

Savannah-Chatham District Technology Plan 2016 – 2019



DATA AND ACCOUNTABILITY DIVISION
SAVANNAH-CHATHAM COUNTY
PUBLIC SCHOOL SYSTEM

INTRODUCTION

The Savannah-Chatham County Public School System (SCCPSS) consists of schools primarily for grades pre-kindergarten through twelve and serves more than 37,000 students. The district employs more than 5,000 full-time employees, nearly 3,000 of which are classroom teachers and other certified personnel. The high schools are accredited by the Southern Association of Colleges and Schools Council on Accreditation and School Improvement (SACS CASI), and the middle and elementary schools are accredited by the Georgia Accrediting Commission (GAC).

The district operates 55 schools and 4 alternative education centers. The district also has 2 other educational centers: Massie Heritage Center, a preserved historic school, and Oatland Island Wildlife Center, an environmental education complex.

SCCPSS is committed to moving forward and ensuring that all students are prepared with the necessary skills and knowledge to enter the workforce or continue to post-secondary education. To support this commitment, the Passport to Excellence 2020 Strategic Business Plan (P2E2020SBP) was implemented. This plan helps to focus our work and is closely monitored by our District Accountability System – Reporting, Evaluating, and Monitoring Instrument (DAS-REMI). The DAS-REMI is a data-driven accountability manual that provides a straightforward, measurable, transparent tool for assessing the district's performance on the Strategic Business Plan.

Together, these two instruments define the district's strategic plan: a vision for teaching and learning, a call to action, and a monitoring system to show our progress. These tools provide the essential link between the established goals and the day-to-day operation of the district. The Technology Plan is designed to complement and support the goals and objectives of the Passport to Excellence 2020 Strategic Business Plan.

TECHNOLOGY PLAN

The potential exists for technology to be at the core in almost every phase of work that we do. We are all responsible for leveraging technology so it provides engaging and powerful learning in the classroom and also efficiencies to the school system's operations. Modern technology tools enable the district to cut costs, improve instructional and administrative services, and bring us closer to those we serve. Today, more than ever, technology is transforming the teaching and learning environment. From flipped classrooms to e-learning, what once was reserved for colleges and universities is now finding its way into the K-12 environment. Opportunities exist that enable educators and students to learn, share, collaborate, create, and solve problems together anytime and anywhere.

This technology plan is a road map that will help guide the administration in the planning and execution of major technology driven initiatives during the next three years. The plan provides a series of objectives that, when implemented, will help support the completion of the district goals in the P2E2020SBP.

The overall organization of the technology plan focuses on the five goals as outlined in the P2E2020SBP and provides the framework for the technology objectives detailed within the technology plan.

Title	Goals and Priorities
College and Career Ready	To ensure all students are college and career ready
Safe, Healthy, and Clean Environment	To provide a safe, healthy, and clean environment that is conducive to teaching and learning
Stakeholder Relationships	To maximize and promote opportunities to build strong relationships with stakeholders that contribute to the advancement of student success and community pride
Premier Workforce	To build capacity to achieve a premier workforce that fosters a professional and supportive teaching and learning environment
Resource Stewardship and Fiscal Responsibility	To maximize resource stewardship and fiscal responsibility by ensuring district resources are used effectively, efficiently, economically, and equitably (4E's)

The following table show factors that were identified during the creation of the P2E2020SBP. It lists district strengths, challenges, opportunities, and threats to be aware of and that may have an impact on goals, objectives, and strategies.

Strengths	Challenges	Opportunities	Threats
Business and Community Support	Math and Literacy	Title 20 and State Board Rule Waivers	QBE Funding
District Accountability System	Filling Critical Teaching Positions	Move On When Ready	Loss of Local School Governance
Staff Commitment to Student Success	Student Specialty and General Transportation	24x7 Learning and Digital Resources	Unfunded Mandates
Specialty Programs and Community Schools	Meeting State Class Size Requirements	ESPLOST III	Constant Change in State Standards
CTAE Programs/Diverse Learning Opportunities	Instructional Space for Teaching and Learning	Early Childhood Learning	High Turnover in Leadership and Teachers

The Technology Plan is reviewed yearly for alignment to the P2E2020SBP and to show progress status and adjustments on goals and objectives. Tactical meetings on strategies take place quarterly to review the overall status of initiatives, and monthly meetings take place to review progress on tasks and assignments.

