

IBM TotalStorage Integrated Backup for Databases

Backup and recovery challenges

Sound data backup and recovery practices are an integral component to most businesses today. Many businesses are pushing the limits of their backup and recovery processes for both infrastructure and personnel. Hitting or shrinking batch windows for backups is critical for many IT managers as they struggle to meet required service and availability levels while managing the exponential growth of data in their enterprises. As they look for solutions to speed up the backup process, their main requirement remains the same—data must be backed up properly and it must be recoverable.

Backup administrators are challenged to ensure that the solution they implement will yield the following benefits:

- *Reliable backups*
- *Higher application availability due to reduced backup windows*
- *Rapid and successful data recovery*
- *Automation and efficiency of management and integration into their environment*

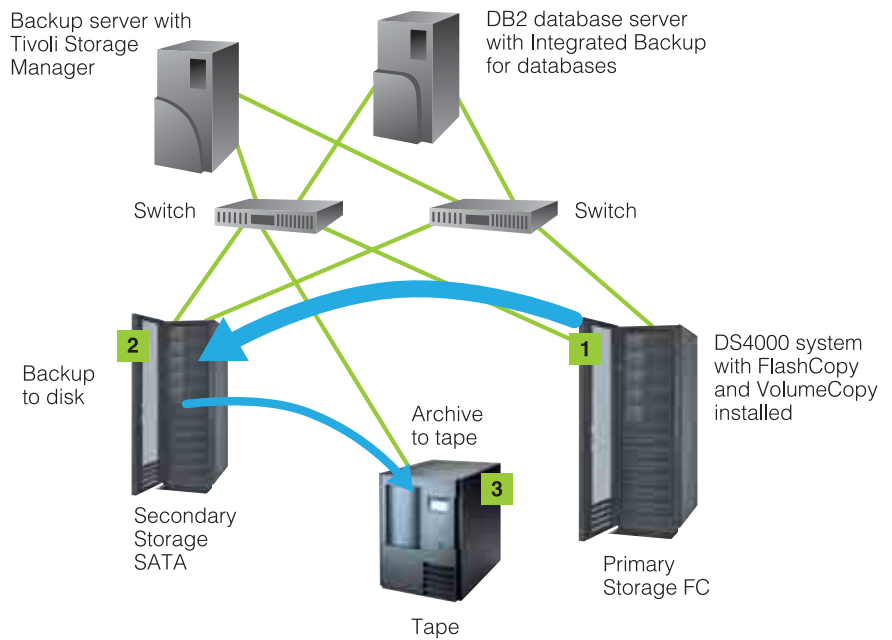
In addition, backup and recovery challenges need to be immediately addressed for mission-critical applications—those for which achieving the shortest backup and recovery windows is a mandate, such as IBM DB2® database systems for online transaction or analytical processing and mission-critical file servers. Unfortunately, backup administrators have had to compromise between speed and accuracy—traditional backup software forces a choice between slow backups with accurate restores or fast backups with inaccurate restores. Fortunately, recent tools and solutions mean that customers do not need to compromise. IBM TotalStorage® Integrated Backup for Databases offering is designed specifically to address the backup and restore challenges customers are facing today.

Solution overview

Integrated Backup for Databases offering, a new feature for IBM TotalStorage DS4500, DS4400 and DS4300 systems, provides the utilities and documentation necessary to install an integrated data protection backup solution for DB2 databases. The solution is designed to leverage DB2 split-mirror backup technology and IBM FlashCopy® and VolumeCopy copy services while avoiding application disruption to back up databases and create Quick Recovery Volumes for fast database restores. Creating a database mirror and mapping it to a recovery server for backup helps avoid the problems and downtime incurred by disconnecting and reconnecting users. In addition, this approach can help minimize overhead on production systems.

The VolumeCopy function of DS4000 disk systems allows for physical point-in-time images of database volumes. These images can be used as Quick Recovery Volumes to help accelerate the process of recovering a damaged DB2 database. Restoring a corrupt database by creating, mapping and mounting new volumes and then copying data from tape media is time-consuming. This solution is designed to enable a corrupt database to be quickly dismantled and the corresponding Quick Recovery Volume mounted in its place, initialized as a DB2 database and rolled forward with minimum application downtime.

