Using IBM Tivoli Storage Manager and IBM BRMS to create a comprehensive storage management strategy for your iSeries environment
Introduction

As your company has grown, it's possible—even likely—that new business needs have driven the expansion of your computing environment. For example, your IT resources might have evolved from a host-centric, IBM® iSeries™-only environment into an open-systems approach that incorporates a client/server or distributed computing architecture.

Designed to accommodate a wide range of e-business demands, today’s heterogeneous computing environments can complicate the task of managing data storage and data recovery needs. In an iSeries-only environment, there’s a proven tool: IBM Backup Recovery & Media Services (BRMS) for iSeries software.

But what if your IT resources have grown to include Microsoft® Windows NT®, IBM AIX®, Sun™ Solaris™, HP-UX or any of dozens of other widely used server platforms and operating systems? How can you efficiently manage the process of protecting your company’s user data and system resources—even if that information originates from a variety of sources?
The answer: IBM Tivoli Storage Manager. Unlike other multiplatform storage management products, Tivoli Storage Manager enables you to integrate with BRMS on the iSeries system—which can provide a comprehensive set of backup and recovery resources for your computing environment.

This unique solution is extremely flexible, too: It lets you implement the storage management strategy that best fits your company’s needs. You can use the iSeries system as the Tivoli Storage Manager server, or you can integrate the iSeries system into an existing Tivoli Storage Manager environment running on a different platform.

Defining roles
Although both Tivoli Storage Manager and BRMS are storage management products, they have complementary roles in a heterogeneous computing environment that includes iSeries machines. In essence, the two software products can work together to provide a comprehensive solution.

BRMS remains the IBM strategic solution for managing backup, recovery, media and storage in an iSeries-only environment. But in an open-systems environment that includes iSeries, the IBM strategic solution for backup, recovery, media and storage management is to team BRMS with Tivoli Storage Manager. This solution leverages your existing investment in BRMS while taking advantage of the Tivoli product’s proven ability to support a wide variety of platforms and technologies—not just servers, but mobile devices, point-of-sale terminals and more.
**BRMS media management**

**Backup planning**
- What objects should be backed up?
- What media? Tape, savefile or Tivoli Storage Manager?
- Full, incremental or cumulative backups?
- Save-while-active, parallel saves
- Spoolfile and object-level saves
- Duplicate backup tapes
- Did last night’s backup run OK?

**Media management**
- What is on tape XYZ?
- What tapes should be in location DEF?
- What tapes are old or have a lot of errors?
- What tapes should move offsite today?
- What tape has the latest copy of object ABC?

**Recovery**
- List of tapes required
- List of steps to recover
- Online progress report
- Location-specific recovery steps

**Hierarchical storage management**
- Migrate libraries, root folders and spoolfiles among disk ASPs based on age, size and last-use criteria
- Archive objects to tape based on age, size, frequency of use and ASP storage criteria
- Dynamically recall database files, DLOs and streamfiles when needed

**Tape library support**
- 3494 9427 3590 3570/3575
Automating the storage management process with BRMS
The BRMS application is designed to help you efficiently handle a wide range of storage management tasks within your iSeries environment. It lets you plan, control and automate your backup, recovery, media and storage management procedures—whether for a single iSeries machine or for multiple iSeries servers linked in a computing network.

You can use BRMS to define policies for tasks such as backup, recovery, archiving and retrieval. The application also simplifies the process of tailoring a storage media strategy that’s consistent with your company’s business requirements. Using BRMS, you can schedule and automatically perform incremental or full backups of both system and user data—and direct the backed-up data to specific types of storage media (for example, tape libraries, savefiles and so on). BRMS also provides media management services to help you track the location of saved files and to manage the lifecycle of storage media—from creation to expiration.

For more information about the functionality of the BRMS application, see the iSeries Web site: www-1.ibm.com/servers/eserver/iseries/service/brms

Automating the storage management process with Tivoli Storage Manager
Tivoli Storage Manager, the core application in the Tivoli Storage Management product set, lets you manage storage needs across a wide variety of platforms and devices. You can use it to automate many critical data-protection processes, including operational backup and restore of data (covering both system resources and user data), as well as to implement disaster-recovery procedures. Tivoli Storage Manager also provides powerful tools for storage resource management, helping you efficiently and comprehensively handle the retention, archiving and retrieval of vital business records. Tivoli Storage Manager is a network-based solution, which can make these functions available to system administrators across your computing environment.

Extremely versatile, Tivoli Storage Manager server software can run on eight different operating platforms. It also provides a set of application programming interfaces (APIs) that let you implement specific application clients. These APIs make it possible to integrate many popular business applications into your Tivoli Storage Manager solution. Tivoli Storage Manager is designed to
A technical discussion of storage management

Highlights

Tivoli Storage Manager complements your primary backup/recovery strategy.

For more information about Tivoli Storage Manager, see the Web site www.tivoli.com/products/index/storage-mgr

Integrating Tivoli Storage Manager with BRMS

To create a comprehensive, automated process for data backup and recovery in a heterogeneous computing environment that includes iSeries, you can integrate the functionality of the Tivoli Storage Manager and BRMS applications.

To implement this solution, you start by obtaining a set of Tivoli Storage Manager APIs for BRMS. These APIs make it possible to create a BRMS application client to a Tivoli Storage Manager server running on a different platform. The addition of the BRMS application client software lets you use BRMS to save user data to your Tivoli Storage Manager server across a network. Meanwhile, iSeries system data is still saved to a local tape device using BRMS or OS/400® commands. (OS/400 software includes a scheduler that can be used to automatically schedule BRMS operations.)

