COUNTY SCHOOLS DATA NETWORK EXPANSION

Future Proofing a 1G Data Network And Providing a 10G Migration Path

Executive Summary

KLM County Schools has decided to upgrade their data network to 1GigE speed, as their current network does not meet the district's growing need for more bandwidth. The school system requires a data system upgrade to run increasingly sophisticated applications between schools and the Board of Education. A consultant tasked by the school system to review several data technology upgrade options has determined that passive CWDM is the best solution to meet the district's needs. This proposed passive network will be unprotected until a second fiber route can be worked into the budget. It is forecasted that the 1GigE network will meet the schools' data transmission requirements for the next three years. After this period, the schools would like to change the data switch interfaces to 10G while continuing to use the passive CWDM units. The new 1GigE network must be in place by January 2010, before the new bandwidth-intensive software arrives at the Board of Education.

Once this conclusion had been reached, the school district's consultant contacted five vendors who manufacture passive CWDM equipment and requested a network design proposal along with a quote. All vendors were asked to quote a price for a four channel passive network with one channel designated to connect each school back to the main administration building. Two acceptable designs and quotes emerged from this request – one from the Z Company and one from C1. While

there were similarities in network design, the Z Company's price quote was 30 percent higher than the Champion ONE (C1) quote and offered a considerably shorter warranty period.

Alternative #1 represents Z Company's proposed passive CWDM network that does not require power and has an initial cost in the low six figures. This solution is expandable up to eight channels on two fiber strands, and the quote includes transceivers for one channel at each school plus maintenance spares. The Z Company's equipment carries a one year warranty.

Alternative #2 represents C1's passive CWDM network equipment that also does not require power to operate. It provides the required four channels in each fiber route as well as one channel for each school. Like Z Company's solution, the C1 solution is also scalable to eight channels on an in-service basis. While only one direction will be used initially, a one channel OADM is being placed at each school that can provide east and west connectivity, should the schools desire this feature in the future. The price quoted by C1 is 30 percent less expensive than Alternative #1 and has a cost that is a five figure sum. The C1 equipment has a five year warranty.

