

EMC EDUCATION CLOUD FOR K-12

A computing utility model that integrates open technologies and processes to provide a more dynamic, interactive experience for users and improved learning outcomes

ESSENTIALS

With the EMC Education Cloud solution, schools can:

- Facilitate anytime, anywhere learning, instruction, and administration over the Internet
- Reduce capital expense and make IT operating costs more predictable
- Provide access to education applications like Moodle and iPass, as well as leverage best practices across multiple schools, districts, and state education departments
- Deploy a shared services model, onsite or through a host provider, and charge back to multiple departments based on usage

EDUCATION CHALLENGE

The global education market is at a “tipping point.” The convergence of IT and interactive teaching methodologies is revolutionizing the way students learn. No longer does instruction have to happen only inside the walls of the classroom. With new cloud-based information technology, teachers can coach virtual student work teams from afar. Students can collaborate and learn from each other in between classes. Administrators can monitor performance, and parents can help track their child’s learning process. All are collectively striving for higher levels of creativity, performance, and accountability.

To support this new paradigm, EMC has partnered with leading educators, application providers, and professional instructional design firms to build the most flexible and modular cloud-based solution on the market today.

THE VALUE IN MOVING TO THE CLOUD

Traditional ways of teaching with technology haven’t made significant progress because inefficient cost structures and ineffective management designs often stood in the way. There is now a movement away from dated digital communications structures in favor of unified, integrated systems that support greater levels of collaboration and expand flexibility around using new tools and new models.

Cloud computing and virtualization can transform the educational experience. It can break down the walls of the classroom, expand the teaching day, and open up added educational opportunities. Too often in the past, the focus at schools around the globe had been on accessing “equipment or devices,” when the real benefit is in expanding the access to information and processes that improve learning and academic performance. The EMC® Education Cloud allows users to access course work and teacher assignments, and collaborate on student projects whether on the school premises, at home, or at any other Internet-based location. There are multiple benefits, for example:

- **Students** become more independent learners and achieve better educational results. They can access their homework and projects 24/7, whether logged in at school, at home, or the local library. In short, students benefit from greater interactivity both inside and outside the classroom.
- **Teachers** can transition to a “digital classroom” by working within applications and files to create lesson plans. They can equip the class to accommodate multiple learning systems as well as use education-specific online communities and collaboration software.

ESSENTIALS

Key solution benefits:

- Scalable, computing environment including storage, Open Source Learning Management System software, security, and build guide for installation and set up
- Options include a robust Student Information System—instructor-led or online self-paced LMS instruction
- Computing access for students and teachers on a complete on-demand, from anywhere, at anytime basis
- Scale from a few hundred students to thousands, thereby ensuring a school won't outgrow the technology
- Supports automated migration of student records and multiple SIS formats
- Includes realtime intrusion detection of student records, projects, or test score tampering
- Offers significant levels of data security by combining OSSEC with technology from RSA, The Security Division of EMC
- No students get lost—teachers can chat with students, create work groups, shadow, and help students as they work, even if they're working offsite
- Helps “re-form” education because it can change how K-12 educators function as teachers

- **Administrators and technologists** can deploy technology faster, manage technology more effectively, and scale technology smarter—all while reducing overall cost and management effort.

THE COMPONENTS OF THE EMC EDUCATION CLOUD

EMC's number one design principle was to create an engaging, secure, and personalized environment that focuses on the educational learning experience. The EMC Education Cloud is a highly scalable, easy-to-deploy computing solution, where courses, assignments, files, and data are accessed through cloud-connected servers. By leveraging the power of cloud-enabled utility computing, new capabilities can be rapidly deployed while existing infrastructures can be tuned to be more flexible and dynamic. The result is a secure “always available,” enhanced learning environment for students, and a simplified, cost-effective learning management platform for schools to rapidly deploy and maintain.

With the EMC Education Cloud solution, you can start as big or small as you wish, thanks to EMC's modular approach to building solutions. We have already tested multiple workloads in our labs with partners, so you don't have to.

LEVERAGING THE CLOUD PLATFORM

The Education Cloud platform can be deployed in a variety of different functional and service scenarios. For instance, each school can install and operate its own Education Cloud platform. Each school district and/or the State Department of Education may install the Education Cloud and make it available to all students, teachers, and administrators from across the state. Alternatively, schools may prefer to engage with a service provider for a hosted service.

APPLICATION DESIGN

Moodle (Modular Object Oriented Dynamic Learning Environment) is central to the EMC Education Cloud. It is the open-source Learning Management System (LMS) that has become popular with educators at all levels. It allows educators to create dynamic interactive courses and content for their students, and supports efforts related to collaboration, resource access, instruction, assignments, grades, et cetera—all managed and distributed online. This type of interaction increases student performance by allowing the instructor to focus more directly on the individual needs of the student.

Moodle is the most widely used LMS in the world. Teachers can design online learning by adding dynamic digital content available to students from any Internet connection, anytime—text-based information, audio, video, simulations, and content-rich Web sites. It also enables teachers to conduct highly interactive content-based online discussions focused on critical thinking and problem-solving skills. While Moodle is open source courseware and therefore available at no cost, professional development, hosting, and technical support are necessary for optimum use. EMC, working in conjunction with its partner, the Learning Curve, can help provide either instructor-led or online Moodle training.

