

Unified recovery management

Reducing risk and cost by simplifying the recovery infrastructure



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Few would disagree that protecting enterprise data is one of the most crucial tasks any organization faces today. From corporate financial records, to day-to-day operational data, to customer and constituent histories, and much more, information is the lifeblood of any organization. The risk of compromising it through human error or intentional breach, or of losing it to a natural disaster or technology failure, is ever-present and must be guarded against at all times.

The mandate is simple enough: Protect your data. The reality, however, is more complicated—because protecting data today is every bit as difficult as it is important. The growing amounts of data being generated, the many kinds of data, and the different levels of associated risk can make data protection and recovery one of the most demanding aspects of IT operations.

This paper explores the complexities and challenges of today's typical data protection and recovery environment, as well as the risks and costs that are increasingly associated with attempting to deal with these complexities and challenges. It proposes an alternative approach to data protection and recovery that can help reduce the complexity, risks and costs. Finally, it describes how IBM is delivering on the promise of this new approach.

High risks and costs in today's complex data recovery environments

With data volumes growing at exponential rates, today's enterprise has more information to protect than ever before. But the amount of data isn't the only challenge, much less the greatest one. That lies not in how much data, but in how many kinds of data—not to mention how many places it's located, the various types of failures to which it's subject and the varying degrees of importance it may hold for the enterprise.

As Figure 1 illustrates, any given organization is likely to have multiple kinds of data applications associated with multiple infrastructure components and subject to multiple threats of failure. As if that weren't complex enough, there are also multiple considerations for data recovery. And perhaps most significantly, the complexity continues to increase as the number of software platforms and applications continues to expand, the number of places where data is stored continues to grow, and the number of things that can go wrong—each of which demands a different response—continues to multiply.

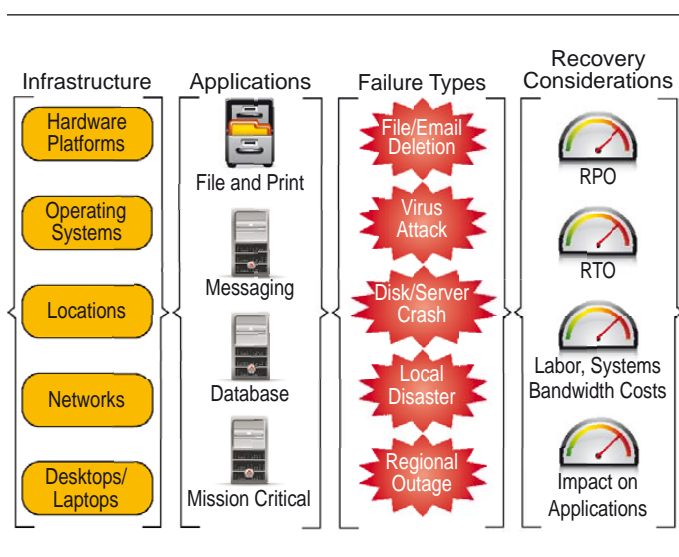


Figure 1: The layers of complexity are increasing in today's data protection and recovery environments.

To deal with these layers of complexity in data protection and recovery, enterprises have introduced a variety of point solutions into the environment that address specific issues. It's not unusual for a company to have separate solutions in place for data replication, continuous data protection (CDP), deduplication, snapshots, archiving and more. This is an inevitable consequence of the diversity of sources of data, places where it's stored, types of potential threats to it, and recovery concerns that are associated with it. The problem is in the level of risk created by having so many different solutions to manage; the more there are, the more things that can go wrong—human error being a common one. In addition, the more tools you introduce into the environment, the greater the cost for acquisition—particularly licensing—and ongoing operations, training/certification and management.

Ultimately, the question is this: When there are so many solutions and interfaces involved, can any one administrator really have true visibility and control of the entire data protection and recovery process? IBM believes that the answer is yes—with a new approach that unifies the operation and management of data protection and recovery solutions.

Unified recovery management: A lower-risk, lower-cost alternative

It's easy to see the data protection and recovery challenge in black-and-white, thinking that you have to choose between having multiple solutions, which can create management complexities that add risk and cost, or using a one-size-fits-all approach, which may cost less but create even more risk by not meeting the different needs of critical business applications.

But there is an alternative that falls between these two extremes. Unified recovery management is exactly what the term suggests: a single, unified approach to operating and managing a number of disparate but tightly integrated data protection and recovery tools. In this approach, one central point of administration controls multiple solutions—even though they are diverse solutions that are dedicated to different tasks. This integration of capabilities under one overarching umbrella enables organizations to simplify and streamline data protection and recovery by:

- Managing the entire data protection and recovery infrastructure from a single point.
- Unifying the management of data within an integrated portfolio of data protection and recovery products.
- Being able to easily grasp where all the recovery points are and managing them efficiently.
- Having immediate access to the technology interfaces required to recover whatever data is needed, wherever it resides.

