

Managing *Big Data* IN THE CLOUD

In the midst of an information explosion, cloud computing offers a solution.

The era of big data is here, and here to stay. There is an immeasurable amount of data, and to manage it effectively, the industry will need to look toward the cloud. Last year, the Economist Intelligence Unit surveyed 586 executives, and only 1% reported no increase in the amount of data they collected throughout the previous year. This means a lot of people, 99%, experienced not only an increase in data, but also an increase in the complexity of the data, the Economist reports. Another Economist Intelli-

gence Unit study conducted this year revealed that the use of big data has improved businesses' performance, on average, by 26% and that the impact will grow to 41% over the next three years. The majority of companies (58%) claim they will make a bigger investment in big data over the next three years. Companies interviewed for this survey included pharmaceutical companies.

There are several evolutions that are driving and shaping the industry's use of the cloud, according to Christopher Blotto, managing partner and chief technology officer, Knowledgegent. One is that the industry is dealing with an information explosion, and CIOs are struggling to find a way to effectively manage the data boom.

"From a historical perspective, organizations have used data predominantly around business intelligence, but now with digital content and email, CIOs are facing more data than they ever had to deal with before," Mr. Blotto says. "This has geared them toward the cloud."

Also, when used simply for data storage, the cloud was thought to be a way to cut costs, but now the thinking has advanced to include how to use data to increase revenue, safeguard compliance, and ensure that stakeholders' interests are being met.

"This is what's rocking the big data revolution," Mr. Blotto says.

As more companies in the industry adopt a cloud-based information system, they can expect to encounter both challenges and benefits. Collaboration is a benefit but also a necessary goal of moving business to the cloud, our experts say.

"At UCB, our global IT strategy is aimed at enabling collaboration, knowledge sharing, and innovation across teams and business partners," says Miguel Louzan, VP, head of information technology, UCB. "We invested in unified communications, collaboration technologies, and social networking."

Mr. Louzan says unified communications

allow people to easily work in virtual teams, across countries, and organizations, using a variety of meeting rooms, offices, and mobile solutions.

"Our collaboration platform is more than a document management system; it is an employee-centric knowledge platform," he says. "The social capabilities enable faster and more relevant information sharing and support innovation, for instance, by the ideation capabilities. We've had our challenges with the introduction of the new tools, but by having them integrated and implemented organization-wide, including our partner network, we very quickly reached mass adoption, resulting in efficiency, productivity gains, and strategic value for UCB."

The cloud makes it easier to enter into collaborative networking because information is typically managed in a single infrastructure, where multiple parties can access and operate on information that is easily shared, says Matt Hahn, Ph.D., senior VP and chief technology officer, Accelrys. From an IT management perspective, it's significantly easier to have a collaborative environment where software and data are centrally managed and globally accessible through the Web. This avoids having multiple interacting parties manage their own IT software and data infrastructure, and deal with the challenge of providing selective visibility to the various partners in a potentially complex collaborative network, he says.

According to Paul Shawah, VP, CRM strategy, Veeva Systems, collaboration is simplified and accelerated, and in some cases even made possible where it otherwise would not have been due to corporate policy.

"Cloud-based collaboration tools do not sit behind the corporate firewall," he says. "This eliminates the need for VPNs, corporate approvals, and complex security policies, particularly when provisioning external users."

Cloud computing also simplifies the accessibility and update of collaboration tools across all platforms and devices. For example, Chat-



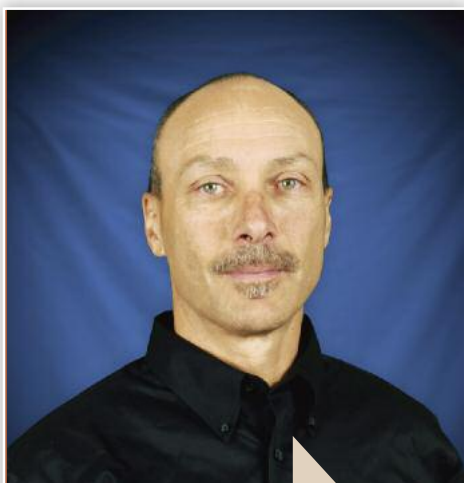
“Once an organization has moved a few key systems to the cloud, it is better at choosing cloud providers and implementing these systems in a way that provides real business value.”

MATT WALLACH / Veeva Systems



“ Cloud computing also simplifies the accessibility and update of collaboration tools across all platforms and devices.”

PAUL SHAWAH / Veeva Systems



“ Today’s modern cloud computing system maintains safety and security that is superior to the systems it is replacing.”

DR. MATT HAHN / Accelrys

ter by salesforce.com is an enterprise social network that allows collaboration in real time, delivered in the cloud, so all collaborators are easily provisioned, always on the latest version, and can be easily accessed through the device of their choice.

“This ubiquity and simplicity improve user adoption, pace, and the overall value of collaboration,” Mr. Shawah says.

