



To Transform Education,  
You Need A **Vision.**



## To Achieve The Vision, You Need A Plan.

### IMAGINE A SCHOOL...

#### Imagine a school...

...that addresses every student's individual learning style, with highly engaging online curriculum to thoroughly involve, challenge, and inspire them.

#### Imagine a school...

...where the learning process is invigorated by personalized feedback, proficiency reporting, and other innovative student performance data.

#### Imagine a school...

...that connects classes and experts from around the world; providing a Spanish class with a teacher in Madrid, and enabling a science class to experience an Arctic expedition in progress.

#### Imagine a school...

...that automatically communicates with all parents every day about homework assignments, attendance, and important school events.

#### Imagine a school...

...where bells, alarms, heating, lighting, and other building systems can be controlled and monitored from any location.

#### Imagine a school...

...that gives teachers effective productivity tools, to ensure that their administrative tasks don't take away from their classroom time.

#### Imagine a school...

...where wireless devices free teachers from the blackboard, enabling them to interact with every student in the entire class, to improve learning and class management.

#### Imagine a school...

...where every student carries a PDA or a laptop instead of a backpack; where entry to buildings is granted through a student ID card; where students have continuous access to equipment, online curriculum, schedules, library check out, messages, and entertainment, at any time, from any location.

#### Imagine a school...

...that provides teachers and staff with the information they need about students, scheduling, and administrative matters, around the clock, from anywhere—at home, on a field trip, or even from the soccer field.

**Thanks to technology, today's educators can transform education, bringing out the full potential in every teacher and student. This vision for education is only the beginning of what can be achieved by schools around the world—right now.**

**At Cisco Systems®, we believe that intelligently-applied technology holds the key to education transformation. With our education customers, we've developed Cisco Connected Learning—a plan that enables every school and school system of any size to make dramatic changes like these to their educational environments.**

**Innovative school leaders are starting to transform education and realize their vision of “connected schools.”**

### **Education: An Institution In Transition**

Even after years of school reforms and significant financial investments, student achievement continues to decline in many countries. Teachers have not been given the proper tools and training to meet ever-growing expectations. In addition, inconsistent standards combined with a lack of resources have further widened the performance gap.

Many of these problems can be attributed to the fact that current education systems reflect a model that goes all the way back to the Industrial Age. The “one size fits all” approach was suitable for its time, but it cannot provide the individualized education that each student needs to compete effectively in today's global information economy. Worse, it drowns teachers and staff in paper-based processes and repetitive tasks, draining badly-needed resources from the classroom.



**“The ed-tech community loves the term ‘integration.’ But our schools need transformation, not integration.”**

—Susan Patrick, Director of Educational Technology, U.S. Department of Education

#### THE 4 STEPS TO TRANSFORMATION

**STEP 1** Connect all school buildings and provide access to critical information.

**STEP 2** Implement network-based applications to improve administrative efficiency.

**STEP 3** Put teacher proficiency and productivity first.

**STEP 4** Create a student-centered learning environment to achieve academic excellence.

Since fundamental education processes have remained unchanged for decades, it’s easy to understand why schools have so many academic and administrative challenges. Faced with more pressing issues, many educators simply don’t have the time to make the changes necessary to overcome an outdated system.

However, there is hope. Innovative school leaders are starting to transform education and realize their vision of “connected schools.” They’ve implemented a step-by-step plan to transform education, and turn it into a system designed for the Information Age—or as we like to call it—the Imagination Age.

#### **Building Connected Schools**

To transform education, schools need to be connected within a district, state, or country. Then, everyone needs to be connected to the outside world, to build a truly connected community. In addition, the life that students live inside school must be linked to the one they live outside school. To ensure success, the following prerequisites must be met:

- Everyone within the school system must be in accord with the vision
- Forward-thinking champions must be identified to help build community support
- A funding strategy must be articulated

With the proper support in place, schools can move beyond basic technology integration, and turn their technical infrastructure into a valuable resource that supports administrative efficiency and academic excellence. They can achieve this by following Cisco Connected Learning’s step-by-step transformation plan.

