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# Top 10 Trends in IT for 2009

(2008-11-26) - Contributed by Samuel Greengard

In 2009, these technologies can provide companies with a competitive advantage in what is expected to be a very tough year on the bottom lines of IT budgets, IT management and IT vendors. However, even in an economic downturn those companies that invest, develop and capitalize on technologies that save money while improving the efficiency and effectiveness of business have an opportunity to grab significant market and mind share with new and existing customers.

Running a business and overseeing IT is a tough task in the best of times. But in today's environment—with consumer and business spending shrinking, budgets declining, the stock market sinking, and the pressure to adopt new tools and technologies growing—many organizations are finding themselves stretched to the limit.

As 2009 unfolds, it's clear that enterprises with a forward-thinking approach and a solid grasp of technology trends will have a distinct competitive advantage. The following technologies are likely to shape IT and business organizations in the coming year, and they can give your company the tools it needs to do business in this challenging economic environment.

## 1. Software as a Service (SaaS)

A few years ago, the idea of running software remotely seemed preposterous. Bandwidth limitations, performance obstacles and IT administration issues made hosted software impractical. But times change. Today, software as a service (SaaS) is growing at an annual rate exceeding 40 percent. In fact, it is expected to command a 23 percent share of the \$120 billion U.S. software market by 2010, according to RBC Capital Markets.

Rob DeSisto, vice president and distinguished analyst for Stamford, Conn.-based Gartner, says organizations increasingly see the benefits of moving large-scale software expenses from their capital budget to their operating budget.

Tom Kelly, CFO and CIO at Second Wind Exercise, a \$100 million Eden Prairie, Minn., athletic equipment manufacturer, points out that SaaS providers frequently offer better security and uptime than organizations can achieve internally. "This is particularly true in the small and midsize markets," he says. Second Wind has moved heavily onto a SaaS platform, including using NetSuite for ERP, Adaptive Planning for budgeting and forecasting, and Google Apps for e-mail and word processing.

This cloud computing environment—which makes software ubiquitous across desktops, notebooks and mobile devices—will contribute to the expansion of SaaS into areas beyond ERP, CRM and HR management systems, according to Gartner's DeSisto. "SaaS is moving beyond formal business applications and expanding into the realm of social networking sites and various Internet applications," he says. "All the lines are becoming blurred, as salespeople turn to sites such as Facebook, LinkedIn and Twitter to supplement enterprise applications." In addition, Web conferencing applications are moving into the mainstream of SaaS, as organizations look to simplify connections.

## 2. Virtualization

This technology has already made its mark on the data center. According to various industry estimates, between 50 percent and 60 percent of all servers are now virtualized. The goal, of course, is to reduce server sprawl—and the inefficiencies and higher costs associated with it.

Virtualization is continuing to grow. "It is now moving into the realm of SMBs [small and medium businesses], and is also extending into storage and onto the desktop," says Moosa Matariyeh, enterprise storage specialist for computer reseller and systems integrator CDW.

While storage virtualization has been available for several years, more sophisticated software is making it easier to provision resources on the fly. In addition, the increase in open systems is making it easier to integrate virtualization software with existing IT storage environments.

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Meanwhile, on the desktop, the ability to adopt templates and a thin-client approach makes it easier to manage computers, patches, security and more. Some are also pushing virtualization out to notebook computers in order to create a more secure environment. "Government is turning to desktop virtualization in a major way because of the security advantages," says Vincent Biddlecombe, executive vice president and CTO at Transplace, a supply-chain and logistics-services provider.

In fact, as wireless networks become more widespread, the use of virtualization on notebooks is likely to spread with them. CDW's Matariyeh expects to see it take off in a big way by late 2009 or early 2010.

The challenge for all companies using virtualization is to manage it effectively—and that's not easy. "We are now seeing virtual server sprawl, and organizations must address it as a real problem," he notes.

Despite the challenges, the virtualization trend is unmistakable, according to Transplace's Biddlecombe. "Virtualization is moving into the mainstream," he says, "and it will continue to impact the way business and IT decision-makers manage their infrastructure and environments." (See "Energy-Efficient Data Centers," at right.)