“Collaborative networking is effectively

breaking down the silos not only internally, but externally as well,” Mr. Blotto says. “Internal organizations are beginning to interact with vast markets, such as social networking, and they can now tap into those areas for collaboration and feedback.”

These types of external collaborative networks raise concern for pharma, however, as more input can mean the identification potentially of new channels to monitor for adverse events. This fear may be slowing adoption, but the ability to have a place on the Internet where people can collaborate should take priority.

Adoption is spreading from the marketing functions to include other internal organizations, such as sales and managed markets. Companies are identifying commonalities in procedures and policies and sharing mutual information across all lines of business.

“Dissolving the silos means more centralization of information and content that can be managed through one particular process and distributed to the various consumers across the organization,” Mr. Blotto says.

Comparatively, the traditional ways of sharing content and data globally make collaboration very difficult, says Matt Wallach, co-founder, chief strategy officer, Veeva Systems.

“With tools like Google Docs, Evernote, Dropbox, and Box available, it is not conducive to send an external party a laptop, or to have to set up a specific VPN, or spend time training new users before they can interact with a piece of content,” he says. “If companies are still managing content with traditional client server systems, and the hardest system for users to navigate is their content management system, they lose.”

It is still early days in terms of adoption of the cloud for the pharma industry, and the impact of the cloud on global IT is still relatively limited, Dr. Hahn says.

“The cloud today is just emerging as a viable option for managing global IT, and there are a wide range of views in the industry on how best to leverage the cloud in the face of externalization, collaboration, and data management,” he says.

Some companies are beginning to consider the cloud, and others are well under way with cloud initiatives. The challenges associated with externalization can be addressed with cloud-based solutions and the pharma industry will ultimately embrace solutions that provide the benefits seen in other industries further along the cloud adoption curve.

Mr. Wallach adds that while the cloud can reinforce global IT strategies, companies often find the process confusing because the term cloud is over- and misused.

“Like the flurry of IT activity that pre-

ceded Y2K, the move to the cloud has CIOs energized and motivated to drive real business value for their organizations and in many cases, the move to the cloud has delivered,” he says. “But there is also confusion because the word cloud is being overused by companies that do not understand it or really offer it.”

IT departments need to be very careful with vendors that claim to be cloud-based, but that have really just changed their pricing and hosting models without rebuilding the solution itself, Mr. Wallach cautions.

“If a cloud application is not purely multi-tenant, then that provider is really just an ASP, and we all remember how that story ended,” he says.

Best Practices

A best practice that will ensure a successful transition to the cloud is to make sure that a true cloud-based solution is being offered. According to Mr. Wallach, there are very few examples of client server software companies that have rebuilt their applications as a true multi-tenant cloud.

“If they are not true multitenant, then they cannot deliver the benefits of today’s cloud computing,” Mr. Wallach says.

According to Dr. Hahn, however, some companies may be reluctant to use a true public cloud. Depending upon the type of solution, and ultimately, the sensitivity of the data being hosted outside a company’s firewalls, a company may be less willing to look at true cloud solutions.

“While there is a spectrum of different approaches to cloud implementation, not many pharma companies are open to moving sensitive material to the cloud,” he says. “Some have implemented private clouds as a means to retain control of their data and feel more secure than they would participating in a true public cloud.”

In situations where the data are viewed as highly sensitive, companies are obviously less amenable to cloud solutions.

“For example, while companies are discussing it, we’re not aware of any large pharma company yet willing to put its corporate compound registration system into a public cloud,” Dr. Hahn says. “Conversely, those that are interacting with CROs for things like outsourced assaying may use a hosted solution.”

The pharma industry has traditionally been control-oriented and may have some reservations about moving proprietary information to a cloud-based system. According to Mr. Blotto, this perceived fear may drive the industry to use private clouds instead.

“Pharma has always had a lot of control around the security and entitlements of who can use what information and for what purpose,” he



“Our collaboration platform is more than a document management system — it is an employee-centric knowledge platform.”

MIGUEL LOUZAN / UCB



“CIOs are facing more data than they ever had to deal with before and this has geared them toward the cloud.”

CHRISTOPHER BLOTTO / Knowledgegent

says. “Although in either situation, it is only a perceived loss of control; there has been an evolution to private clouds, where the infrastructure itself is common but access to a specific segment or platform is highly private and security is set up according to the company’s entitlement and security control policies.”

Mr. Wallach agrees that a wholesale move to the cloud is going to be more than most organizations can handle. Instead, he suggests an incremental set of moves to build experience, get some short-term wins, and to more fully inform key stakeholders is the right strategy. Once an organization has moved a few key systems to the cloud, it is better at choosing cloud providers and implementing

these systems in a way that provides real business value.

Evaluating Cloud Options

When considering a public cloud, there are a number of challenges that typically relate to the fact that access to the data is provided to multiple parties in an organization. There is obviously the question of security, and the assurance that the data are protected.