This approach is recommended when iSeries machines represent a substantial portion of your computing infrastructure, because BRMS remains a simple way to cost-effectively back up large amounts of system data. In such a case, Tivoli Storage Manager complements your primary backup/recovery strategy by making it simple to manage the backup and recovery of user data from the iSeries system, as well as data from other systems and platforms attached to the network.

Case study

Fashion statement: Tivoli Storage Manager and BRMS combine to deliver a comprehensive backup and recovery strategy at Diesel

After more than two decades of rapid growth, Diesel—one of Italy’s premier designer fashion houses—faced a dilemma: How to create an efficient and highly automated data backup and recovery strategy for an IT infrastructure that had expanded beyond its original base of iSeries computers. In addition to handling data from Diesel’s headquarters (located in Molvena, near Vicenza in northern Italy), the company’s computing network today also supports
After evaluating a number of options, Diesel chose Tivoli Storage Manager to augment its BRMS backup and recovery solution. Diesel wanted a backup management solution that could identify new versions of file systems, database records and e-mails without having to copy everything from scratch. Initially, Diesel adopted BRMS to automate the backup of management data compiled by the company’s central computers. Although satisfied with this solution, Diesel also needed to develop a centralized backup system that would take into account departmental servers and provide compatibility and scalability. In addition, the company needed a storage management system that would effectively support its disaster-recovery plan.

After evaluating a number of options, Diesel chose Tivoli Storage Manager to augment its BRMS backup and recovery solution. Today, Diesel has about 800 users who access the central system applications from company headquarters and subsidiaries through dedicated high-speed lines. These applications include a management information system, financial system, e-mail system, data warehousing system, departmental budgeting systems and applications for managing the finished product and raw materials warehouses. In total, the company has a fleet of 35 servers to be monitored and 370,000 files to be backed up each night.

The Tivoli Storage Manager/BRMS solution has proved to be highly effective. It enables the parking on hard disk of the data that has been modified from the previous version, as well as the successive implementation of asynchronous tape dumps. Today the backup system manages 170GB of memory for Microsoft Office applications, 40GB for Lotus Notes® e-mail applications and an additional 200GB for departmental systems. Backups of the various servers and central computer are completed in just a few hours every night.
After implementing the backup module, Diesel also implemented the disaster-recovery module, the first version of which provided copies of the archives on tape through a single server. A more recent version tracks the backup of every single server.

**The advantages of integration**

Two proven products, Tivoli Storage Manager and BRMS, become even more useful when used in combination to automate a comprehensive backup and recovery strategy for your heterogeneous computing environment that includes iSeries. You can also get more functionality in your storage solution by combining the two products.

**Key business benefits of Tivoli Storage Manager**

- Excellent “recovery time”—among the fastest of any major storage management software product for non-iSeries platforms in a heterogeneous computing environment.
- Supports the iSeries computing platform—unlike other major storage management software products, many of which do not offer iSeries support.
- Leverages your existing investment in iSeries hardware and BRMS software.
- Integrates with BRMS, allowing you to continue to use BRMS media management services.
- Supports multiple networking protocols in addition to TCP/IP.
- Uses a single relational database, with a two-phase commit process, helping provide the integrity of backed-up data.

**Key business benefits of BRMS for iSeries**

- Can be used to protect against data loss due to disaster situations.
- Provides an automated way to manage backup media, to help maximize efficiency.
- Provides a disaster-recovery report, guiding the user through a step-by-step system-recovery process.
Summary

If your company’s computing infrastructure has grown beyond an iSeries-only environment to include Windows NT, AIX, Solaris, HP-UX or any of dozens of other widely used server platforms and operating systems, you probably have discovered that it’s difficult to manage data storage and data recovery needs efficiently and comprehensively.

IBM offers a unique integrated solution: combining the proven performance of BRMS software with the multiplatform capabilities of Tivoli Storage Manager. This combination of software products is the IBM strategic solution for backup, recovery, media and storage management in an open-systems environment that includes iSeries. The comprehensive solution leverages your existing investment in BRMS while taking advantage of the Tivoli product’s demonstrated ability to support a wide variety of computing platforms and other information technologies.

Information is provided for informational purposes only and is provided AS IS without warranty. IBM disclaims any implied warranties of merchantability or fitness for a particular purpose. Your results will obviously depend on a variety of factors, including your specific environment.

IBM software integrated solutions

IBM Tivoli Storage Manager and IBM Backup Recovery & Media Services for iSeries software support a wealth of other offerings from IBM software. IBM software solutions can give you the power to achieve your priority business and IT goals.

- **DB2® software helps you leverage information with solutions for data enablement, data management and data distribution.**
- **Lotus® software helps your staff be productive with solutions for authoring, managing, communicating and sharing knowledge.**
- **Tivoli software helps you manage the technology that runs your e-business infrastructure.**
- **WebSphere® software helps you extend your existing business-critical processes to the Web.**
To learn more
For information on IBM Tivoli Storage Manager, IBM Backup Recovery & Media Services for iSeries software and integrated solutions from IBM, contact your IBM sales representative or visit info.tivoli.com/storageforsuccess

Tivoli software from IBM
An integral part of the comprehensive IBM e-business infrastructure solution, Tivoli technology management software helps traditional enterprises, emerging e-businesses and Internet businesses worldwide maximize their existing and future technology investments. Backed by world-class IBM services, support and research, Tivoli software provides a seamlessly integrated and flexible e-business infrastructure management solution that uses robust security to connect employees, business partners and customers.