Six Questions Every Utility Executive Should Ask About Cloud Computing

An introduction to cloud computing in utilities
No leader in business or government today can afford to ignore cloud computing. Global organizations including Starbucks and Citigroup are already using it to analyze data, provide applications to employees and run special projects. Media giants are working on a cloud-like service that will enable content to be delivered dynamically in multiple formats and on a variety of devices. And more cloud services will soon be available, as established IT and telecom providers including Accenture, Microsoft, Fujitsu, KDDI, China Mobile and SingTel join cloud pioneers like Google, Amazon Web Services and Salesforce.com.

To date, most utilities have taken a relatively slow and measured approach toward evaluating the potential of cloud computing and ultimately capitalizing on the benefits it offers. Utilities are renowned for being conservative in their adoption of new IT technologies, especially those that are not industry-specific—and cloud computing clearly falls into this category. Given their regulated nature and the sensitivity of the customer data they hold, many utilities are naturally wary of the security and privacy risks they fear may arise from cloud computing. Adoption of cloud solutions has been further hampered by utilities’ historical preference for buying rather than renting infrastructure, and the absence to date of a “killer application” to drive cloud-based solutions in the industry. As a result, the utility industry story to date on cloud computing has been “some talk, little action.”

This story may change with the advent of smart grid and advanced metering infrastructure (AMI). The implementation of the smart grid will trigger a deluge of network data. As you will read in this paper, the resulting need for greater processing power and data storage will provide a clear opportunity and impetus for cloud computing in the utility sector over the next five years. Nevertheless, even with the optimism that surrounds the potential of cloud computing in so much of the public and private sectors, its entry generates difficult questions. Public cloud computing services are already bringing companies in many industries opportunities to reduce costs and work with customers and suppliers in new ways. However, given utilities concerns about security and ownership, the first step may be the implementation of private industry clouds located in utilities’ own data centers—a move that is already being considered by leading utilities in a number of markets.

What is clear is that cloud computing will shape the way organizations in all industries do business in the future—affecting how computing strategies are developed and managed, how information is controlled and how the economics of business technology are applied. Experience to date shows that the significance and effects of the cloud vary widely between different industries, and even different companies within the same industry. Faced with such uncertainty, it is all too easy for decision makers to succumb to “analysis paralysis” or the temptation to leave all decisions to the IT department. But cloud computing is too important for such a hands-off approach.

How can utilities executives come to a timely, focused and productive evaluation of cloud computing? Accenture has identified six key questions that utilities decision makers should ask about this still-new phenomenon. By focusing on these questions, utilities executives can narrow their inquiries and start to identify opportunities and risks that will impact their own companies and ultimately help them achieve high performance.
Accenture defines cloud computing as the "the dynamic provisioning of IT capabilities—whether hardware, software or services via the Internet." In general, a cloud-based model provides rapid acquisition, low to no capital investment, relatively low operating costs and variable pricing tied directly to use. As a result, cloud technologies allow IT to respond faster and more effectively to the changing needs of the business, creating new services and opening new markets, thereby helping to achieve high performance. Although the term "cloud computing" was coined relatively recently, many elements of the concept, such as timesharing and virtual machines, have been around for several decades.

What makes cloud computing a growing reality for today’s businesses is the pervasiveness of the Internet and Internet technologies, combined with advances in virtualization, hardware commoditization, standardization and open-source software. A key catalyst is the success of major Internet companies such as Google, Amazon and Microsoft, coupled with the emergence of a group of highly credible pure-play firms, including Salesforce.com and Workday.

Across all these offerings, cloud services tend to share several characteristics:

• Little or no requirement for capital investment to enable usage
• Variable pricing based on consumption buyers “pay per use”
• Rapid acquisition and deployment
• Lower ongoing operating costs than IT owned and managed in-house
• Programmable and adaptable in use.

Within these overall parameters, clouds can take two forms: private and public. Private clouds are built within a company’s data center and are designed to provision and distribute...
virtual application, infrastructure and communications services for internal business users. In contrast, public clouds extend the data center's capabilities by enabling the provision of IT services from third-party providers over a network.