To support the planning and launching of technology initiatives, cross functional teams are created consisting of key stakeholders and interest groups.

Data and Accountability Division Philosophy and Guiding Principles

The Data and Accountability Division is committed to ensuring the success of all students, teachers, and staff. We accomplish this by holding each other and ourselves accountable. Our desire is to provide quality support and service through capitalizing on our knowledge and collective strengths. As a team, we are people of service, continuously improving our capabilities and procedures by soliciting feedback from our customers. We take pride in achieving excellence by supporting the instructional and administrative systems.

Data and Accountability Guiding Principles

GUIDING PRINCIPLE 1: We will always place the needs of the students first.

GUIDING PRINCIPLE 2: Customers are never an interruption. They are the reason we are here.

GUIDING PRINCIPLE 3: We will focus on our customers' needs when making decisions.

GUIDING PRINCIPLE 4: We respect the instructional process by minimizing classroom disruptions.

GUIDING PRINCIPLE 5: We will provide our customers with prompt, high-quality service that will allow them to be successful.

GUIDING PRINCIPLE 6: We will foster partnerships to achieve common goals and leverage each other's knowledge and experience.

GUIDING PRINCIPLE 7: We will continually improve technology, processes, and procedures for our customers.

GUIDING PRINCIPLE 8: We are committed to a supportive environment that promotes lifelong learning and fosters the creativity of our staff and students.

TECHNOLOGY VISION

It is our desire to provide students a learning environment that is not only engaging, relevant, and rigorous, but also challenging, interactive, and ubiquitous. Twenty-first century tools open the door to limitless learning by providing access to global information and resources. The following vision statements will help communicate and guide the district in addressing specific areas for improvement.

1. Ensure all teachers and students have access to a comprehensive infrastructure, digital portable devices, and resources for teaching and learning in a safe and secure environment, anytime and anywhere
2. Provide teachers and students with access to online and face-to-face learning environments that support innovation, creativity, communication, and collaboration
3. Transform traditional classrooms to student-focused learning environments where students are engaged in activities to ensure they are college- and career-ready upon graduation
4. Provide tools and training to support the shift from paper-based communication and work to a more digital work environment
5. Develop a workforce skilled in applying technology in their area of responsibility
6. Ensure security, quality of service, and support is maintained during the instructional time period
7. Utilize technology resources to engage parents, businesses, and the community
8. Provide innovative, technology-driven solutions that meet the needs of all stakeholders

CURRENT STATE OF TECHNOLOGY

Instructional Technology

Savannah-County School District is committed to providing an efficient digital learning environment where stakeholders actively communicate and collaborate. The Instructional Technology Department provides ongoing support and training for classroom teachers, modeling effective ways to engage students in learning through the use of any and all technology tools available to them.

Teacher Technology Proficiency

- Instructional Technology Specialists provide online, face-to-face, and blended technology training and support opportunities for teachers
- On-site coaching in classrooms, is available from certified Instructional Technology Specialists assigned to each school, upon request

Classroom Technology Mini-Grants

Integrate technology into classroom learning to support active engagement, participation in groups, interaction, feedback, and access to current, global information.

- Open to all K-12 teachers
- Applications submitted in May
- Grants awarded in June
- Applications evaluated by Instructional Technology/Media Department
- Professional development and support delivered by Instructional Technology/Media Department

1:1 Student to Learning Device Initiatives

Maximize student access to digital information and resources, anytime and anywhere, for the purposes of producing the following outcomes:

- Improve student motivation, engagement, and learning
- Improve student interaction and communication
- Increase access to online digital tools and content

Digital Resources

Access to online digital tools, such as these listed below, has increased communication and collaboration between administrators, teachers, staff, and students.

