Focus on today. Innovate for tomorrow.

IBM Systems: providing the technology and expertise your business needs to stay ahead

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Introduction

It's never ending. Keeping an eye on tomorrow while making sure current operations don't miss a beat. No matter how you look at it, you have to keep improving things—spending less, getting more out of what you already have, and boosting overall system responsiveness, availability and security—even when your resources are stretched to the limit.

So how do you go about getting a jump on the competition that's sustainable over the long haul? A lot of businesses talk about it. And while some are making progress, not all have been able to go the distance. That's why it's critical to work with a technology company that knows how to get the job done.

To that end, IBM Systems can provide the technology and expertise your business needs to maintain a competitive advantage. Not just today, but far into the future. Our servers, storage and middleware use proven, innovative technologies to enable an optimized IT platform for your business applications. This can help you maximize your return on investment. Improve the responsiveness of your systems and people. And drive innovation that truly changes how you run your business.

Go green and save: maximize the return on your IT investments

To some people, going green is all about improving energy efficiency. To others, it's a way to reduce emissions and help save the planet. To IBM, it's both. Since 1990, IBM has cut its own CO2 emissions by 40 percent and saved a quarter billion dollars on energy costs in the process. You read right: *a quarter billion dollars*.[1]

IBM plans to double the compute capacity in its green data centers by 2010—saving close to five billion kilowatt hours of energy a year. All without increasing power consumption. And without expanding our carbon footprint. And by 2012, IBM's CO2 emissions are expected to shrink by another 12 percent.[3]

That's because IBM looks across the entire data center when creating power and cooling solutions—instead of having tunnel vision at the product level. It's just one more way we walk our talk. And how we help businesses create green data centers that are energy efficient and environmentally responsible.

Implementing an effective energy-efficiency strategy

Think of IBM as your roadmap to a greener data center—with all the elements you'll need to help reduce your company's energy consumption, including:

- IBM Cool Blue™ portfolio—a comprehensive portfolio of technology offerings that provides more efficient ways to control and monitor your systems' power consumption and thermal load as well as smart new product and data center designs. Got a hot spot? Don't sweat it. IBM Rear Door Heat eXchanger technology is just one example of how patented cooling doors can reduce heat at the source by up to 60 percent.[2]

- IBM Systems Director Active Energy Manager™ technology—a power management solution that is fully integrated with IBM System x™ and IBM BladeCenter® hardware, and will soon be available across all IBM Systems. This takes the guesswork out of budgeting your utility bills by helping you monitor power consumption for better utilization of available power resources. Plus, you can add Live Partition Mobility to IBM POWER6™ systems to migrate workloads and eliminate hot spots.

Applying consolidation and advanced virtualization solutions

If you really want to use less power, consolidate your servers and storage with IBM Systems. And then use our virtualization technology. After all, the device that consumes the least power is the one that isn't there.

A recent virtualization study by ITG cited overall savings of up to 72 percent on maintenance, software support, personnel and facilities over a five-year period. Just by leveraging virtualization technologies and IBM System p5™ 570 servers.[5]

Just think about all those x86 boxes you've got spread all over the place, with each running a single application. For a lot of companies, that translates into a utilization rate of just 8 to 12 percent. Yet IBM customers who run virtualized System x servers have seen utilization rates increase as much as 80 percent.[4] Maybe that's why we're seeing virtualization activity with our clients increase daily. Makes sense since IBM has led the industry in virtualization for more than 40 years. In fact, our virtualization capabilities are designed into every IBM System. And we're planning additional capabilities on server and storage platforms so that these systems can better monitor and manage themselves. All while driving up utilization rates, driving down costs and making the most of your IT assets.

Storing the information you need

The sheer volume of data that's generated today is mind-boggling—which explains why terabyte demand is expected to grow 55 percent or more.[6] Every year. But all this storage takes a huge amount of power. And because the cost of energy is going sky-high, finding more efficient storage solutions is no longer optional. It's mandatory.

The problem is that many organizations don't have access to the information they need to innovate. Employees, partners and customers can't find the information they need to collaborate. And locating data for legal and compliance requirements can be next to impossible.

