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# CLOUD COMPUTING

# SMALL BUSINESSES HAVE BIG PLANS FOR "THE CLOUD"


*Early adoption and strategic use level the playing field for growing firms*

By Joe Mullich

When a small pharmaceutical company wanted to forge closer ties to physicians, it developed and gave away a smartphone application that allowed doctors to look up the effectiveness of various drugs, proper usage, interactions, and even manage prescriptions.

"The company needed a way to compete with the giants of pharma, and this approach helped them build a relationship with the office manager by making the doctor's life easier," says Honorio J. Padrón III, principal and global practice leader, IT Executive Advisory for the Hackett Group, a global consulting firm specializing in process improvement.

However, the small pharma didn't have the capital or expertise to develop this app on its own, so it turned to the cloud. Cloud computing allows companies to order up computer resources and software on demand on a pay-as-you-use-it basis, analogous to utilities like water or electricity.

In developing the app, the small pharma combined its own informational database with computational power driven by the cloud. By leveraging cloud resources, the small pharma rolled out the app in weeks, rather than the months it would have taken to develop on its own, at roughly 10 to 20 percent of the cost.

"Cloud computing is enabling SMBs (small- and medium size-businesses) to 'ankle peck' at larger competitors with highly focused projects that would have been nearly impossible to execute previously," Padrón says. "The cloud is a powerful tool for SMBs to level the playing field."

