

## MARKET BRIEF

# Optical Networks: More Bandwidth for Learning

A class in a rural community asks questions during a Webcast with a world-renowned researcher on the other side of the country. School administrators transmit giant databases of student achievement data and detailed proposals for new teaching programs to state regulators. Teachers seeking certification or to update their skills take courses online without having to spend days away from the classroom. A parent who is working two jobs uses their PC to videoconference with a teacher about their child's progress.

All of these activities make a real difference in the quality of education students achieve. Each of them also require reliable, secure and scalable high-bandwidth networks. Across the country, many schools and school districts are migrating from older copper-based T-1 and T-3 networks to newer optical networks which deliver far more bandwidth.

These networks can link dozens, hundreds or thousands of PCs in multiple schools to the Internet. They allow students in multiple schools to view the same educational video or lecture at the same time. Students, faculty, staff as well as state and local officials can join Webcasts and conduct audio and video conferencing on any subject from disaster planning to implementing new curriculum. This high bandwidth also allows for the timely transfer of the large amounts of statistical data required by state and federal agencies about the performance and progress of students in schools.

High-bandwidth networks allow teachers to access curriculum, tests and other teaching resources over the Web, freeing them from repetitive tasks and giving them the time to become true learning facilitators. They also make it easier for teachers to attend their own distance learning courses, acquiring the credentials and advanced training they need to move forward in their careers.

### AT&T At Work: Enabling Learning

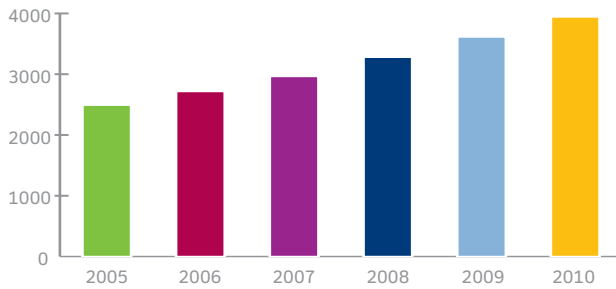
**Elementary School District 159 in south suburban Chicago began as a one room school house in 1859 and now encompasses six schools with state-of-the-art computer and networking technology. That includes high-bandwidth voice and data connectivity between the district office and the schools, as well as the use of thin-client technology to allow students to log in over the Web and use the same applications and resources they see in school.**

**When the district needed a network upgrade to accommodate these applications, it turned to AT&T to provide OPT-E-MAN® switched Ethernet service. This optical Ethernet metropolitan area network service will not only help provide secure, scalable access for students and administrators accessing critical applications and student records, but provide the bandwidth for advanced technologies such as Voice over Internet Protocol (VoIP). With VoIP, the school district has effectively made a telephone available on the desk of most teachers and staff members, increasing the availability of communication to all community members and parents.**

**"We strive to provide the most up-to-date technology available to our teachers and students, but funding limitations can make achieving that goal difficult," says district Technology Coordinator Robert Klemp. "We turned to AT&T to upgrade our existing network with the most effective long-term solution available."**



## K-12 Spending on Wireline Data Services To Grow 10% by 2010 (Millions of dollars)



CAGR (Compound Annual Growth Rate) 10%  
Source: In-Stat.

### AT&T Optical Services

AT&T offers a broad range of optical network services that provide almost any level of secure, reliable bandwidth whenever students, faculty or staff need it, while reducing management and administrative overhead for the district's IT staff. These scalable optical network solutions can also provide the bandwidth, flexibility and coverage required to support the many needs of education.

Optical services can be designed to work within a metropolitan area or over longer distances. They are a great fit for solutions like Voice over IP and video downloads which help schools and districts hold down spending, while offering the latest technology to students, faculty and staff.

AT&T's portfolio of optical switched Ethernet services allows districts to extend their Ethernet networks from the LANs within individual schools to networks serving the largest districts. These solutions allow districts to scale their bandwidth from two Mbits per second to a Gigabit per second as their capacity needs grow, usually without

### Key Benefits

**AT&T Optical Network Services help schools and school districts:**

- **Deliver distance learning, Webcasts and audio and video conferencing to teachers, faculty and staff**
- **Quickly adapt the network to changes in student population and bandwidth needs**
- **Reduce management and operation costs by simplifying the network infrastructure and**
- **Provide the scalable, secure bandwidth needed to provide advanced services such as VoIP**

expensive equipment upgrades. Their reliability is assured through AT&T's unsurpassed network management expertise and 24/7 network monitoring and management.

AT&T Ethernet private line services, including Ethernet over SONET networking solutions, improve network performance while reducing network complexity and the associated operating costs. They make it easy for districts to meet changing needs for bandwidth and to manage and support data-intensive applications such as videoconferencing. These services offer protection options, stringent service-level agreements and 24x7 monitoring with bandwidth ranging from one to ten Gigabits per second.

AT&T also provides a wide variety of services to help schools and districts qualify for and receive E-Rate funds. This includes help preparing E-Rate bids, and an on-line service for receiving E-Rate discounts.

**For more information contact your AT&T Representative or visit us at [www.att.com/edu](http://www.att.com/edu).**



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