



DELAWARE'S TRANSPARENT LAN SERVICES PROJECT

Information Communications Technology (ICT) Innovations

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EXECUTIVE SUMMARY
Information Communications Technology (ICT) Innovations

Transparent LAN Service (TLS) is a fiber-based access, switching and transport service that uses a shared backbone to provide high-speed network connections at relatively low cost. What does this mean to the non-technical person? Quite simply, it's a method of providing increased computing capacity for state organizations and more importantly, for Delaware's 19 public school districts and over 100,000 students.

Increased computing capacity via higher speed connections allows Delaware's schools to participate in numerous activities that were previously unavailable to them. Examples include the ability to participate in global educational videoconferences and to access the multitude of multi-media programs that are available on Internet 2. In addition, TLS also provides affordable ways for state government to implement disaster recovery activities and for our healthcare providers to connect their services to more rural facilities.

The Delaware Department of Technology and Information's (DTI) Telecommunications team installed new TLS circuits in 160 schools in less than three years. Each school was able to utilize the increased bandwidth capability as soon as its circuit and switches were installed, however, the entire TLS project began in 2005 and the final circuits were operational by the end of calendar year 2007.

Gary Hostetler, IT Manager for a northern Delaware school district said this about the benefits of TLS, "TLS has drastically improved how we do business. For example virus protection and patches can be applied in the daytime letting us shut down the computers at night instead of leaving them on to receive the updates. Previously trying to do that jammed up the small pipeline. That saves us money as we have a program that shuts down the computers and monitors at night. Our extensive internal website, our Blackboard learning system, the IEPplus program for special education, eSchool- sometimes the pipeline was so jammed that the teachers would lose their connections, file sharing, etc. All now have enough bandwidth to function properly and not time out as before TLS. We also run many educational programs that use online resources as well as inside the district. Those programs include the Read 180 program, Cognitive Tutor, Achieve 3000. All run through the routers and we have enough bandwidth for those programs to function correctly. Email used to come to a crawl because of a jammed router before TLS."

SECTION C BUSINESS PROBLEM AND SOLUTION

Delaware's 19 public school districts had long suffered from bandwidth issues and the problem was exacerbated when state government adopted an enterprise-wide time and labor application. As noted in the Executive Summary, it was not at all unusual for classroom teachers to lose their connections during peak usage periods in the school day, and District business offices were continually frustrated with incredibly slow connections to statewide accounting and time and labor systems.

Delaware state government and Verizon have enjoyed a long-standing positive relationship and out of this came the Transparent LAN Service (TLS) initiative. To make TLS services available, Telecom carriers must invest in a significantly expensive fiber-foundational infrastructure. This build-out means that TLS is cost prohibitive for many locations and is not available in many parts of the country.

Delaware's small geographic size contributed to the joint DTI/local Verizon team's effort to present Delaware as an ideal candidate for Verizon's investment. Once complete, the Verizon agreement allowed not only State and K-12 locations but all other Delaware sites the opportunity to expand services by utilizing the fiber infrastructure established. The project began in 2005 and was complete by the end of calendar year 2007.

SECTION D IMPROVEMENT IN GOVERNMENT OPERATIONS

Circuit reliability has improved by over 400% since migrating off copper-based Frame services to Fiber-based TLS. This consistent level of service allows state agencies the confidence to move critical services such as voice lines that historically have required separate connections.

TLS services are offered at cost significantly lower than other high-bandwidth connections. These capacity increases allow agencies to use network services more effectively, such as on-line collaborations with Federal partners.

Several agencies including Delaware's Budget Office, Departments of Labor, Health and Social Services and Transportation, as well as DTI, have moved voice services over to existing TLS data circuits. The Department of Health and Social Services (DHSS), for example, has connected dozens of DHSS facilities together using TLS. Cost savings are realized through reducing the number of leased circuits, simplifying and reducing hardware, and new services such as Session Initiation Protocol (SIP) that can be positioned over TLS to reduce or eliminate long distance toll charges.

As gas prices continue to rise, TLS provides even greater savings for state government as TLS connections for video conferencing reduce the number of cars on the road and the amount of unproductive work time driving across the State. Video over TLS has also eliminated the need for costly and inconsistent ISDN services. Traditionally ISDN lines were installed in addition to voice and data circuits at those locations requiring video conferencing, but ISDN circuits have a high failure rate, low capacity and require specialized equipment for use.

SECTION E PUBLIC VALUE

TLS has enabled schools to broadly use classroom tools such as United Streaming. United streaming provides teachers with digital media content and course work to incorporate into student learning environments. Teachers access video libraries of over 50,000 video segments and over 5,000 full-length educational videos. Prior to TLS, video services were blocked to protect the limited capacity of the wide-area network connection. Those limited streaming services that were supported were poor quality caused by the latency inherent in a Frame Relay connection. TLS has no, or minimal, latency, so video services are clear and responsive.

In addition to United Streaming, another highlight of the K-12 network is the Science Alliance. The Science Alliance is piloting the use of video services for science kit training. Currently, 4-5 teachers from Sussex County are saving time and mileage driving to Seaford Middle School rather than farther locations in Dover, the State Capitol. In addition to saving gas and time, the teachers are able to obtain different results for testing such as water sampling. This new information sharing with teachers across the state and through Internet2 would not have been possible if they were all at a single site. This program was acknowledged during Delaware's Secretary of Education's keynote address during the annual Educational Technology Conference as a way to save money during the current budget issues.