Cisco and World Wide Technology Point of View

Cloud Computing Solutions

Fulfilling Unfunded Mandates

Many utility executives are facing an unprecedented number of unfunded initiatives and mandates. These mandates put pressure on IT departments to rapidly and efficiently develop new online tools, applications, and services. And they put pressure on the whole company to fulfill these new expectations without adding instability, risk, or vulnerability.

For instance, Green Button, a public utility commission mandate, requires your utility to give residential and commercial customers easy access to their energy-use data on a secure website. How customers view their private data from their laptops or smartphones has a direct impact on a utility’s customer satisfaction rating. Unsecure or inaccurate data delivery can also affect employee bonuses.

The standard NERC CIP Version 5 has stringent requirements for critical physical and cybersecurity protection. These new requirements drive data centers and applications environments to be more secure. Utilities have 24 months to implement them, but the budget and capabilities must come from somewhere. Failure to secure a utility’s computing, storage, and communications environments may result in multimillion dollar penalties.

Cloud computing can make all the difference. With the cloud, applications are no longer tied directly to servers. You select the compute, storage, and network resources that are needed at that moment and turn those resources off when no longer needed. Buyers can more precisely manage the procurement cycle to be in line with actual usage, and gain consistently higher utilization rates.

The cloud is also a more effective way to meet NERC CIP requirements for the protection of computing and storage of data resources. A cloud environment provides a uniform level of protection that increases security. Uniformity also extends to governance, increasing IT departments’ productivity and freeing IT people to focus on work they do best, such as ensuring high availability, focusing on new projects, or developing new business applications.
Accurate IT Chargebacks and a Service-Centric Approach

Is your IT department able to charge users accurately for the resources they use? If not, like most organizations, you probably have difficulty planning, building, and optimizing for the future.

With cloud, IT can use next-generation monitoring enabled by virtualization to identify the specific resources consumed by each application and when. Accurate charges help IT and user departments better plan, build, and run IT infrastructure. Additionally, all IT resources are secure and protected with no hidden back doors.

The IT department can also operate from a new model that offers infrastructure-as-a-service and applications-as-a-service. These services enable the IT department to be more responsive to internal business, leading to higher corporate productivity, and quality of electrical service and security.

Infrastructure in Minutes

Provisioning applications and storage in a standard data center takes months or sometimes years. IT departments must procure the hardware, configure the systems, provision services, install the application, connect it online, and test the system. In the meantime, years may go by and the project advocates might move on.

In the cloud you can provision (even self-provision) in minutes. A user requests the computing, storage, and network needed through a storefront web portal. The cloud allocates these capabilities - and the user is up and running. The cloud increases productivity by putting your people to work faster. You pay only for what your team uses. The infrastructure is turned off when the project is complete.

Because cloud provides a standard environment, it enables IT departments to quickly test new applications for security, privacy, scalability, and maintainability. Many new utility applications, such as outage maps, asset availability and energy consumption, are also reused in customer call centers, and for emergency response and lifecycle management.

With the cloud, you’re able to meet new requirements within the requisite deadlines. Clouds can maximize utilization and scale up or down to meet the needs of the moment. Clouds have the flexibility to add software and services without increasing space, power, cable, or cooling costs. The private cloud builds upon the infrastructure utilities already own.

A cloud’s virtual architecture also increases a utility’s resiliency. Clouds are easier and less expensive to back up than traditional data centers and offer owners faster failover in case of emergencies or disasters.

### Case Study: Large Utility

**Challenge:** With five million endpoints in its system, a utility’s network was generating terabytes of production data daily, overwhelming its paper-based archives. The result: The utility had difficulty resolving production outages quickly.

**Solution:** A private cloud service that rapidly collects encrypted data from the five million endpoints and uses geographic information systems (GIS) processing to quickly analyze field conditions. The service then enables dispatch of field-based resources, and it serves as a single repository for work and service restoration.

