

education appliance

enabling school 2.0



Case Study

Portuguese Public Schools Deploy the Critical Links education appliance in the Largest School Modernization Project Worldwide.

Ministry of Education, Portugal

The Client

The Education Technology Plan (ETP) is a key Program from the Ministry of Education for the technology modernization of Portuguese schools - www.escola.gov.pt/.

Gartner Research

"IT managers for school districts seek efficient solutions to manage the increasing of school PCs. Intel offers an infrastructure solution called the Integrated Education Appliance for Classmate PCs. It includes a network infrastructure server, security, centralized software and content storage for the classroom, information backup, system management, and maintenance diagnostics..."

Gartner Report: "Intel and McGraw-Hill Advance Digital Content with K-8 effort"

The Project

The Education Technology Plan (ETP) is the Program for the technology modernization of Portuguese schools - www.escola.gov.pt/. This comprehensive Plan is a brainchild of Premier Jose Socrates' Government and consists of three axes: Technology, Content and Training.

Content covers the development of portals for schools, an advanced institutional portal for the Ministry of Education, and special measures aimed at simplifying processes at schools and reducing bureaucracy. Training covers the training of school teachers on IT, IT internships and online assessment.

Within the Technology Axis the connection of Schools and classrooms to the internet along with the access to services plays a key role. The ETP goal is to place Portuguese schools in the top 5 most advanced school systems in Europe by 2010.

Simultaneously, the Magalhães initiative ("Magellan" in English, named after the Portuguese navigator) - <http://www.magalhaes.gov.pt> - deployed circa 500.000 specially built Intel classmatePC's produced by JP Sá Couto in Portugal.

The task of connecting all 8,300 schools through broadband was initiated in 1997 and concluded by 2006. The ETP currently in execution represents the next step into the next generation of digital schools, where broadband connectivity is leveraged through the access to content, collaboration and services thus completing the process initiated in 1997. By 2001, Portugal was one of the first European countries to have connected all of its schools to the internet.



"Critical Links education appliance combines, on a single platform, all of the network management tools and capabilities we wanted with both high quality and assured security allowing us to confidently focus only on the distribution of innovative content and services over the network. education appliance offers a suite of advanced services such as distributed storage, wireless communications, Voice over IP and Quality of Service Management that schools can leverage to easily deploy updated pedagogic software and to promote collaborative work among students, raising the teaching and learning experiences to a whole new level."

Pedro Ferreira - Member of the Board of Directors, UMIC-Knowledge Society Agency, Portuguese Government.

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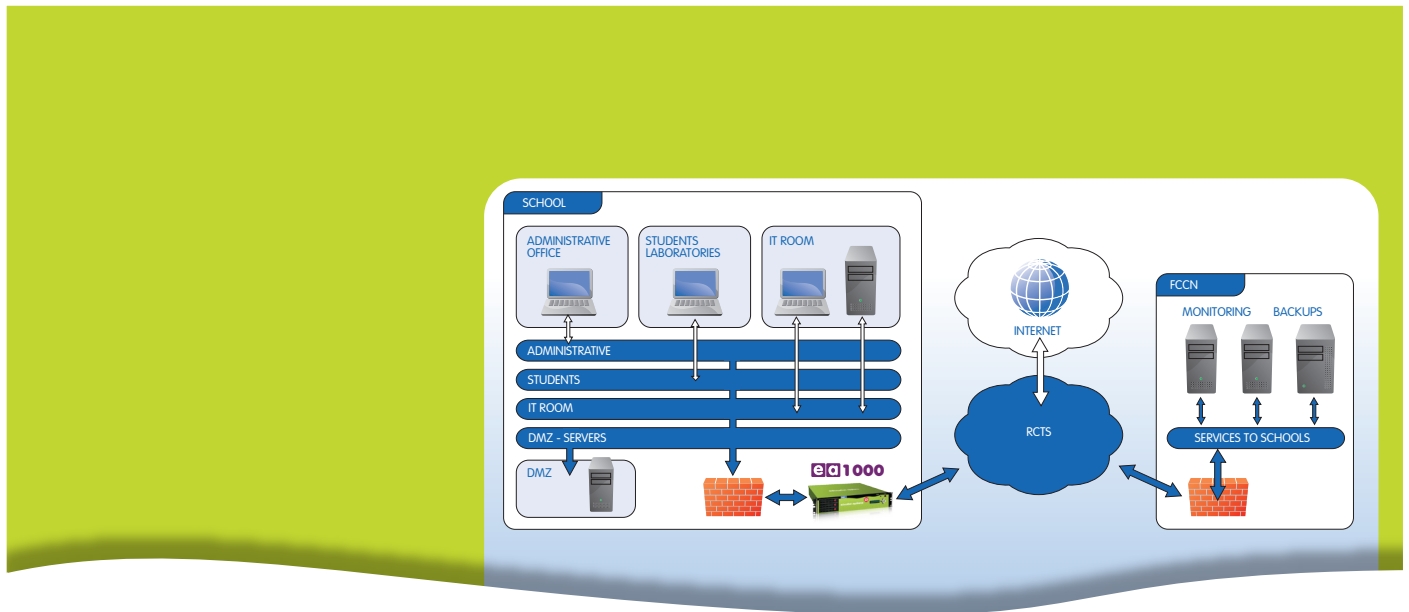