- G Suite for Education District – cloud-based platform
- Microsoft Office 365 District – cloud-based platform
- Video streaming from various websites
- Georgia SLDS – Teacher access to student assessments, standards, and resources

- Teacher-based websites for posting lessons, schedules, and instructional activities

Learning Management Systems (LMS) and Blended Learning

- Free LMS services **for student learning** are used across the district in grades 1-12
 - Variety has allowed freedom, but standardizing on a common platform can simplify the process for students and parents
 - LMS use can facilitate the move towards using less paper in the classroom
- Free LMS and other tools are used **for teacher Professional Learning**
 - Instructional Technology and Professional Learning Departments use different LMS tools to provide online Professional Learning opportunities for teachers and administrators. Having a common platform can simplify the process for teachers.

Bring Your Own Technology (BYOT)

- Bring Your Own Technology was accepted by SCCPSS BOE in 2012 to support more widespread access to online content, communication, and collaboration in the classroom.
- Bandwidth was increased and Hotspot was provided for students and guests
- Workshops, coaching, and even BYOT certification provided teachers with skills and resources for successful implementation
- Taking advantage of the opportunity to use BYOT for instructional purposes is a site-based decision.

Learning Commons (formerly Media Centers)

21st Century Learning Commons Grants

- Purpose: To create participatory learning environments that promote student collaboration which inspires critical thinking, communication, collaboration, and creativity.
 - Open to K-12 Library Media Centers for 21st Century makeovers □
 - Applications submitted by school Library Media Technology Committees □
 - Applications evaluated by Instructional Technology/Media Department using a common rubric
 - Professional development provided by Instructional Technology/Media Department

eBooks and Digital Resources

- eBooks and other digital resources are available
- Databases are available through Galileo for research purposes

Learning Commons Technology Devices

- Chromebooks, Chromeboxes, iPads, desktops, and laptops are available for student and teacher usage

Digital Citizenship and Copyright Information

- Digital citizenship resources are accessed through the district website and grade-level CommonSense Media interactive lessons provided with gratis for Media Specialists through Nearpod
- Library Media Technology Specialists provide training to students and faculty, as needed
- Additional efforts are needed for integration into the curriculum

Destiny Library Manager

- Software updates provides a more functional and user-friendly interface for patrons (students and faculty)
- Universal catalog provides information on materials across the district promoting inter-library loans
- Titlepeek add-on subscription enhances the appearance and desirability of materials by providing a cover image for titles
- DestinyDiscover.com is available for online access anywhere

Professional Development for Library Media Technology Specialists

- District Library Media Technology Coach provides training on Destiny and various technology tools
- Library Media Specialist attend various Professional Development conferences based on their Personalized Learning Plan (PLP)
- Media Program provides training through vendors and public libraries on pertinent learning commons needs - devices, software, equipment, services, etc.

ADMINISTRATIVE TECHNOLOGY

Student Learning Objectives Online Assessment Platform

Following a successful spring 2015 pilot of 8 high school course assessments, SY 2015-16 expanded implementation of the district's online assessment delivery system for the Student Learning Objectives (SLO) assessments. A total of 65 course assessments were delivered via the SLO online platform, including 3 assessments for students in middle school SLO courses. These assessments are a required part of the Teacher Keys and Leader Keys Evaluation Systems (TKES and LKES), and in past years have required a significant investment of resources to manage paper-based materials. An online system has been purchased and has improved processes related to assessment development, distribution, and scoring. The district plans to continue the transition to online SLO assessments for the majority of SLO courses, with 125 course assessments planned for online delivery in the following school year.

Student Information System

The student information office currently supports three systems that maintain student information. One system contains data in a central database for school years 2009 and later. The other two systems are archived systems used to pull historical data on students enrolled prior to 2009. We currently have an online registration and lottery system that we use to register families new to our district and to run the Pre-K and School Choice lotteries. SIS manages a state reporting software that allows schools to easily review their student and teacher data for all state reporting cycles. It also allows us to ensure we are maximizing our funding where appropriate. SIS is responsible for software that houses Sped, RTI, 504, and HHB documents used for reporting and compliance.