Tivoli Storage Manager Suite for Unified Recovery

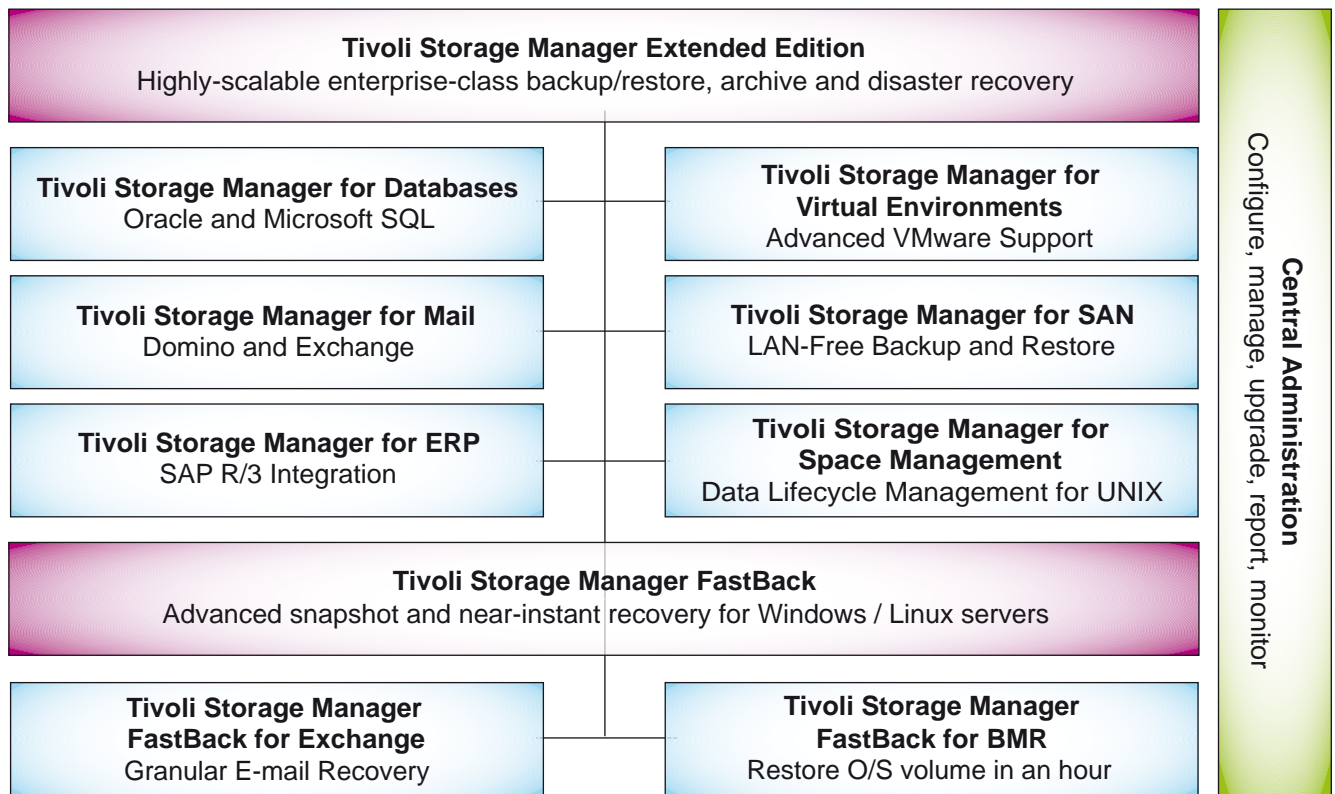


Figure 2: Tivoli Storage Manager Suite for Unified Recovery provides a complete suite of capabilities with one central point of management and control.

Simplifying and streamlining in these ways helps control both the risk and cost of data protection and recovery. The presence of fewer “moving parts” for managing the various solutions enables faster, more reliable backup and recovery processes. This in turn makes it easier to improve service levels and meet service level agreements—and thereby lower business risk. In addition, the need for fewer separate tools to deploy and manage multiple solutions reduces costs. So does the simplified software licensing that can be applied in this alternative approach.

IBM Tivoli Storage Manager Suite for Unified Recovery

IBM Software has been working for years to address the challenge of providing complete visibility into and centralized control over data protection and recovery operations, no matter how many solutions an organization is using to meet different needs. The result is IBM Tivoli Storage Manager Suite for Unified Recovery, a comprehensive offering that allows organizations to manage multiple IBM Tivoli Storage Manager products through a single interface.