“Ten years ago, these were real concerns,” Dr. Hahn says. “Five years ago, there still was room for concern. But with today’s modern cloud computing systems, the safety and security of the cloud-based system is normally superior to that of the systems it is replacing. The second challenge is associated with visibility of the data. In an externalized world, access and visibility of data are not symmetrical to all parties, and it must be easy to manage who can see what at what point in time. Another challenge today is one of synchronization, where often a company wants to pull hosted data back within its firewall and merge it into existing, trusted systems. This latter challenge may ultimately disap-

pear, once companies fully trust externalized hosting for even the most sensitive data.

According to Mr. Wallach, the single biggest challenge is letting go of the costs of former systems.

“There is a reason why every new software company is a multitenant cloud company — because cloud is better,” he says. “It’s better for end users, it’s better for IT and administrators, and it’s better for the providers. The biggest challenge to managing data in the cloud is getting the organization to look beyond the sunken cost of all the current systems in place and to take a clean look at where it wants to be in the future.”

There are several end goals companies need to keep in mind when moving to the cloud, Mr. Blotto says.

“At the end of the day, cloud computing is really about maximizing the investments already made, increasing revenue, improving operation performance, and addressing risk and compliance concerns,” he says. “The core is consistent regardless of the organization or budget size. These capabilities are the next generation for performing analytics and creating improved efficiency through the policies and procedures around big data.” PV

Best Practices for Cloud Computing

1. Define a broad cloud-based strategy driven by a prioritized set of business objectives. Focusing on the low-hanging fruit can have a dramatic impact on business performance immediately. For example, are current on-premise systems limiting how to engage and interact with customers? Is there an opportunity to streamline 50 disparate document management systems across the enterprise to reduce overall cost, complexity, and business flexibility? Defining business needs first should drive a cloud-based strategy.

2. Do due diligence when selecting cloud-based vendors. Not all “clouds” are created equal. It is important to look for true multitenant cloud computing to achieve the full benefit and economies of scale of the cloud.

3. Define priorities, selected vendor, and implement. The best cloud computing solutions offer significant flexibility to meet business needs. However, this should not be a license to over-customize just because you can. Stick to software development practices and view customization as a last resort.

4. Focus on simplicity. Cloud computing has introduced the simplicity and usability of the

consumer Web to the enterprise. The application is at its easiest and simplest to use on day one. Therefore ensure a governance process that will commit to the simplicity and usability that cloud computing promises.

5. Recognize that implementing cloud systems is a different methodology than implementing traditional, on-premise systems. The tools are easier, the pace of innovation is faster, the testing requirements are less. Don’t treat a cloud deployment the same way as an on-premise deployment. Great cloud computing vendors will do pre-validation work so that you do not have to. Therefore, streamline your testing resources and focus on those areas that need to be tested. Great cloud computing vendors will also deliver new innovation at a rapid pace, as often as three to four times per year. Commit to partnering with your vendor to deploy standard capabilities when possible. In summary, understand the strengths and power of cloud computing and streamline your implementation to take advantage of all the benefits. An experienced cloud vendor will help you make this transition.

Source: Veeva Systems.
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“With all of the data now available about how our physician audience is using the smartphone, the industry needs to provide the tools and information that the physician is seeking.”

DARLENE DOBRY / Ogilvy CommonHealth

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“Providing access to data is critical, but so is helping a busy HCP make the most of his or her time on a website.”

GREG RICE / Klick



“ It is imperative to educate the industry about the value of technology through real-life examples.”

TIM DAVIS / Exco InTouch



“ The use of cloud-based systems to support clinical trials is most successful when sponsors are willing to accept standard features and functions of these types of systems.”

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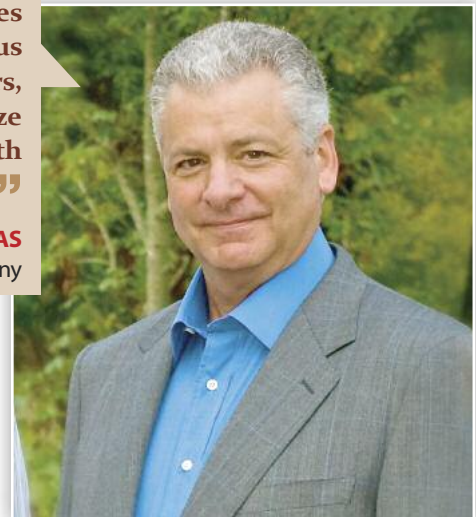
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“As reimbursement policies continue to wield tremendous influence on prescribing behaviors, companies will need to prioritize and focus clinical discussions with payer audiences.”

DR. EVAN DEMESTIHAS
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“ Strategies will need to focus more on engagement than on the traditional awareness and persuasion model of communications. ”

BARRY SCHMADER / Dudnyk

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“The shift to more economical Web/digital strategies becomes critical to success.”

ANDY PYFER / FingerPaint

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