Network Infrastructure to Protect Data and Instruction
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About SDPC

Dr. Danny Merck, Superintendent
Dr. Brian Swords, Chairman
Mr. Shannon Haskett, Vice-Chairman
Mrs. Betty Garrison, Secretary
Mrs. Betty Bagley
Mr. Phillip Bowers
Mrs. Karla Kelley
About SDPC

14 Elementary Schools
5 Middle Schools
4 High Schools
1 Career and Technology Center

16,000 Students
Technology Supports Instruction
Vision: Technology Supports Instruction

- Instructional Innovation
- Technology enables and supports innovation
- Digital Ecosystem (focus on interoperability)
  - Single Sign-On - Classlink
  - Central LMS as a key part of our digital ecosystem - Schoology
  - Learning Object Repository - Safari Montage
- Tech It Home: 1:1 in grades 4-12
- Our instructors focus on educational innovation like…
  - Flipped classrooms
  - Personalized instruction
  - Reaching homebound and home-based students

This ultimately has driven student engagement/achievement.
Know Your Network
Digital Ecosystem

District/School Content
- Pacing Guides
- Support Docs
- Schoology Groups

Core Content Providers
- Proprietary Platforms

Supplemental Content Providers
- LTI and APIs

Data Stores
- PowerSchool
- Lunchbox
- Enrich
- Other

Learning Evidence/Performance Data

Infrastructure/Bandwidth
- Antivirus Software
- ESET NOD32, Webroot, AVAST

Security Web Filtering

ClassLink
Safari Montage
Schoology
Do your homework!

Identify your **critical systems**!
Chart your **data flow**!

4 years ago we had 11 systems with no backup. Today that is 3 systems.
Know Your Risks
Hire outside auditors!

External Security Audit
Internal Security Audit
Google Audit
Cyber Security Insurance
Develop a Plan
Plan

Business Continuity Plan
Disaster Recovery RFP
Build a Better Solution
Build First-Class Infrastructure

Hybrid-cloud backup system
Build First-Class Infrastructure

Hybrid-cloud backup system
Leased Dark Fiber Network
Internet 2
Data Center
The Broadband Imperative II: 
Equitable Access for Learning  

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<thead>
<tr>
<th>INTERNET TARGETS</th>
<th>2020-2021 Targets</th>
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<tbody>
<tr>
<td>Small School District (Fewer than 1,000 students)</td>
<td>At least 4.3 Mbps per user (Minimum 300 Mbps for district)</td>
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<tr>
<td>Medium Sized School District (3,000 students)</td>
<td>At least 3.0 Gbps per 1,000 users</td>
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<tr>
<td>Large School District (10,000 students)</td>
<td>At least 2.0 Gbps per 1,000 Users (SDPC - 36 Gbps)</td>
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^Published by SETDA 2012; Adopted by the FCC in 2014  
https://www.fcc.gov/general/summary-e-rate-modernization-order  
*User: students, teachers, administrators, staff, and guests
**The Broadband Imperative II:**

**Equitable Access for Learning** ([SETDA](https://www.setda.org))

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<th>WAN TARGETS</th>
<th>2020-2021 Targets</th>
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| Connections to each school to link to the internet via a district aggregation point and for in-house administrative functions | At least 10 Gbps per 1,000 users  
*(SDPC 3-13 Gbps per school)*                                                                   |
| *User: students, teachers, administrators, staff, and guests*                                    |                                                                                  |
Overview

Category 1 Special Construction Costs
Category 1 Monthly Recurring Costs
Process

- Hire an expert consultant. Education Partners Solution, Inc.
- Meet with local fiber providers including rural cooperatives
- Network Design Options
- RFP Process
  - Lit Options
  - Dark Fiber
Funding Options: Our ROI is 7 years 9 months

- Existing Circuits
- Existing Hardware and Power Costs
  - AD Servers
  - DHCP/DNS
  - Caching Servers
  - Virtualized Labs
  - Consolidate VOIP Routers
- Consider off-site carrier-neutral data center
- Consider Internet2 Services

You may be surprised at what the state-provided network actually costs!
Protect Data
Data Security

Student Web Apps and COPPA
OneRoster
LTI Advantage
Secure Logins (QR Codes for K-1)
Supporting Safe Buildings
Safe Buildings - Buy time to react!

- SROs in all buildings - cars parked out front
- Frequent Training
- Modified Lockdown
- Safe Rooms
- A1 Phone - Secure Entrances
- Badge Card Access

- E911 - CISCO Phones
- Security cameras with fully digital camera system
  - Exterior Doors
  - Blind Spots
  - Hallways
  - High Traffic Ways
So what?
It’s not just about safety. It’s about time!

- 10 minutes a day adds 30 instructional hours back to one teacher’s class!
- If we can test in week 3 of the window and do make-ups in week 4, we have given two instructional weeks to every child!
- At a minimum, we are adding 3 weeks of instruction prior to high-stakes assessments by thoughtfully designing our network infrastructure and digital ecosystem.
90 hours
$9.3 Million
How do we do this?

- We have an educated/informed school board that puts students at the center. *(CIP)*
- Superintendent who supports innovation and “out of the box” thinking.
- We are connected nationally and internationally, and not just in our state.
- We have a collaborative culture
  - Senior Leadership, District Leadership
  - Departments work together! Instruction, Technology, Finance, and Operations

It starts with YOU!
From Good to Great!

**INSTRUCTIONAL TASKS**
- Video Conferencing
- Incorporate emphasis on problem solving, collaboration, rigorous real-world tasks
- Focus on balancing screen time with joyful learning
- Web Apps - Wild, Wild, West
- Instructional Dashboard

**ADMIN TASKS**
- Administrative Dashboard
- Data Security Policy
- Penetration Testing
- Incident Response
- Ongoing vulnerability scans
- 2 Factor Authentication

This ultimately will further drive student engagement/achievement.
If they aren’t talking about us, it’s a good thing!
Questions