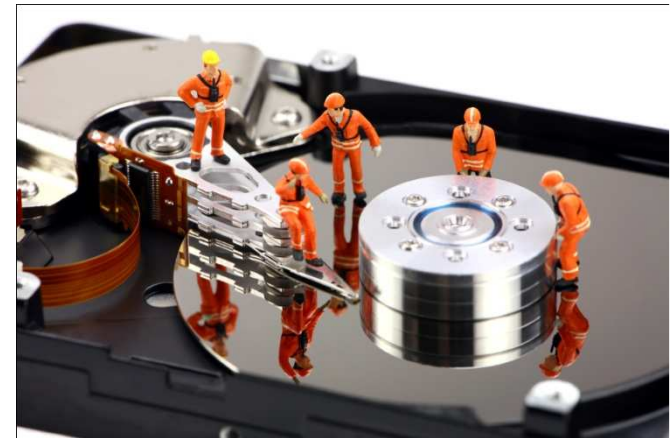
Optional Capabilities

- Bare Machine Recovery
 - Restore OS volumes on dissimilar or virtual hardware (Windows only)
- Granular recovery of Microsoft Exchange e-mail
 - Easily recover individual messages, attachments, calendars, contacts, etc.
- Continuous protection and easy recovery of desktop and laptop systems
 - With central backup administration for thousands of workstations

* Windows 2003 and 2008; Red Hat and SUSE Linux

TSM FastBack is advanced data protection

- **Block-level, incremental-forever**
 - Captures only new and changed blocks of data without requiring applications to be shut down
- **Advanced policy engine**
 - Tune backup frequency to the importance of the data
 - Backup as often as needed, on a per-application basis
 - True Continuous Data Protection (CDP) for the most critical applications
 - Frequent or scheduled snapshots for less-critical data
- **Selective replication**
 - Provides disaster recovery and backup consolidation capabilities
 - WAN-efficient; sends only new & changed data; schedule for non-peak times
- **Target-side data deduplication**
 - Runs as a post-process to eliminate duplicate data from across protected servers



TSM FastBack helps you restore your data - *FAST*

FastBack Mount

- Recovers individual files and folders, from any point-in-time
- Opens an Explorer-like view into the FastBack repository
- Simple 'drag-and-drop' operation

Virtual Recovery

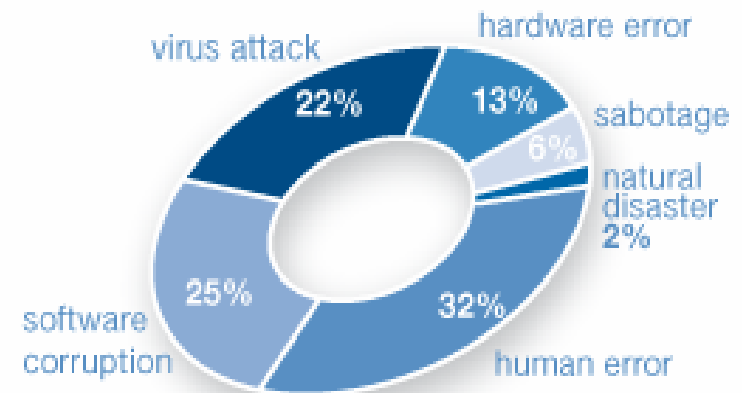
- Mounts an entire volume to be recovered
- Select any previous point-in-time (Recovery Point)
- New volume becomes available within seconds
- Read-write requests serviced by FastBack
- Data is restored in the background to target disk



TSM FastBack addresses real problems

- Immediate recovery from any type of data loss
 - Human error (deleted files, folders)
 - Software errors and virus attacks (corrupted databases)
 - Hardware failure (disk or system crash)
 - Disasters (lost local or regional facilities)
- Elimination of “backup windows” and manual backup/restore processes
 - Helps eliminate tape in small & remote/branch offices
- Secure electronic transfer of data between primary and disaster recovery sites
 - Helps eliminates the physical movement of tapes (security risks)

