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Employees and customers form the foundation on which a company can rebuild its business.

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FEATURED THIS MONTH



SEVEN WAYS TO CUT COSTS NOW

Budgets have been tight for what seems like forever, but even as signs of a recovery present themselves, pressure to cut costs persists. The low-hanging fruit was clipped long ago, and plenty of harder-to-reach stuff was, too. What now? Jeff Muscarella, a partner with spend-management firm NPI Financial, looks at strategic approaches to cost containment.

go.baselinemag.com/CutCostsNow

WHO REALLY BUYS IT

The ultimate power in IT rests in the hand that wields the checkbook. But who really makes IT purchase decisions? *CIO Insight* Editor Brian Watson looks at data gathered by Forrester Research to see which players—business unit bosses, IT managers or end users—have the most power when it comes to pulling the trigger on big buys.

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MOST POPULAR ONLINE STORIES IN JULY/AUGUST

1. Nine Hot IT Jobs in a Lukewarm Market
2. Eight Ways Porn Changed the Internet
3. IT Employment Forecast
4. Cost-Cutting Beyond Layoffs
5. Dirty Dozen: Inside 12 IT Disasters
6. How to Ruin a PowerPoint
7. Great Geek Vacations
8. Third-Quarter Staffing Projections
9. Bad Manners Cost Business
10. Life With the New Austerity

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TIME TO REBUILD

EMPLOYEES AND CUSTOMERS ARE THE FOUNDATION ON WHICH A COMPANY CAN REBUILD ITS BUSINESS.

BY EILEEN FERETIC

WITH MANY NEWS STORIES AND POLLS

saying the worst is behind us, businesspeople are starting to come out of their bunkers and survey the damage. They're asking questions like these: How bad is our company's situation? What about our industry as a whole? How has the recession hurt our employees, customers and prospects? How fast can we rebuild and start growing again?

Clearly, many enterprises have a lot of work to do—often with a lot less money and a lot fewer people than they had a few years ago. So where should a company start? To me, the answer is clear: Start with the people—both employees and customers. They are the foundation on which an organization can rebuild its business.

Enterprises in which the employee ranks have been decimated are now struggling to keep the business going with a skeletal staff. This year's mission was simply to survive, but that won't work for the rebuilding process that companies will face going forward.

Remaining staff members are understandably stressed out and overburdened. Before asking these workers to take on new assignments, companies need to relieve the pressure on employees and boost their morale. That's clearly not an easy task, but Suzanne Bates, executive coach and author of *Motivate Like a CEO*, has some suggestions that can help.

"Executives need to communicate effectively in order to motivate and inspire their employees to do the work that will drive the business forward," Bates said in a recent conversation. "Communication is a learned skill, but you have to focus on it to get good at it.

"You need to rally people around a big idea that's important to your business and then communicate a clear, powerful message about the mission and purpose of the idea to your staff. You also need to learn what motivates individual employees because people have different needs and wants. It's up to executives to drive collaboration and innovation by inspiring their employees."

Bates is not alone in her drive to get executives involved in employee retention and engagement. In "Keeping Employees Engaged in Tough Times" (page 12), consultants Peter Stark and Jane Flaherty offer another suggestion: "Practicing the skills and strategies of the best companies will help keep people engaged." The authors identify key attributes that



This year's mission was simply to survive, but that won't work for the rebuilding process that companies will face going forward.

will differentiate top companies, including a compelling vision with clear goals, the right communication at the right time, the right people for the right job, teamwork, and continuous improvement and innovation.

But staff members aren't the only ones who need to be motivated and inspired. Customers who have been affected by recession-related issues may need coaxing to stay with your company rather than giving their business to a competitor that offers lower prices.

In his story "Inspire Your Customers" (at right), well-known author and consultant Jim Champy shares his recommendations for keeping customers happy and loyal. "The smart companies I've studied engage their customers by displaying a higher sense of purpose and being authentic in all they do," he writes. "They consistently uphold their own—and their customers'—values in their products, services and actions."

Champy's strategies for inspiring customers include launching crusades with broad appeal, delivering layered benefits and leveraging trusted channels. "You must promise value and excellence—and deliver on that promise," he says.

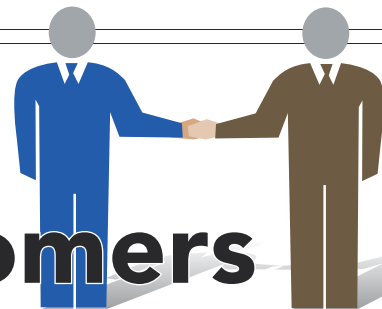
Following the recommendations of Bates, Stark, Flaherty and Champy will lead enterprises down a different path from the one they've been on for the last few years. To reach their ultimate goal—business success—companies will have to replace strategies that focus on cutting costs and reducing staff with ones that pay special attention to people.

As we head into the fourth quarter and the start of the new year, it's time to make plans for rebuilding companies that have been battered by the recession. Those organizations that give employees and customers top priority in their plans will rebuild their businesses on a sound foundation. Those that don't will jeopardize their future prosperity—and that of their customers and staff.

The choice seems clear. ◀

EILEEN FERETIC IS THE EDITOR OF *BASILINE*. SHARE YOUR THOUGHTS ABOUT REBUILDING COMPANIES WITH HER AT EILEEN.FERETIC@ZIFFDAVISENTERPRISE.COM.

GamePlan



Inspire Your Customers

COMPANIES THAT HAVE DEVELOPED EXCEPTIONAL CUSTOMER LOYALTY WILL THRIVE DESPITE THE CURRENT ECONOMIC TURMOIL. BY JIM CHAMPY

I'VE ALWAYS ADMIRERD THE OPTIMISM of economist Paul Samuelson. When asked about the impact of an impending monetary crisis, Samuelson replied, "The sun will rise tomorrow, and the bridges will continue to bear traffic."

Despite the current world financial crisis, markets will return and customers will come back. Customers may change their buying habits and demand more value in what they buy, but the challenge for companies will be to keep customers coming back.

In researching my latest book, *INSPIRE! Why Customers Come Back* (FT Press, 2009), I found many examples of companies that have developed exceptional customer loyalty. Not only will these companies survive the current crisis; they will also grow right through it.

Like most business challenges, there is no single formula for maintaining customer loyalty, but the smart companies I've studied engage their customers by displaying a higher sense of purpose and being authentic in all they do.

What makes these companies special is their fidelity to long-expressed beliefs. They consistently uphold their own—and their customers'—values in their products, services and actions. These businesses adopt a mix of strategies to inspire their customers. Here are some examples of how they do it.

Launch a crusade with broad appeal. Traditionally, companies have thought of marketing in terms of a campaign: Define your product, segment your audience, appeal to each segment, craft the messages, select the advertising medium and go for the

customer. That approach is not sufficient to inspire customers today.

You must think in terms of mutual interests and a common cause, not the hype and spin of a conventional campaign. You must be seen as an advocate for goods and services truly worth buying and using. You must promise value and excellence—and deliver on that promise. It's not a campaign. It's a crusade.

Consumer companies like Stonyfield Yogurt and Honest Tea come to mind. Stonyfield is committed to the environment and respects the environment in all that it does. Honest Tea has engaged customers on a platform of good health, rejecting the notion that beverages require 10 teaspoons of sugar or chemical additives for good taste. The firm uses high-grade teas to produce high-quality products with little or no sugar additives. These two companies don't just sell; they inspire their customers.

Deliver layered benefits. Different customers have different needs and expectations. So layer the benefits that you deliver—especially if you are in a services business.

Zipcar does just that. This innovative company, which says it is in the business of "shared ownership" of automobiles, places its cars in local neighborhoods. After "joining" Zipcar for a minimal fee, members are charged on an hourly basis for the use of a car.

A user-friendly Web site enables a member to reserve a car. The reservation travels directly to the car's on-board computer via a satellite link, and the member flashes his or her membership card to open the reserved car's door. Once the member is done

with the car, he or she returns it to its neighborhood space.

Zipcar initially offered Volkswagen Beetles and Honda Civics. Today, it offers Mini Coopers, Prius hybrids and BMWs. From the customer's perspective, Zipcar keeps improving its business model.

Leverage a trusted channel. A channel partner can add to or detract from a customer experience. Auto dealers come to mind. Many customers select a car based on the quality of both the vehicle and the dealer service and experience. But companies don't always pay enough attention to their channel partners.

Inspired customers enjoy quality in both the product they buy and their purchase experience. Consider Member Health, which leveraged its relationships with several thousand local pharmacies to enroll more than 450,000 members in its prescription benefits program.

The company's management understands that many people, particularly in rural America, turn to their pharmacist first for health care advice. So Member Health has processes and programs that benefit both patients and pharmacists. It even enables participating pharmacies to give some drugs away for free.

Although Stonyfield Yogurt, Honest Tea, Zipcar and Member Health are very different companies, they all demonstrate how you can inspire customers by sharing their values and building those values into the products and services your company delivers. ◀

Jim Champy is chairman of consulting for Perot Systems. His latest book is INSPIRE! Why Customers Come Back.

Keeping Employees Engaged in Tough Times

BY CORINNE BERNSTEIN

AS THE ECONOMY IMPROVES AND BABY BOOMERS RETIRE, employees will have more job choices, and keeping them engaged in their work and their company will be crucial, management consultants Peter Stark and Jane Flaherty write in *Engaged! How Leaders Build Organizations Where Employees Love to Come to Work* (Bentley Press, 2009).

“Practicing the skills and strategies of the best companies will help keep people engaged—and give their companies a competitive advantage over those just focused on survival in tough times,” Stark says.

In their book, Stark and Flaherty examine the results of employee surveys using two performance measurements: an overall benchmark of all companies surveyed and the best-of-the-best benchmark, which isolates the top 25 percent of the firms surveyed. The authors identify the following key attributes that differentiate top companies.

- **A compelling, positive vision with clear goals:** This is essential for increasing morale, motivation and productivity—and for weathering tough times, Stark says. Nearly 90 percent of the survey respondents at best-of-the-best companies said they were clear on their organizations’ goals and future direction, compared with about 75 percent overall.
- **Communication—the right stuff at the right time:** At leading companies, employees are encouraged to express opinions, and managers relay the organization’s perspective in a timely manner. “Providing up-to-date information on what’s going on in the company and in the economy—and discussing what actions are being taken—helps people cope with challenging situations,” Stark says.
- **Select the right people for the right job:** Four-fifths of the employees at best-of-the-best organizations said their companies hired the most qualified candidates for jobs. Respondents at these companies also said that high-performing organizations are more likely to promote qualified, well-trained people into management positions.
- **Remember that we’re on the same team:** More than 80 percent of the respondents in both benchmarks say they value teamwork. However, best-of-the-best organizations are stronger at teamwork—both within their own departments and across departments.
- **Cool stuff—continuous improvement and innovation:** Best-of-the-best companies excel at establishing a climate in which employees are encouraged to improve quality by creating new products, processes or services. At these firms, 85 percent of the respondents said people in their organization are recognized for coming up with



innovative ideas, and 91 percent said their organizations place a high value on continuous improvement.

- **Recognize and reward excellent performance:** At best-of-the-best companies, 73 percent of the respondents said their organizations appropriately reward the highest achievers, compared with 56 percent of the respondents in the overall benchmark. However, the old adage that money can’t buy happiness rings true. Most employees who leave an organization do get a raise—about 6 percent on average—but people usually resign because of a poor relationship with an immediate supervisor, Stark says.
- **Accountability counts:** Best-of-the-best organizations are better at clearly defining what is expected from employees, providing feedback on their performance and holding team members accountable to performance standards. Important strategies associated with accountability include taking responsibility for mistakes, getting rid of time clocks, and giving gossipers and whiners more work so they have less time to complain.
- **Every employee learns and grows:** Employees at best-of-the-best organizations have access to good training programs that are relevant to both the workers’ and the organization’s success.
- **Problems are no problem:** At best-of-the-best companies, 76 percent of the employees surveyed said their organization identifies and handles problems early on, compared with 60 percent of the respondents overall. The top companies are also better at recognizing employees for innovative ideas and assuring them that management wants them to solve problems.
- **It’s all about the customer:** Most companies place a high value on exceeding customer expectations (94 percent of the best-of-the-best organizations versus 83 percent of the companies overall). However, leaders should never underestimate their responsibility to create an environment in which their employees enjoy coming to work—and with which their customers enjoy doing business, Stark states. ◀



Getting Your Money's Worth

BY ERIC GUCKELBERGER AND MARY BETH KUSH

HOW WILL YOUR IT ORGANIZATION

continue to deliver consistent levels of service throughout this time of belt-tightening and economic uncertainty? Here are 10 proven ideas that can help ensure you are getting the most “bang for your buck.”

1. Ensure vendor compliance with contractual pricing. Review the charges on your recent vendor invoices and ensure that they are consistent with the negotiated terms of the contractual agreements. Ad-hoc review of the invoices can uncover not only billing errors, but also opportunities for future cost avoidance through policy change or contract renegotiation.

Additionally, you should proactively manage contracts by taking advantage of the periodic agreement renewal cycles to ensure that the terms and conditions are consistent with the expectations of the organization. Leverage knowledge of the most favorable industry-standard terms in the negotiation of the agreement renewals.

2. Benchmark costs. Compare your spend on commodity products and services with organizations with a similar size and complexity. Objectively comparing the costs of services may provide the needed justification when establishing yearly budgets, as well as unearthing specific opportunities to optimize spend.

3. Leverage buying power. Consolidate vendors to increase your buying power. Consider various alternatives, which may include using leading service providers for a particular type of product or service, as well as one-stop vendors that provide a spectrum of products and services. Ensure on-boarding, renewal and off-boarding policies and procedures, and adequately address the disposition of the physical devices.

4. Identify training options contained in agreements. Another aspect

of agreements that's commonly overlooked is the inclusion of training provisions within contracts and agreements. Utilizing the identified training options increases the value to the organization and supports the career-development goals of staff members.

5. Evaluate mobile voice and data services. Review the current mobile device policy (including voice, data and wireless broadband), contracts and service providers. Understanding the current usage profile of mobile device users—as well as future usage profiles—will help achieve a balance between expenditures and business requirements.

6. Accurately measure business functions. Ensure the greatest return on investment of core business functions by optimizing the processes, leveraging complementary tools and identifying opportunities for future process improvements.

7. Review program performance. Evaluate programs through the projects that make up those programs or initiatives to ensure they are meeting the stated objectives—within budget and on time. Assess each individual project's objectives to ensure consistency with the current program goals and identify unnecessary efforts. Realigning or proactively ending unnecessary efforts will save money and strengthen the organization's position. It also will increase the pool of valuable resources to projects well-aligned with the organization's goals.

8. Prepare for a software licensing audit. Gaining a true understanding of your organization's software licensing requirements—including the number of installed instances and versions of software—can avoid fines from potential software audits. Adequately preparing for software audits prevents exposure to potential fines and

minimizes the level of effort needed to address any unexpected vendor-initiated software inquiries. Plus, unused licenses can sometimes be reallocated to employees who really need them.

9. Assess outsourcing options. Determining the feasibility of outsourcing is an integral step in making the best decisions for the organization. Clearly and completely defining the services, service-level requirements and the internal cost to provide the services—prior to identifying the vendors for consideration—allows for a more realistic comparison between the offers of various service providers.

10. Implement IT asset management. True IT asset management involves more than simply tracking assets through their life cycle to ensure your hardware is covered by a support or maintenance agreement. IT asset management can address regulatory compliance, contractual compliance, vendor management, contract management, licensing genealogy and more.

Cost savings and avoidance are attained through the effective tracking and management of an asset (tangible or intangible) from procurement through disposal; ensuring vendors' inventories are accurate; making sure agreements are favorable to the organization; and avoiding fines from the improper disposal of hardware.

Effecting cost reductions within an IT organization can be a difficult prospect. However, utilizing the approaches above can increase service value through a reduction in costs, while maintaining the service levels expected by the business. ◀

Eric Guckelberger is a manager and cost optimization expert and Mary Beth Kush is director of performance management at Acumen Solutions, a business and technology consulting firm based in Vienna, Va.

Do You Really Need a Blog?

BY JEAN VAN RENSSSELAR

YOU PROBABLY THINK THAT MOST companies have a blog by now. In fact, according to recent research, only about 15 percent of Fortune 500 companies have external blogs.

The ideal corporate blog evolves in an atmosphere of trust in which posters don't feel intimidated or stifled. But encouraging openness while discouraging damaging remarks is a difficult tightrope to walk.

There are two kinds of company blogs—internal and external. There is far less legal risk with an internal blog, mainly because most employees don't post negative remarks for fear of recrimination.

Internal blogs, which are usually accessed via the company's intranet, can be viewed by all employees. Since staff members use them as meeting sites and forums for e-mail discussions, these blogs allow a diverse range of participants. Internal blogs are useful for knowledge sharing, project management, and broad communication among teams and across sites.

In contrast, publicly available external blogs allow customers, business partners, employees and spokespeople to get information quickly, share opinions and ask questions. External company blogs are also one of the media's top tools for finding news and feature ideas about an organization, which can sometimes make company executives cringe.

Before deciding whether to have a public-facing blog, ask yourself if your customers and prospects generally read blogs. If not, then why would you need one? Well, blogs do provide some clear benefits, including search engine optimization (SEO), maximum media and public relations attention, collaborative product development, improved customer assistance, the

ability to conduct polls and receive feedback easily, and improved customer and prospect relations.

In addition, both internal and external blogs offer increased openness, as well as direct, timely communication. They are also a relatively inexpensive way to gather credible information.



FACING THE UGLY TRUTH

Before you get too excited about blogs' benefits, here's the ugly truth about their risks. We've all heard blog horror stories, in which blog posts have caused public relations or legal nightmares. But it is possible to avoid many of the mistakes other companies have made. You can do so by taking the following steps:

1. **Establish an ironclad blogging policy.**
2. **Educate all employees.**
3. **Enforce the policy.**
4. **Closely monitor the blog.**
5. **Respond quickly to negative comments.**

Basically, it's all about monitoring and enforcement. You can control many—but definitely not all—risks. Most of the “uncontrollables” involve legal risks that can never be completely eliminated.

Only you can decide whether the benefits of having a corporate blog outweigh the exposure it creates.

The risks include litigation exposure, security violations, e-discovery violations (failing to retain records), reputation assaults and regulatory violations.

