Smarter Systems for a Smarter Planet

Systems optimized for the needs and workloads of a smarter planet

IBM

The world is getting smarter—from reducing gridlock by reworking traffic systems to reducing energy footprints with the help of advanced networks of power meters on smarter power grids. Today, people are thinking bigger—imagining how businesses and the systems that run them can be instrumented and interconnected with other systems and made intelligent. Today, forward-thinking organizations are setting the stage for unprecedented innovation, improved productivity, and better business performance.

Opportunities are limitless, resources are not

That's why IBM is thinking differently about the way we design, develop and deliver systems. Instead of just focusing on individual software and hardware products, we look at the world from an integrated, business perspective—delivering smarter systems that address the core IT and business capabilities organizations need. Smarter systems are intentionally designed to:

- Achieve the business performance and scale required
- Discover insights and optimize processes in real time
- Deliver operational efficiency and business agility
- Improve management of vast amounts of data
- Manage risk, security and compliance

New application workloads are emerging, and you need to integrate applications and drive more decisions in real time. Now more than ever there is a need to optimize for performance and cost. Pivotal to optimizing these systems is a deep understanding of the business needs and the workloads that run on them.

This way of thinking is influencing the way IBM is designing and building systems and how they will be configured going forward. A general purpose approach to systems design will no longer achieve the performance and business outcomes required on a smarter planet.

Today's workloads demand optimized systems

If we take a deeper look at the workloads that run our world, it is clear that not all workloads are created equally. Your business has various workloads. And different workloads place unique demands on systems—requiring different approaches based on core application function, data management, usage patterns, service levels, and integration with other applications and systems. Workloads run more efficiently when matched with the right computing resources; one size does not fit all.

For example, supporting an SAP application requires a different balance of transaction processing and database activity than business intelligence and analytics workloads delivering business insight to line managers and executives. Similarly, enterprise collaboration applications require a different balance of IT system resources than applications used to handle the complex, high volume business processes of an organization or those that manage a data center and keep it running efficiently.

Could one system handle these various workloads? Sure. Could a single system optimize these workloads across the multiple dimensions of cost, security, reliability and speed? Probably not.

IBM can help. IBM delivers smarter systems that are workload optimized—software and hardware that have been optimized to meet unique needs across a portfolio of platforms. A workload-optimized system is integrated and optimized from the processor design through database, middleware and applications to handle specific workloads. Often, it includes services to accelerate time to value. On a smarter planet, you have a choice of systems to best match the workloads unique to your business, giving you faster time to value and improved price performance. IBM is using the breadth of its portfolio of hardware and software and its unmatched expertise to deliver new levels of innovation and integration—across the whole spectrum of solutions you may need.

Smarter systems are workload-optimized:

As the world becomes increasing interconnected and intelligent, there is a noticeable trend in organizations that want to get smarter about their use of IT.

Organizations have an insatiable need to seamlessly deal with greater volume and velocity of data, garner actionable business insight from their information faster, and ensure business process agility and greater data center efficiencies from their IT operations. These needs create different workload challenges and demands on systems.

IBM optimizes its software and hardware to meet the new workload requirements of a smarter planet.

Achieving the business performance and scale required

Smarter systems move beyond simple speeds and feeds. In a smarter system, performance is defined by a set of attributes critical to both technology and business metrics. Reducing power consumption is one thing. Reducing it without reducing performance is quite another. The scalability of a solution should never be an inhibitor to growth. With the ever-growing amount of data requiring processing and the velocity with which it comes in, the need for faster handling of transactions with integrity and reliability becomes critical. To achieve lower costs and higher performance requires a balancing act. Smarter performance means balanced systems built to scale flexibly and efficiently, coupled more closely than ever with smarter software to deliver an environment optimized for the business. We work to tune and integrate these systems on our end before you even open the box, leveraging technology and software to reduce the complexity—making things easier to install and ready for work.

IBM offers a range of systems designed to meet your needs today that can also efficiently scale to meet your needs in the future:

- IBM® System x® servers combine x86 industry standards with IBM innovation, resulting in increased efficiency, performance and ease of use. They are available in a variety of form factors from large-scale data center installations—including blades—and are flexible enough to match specific business requirements.
- IBM Power Systems™ offer scalable performance options including blades and easy-to-grow modular servers, with efficient virtualization for server consolidation and lower cost, workload optimization for rapid cloud infrastructure deployment, and a broad range of business solutions based on AIX®, IBM i and Linux®

To see how IBM clients are using smarter systems, visit:
ibm.com/smartersystems/success

- IBM System z® servers provide the world's fastest and most scalable enterprise system, designed to reduce the cost, complexity and inefficiency of today's multiarchitecture data centers while delivering the availability, security and manageability needed to make tomorrow's clouds ready for business today.