The choice between private and public clouds represents a trade-off between security and flexibility. A company using a private cloud gains the perceived benefits of lower risk and higher data security, since it owns and holds the cloud data and services within its own infrastructure, an approach that is sometimes required by regulators. A public cloud is seen as involving higher risk, since the user’s data is held externally alongside that of other businesses, but it also tends to offer greater flexibility and scalability than a private cloud. As we previously mentioned, these contrasting considerations mean utilities are more likely to consider private clouds for most services, at least in the short-to-medium term.

At the infrastructure level, companies are sourcing raw computing resources, processing power, network bandwidth and storage from the outside on an on-demand basis. These resources are also known as infrastructure-as-a-service, or IaaS. At the platform level, cloud-based platform-as-a-service (PaaS) environments provide application developers with similar functionalities to those available in traditional desktops, including tools for development, testing, deployment, runtime libraries, and hosting.

At the application level, cloud-based application-as-a-service offerings, also known as software-as-a-service or SaaS, are available via standard browsers, supporting device independence and anywhere access. And at the business process level, cloud-based solutions, also known platform-based business process outsourcing (BPO), offer an Internet-enabled, externally provisioned service for managing an entire business process. This differs from application clouds in that it provides end-to-end process support, covering not just software but also people processes such as contact centers.

Finding the opportunities in cloud computing: addressing utilities-specific issues

To reach an accurate assessment of cloud computing's potential opportunities for their businesses, utilities industry leaders need to take into account industry-specific issues. While utilities face widely differing regulatory, customer and infrastructure environments in different parts of the world, all of these issues are evident to some extent in each market:

Managing the impacts of smart grid/meters

The most prominent issues are the "data deluge" and distributed generation: A blend of political, environmental and commercial pressures is pushing utilities in regulated and deregulated markets toward smart grid/meters implementations. Utilities face a deluge of near real-time usage and status information, compounded by the need to manage distributed generation, as customers start to feed electricity back into the grid. Electric vehicles will create further distributed IT challenges.

Responding to rising environmental awareness and active energy consumerism

Utility customers are becoming more environmentally conscious, adopting energy-efficiency practices and installing distributed generation, such as solar and wind. This is prompting utilities to expand toward more of an "energy partner" or advisor role. Customers also are moving more to more self-service interactions with utilities, coupled with a shift toward paperless billing and online/automated payment options, and rising usage of social media applications to connect with customers. All of these actions increase the need for computing power.

Achieving ongoing reductions in costs

The prices regulated utilities can charge their customers are typically set by a government agency, providing stable returns, but requiring utilities to manage their cost-to-serve effectively. Nonregulated utilities face constant competitive pressure to reduce their costs. The cost pressures on both regulated and nonregulated players are especially intense during economic downturns, which typically lead to cost reduction initiatives and deferrals of capital projects.

Navigating successfully to a deregulated/liberalized environment

In many countries, especially those in developing regions where the central government provides utility services, industry competition is being introduced and assets are being sold to private firms. This move toward a deregulated, competitive marketplace generally leads to increased IT spending to replace existing legacy systems, providing an opportunity for utilities to leapfrog the upgrading of in-house hardware and instead source the service via cloud computing and SaaS options.

Managing the impact of the aging workforce through new technologies

The utility industry's ageing workforce is driving a need for improved technology and increased field force automation. Especially in developed countries, utilities have a higher proportion of older workers nearing retirement age than any other major industry. This means steps must be taken to retain knowledge and streamline operations through technology to scale down headcount needs. At the same time, utilities will need to adapt and automate their field workforces to increase their
flexibility and meet customers’ rising expectations in terms of service and reliability.

Utilities’ likely path into the cloud: private industry-tailored cloud solutions

Utilities are likely to start with private clouds as the lowest-risk option—a trend that is already emerging in regulated or semi-regulated markets including China, India, Japan, France, Italy and Germany.

Many utilities based in these markets are looking to start their cloud journey by creating private clouds based on-premise in their own data centers. We have already seen leading utilities in countries such as Germany and Italy start to consider making a cloud computing service available to the hundreds of local small municipalities or private energy distributors who are all eager to reduce their IT costs.