Here are some other factors to consider before you start blogging:

Blog posts are permanent. Once it's posted, inaccurate, incomplete, defamatory content and confidential information will live forever on the Internet.

Blogs take time. Creating posts and monitoring content takes time, and internal blogs, in particular, can waste a lot of employees' time.

Blogs can send visitors away from your site. In order to be friendly to search engines and the blogging community, blogs need to include links to other sites. However, if your blog is part of your company's Web site, do you really want to send visitors away?

On the upside, creating a blog will increase your SEO rank, attract media attention and increase your leadership profile—especially if you're among the first in your industry to have a blog. Beyond this, there are no guarantees of any benefits. The risks, on the other hand, *are* guaranteed.

Now that you know both the benefits and the risks, don't create a blog unless your target demographic blogs regularly; you see one or more clear benefits; and you are willing to set and reinforce policy, educate employees and diligently monitor content.

The bottom line? Blogs are great tools for some businesses, and yours may be one of them. But if it's not, don't create a blog. ◀

Jean Van Rensselaar is the owner of Smart PR Communications, a Chicago-based company that specializes in public relations and communications strategy, creation and implementation.

Green IT Gains Priority Status

BY CORINNE BERNSTEIN

ALTHOUGH GLOBAL COMPANIES ONCE LOOKED AT GREEN IT as a wish-list item, they are now actively pursuing it, according to the findings of a recent survey. The poll of 1,052 IT executives in 15 countries, which Applied Research conducted for Symantec, shows that 97 percent of companies are involved in green IT initiatives in some fashion—with 52 percent in the discussion or trial stages and 45 percent having already implemented a strategy.

“Green IT is more of a priority than it’s ever been, as companies look to IT to take a leadership position to drive down energy consumption and decrease their carbon footprint,” says Jose Iglesias, Symantec’s vice president of global solutions. “The amount of money set aside for green IT is increasing at a time when overall budgets are decreasing or, at best, staying flat.”

While 87 percent of the respondents said it is either somewhat important or significantly important that their IT organization implement green IT initiatives, nearly three-fourths of the respondents said they expect their companies’ budgets for green IT to increase in the next 12 months.

Purchasing energy-efficient equipment was paramount. While 89 percent of the study participants said a product’s energy efficiency was either important or very important, 68 percent said they would pay at least 10 percent more for a more energy-efficient product of equivalent functionality, and 41 percent said they would be willing to pay at least 20 percent more.

Nine out of 10 respondents said they were somewhat or significantly interested in buying energy-efficient hardware; 82 percent said they were interested in reconfiguring their data centers for more effective cooling and energy consumption; and 80 percent of the respondents would like to explore alternative means of generating power, such as solar or wind energy.

The recent focus on green IT is driving companies to replace old equipment with newer, more-efficient hardware (96 percent), and monitor power consumption and improve the utilization capacity of storage devices (94 percent in both cases). Additionally, about three-fourths of the companies are using power management software/solutions to reduce power by data center equipment that’s operating at low utilization rates, and more than half said they are considering software as a service (SaaS) as part of a strategy to reduce power consumption.

IT is very often at the center of a company’s green strategies. In fact, 89 percent of the respondents said they believe that IT should play a very or extremely significant green role, and 94 percent have a corporate green



advocate (and most of those advocates have an IT focus).

But green IT isn’t viewed simply as an avenue for cutting costs. Although reducing electricity consumption (90 percent) and cooling costs (87 percent) were the most important reasons companies cited for implementing green IT, a desire from corporate headquarters to be “green” (86 percent) was almost as important. ◀



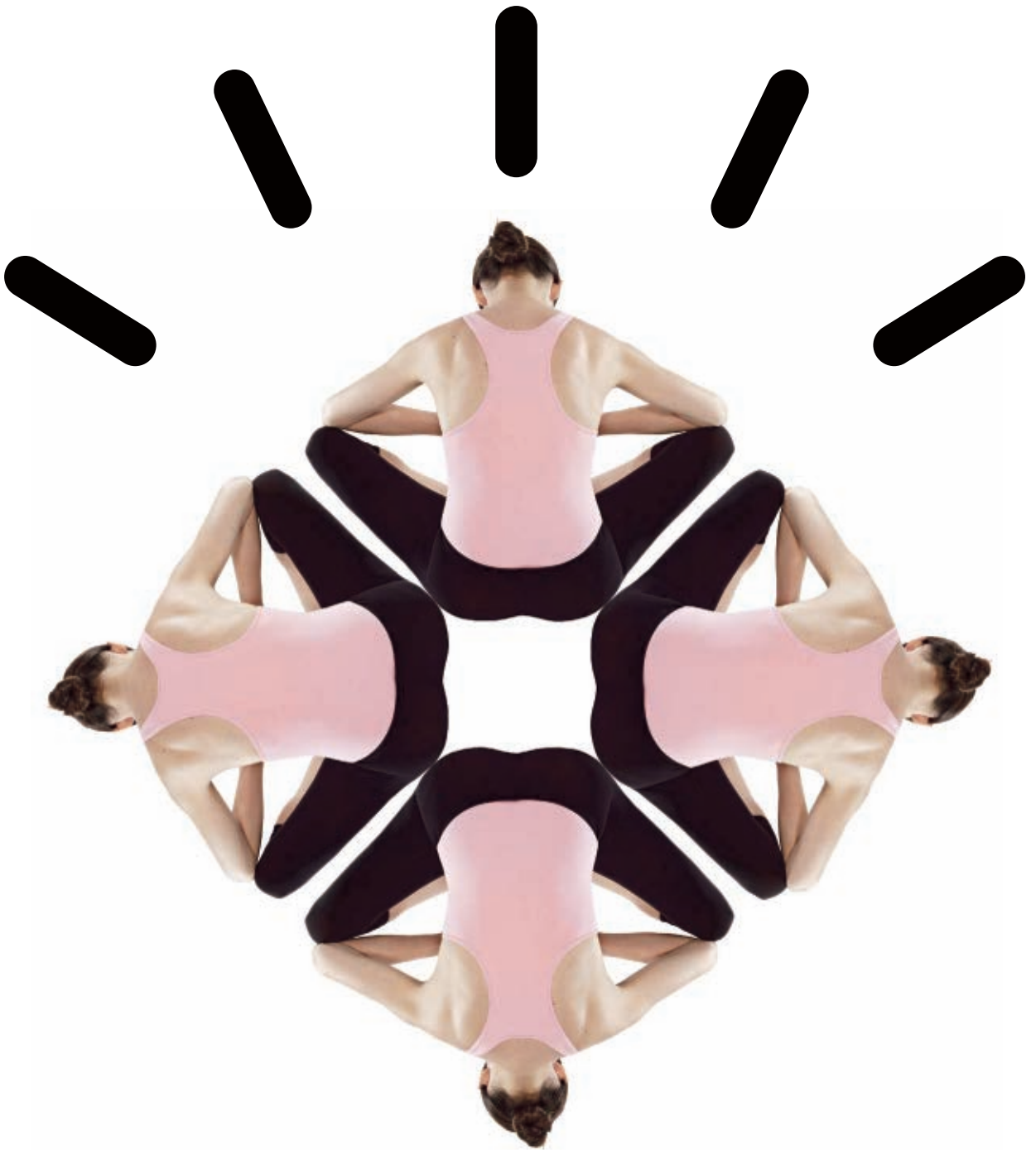
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Midsize businesses are the engines of a smarter planet.



QUANTUM COMPUTING

THE QUANTUM

ADVANTAGE

By Alex S. Fuss

NATURE IS FULL OF QUANTUM COMPUTERS, BUT WE ARE JUST BEGINNING TO FIGURE OUT HOW TO CONTROL THEM. WHEN WE DO, WE'LL BE ABLE TO SOLVE ONCE-INTRACTABLE PROBLEMS.

SILICON-BASED COMPUTERS WILL never be able to solve certain problems. This is true even if the number of transistors on a chip doubles every year or two for many years—with corresponding gains in performance.

Merely combining these densely packed chips into multicore CPUs and stringing these CPUs into super-grid platforms does not change the fact that these processors work more or less serially on problems, and many large optimization problems would take more than 10 billion years to solve serially, even on a computer that analyzed a million possible solutions per second.

This optimization conundrum is called the “traveling salesman problem,” which involves figuring out the shortest route to take when traveling to a specific number of cities. When the salesperson’s trip involves only five interconnected cities, there are only 12 possible routes, which can be readily plotted and measured by hand, and the shortest route easily selected from the small list. But when the number of cities increases only slightly—say from five to 25—the number of possible solutions increases exponentially, surpassing the capabilities of a classical computer.

Enter the quantum computer.

Classical computers store numbers—0s and 1s—as directional magnetic fields, working with charges determined by the flow of hundreds of electrons. (This is being reduced by each advance of Moore’s Law, with a natural limit of one electron.) In contrast, Quantum computers work with the state of a single electron, and harness unique, strange characteristics of subatomic particles, namely: superposition, entanglement and interference.

Superposition refers to the fact that quantum

bits, or qubits, can simultaneously take on two values. That is, they can take on the value “1” and the value “0” at the same time.

Entanglement refers to the fact that each qubit in a co-generated pair can reflect changes made to the other, no matter how far apart they are. Change the state of a qubit in New York, and its twin in Los Angeles reflects that change instantly.

Interference refers to the way quantum computers can read the results of their computations—the qubits—without altering their value, an essential characteristic. The reason this is important, according to Heisenberg’s uncertainty principle, is that at the minuscule subatomic level, merely examining a particle alters it. Interference allows the result to be read indirectly without changing it.

This may seem inconceivable, but the key points are relatively simple: Quantum computers use the smallest things we know of in the universe to calculate and maintain state, and they can investigate all parallel alternatives of a problem simultaneously. They also use very little energy.

MEETING THE CHALLENGES

The challenge for companies and organizations working today to build these machines—such as D-Wave Systems, Princeton Center for Theoretical Physics and The Mitre Corp.—is to capture, observe and control qubits in large enough quantities to be useful.

D-Wave has a quantum computer it expects to commercialize in one or two years, according to the late Chris Hipp, who had been director of marketing. The company is working on a 128-qubit chip made of niobium, but it needs to be able to control at least 1,000 connected qubits to handle

QUANTUM COMPUTING

complex, multivariable, combinatorial optimization problems.

Princeton and Mitre are taking a more controlled approach to harnessing quantum electrons. They expect to have a working version in their labs in a year or two.

Some pressing real-world problem areas include:

- **Code Breaking:** How can the Defense Intelligence Agency, CIA and FBI break the codes our enemies and criminals create with public key encryption methods? Using classical computers to derive the private key for a 50-digit number would take 3 million years, according to Julian Brown in his book *The Quest for the Quantum Computer*. Quantum computers could do it in minutes.
- **Package Delivery:** How can FedEx or UPS maximize the number of packages they deliver, while minimizing the number of hangers, terminals and planes; the amount of fuel; the number of employees; and the time required to satisfy customers and beat the competition?
- **Air Traffic Control:** How can the Federal Aviation Administration maximize the number of planes it can keep in the air and land safely, with the fewest number of people and the least amount of radar and communications equipment—given the constraints of specific planes, airports and runways, as well as weather and emergency conditions—while minimizing delays and fuel consumption?
- **Project Scheduling:** How can a large consulting firm use its staff resources efficiently, given specific project require-

ments, various consultants' skills, vacation schedules and geographical constraints, while maximizing revenue by getting all projects in on time and under budget?

- **Pattern Matching:** How can Google, Yahoo, Microsoft or the Air Traffic Security Administration compare images taken at different times from different angles—from cameras with different resolutions—and determine if the images are of the same person or thing? This requires examining thousands of pixels per pair; mapping those pixels into features; and abstracting the features to compare them to a database of known objects. Today, this can only be done quickly and reliably with human help.

The human brain is designed for rapid pattern matching: People recognize individuals even if they have gained weight, grown a beard or changed their hair color. Classical computers struggle to do this and cannot help with the challenges listed above because they require more computing power than a serial-oriented digital processor can muster. Quantum computers promise to change all that.

Quantum computation is found all around us in nature, which is made up of subatomic particles that we are just beginning to figure out how to control. When we eventually do, we'll be able to solve once-intractable problems. ◀

Alex Fuss is a managing partner at DigitalThis, a consulting firm specializing in leading-edge technologies and strategic implementations.

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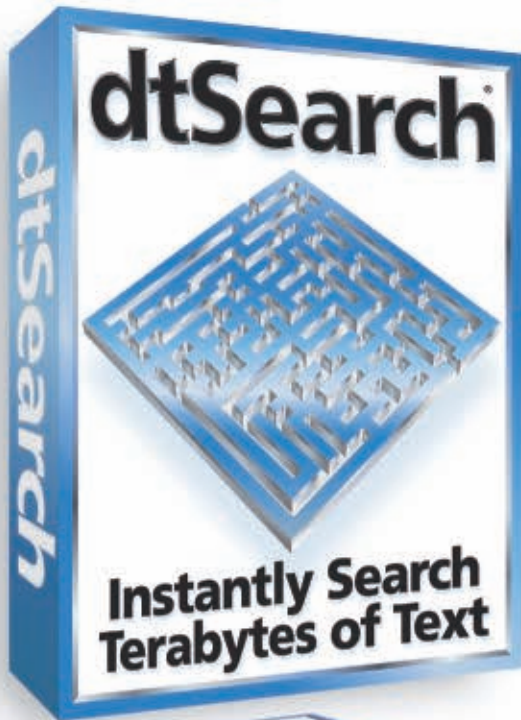
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Joining Two Financial Giants

WHEN WELLS FARGO ACQUIRED WACHOVIA, THE TWO COMPANIES HAD TO MERGE THEIR PEOPLE AND TECHNOLOGY, AS WELL AS THEIR FINANCIAL ASSETS. BY DENNIS McCAFFERTY

IN 2008, AT THE RESPECTIVE SAN FRANCISCO AND Charlotte, N.C., headquarters of two financial-industry giants, HR staffers tapped into their networks to administer benefits and process promotions for employees. IT departments collaborated on the enterprise to develop new business platforms.

Employees overseeing more than 12,000 ATMs nationwide depended on these networks to find out which machines were running and which were down. In Des Moines and other communities where mortgage teams thrived, executives used the networks to generate new loans and satisfy the white-hot demand to refinance homes, given a dramatic drop in the 30-year lending rate.

Then, on Dec. 31, these two institutions announced a merger, as Wells Fargo & Co. completed its acquisition of Wachovia, making it the second-largest bank in the United States, with nearly 300,000 employees.

From an IT perspective, that meant a major network integration was needed to bring it all together. That was the job facing Martin Davis, now head of the technology integration program office for San Francisco-based Wells Fargo & Co. With more than 23 years of experience in technology management, Davis was serving as Wachovia's CIO in Charlotte at the time of the acquisition, and he immediately segued into his current role.

For any executive taking on such an assignment, the challenges can be formidable. But financial institutions are nothing without their technology, says Paul Kanneman, the advisory practice leader overseeing IT and business integration for Grant Thornton LLP, a Chicago-based consultancy. They have their brands, but those brands are delivered by the IT structure.

When two giant institutions merge, they need to think about more than just the financial cultures coming together.

They need to think about the technology cultures, too. What if one company maintains a very decentralized approach—in which each individual business unit comes up with its own IT acquisition and operational policies—and the other uses a centralized approach whereby the CIO makes all the decisions? This can impact everything, from how funding is authorized to how IT is used. If you don't think about these things in advance, there will be a lot of angst down the road.

Fortunately, Davis quickly realized that the new corporate parent was tech-savvy: In fact, Wells Fargo was the first financial services firm to offer banking services online—as early as 1995.

Baseline spoke to Davis to find out more about the integration effort, which is still a work in progress. Here's what he had to say.

Baseline: What were you doing before the acquisition?

Martin Davis: I was always with Wachovia. I started out as a programmer in Winston-Salem in 1984 and progressed from there. Back then, it was all about mainframes and IMS database systems. I moved to Charlotte in 2001 to help oversee the Wachovia/First Union merger.

How complex was that?

Davis: It was a huge undertaking. No two mergers and acquisitions are ever alike. But the strategy behind them is always consistent. We seek out the best of the platforms that already exist, analyze all of them and find out which ones have the best scalability.

The First Union merger allowed Wachovia to grow to three times its size, so that was a top priority. We didn't want our customers to ever not be able to complete a transaction—or even to notice that there was a merger going on.