{mospagebreak title=Mobility, Green Data Centers}

### 3. Enterprise Mobility

It's easy to forget that only a few years ago the typical office worker was bolted to a desk and connected to data by wires, cords and cables. Over the last few years, wireless technology—including 3G cellular data networks and widespread Wi-Fi—has opened the door to an anytime, anywhere business model.

The major drawback has been the necessity to grab data as needed and ensure that all data is synchronized on a real-time—or, at least, a near real-time—basis. "Ensuring that data is available when and where it's needed has been an ongoing challenge," says Bob Laliberte, an analyst for the Enterprise Strategy Group in Milford, Mass.

However, that situation is changing rapidly. Although BlackBerry devices have made it far easier to tackle e-mail and hop onto the Web, newer units such as the Apple iPhone are completely breaking down the boundaries between traditional computers and pocket computing. Already, firms such as Salesforce.com and Oracle have adapted enterprise apps for the iPhone.

In addition, more robust Web browsers for PDAs and the expansion of "push" technology are making it possible to keep contacts, calendars and data synced at all times. "The technology is now completely there for true mobility," observes Cindy Auten, general manager of Telework Exchange, an Alexandria, Va.-based public-private partnership that promotes teleworking and mobility.

In fact, the concept will likely gain momentum in 2009, as cloud computing becomes more widely accepted. More bandwidth, better software and concerns for security are also leading more firms to adopt thin-client computing. These systems access data as needed and store it on a remote server.

"Technology has changed the entire business model and made telework and mobility a strategic advantage," Auten concludes.

### 4. Energy-Efficient Data Centers

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It seems like only months ago that “green” represented little more than a nice idea and a noble cause. That’s until energy prices shot skyward and cost-cutting took on a sense of urgency due to deteriorating economic conditions. Now, “Green is on every company’s radar,” according to Daniel Starz, author of *Greening Your Business* and a lecturer on sustainability and environmental issues at Southern Illinois University. “Organizations understand how important it is from a basic business perspective.”

Chip and PC manufacturers are moving toward more energy-efficient components—including improved memory and resource management—but the big action in 2009 will be in the areas of virtualization and storage, Starz predicts. “Virtualization eliminates energy costs, maintenance outlays, cooling expenses and data center costs by as much as 90 percent,” he notes. “The payback is enormous, and it’s something organizations can no longer afford to ignore.”

Another development is the Department of Energy’s Data Center Efficiency program. Last summer, the agency introduced an application called DC Pro, which helps organizations quickly determine how energy is being used by their data centers and how they might be able to save energy and money. The tool is available as a free download.

Part of the problem in the past has been that the people buying equipment aren’t the same ones who are managing energy costs. But that’s a luxury organizations can no longer afford. “Businesses are quickly recognizing that they have little margin for error, and energy costs are now a huge variable,” says Anil Desai, an independent IT consultant based in Austin, Texas:

{mospagebreak title=Risk Management, Social Networking}

## 5. Security, Risk and Compliance

In the constantly evolving areas of security, risk and compliance, there are no simple solutions. With each passing day, threats and challenges become more complex, and compliance becomes more of a concern.

Smart IT executives are beginning to recognize that having a tangle of systems and processes spells trouble. “Regulations are pushing organizations to change and be more in control of their systems and business processes,” says Anthony Noble, vice president of IT Audit, at Viacom in New York City.

He and others in the IT industry believe that automation is essential—particularly on the risk and security compliance side of things. This includes everything from intrusion detection to authentication; from patch management to analytics used for security. A growing number of organizations are turning to self-encrypting hard drives, two-factor authentication (to replace simple passwords) and security suites that provide central control panels. This trend will continue into 2009, as continuous-monitoring tools become standard in the enterprise.

Compliance tools are also becoming more powerful. “We now have the ability to see the big picture but monitor at the transactional level,” Noble says. “It is possible to keep a continuous eye on all the transactions and events taking place within a system and inside an organization.”

Savvy IT managers are now looking for ways to automate and embed these processes across the value chain, including on mobile devices. That’s significant, says David Ferris, principal at San Francisco-based Ferris Research, because mobile devices “are frequently hard to monitor and control from an IT perspective.”

