IBM

Leading the evolution to on demand banking: IBM zSeries—the backbone for more than 500 banks around the world

Business flexibility requires new IT flexibility. Technology resources must be aligned with modified strategic priorities. IT infrastructure must evolve to cost-effectively support component-based businesses, to automate and virtualize resources, and to enhance business performance management.

Rarely has the banking industry faced such a daunting combination of challenges. Topping the list, of course, is rigorous competition. With competition comes a related challenge: financial pressures. Economic uncertainties and demanding investors are impacting growth, revenues and margins. Many banks are looking to add revenue streams by getting into other businesses, such as insurance and securities.

As the marketplace becomes increasingly transparent, competitive intensity grows in severity, with existing players and new entrants alike scrambling to provide value to customers. In response, banks are transforming the way they are run. Traditional brick-and-mortar institutions and Internet banks are locking horns. Financial institutions are looking for every angle to develop new products and better service their customers--or lose them.

Meanwhile, consolidation is creating huge regional and national banks in an attempt to gain a competitive edge in offering products and services. Plus, changes in customer demands, technological innovations and government regulations are increasingly sudden and dramatic, prompting banks to evolve from being reactive to proactive.

As if the marketplace weren't posing enough challenges, threats have emerged from more insidious fronts. Pervasive dangers become real and prevalent as global firms see increased exposure to disasters, unstable geopolitics and other market shocks.

It's a sobering list of challenges in large part, challenges that have emerged rather suddenly. (Ask yourself whether you were dealing with these issues just a few years ago.)

With nothing short of a dramatic business transformation, individual banks are compartmentalizing themselves into component-based businesses, leveraging best-in-class components from sources throughout the networked industry. Some are even choosing to become more specialized in distribution, product manufacturing or processing—and abandoning non-priority functions.

Internal restructuring isn't the only trend. Banks are also focusing outward, abandoning independent, vertically integrated business models and building networks of affiliated financial institutions. The seamless connectivity and efficiencies that were previously confined to a component-based business are now being combined with the specialization and scale made possible by a fully networked industry.

In short, banks are breaking down both internal and external walls, then integrating processes end to end within the organization and with key partners, suppliers and customers to respond quickly to any customer demand, market opportunity or external threat. They're making full use of resources to be more productive and innovative, and differentiating their offerings to capture new value. They're re-evaluating their business processes, technological infrastructure and corporate culture.

This new business flexibility requires new IT flexibility and technology resources must be aligned with modified strategic priorities. IT infrastructure must evolve to cost-effectively support component-based businesses, to automate and virtualize resources, and to enhance business performance management. Banks are transforming the way they are run.

There's a term for all this. It's called on demand.

zSeries is the on demand platform of choice

In an on demand banking environment, everything happens at an accelerated pace, and with good reason: Customers' needs change. The regulatory environment shifts. The marketplace evolves and expands. And IT professionals must anticipate and rapidly respond, as well as streamline and integrate core applications and systems to maximize their technology resources. And of course, they must do all this based on a rock-solid, high-performing and secure architecture.

For such a critical business initiative, IT executives in the banking industry are understandably seeking the inherent strengths of the mainframe built specifically for on demand banking. And they are finding it in the IBM @server zSeries which offers a powerful platform for on demand banking-a platform on which many institutions are relying on 99.999 percent availability, fortress-like security and performance under extremely demanding conditions.

It stands to reason that the zSeries platform is well equipped to handle sophisticated banking applications. After all, it was designed and built by a company with decades of deep experience in banking technology.

IBM mainframes now comprise the IT backbone of many of the world's 500 largest banks, including titans of the industry such as Citigroup, Chase, HSBC, Mizuho, Bank of China and UBS. (Our client roster also includes such financial services firms as Merrill Lynch, Goldman Sachs and Morgan Stanley, as well as online brokerages such as Charles Schwab, ComDirect, etrade and Deutsche Bank24.) IBM IMS™ and IBM DB2® Universal Database systems currently manage the vast majority of banking data worldwide.