According to IBM's most recent benchmark results from the Storage Performance Council, the SAN Volume Controller solution is the highest-performing storage virtualization solution in the world today.[7]

IBM offers a better way with IBM SAN Volume Controller technology. By breaking down information silos and connecting systems to create a single view of information for your employees, you can easily align business with IT to deliver the right information to the right people at the right time.

Plus, our family of storage offerings, from high-speed disk and storage area networks (SANs) to cost-efficient, highly secure encrypted tape solutions, lets you align your storage investment with the business value of your information—and helps drive down costs. So you can classify and tier your critical information in the most efficient way possible. From initial capture to final disposal.

Getting help to make it happen

IBM Storage and Technology Group Lab Services offers a range of diagnostic services that can help your business design, build and implement a green data center strategy, including:

- IBM Data Center Energy Efficiency Assessment—analyzes your existing IT systems to provide strategic guidance in achieving required IT workload and performance with fewer power, cooling and space requirements.

- IBM Data Center Health Audit—evaluates the overall health and readiness of your IT infrastructure and recommends actions to reduce risks and improve site availability.

- IBM IT Facilities Assessment, Design and Construction Services—thermal analysis for high-density computing—identifies and resolves hot spots, and utilizes Mobile Measurement Technology (MMT), a new technology from IBM Research that measures 3-D temperature distributions within data centers.

Becoming more energy efficient

Consider AISO.Net, a Web hosting company that runs completely on solar power. Faced with the challenges of rising hardware costs and maxed-out capacity within its data center, the company came to IBM. Together, we initiated a strategy to gain greater control over the company's computing resources—while delivering high-quality performance to its customer base.

After a four-month planning process and three months of implementation, AISO.Net was able to meet its efficiency goals. Data center consolidation through virtualization eased the strain on the company's solar panel system and helped ensure its 100 percent commitment to solar power. Plus, AISO.Net's overall power and cooling costs dropped by 60 percent. No wonder Live Earth producers chose AISO.Net to design and host the Live Earth Web site, and AISO.Net chose IBM's energy-efficient BladeCenter.[8]

Manage growth, complexity and risk: improve the responsiveness of your systems—and your people

Another thing that's still getting a ton of focus is creating a data center that's more flexible and responsive to the changes going on in your business—and in the marketplace. Trouble is, you have to be sure that everything works together perfectly. Otherwise, you're dead in the water.

The fact is, just about every investment IBM makes is about helping you build a data center that's flexible, reliable and responsive, yet cost-effective to manage. And because we're respectful of the investments you've already made, IBM is a huge supporter of things like open standards, virtualization and service-oriented architecture (SOA). It's this kind of thinking that can deliver a dynamic IT infrastructure that makes it easier for you to deal with operational risk, security and availability challenges. And avoid problems that can keep you from getting your systems up and running fast.

Improving the responsiveness of your systems and people begins with a flexible, scalable and dynamic IT infrastructure. And because we know that one size does not fit all, we offer a wide range of scaling options to help you match the right technology to your unique business requirements—regardless of how fast or how much your business grows.

Adding only what you need, when you need it

There's only one thing worse than wasting money on infrastructure you don't need. And that's not being able to keep up with the IT demands of your business. These days, having the flexibility to cope with changing marketplace conditions by quickly, efficiently and cost-effectively managing shifting demand across your available IT resources is essential.

Need to scale up? Simple. IBM Systems offer scalability and easy, modular growth in enterprise symmetric multiprocessing systems—from 1-way to 64-way. And scalability isn't just for IBM mainframes or IBM POWER™ technology-based systems. Fact is, no other Intel® technology-based server company even tries to go up near 16-way any-more like we do with IBM System x hardware. Plus, our advanced virtualization tech-nology lets you consolidate multiple workloads. And now that we have Live Application Mobility and Live Partition Mobility on IBM POWER6 systems, you can take care of maintenance whenever you want—even in the middle of the day.

Need to scale out? Our BladeCenter products support rapid deployment and flexible growth. So you can take care of business in no time. All while cutting costs as well as complexity.

