Cloud Computing:

Cloud

From Web-based email to online photo sharing to intranet-driven business software, it's clear that cloud-based computing has permeated our personal and professional lives. What's less clear is its viability for utility smart grid needs.

In essence, cloud computing refers to the availability of computing resources (software or hardware) delivered as a service via the Internet. Cloud services might include the use of remote servers hosted on the Internet for accessing applications and/or storing, managing and processing data. A recent survey by IDC Energy Insights found that 36% of utilities are currently evaluating cloud-based technology, and 23% plan to implement a solution in 2013.

So is the cloud right for your organization? "That depends," says Jim Blake, Director of Customer Operations at Landis+Gyr. "What are your objectives, and how willing are you to rigorously evaluate vendors? I have sat in many of the seats our utility customers are in today as they evaluate cloud-based services. The most critical piece is partner selection."

Weighing the pros and cons

Businesses in many industries already rely on cloud computing to meet an array of IT needs, including third-party website hosting, remote file backup, Internet-based software and much more. To evaluate the cloud for smart grid, however, it makes sense to focus on the areas most affected by smart grid technology — operations (e.g., grid management) and finance (e.g., consumer billing). These disciplines would employ cloud computing for:

- *Software hosting*
- *Software hosting, plus data management*
- *Complete system outsourcing (e.g., total administration of a system by a third party)*

A smart approach for smart grid?

Fewer capital expenditures — For utilities focusing on the bottom line, cloud computing means avoiding some significant purchases. There is no need to buy software, or the servers, racks and other hardware required to support it. No additional staff is needed to operate and maintain the system. All services are typically provided by the solution vendor; the utility simply pays a "subscription" fee from its operating budget.

No asset upkeep, replacement or depreciation — Owning your own computing system means staying abreast of software updates, making sure hardware is operating properly and replacing worn-out components. It also means accepting that, over time, your hardware investment will lose value. Choosing a cloud-based solution bypasses these concerns. Maintenance and updates are the vendor's responsibility, as is the financial burden of asset depreciation.

24-hour-a-day monitoring — To ensure they are functioning properly, servers must be constantly monitored. In addition, they require specific environmental conditions, such as air temperature and humidity levels. Utilities may have to invest money and manpower to accommodate these needs. But with a cloud solution, these duties fall to the service provider.

Expert compliance support — Utilities must comply with a variety of standards — from those set forth by local regulatory commissions to those mandated by the federal government. A cloud-computing vendor with utility industry experience is ready to meet requirements for disaster recovery, security and data privacy, and can "design in" certain features and protocols that simplify compliance responsibilities.

The ability to focus on energy delivery — Perhaps the greatest benefit of the cloud is dramatic simplification of IT management. And with fewer computing details to manage in-house, utilities can focus on what they do best — efficiently delivering energy.

The Pros
of Cloud Computing

The Cons
of Cloud Computing
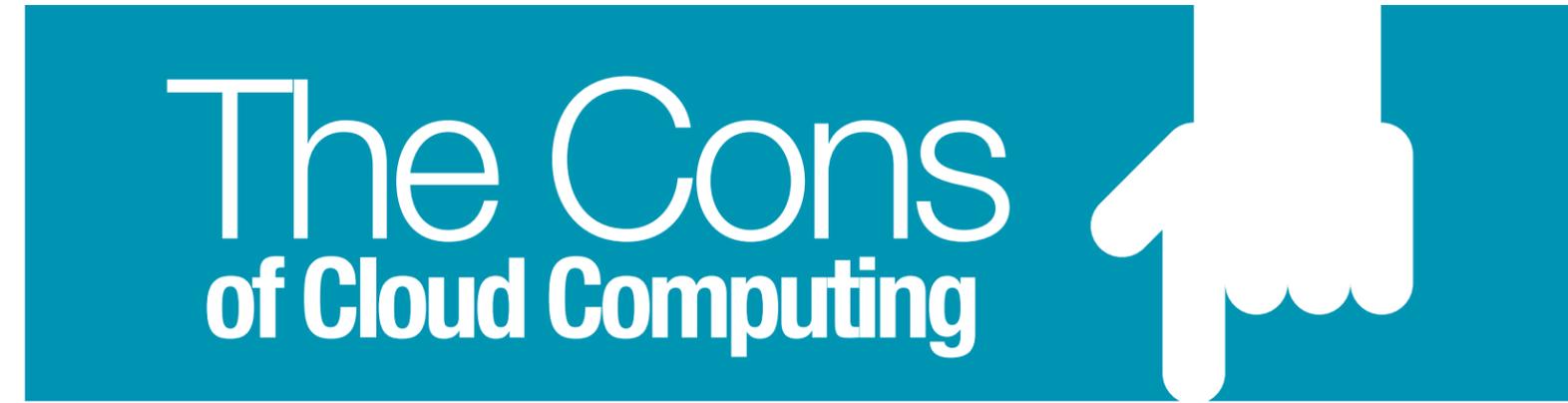
Concerns about stability and reliability — Outsourcing any part of your business involves risk. That's because you are relying on the service provider to meet your requirements. Will they fulfill their responsibilities to your organization? Will their service be reliable and responsive? Cloud-computing vendors typically oversee multiple aspects of an IT function –– from the actual availability of the software and/or data (e.g., "It's ready to use when I need it") to the health of the hardware that hosts this information (e.g., "There's a backup generator in the server room if the power goes out"). In some cases, the vendor may manage the entire service. That makes it critical to carefully vet vendor credentials, experience and service-level agreements.