**Results:** The private cloud solution, as shown in Figure 1, costs 70 percent less than the previous data center options. Customer satisfaction increased as outages were resolved more quickly. According to early metrics, field crew productivity increased by 50 percent. Plus, workers had better system knowledge and safer dispatching. The company has also been able to develop, test, and roll out GIS applications much faster than before.

#### Figure 1. Utility Private Cloud Service

**Caption:** A large utility uses GIS processing and a private cloud to identify and resolve outages much faster than it was able to with its earlier data center solution.
How to Get Started with Cloud Computing

Any decision to deploy cloud applications and services must consider the specifics of your business goals and how you operate, including your:

- Existing business processes
- Specific business requirements for computing and analytics
- Application and infrastructure requirements
- Current in-house skills (if needed, our Cisco and WWT team has people resources to augment your project team for planning, design, testing, migration, and more)
- Future needs with modular add-ons

A Cisco® and WWT team begins by learning your business framework and developing a set of use cases, making sure we address your specific business requirements. Our team uses thoughtful, systematic discovery to plan for a cloud that fulfills your present and future needs. We develop a cloud architecture than can adjust to upgrades and refinements, without a complete reinvention. Our seasoned experts create an intelligent step-by-step change plan. We work to deploy an interoperable, flexible cloud infrastructure that keeps risk as low as possible.

We’ll review three key components of cloud strategy: business agility, applications, and operations. Departments do not have to change everything at once. They can start small and gradually expand.

Consider your applications, for instance. What applications or new business capabilities need resources quickly to meet unfunded mandates, asset management, or customer satisfaction? These future capabilities should be cloud enabled first.

Your operations may need to change to support cloud technology and align with your business goals. We can help you with technology adoption, analysis of your current situation, and best-practices guidance.

You can rely on us to guide you through the transformation to the cloud. We can help you remove barriers to change and travel with you through a carefully modulated transition. We also understand the impact that changes to your people, process, and technology can have on your organization.

A Model for Forward Thinking

Architecture is one of the ways a Cisco and WWT cloud is different than others. Our partnership cloud architecture fits in to the utility-focused Cisco GridBlocks™ Architecture, which enables modular construction and alignment to utility field operations. For a better understanding of this framework, read Cisco GridBlocks Architecture: A Reference for Utility Network Design.

Cisco GridBlocks™ architecture can provide a roadmap for your infrastructure and for understanding and defining interaction among all your activities. Our forward-looking, customizable reference model offers guidance, both specific and general, to suggest a structure for comprehensive management and security across the smart grid.

We take a flexible, modular approach that allows you to phase in changes. Our architecture helps to enable new services as well as integration of functions and of security. These lead to lower cost of ownership. Plus, Cisco GridBlocks™ architecture is a model for developing custom grid-modernization roadmaps for the long term.

Move Forward

Transformation to an effective cloud is rewarding and does not need to be difficult. Our team can help your team plan and navigate every step of the journey.

Our Cisco and WWT team has a history of quickly implementing successful clouds in Fortune 500 corporations, large service providers, and government agencies that required integrated and secure data centers. With an innovative yet practical approach to systems integration, WWT is an industry-leading Cisco partner and has achieved the Cisco master cloud builder specialization. WWT’s Advanced Technology Center (ATC) is world-class, providing hands-on access to more than $50M in cutting-edge data center, virtualization, collaboration, networking and security products. Cisco brings industry-leading technologies for virtualization, infrastructure, and Cisco GridBlocks architecture. Together, we think strategically and act in integrated fashion.

Why wait to start your move to the cloud? Find out how Cisco and WWT can create a real-time cloud-based business capability for your team. For more information, contact:

- WWT: http://www.wwt.com/cloud or Jason Campagna, 314-504-5070, jason.campagna@wwt.com
- Cisco: Visit the Cisco Cloud Computing website or contact your local Cisco Account Manager