Business Information System

Bright Arrow Emergency and Attendance Communication

The district call out system allows us to record, schedule, send, and track personalized voice messages to parents and employees. We have used this system to correct phone numbers, poll parents on important issues, and for emergency notification. It is also used by the schools for community outreach on improving awareness and for increasing parental involvement. The system also provides daily attendance notification to parents regarding their children

HR/Finance System

The district currently uses Advantage Management System (AMS) as its Financial and Human Resources System. These system maintains employees demographics data, payroll data, and work experience data. In addition, the system maintains, all budget, accounts payable, and general

accounting data. This system is a mainframe, flat file based system, and has been in use for 20+ years.

KRONOS

The district currently use KRONOS as it's time and attendance system. This system is used to track and monitor the work hours for all employees. District employees use this system along with barcoded badges to clock in and out of work each day.

Web Services

Public Website

MS SharePoint 2007 is the web platform that hosts the district's Internet website. The Internet site provides information and resources for the public, parents, and staff. Each school and department has a custom page containing events, contacts for teachers and staff, and other school/site specific information.

Intranet Website

MS SharePoint 2013 is the web platform that hosts the district's intranet website. The Intranet site (Acorn) is used primarily as a document repository where various departments share information with staff and provide event notifications via departmental calendars, tasks, and workflows. Third party tools have been deployed on Acorn to provide departmental workflows including but not limited to Supplemental Pay, Employee Requisition, Position Control, and Vendor File Maintenance. Custom Dashboards provide access to metrics, resource and training links provide access to information and professional development resources.

The following old or paper-based processes have been updated to improve system efficiency:

• Workflows	• Description
• <u>Student Enrollment Reporting</u>	• Workflow to gather FTE counts during the 10 day count process
• <u>Principal Reports</u>	• Workflow that provides student data reports to principals
• <u>Employee Action (Certified)</u>	• Workflow approval process for certified personnel
• <u>Employee Action (Classified)</u>	• Workflow approval process for classified personnel
• <u>FTE Certification Of Completion</u>	• Workflow for approvals of the FTE certification of completion
• <u>Documentation use of Restraint</u>	• Workflow for the documentation when physical restraint is used
• <u>Employee Requisition Workflow</u>	• Recommending a position for school or department
• <u>Personnel Action Workflow</u>	• Recommending hires, transfers, long term subs and promotions
• <u>Response to Intervention / SSP</u>	• Workflow for the documentation of response to interventions
• <u>Course Code Request Workflow</u>	• Workflow for the management of course code requests
• <u>SLO Data Collection</u>	• Workflow reassigns teacher and staff permissions to student data
• <u>Supplemental Pay Request</u>	• Athletics, 21 st Century, Title I, Department for Exceptional Children, Twilight Program.
• <u>Administrative Placement</u>	• Administrative Placement Workflow Requests for Executive Directors
• <u>End of Year Student Data Approval</u>	• End of Year Student Data Approval sign off by the Principal and other school staff.
• <u>Enrollment Reporting</u>	• Workflow to gather FTE counts during the 10 day count process
• <u>Facilities Use Request</u>	• Public request of the use of a district facility, and internal documentation of approval and resources required.
• <u>FTE Certification of Completion</u>	• Workflow for approvals of the FTE Certification of Completion

District Printing

Central Print and Mail Center

The district has a centralized print center that is capable of performing most of the district's production print needs. In addition, over the last two years we have begun implementing a portal solution for teachers to submit large print jobs to the district print center through a web portal. This solution results in lower print costs and reduces the load on the teachers. The district print center is currently printing an average of 125,000 impressions per day in an 8-hour shift. Services offered at the print server include the following:

- High volume copy in b/w and color in letter, legal, and tabloid sizes.
- Professional design services
- Finishing and bindery services
- Bulk and first class mail processing
- Mail and package shipping and receiving

Integrated Managed Print Services - Multifunctional Devices

The district works with a partner to manage an MFD/copier fleet of 176 devices that are available to teachers and staff. Each school front office has a device capable of printing 35 pages per minute with a recommended print volume of 10,000 impressions per month. The office staff utilize these. In addition to this unit, each school has a minimum of one device that is capable of printing 127,000 impressions per month. Teachers utilize these units and the number of devices placed at each school is based on student enrollment.