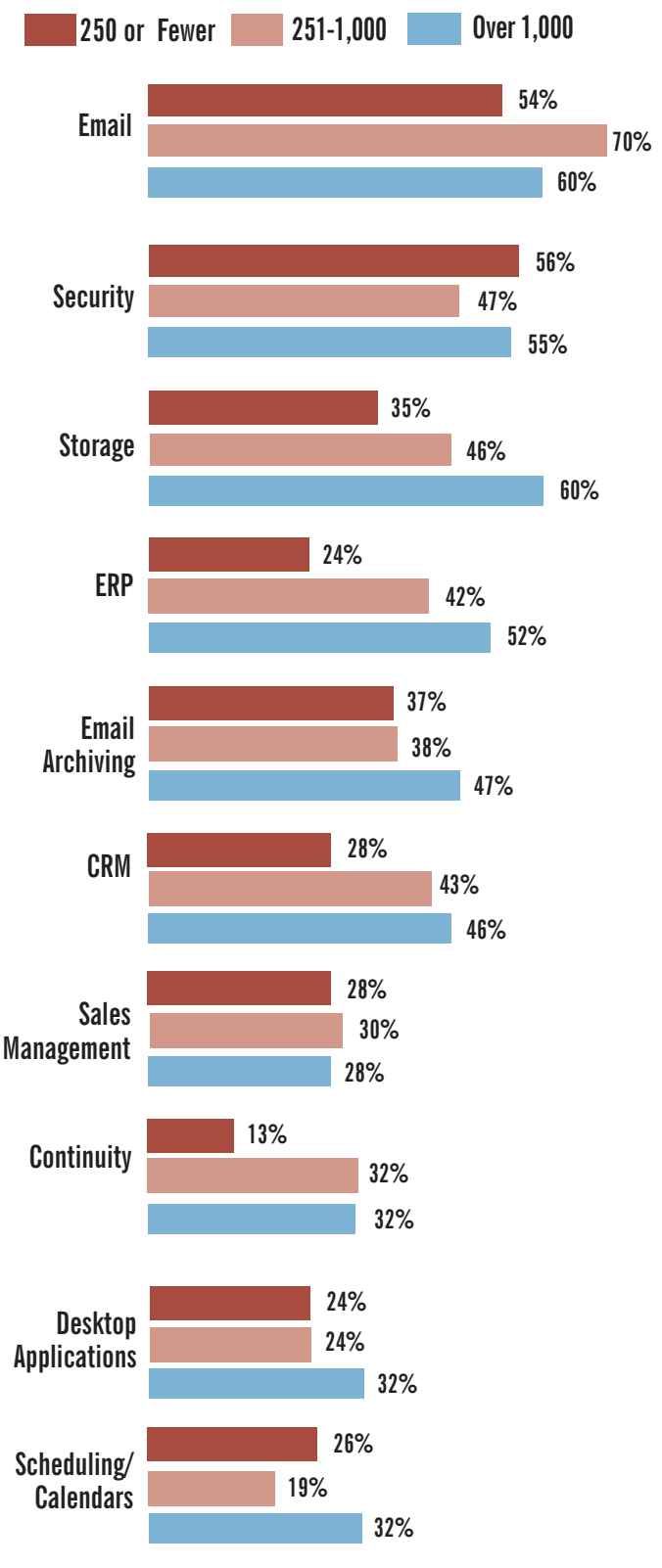
## The Third Wave

Andy Bose, CEO and chairman of Access Markets International (AMI) Partners, a strategy consulting firm, categorizes cloud services as "the third major wave of global IT excitement," following the introduction of the PC and the advent of the Internet.

According to new research from AMI Partners, cloud computing in general, and the mobile cloud in particular, is poised to make deep inroads into and provide special benefits to SMBs, particularly medium-size firms. Worldwide, SMBs will spend more than $95 billion on cloud-related products and services by 2014. The cloud allows SMBs to tap into sophisticated technology, like business intelligence and analytics, that until recently were only in the province of large enterprises. These tools give SMBs a way to better manage their operations, and get a handle on their sales pipeline, inventory control and other pressing matters.

The cloud approach requires minimal initial costs, allows for fast deployment, can be scaled up and down almost immediately, and provides a rapid return-on-investment (ROI) — all appealing elements to SMBs that lack deep pockets and large IT staffs, but need to be as creative and forward-looking in using technology as their enterprise competitors.

### USES OF CLOUD COMPUTING BY COMPANY SIZE




Source: Mimecast, "Cloud Computing Adoption Survey"

Dean Murray, a technical specialist at CDW, a provider of technology solutions for business, government, education and healthcare, says SMBs that have shied away from new technologies like CRM (customer relationship management) and Web collaboration because of the initial funding and capital costs are turning to the cloud to acquire them. "Web conferencing, virtualization and instant messaging are some other cloud technologies that are gaining more interest," he says.

Salespeople at SMBs are using the mobile cloud to tap into CRM software, allowing them to communicate more effectively and close more deals. Mobile cloud email is helping SMBs lower costs and gain more dynamic services. Small and mid-size firms are also enabling mobile access to their internal databases and inventory information, indicating the burgeoning need that workers have for access to information on the go.

Elisa Graceffo, product manager for Office 365, Microsoft's cloud productivity service, points out, "For SMBs, the cloud isn't just about cutting costs, but about gaining access to technology they didn't have before and using it as a strategic weapon." She notes that content management systems and databases in the cloud have liberated information that used to reside on one person's hard drive, providing SMBs with "a single view of the truth" so they can create more effective sales pitches and take swifter action.

"Online meetings are easy to justify because they cut travel expenses, but the benefits go far beyond that — this technology also enables richer and more productive discussions that allow people to get on the same page and work together no matter where they physically are," she says.

This can provide both top- and bottom-line benefits, reducing costs and increasing revenues. Graceffo points to a company that sells Voice Over IP services. By using the cloud for online meetings, workflow and automated processes, the VoIP company was able to cut its installation time from 90 days to 30 days — a huge competitive advantage. "Because of the improved efficiency and better collaboration from these cloud-based applications, the company was also able to increase the number of customer presentations they did from three to five a week up to ten a week," she says. "Over four months, their revenue doubled."