ADDITIONAL PLUG-INS

As an added option to the Education Cloud, schools and school districts can purchase user licenses for the Education Enterprise System (EES) from IMG Software, one of EMC's valued partners. The Education Enterprise System provides a comprehensive, completely integrated, browser-based administrative software solution that will transform any school or school district's educational management. EES includes iPass, a student information system, iStaff for human resources tracking and reporting, and iFips as an accounting system. EES centralizes and integrates student administrative, financial management, and personnel record keeping operations for any size school or school district.

The Education Enterprise System has been integrated with Moodle. That integration strengthens security and control over normal systems, and will help superintendents and

school administrators reduce costs in other areas, so it's very cost effective as an approach. In addition, the Education Enterprise System is SIF (Schools Interoperability Framework) certified. Schools face some serious challenges in deploying various technologies because of a lack of interoperability. The SIF Association has created a set of rules and definitions which enable software programs from different companies to share information. This should be a very important consideration in the deployment of a cloud-based solution.

SECURITY

The protection of student and teacher information is an extremely important issue in education. The EMC Education Cloud includes significant levels of data security by combining OSSEC with technology from EMC's RSA® Security Division.

OSSEC is a free, open-source, host-based intrusion detection system (IDS) that will detect malicious attacks against the site. It performs log analysis, integrity checking, Microsoft Windows registry monitoring, rootkit detection, time-based alerting, and active response. It also provides intrusion detection for most operating systems, including Linux, OpenBSD, FreeBSD, Mac OS X, Solaris, and Windows. In addition, it has a centralized, cross-platform architecture allowing multiple systems to be easily monitored and managed.

Integrated with OSSEC, the RSA enVision® 3-in-1 platform further strengthens security. It offers an effective security and information event management (SIEM) and log management solution, and is capable of collecting and analyzing large amounts of data in real time, from any event source, in computing environments of any size. RSA enVision is easily scalable, eliminating the need for filtering to deploy agents. Over 1,600 customers, including major global enterprises and government agencies, have selected the RSA enVision 3-in-1 solution to simplify compliance, enhance security, and optimize IT and network operations.

COMPUTE AND STORAGE CAPABILITIES

Compute and storage resources include EMC's industry-leading technology. EMC can assist in the alignment of specific hardware and software based on the parameters that will lead to successful implementation as needed for any given school district, school consortium, or large scale hosted environment. Specific details will vary based on an organization's desired end state, number and type of external software systems (LMS, SIS, etc.), data bases, systems configurations, data warehousing, and other tools that might need to be integrated. Data importing and conversion are key activities in transitioning to a cloud-based environment and EMC can provide data conversion services.

ACCESS DEVICE SUPPORT

Users can access the EMC Education Cloud via Intel-based PCs, Apple MACs, tablets, and/or mobile phones. Thanks to EMC's virtual desktop solution, enabled by VMware® View™, users feel like they are "virtually" in front of the Education Cloud—no matter where they are physically. An add-on feature is the application "mash-up" capability offered by Stoneware. It enables users to interact with all education application functions through one single portal, from any of these devices.

CHARGEBACK AND REPORTING

The Education Cloud (which can be hosted at the state or regional level to service individual school districts) can use "charge backs" as a way for individual school districts to be billed for their use. For example, some schools might be more active users than others (adding large files, such as media content, etc.), while other schools may simply be larger (such as a 6,500 student district versus a 3,000 student district). Charge backs "apportion" costs based on actual usage levels.

SUMMARY

The K-12 Education model is changing. It's changing in response to the many and varied challenges that we all face in education, including how to improve student performance, enhance the delivery of educational services, strengthen teacher effectiveness, control costs, optimize resources, and make academic and IT resources more readily available. The EMC Education Cloud supports this instructional model change, providing superintendents and school districts with a new, robust, cost-efficient, and educationally proactive way to deliver results.

The EMC Education Cloud really isn't about "technology;" It's about "re-forming" education. Romeo Marquis, well-known teacher, principal, college dean, and educational consultant says it best: "Desktop devices, smart boards, laptops, WiFi, tablets, smart phones, learning software, and the like will not change student achievement unless and until we change how we function as teachers. We must help students learn how to think. That's first; and structures such as the EMC Education Cloud, leveraged in the hands of skillful teachers, can help us make a significant difference in the teaching and learning process."

ADDITIONAL INFORMATION

EMC Education Cloud sizing guidelines are based on workload lab testing by EMC and its partners.

EMC Education Cloud Configuration Guidelines*				
Size	Small	Medium	Large	Extra Large
Number of Users	~ 3,000	~ 8,000	~ 18,000	~ 30,000 ++
Product Information	EMC VNXe™ with SAS and/or SATA drives	EMC VNX™ with SAS and SATA drives	EMC VNX with FLASH, SAS, or SATA drives	VCE Vblock with FLASH, FC, and SATA drives

* These are guidelines only. Specific configurations will vary based on whether the infrastructure is dedicated to normal academic work or whether other applications or special needs are also being supported.

CONTACT US

To learn more about how EMC products, services, and solutions can help solve your business and IT challenges, contact your local representative or authorized reseller—or visit us at www.EMC.com.

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