In Italy, for example, there are many small gas distribution companies that would be interested in sourcing their IT via a private cloud from a major utility. Internal discussions are under way about which applications to include, perhaps focusing first on those where data privacy is perceived as less of an issue. These “semi-private” industry clouds could be considered effective solutions that bridge the gap between a private cloud (in the municipalities, which they can not afford) and a public cloud (across the industry).

Over time, as these initial private cloud initiatives demonstrate the long-term benefits of cloud for the industry, utilities’ confidence will increase and they may well expand to the use of public clouds for less sensitive applications and data. There also is clear potential for business process clouds supporting industry-specific activities. Ultimately, a hybrid industry model may emerge under which some in-house “private cloud” components (such as billing) and some “public cloud” components (such as customer relationship management) are integrated via web-based services, to bring utilities the best of both worlds.

Two examples of cloud-based consumer applications in the home energy management sector are Microsoft’s Hohm, a free web application designed to show consumers how to conserve electricity and natural gas; and Google’s PowerMeter home-electricity-consumption cloud service, which enables users of some home electricity meters to read them via Google’s servers, rather than using the online services that come with the meters.

To date, cloud computing’s disruptive potential in the utility space has been foreshadowed by consumer-facing applications from public cloud providers, rather than by services from utility companies themselves. While the impact of these applications on utilities’ business has been relatively modest to date, they do provide a pointer to industry’s cloud-enabled future.

Consumer applications provide first indications of cloud’s disruptive power

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The three most commonly talked-about benefits of cloud computing are cost, flexibility and speed to market. However, forward-looking utilities also are thinking about the wider business benefits, in terms of how cloud technologies will change the face of their operations—especially in the context of smart meter roll-outs. Some of the initial opportunities for cloud computing are outlined in Figure 1. However, in this section we will focus on the top three generic benefits of cost, flexibility and speed.

Cost
Low prices on cloud services are a big part of their allure. Add the savings from eliminating the cost of servers, software licenses, maintenance fees, data center space, electricity and IT labor, and the benefits of replacing a large up-front capital expense with a low, pay-for-use operating expense, and the financial appeal of cloud computing is obvious.

Flexibility
Clouds offer extraordinarily flexible resources because of their technical design. Clouds can be summoned quickly when needed, grow by assigning more servers to a job, then shrink or disappear when no longer needed. That makes clouds well suited for sporadic, seasonal or temporary work, for finishing tasks at lightning speed and processing vast amounts of data, and for software development and testing projects. Clouds also can supplement conventional systems when demand for computing exceeds supply. And since they are an operational expense, cloud services can often bypass the capital-expense approval process, and be quicker to procure than conventional systems.

Speed
Cloud technology has the potential to empower a programmer to create a software service quickly and at low cost for use across the organization. This capability can help organizations to become more agile and responsive, as well as increasing their ability to impose a standard set of applications or processes enterprise-wide. For those applications that require a great deal of IT infrastructure (servers and storage), cloud computing can significantly shorten the lead time to procure, deliver, and install the service. Overall, properly implemented cloud architecture can mean the time and costs of provisioning an innovative IT service have never been lower.

Deep operational benefits
The benefits of enhanced cost, flexibility and speed will be felt across virtually all sectors as companies move to adopt cloud computing. The unique characteristics of the utility value chain, together with the specific industry issues we described on page 4, mean the benefit opportunities for utilities from adopting cloud computing may be even greater than those available in other industries.