By leveraging optimized software and hardware, IBM is able to offer smarter systems for Transaction Processing and Database Application Workloads.

The IBM pureScale™ Application System, which is optimized for transactional workloads such as e-commerce, and enterprise applications such as SAP, delivers unmatched database scalability and availability to meet the most demanding transaction processing needs for performance, flexibility and integrity. The IBM pureScale Application System is built on a powerful IBM server, storage, and data management platform that includes both IBM DB2® database software and WebSphere® Application Server software.

Discover insight and optimize decisions and processes—in real time

Organizations are telling us that in order to meet their goals for profitability, revenue, cost reduction, and risk management they know they can't continue to operate the way they have in the past. Traditional approaches to analyzing and optimizing their business have only taken them so far. They need to move beyond "sense and respond" to be able to predict and act by applying business analytics to better understand performance and make better decisions. In addition, they need to "work smarter" to discover, interact and optimize their existing business processes to further increase efficiency and reduce costs.

- **Business Intelligence and Analytics**—To analyze massive amounts of data in a timeframe that matters, you need a foundation of powerful systems. But raw performance isn't enough. A successful analytics solution must include data warehouse, business intelligence, data mining, text analysis and cubing capabilities. But to make the system work efficiently and implement quickly, these capabilities must be tightly integrated and optimized—built on the hardware foundation.

To help with this, IBM offers a range of Smart Analytics Systems designed to transform information into real business insight in a timeframe that matters to your organization. IBM Smart Analytics Systems are designed to offer everything you need for business analytics—in an integrated, packaged solution. The IBM Smart Analytics System family spans multiple hardware platforms and architectures, providing maximum flexibility for deployment. They are fully integrated and optimized so you can implement a solution in days or weeks instead of the months it might take to build and integrate a solution from individual pieces. This implementation approach is key to rapid delivery of value.

- **Business Process Management**—For many organizations, managing a wide array of business processes is costly and time consuming. IBM offers the IBM BPM suite and services, designed to enhance the efficiency of business process management (BPM) and reduce costs by improving visibility into processes, discovering new areas for optimization and automating tasks.

Your organization might need flexible and dynamic processes that are integrated across multiple disparate systems, process owners, business users and IT to support collaboration and direct engagement with process improvement. You might need content-centric processes such as case management with demanding compliance requirements. Regardless of whether you need the flexibility or the centricity, the IBM BPM Suite and IBM hardware can help you realize your business priorities and evolve with you as your BPM journey continues.

Delivering operational efficiency and business agility

Your systems are your service delivery vehicles. They have to respond to the needs of your business—employees, customers, partners—in real time. Your systems must be efficient and flexible—not only to run applications, but also to run your business. And you need to get the most out of the investment you make in your systems.

Virtualization with Integrated Service Management improves your business agility by helping you use your resources effectively, manage your infrastructure efficiently, and gain the flexibility to meet ever-changing business demands. To meet these challenges, organizations are virtualizing at all layers of their IT architecture, including servers, storage, networks, and applications to help reduce cost, improve service and manage risk.

Integrated systems by design

To address the needs of today's smarter planet, IBM specifically designs integrated systems that redefine performance and optimize resources to deliver the highest possible value.

Integrated systems are designed from the outset to be workload optimized, intentionally designed for specific workloads. This means you are able to choose a system that best matches your unique needs. With the right combination of components, from the silicon up through the software, you get greater agility, lower costs, and faster time to value.

Smarter systems also give you the ability to easily work with other systems, all in a single, integrated solution designed to address your particular business needs.

By effectively using virtualization, you can:

- Consolidate resources to improve efficiency and utilization of IT resources
- Manage workloads to improve IT staff productivity with an integrated systems management dashboard
- Automate processes for consistent and repeatable processes based on best practices, business priorities and service level agreements
- Optimize delivery for self-provisioned cloud services by users, based on business imperatives, unconstrained by physical barriers or location.

With decades of virtualization experience, IBM offers the industry's broadest set of virtualization capabilities—from specific infrastructure and management offerings to complete virtualization solutions for single servers and multisystem environments.

IBM offers design and implementation networking services to support a highly available and virtualized environment. IBM can help manage virtual server and storage environments in single and multivendor environments.

Managing vast amounts of data intelligently and cost effectively

Smarter systems can help you store the massive—and growing—amounts of data while reducing IT complexity. Your storage systems can grow exponentially, while conserving energy, floor space and reducing management costs. Plus, IBM software can help to manage the data life cycle and thereby more effectively and efficiently manage data growth.