For three business goals, a single platform emerges

How are IBM zSeries hardware and software helping today's banks achieve their three primary on demand goals? Here's how:

- *Efficiency.* zSeries allows banks to more effectively adapt to market changes by moving from fixed to variable cost structures. Variable cost structures combined with business pro-cess flexibility allow banks to accommodate fluctuations in market demand and consumer

product preferences. Then, thanks to the resulting lower cost structure, savings can be shared with customers through attractive rates and better-priced products.

• *Resiliency.* With zSeries computing, banks can recognize and respond to potential exposures to operational, market and credit risks in near realtime—and reduce their capital requirements through robust risk management. They can deliver consistent, reliable 24x7 service access across the organization and around the globe. They can prepare for unforeseen events and protect the firm's assets, safeguard customer and employee privacy, and reduce all types of operational risk, including those presented by staff attrition.

• *Differentiation.* zSeries can help banks re-platform their core systems to produce a leaner, more efficient infrastructure that moves faster and opens up new revenue streams. Sales and service personnel can communicate seamlessly with customers through multiple channels. Banks can provide the right products and services at the right time to increasingly demanding customers. They can sense and dynamically respond to internal or external changes, and gain the organizational capacity to act quickly based on analysis and insight. They can choose to focus on core competencies and build differentiating competencies where value can be added and a sustainable competitive advantage can be achieved.

Real-world examples of the power of zSeries

The most robust mainframe ever to hit the market, zSeries is a highly scalable system that integrates and manages diverse applications and storage/network resources. Around the world, large financial institutions are using it as the foundation on which to transform their organizations and enhance their business processes. Just a few examples of the power of zSeries:

Multi-channel capability. Call it reinventing the front office. Banks are creating new ways to reach their customers and enhance the customer experience. To generate multiple customer channels, zSeries offers industry-leading virtualization capabilities and open standards. It provides a highly available, robust and scalable infrastructure for consolidating and integrating

disparate applications-including branch workloads-on a centralized server. With this kind
of power to repurpose business processes, branches can be transformed into full-service
relationship centers custom-tailored to location and customer base. Self-service capabilities
can be expanded, offering a wider range of online transactions. Optimal customer service can
be offered through contact centers. And consistent, informed services can be delivered across
more channels, so customers can manage their banking activities how, where and when it's
convenient for them.

Core banking. Thanks to ever-increasing processor performance and scalability, bullet-proof
security and autonomic (self-healing, workload balancing and self-configuration) capabilities,
zSeries is an excellent choice for customer insight and other core banking business
intelligence. It's also the premier database server for key integrated application suites. With the
IBM DB2 Universal Database application, for instance, zSeries provides a rock-solid, centralized
access point for the customer, while providing internal corporate data required for analytics and
segmentation modeling.

Payments. Banks are restructuring their payment systems, streamlining front-to-back-office
processes and allying with external partners for higher accuracy and accelerated service
delivery. zSeries is facilitating that transformation with leading-edge security technologies,
including high-performance cryptography and supporting middleware. That enables more
secure, efficient processing of large volumes of retail payment transactions, including card
management and ATM point-of-sale transactions, in a continuously available and resilient
environment.

Risk management. Is there another industry with as great a need to never, ever let down its
constituents, employees, shareholders, auditors, customers and regulators? zSeries provides
a secure, scalable platform for risk management and compliance solutions, which require
analytics applications to understand and manage credit, market and operational risk. And the
availability of zSeries Business Continuity and Recovery Services enables banks to offer 24x7
customer service, minimize vulnerability and restore operating conditions if a disaster occurs—
all critical factors in today's environment.

