

## Real Advantages, Proven Successes



**Financial Solutions and Services on Linux**





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*Linux is critical to competitiveness—playing an even greater role in financial services by enabling more streamlined IT infrastructure, providing competitive differentiation, improving operational resilience and reducing IT costs.*



## **Linux: meeting today's financial services business challenges**

Globalization, increased commoditization of traditional products, regulatory changes, increasing competition, technological innovations and changing customer requirements all have reshaped the IT environment within financial services, banking and insurance companies. In this new environment, firms are being asked to provide more services to customers while also lowering costs. Those goals—to accomplish more and spend less—seem opposed, but Linux®-based IT systems can make both objectives possible.

Linux running on IBM @server™ systems are helping financial firms around the world address the IT challenges of improving operational efficiency, minimizing risk, lowering IT costs and providing competitive differentiation.

Linux is the fastest growing server operating system in history, and Linux use in the financial services sector is increasing rapidly. Market research firm IDC expects Linux shipments to grow by more than 34 percent per year over the next four years.<sup>1</sup>

Because Linux is open source, it allows freedom of choice—freedom to choose the best software, systems and solutions to meet your business needs. As a result, firms are never locked into a particular approach or vendor. IT departments can harness this flexibility to adopt new approaches, enhancing the competitiveness of your business. Most importantly, Linux is comparatively “future-proof.” Because of its broad support over a wide variety of the most common hardware platforms today, and the likelihood that

<sup>1</sup> IDC Server Market Forecaster, December 2002.

it will be supported on the hardware platforms of the future, Linux is a safe bet for developing applications.

This flexibility is attracting large numbers of software companies. IBM's Global Solutions Directory lists more than 4,000 applications that run on Linux. This large selection of commercial software enables financial services companies to leverage the value of Linux through new, innovative applications as well as through the proven applications that are widely used today.

Among the many values that Linux offers, lower cost is often of great interest to financial firms. It is the total costs that can be lower with Linux. According to a senior analyst for the TowerGroup, "Linux is proving to have an advantage over alternative operating platforms with a lower TCO (total cost of ownership), both in terms of lower hardware and software expense and ongoing maintenance and support."<sup>2</sup> In addition, recent research from the TowerGroup<sup>3</sup> also found that compared to UNIX<sup>®</sup> and Microsoft<sup>®</sup> Windows NT<sup>®</sup> platforms, Linux has the lowest license, installation, administrative and support costs for certain business functions.

By harnessing increasingly powerful Intel<sup>®</sup> processor-based servers, Linux is helping financial firms use commodity hardware to perform business-critical functions. With reliability acknowledged as a key strength, companies are using Linux for their most critical applications.

For example, Linux is running Morgan Stanley's North American market data delivery plant as well as a swaps valuation application for derivatives in the company's fixed income business.<sup>4</sup>

## Linux benefits four key IT areas

- **Workload consolidation:** By consolidating distributed workloads (such as Web serving) from competitors' systems onto IBM platforms, customers can realize reduced costs, efficient resource utilization and simplified management.
- **Distributed enterprise computing:** Enterprises with geographically dispersed offices can leverage low-cost, centrally managed, robust Linux servers that are easy to replicate.
- **Clusters:** IBM Linux clusters include scalable configurations of servers, storage hardware and cluster management infrastructure. These clusters are augmented with pre-integrated, pretested IBM middleware and IBM services tailored to customer requirements—providing you with superior scalability and low-cost modular growth that is easy to deploy and manage. Linux clusters are being deployed by financial firms in the high-performance computing arena for compute-intensive workloads such as derivatives, analytics and portfolio optimization.
- **Infrastructure:** IBM Linux-based infrastructure servers—for firewalls and for print, e-mail and Web servers—are Intel architecture-based platforms tailored and optimized to deliver to customers pretested products that are inexpensive and easy to use, install, set up and expand.

<sup>2,3</sup> Dushyant Shahrawat, "Wall Street Romances the Penguin: The Growing Popularity of Linux," TowerGroup report, September 2002.

<sup>4</sup> Risk Waters Group, "Leading the Linux Charge", November 2002.





## The financial services reality: deliver more for less

The new economic reality is that financial services firms must do more with less and yet are expected to stay ahead of the competition. Linux is critical to competitiveness—playing an even greater role in financial services by enabling more streamlined IT infrastructure, providing competitive differentiation, improving operational resilience and reducing IT costs.

### Use Linux to streamline IT, improve operational efficiency

Linux can assist financial institutions in utilizing IT resources more efficiently and streamlining IT infrastructure and operations (such as transaction processing) by simplifying a firm's computing requirements, administration and management through server and workload consolidation.