Specifically, because the smart grid/meters touches virtually all aspects of a utility’s operations, the breadth of opportunity for cloud computing applications across the organization is especially broad. For example, many smart grid installations include remote sensors with the ability to monitor individual assets as well as systems to control load, take actions to eliminate failures, and improve communication between systems. With this in mind, adopting a cloud computing strategy can bring a utility significant long-term operational benefit by:

- Driving uptake of standardized approaches to IT infrastructure and applications, by mandating sourcing through a common cloud. This can assist utilities with acquisitions and divestments, as well as getting new sites, plant or assets up and running swiftly.
The cloud opportunity for utilities: zeroing in on smart grid/meters

The main trigger for utilities’ growing interest in cloud computing may be the entry of smart grid and advanced metering infrastructure (AMI) into utility operating models around the world. In assessing the impact and implications of smart technologies for utilities, it is important to differentiate between smart grid and smart metering, since different factors will drive their uptake in the cloud. For example, in the United Kingdom, given the general uncertainty over how the smart metering market will evolve, retail utilities are wary of committing large investments up front. However, they do want to be able to respond quickly if a competitor makes a move. This need for agility and responsiveness plays precisely to the elasticity of the cloud. In the United Kingdom, we expect to see master data management (MDM) emerge within private clouds or in internal data centers in the short term, eventually evolving into SaaS as widespread acceptance and adoption of the technology advances due to the power of cloud applications.

Whatever the immediate drivers, the move to smart technologies will see utilities face an unprecedented deluge of customer and operational data. Utilities will need powerful and sophisticated analytics to turn the data into actionable business intelligence to support operational, capacity and pricing decisions. This ability will require far greater IT infrastructure capacity and processing power than they currently possess in their in-house systems.

While cloud computing has clear potential to help utilities access this power and capacity, some may consider alternative approaches to the data deluge—such as housing an advanced, ultra-high capacity data warehousing machine in their own data center. However, the cloud’s capacity and scalability are by their nature virtually unlimited, while a specific machine will inevitably have physical limits, as well as requiring up-front investment in capacity that may ultimately be underutilized. This means cloud solutions may generally be seen as more future-proof against future surges in activity, and more efficient in utilization terms, than an in-house data warehousing machine.

Figure 1. Initial opportunities for using clouds.

Accenture has identified many different possible uses for cloud computing.
Enabling sharing and collaboration, both across the company and also along the supply chain with customers and suppliers. Third-party distributed generation from renewable sources can be incorporated into the network.

Delivering e-learning solutions via the cloud, project documentation can be shared via web-based portals, and social media tools can assist with virtual teaming. Sharing peaks in data processing across the cloud also can reduce overall capacity requirements and costs.

Automatically monitoring distribution networks and other vulnerable assets. Cloud-based applications are now available that can automatically monitor video footage and apply logic to assess risks and trigger alerts accordingly, and cloud-enabled predictive analytics can prevent costly equipment failure. Cloud applications also are available for geo data to support field workers.

Transforming the responsiveness and quality of the customer experience in areas ranging from reduced outages to better billing to advice on energy management.

Offering new, standard Internet-based applications to multiple groups, saving development, deployment and maintenance costs. Examples include using out-of-the-box solutions for new asset start-ups, and providing cloud-based "applets" hosted on the cloud for field engineers using hand-held devices.

Enhancing the scope for headcount reductions, especially in the field force and back office. This has already been one of the main drivers behind the parallel moves towards smart grid and SaaS.

Recruiting younger employees—who bring with them higher expectations of the benefit and reward packages on offer, and of the tools and technologies available to them in the workplace. The "Millennial" generation expects to be able to use social and collaborative tools, and utility field workers are already becoming increasingly technologically enabled.

Most utilities’ relatively limited progress into the cloud to date presents major opportunities for those that decide to move early. Leaders in the industry should begin by looking for specific benefits for their own organization—ways to reduce costs, improve processes, boost performance and more. They also should investigate and identify instances where clouds do not make sense. For example, migrating a complex legacy system may require a costly redesign to operate on a cloud.

Our experience suggests that executives are likely to find the greatest benefit by envisioning new processes, web-based applications, services and offerings that have been too difficult or expensive for the organization to implement in the past.

CIOs say they are finding real savings from cloud computing. Accenture estimates its own IT organization could save up to 50 percent of its hosting costs annually by transferring most of its applications to infrastructure clouds. Bechtel’s CIO benchmarked the company’s internal data center and storage against those of Google, Amazon and Salesforce.com, concluding he could greatly reduce his per unit costs by creating an internal cloud.