## Enabling Transformation: Step-By-Step

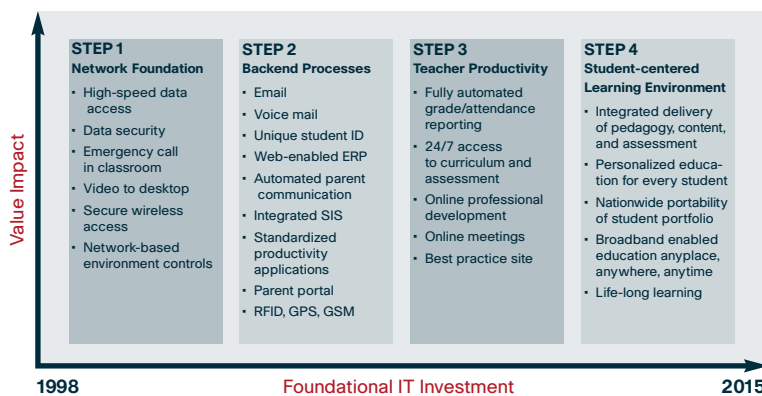
### STEP 1

#### Connect all school buildings and provide access to critical information.

Connected school systems require a reliable network foundation that can grow and evolve. Education officials must converge the multiple networks that exist today (telephone, videoconferencing, video streaming, intercom, data, security, etc.) into one robust IP infrastructure. This single network simplifies management and support, while offering additional services in a cost-effective manner. Concurrently, a wide-area network (WAN) must be deployed to connect all school buildings—and administrative offices—to each other, and to the Internet.

The converged IP network provides schools with:

- High-speed data (LAN) access, wireless and wired
- High-speed Internet (WAN) access
- Enhanced network security
- Voice network with IP telephony
- Video network with video streaming
- Delivery of exciting, media rich content



When forward-thinking planning officials design new buildings and retrofit older ones, they seek to implement a converged network and centralize all building control systems. This eliminates the expense and complexities of managing dozens of stand-alone systems (heating, ventilation and air conditioning, fire and safety, etc.) as well as the hundreds of individual components in each system (thermostats, clocks, sprinklers, etc.) The benefits of this strategy include:

- More efficient use of personnel
- Reduced capital and overall lifecycle costs of buildings
- Improved health, safety, and security

### Transformation Progress

### STEP 2

#### Implement network-based applications to improve administrative efficiency.

With network-based applications—accessible by all authorized users via the Internet—schools drastically improve the way they handle business transactions, reporting, and everyday operations. These applications increase efficiency, as they automate processes, eliminate inaccurate and duplicate entries into systems, enable comprehensive reports, allow staff to be more self-sufficient, and provide access to important data. The money saved on administrative costs can then be reinvested into the classroom. In this step, connected schools can deploy:

- Integrated student information systems, including grading, attendance, and personal data
- Web-based Human Resources (HR) and finance applications
- Unique student identifiers, which enable basic data warehousing and near-seamless student transfers between districts
- Standardized productivity applications
- Student ID cards, swiped for automatic attendance, building access, media checkout, lunch money balance, and more



**“Education and training are crucial for the future of the European Union. High quality and accessible education is essential for all citizens—future entrepreneurs, workers, researchers, i.e. all those who will contribute to the European knowledge society.”**

—Jān Figel, Member of the European Commission in charge of Education, Training, Culture and Multilingualism

- Radio Frequency Identification (RFID), for tracking assets such as books, computers, and more
- Global Positioning Systems (GPS), and Global System for Mobile (GSM) cellular, for student communication and Geographic Information Systems (GIS)

The new converged IP network also runs all communications systems, including voice, alarms, CCTV, bells, and paging, and enables more efficient contact between teachers, parents, students, and staff through:

- Unified messaging: e-mail comes through as voice mail and voice mail can be read as e-mail
- Autocommunicator systems, which automatically dial out to parents to deliver important messages
- Online parent portal, offering information about classes, homework, grades, schedules, lunch menus, and important school event

### STEP 3

**Put teacher productivity first.** Once administrative efficiencies have been achieved, education transformation will gain momentum by incorporating and automating technology into the classroom. Connected schools integrate information systems, curriculum, and 24-hour access to data, resulting in a more contiguous learning day. Applications that automate time-consuming processes free teachers from

## CONNECTED SCHOOL PROFILE

### BERGEN COUNTY, NEW JERSEY USA: Improving Education And Communications— District-Wide And Worldwide

To better serve its variety of special-needs students, ranging from learning-disabled to academically-advanced, New Jersey-based Bergen County Technical Schools (BCTS) wanted enhanced communications with parents, as well as better videoconferencing capabilities. To achieve these goals, BCTS implemented a Cisco converged IP network, and installed an IP phone system that supports video phone calls and IP videoconferencing. The district created an IP phone application, called the Household Communicator System, which automatically notifies parents every day (via phone calls and emails) about homework, student issues, and important school events. BCTS uses IP videoconferencing for virtual field trips, and IP video telephony for live online meetings and classes. The IP phone calls enable BCTS classes to connect live with classrooms in Jerusalem, the former Soviet Union, and Latin America, as part of a Global Leadership Exchange program.

the paperwork associated with attendance and grade recording. Moreover, when teachers are put at the forefront of IT investments, they master technologies first, and then assimilate them into the classroom, for huge productivity gains. Areas that this step addresses include:

- Applications, such as fully automated grade and attendance reporting and data warehousing
- Online professional development, at any time from any location
- Online district-wide meetings, eliminating travel time
- Virtual field trips, opening more resources for teachers to share with students
- PDAs, laptops, tablet PCs, and IP phones, for 24-hour, on-and off-campus access to student information, curriculum, assessment applications, and other resources
- A best-practice collaborative Web site, to share lesson plans, materials, and creative ideas, enabling professional learning communities
- Wireless electronic white boards that unchain teachers from the throne of the blackboard

### STEP 4

**Create a student-centered learning environment to attain academic excellence.** Once school districts have implemented Steps 1 through 3, they can deliver a truly individualized education model, enabling effective learning at any hour of the day or night, from anyplace on or off campus. Education can extend far beyond the school years, empowering students to grow throughout their adult lives.

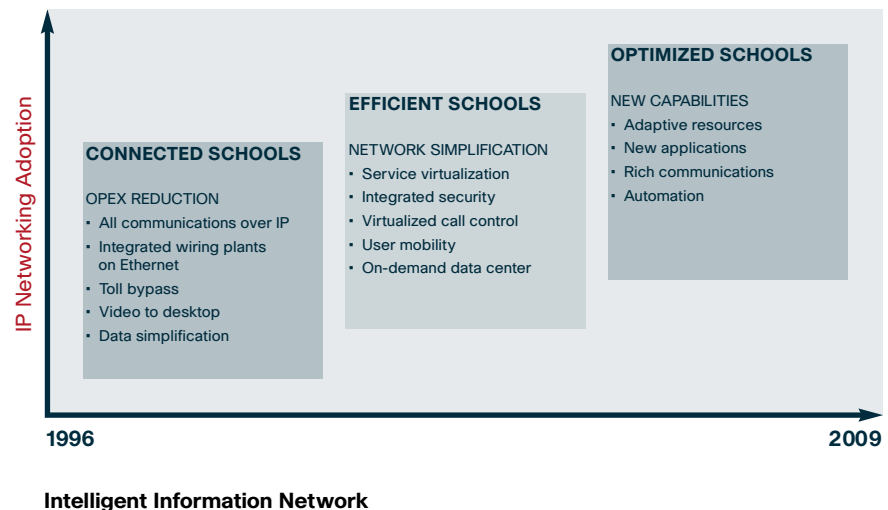
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The benefits gained by schools and students with this step include:

- Integrated delivery of pedagogy, content, and assessment
- A personalized, collaborative education for each student
- Broadband-enabled learning anywhere/anytime
- Nationwide portability of student portfolio
- Life-long learning
- Wireless laptops that bring ICT to students, rather than forcing students to go to the ICT

### Taking The Transformation Home

Connected schools benefit parents and students by extending the reach of education into the home, with Internet access, wireless communication, secure remote access, and PCs or other devices to access school and community services.





**“Across nations, there is a desire to revise the way we teach and learn in our schools and tertiary institutions, so that education remains relevant to a changing world, a world that is already very different from that which high school and university graduates entered just two decades ago. A world in which innovation and the willingness to experiment, more than knowledge, determines the well-being of nations.”**

—Tharman Shanmugaratnam, Minister of Education, Singapore

### **What Cisco Brings To The Transformation**

As the world’s leading provider of IP networking for schools, Cisco offers profound experience in technology that benefits both education and its administration. More than any other company, we know how to create a solid network foundation that supports the processes and systems required to get to the next level. And through our extensive relationships with third-party technology vendors, schools and districts are assured of everything they need to make this important move.

Our vision for connected learning is supported by our roadmap of the evolution of the network. It’s called the Cisco Intelligent Information Network, or IIN, and it will transform the way people work, live, play, and learn.

IIN begins with converged networks over an IP infrastructure, which becomes the foundation for integrated services. Security, mobility, and IP communications are embedded across the architecture. Networks are self-defending, wireless access is ubiquitous, and simplified voice and video capabilities are available from the start.

As these networks evolve, they not only support rich, context-based applications—they are actually aware of them. Each network will have the ability to make intelligent decisions

## CONNECTED SCHOOL PROFILE

### **SALFORD, UK: Raising Education Standards On A Single Network Foundation**

A former industrial city located in northwest England, Salford sought to improve education and skill levels for all its students. The Salford Local Education Authority and the city council decided that a network solution was required, in order to deliver multimedia-based e-learning solutions and provide a platform that could support future demand. Presently, a Cisco converged IP network infrastructure is in place, and IP telephony has been rolled out in Salford's 108 schools. Applications such as Microsoft Exchange and Cisco Unity unified messaging have eased the burden on administrative staff. Salford's schools are using videoconferencing to teach to ethnic minority groups throughout the city. Teachers, students, and staff are tapping into the National Grid for Learning to access high-quality information. A Content Delivery Network also allows Salford's schools to utilize rich media learning content from the Internet, from CD ROMs, and from local sources—without performance bottlenecks.

about applications delivery, based on who uses them and where. This Application-Oriented Network (AON) technology greatly reduces operating expenses, simplifies network management, and enables new services and capabilities to be introduced painlessly.