CONTINUED ON PAGE 23



Martin Davis, head of the technology integration program, Wells Fargo

SMARTER TECHNOLOGY

SEPTEMBER 2009 ISSUE 01



WELCOME TO THE
SMARTER TECHNOLOGY
MAGAZINE

Next-Generation
Business Intelligence

Five Steps to
Smarter Collaboration

Top Five
Virtualization
Solutions

evolution of virtualization

Now that virtualization technology is at least partially installed in most enterprises, IT is encountering unforeseen challenges.

pg.10

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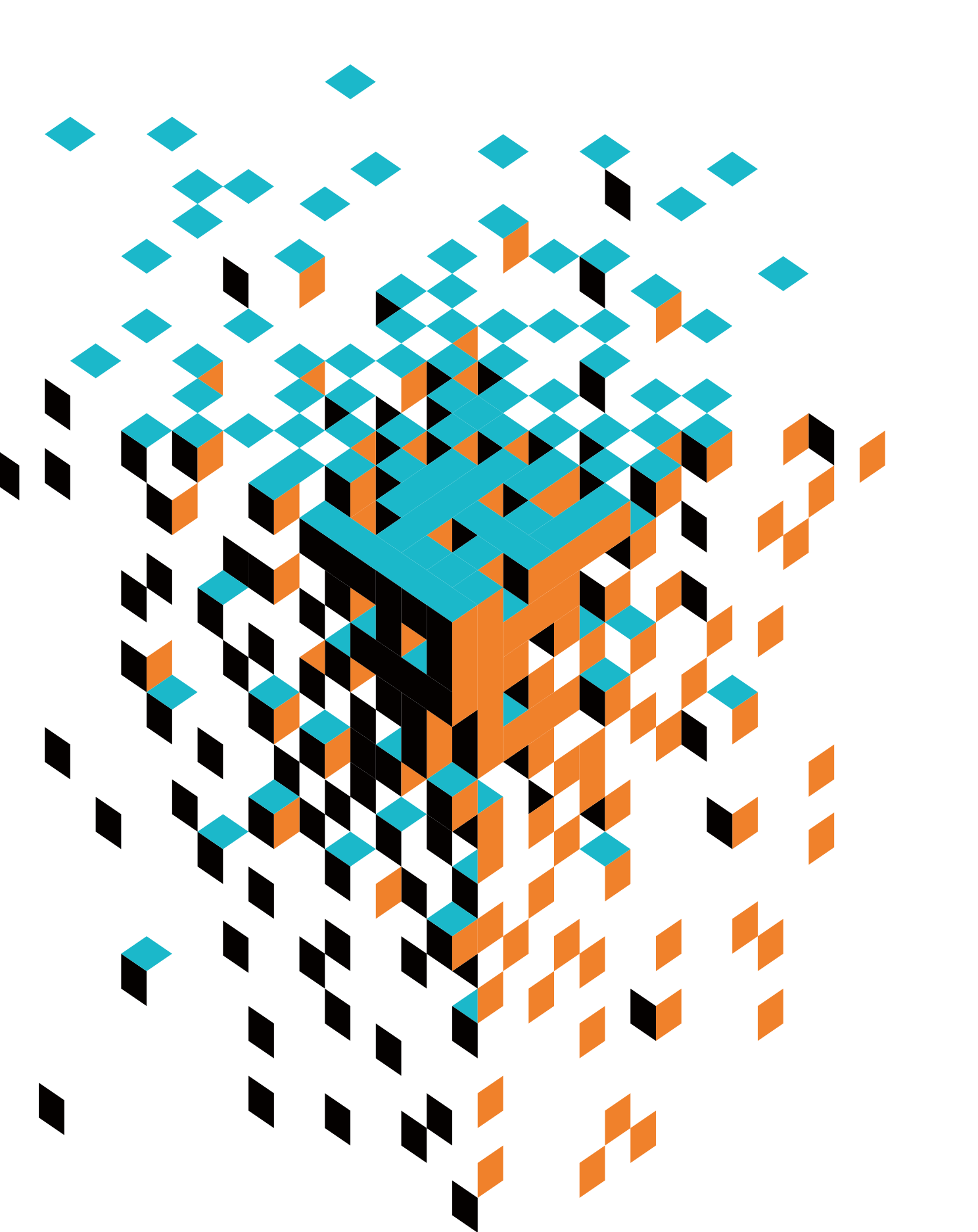
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Welcome to *Smarter Technology Magazine*
by Stephen Wellman

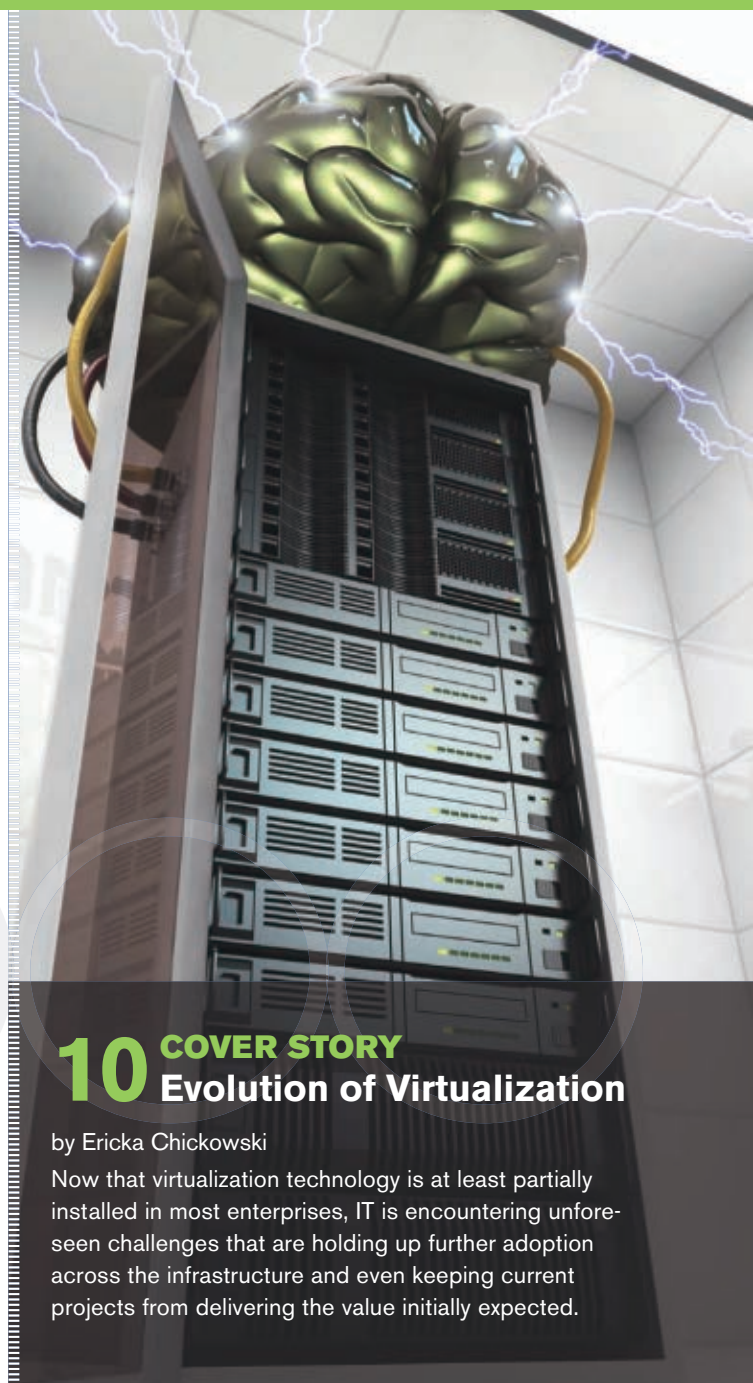
Chronicling the rapid change in today's technology marketplace and spurring intelligent conversation about IT challenges.

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Cover Illustration: Jon Watson



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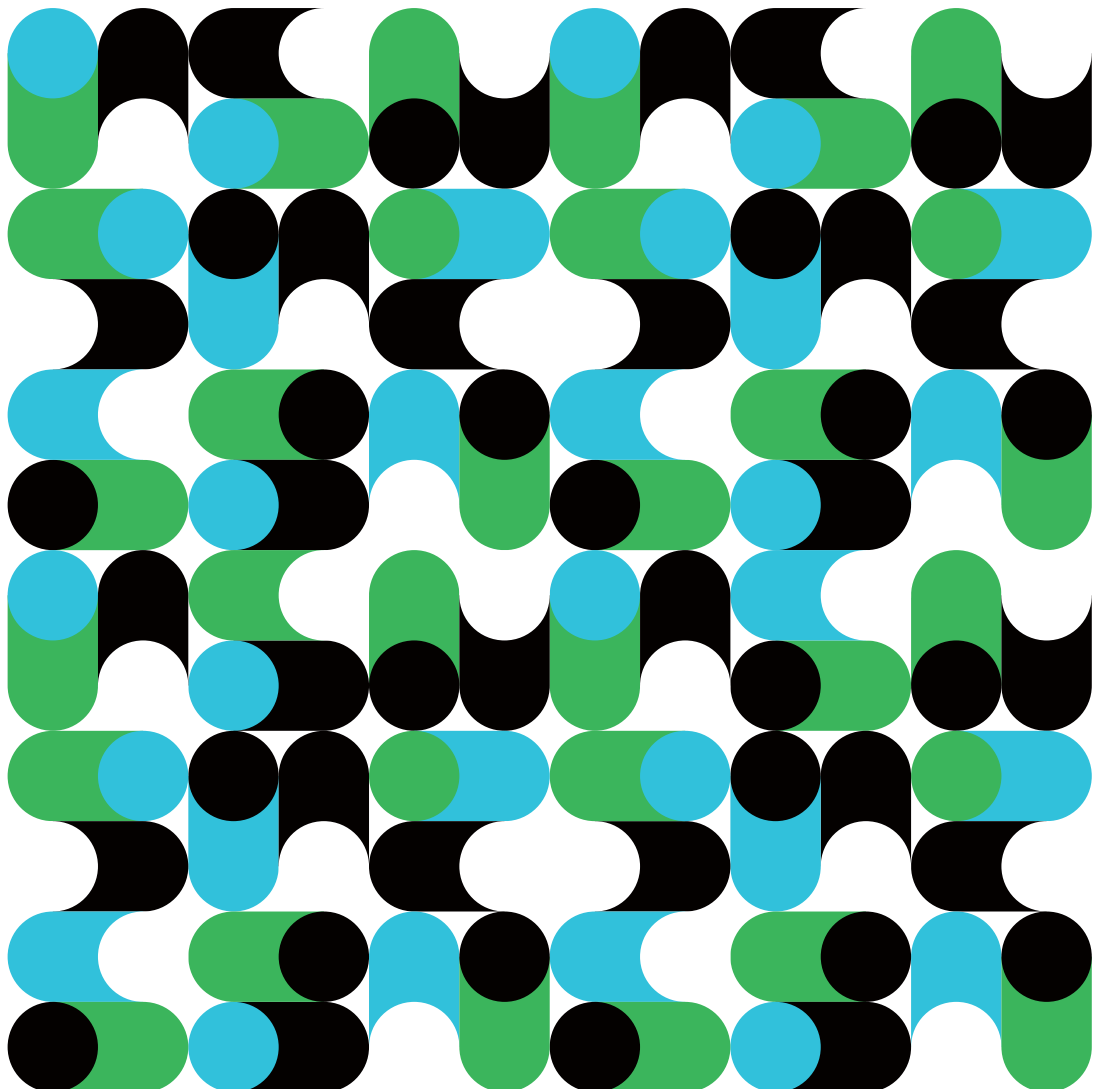


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Welcome to the **Smarter Technology** Magazine

by Stephen Wellman

WE LIVE IN A WORLD IN THE THROES OF RAPID change. Today's economic situation demands quick adaptation, while generational trends such as the commodifying power of the Internet, globalization and climate change portend profound evolutionary shifts in how business operates and how we live our lives.

The technologies we use must therefore work more efficiently. Hardware must use less power, while providing radically increased computing density, throughput and storage. Software must accommodate new and more-efficient access, deployment and management paradigms, while providing the features and flexibility to support new business models and new ways of working.

Less obvious—but no less important—is the need to manage unprecedented change, which demands more than incremental improvements in strategy and process. What's needed is a holistic reassessment of the place and use of technology in today's marketplace, a deep, rigorous and principled attempt to reimagine how technology can work in the 21st century.

This change is far too important to be left to any one group or set of individuals. It will require a global conversation that includes all the major stakeholders: from management to business partners, suppliers to end users, and from the C-suite to Main Street. All these players will need to share their ideas and assess the ideas of others as they collaborate to create a new model for the use of technology that is scalable and sustainable—a model that is simply smarter.

That's where *Smarter Technology* comes in. Its mission is to chronicle this rapid change and spur intelligent conversation addressing the ways businesses and organizations can meet these challenges. This magazine that you hold in your hands is the next phase of this important mission. So far, *Smarter Technology* includes a Website and blog, forums, a twice-weekly e-mail newsletter, videos and the Virtual Conference Center, a platform for online and virtual discussions about the top issues facing enterprise IT managers in today's workplace.

With this magazine, we will expand *Smarter Technology's* conversation to include longer, in-depth feature stories, business cases and tales of technology wins. We will anchor this discussion with three core themes:

1. **Technologies for Change:** The technologies with the most potential to help change our world.
2. **Smarter Strategies:** Innovative ways businesses and organizations can use new and existing technologies to reform their processes and gain efficiencies.
3. **Global Challenges:** The big issues facing our world—the economy, climate change, globalization, managing disparate organizations and structures—and how business leaders and IT managers are using technology to solve them.



In this first issue, we take a look at the hidden challenges involved with virtualization. Now that virtualization has progressed from being “the next big thing” to today's main story in IT, enterprises are rapidly starting to uncover a number of issues once they deploy virtualization solutions. We tackle some of the

ways IT managers can better use virtualization and avoid potential pitfalls.

We also look at the next generation of business intelligence. BI used to be about analyzing past performance, but today's—and tomorrow's—BI solutions are all about predictive analytics and making data accessible for all stakeholders. If your organization's BI systems can't do both, you may be falling behind.

In addition to in-depth stories and case studies, each issue of *Smarter Technology* will offer you a glimpse of the latest content from our online community, as well as quick looks at the latest technologies and solutions. In this issue, we look at some of our most popular blog posts and offer you some insight and tips about virtualization.

If you haven't already, I invite you to check out everything *Smarter Technology* has to offer online at www.smartertechnology.com. You also can look forward to future issues of this magazine in the coming months. If you have any ideas or suggestions on how we can make *Smarter Technology* better, please let me know. You can reach me at stephen.wellman@ziffdavisenterprise.com. **ST**

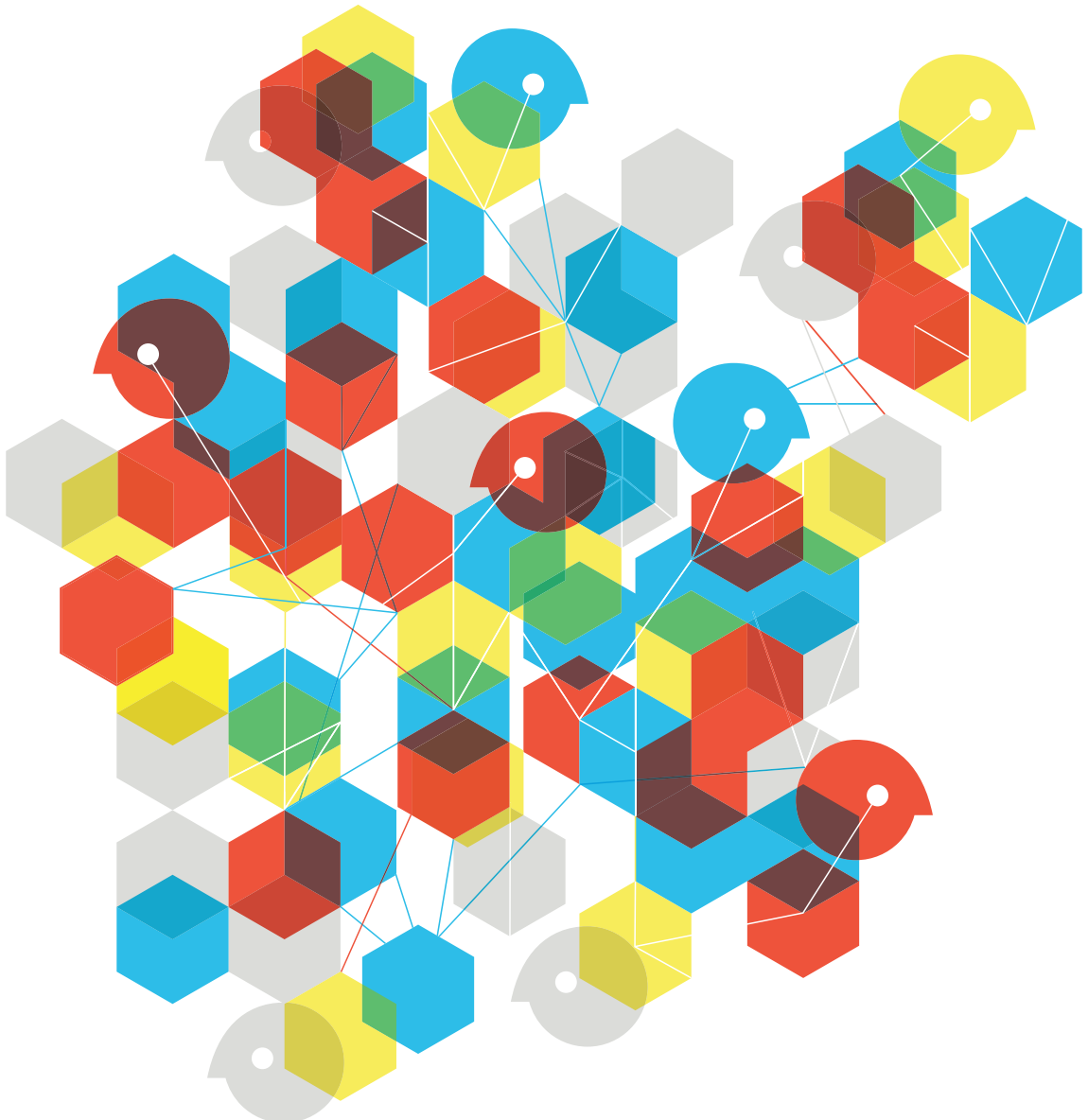
Stephen Wellman is Editor in Chief of *Smarter Technology* and Director of Community & Content with Ziff Davis Enterprise. You can reach him at stephen.wellman@ziffdavisenterprise.com.

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10 Open-Source Projects Changing Medicine

Open-standards initiatives, security infrastructure, online communities, mashups, Web services and data-visualization tools highlight this roundup of innovations aimed at improving health care, while lowering the cost of delivery.

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SMARTER TECH TIDBITS

10 Business Intelligence Apps We Need in 2009

These 10 apps take business intelligence out of the traditional confines of financial applications.

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IBM to Develop Neuromorphic Machine Tech for DARPA

The Defense Advanced Research Projects Agency wants a new computing architecture that works like a brain. The spec reads like sci-fi, but the result could change everything.

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A new way of notating biochemical processes and pathways will simplify communications, help protect intellectual property, and likely spawn a revolution in software used to manage biochemical-process information and explore new pathways for experimentation.