The challenge

In order to create a unified technology infrastructure network across all public schools in Portugal, a technology upgrade is needed in 7,000 schools. The goal is to put systems in place that grow with the individual needs of each institution, while providing a unified architecture, with centralized management capabilities and a low cost of ownership

The ambitious goals of the Education Technology Plan require a unified technology infrastructure network across all public schools. A technology upgrade was needed in 7,000 schools to put systems in place that would be flexible enough to grow with the individual needs of each institution, at the same time as being structured and coherent enough to provide the required unified architecture. Most importantly, however, the system needed centralized management capabilities with low cost of ownership. Cost was one of the biggest concerns along with ease of management since schools typically do not have internal IT staff.

The existing technology in Portuguese public school systems posed a clear challenge as an earlier study by the Ministry of Education reported that no standard solution was in place, resulting in an array of varying infrastructures individually administered by each school. Variable quality, poor security and inconsistent management policies were a few of the hurdles that needed to be overcome to complete its mission of implementing a unified architecture for all schools in Portugal.



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The solution

Critical Links education appliance ticked all the boxes by providing feature-rich networking services and simple remote management based on a scalable hardware platform, with the whole solution coming in at a very low price point, enabling Portuguese Government agencies to start the roll-out of such a large, standardized network

The school network has four subnets: Administrative, Laboratories, IT Rooms and (optionally) a DMZ for additional servers. Critical Links education appliance is located at the edge of the network, between the school LAN and the RCTS, which is the FCCN-managed national scientific network that has access to the Internet. FCCN manages all schools via the RCTS. Services include monitoring, backups and remote support.

The Education Technology Plan's daunting mission to roll-out such a large, standardized network became much simpler when they discovered the Critical Links education appliance. education appliance (eA 1000) provided everything they required out of a single box including advanced security, collaboration, storage, built-in QoS, a feature-rich IP-PBX and VoIP gateway. All the services are pre-configured and pre-integrated into just one device, delivering the low TCO required.

Critical Links education appliance ticked all the boxes by providing feature-rich networking services and simple remote management based on a scalable hardware platform, with the whole solution coming in at a very low price point.

Remote management is achieved through a single web-based, user-friendly interface which controls all the features of the education appliance and can be accessed on-site or remotely by a dedicated team in a central location such as a network operations centre. This reduces installation time and enables the establishments of service level agreements.

Additionally, the solution's dynamic and open architecture played a key role in Critical Links education appliance's inclusion in the project. education appliance's ability to incorporate new technologies as they become available and as the demands of the education sector change provides a future proof solution and protects the investment of the Ministry of Education. Despite being a single box solution, education appliance is packed full of advanced networking technologies normally only found in much larger and more expensive systems, including an IP-PBX, VoIP gateway, WiFi access point, 3G broadband support and the latest security systems. Services such as DHCP, NAT and DNS enable seamless integration with any type of network and simplify administration tasks. WiFi support also enables instant deployment of integrated network hot-spots and of LANs at "Greenfield" sites.

education appliance Educationally speaking...



Benefits

A technology partnership between Portuguese Government Agencies and Critical Links in which education appliance provided Portuguese junior high and high schools with a flexible yet standardized and centrally managed technology infrastructure for Internet and network communication needs at a competitive price.

Constant Communication

Critical Links education appliance is used to host Web-based applications that improve communication between students and professors. Staff and students have access to their e-mail via a secure Web application so they can keep up with coursework while away from the school and the forum application hosts online message boards where students and staff can discuss courses, homework assignments, as well as life at the school. Additionally, collaboration between schools allows for joint creation of education contents and Web pages. Communication, including voice and/or video-conferencing, between Portuguese schools and educational institutions in other parts of the World is simple and fast through education appliance's IP technology.

Personal Organisation

Along with the WebMail application, the solution integrates additional Web-based applications that assist in organizing personal and school life, making education appliance pivotal for communication between people as well as computers.

Content Publishing

education appliance's content management system makes it easy to publish and manage all internal and external Web pages, making them an ideal tool for online collaboration. User-friendly templates are provided to assist in creating Web pages so staff and students can concentrate on exchanging information and ideas rather than the details of HTML coding.

Course Management

As well as advanced networking services, education appliance can be used as an application platform with fully integrated authentication and access control. This has been used to incorporate a Learning Management System into education appliance which provides a whole range of features which help professors plan and manage courses and help students collaborate and learn online. Features include course management with modules for Assignments, Chat, Choice, Forums, Quizzes, Resources, Surveys and Workshops.