In addition to thought leadership for tomorrow, Cisco offers proven network architectures that are available today. Based on an Intelligent Information Network and leveraging Cisco's extensive vendor partnerships, these proven, enterprise-wide architectures are packaged and validated. They provide schools with design guidance for data centers, remote schools/offices, district campuses, and WAN connectivity. What's more, they offer the security and integration of advanced technology systems and applications across the entire IT infrastructure, to enable every school to protect, optimize, and grow its capabilities as a connected school.

### **Tools And Solutions For Academic Excellence And Administrative Efficiency**

As part of its four-step plan to enable educators to build connected schools, Cisco Connected Learning offers tools for designing tomorrow's education systems:

- **Cisco Virtual Classroom**, a rich media solution that enables voice, video, and Web conferencing, for better collaboration and interaction regardless of location
- **Network Assessments** help educators identify long-term goals, assess whether current technology will achieve those goals, and compare information from other schools throughout the world
- **Building A Connected School Environment white paper and poster** give technical decision-makers the detailed information they need to begin this transformation
- **Profiles of Connected Schools** (at [www.cisco.com/go/education](http://www.cisco.com/go/education)) shows how schools all over the world are leading education transformation

Cisco Connected Learning provides solutions to improve student achievement:

- **Cisco IP Videoconferencing** enables students to communicate with other students in their country or around the world, allows teachers and staff to attend meetings without travel, and brings in resources from outside
- **Cisco IP Video Streaming** facilitates media-rich learning, and allows schools to centralize their media resources, so every student can access any asset, regardless of which school they attend
- **Cisco Networking Academy** is a dynamic educational program that teaches students relevant technology skills, with high-quality, standards-based IT curriculum that's instructor facilitated, with hands-on labs and online assessments
- **Cisco Content Delivery Network** ensures that students at every school have access to exciting, media rich content, as well as simplifying tasks such as software distribution

In addition, Cisco Connected Learning delivers solutions that make the administrative side of education more efficient:

- **Cisco Connected Real Estate for Education** enables one converged network for all building control systems, resulting in cost savings and operational efficiencies
- **Cisco Direct Line for IP Communications** places IP phones in every classroom and office, to enhance communications, increase security, boost productivity, and save time and money



**“More and more the Internet is changing the way we work, live, play, and learn. This is especially true for education.”**

—John Chambers, President/CEO, Cisco Systems, Inc.

## CONNECTED SCHOOL PROFILE

### BRISBANE, AUSTRALIA: Connecting To Learning Resources— Without Wires

Located in the small town of Toowong, just outside Brisbane, Brisbane Boys' College is a day and board school serving 1,400 students. Its teachers wanted to use more innovative teaching methods that involved accessing the Internet, utilizing streaming video, and demonstrating software in real time. To enable fast, cost-effective network access, the IT department decided to deploy a high-bandwidth wireless local area network (WLAN) with Cisco wireless access points, which offered the same security, manageability and scalability as a wired LAN. Now, teachers and students are using wireless-enabled laptops, and can access the high-speed network from anywhere in the school. Teachers can quickly print, access and retrieve assignments, data, and files, and can conduct classes and easily carry out online searches and demonstrations. The new wireless network reduces infrastructure costs, and can rapidly accommodate the needs of teachers, relocations, and office or classroom reconfigurations.

- **Cisco Safe and Secure** uses digital video to monitor school buildings and grounds, while also providing network security and URL filtering
- **Cisco Secure Wireless** gives teachers, students, and staff secure access to network resources from anywhere, through PCs, laptops, tablet PCs, PDAs, and other devices
- **Data Center Networking** reduces operating costs and improves efficiency with centralized and virtualized Cisco Storage Area Networks

### Managing The Change

At Cisco, we know first-hand that education can be transformed, and that learning can become an individualized, exciting experience for all students, using the technology they know. Teachers can be given the tools, training, and resources they need to make an even bigger difference in the classroom, and schools can be freed from cumbersome administrative processes to become more efficient and cost-effective. We know all this because we're helping our school district customers around the world achieve these benefits—and numerous others—every day.

More and more, “the Internet is changing the way we work, live, play, and learn.”<sup>SM</sup>

This is especially true for education. Let us partner with you as your school system takes the first step to begin its transformation.

It's time for a change. And with Cisco Connected Learning, we can help you make it happen. To learn more, please contact your local Cisco representative or your Cisco reseller, or visit [www.cisco.com/go/education](http://www.cisco.com/go/education).



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