Concerns about service and/or data accessibility — Another common hesitation around cloud computing is disaster recovery. And utilities have good reason to be cautious; after all, they provide an essential civil service. What happens if a utility can't access its software because a third-party server was knocked out by a storm? Reputable cloud-computing vendors have plans in place for restoring service after a disaster, but there are limits to what they promise. Utility decision makers who are uncomfortable with this level of uncertainty must choose partners carefully — to proactively ensure the best possible outcome if disaster strikes.

Concerns about security — When it comes to cloud computing, utilities must be concerned with security on two levels — cyber security (e.g., "Is my data safe?") and physical security (e.g., "Is the server location safe?"). Potential vendors must be able to demonstrate they not only offer the right levels of data encryption and digital access control, but also take care to control physical access to servers and other computing hardware. Typical precautions include on-site surveillance, 24-hour security guards and keycard access for staff.

Concerns over the loss of control — In an industry where IT functions have traditionally been handled in-house, giving up oversight of certain systems may be too hard a sell — for some utilities, at least. Decision makers interested in pursuing a cloud solution must be prepared to make a strong internal case.

AMI vendors with cloud offerings

Recently, several advanced metering infrastructure (AMI) suppliers have begun offering cloud-computing solutions of their own. Most involve some level of data hosting and/or grid management services. For many utilities, partnering with a company that understands the energy industry brings advantages. Unlike more traditional cloud providers with little or no experience in smart grid, AMI companies understand your organizational requirements and objectives.

But experience level varies. While most AMI companies are new to the cloud, Landis+Gyr has been delivering cloud-based services for over 15 years. Our Managed Services program serves over 230 utility customers that rely on us for:

- *Hosting and managing of head-end smart grid software*
- *Hosting and managing an AMI database*
- *Managing software and data for RF mesh systems*

In addition, Landis+Gyr offers data hosting for customers that own all of their hardware and software — a service we've proudly delivered since 2005.

While cloud-based computing solutions may not be the best approach for all utilities, their popularity is on the rise. Look for these services –– and the vendors offering them — to support your energy delivery success. But remember to thoroughly evaluate providers before choosing a solution to ensure the greatest return on your investment. ■

A Guide to Evaluating Cloud-Computing Vendors

Considering a cloud-based solution for your utility?

Be sure potential vendors have smart answers to these questions:

1 What operational methodologies and best practices does your facility/solution follow?

2 What security standards guide your operation?

3 What uptime targets are typical for this type of solution (as specified in service level agreements)?

4 What steps are being taken to meet them?

5 How consistently are they being met?

6 How long has your company been providing these type of solutions?

7 What practices do you have in place to ensure future compliance?

8 What are typical disaster recovery provisions?

9 Does your facility/solution comply with standard IT methodologies (e.g., ITIL, COBIT, etc.)?

10 In what areas of communication/ operation are there built-in redundancies?