Education Services

Cloud Computing Services:
Driving added IT functionality and cost savings opportunities

What exactly is "The Cloud"

As the industry continues to refine the meaning and scope of cloud computing, here are definitions from two respected analyst groups:

- Gartner defines cloud computing as a style of computing in which massively scalable IT-related capabilities are provided "as a service" using Internet technologies to multiple external customers.
- IDC defines cloud services as an emerging IT development, deployment, and delivery model, enabling real-time delivery of products, services, and solutions over the Internet (i.e., enabling cloud services).

The Cloud can help you...

- Achieve significant cost reductions
- Start small and scale big
- Make information universally available
- Enable better online learning options and remote classroom environments
- Drive content modularity for educators to share and repurpose course materials as needed
- Do away with locking capital into static, single-purpose hardware and software

Gartner ranks Dell #2 worldwide for hardware maintenance and support and #4 for services in the education sector based on 2009 revenue. *

For more than 25 years, Dell has collaborated with both K-12 and Higher Ed to enhance connectivity for classrooms, campuses, and school districts. Dell technology is used by more than 8 million primary students in 410,000 classrooms worldwide, and our solutions are deployed at more than 14,000 colleges and universities.

*Gartner IT Services Market Metrics Worldwide Market Share: Database, July 26, 2010.

The buzz around Cloud Computing

Cloud computing promises to revolutionize IT for both K-12 and Higher Education to deliver unprecedented levels of efficiency, flexibility, and value. Cloud technologies can be an important part of the solution as administrators are asked to maximize IT efficiency across their school systems and campuses. After all, in today's data-driven world, academic, administrative, and research programs can perform only as well as the IT systems that support them.

There's nothing nebulous about the potential operating benefits found in the Cloud.

Flexible costs. Cloud computing is usually funded as an operational expense on a pay-per-use basis without requiring upfront infrastructure capital expenditures.

Elastic scalability. Unlike static infrastructure environments, cloud computing capacity is highly elastic to ramp up and down as needed.

Geographic and equipment independence. Underlying hardware can be located nearly anywhere, and with open source platforms, the applications and services delivered are highly flexible.

Cloud services for education

Many factors are increasing both the challenges and the opportunities that IT plays in empowering educational institutions to succeed. Schools, colleges, and universities face greater needs for connectivity and access, while at the same time requiring added data security. Cloud solutions can reduce costs, minimize risks, and help meet many core IT goals and requirements such as:

- Cost controls for challenging economic conditions
- Added access and storage to enable Learning Management Systems and digital content
- More robust data management to optimize Student Information Systems and Longitudinal Data Systems
- Added funding options for innovative ideas and pilots
- Simpler infrastructure, which reduces management costs and issues
- More flexible resources to handle variable loads and usage demands from teachers, students, and staff

With the emergence of standards-based architectures, virtualization, and high-speed connectivity, cloud computing is primed to deliver the benefits educators need. Reaching the full advantages of cloud services across your entire organization may take a few years to achieve and taking the first steps now can significantly advance enterprise-wide efficiency while positioning your organization for additional benefits in the future.

Cloud implementation options

Cloud services can be deployed as a Private Cloud, Public Cloud, or Hybrid Environment. The appropriate approach is specific to the nature of each institution, including factors such as overall goals, economic pressures, and risk profiles.

Private Cloud. This service model is dedicated to a specific enterprise, and the data can remain on-site. Private cloud environments avoid external dependencies and enable CIOs to maintain control over security, data management, and auditing. Although private clouds can be cost-prohibitive, larger systems, especially those that are highly decentralized, may be able to take advantage of their own economies of scale to develop private cloud environments.

Public Cloud. This approach leverages a third-party provider hosted in a multi-tenant environment. The immediate advantage is that shared resources require minimal up-front investments and reduce residual operating costs over the long term because you pay only for what you use. In addition, capacity is readily available to balance resources with usage requirements. Using a public cloud may create an initial perception of a loss of some control, however oftentimes service providers can actually offer institutions greater flexibility for data access and storage along with greater security — including robust disaster recovery services.

Hybrid Environment. These cloud services are designed to offer the cost and flexibility advantages of the public cloud with the on-site control of a private cloud. While there are many instances where hybrid services offer the best solution, managing an enterprise e-mail system is one common example to consider. An institution may want to keep their primary email system on-site in a private cloud to maximize privacy, flexibility, and accessibility. However, it might make sense to link the on-premise infrastructure with a public cloud service to operate a low-cost mirror back-up system that reduces Total Cost of Ownership (TCO), minimizes the need for on-site storage, and increases long-term archiving security.

Proven approaches lead to desired results

To help CIOs accelerate cloud computing initiatives, Dell has developed a streamlined cloud services optimization approach for migration and life cycle management. Designed to combine workflows, tasks, and processes that are specific to institutional needs and environments, customized Dell Cloud Computing Services deliver tools and resources to rapidly implement virtualization technologies that can provide a strong foundation for cloud computing. Dell also provides a software portal management tool that establishes automated operational controls by offering deep visibility into the migration process and associated workloads.

