IBM Systems and Technology
Solution Brief

IBM Storwize family and Temenos T24

Leverage efficient, agile, high-performance storage to optimize core banking solutions

Highlights

- Respond to changing market and regulatory demands with a flexible core banking solution
- Optimize storage performance and control costs while supporting a full range of banking markets
- Accelerate modernization with a proven solution that enables businesses to focus on information value
- Maximize quality of service with premier storage efficiency and capabilities that are self-optimizing and cloud-agile
- Simplify the storage infrastructure with integrated, cross-platform capabilities

Driven by the inadequacy of current systems to provide a platform for growth and innovation, the deployment of new core banking systems is one of the top priorities of global banking institutions. Banks are reexamining their core banking systems with a focus on phasing in capabilities to cope with rapidly increasing volumes of data compounded by new realities related to risk management, regulation requirements and customer retention. Yet some modern banks still rely on decades-old technology and aging applications.

As a result, these cumbersome legacy environments hamper business agility and growth, obstruct the bank's view of the customer and impede fast, inexpensive product innovation. That is why many banks are turning to IBM and Temenos to achieve a core banking transformation that is more customer-centric and highly efficient. The IBM-Temenos partnership combines the strengths of two industry leaders to offer banks a modern, scalable and future-proofed banking platform.

Modernizing with a proven banking solution from Temenos

Temenos T24 and T24 Enterprise (T24E)[1] are some of the most widely used core banking software platforms for international banking in the world. As 24x7, real-time applications that enable many-to-many relationships in which multiple application servers support a large number of banking locations, they provide the flexibility that banking modernization requires. As open and highly configurable banking software platforms, they incorporate industry-standard practices based upon Temenos implementations in 125 countries.

The modular Temenos T24 solution allows a bank to refresh or replace individual modules or the entire core banking system. Banks can move at their own pace, knowing their investment is based on an open platform that can expand as their needs grow and as market conditions change. The solution's flexibility also helps banks minimize the risk of investing in technology that will someday become incompatible.

Applying IBM Smarter Storage for Smarter Computing to banking

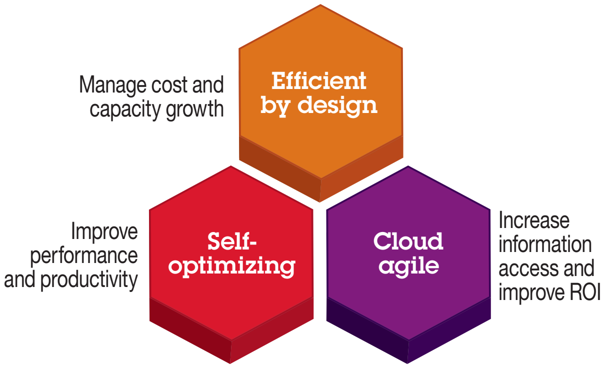
The strategic IBM approach to storage design and deployment has resulted in Smarter Storage solutions that can help financial institutions focus on the value of information in their core systems. It is an approach that can help optimize leading core banking systems, such as those from Temenos. A strong partnership between Temenos and IBM has allowed continuous development of best practices to ensure successful deployments. IBM clients can benefit tremendously from a shared approach to investigating new technologies—and the resulting ability to harness today's big data for business insight and success.

IBM Smarter Storage begins with innovative research on intelligent algorithms, automation, virtualization, and information-sharing, and builds on best practices to help control costs and reduce the rate of storage growth. It identifies three attributes for Smarter Storage—efficient by design, self-optimizing and cloud agile—that storage solutions such as the IBM® Storwize® family of storage systems embody.

Efficient by design

For many banking organizations, data growth has demanded a constant pursuit of increased storage efficiency. But widespread use of efficient technology has been hampered by complex deployments, inconsistencies across products, tradeoffs in performance and other drawbacks. Members of the Storwize family have been designed to be truly efficient storage systems with advanced features ready to deploy in order to help shrink capacity needs, improve productivity and reduce costs.