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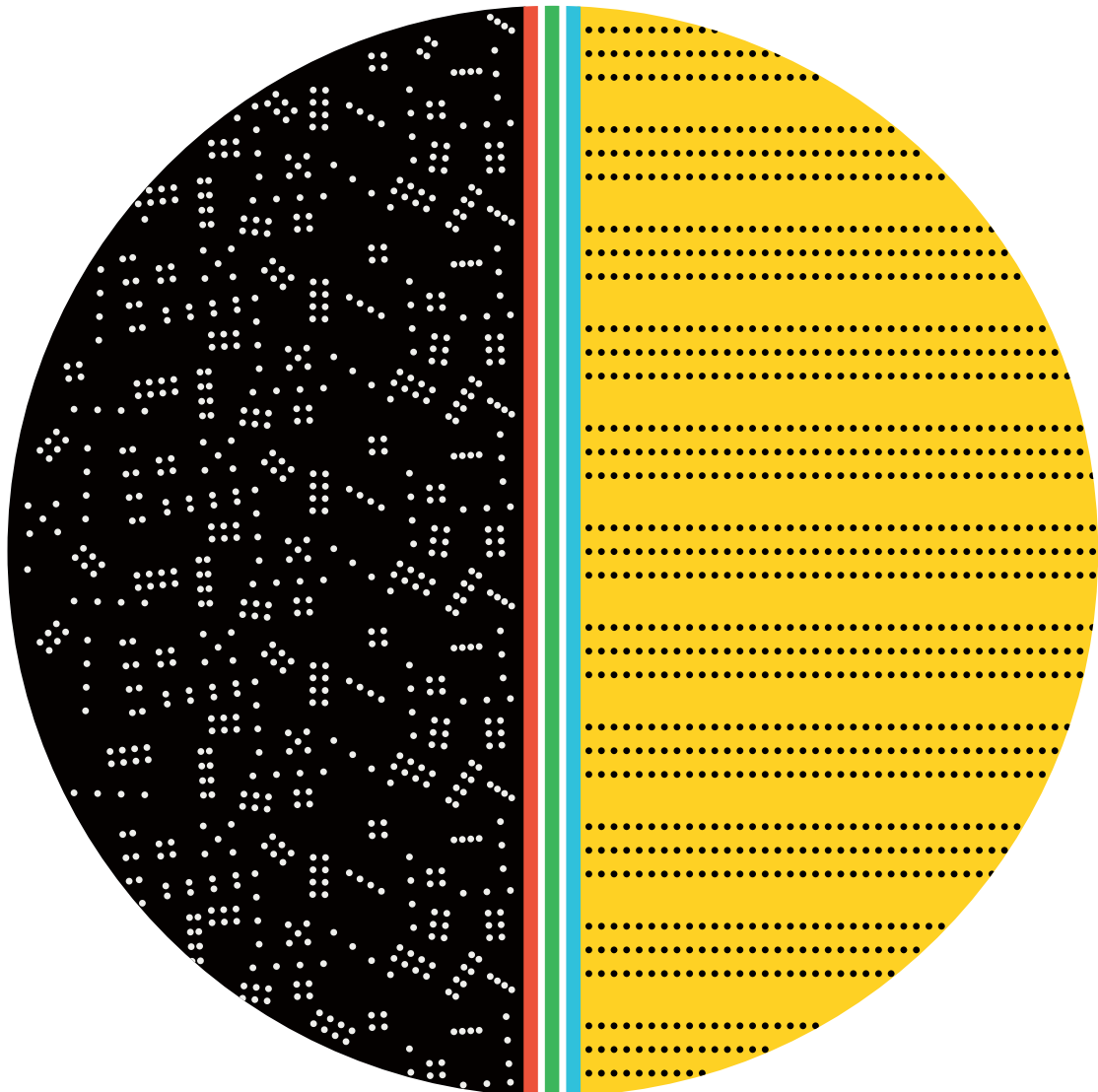
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EVOLUTION VIRTUALIZ

>>> Now that virtualization technology is at least partially installed in most enterprises, IT is encountering unforeseen challenges that are holding up further adoption across the infrastructure and even keeping current projects from delivering the value initially expected.



OF ATION

by Ericka Chickowski

As the novelty of virtualization wears off, IT management is facing a “Now what?” scenario in regard to managing their data center environments. Clearly, many enterprises have experienced significant ROI from their excursions into virtualization, and the market continues to evolve.

The overall virtualization market is expected to reach a healthy \$2.7 billion by the end of the year, according to Gartner, a research firm headquartered in Stamford, Conn. Yet, now that the technology is at least partially installed in most enterprises, IT is starting to encounter unforeseen challenges that are holding up further adoption across the infrastructure and, in some cases, even keeping current projects from delivering the value initially expected.

In fact, according to a survey of 120 IT decision-makers conducted by Network Instruments at Interop this year, 55 percent reported experiencing more problems than benefits from virtualization. Some of the issues cited were higher-than-expected rollout costs—47 percent said implementation costs were too high—and virtualization management issues.

Approximately 59 percent of those interviewed reported that their organizations lacked the experience to appropriately manage the technology. In addition, 27 percent said the lack of visibility and tools to manage virtualization was their biggest troubleshooting challenge in virtual environments.

“The cost of managing virtual environments may be higher than expected because, as utilization increases, the cost of managing servers may stay the same or increase as organizations come to grips with technologies

ILLUSTRATION: JON WATSON

Thinking outside the box depends on what's in the box.

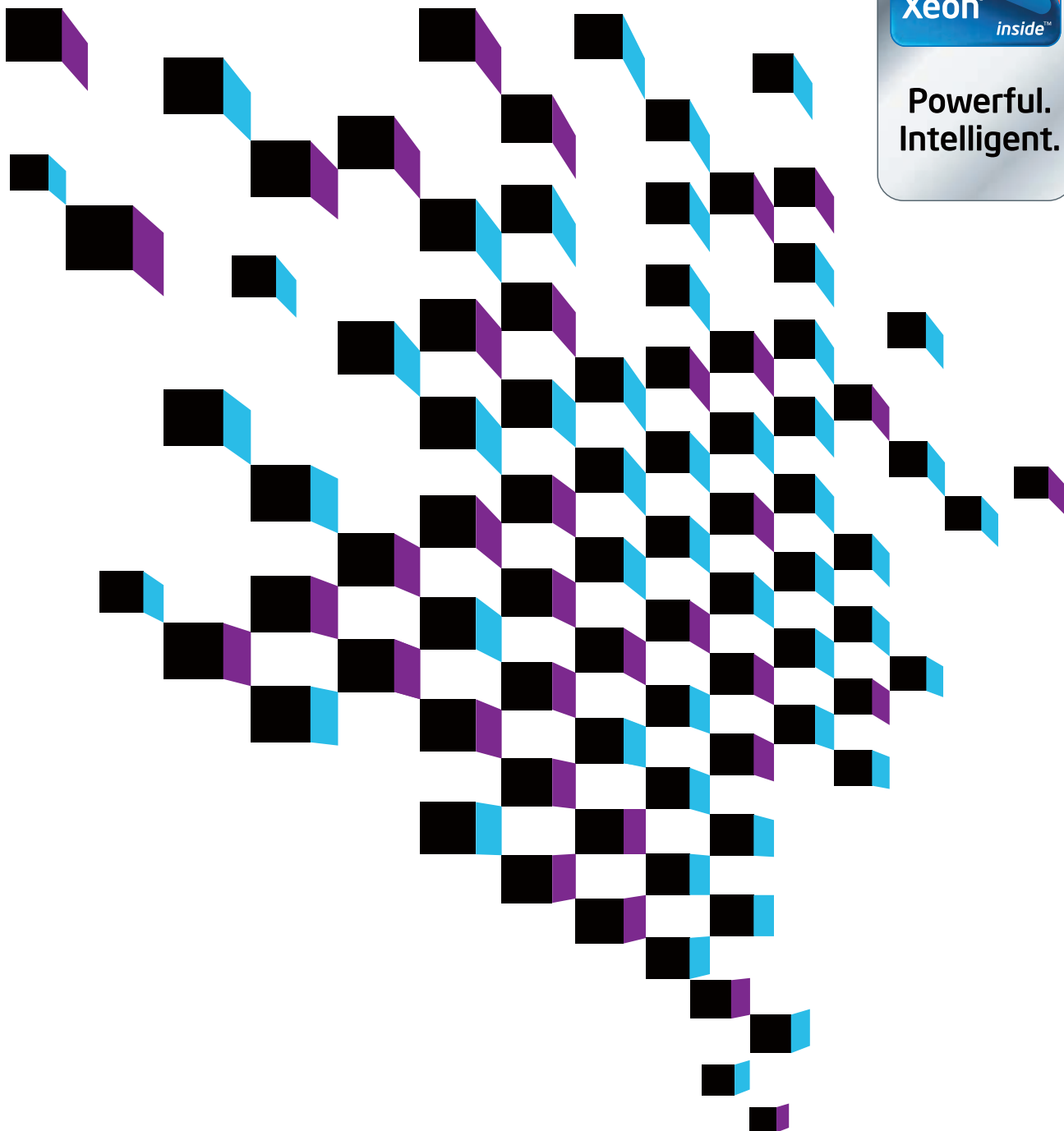
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“The biggest challenge is trying to know everything about your virtual environment in the same way you did when it was all physical.”

—Jon Blomeier, data center analyst,
Hershey Entertainment & Resort Co.

they haven’t previously dealt with,” wrote Gartner analyst Rene Millman in a report on virtualization published in April 2009.

In order to truly reap the benefits of virtualization, pump up the percentage of virtualized servers and depend on the technology to support mission-critical applications, enterprises must adjust their virtualization strategies to account for the changes this new technology introduces into the server room.

“We see companies struggling to figure out how to increase the level of virtualization in their servers and do it in a responsible, budgetary way,” says Alex Bakman, CEO of VMware, a virtualization management vendor. “From a cost-benefit perspective, they are clearly saving on electricity and on the amount of physical space that servers need, but they also realize that there are many surprises along the way, so things are costing a lot more than what they expected.”

FACING THE CHALLENGES

So what virtualization surprises have started smacking IT leaders in the face? The biggest challenge that has bubbled up quickly is that of management visibility, says Jon Blomeier, data center analyst for Hershey Entertainment & Resort Co. in Hershey, Pa.

“The downside of [virtualization] is losing the visibility into my environment,” he says. “I think I speak for a lot of different people when I say the biggest challenge is trying to know everything about your virtual environment in the same way you did when it was all physical.”

Blomeier says that over the last several years, he and the team at Hershey have brought their data center servers to approximately 70 percent virtualized. They have struggled because even though the shared resources within the hypervisor help them reduce overhead in a number of areas, they present challenges to troubleshooting.

Like many IT managers, Blomeier discovered several years ago that if he was going to get his virtualization levels to where they are now, his organization needed a way to manage and optimize its virtual machines. Two years ago, he brought in VMware’s suite of third-party virtualization management tools to give his team a deeper dive into

system performance analytics and better troubleshooting controls over virtual machines.

“The [key] thing we wanted to know was what was going on within the machines: how they were performing and whether it was disk I/O or any of the other pieces that made the machine tick,” he says. “I wanted to know whether there were performance issues that could be addressed by adjusting things like memory and CPU, and also whether systems were running optimally or were over-allocated.”

Blomeier isn’t alone in the IT world. According to the analysts at Gartner, the server virtualization management market is expected to grow at a 38 percent annual rate over the next several years, reaching \$4 billion by 2013. The reason for such growth, the analysts say, is that organizations such as Hershey are crying out for tools that can enable them to optimize their virtualization deployment.

As it stands, says VMware’s Bakman, visibility is only the first among several challenges that virtualization brings with it. Others are capacity planning and monitoring, as well as storage management.

“In the previrtualized data center, every Windows server ran one application,” he says. “The server did not have to share memory, CPU or storage, so capacity planning and capacity monitoring were really nonexistent. In the virtualized data center, they are key processes to ensure that core performance and availability are good.”

This is especially true for storage management and planning, which has become an extremely expensive prospect in the virtualization era. In order to take advantage of the mobility of virtual machines (VMs) offered by enterprise virtualization solutions, organizations must place these machines on expensive storage networks, a not-so-insignificant detail that some enterprises didn’t consider before deciding to virtualize.

“I’ve spoken with a lot of customers and prospects who said, ‘Wow, I didn’t realize that just to get started, I needed to spend \$500,000 on Fibre Channel SCSI common storage arrays,’” Bakman says. “And that’s only the beginning of what they need. Because they have been going nuts starting new, easy-to-create VMs so quickly, they’re facing virtual machine sprawl, so they have already filled up

this very expensive resource called common storage.”

According to Gartner, 54 percent of 147 respondents in a survey it conducted in late 2008 said that server virtualization is causing their organizations to rearchitect their storage environments.

“It’s not by accident that EMC bought VMware,” Bakman says. “Virtual machine sprawl is not only causing problems with storage, it is also giving an organization a headache when it comes to keeping track of its assets.

“When the servers were only hardware servers and were bolted into a rack in the closet, even then, people had a hard time doing inventory asset management. Now, imagine how many more difficulties they will [face] when the servers are no longer physical entities.”

THIRD-PARTY OR EMBEDDED MANAGEMENT

Clearly, there is opportunity to improve the way virtualization is managed outside the traditional hypervisor functionality. The question is, What’s the best way to do that?

“The battle is moving to the management stack as the hypervisor becomes ‘free’—with revenue coming from maintenance and support streams—and as its functionality absorbs into the hardware,” Gartner analysts wrote in April. “The server virtualization management market is currently wide open, with more than 100 vendors supplying products that meet some of the requirements in the management stack.”

As an emerging market, virtualization management can be a difficult niche to navigate. Many in IT wonder whether they should stick with a collection of more mature third-party applications or wait for the big virtualization vendors to roll out their own collection of tools that are embedded within the virtualization platform. The big players are well aware of this demand for management functionality and are responding with their own offerings.

For example, in July, VMware bolstered its vCenter management capabilities with the introduction of its vCenter Chargeback functionality, which gives a deep dive into the use of data center resources, and vCenter AppSpeed, which gives more control over applications running in virtualized environments.

For its part, Gartner expects management functions such as those delivered as part of the platform to reign as the single largest category within the virtualization management market over the next two years.

However, some managers, including Hershey’s Blomeier, prefer not to wait for platform vendors to build out their tool sets. He explains that the reason he went into the third-party space in the first place was because vCenter didn’t offer enough analytics to satisfy his needs. And Blomeier says that even though VMware has shown a strong road map for the coming year in terms of management, the uncertainty over cost and actual features delivered is enough to keep him from waiting.

“I didn’t want to keep waiting for [VMware] to catch up,” Blomeier says. “Not knowing was the frustration.

I don’t know what their plans are, and I don’t know where they’re going with this from a cost perspective. Are the tools going to be free? Are some—or all—of them going to cost a lot? I don’t know.”

ENABLING THE NEXT STEP

Whether an organization chooses embedded or third-party management applications, one thing is certain: Applying better control over enterprise VM will give it more flexibility to take virtualization to another level.

This future will allow businesses to adapt their virtualized environments so they react dynamically to business needs. In short, organizations with the greatest control and the highest percentage of virtualized servers can start moving their in-house data centers to a private cloud model.

“When we talk about dynamic [virtualization models], that is really using a business view of the way I configure the utilization of my infrastructure so that the utilization—how it is configured and how it performs—is based on the ebb and flow of the business model as it is executed,” says Michael Kollar, chief architect for Siemens IT Solutions.

This dynamic model should enable forward-thinking organizations to move toward an infrastructure as a service (IaaS) model that depends on internal clouds to deliver IT resources. This is a good opportunity for risk-averse organizations to deliver the flexibility of the cloud without putting all their mission-critical applications out on public clouds, says Bill Peer, vice president of architecture and strategy for InterContinental Hotels Group, headquartered in Windsor, U.K. Peer is a big proponent of private clouds, and he has leveraged VMware infrastructure to deliver IaaS to IHG business units via an internal cloud.

“We’ve set up multiple data centers and set up our virtualized environments within those data centers to create an inner cloud,” Peer says. “It’s an environment that’s like a cloud, but it’s within the resources of the company. That allows us to build our systems and software on the cloud paradigm but still run in our environment.”

One of the big benefits of taking this approach is the elasticity factor, which is big in the hotel business—an industry that can see enormous fluctuations in demand due to tourist seasons and even natural disasters. Even more importantly, it provides the ability to get IHG’s business users used to the new, highly granular funding models of cloud computing before IT “floats into the cloud within the next five to seven years,” which Peer and his colleagues believe is inevitable.

“This allows us to start collecting metrics on the applications, including the whole pay-as-you-go model,” Peer says. “The business units are used to paying up-front capital costs. But in the cloud model, where you do a utility consumption, it’s pay as you go.

“Part of the trick was to collect metrics and start educating the [business users] and coach them on this new model of funding. The inner cloud allows us to do that.” **ST**

FIVE ON VIRTUALIZATION

Virtualization Metrics

1

If you're new to the scope of deep virtualization metrics, a comprehensive report released in January 2009 by Enterprise Management Associates ([see summary of report at http://tinyurl.com/mxw3ag](http://tinyurl.com/mxw3ag)) enumerates a host of interesting numbers for quantifying performance and achieving business-relevant goals. These goals are straightforward and pragmatic: Top performers in the study are implementing deployments 240 percent faster, saving \$3,300 per machine in annual staffing costs, reducing actual servers in use by more than 35 percent and maintaining five-nines overall reliability.

The Right Virtualization Tools

2

Most IT professionals understand the basic benefits of virtualization: Deploying multiple, software-encapsulated virtual servers on blades, clusters and higher-order aggregations of hardware improves hardware utilization; simplifies instantiation, management and scaling of multiple applications; and puts enterprises within reach of achieving significant savings on power consumption.

Actually obtaining all those benefits, though, means working with the right tools. IBM's new Systems Director VMControl 2.1—which functions as a user-interface-harmonized plug-in to the IBM Systems Director IT management console—offers a fluent interface for rapid

creation and management of virtual machines and VM relocation, aimed at reducing management costs and time-to-value by providing all subtools under a single, standard interface and automating many basic management tasks.

The basic version of VMControl 2.1 is free and works with all IBM systems. The Standard version does have a price, but it also lets you work seamlessly with numerous non-IBM virtualization methodologies, subtools, components and hardware, and offers tools for creating, deploying and maintaining an enterprisewide standard library of system images for all the platforms you need to support.

For more information, go to <http://tinyurl.com/m6tzy7>

Broad Spectrum of Solutions

3

In a recent post on ZDNet, Dan Kusnetzky of The 451 Group enumerates the entire spectrum of ways in which virtualization technologies can add efficiencies and control costs in enterprise contexts, tying together the critical threads of desktop virtualization, storage virtualization and network virtualization with security and management. [Read the post at http://tinyurl.com/ln5hcl](http://tinyurl.com/ln5hcl)

Application Performance Metrics

4

There's no dearth of virtualization management tools that report on deep performance metrics such as CPU and storage utilization. It can be challenging, however, to translate these metrics into a picture of how applications are performing for end users. vCenter AppSpeed, recently released by VMware, was built to solve that problem. The software, which is deployed on a per-processor basis,

measures application latency as experienced by users and then maps this to the physical performance of different infrastructure tiers and components. This makes it much easier to optimize overall performance, identify bottlenecks and even model how applications will perform in your virtualized environment.