Financial companies are leveraging the low cost of ownership of Linux in the areas of Straight-Through Processing (STP). Several of our independent software vendor (ISV) Business Partners have ported their applications to Linux, including:

- **ADP Wilco:** This ISV has ported its UPM Corporate Actions package to Linux.
- **Microgen:** IBM has incorporated Microgen's OST Business Rules into an IBM message infrastructure offering called Managed Message Service (MMS).

### Use Linux for competitive differentiation through e-business on demand

If you want to stay one step ahead of the competition, you need to respond quickly to changing business conditions and customer demands—you need an on demand business model. Financial companies are using the openness and flexibility of Linux as the foundation for IT systems that enable faster responses to market conditions.

## Leveraging Linux for high-performance computing

4 As is the case with most institutions today in a tight economy, Lehman Brothers, the financial services company, was looking to reduce costs while optimizing the IT environment for its business-critical e-trading, derivative and risk applications, which require extensive computing power. The investment in IBM @server xSeries® servers running Linux provides Lehman Brothers with a 20 to 30 percent inventory reduction in UNIX servers.

In addition, the scalability of the xSeries servers allows Lehman Brothers to grow IT capacity at a lower cost compared to systems from other IT vendors. Ultimately, customer satisfaction also is greater because the xSeries servers provide a 25 percent performance increase, thereby allowing Lehman Brothers traders and analysts to respond more quickly to customer requests.

For example, financial companies are using the Web (such as online self-service) to provide better and more responsive customer service and to offer new products and services. It is no longer enough to simply handle transactions over the Web. e-business applications must integrate with many other systems to give customers the complete self-service experience they desire. Customers have too many choices in vendors today for firms not to provide the best possible experience for their customers. The fast, streamlined, Internet-ready characteristics of Linux have attracted many financial firms to build their e-business systems on Linux.

IBM has experience with thousands of e-business customers around the world. We have learned that successful e-business applications depend on an open, flexible approach to encourage the rapid development of new e-business solutions. From innovative financial services applications to wireless e-commerce systems, IBM is involved in new uses of IT to expand selling opportunities, improve customer loyalty and ultimately create a competitive edge for financial firms.

For example, the Bank of Birmingham offers community-banking services through approximately 30 branches located primarily in Alabama and northwest Florida. The bank wanted to significantly improve how its online business addressed the needs of customers. The bank's previous Web presence lacked the ability to cost-effectively add new applications, was less secure and did not provide an overall flow or focus. The bank deployed a new Web site on two IBM **@server** xSeries 300 servers running Linux; this new Web site, with a new user interface, offers functions such as online processing of loan applications and other services.

### **Use Linux for bank branch transformation**

IBM has provided four generations of solutions to the banking industry. That leadership is now significantly reinforced by the readiness of multi-channel solutions for the branch office and other channels. These solutions exploit the cost benefits and business flexibility of new Web-based paradigms delivered on the open technologies of IBM WebSphere® software and Linux.

IBM is now in a position to demonstrate the benefits of a new generation of robust, "enterprise-centric" multichannel and branch solutions, and has been working in its industry integration centers in Dallas, Barcelona and Vancouver with several key customers to develop and prove this capability.

Built on IBM's open WebSphere middleware, the processes and applications are created and managed just once to support true multichannel requirements. Delivered on the open Linux operating system, the processes and applications can be run in any combination of central, regional and in-branch locations, responding flexibly to business and technology needs.

The benefits of this new approach are significant and include:

- Cost reductions resulting from the use of the low-cost Linux platform and from the centralization of processes, technologies and systems management
- Business agility resulting from the ability to deploy and share business processes and applications across lines of business, channels and systems management
- Improved competitiveness resulting from the common and consistent use of data, processes and customer insight to address customer requirements and opportunities across channels and lines of business



## Use Linux to minimize risk, improve operational resilience

In financial markets, a key to business success is knowing your risk exposure in as near to real time as possible. This capability directly affects the positions you can take and the bottom line. For example, by migrating to Linux, Banco Mercantil has experienced price/performance gains, enabling the bank to radically improve its intra-day risk assessments.

ISVs also are porting their applications to Linux. For example, Axiom Software Laboratories has ported RiskMonitor, a risk-management solution that monitors and proactively controls portfolio risk on an enterprise and desk level. In addition, Algorithmics is planning to release a Linux version of Algo Suite, which provides comprehensive credit and market risk management across multiple business lines and products for both trading and banking books.

