February 2020 Technology Committee:

Minutes:
Present - Aaron Brayall, Matt Krohn, Lindsay Murray, Cheryl Kaake, Bob Strobel, Andrea O'Neil
Opened at 400PM on 17 February 2020.

Discussion was held on bandwidth. We have 100Mbps, and have maxed it out at times. We discussed planning tools, usage, and electronic needs of curriculum. Planning for the future, the committee assented that 400Mbps for a 3 year contract is the goal going forward.

The refresh cycle from the Technology Plan was reviewed with respect to E-Rate funding. That formula starting in the 2020-21 school year is $167 per student which works out to be ~$107,000 given current enrollment. The refresh cycle for e-ratable items will spend around $92,000 of that allocation.

Meeting closed at 445PM.

Materials presented:
- Bandwidth usage
  - During NWEA testing, we maxed our bandwidth: 105Mbps with half the school testing at once.
  - We sustain on daily average ~30Mbps
  - Daily peaks go to 60-80Mbps
  - Current typical bandwidth needs **are** met for the vast majority of the school year
  - *Given our teaching goals (follows), are we at a point of upgrading in 20-21? 21-22? And by how much?*

Network Essentials for School Board Members By Content Team -

December 3, 2019 (*from educationsuperhighway.org*)

School board members play an important role in school districts' ability to improve the level and quality of digital learning opportunities in the classroom. With that in mind, here's a guide to assess school district network needs and implement affordable broadband upgrades.

School Network Structure

With a good grasp of the fundamentals of a district's network setup, school board members will be better prepared to communicate with their superintendent and tech leaders.

How Much Bandwidth Should Your School Board Plan for?

As you consider your funding plan, think of bandwidth as the amount of data that can be delivered to each student. *For example, today, students need a minimum of 100 kbps of Internet bandwidth—the FCC has anticipated that by 2018, 1 Mbps per student will be the minimum recommended bandwidth for digital learning.*

Your upgrade plan should include an estimate of your bandwidth needs for two to three years, as well as options for increasing bandwidth within that timeframe, if necessary. It is important to keep in mind that according to our network experts, the demand for bandwidth is growing at approximately 50% every year.

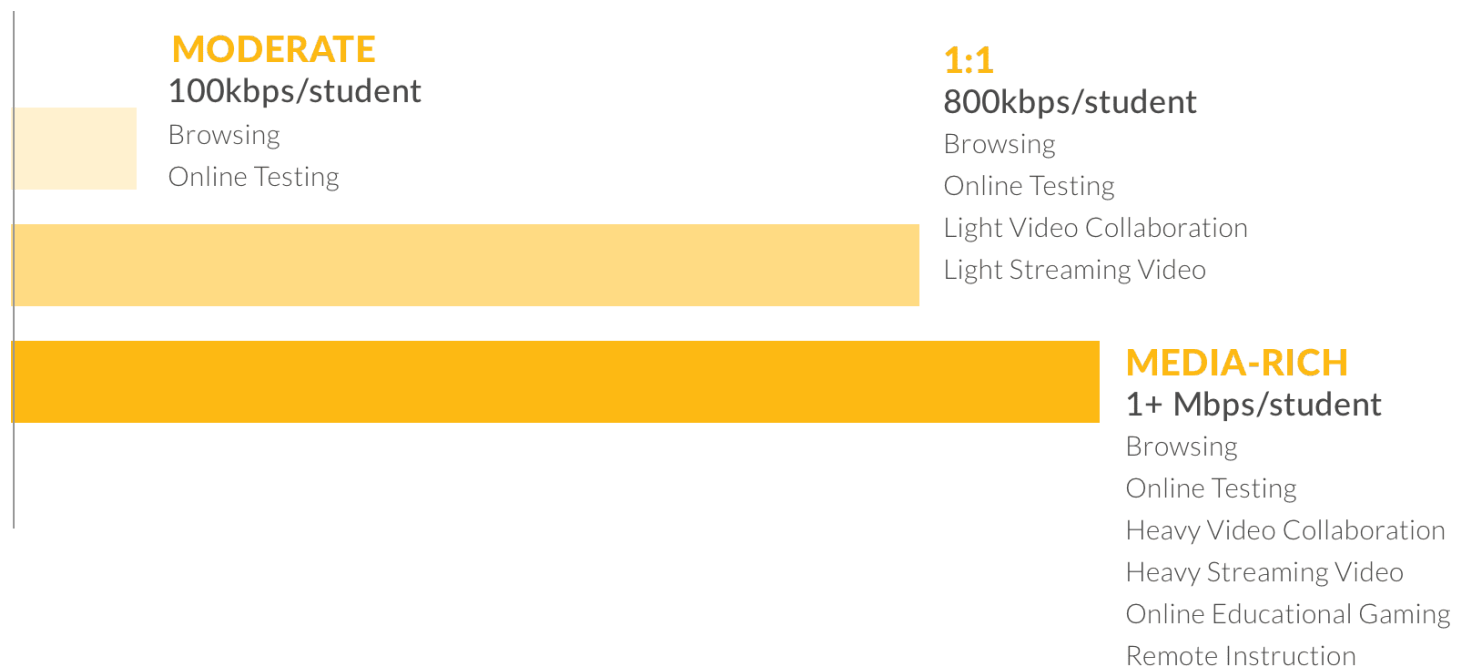In a school environment, the two main drivers of how much network bandwidth you need are:

1. The number of devices like tablets, laptops, and smartphones your network is supporting.

a.) To address this, take a tally of the number of devices that will access your network on a regular basis. Bear in mind that if your district has a Bring Your Own Device ("BYOD") policy or a guest network, many students, teachers, and visitors will bring one or more devices of their own to your network.

- *We typically support over 240 staff devices and 700 student devices per day.*

2. How often these devices will be used.

a.) This is a direct reflection of your district's learning goals. The chart below outlines three general usage scenarios and the bandwidth necessary to support each of the various digital learning environments.

MODERATE
100kbps/student
Browsing
Online Testing

1:1
800kbps/student
Browsing
Online Testing
Light Video Collaboration
Light Streaming Video

MEDIA-RICH
1+ Mbps/student
Browsing
Online Testing
Heavy Video Collaboration
Heavy Streaming Video
Online Educational Gaming
Remote Instruction

What are your learning goals?

INDIVIDUAL CLASSROOM TECHNOLOGY USE	EVERYDAY 1:1 CAMPUS-WIDE TECHNOLOGY USE	MEDIA-RICH TECHNOLOGY USE
• Basic network infrastructure for the school is in place, additional classroom use is typically approved by staff and curriculum development. • Sufficient infrastructure and devices	• Technology is widely available, most students interact with a computing device most school days. • All teachers have basic digital literacy.	• Every student has a technology-enabled learning experience during the school day. • Video and other rich media are used as a crucial part of the everyday learning experience

While there are other factors that may affect the amount of bandwidth your district needs—cloud-based applications, storage, online assessments, etc.—having enough bandwidth to support your district's in-classroom goals is the foundation for helping your fellow school board members plan your network upgrade.

How to Fund Network Upgrades

After gaining a better understanding of a typical district's network infrastructure, it is critical to determine the amount of bandwidth needed to support your district's learning goals, and how you can get that amount of bandwidth affordably. Here are three key funding sources that can help:

1. **The FCC's federal E-rate program provides public schools and libraries with funding for Internet services. Through an annual application process, school districts can request funding for the infrastructure and implementation of broadband and Wi-Fi.**
2. **Many states offer matching funds, through which school districts can increase their savings considerably. When a state provides funding for school broadband construction, the E-rate program can provide up to an additional 10% in funding to that school district.**
3. **One of the greatest benefits of the E-rate's 2014 modernization was the inclusion of billions of dollars in Category 2 funding, which covers the costs of Wi-Fi implementation. The funds amount to $150 per student, and many states still have millions of unspent Wi-Fi dollars.**

To calculate your costs, you can use free tools like Compare & Connect K-12 to see how much similar districts are paying for their broadband and Wi-Fi access. Leveraging price transparency is critical, because it will enable you to stand on firm footing when you are searching for a service provider and, eventually, negotiating the terms of your contract.

Notes on E-Rate:

For SY21-22, the total 5 year allocation is $167 per 645 students = $107,715.