

IS YOUR HEAD in the

CLOUD



FPO

It takes a new way of thinking about IT and a separation of business from buzzwords to determine the real value of **utility computing** in your enterprise.

BY FAISAL HOQUE

I T IS NEARLY IMPOSSIBLE TO PICK UP A TECHNOLOGY MAGAZINE or sit through a strategy meeting without encountering a reference to what some consider the next great wave in enterprise computing: the cloud.

Cloud computing is a fitting term for something shrouded in mystery and hard to grasp. Adding to the confusion is the plethora of buzzwords that surround this concept: grid, utility, service-oriented architecture (SOA), service management, software as a service and platform as a service.

It's easy to get lost in the promise of this technology, but it's important to keep in mind that this is ultimately a matter of business, not technology. As such, cloud computing's usefulness must be assessed in the context of the enterprise as a whole.

New ways of thinking are required. Investment decisions and success measurements will not be about individual technologies or projects—or even about the information technology department itself—because the cloud is about the whole organization.

Essentially, cloud computing involves processing and storage that's done “elsewhere.” It's physically removed from the user and is typically off-site. The user doesn't have to think about the hardware: It's selected and made available by the vendor company that maintains the cloud.

In some cases, the user doesn't even need to think about specific applications: He or she just specifies the functionality needed. In other situations, a business-side user employs the functionality without a technology department acting as an intermediary. The strategic and tactical guidance typically performed by internal IT groups resides in the cloud.

Amazon, for example, is trying to make the purchase of computing resources as simple as buying a book. It created a “cloud” out of its vast storage and processing capacity and offered it to outsiders. To date, 300,000 companies have signed up. The same computers that process your book or DVD orders are being employed by these companies on a pay-as-you-use-it basis.

Amazon touts its Amazon Elastic Compute Cloud (EC2) as a major shift in the economics of computing: It reduces the time required to obtain and boot new server instances to minutes, allowing quick scaling up or down as requirements change. Users pay only for what they use. Developers have the tools to build failure-resilient applications and isolate themselves from common failure scenarios—although Amazon's services recently went down for a time, crippling the businesses running on them.

One Amazon customer is Assay Depot, a company that seeks to improve the way drugs are developed. It brings research service providers together on its Web site, where they are accessible to researchers worldwide. The infrastructure of the firm's site is hosted by EC2.

CLOUD COMPUTING

“This setup makes testing and scaling a breeze,” says Assay Depot CIO Chris Petersen. “We can start a new server at any time. For instance, if we have a code or database change that seems particularly dangerous, we bring up a new instance for staging, deploy the latest code to it and test it to our heart’s content. Since the staging server is an exact copy of the production server, we can be sure our code will run the same in both environments.”

The clincher: Assay Depot runs its business for a fraction of the cost of traditional environments.

EFFICIENCY AND AGILITY

While efficiency and cost savings are legitimate motives for pursuing cloud computing—and will be the initial motivation for most companies—some view this concept as an enabler of innovation and agility. If hardware and software are instantly available and always up to date, and if reliability and privacy are guaranteed, then a firm can focus its energy on new business models, experimenting on the fly and learning new ways to find and satisfy customers. Factoring in the computing resources needed for a new initiative will be a simple matter of deciding when to push the button.

It’s best to avoid getting too wrapped up in parsing the various terms associated with the cloud. Utility computing, for example, refers to the pay-per-use or metered approach Amazon uses. Electric power is often used as an analogy: You simply plug in an appliance and don’t worry about how the electricity is created or who is providing it. In contrast, grid computing involves linking thousands of computers, each of which handles pieces of a gigantic problem. The grid offers access to a level of processing power and storage capacity that is unavailable in a typical organization.

