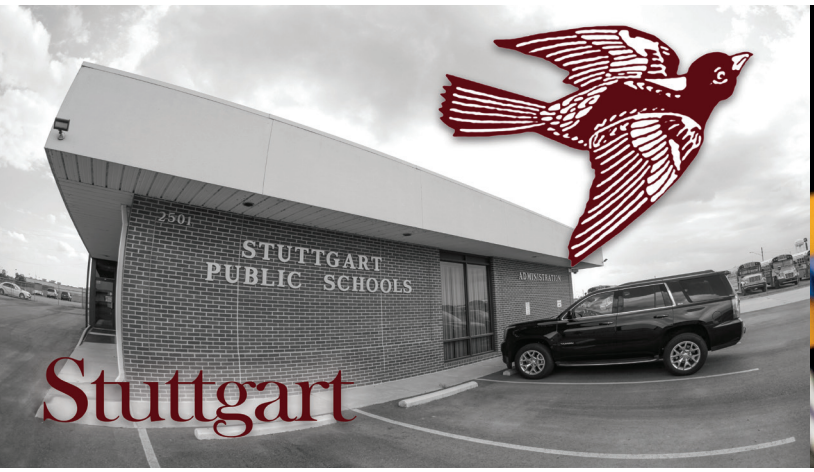
Case Study

AROONA provides a school district with better connectivity



The client's issue

The Stuttgart School District wishes to upgrade its entire network to 10 Gb/s in order to provide greater bandwidth capacity for ever increasing numbers of network connected devices. This will help improve delivery of instructional and administrative information to students, teachers and staff. The network is composed of OM1 fibers that are currently only able to carry information at a rate of 1 Gb/s. Network star topology complicates the installation process of new fibers as it increases the number of new cables needing to be installed.

The **AROONA** solution

CAILabs' AROONA-STAR solution provides existing multi-mode fibers with capacities of 10 Gb/s. With just one device installed at the network core, it enables the upgrade of several multi-mode links extending towards different remote sites, avoiding supplementary recabling work.

Benefits of the solution

4 links at 10 Gb/s with just one device at the network core

Potential savings compared to the recabling of multiple links for upgrading multi-mode fibers

No disruption of services during installation thanks to the use of spare fibers

Innovative teaching on an existing infrastructure

The Stuttgart School District serves more than 1,500 students from kindergarten through Grade 12 in Stuttgart, Arkansas (United States) and surrounding areas.

The Stuttgart School District strives to provide innovative technologies for its students such as a 1:1 computing program (one student, one computer) to help them develop the skills necessary for the 21st century. This program has caused an increase in the number of network connected devices, both desktop and wireless. An upgrade of the network capacity from 1 Gb/s to 10 Gb/s will help to maintain good quality of service for all of its users.

The various buildings on campus are connected by optical fibers; these fibers were deployed between the early 1990s and 2011, all of which are multi-mode fibers (OM1, 62.5/125 µm). With lengths upwards of 530 m [1750 ft], these fibers cannot support throughputs of more than 1 Gb/s. Thus, they constitute a bottleneck and obstacle to the entire network upgrade.

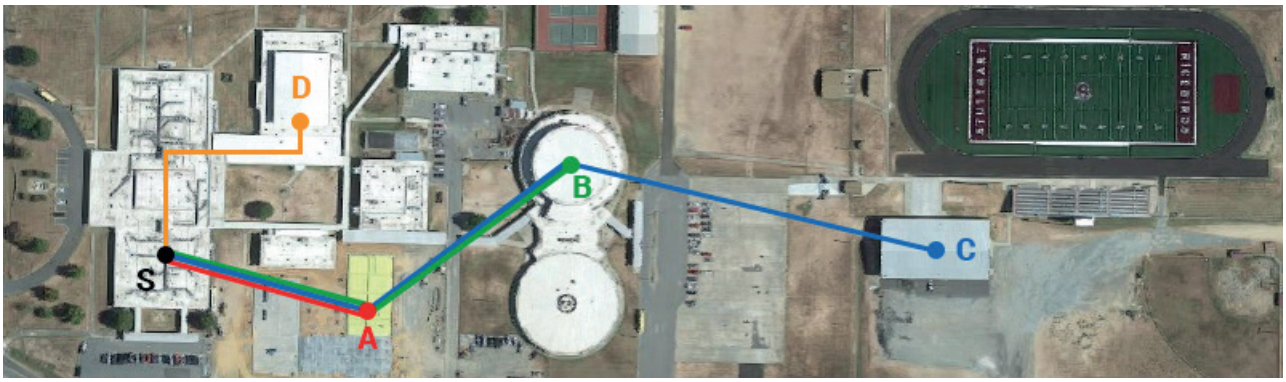
"With ever increasing demands on network infrastructure, school districts are looking for innovative and cost effective ways to upgrade. The AROONA solution could potentially provide significant savings and an economical way for us to reach our network bandwidth goals."

Billy Longnecker, Director of Technology
Stuttgart School District - Stuttgart, Arkansas (USA)

A complex network presents network upgrade challenges

During the planning process of a network infrastructure upgrade, an engineering firm Stuttgart Schools was working with found, through their research, the AROONA solution from CAILabs, and mentioned it to Billy Longnecker, Director of Technology, as a potential option for upgrading their 1 Gb/s fiber links to 10 Gb/s links. Mr. Longnecker made the decision to implement the AROONA solution for testing.

Given the star topology of the campus network, in which many fibers extend from the same network core to different buildings, the AROONA-STAR solution could potentially be used in the upgrade process. Instead of having to install multiple new single mode fiber cables, a few AROONA-STAR devices could be used. This could potentially provide for a significant cost savings.



AROONA-STAR at S. S to A link: 210 m [690 ft] - S to B link: 320 m [1050 ft] - S to C link: 533 m [1750 ft] - S to D link: 132 m [435 ft]

Several high-capacity links with just one device

The first AROONA-STAR device was installed at the network core of the high school and enabled the upgrade of 4 links as well as a 5th one ready to be put to use. This makes it possible for each of the links to carry 10 Gb/s, which range from 130 meters [430 ft] to 530 meters [1750 ft] in length. The installation was only carried out on spare fibers, making it possible to complete the upgrade without disrupting services.

After this first installation, the facility enters a test phase to verify the reliability of the 10 Gb/s connectivity across their network. Once this test phase has been satisfactorily completed, AROONA will then be considered a viable solution for the 10 Gb/s upgrade of the entire school district, which includes all school district sites that currently have fiber links. This upgrade to 10 Gb/s will improve network performance and provide better quality of service to students and staff.

Improved network infrastructure with our partner

WirelessPSC, LLC is an outsourced technical sales and marketing firm with expertise in manufacturers' representation, business development, market-entry consulting and product distribution services. The company serves the wireless industry throughout North America and select international markets with a complete and complementary partner offering. Key areas of focus include test & measurement, network infrastructure and specialized technical services. Founded in 2010, WirelessPSC has built a reputation on customer trust, support and industry expertise. WirelessPSC is a privately-held MBE/WBE certified company with offices in San Jose, CA and Frisco, TX.

Harness the full potential of optical fibers

CAILabs is a leading provider of innovative solutions designed to increase the capacity of optical fibers. We develop and manufacture a large range of light shaping components based on our patented, efficient and flexible Multi-Plane Light Conversion (MPLC) technology.
Worldwide telecommunication manufacturers and providers, such as Nokia, Cisco, Huawei and KDDI, trust our products to upgrade today's network infrastructure and create the networks of tomorrow.
At CAILabs, we help you make the most of your optical fibers!

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Shaping the light

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