## A-List Apps

The cloud is providing the answer to SMBs who have enterprise-like needs without a corresponding IT

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*Illustrations by Alex Williamson*

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## Big Plans

*Continued*

budget, both for sophisticated applications that are prohibitively expensive to develop, manage or customize — but also for basic technology infrastructure, as well. Take data storage. A recent study by research firm Storage Strategies NOW found that SMBs are producing mounds and mounds of information disproportionate to their number of employees. A small gastroenterology practice, with 35 employees, produced as much as 100 terabytes — equivalent to 2 million filing cabinets full of paper. Engineering firms, law firms, oil and gas exploration and other heavy data generators often lack the expertise to manage and safeguard their information.

"At one medical practice, the administrator who was responsible for IT was also in charge of HR, finances, and would even vacuum the carpet if you asked," says Deni Connor, co-founder and senior analyst of Storage Strategies NOW.

Often, these smaller firms did not even back up their data or occasionally had an employee carry a backup tape to an offsite location. "Even with backup tapes, these companies could have trouble quickly recovering their data if disaster struck," Connor says. "Very few small companies can sustain much downtime — when they can't recover their data — and still survive."

Now many of those small companies are backing up automatically to an offsite location in the cloud, and storage is emerging as a popular cloud service for companies of every size.

A study from CompTIA, a technology industry trade organization, found that over the next 12 months, 40 percent of companies plan to look for cloud-based document and content management solutions, addressing the management headaches of creating, storing, accessing and sharing the huge amount of information that is being created. "The push to collaboration and the rise of the mobile workforce has only raised the complexity around document management — and the cost," says Carolyn April, director of industry analysis for CompTIA.

## CIO as "Enabler"

Medium-size businesses, with $10 million to $99.9 million in revenues, are the most aggressive users of cloud computing, according to CompTIA. Nearly two-thirds of medium-size firms are now involved with the cloud, compared to 58 percent of larger firms ($100 million or more in revenues) and 36 percent of small companies (less than $10 million in revenues).

In using the cloud, their goal is to position themselves to both capitalize on opportunities and minimize risks inherent in today's high-volatility economy. What's more, the agility that defines small and mid-size businesses goes hand-in-hand with the cloud's ability to ramp up quickly. The cloud's rapid provisioning of technology resources — and just as importantly, the rapid de-provisioning of those resources — allow SMBs to explore opportunities and experiment with new ideas in a way they never could before.

For these reasons, David Dobson, executive vice president and group executive of the Customer Solutions Group at CA Technologies, a maker of IT management software and solutions that enables the cloud for SMBs through its Managed Service Provider customers, believes the cloud will fundamentally change the role IT plays within SMBs. "Before, if you had a company of 100 employees, you might have five who worked in IT," he says. "Now the IT department might have one or two people who manage services rather than hardware and software." Dobson says SMBs will shift their view of the CIO from being a technologist to a "Business Innovation Officer," and indeed companies large and small are beginning to employ that title to reflect how the cloud is changing the expectations they have for technology.

"The person who runs the IT department will have a more consequential role in the business," Dobson says. "His job will be responsible for innovation, rather than just hardware and software." Choosing and managing cloud services, which can reshape an SMB's business model, also requires that CIOs or Business Innovation Officers have a different skill set. "You need someone who is technology literate, but he must also be highly connected to the business and understand how the business creates and delivers value," Dobson says. "He has to be thinking as part of the supply chain, and he needs to be viewed within the organization as enabling people to create new opportunities by providing speed and flexibility."

Consider, for example, how the cloud can enrich a marketing strategy. In the past, if you put the infrastructure in place to support a large email and social marketing campaign and the campaign failed, you might end up with a roomful of expensive servers and software. If the campaign was more successful than expected, you still could be in trouble — your applications might not be able to handle the surge in demand, irking customers who could not acquire the promised product or service in a timely manner.

"Now, you can throw out a marketing campaign and see what works and decide to never use it again if it doesn't," April says. "If it does work, and you have to meet a huge demand, you can call upon cloud resources for order processing or call-center support immediately."

The same approach can address seasonal variations. If a company has certain weeks where traffic to its website spikes, it can go to the cloud for additional computing resources during that period as opposed to buying a big server that it won't need for 50 weeks out of the year.