But executives should not take all the promises and projections of cloud savings at face value. The articles about companies that have saved money rarely explain how these savings were calculated. Several apparently rigorous analyses of cloud savings have been attacked as unrealistic. Furthermore, while most organizations that use clouds report that they are saving money as expected, not all have. In one study of SaaS users, only about half of the respondents reported a positive return on investment from SaaS, while one quarter found the cost was greater than they had budgeted.

So executives need to take a close look for themselves into the cost implications of cloud computing, given their own organization’s unique requirements. This investigation should involve seeking rigorous return on investment (ROI) case studies based on actual cloud usage, rather than estimates of anticipated savings. Hardware, after all, is a relatively small component of data center costs. They need to uncover the hidden management, transition and usage costs that reveal themselves only when organizations start to work with the technology. They need to look into the costs of using each kind of cloud service separately, since the pricing and cost involved in using different kinds of cloud services all vary.

3. Can I depend on clouds to save my organization money?
Weathering the perfect storm

“Utilities should embrace advances in collaboration, relationship management, business intelligence and an increasing use of web-based cloud computing to transform themselves into an integrated utility. Aided by technology advances in service-oriented architectures (SOAs) and software as a service (SaaS), utilities today can begin to transform themselves into integrated utilities and benefit from new business opportunities by creating intelligent grids that leverage the convergence of communications, information and energy technologies.”

Utilities: a historical model for cloud computing’s future?

While utilities as a whole are more cautious than other industries in adoption of cloud computing, it is interesting that analysts and the press often point to the utility industry as the original model for cloud computing. Today, with the widespread migration to cloud-based services, computing is moving toward centralized offerings, much in the way electric utilities evolved in their early years. Power generation was originally done at the point of use (analogous to in-house IT systems), then evolved to power being delivered over long distance transmission lines from centralized stations (cloud) to customers.
Companies that have built massive clouds are already transforming the nature of competition across various industries. Google’s advertising-supported search engine, workplace, collaboration and Internet application tools, and Amazon’s online retail operations are all made possible by the vast computing clouds created by those companies. And cloud-based consumer applications such as Facebook and iPhone apps are driving innovation in unpredictable ways.

In the future, we expect to see utilities also making massive changes by leveraging cloud computing. Likely developments in the industry include the following:

- As we have already highlighted, the processing power, scalability, flexibility and sophisticated data analytics enabled by cloud computing—combined with cloud computing’s enhanced collaboration—could have a major impact on a utility’s capabilities and operations in the smart grid era. For example, analytics applied to customer data will enable the creation of individual energy management plans for customers, while analysis of network status data will mean outages can be predicted and prevented much more effectively. Utilities also will use the cloud’s IT processing power and web-based interfaces to drive analytics that enable them to create new products and services, carry out investigations and assess and interpret information in ways that were previously unavailable or too costly.

- Departments will develop web-based applications quickly and flexibly to support their operations using pre-approved, cloud-based platforms and development toolkits, or use preconfigured application “appliances” that come with hardware, networking, security and other services built in as standard.

- Data security will be provided at the appropriate levels through a corporate cloud. Departments will specify the sensitivity of the data and the cloud will automatically process and store it in the most cost-effective way according to defined rules based on factors such as the location of data centers, level of authentication and use of private or public cloud infrastructure.

- Cloud infrastructure and applications will be provided through a competitive, real-time market for services, and will ultimately come to be regarded as a “utility” like the energy supply.

- Supply chain sharing and collaboration will increase, enabling users to access everything they need, including workplace productivity suites such as Microsoft Office® (Word, PowerPoint and Excel) through a common portal.

- Cloud computing’s impact on operating models will be especially profound in the environmental space. The smart grid will support the industry’s move toward renewable low-carbon energy sources, including third-party generation that can be fed back into the network by customers. The inherent intermittency of renewable generation means it requires computing power and sophisticated analytics to control load, and to manage and account for the power being fed back into the grid. The growth in electric vehicles also will boost demand for distributed computing power, as utilities set up networks of charging points.