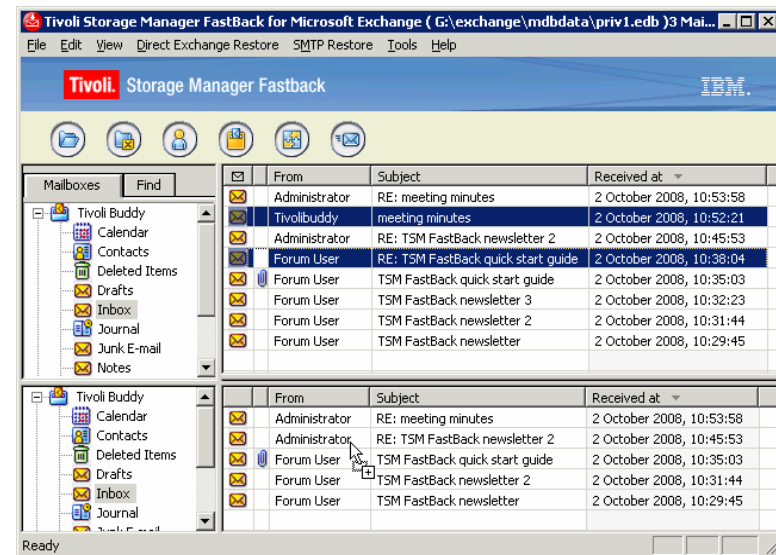
Causes of Data Loss



Source of data: The Cost of Data Loss by David M Smith

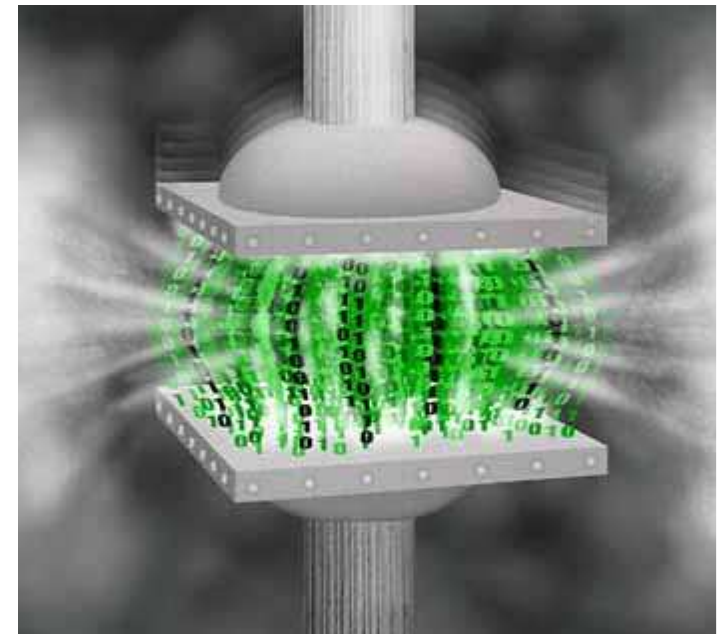
TSM FastBack is easy to manage

- Wizard-based installation
- Familiar Windows-style GUI
- Simple menu-based system for configuring backups
- Simple drag-and-drop recovery
- Full set of configurable reports
 - View Server and Client status, activity and utilization
 - Leverages Tivoli Common Reporting
- Tight integration with Tivoli Storage Manager
 - Launch FastBack from TSM
 - Manage FastBack policies
 - View FastBack reports
 - Backup FastBack server for long-term retention