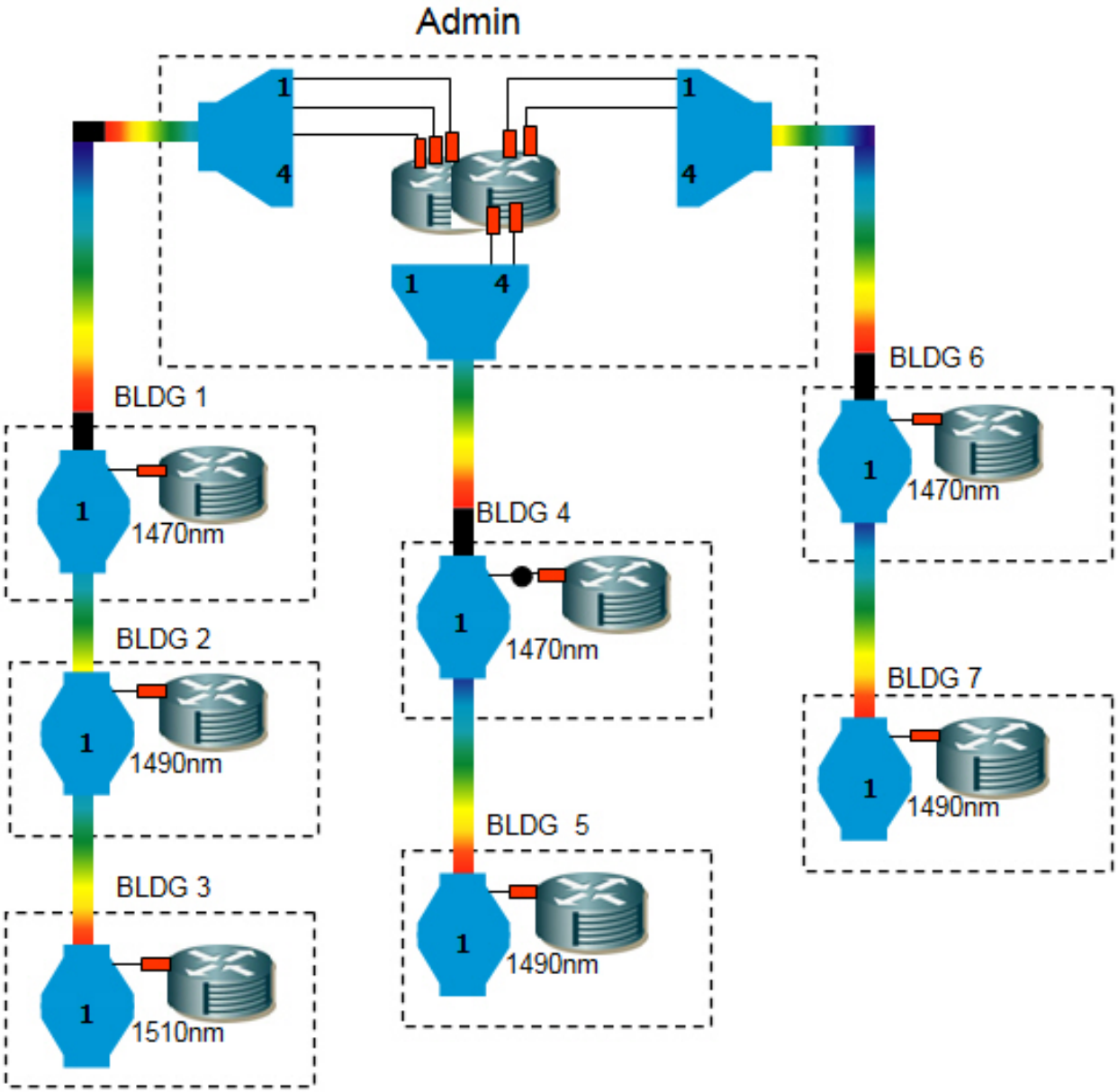
Recommendation

Based upon the initial cost of network installation and the quoted warranty periods, it is recommended that KLM County Schools proceed with the implementation of Alternative #2. This solution will satisfy the bandwidth requirements for the entire study period and while providing a lower-cost alternative that meets industry standards.

Business Opportunity

KLM County Schools requires the ability to connect its school and administration buildings together with a 1GigE data link. This new data link, larger than that of the existing system, will support the more sophisticated programs the school board plans to implement at the beginning of 2010. The upgraded network will also serve to relieve congestion on the data network, an issue which the schools are currently experiencing due to a heightened degree of use. It is forecasted that the updated network with satisfy demand for the next three years, after which time the data links are to be upgraded again to 10GigE using the same passive network. The new 1GigE network must be in place by the start of 2010.

Proposed Data Network



Project Schedule

Gather data from marketing study	- complete by end of April, 2009
Design new data network with one of our partners	- complete by end of May, 2009
Receive approval to move forward with project	- complete by June 12, 2009
Contact vendors and issue requirements	- complete by July 17, 2009
Receive completed responses	- complete by August 7, 2009
Submit business case for approval	- complete by August 28, 2009
Select vendor and award contract	- complete by September 11, 2009
Place equipment purchase order with vendor	- complete by September 25, 2009
Take delivery of equipment	- complete by November 20, 2009
Equipment ready for new service	- complete by December 22, 2009

Alternatives

The school district's consultant contacted five manufacturers of passive CWDM equipment in order to receive competitive quotes. There were ultimately two alternatives considered for the school system's project: installation of a passive CWDM network from Z Company or installation of a passive CWDM network from C1. C1 emerged from the proposal process with the winning design and quote.

Alternative #1

Alternative #1 represents the Z Company's passive CWDM network that does not require power and has an initial cost in the low six figures. This solution is expandable up to eight channels on two fiber strands, but allows the customer to start with four channels. Additional channels can be added on an in-service basis. Included in the price of network installation are transceivers for the first channel of each school in addition to maintenance spares. These transceivers plug into data switches and routers and are connected via fiber patch cable to the corresponding wavelength port on the MuxDemux units. The Z Company equipment comes with a one year warranty.

Benefits

Scalable to Eight Channels

The school system's consultant requested four channels, which this alternative provides. This solution is also scalable to eight channels.

Detriments

Higher Initial Cost

This solution is 30 percent more expensive than Alternative #2.

One Year Warranty Period

This solution comes with a one year warranty.

Alternative #2

Alternative #2 represents the C1 passive CWDM network that does not require power to operate. This network is scalable up to eight channels on two fiber strands, though the customer will install four channels initially. The CWDM transceivers connect to the switches, routers and MuxDemux units in the same fashion as Alternative #1. The cost of this solution for each building, including transceivers and maintenance spares, is almost 30 percent less than that of Alternative #1. The C1 equipment also comes with a five year warranty.

Benefits

Scalable to Eight Channels

Like Alternative #1, the C1 equipment can also scale in-service up to eight channels.

Lower Initial Cost

The C1 equipment costs 30 percent less than Alternative #1.

Longer Warranty Period

The C1 equipment has a five year warranty period.

Detriments

None identified.

Assumptions

There are a few underlying assumptions involved when analyzing this situation. The first assumption is that equipment pricing will hold steady for the next 12 months. The second assumption is that the bandwidth demand that is forecasted by each department will not fluctuate more than 30 percent during the next twelve months. The discount rate is five percent.

Project Description

In the event that the business case is approved, the director of the school system's planning department will generate a purchase order through the purchasing department. Purchasing will submit the purchase order to Champion ONE for the passive network that has been recommended as Alternative #2.

Champion ONE will ship the equipment to KLM County Schools within an agreed upon interval and will assist with the staging and on-site installation/testing. The testing phase should take less than 16 hours, or two work days. During the testing interval, Champion ONE will provide training to KLM County Schools' consultant, who will be maintaining the passive network.

Support via e-mail and telephone will be made available to the technicians at no charge, should it be necessary. On-site support beyond the 16 hours can be arranged at the regular rate.

The proposed passive network is designed to support up to eight CWDM channels between locations at the 1GigE and 10GigE rates. Alarm reporting and troubleshooting of the passive network will be accomplished by use of the Layer 2 and Layer 3 networks. The KLM County Schools' consultant will be monitoring the switch and router ports for these outside alarms.

Champion ONE
23645 Mercantile Road, Suite A
Beachwood, OH 44122
Phone: 800-860-7466
Fax: 216-831-2541
e-mail: sales@championone.net
www.championone.net

CHAMPION O·N·E™