

Technology Department July 2018

Summer Work

Summer work continues with all servers now fully patched and tested, firmware updates applied to our web filter, firewalls, switches. Part of the summer work is making the technology ready for our new teachers coming on board and that work is well underway as we get ready for those currently hired and our upcoming pending hires.

2019-20 E-rate cycle needs:

One of the things we have been diligently looking at is our current network needs around the district. We have taken great strides in addressing our backbone connections and now need to address needs taking the last step into the classrooms. Next generation wireless standards will call for upgraded wiring to support the additional data demands (whereas we have been able to use existing cabling in most locations for our existing wireless access points), the condition of network ports in many classrooms are still in fair condition but where needed will not support the higher network needs over the coming years. We'll be looking at proposals for e-rate to help rewire our buildings looking at the traditional copper methods of today as well as future proofing our wiring solutions with more forward optical fiber type solutions.

FSMC Conference

I had the opportunity to attend the Facilities Solutions and Management Consulting conference in Florence MT these past two days. It was a definite education experience to learn just how much technology has infused into the facilities arena. In a big picture the conference could be summed up into let's spend a little bit of money now to study things to do the right thing, decide and spend money to implement what's right, look at the savings in energy costs on your next power bill and plan so that the projected savings on the power bill will give you a reasonable ROI on your investment.

Hot topics:

LED Lighting - you've already heard one proposal about a possible LED lighting solution and potential payback on a performance contract basis. The general consensus was get with your utility provider for programs and rebate opportunities, look at the cost effectiveness of not just replacing tubes but entire fixtures, implement and look forward to a lower power bill. Northwest Energy has programs where they pay consultants to analyze your entire lighting solutions, provide installers and rebates on fixtures. We were actually in a classroom where the T8 fluorescent bulbs had been replaced with LED bulbs and a demo was provided that while the district will save money, how inefficient the solution was when compared to replacing the fixture with an LED panel. Cost savings realized in the typical panel going from 129 watts to 28 watts, 50% rebate on the fixture itself and cutting the fixture needs in the classroom in half due to the efficiencies in LED panel lighting.

System analytics -

It's all about technology helping to make things able to be analyzed and provide hard data for various building systems to project inefficiencies and efficiencies, failures, and ultimately giving projections when things need to be replaced based on current trends. One example cited was a

school with 10 year old boilers with an expected lifetime of 40 years. The analytics was able to show that if the boilers were replaced today with newer more efficient boilers they would pay for themselves in energy reduction costs in a little over 4 years. More importantly it's getting alarms out when system parts burn out, dampers that will not open or close properly or one of thousands of sensors that they can monitor for.

Emergency communications-

Always the hot topic with no one right answer. The consensus remains we need paging systems in our schools, the implementation of that whether through general paging systems like we have at most of our schools or through phone systems such as we do at KW and Vina are debatable. It's a discussion for district safety what those methods are to best meet the needs of the district. The good news is we now have other vendor solutions to explore for classroom communication needs.

And finally - Technology

Your technology directors around the country talk about moving data across our networks and when we're done talking about moving data, we talk about moving even more data. So with that in mind, the days of our copper and switch based networks while still working are becoming outdated in terms of how much data we can move. Many facilities (companies, schools, hospitals, etc.) have copper based networks typically capable of carrying a gigabyte of traffic on it's own, when others use the network those numbers can and do drop.

It's amazing how political our funding mechanisms are and e-rate is equally so. E-rate says we can replace switches and network cabling every 5 years and amazingly enough, most companies that sell switches have a 5 year life cycle and declare their equipment end of life after 5 years where you either gamble and keep using it or replace with new equipment. Enter GPON (Gigabyte Passive Optical Networks) - in a nutshell the several hundreds of strands of heavy copper cable, generating heat, laid in cabling trays to keep the weight off ceiling tiles and speed limitations are replaced by 1 or 2 strands of fiber glass that are durable, the diameter less than a string of yarn and can carry 28 terabytes of data across the glass. If you follow networking you've heard of cabling standards CAT3, CAT5, CAT5e, CAT6 and soon coming CAT8 - each outdoing the previous standard to carry more data but is still copper and will need to be replaced when the standards beyond CAT8 come out with no guarantees. Replacing with the GPON technology there are cost savings, improved abilities to carry data across the network. Short term cost savings are realized eliminating the many switches we run today and long term by having a network cabling solution that comes with 25 year to lifetime guarantees and not requiring recabling of buildings ever again. The best part is the GPON technologies are e-rateable so we can look to make things more efficient over the long term and address some of our current building re-wiring needs.