> *"Not only is the security and solidity of IBM systems extremely high, but also their quality of service is excellent."*
>
> *Andrés Modet, Director of IT Architecture, Grupo Banco Popular*

Security: A definitive platform for business continuity

As banks increasingly conduct business over the Web, they increase their exposure to external unauthorized access and potential disruptions of IT infrastructure; stories of hackers, viruses and worms continue to make headlines.

Now, another threat has emerged: insider attacks and other white-collar crimes. Last August, the U.S. Secret Service and Carnegie Mellon University's Software Engineering Institute issued a report titled, "Insider Threat Study: Illicit Cyber Activity in the Banking and Finance Sector."* The report examined 23 incidents carried out by 26 insiders in the banking and finance industries from 1996 through 2002. Its findings: Insiders pose a substantial threat by virtue of their knowledge of and access to their employers' systems and/or databases, and their ability to bypass existing physical and electronic security measures through legitimate means.

Combine insider threats with ongoing attempts by outsiders to intrude on and disrupt a bank's IT infrastructure, and it's easy to see why data security and business continuity are such top-of-mind issues among financial services professionals.

In light of this, zSeries provides the most high-level security in the industry. Consider that the traditional costs of a security breach range from $2 million to $5 million. zSeries is designed to help prevent such breaches, as well as to automatically manage high-security access and transactional integrity. Its co-processing capability can execute a high number of encrypted Web sessions, which means banks can manage security statements automatically instead of having to staff up with security administrators and invest in outboard hardware such as SSL accelerators.

Bullet-proof security isn't limited to zSeries hardware. It's built into all zSeries software as well. Core IBM middleware WebSphere, DB2 Universal Database, Tivoli, Lotus and Rational® protect applications and data from unauthorized access. And the z/OS operating system lets businesses dynamically change security mapping, such as authorizing only certain individuals to access certain information at pre-defined times.

The difference between flawless execution and slow response times

In China, international banking requirements recently hit the mark of 50 million transactions in one day. This is the kind of load created by 24x7x365 banking on demand. And it is the kind of scalability that zSeries servers can uniquely offer.

zSeries provides one of the world's most reliable and scalable environments for running new on demand applications alongside core business applications. It helps simplify management of many diverse workloads, while balancing resources across those workloads for optimal performance and maximum utilization. zSeries manages these capabilities through advancements in the operating system and supported systems management software.

One example is the zSeries Intelligent Resource director (IRD), which combines three key zSeries technologies-z/OS Workload Manager (WLM), Logical Partitioning and Parallel Sysplex® technology. Together, they ensure that the most important workloads have full access to the resources they need, by constantly managing those resources according to the changing priorities of the business. zSeries systems management solutions have also evolved from technology monitoring to end-to-end application workload management, enabling IT professionals to proactively detect and resolve problematic transactions and system resource issues before customer service levels are affected.

During spikes in demand, the ability to scale up and out at a moment's notice can make the difference between flawless execution and slow response times—or even system crashes. A single zSeries server can scale up to millions of transactions per day or scale out to manage tens to hundreds of virtual servers.

Flexibility: Move mass amounts of data in and out

Flexibility refers to the variable amount of data that an application needs to retrieve from multiple, external sources. A metric indicating 5 percent in a simple workload, for example, means that the application tends to have all its data available without external access requirements; 75 percent means that a high amount of expensive search and retrieval operation are required to retrieve and process the data.

The zSeries is the industry standard workhorse in the world of heavy input/output (I/O). For 30 years, it has stood alone in its ability to process transactions that require massive amounts of I/O.

Simplify infrastructure and reduce TCO

As on demand banking evolves, server sprawl and infrastructure complexity can emerge as problems. Distributed server farms, with dozens or hundreds of dedicated machines handling single applications or population inevitably create increased complexity. This translates into time lost, increased administrative burdens, unplanned downtime, weak security, unstable transaction paths-essentially the same list of problems that accompanied early client/server architectures. The penalty is higher total cost of ownership and the lack of a stable foundation for steady growth-even though the cost of acquiring the individual commoditized servers is relatively low.