Surprisingly, a key challenge is one of perception, not technology. “Companies must get over the idea that security and compliance systems are simply insurance against problems, and that they don’t improve the business in any measurable way,” says Viacom’s Noble.

## 6. Social Networking

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LinkedIn, Facebook, MySpace and a spate of similar sites have transformed social networking from a buzzword into a business buzz saw. Companies as diverse as American Express, Del Monte and Cisco Systems have unleashed powerful social networking tools, including wikis, blogs, discussion groups, collaborative filtering, and even applets and games. The concept is allowing these companies to tap into the power of human connections and knowledge in ways that were unimaginable only a few years ago.

In reality, social networking is nothing new. E-mail, chat and instant messaging are more basic forms of the concept. But, as Web 2.0 tools have emerged and other software has matured, "Social networking has become a way for organizations to leverage enterprise knowledge, customer-based business intelligence and more," says Ralph Barber, CTO of Holland & Knight, a Tampa, Fla., law firm that uses Contact Networks software to analyze and manage internal knowledge and find relationships that benefit the company.

To be sure, the concept continues to evolve. Organizations are increasingly looking to next-generation social networking tools to conduct sophisticated business intelligence and analytics. In many cases, they are mining data and looking for trends and patterns, such as which salesperson has the relationships to pull off a deal or which customers seem to have the biggest influence with others online. Some are building LinkedIn- and Facebook-type applications to keep people in touch and ratchet up knowledge management initiatives.

"The goal is to do things faster, better and more profit-ably," Barber says. "That's where the social networking light is shining. The tools are improving to the point where it's possible to put information and resources to work in new ways and build greater value."

{mospagebreak title=Web 2.0, E-Discovery}

## 7. Web 2.0

The evolution of the Web has been nothing short of amazing. Though each generation of tools creates new opportunities, the current and emerging array of Web 2.0 applications is completely revolutionizing the enterprise.

"We're seeing the lines blur between devices and functionality," says Michael Gartenberg of Mediabistro.com, a division of Jupitermedia in New York. "Web 2.0 is beginning to deliver on the promise of providing rich content in a seamless and ubiquitous way."

The growing use of interactive maps, blogs, wikis, mashups, social bookmarking, enhanced search engines, RSS feeds and social networking is only the start. Web 2.0 tools are also making it easier to manage data, tasks and business processes.

Some organizations are now exploring Twitter- or Facebook-like applications that allow individuals to push information out to followers and create a simpler, organic communications structure. Others are using Web 2.0 tools to handle everything from institutional asset management to business intelligence and analytics.

The common thread, according to Gartenberg, is that organizations are turning to an increasingly Web-centric computing model. Google (Chrome browser), Apple (MobileMe) and Microsoft (LiveMesh) have all recognized this fact. "People are far more dependent on connectivity," he says. "Rich Web-based applications change the dynamics of how and where they can work."

Although conventional operating systems aren't going to disappear anytime soon, Gartenberg says that

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Web 2.0 is further enabling mobility and more seamless access to pertinent information. Adds Tim O'Reilly, founder and CEO of O'Reilly Media in Sebastopol, Calif., "We are seeing the Internet become a preferred platform for application development."

## 8. Document Management and E-Discovery

Managing business documents has traditionally been a sore point for many organizations. Although file cabinets have been replaced by databases, being able to find relevant documents when and where they're needed remains a huge challenge for business.

As Kyle McNabb, principal analyst and research director for Cambridge, Mass., Forrester Research, puts it: "It's not as simple as switching on a document management system and having everything at your fingertips." Indeed, organizations are recognizing that document management and e-discovery ripple into areas as diverse as IT storage, mobile devices and business processes.

Although vendors are adding more sophisticated capabilities to their applications—including the ability to track text messages, IMs and other types of unstructured data—the main challenge is figuring out how to develop systems that retain, manage, and retrieve documents and data quickly and seamlessly.