TotalStorage Integrated Backup for Databases offering interoperates with IBM Tivoli® Storage Manager software to provide a policy-based, automated data backup solution for DB2 databases residing on the DS4000 storage system. It has been optimized to support IBM @server® pSeries® servers with IBM POWER4+™ processors and IBM AIX 5L™—the advanced, open, scalable UNIX®-based operating system from IBM. Featuring exceptional processing power, memory and I/O capabilities, pSeries systems can scale dynamically to address client demands.



With the introduction of dynamic logical partitioning (LPAR) in AIX 5L Version 5.2, IBM delivers advanced flexibility and scalability to pSeries systems.

Client benefits

Integrated Backup for Databases offering is designed to maintain continuous DB2 availability and data access because the backup process is designed to avoid disruption to users—DB2 remains online, helping meet required service and availability levels. This solution is designed to allow for rapid restores of the database through the use of Quick Recovery Volumes.

Storage administrators do not need to compromise between the speed and accuracy of a backup. Restoring from full copies of volumes kept on near-line storage (such as a DS4100 SATA disk), they help make restores fast, accurate and efficient. Integrated Backup for Databases offering supports a tiered backup infrastructure in which high-performance Fibre Channel disks (DS4500 or DS4400, for example) are used for DB2 databases and high-capacity SATA disks (DS4100, for example) are used for backup volumes. Cost-effective tape systems are kept off-site for disaster recovery purposes.

IBM, the worldwide leader in tape drive revenue,¹ offers a vast array of tape solutions from a single tape drive to tape libraries to address clients' growing data storage needs.

For storage administrators who want to protect enterprise data while minimizing cost, Tivoli Storage Manager software offers highly automated, policy-based central management that allows for simplified backup and restore implementations. TotalStorage DS4000 Integrated Backup for Databases offering integrates with Tivoli Storage Manager software, allowing for efficiency and flexibility. And because TotalStorage DS4000 models with the Integrated Backup for Databases capability have been optimized for IBM @server pSeries servers, clients gain the added value of a powerful platform that is capable of supporting compute-intensive needs.

Maintaining data security and durability are among the top concerns of IT managers. IBM offers comprehensive solutions to help address enterprise requirements and support continuous business operations.

Technical specifications

- *Complete, policy-based backup and restore for DB2 databases that are designed to:*
 - *Enable flexible and fast backup for DB2 databases and system table spaces*
- *Redundant Quick Recovery Volumes for fast DB2 recovery designed to:*
 - *Allow administrators to dismount a damaged database, mount the Quick Recovery Volume and then initialize the Quick Recovery Volume as a database*
- *Fully automated, non-disruptive backup process designed to:*
 - *Back up online databases automatically on predefined schedules*
 - *Eliminate complex scripting and error-prone manual procedures*
- *Easy installation, configuration and maintenance*
 - *Self-installs on database servers*
 - *Generates metadata files to help simplify restores*
- *System integration and optimization for full backups*
 - *Integrates with Tivoli Storage Manager and AIX 5L operating system*
 - *Helps optimize cost and performance through tiered storage*
 - *Includes software support for: IBM DB2 Universal Database™ Version 8.2 and above; Tivoli Storage Manager Version 5.2 IBM pSeries servers with AIX 5L Version 2, ML5 using IBM journaled file system technology (if DB2 is on file system); AIX Logical Volume Manager; and DS4000 Storage Manager software with FlashCopy and VolumeCopy (required).*
 - *Includes hardware support for: DS4000 storage subsystems in direct-attached, storage area network or high-availability cluster topologies*

For more information

To learn more about IBM TotalStorage Business Continuity solutions, IBM TotalStorage DS4000 or the complete IBM TotalStorage DS Family product portfolio, please contact your IBM representative or IBM Business Partner, or visit

- ibm.com/totalstorage/solutions
- ibm.com/totalstorage/disk



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¹ According to IDC's Branded Tape Share Report 1H04. October 2004, IDC #32040 Volume 1, Storage Systems: Competitive Analysis.