IBM Smarter Storage for Smarter Computing


Manage cost and capacity growth
Efficient by design
Improve performance and productivity
Self-optimizing
Cloud agile
Increase information access and improve ROI

The Storwize family enables innovative technologies that help deliver virtually effortless efficiency for Temenos offerings, including:

- **Simplified management:** A powerful, easy-to-use graphical user interface (GUI) is common across the Storwize family portfolio, providing administrators with intuitive system control to reduce complexity and improve productivity. This groundbreaking interface helps improve administrator productivity as the storage technology helps improve storage performance, efficiency and utilization rates.
- **IBM Real-time Compression™[2] :** Designed to improve efficiency by making it possible to store up to five times as much active primary data in the same physical disk space,[3] Real-time Compression helps reduce storage requirements, improve utilization to lower storage costs, or achieve a combination of greater capacity and reduced costs.
- **Thin provisioning:** Using thin provisioning for block data, Temenos applications consume only the space they are actually using, not the total space that has been allocated to them. Designed to keep business overhead low, thin provisioning optimizes efficiency by allocating disk storage space in a flexible manner among multiple users, based on the minimum space required by each user at any given time.

- **Unified storage:** Storwize V7000 Unified consolidates block and file workloads into a single system to improve overall storage utilization and reduce management complexity.

Self-optimizing

The Storwize family provides built-in self-optimizing technology to analyze data-access patterns and can automatically migrate block data to balance performance and cost. IBM System Storage® Easy Tier® augments Temenos deployments by automatically and dynamically moving appropriate data—such as data that is frequently accessed—to fast, high-performing solid-state drives (SSDs) based on ongoing performance monitoring. Temenos data that does not require such high performance can remain on lower-cost hard disk drives (HDDs).

In conjunction with Easy Tier, IBM offers a free tool to help analyze workload statistics, evaluate potential performance improvements, and enable easy, economical deployment and optimization of SSDs. IBM Storage Tier Advisor Tool is a Microsoft Windows-based console application that monitors and analyzes data-usage patterns and generates statistical reports including graphical displays of hot and cold data. The information gathered by the advisor tool can help determine which logical volumes might be candidates for Easy Tier management and predict how additional SSD capacity could improve performance for the system.

Cloud agile

The Smarter Storage approach simplifies the adoption of cloud computing, making IBM storage an enabler of cloud initiatives rather than an obstacle. The Storwize family leverages cloud-agile capabilities that help increase information access and improve return on investment (ROI) while managing data easily, efficiently and at scale. Whether systems are deployed in a public or private cloud or a traditional data center, Temenos users can benefit from innovative Smarter Storage technologies.

- **IBM Active Cloud Engine™:** This highly innovative suite of capabilities, available with Storwize V7000 Unified, is specifically designed to provide anytime, anywhere file access and management in an automated, scalable manner. Active Cloud Engine creates the appearance of a single, very fast system without regard to geographic, media or other discrepancies. These capabilities enable users to not only search huge amounts of data, like Temenos core banking data, and very quickly find what they're looking for, but also to rapidly store, delete, distribute and share that data. Active Cloud Engine gives Temenos users the ability to manage large numbers of files efficiently, locate the data of interest rapidly and get that data to where it is needed seamlessly.
- **Storage virtualization:** The Storwize family has the capability to virtualize external SAN-attached storage[2] as well as the Storwize family system's own internal storage. When an external IBM or third-party disk system is virtualized, the system's capacity becomes part of the Storwize family system and is managed in the same way as the capacity of internal drives. Capacity in external disk systems inherits all the functional richness and ease-of-use of Storwize family systems, including advanced replication, thin provisioning, Real-time Compression and Easy Tier. Virtualizing external storage helps improve administrator productivity and boost storage utilization while also enhancing and extending the value of an existing storage asset.