Network Printer Fleet

The district has over 1,400 networked printers in addition to the MFD fleet and the Print Center. Workgroups, classrooms, and computer labs use these devices. These devices are maintained through their warranty period by a third party.

Locally Connected Printers

Sites are permitted to purchase locally connected printers, but the existing technology staff are unable to support these printers due to lack of resources. Schools and departments are encouraged to use network-based printing solutions and to only use locally connected printers as a last resort.

District Records Retention

The Records Department is responsible for maintaining records in accordance with the Georgia Records Act. This department handles retention, storage, retrieval, and destruction of district records, to include microfiche and electronic documents. The management of district records and record processing in the department continues to increase.

The department process requests from schools, other school districts, employment verification agencies, universities, and various governmental agencies. In addition, walk in service is provided for transcripts and student record requests. The department serves an average of 195 walk up customers per month. The department processes over 400 record requests (transcripts, student record requests, etc.) per month.

The Records Department is required to convert an average of 4,400 documents to digital format per month, but processes on average 1,850 total documents monthly due to insufficient resources. This has created a backlog in converting documents/records.

Student records are maintained indefinitely along with other employee and financial data.

INFRASTRUCTURE TECHNOLOGY

User Devices

The district currently supports a variety of devices for end user computing. Devices include Windows 7 desktops/laptops, Windows 10 desktops/laptops/tablets, iPads, Android tablets, and Chromebooks. The 2012-15 Technology Plan was executed with the focus on classroom and infrastructure upgrades. A key strategy of the plan was to modernize the computer fleet and increase the number of computers across the district. A ratio formula (3:1) was used along with a cap on the maximum number of computers to be replaced and/or added to a school. Computers replaced were 6+ years old. Devices purchased with Title 1, PTA, CTAE funds, or donated were not counted in this ratio. This method helped to ensure an even distribution of technology within the district.

Supported Devices:

- Desktops 14,880
- Laptops 10,402
- Chromebooks 4,114
- iPads 4,341

Identity Management

There are many systems and applications used by the staff internally and outside the district. As systems and applications are upgraded, common IDs and passwords are provided if possible. Microsoft Active Directory (AD) is the district's primary source for Identity Management and is used to control access to network resources. AD provides security for student and staff, login access to the majority of instructional and district applications, computers, and network resources. AD is currently configured with a parent and one child domain. User accounts, user and department groups, computers and computer groups reside in organization unit (OU) organized by type and departments. With the recent trend towards externally hosted applications,

the district has also deployed an Active Directory Federation Services (ADFS) server to provide a federated identity provider for use by these hosted applications. The ADFS server allows hosted applications to seamlessly integrate with our identity management system, and provide a better user experience since they will not have to keep track of separate logins for each application. A major focus moving forward is to reduce the cost and complexity of managing user accounts within the district, while maintaining a high level of security measures. All student identities are automatically created and maintained in AD based on SIS enrollment information. The district is currently working to implement similar automation for staff accounts to reduce overhead and human error. The main challenge faced by automating staff accounts is interfacing with the legacy Mainframe system used for HR data, normalizing the data from HR, and determining an employee's true work location from this data.