As with the benefits of cloud computing, it is still too early to reach a comprehensive view of all the ways in which the cloud will change how utilities will operate. Decision makers will need to perform a thorough assessment to understand whether clouds can help them; whether to pursue a strategy that is cloud-centric, or partially uses cloud; and whether any legal or compliance issues would prevent them from fully utilizing providers’ cloud offerings. In particular, strategists must investigate what new business services should be pursued using cloud computing, while CIOs must track the evolution of the technology and the market for cloud services, to ensure their strategic ambitions do not outrun the capabilities of the technology.
When smart grid meets cloud computing

“In the world of smart grid, utilities will be storing much more data about customer usage than they do now. Most utilities currently take one reading of an electric meter for an entire month. With smart meters in place utilities will be storing thousands of readings a month for each meter. That means utilities will need lots and lots of databases (data centers actually) and applications to access and analyze that data. Computing power is going to be a big deal but it isn’t nearly the sweet spot for utilities.”

“...In order for the customer to be involved, they need access to the data being captured by the utility and they probably need it in real time for the whole scheme to be effective. Customers will need to know, ‘How much power am I using right now, not 15 minutes ago.’ If smart grid technology delivers on its promises, the utility should know that, but getting the data to customers in a user-friendly manner will be a trickier proposition. That’s where cloud computing platforms enter the situation again. All this data is stored somewhere (out there) in the cloud—and that means the customer should have access to that data anytime they have an Internet connection.”
5. What risks must my organization manage?

Technologists and agencies have already identified many data protection and privacy risks connected with cloud computing.13 CIOs are concerned that their data could be stolen by hackers, mixed with data from their cloud providers’ other customers or released by mistake. Any of the above would expose organizations to public embarrassment and lawsuits as well as the time and expense of cleaning data and undoing other damage.14 Less well understood is how local laws and regulations apply to cloud computing, a particular issue for utilities.

Organizations need to know how laws that restrict the storage of customer and employee data, or that open their data to government subpoenas and searches, affect cloud computing. For example, European companies need to understand how they could violate EU regulations, or come under the jurisdiction of the US Patriot Act, if they use American cloud service providers or European providers that move data to a server in the United States.15

Aside from risks around data security issues, clouds also can present further IT-related risks in the potential for problems with reliability, performance and other technical issues. Clouds do fail: even prominent cloud service providers have suffered service outages or slowdowns.16 Unless cloud providers can match the uptime performance of large organizations with mature IT infrastructures, and back up their services with stronger guaranteed service level agreements, it is unlikely that enterprises will use them to replace their financial systems or to process orders during the holiday shopping season. However, like mature internal IT infrastructures, the service outages are not always down to the hosted services themselves, but often down to the network on which they are reliant.

IT managers will identify other risks and challenges. For example, how many sources of data can a cloud-based application draw upon from before it becomes sluggish? Will it be more challenging to integrate data when it must be shared between cloud services or with their complex conventional systems? How do they make sure they can easily reclaim the data held for them by one cloud provider, so they can easily switch to another? IT organizations must find answers to questions like these if they are to deploy clouds more broadly.

Executives should discover which risks apply to their organizations, and how to mitigate them. They should find out which cloud service providers they can trust, and whether their own organizations’ data management practices expose them to risk. And they should not forget that clouds can provide security benefits as well as risks. Our view is that companies need to adopt a very practical approach to thinking about security and data privacy in the cloud. Most companies have data with different levels of sensitivity, from low-level (published widely and no restrictions) to ultra-secure (information for top leaders only). In the same way, companies will need to design their cloud to have similar and appropriate security built in, through a managed combination of both "private" and "public" clouds.

So, for example, low-level data and access may well be suitable to go onto a public cloud infrastructure service with simple password access, whereas ultra-secure data may need to go onto dedicated secure servers housed in ultra-secure data centers with strong authentication required for access. There will be several different levels of security in between. Building and managing a secure and flexible infrastructure cloud using a combination of "private" and "public" services will be a key building block required for companies to gain the enormous benefits that cloud computing can provide.
6. What are my next steps?