## Use Linux to lower IT costs

With IT representing a bigger part of overall costs, streamlining IT itself can be a key objective. Linux-based servers can deliver both capital and operating cost reductions. The operating system itself is very efficient, requiring less hardware resources than alternatives such as Microsoft Windows® and other competing operating systems.<sup>7</sup> And because Linux is available on so many platforms, you can select the one that best fits the workload, thus helping optimize your use of capital. A greater use of Linux also can enable you to reduce the number of server operating systems needing support.

According to a Risk Waters article,<sup>8</sup> Merrill Lynch has reported realizing as much as a 40 to 50 percent reduction in TCO for initial Linux deployments. In addition to lower cost, scalability is a key attribute of Linux-based systems. Companies do not have to over-buy capacity

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## The value of Linux in financial services

- **Freedom to choose**—Broad vendor support for Linux provides the freedom to choose vendors, platforms, software and services independent of one another.
- **On demand capability**—Financial firms can leverage the Internet to reach customers and partners in the on demand computing era.
- **Built for growth**—Linux, known for its record-setting horizontal scalability,<sup>5</sup> can help meet the growth demands of your business.
- **Exceptional price/performance**—Reduced licensing costs and exceptional power combine to make Linux a great price performer, giving customers the opportunity to consolidate workloads onto fewer and less expensive servers.
- **Investment protection**—Linux can integrate into multivendor environments, extending the life of prior investments.
- **Reliable**—Linux provides greater uptime than Microsoft Windows platforms, according to the Standish Research Group.<sup>6</sup>
- **Low cost**—Total costs (including equipment, software, administration and environmental factors) can be much lower than other operating systems.
- **Security**—Linux enables product and vendor diversity, which lowers the risk of devastating cyber attacks that target specific features or flaws of any one product. The combination of Linux's open source heritage and built-in security features (such as real-time usage monitoring, audit-trail usage reporting, transport layer security and encryption) can help you to minimize security risks.

<sup>5</sup> Transaction Processing Performance Council, [www.tpc.org](http://www.tpc.org). The TPC-H is a decision-support benchmark. The benchmark test was performed on a four-node xSeries 350, with each node featuring four Intel Pentium® III Xeon processors at 900MHz and 4GB of memory, and running IBM DB2 Universal Database™ version 7.2 software and Turbolinux 7 Server.

<sup>6</sup> Standish Research Group, "Is Linux Legit?" 2001.

<sup>7</sup> Dushyant Shahrawat, "Wall Street Romances the Penguin: The Growing Popularity of Linux," TowerGroup report, September 2002.

<sup>8</sup> Risk Waters Group, "Leading the Linux Charge," November 2002.



in order to grow when meeting unanticipated customer demand. In addition, many IBM servers offer capacity on demand, so IBM customers can get permanent increases in capacity in minutes, or in some cases, obtain temporary capacity for seasonal peaks in computing needs.

GuideOne Insurance is one of the largest specialty insurers in the U.S. The company

was incurring high costs maintaining a Microsoft Windows NT-based server farm. GuideOne replaced the farm with Linux on an IBM **@server** zSeries® server and reduced its TCO—saving more than US \$250,000 over 30 months.

## IBM and Linux can make a difference for financial services

IBM provides a comprehensive suite of products and services to financial services firms. These solutions are built on years of experience. For example:

- IBM WebSphere software is used by the majority of the top commercial banks in the U.S.
- IBM databases are used by most of the largest life insurance companies in the U.S.
- More than half of the leading banks in the world use IBM products and services.

IBM will continue to work directly with financial services customers to help them become more competitive through the innovative deployment of high-impact solutions. IBM solutions also can offer financial services firms one point of contact for support to help ensure that their systems produce the needed results.





## Why work with IBM to leverage Linux?



- IBM has thousands of Linux customer engagements worldwide.



- IBM has Linux-enabled its entire portfolio of hardware, software and services.



- IBM provides Linux Financial Services Competency Centers specifically for IBM Business Partners.
- IBM Linux Integration Centers, IBM Competency Centers and IBM Solution Partnership Centers around the world help customers design and deploy Linux solutions, help software vendors migrate their applications to Linux and provide software vendors with facilities to test their applications.

- More than 4,700 IBM Business Partners support Linux.

- IBM has invested more than US \$1 billion, and approximately 7,500 employees are involved in Linux development, research, services and sales.

- IBM has strategic relationships with key Linux distributors.

- IBM's dedicated Linux Operational Support Services provide world-class support, including training, technical support, consulting and implementation services.

For more information about Linux and IBM, please visit [ibm.com/linux](http://ibm.com/linux)



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