Customer Case Study

Closing the Gap Between Urban and Rural Schools

Borderless Network extends education in Russia beyond classroom, improving learning and inter-school collaboration.

**EXECUTIVE SUMMARY**

**Customer Name:** Ministry of Information Technology and Telecommunications  
**Industry:** Education  
**Location:** Republic of Tatarstan, Russia  
**Size:** 588,000 students and 30,000+ teachers

**CHALLENGE**
- Upgrade network resources in rural areas
- Improve educational access to dispersed population
- Enhance capabilities for video applications

**SOLUTION**
- Cisco Borderless Network architecture
- Cisco Motion, with Cisco CleanAir technology
- Cisco Medianet

**RESULTS**
- Equal learning opportunities for students, regardless of location
- Better use of teachers and learning resources
- Capability to share best practices and extend education beyond classroom

**Challenge**

Tatarstan is one of the most economically developed regions of Russia. The republic is highly industrialized and produces 32 million tonnes of crude oil per year, with estimated oil reserves in excess of 1 billion tonnes. Rather than relying on these assets for the region's future wealth, however, the government's vision is to maximize the prospects of citizens and their ability to compete in the digital world.

To achieve this transformation, Tatarstan decided to completely rethink the way that education was being delivered across a challenging demographic covering 68,000 square kilometres. The region has more than 2500 schools, but the population is quite dispersed: 72 percent live in cities and towns, with 28 percent residing in rural areas. Compared to their urban counterparts, many teachers and students at schools in rural locations were disadvantaged by aging network infrastructures, inadequate computer equipment, lack of training in information and communication technology (ICT), and restricted access to the Internet and educational resources.

Cisco co-operation with Tatarstan began in 2005, when Cisco and the Ministry of Information Technology and Telecommunications signed a memorandum of understanding to work together on creating a more dynamic and competitive knowledge-based economy.

This vision is far-reaching and multifaceted: to connect schools and educate teachers on the use of ICT; to implement IP-based applications to improve education services and administrative efficiency; to increase teacher proficiency and productivity; and to create a student-centric environment that will promote academic excellence.
Solution

Using a Cisco® Borderless Network architecture, Tatarstan has implemented a wireless solution, connecting 1600 schools with access to people, information, and tools, anytime, anywhere, on any device. The initiative, known as the Distance Education Project, is currently supported by 9000 Cisco Wireless Access Points, which effectively join together to form one single e-learning platform. The total number of Wireless Access Points will rise to 8000 in phase 2, when the solution is extended to a further 400 schools.

Tatarstan’s approach went beyond conventional thinking for enterprise Wi-Fi design, which tends to focus on basic voice and data connectivity. “One of the biggest challenges when designing education networks is how to provide an open and collaborative platform without compromising security,” says Azat Mubarakshin, project manager, Center of Information Technologies (CIT). “Cisco Borderless Network Architecture overcomes these issues by providing a unified approach to security. It meant we could protect all access methods (wired, wireless, and VPN) using powerful identity-based networking and user authentication services.”

Other reasons for choosing the Cisco architectural approach included reducing downtime and the risk of interference through use of Cisco Motion with Cisco CleanAir™ technology, which introduces spectrum-aware, self-healing, and self-optimizing capabilities. Schools can get more from their existing wireless investments, thanks to Cisco ClientLink, a pioneering technology in the Access Point that eliminates dead spots in coverage and enables faster speeds (on both uplink and downlink) for older devices. This feature is significant, because the majority of traffic, such as web browsing and file downloads, is in the downlink direction.

“When we compared Cisco’s architectural approach with other vendor solutions, there were clear advantages in terms of providing network readiness for cloud computing, video, and the secure delivery and processing of personal data,” says Almaz Valliulin, head of CIT.

Video was another important consideration. “Video is a key enabler for transforming education,” says Nikolay Kuznetsov, technical project lead, CIT. “However, Wi-Fi protocol is not set up to deal with multicast streaming. To prevent service deterioration for all users, we needed to find a way to reserve bandwidth.” These issues are eliminated by Cisco Medianet, which detects and recognizes the types of rich media traveling over fixed and wireless networks, and, if required, re-formats these video streams to help ensure they are properly transmitted to end devices in the most optimal way possible.

Results

Tatarstan’s wireless e-learning platform will help improve performance across all schools, not just a selective few. For one million citizens living in the region’s rural areas, it provides a step change by helping ensure, for the first time, social inclusion and equal access to the best teachers and educational resources.

As part of the Distance Education Project, teachers and students are provided with an email address. Once online, teachers can access an education portal and create virtual classrooms, so information can be shared and accessed regardless of the location of the students. The system also enables knowledge and expertise to be more easily exchanged between different schools.

Benefits include improved collaboration and access to personalized content and web-based tools that enrich learning, teaching, and administration. By improving coverage and service quality, the Cisco wireless network has transformed the roaming experience for students and staff, who are now able to enjoy consistent streaming of video and reliable, toll-quality voice.
Schools can showcase student video projects, deliver targeted content for new arrivals, and display emergency information updates to assist with incident management.

Parents have also noticed the difference and benefit from richer and more regular interactions with schools. As a result, they can keep better track of their child's progress and, if required, take corrective action faster and at an earlier stage.

Valliulin sums up: “With the Distance Education Project, we have taken a major step towards ensuring students are better prepared to pass exams and enter higher education, or full-time employment.”

For More Information

To learn more about Cisco is helping educators around the world to transform their schools, please go to: http://www.cisco.com/en/US/products/hw/wireless/index.html.