For more info, go to <http://tinyurl.com/qd39od>

The Million-Machine March

5

A group of scientists at Sandia National Laboratories in Livermore, Calif., recently began a series of experiments requiring deployment of 1 million Linux kernels in virtual machines in order to study the behavior of malicious botnets on the Internet. The million-machine virtualization platform enables the study group to quickly configure connectivity models, begin infections at single or multiple points of entry, pause machines to check status of infection, and clean machines rapidly and assuredly to enable new test runs. For more information, see *Smarter Technology* Contributing Editor Stan Gibson's recent article at <http://tinyurl.com/n2563s>

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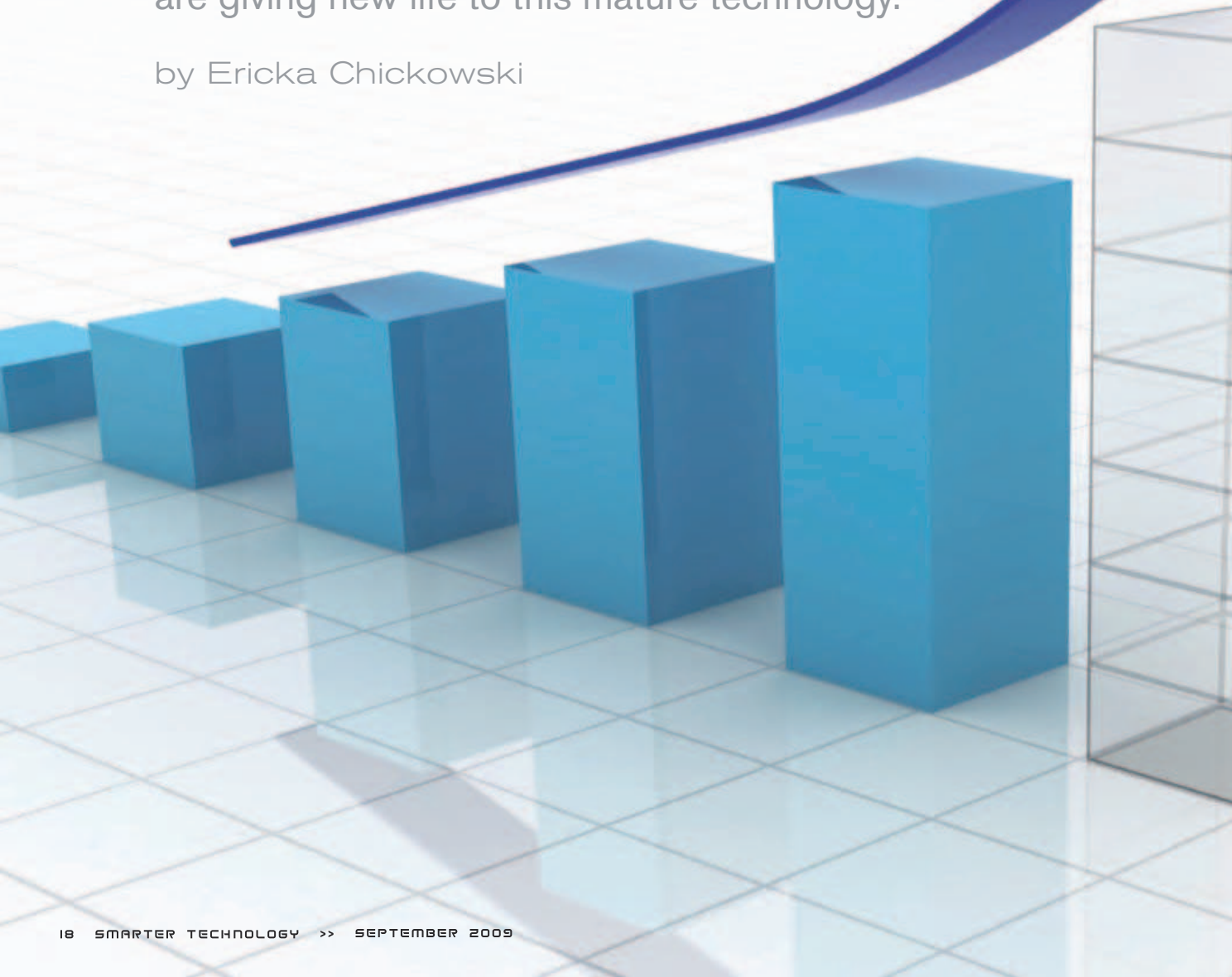


FIVE TRENDS

changing the fa

Predictive analytics, agile development, user-centric business intelligence, improvements in visualization and the operationalization of IT are giving new life to this mature technology.

by Ericka Chickowski





ce of BI



How does your organization extract true value from its business information? Answering this question has been a persistent challenge facing technology and line-of-business executives for decades.

While business intelligence (BI) has evolved since the days of “green bar” reports, the industry still has a long way to go in order to offer companies business information that can be translated into actionable steps that drive business results, says Joe Bugajski, senior analyst in business intelligence for the Midvale, Utah-based Burton Group.

“There is a sea change coming in business intelligence,” he says. “The existing tool sets have been out there since the early ’90s—some of them before that. And we still have tools that are too complicated for most folks. We’re pushing too much of the technical mumbo jumbo behind BI into the faces of users, and we’re still not giving access to valuable information in a simple fashion to the majority of the business population.”

As a result, users are asking their BI units, “What have you done for me lately?” The best BI teams answer that question with a bevy of new capabilities based on five trends that are changing the face of business intelligence.

TREND 1: PREDICTIVE ANALYTICS

If Ram Nagappan had to name one critical area where he thinks business intelligence has the most potential to completely transform his enterprise, predictive analytics would get the nod.

“If you look at it, everyone supplies records, everyone has dashboards—or they’re planning on doing it,” says Nagappan, managing director for Pershing LLC, a Jersey City, N.J.-based financial services affiliate of The Bank of New York Mellon. “But in these economic times, the information that I know beforehand is what will help me save money and steer the ship in the right direction.”

As he puts it, the BI industry is just “scratching the surface” of predictive analytics. This is partially because analytics in general has lagged so far behind the rest of the more traditional reporting functions of BI.

“Analytics has been the last to the party in the BI space,” Burton Group’s Bugajski says. “All the easy stuff has been done. We can make very pretty charts and graphs, but it’s not the [same as an] interaction with the core information of the business so that I can understand what’s going on. That’s still missing.”

Right now, most organizations are pushing the boundaries of current tool set capabilities. “What we’re seeing are mostly in the research and university areas,” Pershing’s Nagappan says of current predictive analytic tool development. “I know that people can take their current analytical data models and other things that they’ve created and do a prediction on them, but the tools are not quite there yet.”

Clearly, Nagappan’s need for better tools tracks well with recent rumblings in the business intelligence marketplace. According to IDC, the analytics market is expected to grow about 4 percent this year.

In late July, IBM banked more than \$1.2 billion on a bet that predictive analytics is the key to BI’s future. The

investment was made in the acquisition of SPSS, an analytics firm well-known for its predictive analytics technology.

“With this acquisition, we are extending our capabilities around a new level of analytics that provides clients not only with greater insight—but also with true foresight,” Ambuj Goyal, general manager of information management for IBM, said in a statement about the acquisition. “Predictive analytics can help clients move beyond the ‘sense and respond’ mode—which can leave blind spots for strategic information in today’s fast-paced environment—to ‘predict and act’ for improved business outcomes.”

While organizations wait for the market to shake out, Pershing’s Nagappan believes that those who prepare their subject-matter experts will be best prepared to take advantage of technology innovations. “I think the challenge in predictive analytics is going to be building the subject-matter expertise within the analysts,” he says. “In order to predict systematically, an analyst needs to know the subject matter well.”

TREND 2: AGILE DEVELOPMENT

The economic downturn is forcing BI departments to rethink the way they develop their solution sets, according to Wayne Eckerson, director of research and services for The Data Warehousing Institute (TDWI), a Renton, Wash.-based analyst firm. With users crying for more capabilities and management demanding faster deployments, he believes more enterprises will start to port the agile development philosophies that have permeated the developer community to the more traditional BI development teams.

“There is a lot of movement to come up with lower-cost models and faster deployment to keep up with the business,” says Eckerson. “Organizations are exploring agile BI because the business doesn’t want to wait for even three months.”

That golden three-month period used to be the perfect milestone that BI teams would shoot for in order to satisfy the business with new innovations. “Now it’s more like a couple of weeks to a month,” Eckerson says.

The key to the agile approach to BI is that it “rolls out business intelligence in an incremental, evolutionary way with a lot of involvement and participation from end users or customers,” says Ken Collier, senior consultant in business intelligence and agile product and project management for Cutter Consortium, an IT advisory firm in Arlington, Mass.

In the enterprise projects he leads, Collier targets a two-week iteration of new functionality releases. He says the factors most critical to meeting this demanding schedule are to keep milestones small and targeted; to foster a highly collaborative environment between analysts, developers and users; and to implement test automation for databases.

“That’s an entirely new concept for database folks who have been manually testing for years,” he says. “The problem is that if you work in two-week iterations and you’re trying to manually test these new features, you quickly get buried under the weight of your testing processes.” If you do it right, Collier adds, agile BI can deliver value in a number of ways. The most important is responsiveness to user needs.

“In a relatively medium-size data warehouse or BI system, it could take eight or 12 months of requirements analysis and

development and testing before users get to see working [betas] on their desktops,” Collier says. “What is key is being able to show users features within the first few weeks when new data is trickling in every night—even if you don’t roll these things live into production—and being able to show users working features and get feedback so you can quickly adapt.”

Agile development can also cut down on function overkill. Collier cites industry statistics that show the typical user of any given system uses only about 50 percent of its features.

“Simply by virtue of the fact that we focus on the highest-value things first, we can complete projects faster and at less expense,” Collier says. “We can converge more quickly on a system that’s ready to go into production, and the user can say, ‘This is good enough; I don’t need that other 40 percent.’”

Even if an enterprise isn’t gung-ho about developing on a two-week schedule, the lesson to take away about the agile movement is its bite-size mentality of incrementalism. Pershing’s Nagappan says this plays to enterprises seeking to ramp up their intelligence maturity. “Many organizations try to do an enterprisewide solution on Day 1, and that is a huge elephant to move,” he says. “That is not going to be a success.”

TREND 3: USER-CENTRIC BI

Since the last time the economy took a nosedive in 2001, Nagappan has shifted his department’s focus to better customize the information he delivers to different user segments, based on their roles within the organization. “We’ve noticed that our customer segments—we call them personas—that use our platform are all different,” he says, explaining that personas can range from financial reps to marketing and sales folks to business advisers. “The key thing we recognized was that one size was not going to fit them all.”

Nagappan’s top priorities include a shift to offering user-centric analytics based on role. “We need to take the same data and create analytical models that satisfy the various personas that are going to look at the information so they have better decision making ability from it,” he says. “We take the same transactional data and create various functional areas so these different consumers can take what they need.”

Burton Group’s Bugajski says it is this kind of user-centric focus that more BI departments must develop in order to enable the business to drive true value from the information it is analyzing. He says the typical organization too often faces the prospect of gathering BI information from what he calls the “human GUIs” of the enterprise: users who know how to extract data and end up interfacing with BI systems for colleagues who either don’t know how or don’t want to learn.

“There’s value there,” Bugajski says. “There are reasonable, responsible behaviors there. But that’s not the original vision for BI. Where is the tooling that my CEO could use? Where is the tooling that my business analysts who are not experts in data could use? They want something that is as simple to use as a Google search. And that’s fair to ask.”

TREND 4: VISUALIZATION IMPROVEMENTS

Bugajski believes the only way organizations are going to extract the full value from their BI endeavors is if they redesign their visualization philosophies and designs. “Business

intelligence as we know it is just about dead,” he says. “We need a new paradigm, and I think visualization is the key.”

The visual ways in which users collaborate and analyze information through Web 2.0 tools are setting the bar high for BI deliverables, which Bugajski says are sometimes stuck in form factors from the 1990s and even the 1980s.

Nagappan agrees. He says Pershing is focusing on Web 2.0 technology in order to innovate better ways to pump up visualization and improve the way users interact with data.


“If you look at the traditional ways, you put out a spreadsheet, and people might pivot that spreadsheet, but that’s about as far as they went,” he says. “With Web 2.0, we can create geographic mapping using Google; we can do Flash-based animation. We have AJAX technology and sharing.”

Nagappan says the cross-section of BI and Web 2.0 enables enterprises such as Pershing to take the same information

Over the last two years, the market has seen a drive to consolidate these tasks with a push by major ERP vendors to help bring BI under a larger operational umbrella. Eckerson believes the recent shift to bring together business intelligence systems and operational systems such as ERP makes sense. “There is definitely an opportunity for vendors to embed BI right into operational applications,” he says.

Pershing’s Nagappan also thinks that operationalizing BI is a no-brainer. He says his organization worked to do so years ago. “It’s a very key area for us, and we have done this for many years,” he says. “I know many other people in business intelligence who focus on finance [intelligence] and a few other [intelligence areas], but at Pershing, we focused on operational and compliance [intelligence] so many years ago because compliance is a key aspect of our business.”

Brian Kilcourse, managing partner for Retail Systems



“If you look at the traditional ways, you put out a spreadsheet, and people might pivot that spreadsheet, but that’s about as far as they went.”

—Ram Nagappan, managing director, Pershing LLC

and make it consumable in different ways. This dovetails with the user-centric model that his organization is striving for.

In fact, Nagappan and his organization are so passionate about how Web 2.0 can change the face of visualization BI that they used these technology philosophies in creating a flagship software platform for the firm’s financial planning customers. Launched in July, the Pershing NetX360 puts the power of customizable data dashboards in the hands of users, allowing them to visually see real-time financial numbers and data crunched on-demand from a variety of data sources.

TREND 5: OPERATIONALIZATION OF IT

The initial idea of BI was to put the right data and analytics in the hands of people who could make changes that would improve the way business is done. Somewhere along the line, that idea grew muddled. BI systems grew up to be scattered across enterprises, complicated and difficult to use.

As enterprises assess how to move forward with their BI efforts, one goal should be to make BI simpler and easier to access by a wide range of workers.

“When I started, one of the promises of BI was empowering decision-makers and knowledge workers,” says Dyke Hensen, PivotLink’s chief marketing officer. “It was to create pervasive BI and leverage BI for everyone. The problem is that over the years, a lot of these offerings became very complex, bloated and expensive.”

Eckerson of TDWI agrees, saying that it is odd that so many enterprises’ operational workers have to switch gears between a BI application and an operational application in order to open a dashboard or a report to see the impact of an action taken based on business intelligence.

Research, a Miami-based retail IT analyst firm, agrees that this “operationalization” of BI is currently one of the most significant intelligence trends sweeping through enterprises. He’s seen a lot of anecdotal evidence illustrating how a shift to embedding BI within operations gives workers out in the field better tools to drive day-to-day operations and gives customers better ways to make informed purchase decisions.

“We’re seeing a lot of companies injecting actionable information into operational processes in just-in-time fashion,” Kilcourse says. He saw Virgin Megastores offer its store managers an effective way to improve sales. BI systems were integrated with up-to-the-minute in-store sales so managers could see how hit titles were selling in comparison to other hits with similar sales. The intelligence match-up compared the first few days of release of one title with other releases that had similar sales starts, giving managers the ability to project sales going forward. It also offered analyses that enabled workers to pair up overstocked albums with hot sellers in endcaps to move otherwise stationary products.

“They were basically doing a kind of a product mashup on the sales floor, in more or less real time, based on the signals they were getting from sales as they were occurring,” Kilcourse says. “They were doing shelf resets based on the fact that one title was flying off the shelves, and they wanted the other one to fly with it.”

Kilcourse says these kinds of initiatives help organizations better adopt a sense-and-respond mentality. He also believes that embedding BI into operations provides very good back-end benefits. “One of the big values is that the operational systems or processes can deliver to the BI system information that says, ‘This is what happened after you responded.’” **ST**



Five Steps to **Smarter Collaboration**

by Eric Lundquist

COLLABORATION IS A HOT BUSINESS TOPIC RIGHT now. The rise of social networks and consumer-facing services such as Facebook and Twitter has helped bring collaboration to the top of the business-to-business technology agenda. But before you jump into projects that get everyone Tweeting and writing on Facebook walls, here are five steps to consider.

1. COLLABORATE ON A PLAN. Before you start the technology discussion, gather the business types around the table and develop a collaboration plan. How comfortable are they with two-way communication both inside and outside the company? What about the lawyers: Are there compliance issues?

These are the nitty-gritty topics that need to be addressed before you open all the doors. Spending time at the start of the project to hammer out a plan will increase the speed with which you can get the project accomplished.

This first step is one that is most often overlooked. I know that many collaboration projects at companies start with a group of employees who collaborate or use social networks outside the confines of the IT department. This will get you in trouble. No one sees any problems with working outside the company's IT network until the red flag goes up after the boss finds that employees were talking about unannounced products on Twitter, etc.

2. SET A GOAL. Maybe the marketing folks want to use Twitter to increase attendance at conferences or spur downloads of white papers and software. Those are good business goals, but do you have the metric systems in place to measure the objectives? Collaboration investment will get a lot more support if you can present a plan and a way to measure against that plan. The Web has abundant tools that allow you to track where users come from, so you can track which user came from which collaboration and network site.

3. FIND ADVOCATES. I'm sure you won't be surprised to hear that a lot of people in your company—and not just the younger employees—are using social networks now. Twitter, Facebook and LinkedIn are good friends to many of your employees.

So find advocates who want to take what they have learned outside the company and use it inside. Don't force executives who are still uncomfortable with e-mail to become the collaboration advocates. It won't work. The best collaboration and social network projects convey the enthusiasm of their participants. The worst ones feature company CEOs sounding as if they're reading a press release.

4. NOW, THINK TOOLS. Once you have a plan, a way to measure the plan and advocates in place, it's time to think about tools. How easy is it to mesh new collaboration tools and services with your existing infrastructure? Remember, collaboration tools are used by many people, and mistakes in flexibility, scale and security will be visible to all.

The tools and services evaluation can be overwhelming, as new products appear on the Web almost hourly. It is better to make a good choice in a timely manner rather than strive for a perfect choice that delays projects for months or years.