## Business Accelerated

"This is a really exciting time to be in business, because if you dive into the cloud computing model it positions you to be nimble and, hopefully, pull out of the recession quicker," April notes.

Indeed, Murray of CDW notes that "SMBs are also gaining market share by acquiring other companies, and quickly combining infrastructures using the massive data center resources available through the cloud to expand rapidly."

Mimecast, a fast-growing provider of cloud-based email management products headquartered in London, experienced the need for speed as it expanded into South Africa, North America, the Channel Islands and the Middle East. "Time-to-market is an extreme competitive advantage for us," says Peter Bauer, the company's chief executive officer. "We needed to talk to prospects, potential partners and candidates we wanted to hire in those markets."

What Mimecast didn't want to do was divert its focus from its core business to build and manage complex ERP (Enterprise Resource Planning) systems of its own. To hasten its expansion, Mimecast went to the cloud for its ERP software to manage the financial, HR and other data required in the new locales. Mimecast was able to move into new territories several months quicker than if it had deployed and managed its own infrastructure.

"We don't gain any competitive benefit by flying people around the world to roll out and manage ERP systems," Bauer says. "We gain benefit by spending our time learning the important lessons in a new market quickly."

In the CompTIA survey, 85 percent of companies said they were moving to the cloud to reduce capital expenditures and 84 percent to drive down costs. That's hardly a surprise, since cost savings and better efficiencies were the reasons the cloud first gained attention from SMBs. However, the survey also indicated that many companies are enlarging their view of the cloud. More than eight in 10 companies said they were drawn to the cloud because they wanted to add new capabilities that were unavailable in their current IT model.

"The refreshing thing is companies are looking at the cloud as a strategic investment, rather than just a way to cut costs," April says. "They want to expand their business and take it to a higher level coming out of the recession."

As April points out, SMBs are often built upon their owners' technical ability, and the other skills necessary to run a business — such as marketing, sales and finance — have to be developed as they grow. Because of this, "Smaller businesses don't have a lot of insight on how to run their business better," she says. "With the cloud, they can acquire the tools to measure their financial health and position them to compete more effectively. The cloud delivery mechanism ups the game for small businesses."

## Control Issues

In using the cloud, SMBs enjoy a huge advantage over enterprises, whose complicated IT environments make change more difficult and costly. "IT is under a lot of pressure to provide the same experience at work that people have with their consumer cloud applications," Bauer says. "Smaller companies don't have the same corporate inertia they can stand behind to resist the pressure."

Padrón of the Hackett Group compares cloud computing to telephone service in Latin America. "It takes six months to a year to get a land line in Mexico City, but you can get a cellphone overnight," he says. "Larger companies are taking a more strategic approach, and implementing cloud computing in a more cautious and targeted way. If you're a smaller company, you say, 'Why do I need a strategy? I'll buy a product, just like I buy a telephone line and get going right away.'"

Over the next year, CompTIA believes many companies looking at the cloud will steep themselves in evaluation, trial and error, and sift through business models. While there are legitimate questions over security, integration and other technical matters, many observers believe the biggest hindrance to adoption from SMBs is their fuzziness about the cloud. Indeed, more than half of small businesses in CompTIA's survey said "the lack of understanding of how to manage and use cloud-computing solutions" was their biggest deterrent.

A survey of North American cloud adoption, sponsored by Mimecast, found the biggest fears about the cloud — computing, security and integration issues — "appear to be at odds with reality," since users expressed strong satisfaction with cloud computing once it's installed. What's more, 70 percent of IT decision makers who are already using cloud computing are planning to move additional solutions to the cloud, most within 12 months.

Murray of CDW notes that SMBs often come to him with probing questions about the cloud: How secure is my data? Who owns my data? What control am I going to give up?