TSM FastBack helps reduce your storage footprint

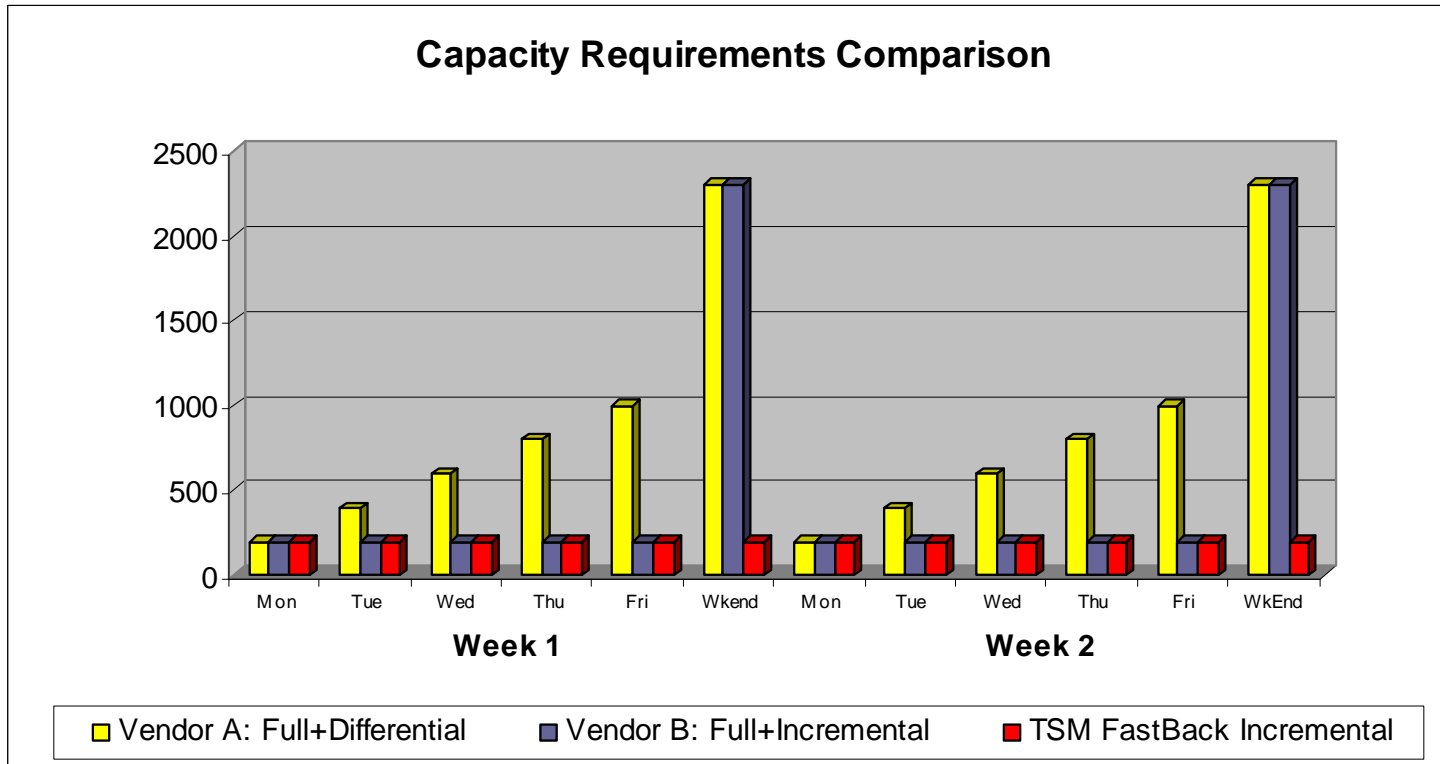
- IBM offers a broad range of choices for reducing storage requirements throughout the data creation and management lifecycle – including TSM FastBack
- TSM FastBack's block-level, incremental-forever backup model can reduce backup repository requirements by 70%*
- Built-in target-side data deduplication can reduce the FastBack repository by another 40%**
 - Performs deduplication as a post-process with no impact on backup operations
 - Eliminates duplicate blocks of data found across the volumes being protected by a single TSM FastBack Server
 - Automatically reclaims deduplicated capacity
 - Provided at no extra charge