5. BE INNOVATIVE. Of course, this is easier said than done, but you can search for new areas of collaboration that are often overlooked. Sure, everyone will collaborate on a new marketing presentation, but what about building collaboration tools that tie you in more tightly with your current suppliers and help you scout for new suppliers? How about new tools that allow your customers to become your product developers?

There's a lot of opportunity here once you start thinking outside the usual collaboration box. Keep in mind that you can't force innovation, but you can create a business and technology atmosphere in which innovative ideas can flourish instead of being crushed.

Collaboration and social networks are natural allies, but if you don't start with a collaboration plan, you'll find yourself working backward instead of forward in your networking strategy. **ST**



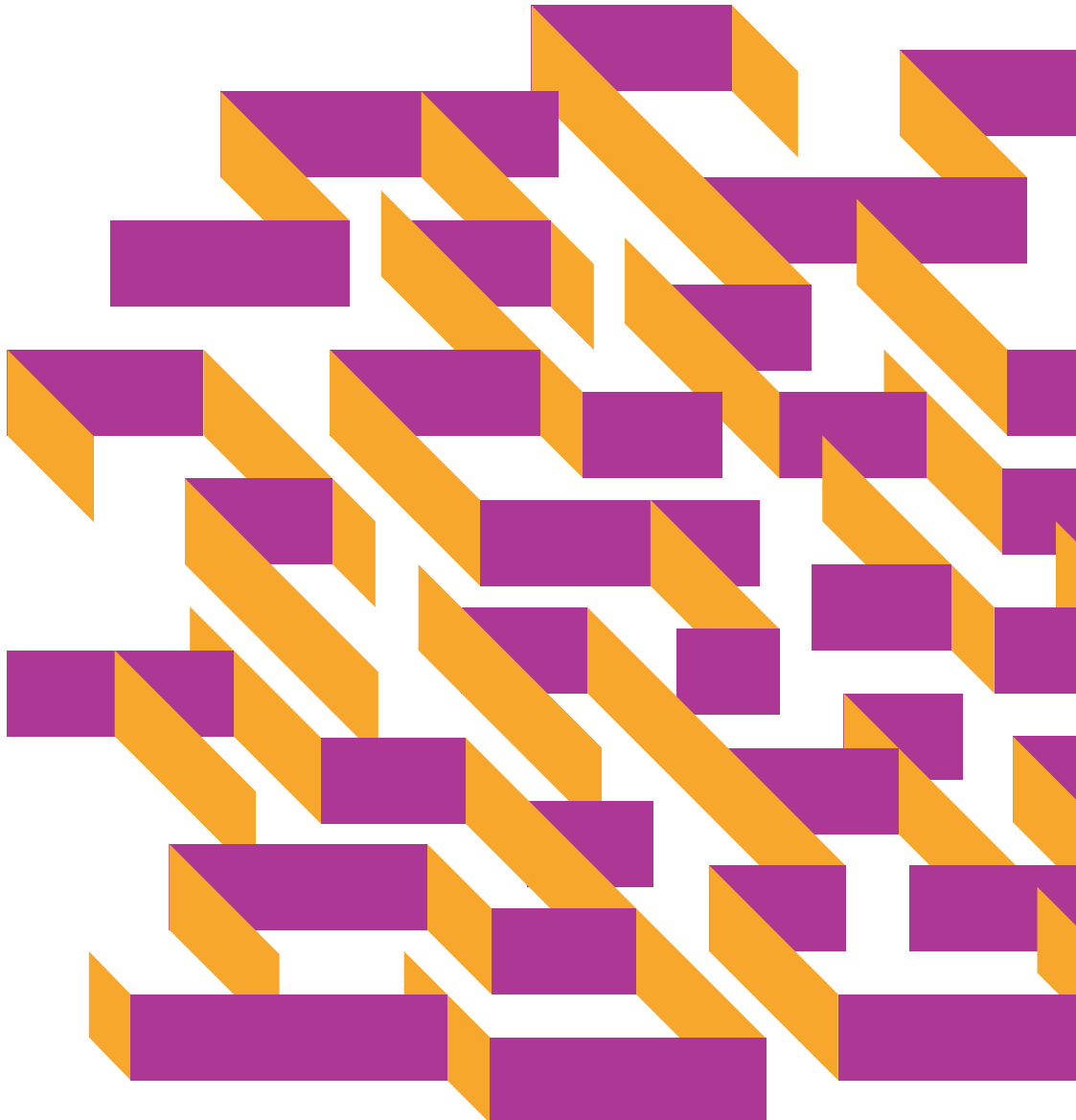
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Baseline500

CONTINUED FROM PAGE 22

How did you end up overseeing the Wells Fargo/Wachovia integration, since you were working for the acquired firm?

Davis: Wells Fargo has a great corporate culture and believes it should take advantage of the best existing resources in acquisitions. At the time, I was the CIO of Wachovia, and Wells Fargo didn't have as centralized an approach to IT as Wachovia did.

My duties were all about overseeing these transitions, as Wachovia had acquired companies such as First National Bank of Atlanta, Golden West and A.G. Edwards. True, there is a big difference with respect to being the acquirer and the firm acquired. But Wells Fargo's philosophy is all about tapping into the best talent available to do the job that's needed. So they allowed me to leverage my skill set.

When you initially started the integration, how immense did the task look?

Davis: It was big. Between the two companies, there were more than 4,000 different systems being used. Just for e-payments, we had to decide on hundreds of systems. But there was no pressure to stick with Wells Fargo's systems, if it could be determined that Wachovia had a better model that worked.

For mortgage lending, we found Wells Fargo's to be superior for scalability. At the time of the merger, we had huge needs to fill the demands created by the refinancing boom. We added 10,000 employees just to handle those orders. The Wells Fargo platforms were superior in handling that demand and conducting secure transactions, so we zeroed in on those.

But, when it came to the retail brokerage side of the business, we liked what we had with Wachovia's systems. We found that Wachovia had more experience in this area, and that its systems were better equipped to help us compete.

What were some of the initial challenges?

Davis: With anything like this acquisition, you're bringing disparate teams together and trying to get them all to be on the same page. However, with IT departments, every member has his or her own preferences [regarding] the systems they're using. There's nothing wrong with that. They helped develop those systems, are working with them every day and take a lot of pride in them.

Our challenge was to get the teams to focus on the prize, which means evaluating which systems are best suited for the situation and going in that direction. Which systems allow us to serve our customers in order to be the best financial institution coast to coast? That's what we tried to get them to determine.

For example, the online banking platform was found to be superior on the Wells Fargo side. Wells Fargo's customers constantly said how easy it was to use and how intuitive the interface was. So that's what we went with. At the end of the day, it's about the customer, and the customer wants convenience.

The fortunate thing is that both Wells Fargo and Wachovia have constantly been among the highest-rated financial institutions when it comes to customer satisfaction. When you bring together two companies with such similar cultures in this respect, it makes it easier to bring the network systems together.



WELLS FARGO

AT A GLANCE:

COMPANY: Wells Fargo & Co.

HEADQUARTERS: San Francisco

2008 SALES: \$1.3 trillion

EMPLOYEES:

- Number at Wachovia at the time of the merger: 114,196

- Number at Wells Fargo at the time of merger: 167,209

- Number of current employees, post-merger: 286,000

BUSINESS: Financial services—including mortgage loans, refinancing, investment services and traditional banking—for 70 million customers throughout North America

ESTIMATED NUMBER OF LOCATIONS: 10,400 branch and office locations and 12,300 ATMs in North America

How did the merger affect ongoing IT initiatives?

Davis: When you're going through the planning and execution stages, that becomes your first priority. But we're well aware of the need to keep developing better business platforms along the way. We've increased video conferencing, SharePoint sites and portals to keep our employees from constantly jumping on planes to get business done. We're not yet at the stage where everyone has unified messaging all on one device, but we are getting more collaborative in the way we do things.

How has the merger affected your data centers?

Davis: Wells Fargo was in the planning stages of a data center expansion at the time of the acquisition, but Wachovia had already opened a new data center. That allowed Wells Fargo to put off plans for its data center, because the Wachovia project is serving that need. This has resulted in significant cost savings.

When do you think you'll be finished?

Davis: We expect to have most of this done by 2011, but we're not going to rush anything to meet that time frame. There are multiple stages, all of which require analysis, planning, testing and release. There's constant code-testing that needs to be completed for every stage, and there are more than 4,000 systems out there that need this.

There's no magic cookbook for a major integration. Every project is different and requires different approaches and analyses. And there's a human component, too. We don't break everything down into technology terms because it's really about the people using the technology and the customers served by it.

Do you wait until it's all over before celebrating?

Davis: We celebrate the small successes along the way, but we do it realizing that the next challenge is right around the corner. ◀



Is your company using IT to support business innovation? Let us know, and send comments on this story to editors@baselinemag.com.

DOCUMENT MANAGEMENT

DO YOU



DOCUMENT AND CONTENT MANAGEMENT OFTEN INVOLVES THE TRANSFORMATION OF PAPER FILES INTO A DIGITAL FORMAT. BUT IT ALSO ENCOMPASSES AREAS SUCH AS SECURITY, DISASTER RECOVERY, COLLABORATION, E-DISCOVERY AND PRINTER MANAGEMENT.

OUR DOCUMENTS MANAGE YOU?

BY DENNIS MCCAFFERTY

IF AN ORGANIZATION DEVELOPS AND maintains its content and documents effectively, the information contained therein can save time and money, and may even generate revenue. If not handled properly, however, content and documents can sap revenue and productivity—and may lead to legal problems when required documents can't be found.

It's no wonder, then, that many companies seek innovative ways to manage their business documents and content. The enterprise content-management market is now worth more than \$3.4 billion in revenue worldwide, up from slightly more than \$2.6 billion in 2006, according to industry researcher Gartner.

Columbus, Ohio-based Grange Insurance is one of the companies buying into these solutions. With more than \$1 billion in annual revenue, the company was forced to deal with a never-ending stream of paper documents as it processed auto, home, life and farm policies for thousands of customers. Grange needed a way to make it easy for its network of independent agents to quickly provide quotes and policies to customers, and to process their claims and answer their questions in a timely manner.

Today, the company is benefiting from its investment in an IBM Enterprise Content Management solution, which scans nearly 60,000 documents daily. Grange's service representatives can quickly access insurance



ILLUSTRATION BY RANDY LYHUS

documents online and provide that information to customers via e-mail or phone. As a result, customers are served faster, receiving claim updates, new policy quotes and coverage details in minutes instead of hours or days. This level of customer service has helped the company grow its business without having to hire additional service reps.

"This was the best decision we ever made," says Jerry Valentine Sr., lead computer analyst. "This solution is now the cornerstone for how our corporate information is stored and processed."

As Grange discovered, document and content management often involves the transformation of paper files into a digital format. But it can also encompass other areas, such as security, disaster recovery, collaboration, e-discovery and printer management. *Baseline* recently spoke with executives at enterprises that have launched initiatives to improve oversight of their corporate documents.

TAKING CARE OF PATIENTS

Caris Healthcare, a Knoxville, Tenn.-based hospice provider with branches throughout the state, cares for more than a thousand terminally ill patients a year. Understandably, families of those patients may be in an unsettling emotional state, especially during the intake process when Caris staffers meet with them to get a sense of the patient's medical history, prescriptions needs, contact information and financial details, etc.

These details help doctors, bereavement counselors, chaplains and other staffers provide proper care, and they enable administrators to come up with an amenable contract for services. Traditionally, this information was assembled with paper documents—a tedious experience for the patient's family and the hospice's staff.

Now, Caris is streamlining the process by converting virtually all its paperwork into digital format. "We were looking to create greater ease of access to the documents," says Troy Chambers, IT director. "We also wanted to save costs by eliminating paperwork, and we wanted a system that included a strong disaster-recovery plan."

Caris turned to Eastman Kodak to devise a Web-based solution that would reduce the cost and complexity of document workflow during intake. Kodak partnered with FileWorks, which takes images from Kodak scanners and creates e-docs out of them: PDFs, Word documents and JPEGs. Four Caris locations have already been converted, and all 17 will be using e-docs by the end of the year.

Originally, management thought there might be a problem with converting documents that required a physician's signature. But Caris discovered that the state of Tennessee allowed a photocopy of the physician's signature on documents, so the photocopied signatures were scanned into all e-docs. The solution also met encryption standards dictated by the Health Insurance Portability and Accountability Act (HIPAA).

As far as access goes, staffers are allowed to call up documents based on their job titles, responsibilities and work location. Central office employees have greater latitude, while those in service locations generally have access only to documents that relate to clients being treated at their site.

Dealing With Paper

Managing e-documents is a mission-critical task for many companies these days. But what about managing the machines that print, copy or fax paper documents?

Like many businesses, KeyCorp, a Cleveland-based financial services company, had a glut of printers, copiers and fax machines. Some machines were rarely used. In other cases, employees had their own personal printer.

"In some instances, this was considered necessary because of the confidential nature of the documents employees were printing," says Angie Masini-Sloan, vice president and director of enterprise resource services. "For the most part, each business department had its own budget for printing technology and would decide on its own what to buy."

Wanting to do something about the situation, KeyCorp brought in Xerox to audit the use of these machines by its 18,000 employees. Through its Device Manager application, Xerox evaluated KeyCorp staffers' daily work patterns and found that the company had a machine for every two employees, and, in many cases, workers had their own machines but weren't making the most use out of them.

"They helped us understand what we were doing, and came up with a plan to centralize and scale back on our use of this equipment," Masini-Sloan says.

Now in the midpoint of a six-year contract, Xerox has increased the person-per-machine ratio to 6.5 to 1—reducing the overall number of machines used from 10,000 to 3,500—and that number is still improving. KeyCorp is saving \$1 million a year in the process.

The company is also buying into environmentally sound practices in a big way and is determined to reduce printing by 30 percent. It's even designated a "green" conference room where absolutely no paper is allowed.

In addition to helping the environment and saving on printing costs, paper reduction also heightens security. "It's easier to lose a document when it's in paper format," says Masini-Sloan. "So we tell employees, 'When you absolutely need to print something, we'll give you the highest-quality devices to do that, but when you can use an alternative method, please do so.'"—D.M.

The system is also secure enough to allow employees to access these documents remotely, which is important when a company has 17 locations. "This will save our auditing team time and money," Chambers says. "Instead of crisscrossing all over the state to get a file from a particular location, our auditing team can simply call it up through this system from the central office where they work. For their purposes, an e-doc and a paper document are the same."

The need for greater disaster recovery has also been met. "It's all backed up at a site that hasn't even been disclosed to me, which is the way I prefer it," Chambers says, reasoning



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that the lower the site's profile is, the more secure the information will be.

GREENER PASTURES THROUGH A WIKI WORLD

As a senior executive in the renewable-energy industry, Brandon Stafford often tapped Wikipedia.org for both business and personal use. Then, more than two years ago, Stafford had a thought that changed the way his office did business: Why can't our company collaborate like the wiki world does?

In his case, the company is San Francisco-based GreenMountain Engineering, where Stafford is a principal engineer working out of an office in Boston. GreenMountain creates devices that serve the "clean tech" industry. For example, it recently built a robot that can take long strips of solar panels and cut them into 4-inch-square solar cells. The amount of technical complexity that goes into such designs can be immense, and GreenMountain staff often collaborated on extensive reports that would be compiled using Microsoft Word.

"We'd start out with a document that would be named SolarReport," Stafford recalls. "Then someone would do edits and rename it SolarReport_Edits. Then another person would jump in, and it would then be named SolarReport_TomEdits. And on and on it would go. When you looked at

the report, you didn't have any idea who did what and when they did it. It was really difficult to track changes and see the overall evolution of the report."

To solve this problem, GreenMountain decided to invest in a Web-based collaboration tool from Socialtext that allows the company to collaborate daily on these reports using a wiki-like application. The document can be accessed by anyone working on it, at any given time, from just about anywhere. All changes made are tracked, pinpointing who made them and when they were made. The product also manages the application, providing database upgrades and security.

"When we use this tool for internal reports, the application also allows us to note who elaborated on a certain point and demonstrated some knowledge that we didn't realize existed before," Stafford adds. "So, it has helped us find out who on our staff has expertise in a particular area.

"Socialtext also provides a strong sense of security and overall administration. And we needed something that was user-friendly. We wanted the reports to be edited in WYSIWYG fashion, rather than needing to type in a bunch of symbols to boldface a word or phrase."

GreenMountain is so pleased with the product that it has expanded its use. "We thought this would just be an easier way to compile reports and create a library that would provide a historical record of what the company has done,"

E-discovery of E-docs

On any given day, Ft. Lauderdale, Fla.-based American Document Management (AmDoc) assists its thousand corporate and government customers by tracking down their e-documents with the tenacity of a TV sleuth. Its customers are dealing with litigation and compliance cases large and small—from divorce proceedings to major corporate lawsuits—which means accessing e-docs is often key to a case's outcome.

"With today's wealth of electronic devices, so many documents are stored on laptops, cell phones, digital cameras and GPS systems that there could be enough [information] on each device to fill a 4-foot-long filing cabinet," says Karen Unger, AmDoc's president and CEO. "We find the critical files for our clients and get them organized, even if they've been deleted. We're like a CSI for computers."

Given that AmDoc's business is based on content and documents, the company has taken its own advice by maximizing efficiency when it comes to generating and tracking its own sales reports. In the past, however, Unger and the sales teams often found themselves buried beneath solutions that required excessive personnel resources. There was also a glut of customer-related contracts to stay on top of manually, and contract-renewal deadlines were sometimes missed.

"We dealt with several vendors that offered automated solutions for these needs," Unger says, "but when it came to the basic things we wanted—like finding out how many calls a

salesperson made in a week—we couldn't automatically retrieve it. That should be part of the basic package, shouldn't it?"

AmDoc found a better way through a solution called QuickBase from Intuit. Unger no longer has to manually retrieve and send sales reports: An e-mail-based application now automates that process. There's also a template that allows Unger to see whether sales tasks and goals are being met in real time, versus having to wait until the end of the quarter. This allows for quicker corrective action, if needed.

Similarly, reports relating to sales lead generation, calls and meetings are produced electronically for easier retrieval and oversight. Sales teams now save four hours a week on time that used to be spent manually producing these reports. The solution also sends e-alerts to staff members when customer contracts need to be renewed and when payments are due, so there are no more missed lease payments or contract renewals.