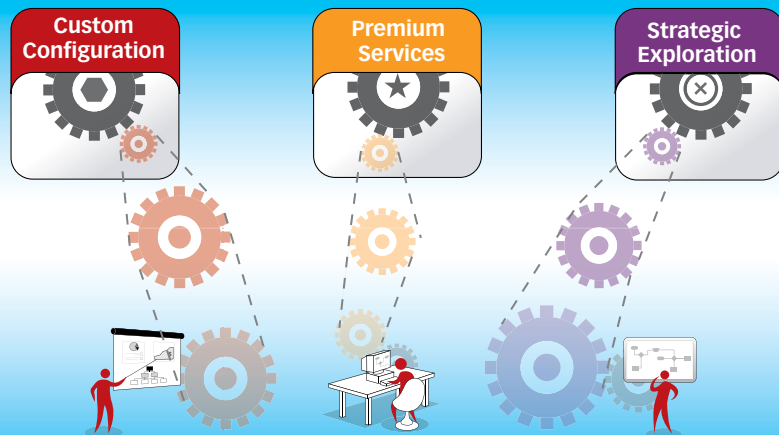
In practice, organizations will move to the cloud incrementally, shifting portions of their computing needs to it over time. Smaller companies will see an immediate payoff in moving completely to cloud computing. Larger companies, on the other hand, must wrestle with proprietary systems that are strategically critical and extremely complex, along with unique business processes that have been built up over time and can’t be easily handed off.

What we cannot avoid—and it’s much more difficult than buying servers and software seats—is the changing nature of work itself. Leading companies are moving toward the convergence of their management of business and technology. This means that decision-makers are conversant in both areas and can act on both to advance a strategy. For them, technology is no longer a mysterious activity hidden away in a glass house.

The computing tools in the cloud will be represented to users virtually in nontechnical ways, so they can use them

A LEAN AND AGILE ARCHITECTURE

AGILE: Customization, Responsiveness



LEAN: Standardized, Automated, Consistent

© BTM Corporation

without excessive training. At the same time, users will be more knowledgeable about the potential of the tools and more adept at manipulating them.

Consider what’s taking place at Ministry Health Care and Affinity Health System, a northern Wisconsin health care network. CIO Will Weider insists that all employees engage in “shadow IT,” meaning he has them use technology creatively, without waiting for his tech experts to help them. As a result, employees have developed more than 3,000 applications in QuickBase, a Web-based database from Intuit. The vast majority of these apps were created by non-IT users and include team workspaces, contract issue tracking and interpreter scheduling.

This has eliminated a lot of niche applications, according to Weider. “I realize that information technology cannot meet every possible need,” he says. “With tools like QuickBase, we can unleash our tech-savvy employees to meet their own needs, while keeping them in a sandbox.”

CREATING THE ARCHITECTURE

Moving to the cloud and using it wisely requires the creation of enterprise architectures—both current and future desired states. This is known as strategic enterprise architecture (SEA), which includes both a business purpose and the enabling technology. Thus, the technology architecture is mapped to the business architecture.

At the highest level, the SEA is expressed in nontechnical language that anyone in the organization can understand. An SEA lays out all the business processes end to end, incorporating external partners and customers. Most organizations have various documents describing what they do, from thick notebooks of long-range plans to various mission statements. An SEA makes sense of those islands of information and should clearly showcase any contradictions in purpose or redundancies in execution.

At its most granular level, the SEA specifies the various information technologies in use. In leading organizations, these are now expressed as a service-oriented architecture, whereby software is maintained as modules that can be combined to create applications as needed—sometimes by business users. An SOA can reside either within the organization or in the cloud. An SOA is not a necessity to work in the cloud, but it adds tremendous flexibility as the organization senses and responds to changes in its environment.

Another essential management capability is organization and change management. An SEA should indicate whether existing organizational structures help or hinder the overall strategy. This includes entire divisions, as well as working groups and reporting relationships. It should lead to questions such as: Do we have the right people in the right places? Do they have the training they need? Are their incentives encouraging them to do what we need them to do?

MEASURING FINANCIAL VALUE

These capabilities—and 15 others—are taken from the Business Technology Management Framework, a management standard promulgated by the Business Technology Management Institute. The institute also has a maturity model designed to assess the progress of organizations in adopting these capabilities. The model specifies five levels of maturity, which can be determined using an assessment tool.

To determine the first measurement of your enterprise's readiness to move to the cloud, you must assess your management's readiness in areas such as strategy and planning, technology investments and managing partnerships. Cloud computing is not an incremental variant of classic outsourcing. It is more fundamental, and your organization must be ready for it. If it's not—if it blindly pursues the cloud without the clarity of an SEA and with the organization arrayed as it has always been—then you can expect less than pleasing results.