* Compared to FULL + Differential backup models

** Depending on amount of data, # of servers, etc.

TSM FastBack helps reduce your storage footprint



**Capacity Req'd
for 1 Month of
Backups:**

Vendor A: 24TB
 Vendor B: 15TB
 FastBack: 7TB

- 2TB base data; 10% new data per week; 20% total change rate per week
- Initial full backup already performed

TSM FastBack works great in virtual environments

- The TSM FastBack client is installed on individual virtual machines
 - No need for a proxy server
 - TSM FastBack's block-level, incremental-forever backup technology virtually eliminates the backup window and the load on the CPU
 - FastBack uses only about 2% of CPU cycles when running a backup job
- Can do bare machine recoveries of virtual servers to another virtual machine or to a physical machine (P-to-P, P-to-V, V-to-V, V-to-P)
 - Use for loading and migrating test environments and for on-demand disaster recovery
- The TSM FastBack Server component can also be run in a virtual machine



TSM FastBack for Bare Machine Recovery v6.1

- Restore the Windows OS volume in less than 1 hour
 - Recover on a similar server, to a completely different server, or to a Virtual Machine
- Full access within minutes
 - With TSM FastBack's Virtual Restore technology, data volumes are made available as soon as the data recovery process starts
- Great tool for cost-effective Business Continuity
 - "N-to-1" standby server ratio: one standby server can provide cover for many production servers
- Can be used to quickly perform server migrations



TSM FastBack for Microsoft Exchange v6.1

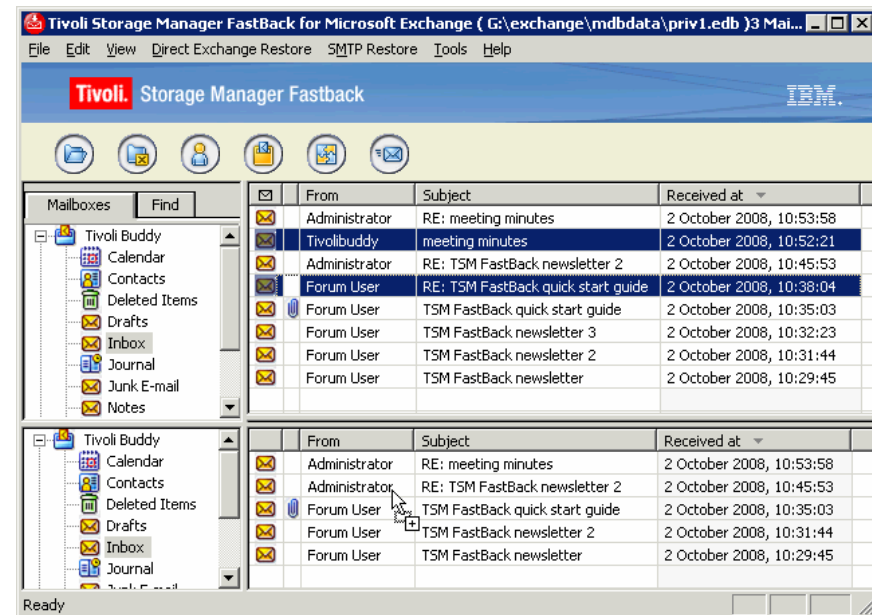
- Granular restore of individual MS-Exchange objects:

- Messages
- Attachments
- Calendar entries
- Contacts
- Notes
- Tasks
- Journal entries

- Supports Shared / Public Folders 

- Supports Exchange 2003 & 2007

- TSM FastBack v6.1 provides volume-level recovery of Exchange 2010 today



TSM FastBack delivers real value

Before-and-after comparison; previously performed weekly full backup to tape.

Description	Tape	TSM FastBack	Comments
Backup File/Print Server	16 hours	3 minutes	Increased frequency from 1/wk to 6/day
Backup E-Mail Server	46 hours	2 minutes	Increased frequency from 1/wk to 8/day
Recover Individual File	25 minutes	3.5 minutes	
Recover Individual E-Mail	Impossible	15 minutes	Same for calendars, contacts, tasks, etc.
Restore a File Server Volume	10-16 hrs.	6-10 min.	
Restore E-Mail Volume	35-45 hrs.	6-10 min.	