As they take stock of the opportunities presented by cloud, utility leaders need to consider and plan for cloud computing services at several levels:

**Infrastructure**
Central processing units (CPUs), memory and disk capacity available on-demand, real-time and usage-based will be a big driver of benefit.

**Platforms**
The technology architecture for the utility can evolve to take greater advantage of cloud-related services. This is an important step to taking advantage of emerging capabilities and services available in the cloud.

**Applications**
Commercial cloud-based, utility-specific applications that provide industrial-strength functionality will emerge as cloud take-up escalates in the industry.

**Services**
Cloud services offering utility-specific business processes also will emerge. The step-change in capability delivered by these cloud services offerings will enhance utilities' competitiveness and enable more agile and cost-effective responses to change.

As we highlighted at the start of this paper, cloud computing is too important a technology to leave entirely to technologists. While the heavy lifting of the migration from conventional to cloud computing is likely to fall on the shoulders of the CIO, other senior executives should be closely involved—and indeed will have important roles to play. To make sure an organization maximizes the benefits and minimizes risks, executives must do the following:
Ask hard questions and demand data-based analyses regarding cost savings.

Don’t assume automatic and substantive cost savings. Do an ROI analysis. Consider conversion and ongoing costs as well as savings. Don’t be intimidated by the jargon. Experiment or pilot cloud services on “low-hanging fruit” such as workplace applications (e-mail and collaboration tools) or on a non-mission critical, non-integrated application. Then be ready to scale once you have proven the benefits are worth it.

Establish a clear governance structure for cloud computing.

Many organizations have rules and structures in place that govern how IT decisions are shared between line and IT executives. Use them (and if they do not exist, create them) to decide who inside and outside the IT organization should be engaged in decisions on cloud computing, and what decision-making rights and responsibilities they have. Cloud computing presents a step change to traditional IT organization structures.

Buy cautiously, appraise frequently.

While there are clear leaders today, it is too early to predict who the major cloud providers will be in a few years, what capabilities they will deliver, when they will deliver them and how well. So when selecting cloud providers, carefully consider whether they have the potential to be a desirable partner in the future. Even after they are chosen, evaluate your partners on their financial stability, as well as their ability to improve functionality and service levels, to integrate data across different technology platforms and cloud services, and to deliver on their promises.

Toward the cloud-enabled future

While utilities have yet to make a concerted move into the cloud environment, our view is that the improved capabilities and potential savings from clouds are too great to ignore, especially given the low development costs, short development cycle and quick return on cloud services. These attractions apply across all industries, meaning that future IT advances and innovations are much more likely to be based on clouds than on conventional computing. The key question facing utilities is not whether cloud computing will become a fundamental technology in the next decade, but how they will make the most of the capabilities it offers.

This paper is an introduction to the topic of cloud computing in utilities. Accenture plans to develop further utilities-specific research.
Accenture's unique positioning as a cloud partner

Leading utilities have major opportunities both to realize the cost, flexibility and scalability benefits of cloud computing within their own organizations, and to pass on these benefits externally to customers. Accenture has proven capabilities in helping leading companies achieve both of these objectives.

Accenture’s proven skills and capabilities mean we understand and can support cloud strategies, capabilities and implementations at all levels, for both public and private clouds. For internal cloud planning and adoption, we can help utilities develop clear, fully-costed cloud strategies, and then proceed to rapid development and implementation, with go-live in a matter of a few months at as little as 25 percent of the traditional implementation costs. We also assist clients in implementing SaaS solutions and integrating them with existing applications rapidly and at low cost. And we can help with cloud-based infrastructure and application rationalization programs that can reduce support costs by 40 percent.

References
4  "Most Valuable Technologies: Survey Results for Emerging-Technology Adoption and Management," Gartner, November 2009.
11  “Weathering the perfect storm,” Utility Week, June 12, 2009, via Factiva, © Reed Business Information Limited.
14  “Cloud security: The good, bad and ugly; Cloud security is on everyone’s mind, but opinions vary wildly,” Network World Fusion, April 2, 2010, via Factiva, © Network World, Inc.
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