The Cloud is bursting with solutions for your needs

As a way to simplify the management of your IT environment and get you up-and-running quickly, Dell offers cloud technologies with low deployment costs, fewer hassles, and more predictable outcomes. With cloud services from Dell, you can:

- Leverage the resiliency of the cloud to minimize the risks of managing IT
- Get critical IT services running faster with lower capital expenses

Our Cloud Storage and Solution Services include:

- **Hosting Services**
- **Software as a Service (SaaS)**
- **Platform as a Service (PaaS)**
- **Infrastructure as a Service (IaaS)**

Hosting Services. Whether your goal is to increase efficiency, decrease costs, improve security, or manage expansion, Dell is here to help your institution achieve results. Whether we host your IT infrastructure at our site or yours, we can provide whatever level of staffing and solutions that best meet your current and future requirements. Services available include: ITIL-standard operations, service management, process automation, detailed and automated business intelligence and reporting, and higher levels of information security. **Fact: Dell manages 36 data centers and 1.4 million servers and storage systems.**

The role of virtualization

Many institutions create a foundation for the success of future cloud technologies by pursuing virtualization efficiencies that lead to standardization and consolidation of data and applications.

As organizations move toward cloud computing, they typically evolve through the following phases:

Virtualization to establish flexible resource pools that help reduce costs, increase IT agility, and enable the creation of cloud infrastructures.

Expanded and Accelerated Virtualization to cost-efficiently operate more devices and support more workstreams, including mission-critical production applications.

Connected Data Centers to create a centralized resource that enables a shared cloud environment for on-demand computing through a high-efficiency, lower-cost model.

Complementary technologies

Software as a Service tools for IT management that help reduce infrastructure costs and build experience with cloud services.

Incremental services that build on virtualized infrastructure technologies to complete the transition to a cloud environment.

Software as a Service (SaaS). SaaS is built on cloud platforms and architectures and provides the heart and soul of delivering value through cloud-based solutions. SaaS is a Dell-hosted service where users receive a seat or a login to access capabilities that we store and maintain. The institution and user have no direct responsibility to design, provision, or manage the provided software, but simply utilizes applications under a fee-based model, such as price per seat per month, or some other metered criteria. **Fact: Dell has more than 10,000 SaaS customers and manages more than 6 million mailboxes and devices.**

Infrastructure as a Service (IaaS). IaaS is designed to function as an efficient compute utility, and Dell works to create a dynamic, managed technology environment that includes any or all of the following services: virtualized servers, storage, networking, firewalls, backup and recovery, archiving, and associated management tools. Education organizations that need extensive applications customization can also benefit from the scale and flexibility of the cloud model by using our IaaS solutions to host some or all applications. **Fact: 1 billion people are connected on Dell's cloud solutions.**

Platform as a Service (PaaS). PaaS extends basic Infrastructure-as-a-Service with added support for core operating systems and applications, including software development and testing tools (if desired). To provide optimal flexibility and the most service options for our education customers, Dell's applications and operating environments offer enterprise-class open-source technologies. Schools will be able to use our pre-built offerings to quickly implement solutions. **Fact: For one Dell customer, we deployed a consolidated cloud environment that reduces servers by almost 85% with energy-efficient hardware that halves power consumption. For another customer, we reduced total cost of ownership by 10 times compared with the previous platform infrastructure.**

With Cloud Computing the sky is the limit

Why are education and technology strategists so excited about cloud computing? Beyond breakthrough scalability potential along with added security and access functionality, cloud services help create significant cost and operating advantages such as:

- Helping academic institutions reduce capital and operational expenses across the campus and across the system
- Enabling rapid scale-up and scale-down capacity to enhance IT agility
- Allowing your technology resources to shift from simply keeping IT infrastructure and the data center running to pursuing more strategic goals

Dell Cloud Services just for education

Cloud and virtualization technologies are two sides of the same coin creating impressive benefit synergies for mission-critical goals such as tighter financial control, improved productivity, simplified management, and faster provisioning.

Virtual Desktop. Dell Virtual Desktop Services provide a standardized and centrally managed environment so education administrators can simplify the process of maintaining, distributing, and patching applications, as well as reduce the labor and staffing costs required for desktop management. Shared computer labs is one of the most popular environments to achieve immediate benefits from Virtual Desktop Services.

Virtual Servers. Dell Virtual Server Services deliver a dynamically scalable infrastructure so you can increase or decrease computing capacity and power as needed. We offer highly secure access over the Internet or within your private network. We provide you with a choice of infrastructure locations at your data center(s) or one of ours. The result is data processing, information storage, and management with "anywhere accessibility."

Learning Management Systems: To improve access, security, provisioning, and digital content management, Dell is on the forefront of offering cloud hosting strategies for LMS applications such as Moodlerooms, Blackboard, and others.

For more information about any of our service offerings, please contact your Dell representative or visit dell.com/services.

No two Clouds are alike

Each customer engagement begins with a comprehensive assessment designed to identify issues that impact operating efficiencies. The results help Dell plan and build the best solution for each customer's needs.

Complete Infrastructure. Understanding your unique data center environment and applications allows us to deliver integrated, cutting-edge cloud-based hardware and services packages optimized to provide a powerful impact on your goals and objectives.

Integrated Solutions. Our cloud computing solutions combine consultative design flexibility with the engineering, technology talent, supply chain, and scale you would expect from one of the world's largest IT solutions providers.

The advantages of partnering with Dell

Since cloud solutions come in all shapes and sizes, you may need an experienced cloud provider to explain the various options and explore secure network alternatives. Dell is a proven partner in delivering the technologies and services you can trust to help you navigate into the Cloud.

Applications Business Process Consulting Infrastructure Support

N83-1.2-201012-GY