With its ability to provide advanced data protection across a broad range of types of systems and applications, the IBM Tivoli Storage Manager family of products is already recognized as a leader in unified recovery management. The new suite builds on this strength with a simplified, centralized approach to acquiring and deploying data protection and recovery solutions. It makes it possible to quickly and easily acquire, deploy and manage any of ten Tivoli Storage Manager components, in any location and in any quantity, through one central point of control. Licensing is simplified, too, because it's based on only the amount of data managed by the software.

Benefits of Tivoli Storage Manager Suite for Unified Recovery

Massive scalability with broad platform support

Given the rates of data growth, the ability to scale your data protection and recovery environment is vitally important.

Most backup solutions scale by adding “media servers” to drive the additional storage capacity as it comes online. However, IBM Tivoli Storage Manager Suite for Unified Recovery can store up to two billion data objects in a single Tivoli Storage Manager server. These objects can be simple files, large medical images, databases, virtual machine images, snapshots or anything else with a file name; the size of the objects does not affect the solution's ability to manage them. Tivoli Storage Manager also supports more than 50 operating system versions and more than 500 storage devices, providing the ability to leverage your existing investments and cover your entire IT environment.

Target and source-side data deduplication

Data deduplication has become a mainstream technology, reducing the amount of backup data sent to the backup server (source-side) and reducing the amount of data stored by the backup server (target-side). Deduplication can be deployed in numerous ways and, depending on the vendor, can have dramatic cost benefits. Many vendors charge extra for this functionality, but IBM includes it as a standard function across the Tivoli Storage Manager Suite for Unified Recovery solution set.

Advanced protection and fast, flexible recovery for virtual servers

Virtual machines deliver significant economic benefits to IT departments by reducing the costs of acquiring, operating and managing servers. However, as these technologies are moved

into production application environments, they can create enormous headaches for storage and backup administrators. The old ways of protecting data—installing a backup agent on each virtual machine—can interfere with application availability and therefore do not work well for 24x7 production environments. Tivoli Storage Manager Suite for Unified Recovery provides a non-disruptive and efficient process for backup of virtual machines, with the ability to restore a file, a volume or an entire virtual machine, depending on the type of failure experienced.

Online, consistent and centralized data protection for databases, SAP, and email

Different types of applications require different approaches to effective, consistent backup and recovery. Tivoli Storage Manager Suite for Unified Recovery allows you to utilize specific application programming interfaces (APIs) or other programmatic methods to put applications into a backup-ready state.

LAN-free backup and restore

Storage area networks, or SANs, provide the ability to move large amounts of data between storage systems without utilizing the local area network (LAN) that applications and users rely on. LAN-free backup solutions like Tivoli Storage Manager Suite for Unified Recovery include the ability to use the SAN for moving backup and restore data between the application servers and the backup server, reducing overall network traffic and improving backup and restore performance.

Continuous data protection (CDP)

Some data is just too important to lose, or too hard to recreate, and therefore needs to be protected continuously. Mirroring and replication technologies can accomplish this, but they do not

provide complete protection against events like file deletion and database corruption. The continuous data protection (CDP) capability in Tivoli Storage Manager Suite for Unified Recovery combines the real-time data capture capabilities of replication with the point-in-time recovery capabilities of standard backup.

Bare machine recovery

At times, entire servers need to be replaced, either because of a severe hardware failure or due to natural disasters such as fires and floods. The first step to building a new server is to install the operating system; given the complexity of installing hardware-specific drivers and other enabling software, this can be a time-consuming and error-prone process. Tivoli Storage Manager Suite for Unified Recovery includes bare machine recovery functionality to help automate and speed this process.

Hierarchical storage management and archive

As data ages, users may not need to access it as often or as quickly as new data. Moving this static data to a less expensive (and typically slower) tier of storage therefore makes enormous financial and operational sense. Tivoli Storage Manager Suite for Unified Recovery uses hierarchical storage management (HSM) to move data automatically, based on policy, leaving a small pointer behind so that users and applications are transparently redirected to the data when it is accessed. Similarly, the solution uses archiving to move data from production storage to an archive tier. However, this process does not leave a pointer behind, instead relying on the user and application to know where to look for the data.