AmDoc is even expanding its use of QuickBase to serve its HR and inventory needs. "Now, when employees are hired, we'll be able to track their hiring date, the date when their evaluation and raises are due, and when their tax status changes," Unger says.

"With inventory, when a computer maintenance agreement is expiring, we'll find out about it two months in advance. That way, we can budget for the renewal ahead of time instead of being hit with it by surprise." —D.M.

Stafford says. "But it's much more than that now. For one thing, we use it to assemble a list of every company that competes in our industry."

A CASE OF COLLABORATIVE E-MAIL

From simple fender-benders to boat fires to building damage claims, Vancouver-based Whitelaw Twining is a law firm that specializes in insurance cases. As the IT manager, Richard Giroux would often be the one who'd have to tell lawyers they had too many e-mails in their in-box, given that some lawyers would literally store tens of thousands of e-mails about pending cases.

That's why Giroux convinced the firm to deploy Novell's Groupwise, which allows teams of lawyers who are working on the same case to more easily share information via e-mail communications. Essentially, an e-mail dealing with a particular legal dispute is coded by the dispute's case number. Then, all e-mails associated with the case are stored in a central file that can be accessed only by Whitelaw Twining staffers who are working on that case.

Because these e-mails are in separate folders that are designated by case number, they also use less server space than they would if they were stored in the staffers' general in-boxes. And, once the case is closed, all the e-mails are offloaded onto a compact disk.

"This allows teams to work together as a group and know what every member of the team is doing without having to talk to each other," Giroux says. "Typically, they'd have to create a Word document to track the progress of a case, but that kind of document would need a lot of management.

"In our business, you don't get paid for managing cases. You get paid for working the cases. And this system allows our staff to spend more time working the cases."

TALL BILLS TO FILL

Malvern, Pa.-based Siemens Healthcare has staked claim to a thriving industry niche by performing a key task for more than 200 hospitals nationwide: getting bills to patients.

Over the years, the wealth of varied e-formats that hospitals used to get patient-care and billing details to Siemens created challenges. Some arrived in flat files, others as XML documents and still more in some other format. Worse yet, each document had to be processed separately, since the hard copy of a bill had to be printed using each individual hospital's logo, address, phone number and other information.

This was time-consuming and costly: Separate print runs meant separate mailings, and Siemens was often missing out on getting large bulk-rate postage discounts.

"We needed a system that would allow us to run all these patient-billing document files from the different hospitals at once," says Corey Ruff, the software engineer who oversees the billing system for Siemens Healthcare in the United States.

A solution from ISIS Papyrus America has enabled the company to do just that. Siemens can take all the patient billing information from disparate file formats and process it at the same time. It deploys a WYSIWYG tool to design billing templates; create customized statements for clients with logos (with appropriate colors); and provide credit-card payment information.

Previously, Siemens would mail up to 2,000 bills at a time. Now, it can send out as many as 56,000, and the bulk-mailing discount can amount to 10 cents a bill. Given that the company mails 2 million bills a month, the savings passed along to its customers are significant.

Using Papyrus has also enhanced Siemens' ability to take the billing information to third-party vendors that oversee e-payments from patients, eliminating the need for postal service. "With the concept of paper fading from society," Ruff says, "we're now in a great position to move totally toward e-billing and e-payments."

Clearly, there are many technology solutions that meet the document management challenge. The key is to find the one that's right for your organization. ◀



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CONTENT MANAGEMENT

FIGHTING AND WINNING THE PAPER BATTLE

WHEN THE U.S. ARMY WENT LOOKING FOR WAYS TO CUT PAPERWORK COSTS, IT ENDED UP WITH AN UNEXPECTED BENEFIT: IT SAVED LIVES.

By Luc Hatlestad

WHEN ORGANIZATIONS MAKE THE MOVE from paper to electronic forms, most do it primarily to save money. When the U.S. Army adopted software to help streamline its mountains of paperwork, it ended up saving something a lot more important: the lives of its soldiers.

Under its old paper-based system, the Army had to plow through millions of sheets of paper each year. This included printing and shipping millions of dollars' worth of publications and forms to two distribution centers staffed by hundreds of people. These centers shipped the publications and forms literally by the tons to almost 30,000 accounts throughout the Army. The forms were used to trigger the initiation, change or completion of various business processes, and they had to be filled out manually, reprinted and reshipped.

"The Army is like any other organization," says Susan Maks, director of Army Publishing. "Usually, a form initiates any business process, and it would have to be hand-carried and hand-signed."

This process happens both in Army offices and in combat theaters, which adds a layer of peril no typical businessperson could comprehend. "The [combat units] would have to put convoys together to take these papers

back and forth, and people were actually getting killed," Maks recalls. "I recently had a lieutenant colonel call me from Iraq extremely upset because he lost one of his soldiers who had been carrying a contract form to get signed. You can't put a dollar value on that."

The Army has been trying to move away from paper forms since early in the decade, and recent advances in electronic forms software have finally made it possible to eliminate the need to put lives at risk, while also saving millions of dollars.

Beginning with its officer evaluation reports—which every member of the Army completes at least several times a year—the Army developed an initiative called the Forms Content Management Program in 2002. It then solicited information from more than 50 vendors, whittled the list of finalists down to three for a prototype evaluation and finally selected IBM.

A SUCCESSFUL DEPLOYMENT

Since last year, IBM and Enterprise Information Management, a veteran-owned firm that customizes business process solutions, have been working together to automate business processes for the Army's Publishing Directorate (APD). The result is the creation of the Army

Publishing Content Management System (APCMS), which uses IBM Lotus Forms Version 3.5. It's used to digitize the Army's human resources, personnel, logistics and forms processes, and about 1.4 million users are deploying it.

The APCMS has the ability to "centrally manage official Army departmental information, authenticate the information, and make it universally accessible to enhance the Army's readiness and war-fighting capabilities," Maks explains. "We now have a centrally managed program with digitized forms that can be downloaded, as well as smart forms that can be 'wizardized.'"

"One of our longer applications is the military evaluation. Because you can digitally sign the forms, it makes that process faster and easier. Since the rules are embedded in the form, the error rate has come way down. And because it's a content management system, the content never moves. I can travel anywhere and just log on, and it's like I never left."

Maks adds that the new technology is easy to work with and is accessible to users of all levels. It supports evaluation policy requirements, encourages right actions, and prohibits or limits wrong actions, such as entering data incorrectly or in the wrong place. The system also reduces administrative errors, eliminates the need to physically carry evaluations between combat bases, lets documents be shared regardless of location and cuts down drastically on postal costs.

In addition, IBM Forms can precisely mimic an organization's existing paper forms electronically. That concept is nothing new, of course, but moving away from paper has been slow to catch on, largely because digitized versions have often been poor copies. In this case, however, the electronic forms look exactly like they do on paper.

"Because the system handles the forms the same way, retraining is minimal," Maks explains. "It's very easy and intuitive." This reduces training time and costs.

SECURITY CHALLENGES

Though data security is a concern of all organizations, for the U.S. military, these issues can have national security implications. An ongoing challenge for the Army has been educating its agencies about the use and legality of digital signatures, including archiving and time-source authority distribution. (The Army was the first Department of Defense

[DoD] branch to implement digital signatures at an enterprise level.)

Army computers have built-in security card readers, so users can insert their security badges into a reader to digitally sign a form. "A lot of this technology has been out there for a while, but the DoD turned a corner when it started using ID management," Maks says. "Now the system knows who I am and that I'm authorized to sign. It locks down the data so it can't be altered. This is what gives us the ability to do an end-to-end paperless system for the first time."

SAVING TIME AND MONEY

In the three years since the project's implementation, the Army estimates that it has saved more than \$28 million and two hours per form via electronic processing for the evaluation forms alone. It projects an annual savings of \$1.3 billion in paper-related costs by the time the project is fully deployed across all Army departments.

Maks says the Army is exploring ways to expand its use of IBM Forms. Only about 10 applications having been converted so far, but dozens more will soon be joining the paperless revolution. The most immediate frontiers will involve an e-mail archiving system for which the Army is running a pilot program.

"We tested an IBM e-mail manager module that worked extremely well," she says. "We're looking to institutionalize it at the Pentagon, and that would jump-start records management there." Maks adds that in the wake of the 2007 revelations about the poor record-keeping and negligence at the Walter Reed veterans hospital, the automation of Army medical evaluations will be high on the to-do list, as will digitizing the records for military awards and performance evaluations.

Though the process of bringing the Army's administration into the digital age is obviously a massive undertaking, Maks reports that they're off to an encouraging start: More than 80 percent of the Army's 400,000-plus annual evaluations are now being sent electronically.

"When you're doing something like this at an enterprise level, it takes awhile to get the capacity built, so we're trying to take small bites," Maks reports. "But we are on the leading edge of what anybody's doing at this point."

"The technology has been there for some time, and we now have the ability to put it all together." ◀

High-Touch Industry Turns to **HIGH TECH**

PROFESSIONAL SERVICES FIRMS MUST PROVIDE A CUSTOMIZED LEVEL OF SERVICE TO THEIR CUSTOMERS, BUT THEY ALSO WANT TO INCREASE AGILITY, IMPROVE EMPLOYEE PRODUCTIVITY AND CUT COSTS. VIRTUALIZATION, MOBILITY AND SOCIAL NETWORKING HELP THESE COMPANIES ACHIEVE THEIR GOALS.

By Bob Violino

PROFESSIONAL SERVICES FIRMS, PERHAPS MORE THAN OTHER types of companies, need to be accessible to their clients. Regardless of the services rendered—consulting, legal or financial, to name a few—customers expect to be able to reach someone when necessary and to receive a highly customized level of service.

At the same time, professional services companies are looking for ways to cut costs and increase agility. Three technologies stand out as being especially critical to professional services firms as they try to achieve these goals: virtualization, mobility and social networking.

Virtualization is a hot technology in many industries. Businesses are looking for opportunities to reduce costs and decrease power consumption in their data centers, and server virtualization can deliver that by enabling companies to reduce their reliance on physical servers.

Research shows that the percentage of virtual servers running in production is rising. Desktop virtualization is also becoming more common, as firms seek to enhance their ability to manage desktops from a central

location and deploy thin clients to replace traditional PCs.

"We're now seeing cheaper devices that are hard-wired to be nothing but a virtual desktop," says John-David Lovelock, research vice president at Gartner. "When you tailor that with [mobile technology], you can use any device and get access to your desktop as though you were in your workplace."

Mobility—for both computing and communications—is another popular technology. Many firms are installing wireless networks, enabling employees and customers to use a variety of devices to access corporate networks and applications. Some are also issuing devices such as PDAs and smartphones to give their workers access to some of the latest mobile applications.

In addition, mobile technology presents companies with new business opportunities. Lovelock cites an example of a cell phone application used by real estate firms in Europe that allows house hunters who are driving to be notified automatically when they are approaching an open house in a particular area.

"There are a few countries in Europe where cell phone penetration is 100 percent," Lovelock says. "The ubiquity of cell phones is going to be a reality that we can count on—not just for use by employees, but for staying in contact with clients."

Another popular way of staying in touch is through social networking, and technologies that enable various types of online collaboration are gaining ground quickly.

Social networking is both an opportunity and a threat "for pretty much anyone who sells by reputation into the market," Lovelock says. "Any of these firms that don't take control of their brand in the social networking arena will find that they've given up control of their brand to the marketplace."

In the short term, many firms are ignoring social networking because they assume its impact on the business is minimal. "But its impact will grow, as it is a brand-new channel to market," Lovelock says. "It's a communications channel with clients and potential clients."

Here's how some professional services firms are successfully using these technologies.

TESTING VIRTUALIZATION

The architecture, planning and interior design firm Zimmer Gunsul Frasca Architects LLP in Seattle began testing virtualization software from VMware in 2008 and has since deployed it on new servers and has started to convert its existing production servers to virtual machines, says Ronald Pike, an associate at the firm.

"We are basically virtualizing what we are comfortable with and what our third-party software vendors approve for virtualization," Pike explains. "We wanted to leverage our [storage-area network], which had been purchased a year earlier, to get the typical benefits of virtualization: power, cooling and space saving, as well as some disaster recovery

options that would not have been as easy to achieve without virtualization and a SAN."

Thanks to virtualization, the firm immediately retired 20 older physical servers and reduced rack space significantly.

Zimmer Gunsul Frasca can now deploy servers in minutes. With physical hardware, the server preparation process entails setting up a utility partition, installing drivers for the physical hardware and installing the operating system, Pike says. The firm can now replicate virtual machines across its WAN seamlessly.

"We've found our newly installed virtualized environment to be ideal for testing and prototyping new services," Pike says. "It is much faster than using physical hardware." Last year, the firm used it for testing its Microsoft Exchange 2000 to Exchange 2007 migration. More recently, it used it to test an enterprise resource planning upgrade.

Zimmer Gunsul Frasca is also testing desktop virtualization software. But Pike says the firm will likely have a limited deployment of that technology because most employees use applications that are very demanding of desktop hardware.

Pike says the company didn't encounter any serious challenges during the virtualization deployment. "We were surprised how trouble-free the implementation

has been," he says. "I believe it really helped to be using hardware that is certified compatible."

DESIGNING A MOBILITY STRATEGY

Law firm Fenwick & West LLP in Mountain View, Calif., has made mobile computing and communications technology key tools for many of its employees.

"We've been using mobile devices since the first BlackBerrys were available," says Matt Kesner, the firm's chief technology officer. "We believe we were the first law firm to equip all our partners with mobile e-mail devices, and we were among the first to provide combination e-mail and cell phone devices."

"Mobile devices are an important part of our communications strategy. We want to be available to our clients when they need our advice. We also want to use business process automation to provide our services to clients with as little overhead as possible. Mobile devices, with their ever-increasing capabilities, make our workforce more efficient and nimble."

The availability of information is key to this approach. "Mobile devices let us put much of the important knowledge of the organization in the hands of our lawyers," Kesner explains. "We are pushing to put all of our systems into browser-accessible interfaces so that one day soon, they can have all of our resources on their mobile devices."

"Because mobile technology is important to our firm, we try to be among the first users of new waves of products. We often find ourselves beta-testing the latest technologies so we can learn and assimilate them quickly."

**We often
find ourselves
beta-testing
the latest
technologies.**

**—Matt Kesner,
Fenwick & West**

Kesner says Fenwick & West uses “just about every kind of mobile device,” including Palm USA’s Treo, Nokia Symbian devices, Microsoft’s Windows Mobile and Apple Computer’s iPhones, in addition to BlackBerrys. The company is also planning to purchase the new Pre multimedia smartphone that Palm launched in June.

“We support any mobile platform if we can find a way to meet three security imperatives,” Kesner says. “First, the device must be able to receive and send all e-mail via an encrypted channel. Second, it must be lockable with a security code. And third, we must be able to remotely wipe the device if it is lost.”

Fenwick & West encourages its employees to try new mobile applications, such as mapping tools, social networking and video conferencing. “The benefits of mobile devices are all about having access to what you need as a knowledge worker,” Kesner says.

SOCIAL NETWORKING

Grant Thornton LLP, a Chicago-based audit, tax and advisory firm, has taken the plunge into social networking to stay connected with current and former employees. In May, the firm launched an employee social network, called theGrid, using software from SelectMinds.

The idea for the network came out of an employee survey in which many people requested more two-way communication—both across the firm and with leadership—and a way for employees to share common interests.

The network provides a forum for collaboration and knowledge sharing both inside and outside the firm. So far, theGrid has been well-received, with about half the firm’s employees registered as users and some 82 user groups created in the first three weeks after the site was launched, says Anne Lang, chief human resources officer.

Groups and discussion threads enable users in Grant Thornton offices around the country to share information about topics related to work, skills, best practices or personal interests.

“As the firm grows and we look for more creative ways to build relationships both inside and outside the company, theGrid provides new opportunities for employees to develop friendships and gain colleagues outside of their region, location and service line,” Lang says.

In conjunction with the social networking effort, Grant Thornton launched a knowledge-sharing platform called K-Source, which connects people to content so that they can work more effectively. K-Source contains four main technology solutions: a searchable storehouse of information; a people-finder with a skills directory and search engine; general news feeds; and a personalized dashboard for users to receive specific news and market intelligence.

“The two technologies complement each other nicely, bringing together a tremendous knowledge-sharing platform with a powerful personal networking component,” Lang says.

While most of theGrid’s content is user-generated, there haven’t been any problems with people posting inappropriate discussion threads, Lang says. The firm has provided training for group moderators who oversee the forums. “There are policies and procedures surrounding the groups and forums, so people have a good understanding of what to do and what not to do, she explains.

Social networking “brings a level of empowerment to our people,” Lang says. “They can start groups of interest in a way that doesn’t have to be a formally firm-sponsored group.” ◀



Please send your questions and comments on this article to editors@baselinemag.com.

Giving a Data Center an Upgrade

Virtuoso, a luxury travel network, encompasses more than 300 travel agencies with more than 6,000 travel specialists in 22 countries. The network’s member agencies generate more than \$5.1 billion annually in travel sales.

The Fort Worth, Texas, organization recently set out to modernize its data center so that it could increase its membership and reduce operating costs. “With the aim of growing revenue tenfold in the next five years, we decided to make a concerted effort to increase our membership base and improve our technology platform to support the additional members,” says CIO Joel Chaplin.

A key part of the modernization was the deployment of Liquid Computing’s LiquidIQ, a unified computing system platform that hosts Virtuoso’s Web-based services for its travel network. It replaces a complex assortment of server, network, storage and virtualization technologies that were becoming increasingly

costly to manage and align in response to business needs, Chaplin says.

“With LiquidIQ, we don’t have to build bare metal from scratch,” Chaplin says. “If we have to deploy a new server, we can configure that server image and store it on the chassis—literally hundreds of [images]. If we have to overwrite one, or do a new blade, it’s already there. The administrators can push a button, and [the system] builds. We get a small data center within a chassis.”

The benefits include a reduced data center footprint and lower co-location space costs; decreased operating costs of as much as 80 percent from reductions in footprint, power consumption and administrative overhead; and huge savings on administrative time and costs.

“The platform offers us the flexibility to virtualize entire environments, if necessary, and to run dedicated physical servers where performance and availability are key—all in the same chassis,” Chaplin says. —B.V.

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SPEEDING UP SALES

GLOBAL RETAILER FOSSIL IMPROVES JOB PROCESSING AND SPEEDS UP CUSTOMER ORDERS WITH A WORKLOAD AUTOMATION SYSTEM.