"Data security is not an option in cloud solutions; it is an absolute requirement," he says. "Vendors realize this, and for the most part they are exceeding customer expectations. Most customers are surprised and impressed at the level of control they can maintain, including the ability to preserve control and ownership of their data. In our experiences, the feedback we've received from customers is that the benefits of moving to the cloud far outweigh the level of control they are handing over."

Analysts and surveys indicate that the enticements of the cloud, and the mounting pressures on business, make cloud adoption inevitable. Most small companies, in particular, are not sitting on mounds of cash to buy equipment when they want to implement a new product or solution. The cloud also meshes with the growing desire to shift IT from a capital to operational expense and match IT spending to shifts in company revenues. Indeed, given the economic pressures, small companies may have no choice but to embrace the cloud.

Even a year ago, venture capitalists that funded new companies wouldn't provide money for a server room and other IT purchases, insisting instead that the startups provision these resources from the cloud. "They are already forcing all new startups into the cloud-computing model because the economics demand it, and that will drag the rest of the community along," says Art Fritzson, a senior vice president with Booz Allen Hamilton, the consulting firm. "It's amazing how each new technology wave is embraced faster than the last, and the cloud is happening at an incredible pace."

*Joe Mullich has written for* InformationWeek, Network Computing *and* Datamation *magazines.*

# The Cloud at Your Fingertips

## *Technology Made for the Mobile Lifestyle*

To understand how cloud computing will reshape the business landscape, it must be considered as one part of a confluence of events that are changing the way technology is developed and consumed.

This starts with the inroads the cloud has made into personal lives. The rich functionality of social media sites has created higher expectations for the ease of use and performance that work technology should provide. The consumerization of IT, where people use their own mobile devices on the job, has blurred the lines between the personal and business even more.

In an age of collaboration, companies assume workers need to share information with others who may be located anywhere. The concept of the PC desktop as the center of the computing world is being replaced by all the attributes of the desktop being accessed through browsers and mobile devices.

Cloud computing fits perfectly into the concept of an unfettered world, permitting anyone to connect to any information with any device — a PC, office terminal, smartphone or other mobile device. If the mobile device is unable to store the data necessary for a function or app, that's no concern — the data can be housed in the cloud. If the device lacks the computational muscle for graphics and other power-intensive needs, that doesn't matter either — much of that can be done in the cloud as well.

John Hagel, co-chairman of the Deloitte Center for the Edge, Deloitte's Silicon Valley-based research center, sees cloud computing as one third of "a powerful trifecta" with social media and mobility. "The cloud gives people the ability to connect with resources wherever they are," he says. "The social networks connect with people. And ultimately, business is about connecting people, and technology is just the enabler."

The possibilities of the cloud are expanding in concert with new technological developments such as HTML5, the next iteration of the markup language that most of the web is built upon. HTML5 adds new elements that accelerate the use of mobile cloud services, such as geo-location capabilities and caching (support for offline data access), which allows web applications to perform on par with applications that reside on a mobile device. By 2015, it's projected that more than 240 million business customers will be leveraging cloud computing services through mobile devices.

## WHY COMPANIES ARE MOVING TO THE CLOUD

| | NOT A REASON | MINOR REASON | MAJOR REASON |
|---|---|---|---|
| Desire to reduce cap-ex on hardware, other systems | 14% | 36% | 49% |
| Desire to cut costs | 16% | 40% | 44% |
| Desire to add new capabilities not available with alternative models | 19% | 48% | 33% |
| Simplicity or speed in implementation/on-ramping | 16% | 52% | 33% |
| Reduce operational complexity/enable self-service | 20% | 50% | 30% |
| Transition from conventional software licensing | 25% | 45% | 30% |
| Modernization of legacy IT | 25% | 49% | 27% |
| Predictable, subscription-based pricing | 25% | 49% | 26% |
| Desire to outsource IT management/administration | 43% | 33% | 24% |
| Reduction in internal IT headcount | 50% | 31% | 19% |

Source: CompTIA

While cloud computing appears clearly to be the future of technology, many organizations are grappling with the best path to get there. Below, experts provide guidance on key matters a company should consider in developing its cloud strategy.