IBM System Storage solutions are designed to reduce the cost and complexity of managing vast amounts of data while improving the productivity of your storage administration staff—and storage space—as the volumes of data grow.

IBM offers a range of disk storage systems to meet these demands:

- Enterprise storage systems with capacities up to thousands of terabytes and a range of reliability and performance features to support the most demanding storage challenges.
- Multiterabyte systems for organizations with growing storage needs.
- Multigigabyte storage enclosures designed for small and medium businesses.

All of these systems are supported by management software designed to simplify and automate many key deployment, maintenance and recovery tasks. When you aren't forced to manually manage all the details of your infrastructure, you're freed up to respond to business opportunities. You can devote more time to innovation. You're better able to mitigate risk.

Enterprise ERP, CRM and custom applications drive your business initiatives and generate revenue opportunities. Processing more transactions and collecting more customer information through these applications may be great for business, but unmanaged data growth can negatively impact your ability to provide superior service and support. The effects can slow application performance, strain financial and technical resources and jeopardize completing business-critical processes on time.

IBM's Information Management portfolio can help clients in two ways: First, IBM can help you reduce the amount of information in a production enterprise application's database; less disk space is required for application data thereby cutting the costs of storage. And because there is less information to sift through, applications process faster. IBM offers proven archiving capabilities, allowing users to segregate historical from current data and store it securely and cost effectively. Second, for clients using DB2, its database compression capabilities can further reduce the amount of storage required by up to 30 percent.

Why IBM? Proven technology leadership:

With a dedication to innovation proven through an unparalleled commitment to research and development, IBM is the clear leader in innovative technology.

IBM has always been dedicated to our clients' every success. Our hardware, software and services teams work in partnership with each other and with our clients to apply technology to solve their greatest challenges and create new value—and we have been evolving it for more than 40 years.

We know how to help clients apply technology to deliver results. We know industries, the world of business, and how work gets done. And we're committed to applying this expertise to help our clients reinvent themselves and their industries—one client at a time.

Managing risk, security and compliance

Sensitive organizational data is increasingly being made available to a diverse set of internal and external users through new business services. This broader exposure creates unprecedented opportunities for better collaboration and service delivery. At the same time, it can put critical data at greater risk.

IBM security solutions can help identify threats *before* they occur and help you drive new initiatives, such as securing a virtualized or cloud environment or enabling secure access for millions of users to a new web portal. Security solutions from IBM can also help you to reclaim your network capacity, bring new services online faster, improve productivity and reduce costs.

IBM can help you build security into your business processes and daily operations while addressing the complexity, compliance and cost challenges through a comprehensive security framework. IBM has a long history of helping our clients secure their environments through professional services, managed services and hardware and software solutions that are recognized for leadership. IBM security solutions address:

- People and identity—define user access to resources
- Data and information—control the use of sensitive data
- Application and process—protect applications from malicious use
- Network, server and end point—address risks of network components
- Physical infrastructure—provide actionable intelligence

Examples of IBM security capabilities include:

- Advancing built-in hardware encryption on many servers and storage devices to help secure data without performance impact.
- Monitoring and auditing privileged user data center activities while also protecting against outside threats at the network, server and desktop levels.
- Real-time database activity monitoring to detect unauthorized or suspicious activities.
- Centralizing management of encryption keys for tape and disk storage.
- Automating compliance auditing in heterogeneous environments.

IBM security solutions offer you a competitive differentiator—supporting rapid innovation and deployment of new business services—while being an affordable approach for creating and sustaining security and governance.

Smarter Systems for a Smarter Planet

The world we live and work in is more complex, quickly moving and more demanding than ever. The performance of your business today hinges on your ability to meet the demands of your customers, partners and employees. But these demands are changing as the world and your market change.

To keep up with these changes, your systems must help you reduce the cost and complexity of managing vast amounts of data; achieve the business performance and scale you need; analyze, optimize and unlock the insights in data while improving business processes; deliver operational efficiency and business agility; and manage risk, security and compliance.

To meet these demands, IBM offers systems optimized for your workloads—fully-integrated, scalable and secure—by design. With optimized hardware, software and services, these systems are designed to offer improved performance and lower costs. Simply put, IBM is making systems smarter to help your business compete and grow.

For more information

To learn more about Smarter Systems for a Smarter Planet™, please contact your IBM marketing representative or IBM Business Partner, or visit: **ibm.com**/smartersystems/info

To see how IBM clients are using smarter systems, visit: **ibm.com**/smartersystems/success

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OIB03004-USEN-01