By Andy Hess

JOB SITE SUMMARY

As a global retailer with more than 300 company-owned stores, Fossil, headquartered in Richardson, Texas, has been enjoying double-digit growth for decades. To handle the vast increase in orders—especially during the holiday season—the company implemented a global ERP system.

Unfortunately, the system's job scheduler wasn't robust enough and couldn't integrate with Fossil's legacy applications, according to Andy Hess, vice president of wholesale applications. The solution? A workload automation system that dynamically links processes across applications, allows jobs to be prioritized based on system availability, and gives Hess and his team an end-to-end view of all processes.

FOSSIL, A RETAILER WITH MORE THAN 300 company-owned stores, entered the global market rapidly through a series of international acquisitions. However, these independent distributors were not integrated into our main system, so we had multiple warehouses but no cohesion.

Like most businesses, we grew by finding creative solutions to technology challenges, and this resulted in a complex IT environment. In 2002, we were running on JBA's ERP system for midmarket retailers, along with PkMS, an IBM AS/400-based warehouse management system from Manhattan Associates.

As a global company, there are no quiet periods in our day, aside from the four-hour slot after close of business on the U.S. West Coast. As a result, we used to constantly shift processes

based on priority. During the peak selling season, we couldn't get through all the nightly jobs because we had many more orders, returns and shipments. In fact, we do about 50 percent of our business from September through December.

Because our IT systems couldn't keep up, delivery speed suffered, and we couldn't make real-time distribution decisions. Our team was incredibly resourceful in organizing job streams so customer service wasn't affected, but keeping track of the processes across applications and computing platforms was consuming a lot of our employees' time.

KEEPING PACE WITH GROWTH

Our business had simply grown too fast for our IT operations to keep up. Though expansion was a good problem to have, we knew that we needed to manage our processing more effec-

tively. So, after nearly 20 years of double-digit growth, we decided it was time to implement a global ERP system.

In 2002, we selected an SAP system, which enabled us to deploy the ERP over time. We started with three systems: SAP R/3 AFS (Apparel and Footwear Industry Solution), SAP APO (Advanced Planning and Optimization) and SAP BW (Business Warehouse).

We used SAP AFS running on an IBM AIX platform for F&A, sales analysis and customer service management, but we still used PkMS to manage order processing, packaging and product distribution at our U.S. distribution center. These processes had to balance orders received through the Website, via electronic data interchange (EDI) or from the retail network, and supply customers from worldwide distribution centers located in Dallas and Eggstätt, Germany.

Though we had to manage processes across applications and computing platforms, the ERP's internal job scheduling tools didn't offer the functionality we needed to handle high-volume batch loads and avoid processing overruns. It also couldn't integrate with legacy applications, meaning a lot of manual interventions were required for certain job chains. We had to build slack time into our processing to ensure that one job didn't start before another finished, and that cost us a lot of time.

To deal with this challenge, we decided to evaluate three vendors' products that would improve processing. Eventually, we selected UC4 Software's UC4 Workload Automation Suite, which dynamically links processes across applications, allows jobs to be prioritized based on system availability and gives us an end-to-end view of all processes to easily identify breakdowns. In addition, the system can configure and control Unix and OS/400 jobs and manage many-to-one dependencies and parent/child relationships using a single tool.

Now when orders are booked into SAP AFS and then allocated to PkMS for fulfillment and distribution, UC4 manages the dependencies between these applications. Our orders always get picked up for processing by PkMS, and tracking numbers for order shipments get passed back to SAP.

By automating these manual handoffs, we've eliminated both order latency and human error. Information is easily exchanged across the entire enterprise, and this has increased our overall productivity. Even though we have upgraded to the newest version of SAP, our UC4 jobs are still working for us.

Currently, we use workload automation software to support our wholesale business, run jobs on separate SAP Retail and HR systems, and automate the demand planning workload generated by SAP's Supply Chain Management software and SAP Business Intelligence enterprise reporting. We also use UC4 to perform maintenance tasks, such as health-checking AS/400 systems and the nightly transfer of orders to our Hong Kong facility. In addition, we use UC4 to run jobs on separate SAP Retail and HR systems, eliminating unnecessary slack on those systems.

In the future, we'd like to use automation tools to manage

iDOC transfers between our other subsidiary SAP and non-SAP systems, as well as to manage master data interfaces to these systems.

CUSTOMERS AND PARTNERS BENEFIT

Since we implemented UC4 at the end of 2005, our annual sales have grown 52 percent. Our systems run more efficiently because of automation tools, and our customers and partners directly benefit. Orders placed on our Website are seamlessly integrated with orders placed by distributors for processing and shipping.

The automation tools enable us to filter Website orders every 10 minutes, so orders get placed, directed to the correct warehouse and delivered to customers faster than ever before. We also have near real-time access to information about what's selling in our retail stores, which enables us to get the right products to the right stores.

Today, the biggest hurdle we face is the lack of time. During our busy season, we don't have time to wait for one job stream to finish before another begins. With our workload automation software, we can simultaneously run jobs across platforms or from different warehouses.

Those four months leading up to the end of the year are critical to our business, and UC4 gives us single, worldwide visibility into what is happening across our IT landscape. Being able to claim back the processing slack times, compress run-times and experience fewer job failures has given us the flexibility to support our business growth.

In addition, we no longer incur financial penalties for late Advanced Shipping Notices (ASNs). With workload automation software, we're able to see the relationships between all jobs, allowing us to proactively avoid breakdowns in the process.

SAP invoicing jobs can be misrepresentative: Child processes get spawned, and while SAP may report that invoicing has finished, the invoice jobs are still running. We want to start generating ASNs only when invoicing is really completed.

UC4 enables us to run multiple jobs in parallel within SAP, categorized by customers. We can hold the ASN jobs to ensure that they go out at the same time, or manually start an ASN job if things are running long and a given customer's invoices have already been generated. Before implementing workload automation, we were incurring hundreds of thousands of dollars in fines each year, but, since UC4, these fines are few and far between.

As a retailer, we're in the business of time, and that's what this system has given us. ♦

Andrew Hess, vice president of wholesale applications for Fossil, is responsible for the company's worldwide IT applications that support wholesale sales and distribution, accounting and HR. Prior to joining Fossil in 2004, he spent 12 years in technology consulting for numerous Fortune 500 corporations around the world.



Andy Hess,
vice president,
wholesale applications



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Mastering Your VoIP Migration

BEFORE YOU CHOOSE A VOIP SYSTEM, BE SURE TO ASK YOURSELF THESE FIVE ESSENTIAL QUESTIONS.

BY DAVID STROM

GETTING YOUR COMPANY READY FOR A TELEPHONE switch migration is never easy. It is especially difficult when you are trying to move toward a voice over Internet Protocol (VoIP) implementation. Apparent Networks surveyed hundreds of network managers in June and found that more than 36 percent of them have delayed application deployments such as VoIP because of concerns with network performance.

Perhaps more of an issue is that 26 percent of the respondents did not have the capability to validate their service-level agreements. When asked which of their current applications place the most stress on their networks, 73 percent of the respondents chose VoIP, making it the clear "winner."

With this survey information in mind, I offer the following guide to help you through the transition. The answers to these five simple questions, gleaned from others who have gone through the process, should prove helpful.

1. Do you still need to support any analog phone lines?

Before you switch over to VoIP, it pays to do a careful census and determine where analog phone lines might be needed, such as to tie into a security system, a front-door intercom or a fax machine. Then, find out how to mix and match these analog lines with your digital PBX, or determine what additional equipment will be needed to support these lines.

Take the city of Powell, Wyo., for example, which was using an aging PBX and looking to upgrade to VoIP.

However, city officials were worried about their connections to the 911 emergency-response system, which made use of analog lines. "We were able to put an analog card in our new AltiGen PBX and mix and match just fine," says Zack Thorington, the IT specialist for the city. "We got the best of both worlds."

2. Do you know what your WAN bandwidth usage is and what is running on it?

Your VoIP system puts particular stress on wide-area links, so it is important to understand overall usage, particularly during peak times of day. "We have a metropolitan fiber loop with 10 megabits up and down to our offices here, so bandwidth isn't an issue," says Duncan Hill, a partner at the incubator Basecamp Partners in Toronto, which uses the Jazinga VoIP small business system.

"The main challenge with VoIP is understanding quality of service [QoS] issues," says Bill Di Nardo, managing partner at Eventi Capital Partners, a Toronto-based venture capital firm. "The Jazinga system ensures that my voice traffic gets priority on my network so that IP calls are successful. I don't have to do anything—the system takes care of it."

One of the reasons Di Nardo chose Jazinga was that it automatically prioritizes the voice traffic on his network. "It shapes your traffic and manages your voice PBX, all in one small appliance," he explained. "And the call quality is consistently better than all the hosted VoIP solutions that



VOICE OVER INTERNET PROTOCOL

we tried. It's so easy to use that I can manage it myself, keeping the total cost of ownership low."

"Customers don't realize how top-notch their networks need to be to handle VoIP," says Daniel Song, senior services engineer with Indianapolis-based Interactive Intelligence, which builds call center applications and other business communications solutions. "We noticed that many of our customers were not yet ready for VoIP, so we needed a way to proactively address any potential voice-quality issues before implementing our solutions."

The company purchased AppCritical from Apparent Networks to test its customers' networks and to assess call quality before it deployed anything. "AppCritical looks at the end-to-end network path to find problems, such as duplex mismatches, congestion, QoS alterations and bandwidth limitations," Song explains.

"We are able to diagnose the behavior of the voice packets at each network hop and pinpoint where the problem is occurring. We are also able to verify QoS policies and make sure that service-level agreements are being met."

And while you are looking at your WAN bandwidth, be sure to examine your network switches, too. "Most companies are going to need a good amount of bandwidth for their internal VoIP network—perhaps 100 Mbps throughout their buildings," says Joseph Bennett, the IT manager at PTR Baler, a Philadelphia-based industrial company that has been using Alteva VoIP products for about a year.

"But we did need to upgrade our switches to support Power over Ethernet because we wanted to power all our phones from the wiring closets. Even with these upgrades, we are still saving around \$2,000 to \$3,000 a month on our phone bills, which works out to a nine-month return on the new system."

3. Do you need any virtual LANs for voice—or some other way to segregate your voice traffic? "We have one vLAN for VoIP internally, and we'll eventually be using it on 70 phones," says Tomeu Vidal, IT manager for the city of Campos, Spain, where they have deployed Entrasys switches.

"Many of our customers are setting up segregated voice vLANs or using QoS policies to ensure that voice packets have priority and won't get dropped," says Song of Interactive Intelligence. "Part of the problem is being able to understand when the peak call volumes are during the day and making sure you run your assessment during those times to see how many concurrent calls the network can handle while other types of traffic are present."

4. Can you leverage a new office move or take advantage of a system coming off lease to do a wholesale upgrade? As PBXes age, they become less reliable—a compelling time to do an upgrade. That's what McCune-Brooks Regional Hospital in Carthage, Mo., did with an aging PBX.

They upgraded while moving to a new hospital complex. "It wasn't going to make much sense to relocate the Nortel PBX, and we had to have a new system in place before we made the move, so we went with Siemens," says Wes Pool, a technician with the hospital.

5. Do you need particular features that your current phone system can't easily provide or cost-effectively implement? "We wanted certain features, but we weren't willing to pay the traditional PBX and landline prices for those features," explains Basecamp Partners' Hill. "We managed, however, to get them for a reasonable cost with our VoIP system."

Some VoIP features provide a big productivity win. "I'm not sitting at my desk 9-to-5 every day," says Eventi Capital Partners' Di Nardo. "My Jazinga system allows me to have an extension to the office system at home and at other office locations where I work. It even has the ability to simultaneously ring my desk and cell phones."

Robert Paglione, CEO of Benefit Consultants Group Securities, in Riverton, N.J., was also impressed by the benefits of VoIP. "We were using a traditional PBX and needed real-time call reporting, as well as the ability to record our call center conversations," he says. "We also needed to be able to reference a prior call in case there was a disputed transaction or instructions from our clients."

"We handle a lot of wealth management with high-net-worth individuals, so getting things right is paramount. The Alteva system we purchased is better than what we were using, even though I initially had my doubts."

In the three years that Benefits Consultants Group has been using the system, the company has never had an interruption in service. "We had a lot of downtime with the old system and a lot of finger-pointing as to who was responsible," Paglione recalls. "What's more, with Alteva, we've experienced about a 15 percent cost saving."

"One of our favorite features with the new Siemens PBX is the ability to retrieve voice mail from a trusted number without having to always key in your password," says Pool of McCune-Brooks Regional Hospital. "That makes it much easier to dial in for your messages when you're calling from the road, since you are taken right to your in-box."

Part of the features game is making sure you write detailed specifications in your request for proposal. "We wrote our specs to be very demanding," says the city of Powell's Thornton. "That included support for call parking and call waiting and having great auto-attendant and management features. Once you've experienced a system that lacks these features, it becomes easier to figure out what you want in a more modern phone system." ◀



Please send your comments and questions on this TechKnow article to editors@baselinemag.com.

Workbook



Building a Culture of Innovation

COMBINING AN INNOVATION LAB WITH A VIRAL ADOPTION STRATEGY IS A POWERFUL, CREATIVE AND EFFECTIVE WAY TO OVERCOME FRICTION AND DRIVE RESULTS THAT BOOST THE BOTTOM LINE.

BY JEFFREY BRUCKNER

Successful companies manage innovation from concept to commercialization, so that good ideas not only get created, but also find their way into the products and services portfolio. A culture of innovation is characterized by teams that come to life in a lab environment where they can sense and respond to customers and evaluate what works and what does not work while free of the organizational inertia, or friction, that is the enemy of change and its partner, innovation.

A thriving culture of innovation requires an organization to master the art and science of managing business and technology together, as described in the following three-step approach:

1. Establish one or more innovation labs.

Innovation labs must operate outside established organizational boundaries in order for teams to create and build prototypes of new solutions. These labs also:

- provide the success needed to develop a compelling vision of what is possible
- create respected champions for new ways of doing things
- articulate and shape potential solutions for the business.

2. Promote viral adoption.

The teams return to their everyday environments with a desire to:

- spread the knowledge of what works
- apply the lessons learned throughout the rest of the business

- drive enterprise investment decisions with a shared vision of business benefits.

3. Transform to a converged enterprise.

Converged enterprises can achieve competitive advantages that are difficult for their competitors to replicate. These advantages include:

- sustained innovation
- enduring business performance
- superior financial performance.

Discipline and innovation are not opposites; they complement one another. Innovation requires a space outside the status quo and its incremental change approach. The act of creating, maintaining and leveraging that space requires discipline, resources and senior management support.

Establishing an innovation culture consumes a great deal of organizational energy to overcome the forces of inertia and entropy. But once an idea has been successfully commercialized, respected champions emerge to drive new sources of the energy, creativity, discipline and resources that sustain and grow an enduring culture of innovation. ◀

Jeffrey Bruckner is the senior vice president of framework and knowledge architecture at BTM Corporation. BTM innovates new business models and enhances financial performance by converging business and technology with its products and intellectual property. © 2009 BTM Corporation | info@btmcorporation.com

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IT Worker Gives New Meaning to Goodnight Moon

Wired Science asked, "Do you have the right stuff to be a NASA 'pillownaut'?" IT specialist Heather Archuletta did. (See photo of Heather with gift-bearing friends.) It seems that NASA will pay \$160 per day for people to lie in bed, and Heather—like most IT folks, a real trooper—took them up on it.

Scientists at NASA's Human Test Subject Facility in Galveston, Texas, are trying a new type of bed rest to simulate the moon's gravitational field. They put you face up on a bed tilted exactly 9.5 degrees with your feet planted on a panel, and voila! you're on the moon. According to *Wired's*

interview with Ronita Cromwell, senior research scientist on the project, the experiment removes "some of the effects of 1 G," thus achieving one-sixth G "along the long axis of the body."

Heather recently finished the lunar bed-rest feasibility study. Her blog (<http://pillownaut.blogspot.com>) offers a peek into just what it's like to be one of "a community of people united by their duty to stay in bed, tilted in one direction or another."

According to the article, she found the bed-rest studies through the *Wired Science* blog while looking for a new IT position. "If I hadn't done it, I would have just gotten another IT job, probably," Heather said.



Corruption Now Costs Only \$3.95

Ever have a deadline for a presentation or a budget, and you just didn't get it done—not satisfactorily, in any event? Well, now there's a service that, though aimed at students, can come to the rescue: It's called Corrupted-Files.com, says an article on *GlobeCampus.ca*. For just \$3.95, the site purports to sell Word, Excel and PowerPoint files "that have been intentionally corrupted."

The drill is that after a student—or even a professional, I would imagine—buys the file, it can be renamed and sent as an e-mail attachment to a professor or a boss. According to the *GlobeCampus* account: "It will take your professor several hours, if not days, to notice your file is unfortunately corrupted," the site says, "buying you some valuable extra time to finish an assignment."

Asked if professors are beginning to crack down on the practice, the site's anonymous owner said even if professors suspect that a file has been intentionally corrupted, they can't prove it. He (or she) adds, "A corrupted file happens to all of us. It's like a flat tire. It does happen." As IT folks surely know.

BY
TIM
MORAN

Out of Scope

IBM Serves Ace App at Wimbledon

Reuters reported that tennis fans at Wimbledon were served a smartphone application developed by IBM that "could transform the way spectators access information at sporting events." Running on Google's Android mobile OS, the application "superimposes real-time statistics and updates from social networking site Twitter, including comments from players, onto a video feed from a handset's camera."

Said Alan Flack (who has the job that many of you weekend tennis players out there would love to have), IBM's client executive for the All England Lawn Tennis Club, "It's about visualizing data in a different way. By exploring new technologies, we can bring information to life by making it useful, engaging and accessible."



The service is called See Android, and it uses T-Mobile's G1 mobile system. According to the article, it works like this: "Pointing a G1 phone at a court would tell the user the court number, details of the current and previous matches, and Twitter comments from experts and players." This sounds like a modern ace for the maker of the 360 mainframe.

BY THE NUMBERS

73%

The percentage of data center managers who expect demand for IT services to increase over the next two years, despite 37% expecting their IT budgets to be trimmed.

Source: Aperture Technologies' 2009 report, "Data Center Management Focuses on Efficiency to Balance Increasing Demands for IT Services with Stagnant Budgets"

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IT Savvy: What Top Executives Must Know to Go From Pain to Gain
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