

TEN THINGS EDUCATION IT NEEDS TO KNOW ABOUT CLOUD

Your Quick Guide to Developing an IT Cloud Strategy for Education

For education IT managers, it's not a question of whether to adopt cloud computing, but when. Here are 10 frequently asked questions to help resellers guide their customers in developing an IT cloud strategy for education.

1. What is cloud computing?

Cloud computing is the virtual delivery of shared resources utilized as a service—such as cloud-based textbooks, multimedia learning, and administrative services. Cloud is typically discussed in two contexts: (1) as a delivery model (how and where it's built), and (2) as a service model (how it will be used). IT professionals often think in terms of cloud delivery model (for example, public, private, and hybrid cloud). Educators may be more focused on the type of service to be delivered: infrastructure as a service (IaaS), platform as a service (PaaS), or software as a service (SaaS). Aligning the two perspectives will help articulate an ideal cloud strategy.

2. Why should education decision makers implement the cloud?

The cloud can help address pressures that schools are facing to reduce costs, stretch IT capabilities further, deliver the latest content quickly, and ensure data security and compliance. These pressures are mitigated by cloud through better IT resource utilization, on-demand service delivery, and better security policy management.

3. Is virtualization the same as cloud?

Here's the difference: Virtualization abstracts compute resources—typically as virtual machines (VMs)—with associated storage and networking connectivity. Cloud determines how those virtualized resources are allocated, delivered, and presented. While virtualization is not required for cloud computing, clouds based on virtualization enable more rapid scaling of resources in a way that nonvirtualized environments find hard to achieve.

4. What is the first step in planning a cloud strategy?

Start by developing a strategy document that includes the following:

- High-level teaching and learning goals
- Client device plan (for example, laptops, All-in-Ones, 2 in 1s, and Chromebook* devices)
- Defined implementation phases
- Monitoring and management plan
- Workload identification
- Security and compliance considerations
- IT and business partnership plan
- Cloud architecture definition
- Budget considerations



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5. How will my customer ensure their cloud strategy is comprehensive?

Document how moving to cloud services delivery will impact existing processes and education goals. In addition, consider categorizing workloads based on diverse infrastructure needs.

- **Standard:** Productivity applications and noncore workloads or applications used daily (for example, e-mail, word processing, spreadsheets, and presentations).
- **Pilot:** Applications and workloads that drive innovation and create new opportunities for the school or district (for example, collaboration, creativity applications, and analytics).
- **Strategic:** Core applications and workloads that create value for and differentiate the school or district (for example, student information systems, grading and assessment applications, and administrative software).

6. Which cloud delivery model is best for the school system?

The best cloud delivery model for a school system matches workloads to environments to deliver the services needed by administrators, students, and teachers. To determine the right model, consider the factors specific to the facilities and campus as well as the education and administrative needs—for example, demand and scale, security requirements, and service level expectations.

7. How is a secure cloud infrastructure deployed?

Look for architecture that enables a “root of trust,” a set of functions built into hardware that helps to keep the server or device platform safe against cyberattack and confirm its integrity when it boots. In addition, keep these principles in mind for securing cloud infrastructure and protecting data.

- **Secure the residence:** Understand where data is being stored and accessed.
- **Secure the movement:** Understand the networks through which data is being disseminated.
- **Secure the method:** Understand how data is being transmitted through networks to the storage points.

8. How does my customer assess the current status and roadmap for their cloud strategy?

Are your customers running one application on one server, or have they taken the next step and started virtualizing their servers to improve efficiency? After assessing the current status, create a basic roadmap for the cloud strategy by outlining the service delivery vision against three constraints: service level agreements (SLAs), budget, and optimal server utilization.

9. How might cloud affect current practices of the school system?

- Move from manually provisioned to automated cloud infrastructure, freeing up IT to focus on classroom innovation.
- Enable IT resources to act as a service broker—helping to drive education goals in addition to supporting office processes.
- Evolve from supporting static services to deploying dynamic services, giving teachers and administrators the flexibility to try different cloud software on a pay-as-you-go basis without licensing commitments.

10. Are there cloud-related terms and concepts my customers and I should know?

- **Private cloud:** A cloud delivery model dedicated to one user or customer, physically located on premises or off premises.
- **Public cloud:** A cloud delivery model shared among many users that resides off premises.
- **Hybrid cloud:** A cloud delivery model that combines both private and public clouds.
- **Cloud bursting:** An application that runs in a private cloud or data center, but “bursts” to a public cloud when the demand for computing capacity increases.
- **Infrastructure as a Service (IaaS):** The most basic cloud service offering, which provides virtualized computing resources (servers) on demand.
- **Platform as a Service (PaaS):** A cloud service model that delivers the hardware and software tools required for application development, including infrastructure and an operating system.
- **Software as a Service (SaaS):** Software applications are made available through the cloud instead of being installed and running locally.

Learn more:

[intel.com/cloud](https://www.intel.com/cloud) – demonstrates how customers can implement cloud in their school systems

[intel.com/education](https://www.intel.com/education) – explains how Intel is helping educators use technology to inspire students