Your company could move all or some of its computing to a cloud and simply compare the costs of cloud versus in-house computing, but that would be missing the larger potential. You might just be trading one source of computing for another in support of redundant or inefficient business processes. If your enterprise takes the time to create an SEA that includes both current and desired state scenarios, it can optimize the entire business, not just the technology.

Strategic enterprise architecture, along with maturity in these other capabilities, can help you answer questions such as the following:

- ▶ What information do we need that we aren't getting? How can we get it?
- ▶ What information could we have with the resources of a cloud or grid? Would this give us the basis for a new strategic thrust?
- ▶ How would we benefit from more sharing of information internally and externally? Would a cloud enable this?
- ▶ Is anyone managing each process end to end? How does a process interact or interfere with others? What effect does each process have on customers?

- ▶ Do currently available clouds have the technical sophistication we need?
- ▶ Above all, what can—and should—we do differently by using a cloud?

At some point, your enterprise will need to answer the pivotal question: Is the company as a whole better off?

To answer that, you first need to ask some basic questions: Are we finding and retaining good customers? Is cloud computing delivering new, innovative products to them? Is it adjusting on the fly to changes in customer demand, marketplace realities, new technologies and competitor moves? Beyond that, what are changes in management and technology doing for our bottom line?

BTM Institute research has shown a direct correlation between maturity in business technology management capabilities and the financial performance of an enterprise as a whole. Enterprises with a more closely converged business and technology management exhibit superior revenue growth and net margins relative to their industry groups. Their returns on equity, assets and investments are higher.

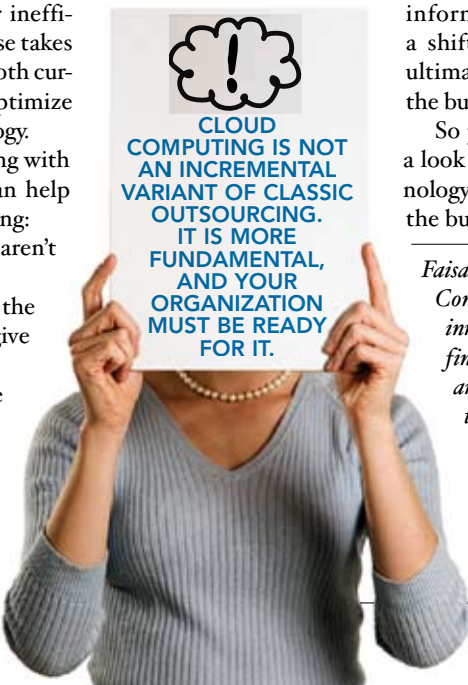
Taking the holistic measure of an enterprise's performance is a straightforward process. This measurement can be combined with interim assessments on the current efficiency of individual business processes and in a projected best state, and the costs of internal versus external computing. In no case should these measures be made in isolation from their impact on customers and the firm's overall purpose and strategy.

Now is the time to wrestle with these issues. Purveyors of cloud computing—from traditional big-picture providers like IBM to relative newcomers like Salesforce.com—are ramping up their capabilities, looking for benefits in joint ventures and trying to understand the value proposition for future customers. Traditional suppliers of pay-per-seat, one-niche software applications are also trying to figure out where they fit in.

Some "big thinkers" are prophesying the end of information technology departments as we know them. It is more likely, however, that IT organizations will continue in a new, more strategic role. The CIO will become truly the chief *information* officer, as opposed to the chief *information technology* officer, signifying a shift in focus from the technology to its ultimate purpose of serving and supporting the business.

So poke your head into the cloud and have a look around. Enjoy the promise of the technology. But keep your mind firmly focused on the business. ◀

Faisal Hoque is the chairman and CEO of BTM Corp. (www.btmcorporation.com). BTM innovates new business models and enhances financial performance by converging business and technology with its products and intellectual property.



CLOUD COMPUTING IS NOT AN INCREMENTAL VARIANT OF CLASSIC OUTSOURCING. IT IS MORE FUNDAMENTAL, AND YOUR ORGANIZATION MUST BE READY FOR IT.



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