Data Centers

The district maintains two data centers, DC1 and DC2. The majority of the district's servers are located at the primary data center (DC1). Each data center houses a Cisco Call Manager, which provides the district with local, and long distance telephone services over the network. DC2 houses the district's mainframe application server for Human Resources and Finance. A 40 KW Uninterruptible Power Supply (UPS) provide power protection at DC1. The UPS connects to two power feeds, one from Georgia Power and another from a backup 150 KW diesel generator. The generator and UPS are tested weekly to ensure continuity of service in case of a power failure. DC1 is cooled by a Liebert computer room air conditioning system (CRAC), which consist of a primary 10-ton unit and a 10-ton backup unit. The units are controlled by a Liebert AC8 control panel, which monitors the units and performs a failover to the standby unit in the event of a failure, as well as rotating them on a weekly schedule to balance wear and tear across both units. The system is designed to fully cool the room with just one 10-ton unit. The second independent unit ensures system availability in the event of a unit failure. DC1 is fully enclosed, with no windows, and includes an 18-inch raised floor with water-detection equipment, which sends an alert in the event of an emergency. A 30 KW Uninterruptible Power Supply (UPS) provide power protection at DC2. The UPS connects to two power feeds, one from Georgia Power and another from a backup natural gas generator. The generator and UPS are tested quarterly to ensure continuity of service in case of a power failure. DC2 is cooled by a Liebert CRAC, which consists of a single x-ton unit which is fully redundant, and uses Liebert' s iCOM interface for remote monitoring and alerts in the case of a failure. DC2 is fully enclosed, with no windows, and includes a 6-inch raised floor with water detection equipment. Both data centers employ a clean-agent fire protection system. The system uses a grid of smoke detectors placed under the raised floor and in the ceiling, and at least 2 smoke detectors must detect smoke before the system discharges the agent. This agent is designed to safely reduce the oxygen level in the room to starve out a fire, regardless of the type of fire.

Servers and Storage

The district has over 279 servers of which 124 are virtualized with VMWare. The 155 remaining servers range in age from zero to twelve years old. The majority of these servers are located in the primary data center. Each school has at least one video server for recording security videos. Additionally, each hub site has a virtual server cluster that hosts a file server, print server, domain controllers, and WSUS servers for all sites connected to that hub.

The district has adopted a “cloud-first and virtual-second” strategy, which means that when new services are required, vendor hosted solutions are preferred. If this is not possible the required server will be built as a virtual server. Virtualization allows the district to react quickly to rapid changes in technology and minimize cost on data center space and cooling requirements. Going forward, the district faces multiple challenges around virtualization such as additional complexity introduced by virtual layer, storage, performance, and “virtualization sprawl.”

The district also has a storage area network that includes two storage arrays using fibre channel and SAS connections. One of the fibre channel arrays is near capacity, while the second is at 60% capacity. The two fibre channel arrays comprise 40TB of storage. The district also employs two ExaGrid backup storage arrays. The primary backup array is located at DC1 and connected via 10Gb Ethernet. The secondary array is located at Godley Station and connected via a 1Gb Ethernet link. The primary array receives the backup data, de-duplicates the data, and then replicates the data to the secondary array which is geographically distant from DC1. This secondary array is maintained to facilitate rapid data recovery in the event a disaster destroys the data at DC1.

APPLICATION SYSTEMS

E-Mail

Exchange is an enterprise collaboration system that provides email, calendaring, contacts, and task management used by the district. Administrative staff and teachers access the system using the Outlook client and/or Outlook Web Access (OWA). There are 5,347 user mailboxes with over 850 GB of email stored and 972 security and distribution groups. To reduce the storage requirements for email storage and enhance the user experience, the Technology Department implemented Office 365 email access for teachers and staff. Office 365 is Microsoft’s cloud-based Exchange Collaboration System and is provided free of charge to education institution under their E1 or E2 licensing model. The benefits of the Office 365 solution include increased email storage (50 GB vs 1 GB provided by the district), cloud based file storage using Microsoft OneDrive, and access to Microsoft Office web base applications (Word, Excel, PowerPoint, and OneNote). Under the E1/E2 license model, the use of the Office applications (excluding OneNote) is limited to read only for documents. Administrative staff’s email

will continue to be hosted on premise. Access to OneDrive file storage and access to Office web applications for administrative staff is available.