Data provided by a U.S. Federal Government agency which uses TSM FastBack to protect more than 2000 servers in more than 400 locations.

Achieve fast return on investment with TSM FastBack v6.1



- Improve service levels & application availability
 - Eliminate backup windows
 - Reduce time to recover (RTO)
- Reduce costs
 - Reduce storage capacity requirements
 - Reduce the need for tape, off-site transport
 - Reduce # of separate tools (Backup, DR, BC, BMR)
- Mitigate risks
 - Reduce data at risk of loss (RPO)
 - Fix the remote office data protection problem

Customer Case Study: Austin Diagnostic Clinic



Business Challenge:

- ADC had stringent recovery-time objectives (RTO) and recovery-point objectives (RPO) for all of its IT applications and had experienced issues in the past with MS Exchange failures.
- They wanted to shrink their backup window while ensuring continuous availability.
- ADC also needed the ability to recover quickly from any system interruption, as well as restore individual users when problems arose.
- Having a solid disaster-recovery plan was essential to Austin Diagnostic Clinic to ensure compliance with HIPAA requirements.

Solution:

- TSM FastBack was installed on more than 50 of their most critical servers.
- Also installed for disaster recovery at a remote-campus facility.
- Provides support for all application protection and recovery

Benefits:

- TSM FastBack provided ADC reduced backup times, continuous Medical Records availability and fast email recovery. Backups are now done in less than five minutes without doing an entire system shutdown.
- Disaster recovery is no longer a worry

“Our backup window has always been a challenge. Shrinking it down to a minimum while the systems are still online is a major benefit of TSM FastBack.”
-- Ned Euwer, Systems and Network Engineer, ADC