Virtual Learning Environments (VLEs)

education appliance supports the creation of effective VLEs providing blended learning opportunities for students. The online discussion tools encourage peer-to-peer networking and buddy learning which is essential for constructive learning. These environments have the potential to provide alternative collaborative learning opportunities compared to more traditional classroom-based pedagogical techniques. education appliance allows the tutor to create core resources and activities that guide the students to new opportunities for more effective learning experiences complementing the traditional approaches to teaching based only on a passive transfer of knowledge from teacher to student.

A Plethora of Possibilities

education appliance provides a wealth of possibilities in educational environments, including applications to improve internal and external communications, better organize course work and collaborate in new and exciting ways.



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Technically Speaking...

Availability

Critical Links education appliance locally hosts data and services to ensure that information is always available to the entire student body population at any time of the day, even if external connectivity is lost. For Web access, the solution also features content caching to ensure that Web pages are downloaded only once rather than repeatedly by each student, helping optimize available bandwidth on the school's Internet connection.

Access Security

Access to all network services through education appliance is controlled by passwords to provide greater security and accountability, while also filtering web sites, web pages and effectively controlling junk mail ensures that accessed material is appropriate for school use.

Cost-effective

Providing an integrated solution for ETP is important in reducing costs by reducing the number of servers and networking devices needed to deliver network services in addition to the time, effort and resources to integrate, configure, manage, maintain and support them. Centralized management means that costs are evenly distributed across the network of schools, seeing high quality at low prices.

Simple Administration

User accounts and simple administration tasks can be performed by a trained staff member on-site at the school. More complex tasks are carried out by a system administrator through a Web-portal, providing seamless management. To further simplify administration, specialized software can be used to monitor networks of education appliances installed at different locations through secure Internet connections. Changes can be made to a single education appliance or a group of appliances in a single step, greatly reducing the level of effort needed and cost of administration. When used with desktop management software, the education appliance allows daily administrative tasks to be performed remotely, safely and securely, thus allowing for a small group of administrators to effectively monitor numerous networks.

Easy Updates

Critical Links education appliance's software updates are made available through the Software Update Service, which can be configured to download and install all software releases automatically, ensuring that education appliance is always up to date and providing the highest level of security.

Lastly, the large scale deployment of the Critical Links education appliance was precluded by a 3-months pilot covering a total of 12 schools within different regions, with different sizes, and with different student profiles. The pilot was supported by UMIC (Knowledge Society Promotion Agency), involving FCCN (University Networks Agency) and CRIE (Ministry of Education). The aim was to evaluate the potential of the education appliance in the school environment by testing and refining all the features available and defining their preferred configuration for each specific situation. By 2008 more than 1,200 systems installations were in place. Ultimately, the project aims to deploy Critical Links education appliance-based computer networks covering about 7,000 + schools by 2010.

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Client Profile

The Education Technology Plan (ETP) is a key Program from the Ministry of Education for the technology modernization of Portuguese schools - www.escola.gov.pt/.
CRIE is a special task force within the ETP with a mandate to develop and evaluate initiatives concerned with the use of computers, networks and the Internet in schools and in the learning process.

Project Profile

This project entailed a technology partnership between UMIC, FCCN, CRIE and ETP and Critical Links in which education appliance provided Portuguese junior high and high schools with a flexible yet standardized and centrally managed technology and learning infrastructure for Internet and network communication needs at a competitive price.

Business Benefits

Comprehensive learning, networking and administration capabilities on a single appliance:

- Built-in router
- ADSL modem
- Wireless access point
- Network Access Control
- Latest Security services
- Collaboration tools
- WiFi support
- Built-in QoS
- Feature rich IP-PBX
- VoIP gateway
- Learning Management System, Learning Activity Management System, Wikis, Blogs, Chats
- SIS, Asset Management, Social Forums, School Conferencing, Single-Sign-On, Theft Deterrence
- Remote management, Content Management and Distribution

Solution Profile

- Centralized and cost effective management
- Customized and flexible data back-up strategy
- Centralized back-up
- Standardized technology
- Web collaboration and communication applications
- Network security and filtering
- Seamless network integration through DHCP, NAT, DNS
- Easy updates through Software Update Service
- Reduced bandwidth usage through web caching and traffic prioritization
- Online Learning Management System, LAMS
- Virtual Learning Environments (VLEs)
- Collaboration applications
- Personal organization applications
- Easy Web publishing
- Platform independence
- Leverages existing network investments

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About Critical Links

Critical Links is a pioneer in delivering innovative Learning, Networking and Administration solutions for Schools 2.0 – the next generation of Schools. Critical Links' Education Appliance portfolio (EA series) provides the learning, networking and administration tools necessary to support a highly interactive and content-rich educational experience. The EA series 60 and 100 appliances deliver e-learning platforms for up to 500 students, while the EA series 500 and 1000 provide scalable platforms that support sophisticated learning and ICT capabilities for schools of up to 3000 students. The Critical Links Education Appliance has been deployed globally including in the world's largest school modernization program. More information about the School 2.0 portfolio and Critical Links Education Appliance series can be found at <http://education.critical-links.com>

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