# PICK THE RIGHT CLOUD(S) FOR YOU

***Realize the cloud is already happening at the edge of your organization.***

Even as your begin pondering how to move to the cloud, understand that cloud activities are likely taking place in new business units or remote offices. "This is happening in a very fragmented, ad hoc way because of real business needs," says John Hagel, co-chairman of the Deloitte Center for the Edge, Deloitte's Silicon Valley-based research center.

The problem is these small, ad-hoc projects often go in place without a strong focus on security, and no attention to longer-term architectural issues, sometimes resulting in a mess of systems that do not work well with one another. "Most importantly, you need to pull together a more systematic view of the business, and determine where you are going to have the highest impact with cloud computing," Hagel says.

***Think of the cloud as more than just an IT matter.***

Even a relatively small shift to a cloud computing environment is the beginning of a large strategic change for an organization, explains Greg Bell, practice leader for information protection at KPMG, the audit, tax and advisory firm.

"For one thing, the cloud has significant implications for tax and regulatory compliance. Every organization needs a governance model and strategy for evaluating, selecting and deploying cloud technologies, even if they seem 'insignificant.'" He notes the cloud shouldn't be considered an IT matter, but requires the input of the board of directors and senior executives, especially the CEO, CFO, CIO and COO.

A cloud strategy requires a broader perspective than IT, and simply looking at the cloud as another form of outsourcing underestimates the varied ways the cloud can reshape the very nature of a business, from product development to sales and marketing to customer service. "CIOs understand the details of the economics of IT, but they don't focus on the overall economics of innovation for the business," Hagel says. "If you are a senior executive, do you really want the CIO to have sole responsibility of redefining logistic channels and distribution? That's what the cloud does, and there are other executives who are more directly involved in these business processes than IT, and who should be driving the prioritization and staging of cloud computing initiatives."

There is risk in seeing the cloud in terms of "business as usual." Hagel notes,"The cloud is changing IT from technology-centric to business-centric. Different types of people need to be involved in the discussion than has usually been the case for technology matters."

***Focus your cloud strategy on the next six months — and the next 10 years.***

Given that the cloud can reshape businesses and industries, executives need to assume the mantle of futurists. "It's important for the entire senior management team to ponder how their particular industry will evolve and what it will look like in 10 years because of the cloud," Hagel says.

Cloud adoption should begin with a top-down assessment of business processes, rather than technology infrastructure or architecture The notion, experts say, isn't to replace the data center, but to find core operating processes that will be improved by the scalable, on-demand approach of the cloud.

The starting point is identifying what projects within the most promising core operating processes could be done over the next six to 12 months that would point toward the long-term strategic direction and provide tangible operating metrics if successful. "Executives tend to make the cloud an all or nothing proposition," Hagel says. "They think they need to have everything in the cloud or nothing. At this stage, it's better to be pragmatic and gain some learning through more surgical deployment of cloud computing initiatives."

***Think of "the cloud" as a plural.***

Cloud computing is often talked about as if it were a homogenous technology, while in reality there are several different flavors of clouds. "The appropriate platform depends on the project, with tradeoffs of security, price and agility," says Lynette Ferrera, a partner at the IT consultancy CSC. "You need to pick the right cloud for the right project."

Here are the basic types of clouds:

***Public Cloud.*** With a public cloud you outsource your entire infrastructure, letting an outside vendor provide the network and other resources. The public cloud is being embraced for non-sensitive data by early adopters. "A public cloud would be ideal for someone who wanted to predict the weather," says Art Fritzson, a senior vice president with Booz Allen, a consulting firm. "You get sensor report data from all over the country, load it in, and if the data gets compromised, who cares? But if you're talking about social security numbers or bank accounts, security is paramount, and you probably wouldn't turn to a public cloud at this point."

