Technology Department
April 2017

It's budget time and here are ways the technology deployed in the school district has helped to save money over the past few years. Most of these savings arise from either electrical and labor savings. So while the technology budget may not directly see the benefit, I thought it important to show how the district overall benefits. Some of these cost savings have been a benefit to the technology budget where we are able to redeploy those dollars to the visible side of technology when we see it in our students hands or upgrading infrastructure to keep things as efficient as possible.

Servers

Over the past five years we have reduced the number of physical servers as well as replace them with more efficient servers requiring less power from the grid. We have also virtualized many of our server resources eliminating the need to run additional physical servers. In 2012 the district ran 9 main servers. These servers required 1500 watts from the grid. At a cost of 8 cents per KWh energy cost each of these servers cost $2.88 per day or $1050 per year per server to keep running. For the 9 servers that was approximately $9,500.

Today, we have eliminated and/or consolidated servers by putting those functions into the cloud or simply not requiring them any longer as technology advances. Examples were the Groupwise e-mail server replaced by our use of Google's e-mail services ($1,050 electrical, $5000 replacement server every 5 years, $3000 per annum licensing). A content media server that was rarely utilized was taken off line. Our Destiny Library Card Catalog was migrated from our own server to being hosted with Follett. We have virtualized our time clock and accounting software along with our directory/authentication services onto one server and several other back end technologies such as our DHCP, DNS, KMS.

All total, we now run 4 servers only requiring 400 watts. Doing similar math, these servers require $280/year or approximately $1120 per year for the 4 servers.

Electrical savings: $8,380/annum Licensing: $3,000/annum Hardware: $9,000 per 5 years

Switches

Switches are the highways of data flowing through the air and wires in the school district. Similarly to our servers, switches are more fuel efficient than those of yesterday. The district currently runs 37 switches on 100 watt power supplies requiring an annual electrical budget of approximately $2,600. Our old switches depending on its model required 300 watts to 1200 watts. Replacing the 32 inefficient switches had an annual utility budget just short of $18,000.

Electrical savings: $15,400/annum

Going Mobile

One might not think about the benefits of a mobile teaching staff in the district. Historically each teacher was assigned a desktop computer for their classroom and a standard desktop computer is a power hog requiring 300 watts/hour compared to the power requirement of a typical Macbook requiring 19 watts/hour that all teachers have been assigned. Over the course of 187 teacher days, approximately 200 certified staff members and multiply this by an 8 hour work day (and let's be honest, we have several teachers known to never turn their desktop computers off) the savings works out to $34 per system/staff member or $6700 for the year.

Electrical savings: $6,700

Holding the line on labor/staff

When last surveyed in 2014, we were the leanest tech department in the state for Class A schools that responded. How do we hold the line on requesting additional staff? There are multiple reasons but primarily it is the tech tools we choose to deploy into the classrooms combined with the backend systems to manage everything.

Windows laptops - many districts deploy several windows laptops into their districts for student use. Windows is a high maintenance operating system in the tech industry and we're able to hold the line by keeping deployed windows laptops to a minimum. One of our chosen tech tools are chromebooks which we have 2,100 deployed. If these were windows systems we would have 2 options with our current staff - have stacks and stacks of windows laptops needing repair and therefore not available for student use, or asking you for another 2 to 4 tech's just to keep them running.

Chromebooks - as mentioned, we have 2,100 chromebooks deployed. With the purchase of each chromebook, we also purchase a management license to manage the chromebooks from our Google Apps for Education system. Once we set the chromebook up, typically taking 2-3 minutes because it takes 2-½ minutes to unbox the system, we hand off the chromebook and the tech department hands may never touch it again. One example of the efficiency gained on the chromebooks is the annual setup of the secure browser for our SBAC testing. On 2,100 chromebooks, we log into our Google Apps system, go to device settings, press a couple of buttons to install the browser and hit save. Time spent, about 3 minutes. This same process on windows systems is a 2 to 3 minute process - PER SYSTEM even taking advantage of the various backend windows management tools available to us.

Apple Ecosystem products (iPads, Macbooks) - we now have systems in place for iPads where the tech department has a zero touch system. With a few mouse clicks in our management system, iPads and Macbooks can be shipped directly to a school, opened by their staff, enrolled and usable in just a few minutes.

Backend management - there are many things we do with backend systems that allow us to automate many things not requiring daily attention from tech. Yes, some of these require dollars from the discretionary budget, but unlike labor do not incur related costs such as payroll taxes, health insurance or workers comp.

>>Windows - our windows servers deploy what is known as Group Policy - this allows us to setup many things in the background such as installing printers, installing some software and setting common policies across the environment such as browser home page settings. Microsoft is always making improvements and we tweak settings as they are released. Possibly in 2018 the zero touch setup will be possible the same as it is for Apple devices today.

>>Apple devices - we use a company called JAMF to manage all our Apple iPads and Macbooks. Tools are available on the backend to push settings out including wifi settings, applications, etc. Also available on both platforms is a tool called Self Service which allows the user to open the application and install their own applications from the approximate 500 applications we have available in the library to install. The possibilities of the Apple ConnectED grant would either have not been possible without this valuable resource or we would have requested a staff person just to manage our fleet of Apple devices.

>>Google Apps for Education - is heavily supported by Google and allows us to manage our fleet of 2,100 Chromebooks with literally just a few mouse clicks when needed. Elementary needs to change their home page for the students signing in - click, click, click and within a couple of minutes, 300 Elementary chromebooks have a new home page without the need to visit each one. Napi requests no youtube on the chromebooks - again a couple of mouse clicks and within a minute or two, we have addressed the need.

It's a wildcard to know how many additional staff would be required if the district stayed in the more comfortable/traditional of you can have exactly what you want as long as it's Windows. I would state that these backend systems have allowed us to continue running lean and mean and potentially not requiring the hiring of an additional 3, if not 4 or 5 staff members to the payroll.