"Today, anything electronic is discoverable as part of litigation," McNabb points out. "Developing rules and procedures is essential, and it is going to receive a lot more attention in the coming year." Not surprisingly, the focus is rapidly moving beyond ERP and enterprise systems and onto the broader realm of all documents and communications.

At the same time, organizations are learning that electronic discovery (e-discovery) is a process, not a technology. "It [e-discovery] increasingly includes a whole range of tools and technologies that create a complete solution," McNabb says.

Nevertheless, for both document management and e-discovery, new vendors are pouring into the market, with industry behemoths such as Oracle and Microsoft making their own forays. There's some good news for enterprises looking to put solutions in place: "It is likely to be a buyer's market in 2009," McNabb concludes. "Vendors entering the market are introducing products and solutions at a much lower price point than they were in the past."

{mospagebreak title=PPM, Video Collaboration}

## 9. Project Management and Project Portfolio Management

In today's time-sensitive and budget-conscious world, getting projects finished on time is paramount. Not surprisingly, more and more organizations are turning to structured systems and software to track all the details. Consequently, project management (PM) and project portfolio management (PPM) have moved into the spotlight.

"Many businesses are turning to more formal tools," says Jeff Oltmann, principal at Synergy Professional Services, a Portland, Ore.-based consulting firm. "They are hoping to work in a more iterative yet structured way."

Within the project management space, many organizations are migrating from spreadsheets and e-mail to formal applications that track timelines, budgets, messages, key documents and much more. Microsoft, Intellisys, OpenMind, AtTask and others are adding document-management features, collaboration tools, business-process rules support, advanced reporting capabilities and governance tools in response to organizations that "need better information [focusing on] resource utilization—including time, dollars and people," says Mike Notarius, CTO for the Information Technology Exchange Center of the State University of New York (SUNY). Organizations "need to be able to analyze the impact of

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decisions quickly,” he adds.

Meanwhile, PPM is evolving and bringing greater order to business-level decision making. Applications such as Daptiv PPM and Primavera (recently purchased by Oracle) are providing tools to mesh diverse workgroups, such as finance, marketing, human resources and IT—all while viewing groups of initiatives, conducting detailed analyses on them, and understanding the underlying relationships across organizational roles and teams.

As organizations embrace PPM, Synergy’s Oltmann says, they are becoming far better equipped to react to rapidly changing business and industry conditions. “At this point, it is important for IT to develop PM and PPM expertise,” he says. “These started as business initiatives, but they have become a crucial part of IT.”

## 10. Web and Video Collaboration

Not so long ago, the idea of a workgroup collaborating over the Web was unthinkable. Over the last few years, however, applications like WebEx and NetMeeting have revolutionized the way people interact—at least within some companies and in certain situations.

Today, collaboration tools are poised to go mainstream and further change the way business is conducted. According to the Boston-based research firm Aberdeen Group, 63 percent of companies say they will be using videoconferencing and so-called telepresence systems (essentially, a form of videoconferencing with high-quality images and audio) by the end of 2010. Only 18 percent say they have no plans to adopt these systems.

Driving this phenomenon are bigger pipes and converged data and voice networks within enterprises. “Organizations are beginning to realize that collaborative applications can serve as a significant competitive advantage,” observes Bojan Simic, a research analyst in the Network and Application Performance Management Group at the Aberdeen Group. “The technology has the ability to shift the balance of power. Many organizations are turning to these applications for their mission-critical activities.”

Video and telepresence are also growing more sophisticated. For example, Cisco has introduced a telepresence system that generates high-definition, life-size images on one or more video screens. Using high-fidelity audio and sophisticated lighting, it creates the impression of talking to someone in the same room.

Other vendors are marrying conferencing and collaboration with Web 2.0. KZO offers a system that creates up to a six-way conference without charge and requires only a Web browser. It also allows keyword tagging and provides for live comments from people watching the video.

Meanwhile, the mobile-video market is also gaining momentum. In-Stat, a market research firm in Scottsdale, Ariz., predicts that 160 million devices for viewing mobile video (not including mobile phones) will be sold over the next five years.

“We are entering a new era of video and Web collaboration,” predicts Simic of the Aberdeen Group.