Gaining essential data protection

Due to the sensitive and highly regulated nature of the banking industry, it is especially critical to have a robust portfolio of data protection schema. The Storwize family delivers the flexibility and range of options necessary to meet demanding Temenos application deployment requirements for high availability and business continuity. Data-protection solutions, including backup and recovery for planned and unplanned outages for both local and remote locations, are offered through robust copy services that have been optimized for different data types.

Data protection for block data

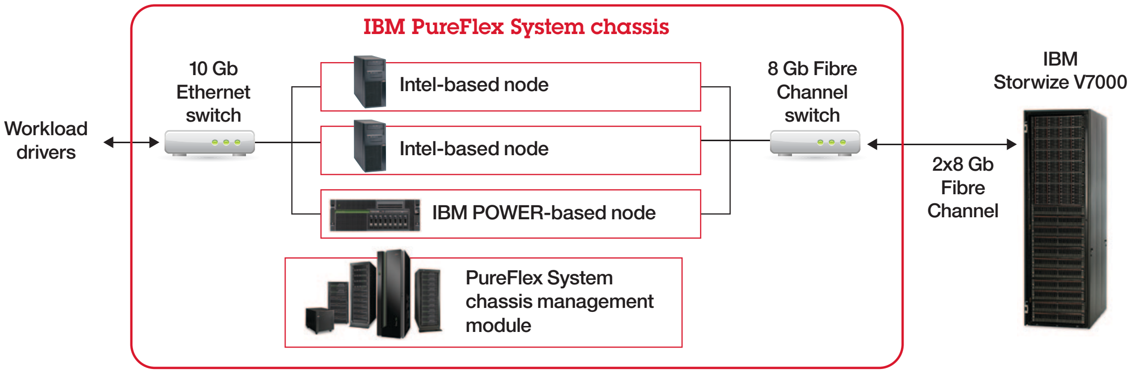
- **IBM FlashCopy®** provides near instant point-in-time copies of active data for backup or application testing. Thin provisioning can be leveraged when creating snapshots or backups (with incremental FlashCopy enabled), thereby reducing the amount of physical capacity required and improving overall utilization.
- **IBM Tivoli® Storage FlashCopy Manager** integration with FlashCopy can deliver the highest levels of protection for mission-critical applications such as Temenos T24 through application-aware snapshot backup and restore capabilities.
- **IBM Metro Mirror and IBM Global Mirror** functions replicate data synchronously (up to 300 km) or asynchronously (up to 8,000 km) between systems for local failover and remote recovery.

Data protection for file data

- **Snapshots** of a file system or fileset protect against accidental deletion or modification.
- **IBM Tivoli Storage Manager**-specific exploitation and integration provides very efficient and extremely fast backup and restore processes, as well as policy-driven migration of files to a virtual or external tape library.
- **Asynchronous replication** for site-to-site disaster-recovery protection leverages an IBM rsync tool to quickly synchronize files and directories from one location to another while minimizing the load on the network.

Benchmark testing: IBM and Temenos deliver a powerful combination

Demonstrating a shared IBM and Temenos approach to investigating new technologies, IBM conducted testing and optimization of the Temenos T24 core banking solution running on IBM PureFlex™ System, with Storwize V7000 storage. PureFlex System combines compute, storage, networking and virtualization capabilities under a single, unified management console into an infrastructure system that is expert at sensing and anticipating resource needs for your enterprise and is designed to provide an alternative to the traditional computing model of multiple and disparate systems.



The IBM-Temenos T24 workload optimization test configuration included PureFlex System, a family of expert computing systems that integrates server, storage, networking and management systems for IBM Power Systems and IBM System x® architectures, and IBM Storwize V7000. IBM Flex System™ V7000 Storage Node is also available as an integrated component of PureFlex System.