Tivoli Storage Manager FastBack for Workstations v6.1



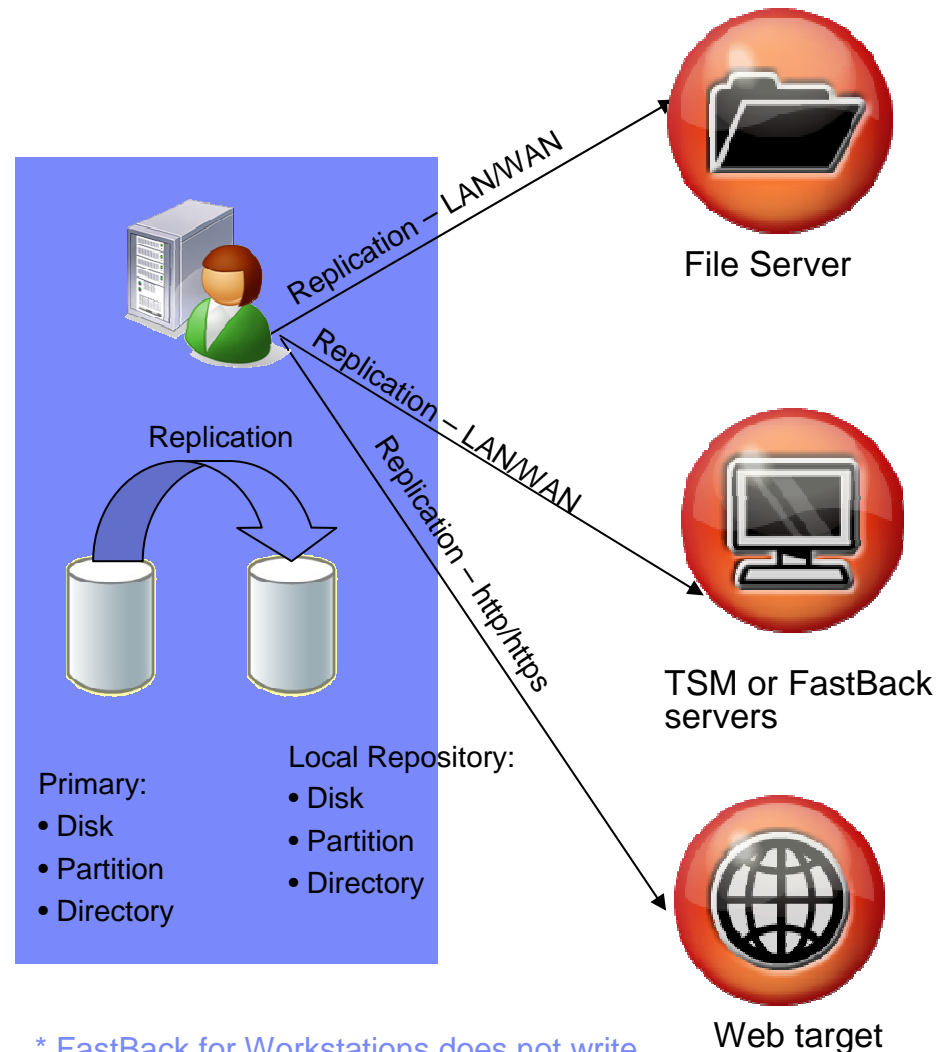
TSM FastBack for Workstations v6.1

Continuous data protection (CDP) for desktops and laptops

- Backs up files the instant they are saved to local disk
- Choice of locations to send an off-machine copy of the backup data:
 - File server (which can then be backed up by FastBack*), TSM server via API, WebDAV host, USB attached device
 - Resilient to network disconnections
- Keeps multiple versions of the files
- Central management for 1000s of clients

Benefits

- Continuously protects important files
 - Drag-and-drop, point-in-time recovery
- Easy Configuration, no scheduling, no hassles
- Encryption & compression
- Directly backs up to TSM and FastBack



* FastBack for Workstations does not write directly to FastBack as it does with TSM

TSM FastBack for Workstations includes central administration of 1000's of desktop and laptop computers

The screenshot shows the 'Integrated Solutions Console' interface. On the left is a navigation sidebar with categories like 'Security', 'Users and Groups', 'Troubleshooting', 'FastBack for Workstations', and 'Settings'. The main window displays the 'Clients' page, which includes a table of client information and various action buttons.

Status	Client Name	Group	Administration Folder	Last Report
<input type="checkbox"/>	T-60-Demo	Sales	MyCompany	9/30/09 12:35 PM
<input type="checkbox"/>	R31-XP	Sales	MyCompany	9/30/09 12:52 PM
<input type="checkbox"/>	TBURBA-T42P	Development	MyCompany	9/30/09 1:25 PM
<input type="checkbox"/>	makarov	Accounting	MyCompany	9/30/09 1:23 PM
<input type="checkbox"/>	Bushmaster	Development	MyCompany	9/30/09 12:37 PM
<input type="checkbox"/>	P-32	Sales	MyCompany	9/30/09 11:45 AM
<input type="checkbox"/>	Springfield-XP	Accounting	MyCompany	9/30/09 1:01 PM
<input type="checkbox"/>	Howlin	Development	MyCompany	9/30/09 12:28 PM

FastBack for Workstations central administration can be combined with TSM and FastBack in one instance of the Tivoli Integrated Solutions Console

View Client Information:

- Amount of storage being used
- Amount of client activity
- Current configuration
- Clients storage target

Take Client Actions:

- Force an incremental backup
- Push a configuration
- View log files
- View Alerts
- Admin can lock client configuration so it can not be changed