IBM Tivoli Storage Manager Suite for Unified Recovery

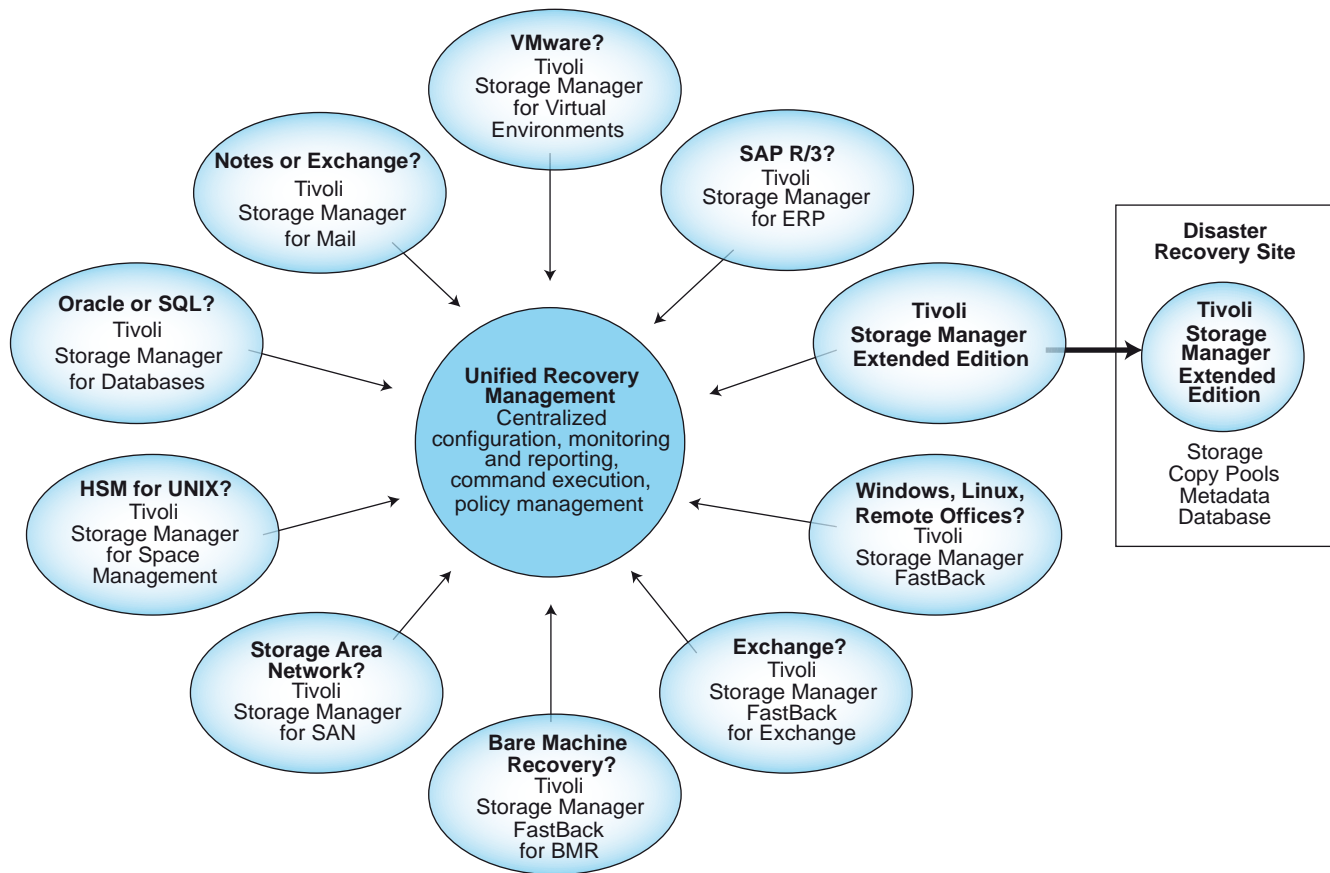


Figure 3: Tivoli Storage Manager Suite for Unified Recovery enables you to deploy the advanced solutions you need, where you need them, without worrying about individual license charges.

Take the next step

You can get started by conducting a return-on-investment analysis of your backup and recovery infrastructure. IBM has partnered with Butterfly Software to provide a complete assessment of your current situation and needs going forward, including a comprehensive report that allows you to compare the cost and risk implications of continuing on the same path or migrating to a Tivoli Storage Manager platform. Contact your IBM representative or Business Partner to find out more.

For more information

To learn how IBM Tivoli Storage Manager Suite for Unified Recovery can help reduce risk and costs in your recovery environment, contact your IBM representative or visit: ibm.com/software/tivoli/products/storage-mgr-unified

About Tivoli software from IBM

Tivoli software from IBM helps organizations efficiently and effectively manage IT resources, tasks and processes to meet ever-shifting business requirements and deliver flexible and responsive IT service management, while helping to reduce cost. The Tivoli portfolio spans software for security, compliance, storage, performance, availability, configuration, operations and IT lifecycle management, and is backed by world-class IBM services, financing, support and research. For more information on Tivoli software from IBM, visit: ibm.com/tivoli



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