Storwize V7000 and PureFlex System performance in Temenos T24 environments

The primary objective of the test was to measure the performance and scalability of PureFlex System utilizing IBM POWER7® and x86 compute nodes, Storwize V7000 and Temenos T24 in a typical retail banking environment. The test cases were compiled from existing Temenos clients to simulate real-world scenarios and the daily processing load of a typical retail bank with a suitable amount of transaction history.

The testing conducted by IBM and Temenos using Storwize V7000 and Temenos T24 yielded excellent overall results. The combination of Easy Tier with SSDs resulted in exceptional storage performance including utilization rates and disk response times compared with SSDs or HDDs without optimization using Easy Tier. Storwize V7000 with Easy Tier enabled resulted in faster transaction response times and faster batch runtimes.

Predicted performance improvement using Storage Tier Advisor Tool[4]	25% to ~45%

Testing conducted with PureFlex System was designed to represent the typical activity during normal business hours of a retail bank. The results showed that PureFlex System provided exceptional performance with Temenos T24, processing five million accounts capitalization during close-of-business processes and in excess of 500 transactions per second in a mixed-architecture workload. The testing also demonstrated that PureFlex System maintained a processor utilization rate of between 30 and 66 percent, further illustrating that PureFlex System could not only meet the requirements of a typical five million-account retail bank, but was also more than capable of supporting additional workloads.

Leveraging the long-standing partnership between IBM and Temenos

The banking industry today faces unique challenges in managing IT and storage, particularly with regard to efficiently and effectively capturing, analyzing and sharing data while maintaining data security. IBM can help with Smarter Storage solutions that are efficient by design, self-optimizing and cloud agile. These solutions provide continuous access to information when and where it is needed, efficiently store and protect customer information, and provide scalability to address data growth seamlessly.

To help you make the most of your IT investments, IBM together with Temenos can deliver a complete banking solution that can be tailored to meet any organization’s needs and environment. In partnership with Temenos, IBM commits resources and establishes programs for ongoing testing, validation and interoperability. Together, IBM and Temenos offer:

- A broad platform of proven solutions, giving organizations flexibility and choice
- Deep integration between products for enhanced usability
- Comprehensive service and support to protect your investments over the long term

As established leaders in the banking industry, IBM and Temenos are uniquely positioned to help banks achieve their goals while minimizing business risk. This unique combination of hardware and software solutions enables organizations to dramatically reduce the complexity of IT, significantly lower IT costs and increase IT flexibility for improved business agility.

Why IBM?

The demand to manage and store ever larger amounts of data continues to challenge the banking industry. The Storwize family of products can help meet today’s storage challenges. Storwize family solutions integrate with Temenos T24 core banking solutions and bank strategies to manage mission-critical data, drive storage consolidation and more efficiently utilize storage in virtualized environments. Benchmarking of Storwize family systems with Temenos solutions demonstrates the strong partnership and development of technical solutions that allows continuous development of best practices to ensure successful deployments.

IBM brings the credentials and commitment that comes from working for many years with some of the world’s leading financial services companies. Working together with Temenos, IBM can help you create a robust, dynamic, scalable platform for growth and innovation.

For more information

To learn more about the IBM Storwize family, please contact your IBM representative or IBM Business Partner, or visit: **ibm.com**/storwize

For a list of high-quality solutions with IBM partner independent software vendors (ISVs), including access to solution briefs and white papers, visit: **ibm.com**/systems/storage/solutions/isv

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Actual available storage capacity may be reported for both uncompressed and compressed data and will vary and may be less than stated.

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[1] Temenos T24 and Temenos T24E for Java are identical functionally but run in different environments. T24 has its own c-based application server, T24E for Java runs in a JEE application server, such as IBM WebSphere® Application Server.

[2] Not available with IBM Storwize V3500 and IBM Storwize V3700

[3] IBM lab measurements – April 2012

[4] The predicted performance improvement is the possible response-time reduction at the back end of the balanced system configuration. It may vary with different system workload and configuration.

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