Looking for another option? With IBM, you can even scale within by blending this strategy across your systems with IBM virtualization technologies. These advanced technologies can help you divide one powerful system into numerous smaller systems to meet your specific application or workload requirements. And that means you won't have to buy additional servers. In many cases, this applies to other vendors' technologies as well. It's just one more reason to turn to IBM. After all, IBM has been number one in server revenue market share, worldwide, for eight years running (1998 to 2006).[10]

Managing your systems with ease

It's also why we've invested so much in IBM Systems Director software, which provides a common point of control to help you more effectively manage practically all your hardware and software. From any vendor, not just IBM. And with capabilities that include configuration, discovery, health and status monitoring, automated response, and power and virtualization management, the IBM Systems Director family delivers the tools you need to manage your servers, storage and networking across multiple IT environments.

Plus, IBM Systems Director software can work with IBM Tivoli® service management offerings to provide complete cross-enterprise service management from top to bottom. And by taking this unified approach to platform management, we can help lower your IT operational costs, reduce complexity and increase productivity.

Establishing an effective business resilience strategy

Business resiliency. Availability. Security across the environment. At IBM, it's more than just talk. It's translated into action on a daily basis—starting with our high-availability, platform resiliency and data protection technologies. Even at the level of Intel technology-based servers, IBM X-Architecture® technology adds availability characteristics.

"IBM Systems Director could become the primary point of control, not just for IBM Systems, but entire data centers."

— Tony Iams, Ideas International[11]

But no resiliency strategy is complete until security is addressed. On that front, you can count on IBM's technologies and solutions to help you increase business resiliency, availability and security in your UNIX®, mainframe and other environments.

IBM handles more highly secure information and systems than any company in the world. Period. And we recently introduced a comprehensive tape data encryption solution that provides complete tape security. An innovative encryption key manager component that uses standard key repositories on supported platforms. And the industry's first encryption tape drive. Pretty remarkable.

For the last several years, we've also been the industry leader in autonomic computing. By building systems that can detect failures. Ask for help. And even heal themselves. While it won't eliminate the need for skilled IT personnel, it can help you take a lot of the routine tasks off your to-do list—and work on more pressing business activities.

Autonomic computing technologies built into IBM Systems can also help you more effectively address disaster and crisis management. With agility across virtually any distance.

Brushing off the competition

Recognizing the need to innovate to achieve a competitive advantage, Colgate teamed with IBM to take a new approach to managing and controlling the costs of its IT environment. Even as the workload and demand for its systems continued to grow.

Using the latest automation technologies from IBM, Colgate found it easier and less expensive to manage, upgrade and run its systems. The end result? Colgate cut IT operational costs by 10 percent. Workload costs by 70 percent. And storage costs by 60 percent. With numbers like these, who wouldn't smile?[12]

Realize innovation: take advantage of today's technology advances

Now let's talk about innovation. From the blog on BusinessWeek to the China Daily, it's top of mind. Especially at IBM. But that's not to say we're all talk and no action. We've been busy the last few years. Really busy. Just look at a few of the recent projects we've worked on. Game consoles for Sony, Microsoft® and Nintendo. NASA's Phoenix Mars Lander. And the largest radio astronomy telescope on the planet.

All of these advances do more than play an important role in making our world a better and more interesting place. They provide the highest levels of performance needed to get the job done right.

Laying the groundwork for new ideas

IBM has pioneered hundreds of innovative technologies in the past ten years, including copper wiring, silicon-on-insulator (SOI), strained silicon, dual-core processors and the frozen silicon germanium (SiGe) chip.

And more recently, we've made six major semiconductor breakthroughs—including the first 45-nanometer chips using immersion lithography, high-k metal gate, embedded dynamic random access memory, optical transceiver chipset, chip-stacking technology and airgap microprocessors. That's why IBM has won awards like the National Medal of Technology, which recognizes how our technology has changed the way we live.

Together, these technologies help drive the innovations that matter to your business—from information on demand to SOA to grid computing. And that can lead to exciting breakthroughs that can result from our long-term commitment to innovation.