Enter zSeries, the centerpiece of a simplified, end-to-end infrastructure solution that eliminates server sprawl and all its associated complexities. Leveraging virtualization capabilities, the zSeries solution is a natural choice to simplify IT infrastructure solutions, including hardware, operating environments, data management, transaction processing facilities, application development and systems management. The result: completeness with vastly diminished complexity, and lower total cost of ownership.

> *"We have an architecture that handles both legacy and new applications, and offers robust and cost-effective disaster recovery capabilities."*
>
> *Giorgio Seronello, IT Director, Banca Carige*

Easily integrate new solutions with legacy systems

To achieve the flexibility and componentization that are the hallmarks of an on demand environment, a bank's IT infrastructure must evolve from silos of complex, over-provisioned, proprietary hardware and software to a standards-based infrastructure where capacity can be optimized across the entire organization and beyond. And that is no small task for institutions with decades-old legacy systems in place.

Over the years, multiple banking services have been deployed on disparate IT platforms. Legacy core checking and savings accounts were placed on many different IMS systems, acquired at different times from different sources for different functions. Then loans and other financing services were offered, with the new functionality deployed on CICS-based infrastructure. Inevitable mergers and acquisitions added still more layers of complexity in the form of new, often incompatible IT systems. The result is a morass that must be deconstructed to understand the relationships between banking operations systems and customer-facing applications and services.

So, how does a bank combine core services into one system without having to reinvent the wheel? The answer lies in integrating and re-deploying critical financial applications on the zSeries mainframe running the z/OS operating system. The goal: leverage the power of the mainframe to increase the value and accessibility of existing applications by integrating them into the new on demand business IT environment.

If a bank chooses, it can begin by transforming business application components on a small scale. A single vertical silo or process can be integrated, and the rewards can be reinvested in the next business improvement. In this manner, a cycle begins, improving the bank's competitive position for years to come.

zSeries: Platform of choice for IT management

Competition. Demanding customers. New channels. Consolidation. Security threats. As banking enters a new world—the on demand world—the ability to detect and respond to changing market conditions, customer needs and external threats is a critical factor in determining success or failure. Business processes must become more flexible-and so must technology infrastructure.

Your customers want dependable services that allow them to get the most out of their business relationship with you, just as your company should be getting the most from your investments of capital, time and personnel. To ready your business for the on demand operating environment, you must keep your IT environment flexible, integrated and supported by the latest enabling technologies.

In the new on demand environment, you must make full use of your resources in order to be more productive and innovative, and differentiate your organization to deliver new value. You must transform business designs by breaking down internal silos and integrating business processes end to end, and by outsourcing non-core processes to strategic partners.

To reach these goals, you need a platform that seamlessly integrates not only hardware, operating system and middleware, but also people, processes and information. Your platform must do so in a way that allows your bank to become more flexible to the dynamics of the markets, customers and competitors around you.

IBM zSeries is the platform of choice to achieve integration because it delivers the capabilities to facilitate:

- *Business modeling, which enables the graphical depiction and simulation of a business process including task descriptions, resources required and decision points*
- *Process transformation, which enables existing applications and information to be reused in new ways*
- *Application and information integration, which enables multiple information sources and business applications to be combined*
- *Access, which extends data and information to new classes of devices and methods of interaction, regardless of connection type*
- *Collaboration, which allows users to interact in a personalized way with dynamic information, applications, processes and people*
- *Business process management, which lets you model, deploy and analyze processes with the goal of managing the end-to-end business process.*

IBM encourages you to take a look at your IT environment and ask yourself: Is your platform ready for on demand? Is it ready to become more open, virtualized and autonomic? Can it simplify business integration and, in turn, enable business flexibility?

For more information on IBM Software for zSeries, visit ibm.com/software/zseries.

* Available at http://www.secretservice.gov/ntac/its_report_040820.pdf.

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