Tivoli Storage Manager FastBack v6.1 Summary



TSM FastBack - Benefits

Reduce the business risks and costs associated with the loss of critical data

- Improved Recovery Point Objectives (RPO) – reduce new data at risk from 24-hours to as little as the last transaction
- Improved Recovery Time Objectives (RTO) – reduce downtime following almost any data loss from hours/days to just a few minutes*
- Automate the protection of data in remote offices and on workstations – reduce the need to re-create data and the costs of data loss, without the need for on-site IT staff
- Reduced data storage footprint – incremental-forever backup, data deduplication and selective replication reduce capacity and bandwidth requirements
- On-demand disaster recovery – reduce the costs of standby hardware through use of bare machine recovery on dissimilar or virtual hardware*
- Streamline e-mail recovery – restore only the Exchange content that you need, not an entire mailbox or ‘brick’
- Investment protection – integrate these next-generation capabilities into your existing data protection and recovery infrastructure (added benefits when integrating with TSM)

* Windows clients only

TSM FastBack Product Family Offerings

TSM FastBack

- Comprehensive data protection solution for Windows and Linux servers
- Disk-based, block-level, incremental-forever backup technology
- Near-instant restore* of data from any point-in-time, anywhere in the environment
- Disaster Recovery built in: policy-based “selective replication” for off-site recovery
- Integrated, target-side data deduplication

TSM FastBack for Bare Machine Recovery

- Restore the OS volume on dissimilar* hardware in minutes
- Great tool for cost-effective business continuance and server migrations

* Windows clients only

TSM FastBack for Microsoft Exchange

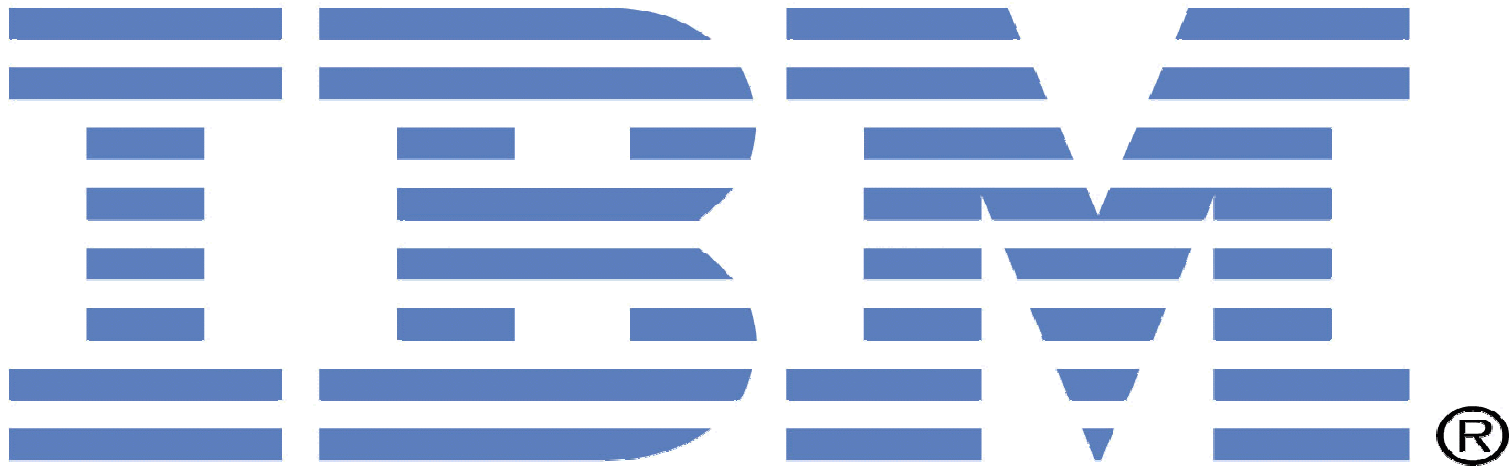
- Rapidly recover any e-mail object: message, attachment, calendar entry, contact, tasks, journal, note
- Near-instant access provides a great tool for data mining and unobtrusive testing of production environments

TSM FastBack Center

- Conveniently-priced bundle of the 3 components above

TSM FastBack for Workstations

- Continuous data protection and easy recovery for desktops and laptops
- Centralized backup management for thousands of client systems



THANK YOU