Think of it this way: all of these innovations are fueled by technologies and solutions that IBM created as an industry leader. We've also leveraged innovations from our mainframe experience to improve the quality and feature set of our UNIX and integrated business platforms.

Counting on IBM for high performance and investment protection

Because of our new POWER6 processor technology, UNIX, IBM AIX®, IBM i5/OS® and Linux® users have a lot more options—with significantly greater performance and energy efficiency than previous technologies across the board. That's probably why IBM System p™ servers come out on top in more than 70 computing performance benchmarks.

Plus, IBM System z™ technology recently broke the world record for real-time transaction processing—more than 9.4K per second in a core banking benchmark. That's why IBM continues to concentrate on being the leader in total cost of ownership and other price/performance measures. This lets us address costs at all levels—cost of acquisition, cost of operations and cost of technology transition—which can protect your bottom line. As a result, leap-ahead advances are creating applications that would not be financially feasible otherwise.

So how did we earn the right to be an innovation partner with a blue-chip list of companies? We did it by making an unheard-of investment in research and development. By collaborating with our customers to drive innovation in their businesses. And by delivering innovation at every level within our own portfolio—from chips, systems and applications to the entire infrastructure.

"As many of IBM's competitors exclusively pursue or shift increasingly toward an "all x86, all the time" product and market philosophy, IBM's POWER Architecture offers notable points of differentiation. The latest POWER6 processors continue to deliver leading technical performance É and also provide customers notable system availability and energy benefits."

— Charles King, Pund-IT, Inc.[13]

And because of our intense focus on research and development, we can give all our products a roadmap—without routinely changing chip technologies or architectures and forcing you down an expensive migration path. This not only leverages your investment in hardware, it protects your investment in applications and people.

Viewing the body in 4-D

The Fraunhofer Institute for Industrial Mathematics is a Germany-based research institution that delivers high-performance computing research results to industries around the world.

Not long ago, we joined forces with the institute to demonstrate a medical prototype that lets doctors see the heart and other organs in 4-D by adding the dimension of motion to a 3-D image using a Sony Cell Broadband Engine™ technology-based blade system. While wearing special glasses, doctors can see the heart in 4-D, turn it interactively and view any cross-sections they choose. This breakthrough not only helps diagnose illnesses more quickly and accurately, it creates a better way to plan for surgeries. Cool stuff.

Conclusion: our end-to-end strengths can help cover all your bases

Going green to increase energy efficiency? It not only helps the environment, it helps your bottom line. Now and for years to come.

Looking for a better way to manage growth, complexity and risk? Start by creating a flexible and responsive data center that can help carry you into the future while addressing the issues you're faced with today.

Want to realize innovation today so you can pass on the benefits to your customers? We deliver innovation at every level. And that means you have access to the technology and expertise you need to stay ahead of the game.

All of this takes the kind of experience you get only with IBM Systems. A ton of investment.

A depth and breadth of services, solutions, innovation centers and technical support—unmatched anywhere on the planet. And more than 90,000 IBM Business Partners and IBM business consultants who are ready to lend a hand. Use some of it or all of it—there's no one better positioned to help.

For more information

To find out how IBM can help you take care of business today while innovating for lasting business success, contact your IBM representative or visit:

ibm.com/systems

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6 "NAS, CAS, and other file systems designed to manage content (specifically fixed content, such as regulatory data, old email, and x-rays) will continue to provide a solid foundation for the 57.4% 2006 – 2011 CAGR with respect to storage system terabytes," IDC, Worldwide Disk Storage Systems 2007 – 2011 Forecast Update, Doc #209490, December 2007.

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10 Gartner, Inc., "Server Quarterly Statistics Worldwide: Database," by Adrian O'Connell et al, August 21, 2007.

11 Iams, Tony, blog posting, Ideas International, November 2, 2006.

12 "Colgate drives innovation through strategic focus on IT optimization," IBM Web site: http://www 306.ibm.com/software/success/cssdb.nsf/CS/JSTS 6RDKH7?OpenDocument&Site=default.

13 Charles King, president and principal analyst of Pund-IT, Inc., as quoted in the Pund-IT Review, October 2007.