***Private Cloud.*** A private cloud is a cloud-enabled infrastructure that is used in a single enterprise or trusted community with a very limited number of independent parties. If a public cloud is like renting a car, a private cloud is like owning one. It provides greater control and security, but surrenders some of the benefits of a public cloud, like some operational cost savings. "A lot of the greatest opportunities for innovation and coordination don't happen in a private cloud, because you need the power of public clouds to harness it," Hagel says.

***Hybrid Cloud.*** In a hybrid cloud, an organization provides and manages some resources in-house and has other services provided externally. For example, a financial services firm might use a private cloud for its loan application process and a public cloud for collaboration. The hybrid cloud combines the scalability and cost savings of the public cloud with the security and control offered by a private cloud.

***Agility hinges on improving IT sourcing through the cloud.***

Companies that outperformed their peers embrace new, cloud-based strategies for IT flexibility, according to a new study by the Hackett Group, a global consulting firm specializing in process improvement. Currently, cloud providers offer four distinct layers of on-demand sourcing that can promote greater agility:

***Infrastructure as a Service (IaaS)***, the most basic level of cloud services, provides raw utilities like compute power and storage.

***Software as a Service (SaaS)***, the most common type of cloud resource, provides fully functional software programs, such as project management or virus protection.

***Business Process as a Service (BPaaS)*** outsources an entire business function, such as billing, payroll or collections to a cloud provider.

***Platform as a Service (PaaS)***, another emerging area of the cloud, provides tools to support and build cloud applications with dedicated storage and bandwidth.

The Hackett Group concluded that on-demand solutions should be part of a wider strategy that allows IT to have a direct impact on business performance. The wider approach, which necessitates an expanded use of cloud resources, should go beyond individual solutions with a narrow focus on reducing costs. Instead, the top-performing companies increase revenues by supporting business processes that continually expand and contract, meaning they are using the cloud to find new ways to adjust IT costs and capacity to match shifts in their company's revenue, and link business performance with IT-driven initiatives, responsiveness and the costs of service delivery.

***Try to take a balanced view toward cloud security.***

"The most common misperceptions about cloud computing are about security," Ferrera says. "It is often believed that the cloud is a lawless wasteland where data and programs float across the globe vulnerable to predators and user naivety. However, an equally prevalent misconception is that the cloud is secure and ready for use by any application. Both are wrong."

While the need to safeguard data can never be diminished, experts believe that companies sometimes hold back by expecting a level of security from cloud computing that is beyond what their own current systems offer for the same data.

"You shouldn't think of security as binary — that information is either secure or not secure," Hagel says. "Security is a spectrum, and you have to evaluate where a cloud provider's security falls on that spectrum compared to your company's own abilities."

***Understand that the cloud may change the view of what controlling data means.***

In the transition to the cloud, IT executives often have to come to grips that their information won't be in their own data center anymore. "First, people need to get over the psychological barrier of 'my server,'" Fritzson says. "They want to see the server and see the lights flashing."

At the same time, experts say many fears of losing control of data with the cloud stem from problems in the earliest days of cloud computing that have been addressed. "There are a bunch of myths about cloud computing," Ferrera says, "For example, data in the cloud can end up anywhere in the world. In reality, you can choose the location where the data is stored and have the data in one data center and a secure copy in another."

***Move deliberately, but don't delay.***

At the moment, IT departments and industry groups are debating the exact manner in which companies should transition to the cloud. While there is still important work to be done by standards bodies, experts concur that simply sitting by the sidelines is not an option for most companies, because many new customer demands and economic pressures can only be addressed through cloud functionality.

"The cloud is truly disruptive at a fundamental level for virtually every industry," Hagel says. "This is going to happen over time rather than in one big burst, which is both a blessing and a curse. The blessing is that you have the time to approach the cloud in a rational and reasonable way. The curse of time is to get complacent and think you can just wait until you get past the fuzziness because there doesn't seem to be an immediate crisis you must deal with. Take advantage of the time you have to move into the cloud, but don't delay."

— J.M.