SharePoint

MS SharePoint Services is the web platform that hosts the district's intranet and Internet website. The Internet site provides information and resources for the public, parents, and staff. Each school and department has a custom page containing events, contacts for teachers and staff, and other school/site specific information. The Intranet site (ACORN) is used primarily as a document repository where various departments share information with staff and provide event notifications via departmental calendars, tasks, and workflows. Third party tools have been deployed on ACORN to provide workflows including but not limited to Supplemental Pay, Employee Requisition, Position Control, and Vendor File Maintenance. Custom Dashboards provide access to metrics, resource and training links provide access to information and professional development resources. The latest version of SharePoint is being deployed and developed for the Internet site and the Intranet site which will provided the latest SharePoint technology enhancements.

Database

Microsoft SQL Server 2012 is the district's enterprise database solution. Two database instances are used to maintain databases for district's instructional and business applications. Instance one house approximately 51 databases. Instance 2 houses approximate 60 databases. 1.5 TB of storage is available for district applications. The SQL Server instances are configure as a cluster to provide failover protection.

Video over IP

Safari Montage provides the school district with the ability to view video broadcast across the district from school news to cable TV. District training staff have the capability to upload videos, PowerPoint slides, and other content types that are designed for professional development. This content can be viewed from multiple device types including desktops, laptops, tablets, and smartphones. Access to video can be controlled with AD usernames and passwords or videos can be shared with the public.

The schools district has 32 schools that are running school news shows every morning ranging from 7:50a.m to 9:00a.m. The schools utilize a standard definition Canon video camera connected to a standard definition HaiVision Barracuda encoder via a low cost A/V switchbox. The Barracuda IP encoded streams are sent to clients through the Safari Montage video solution. Each school has an encoder located on their broadcast cart that contains the camera and a ViewSonic digital signage box. The staff can load PowerPoints

to the ViewSonic box and it plays the content over their school news channel. We face several challenges with these broadcast carts as the schools try to interoperate them with modern video interfaces. Many of the schools doing the news shows also have a desire to have more professional level switching capabilities for audio and video in these systems.

Voice over IP Phone System

The district uses Cisco Unified Communications Manager (CUCM) for district phone communication needs. This system allows technology to configure and remotely manage each VoIP phone in the district. This phone system includes Unity Connection (Voicemail), Unified Contact Center Express (Call Queue), and CDR (Call Reporting). In addition to managing the VOIP phone, CUCM has the ability to link with other systems such as Cisco Door Access System. A phone button can be programmed on the IP phone which allows the user to open a door programmed with a Cisco gateway.

Currently, we are running version 8.6 of CUCM which is 2 software versions behind of the latest software. We do not have a consistent way to manage Cisco Phone licenses on the server and provide call queue easily. Also, CUCM does not have the ability to export specific data which will allow us to create an accurate inventory in real time.

Centralized Faxing

The district uses Rightfax for centralized control of our faxing environment. This solution gives the user capability to send faxes through email, web, or via fax devices on our existing network. Rightfax is an efficient and cost effective way to send faxes. Rightfax saves paper, and it does not require the district to pay for individual department analog lines for faxing. For those staff who do require traditional fax machines, the technology department uses a Cisco ATA fax adapter to provide analog service to the device. This option allows the user to keep their existing phone machine while they fax on our network which eliminates the need for a recurring monthly cost for phone service.

District VOIP Intercom System

InformaCast is a voice over IP paging system that is integrated with our Cisco VOIP system. This system is used for paging at 208 Bull Street and Massie Heritage Center. The solution also has an integration component that allows the district to send emergency pages through the schools existing paging system. The InformaCast system is integrated with CUCM so a user can dial a code from the IP phone and activate the schools intercom all call. The system can send preconfigured and live broadcast across individual schools and the district. Currently, we are not able to connect Largo-Tibet, Montgomery Swing Site and Woodville Annex because these school intercom systems are not compatible with CUCM.

Network Infrastructure

Each site is connected to the data center across a high-speed fiber network with each site having a one gigabit link. We are in the process of upgrading some of our network equipment that will give the district 10-gigabit connections from hub sites back to our data center. A building's technology infrastructure includes fiber running as the backbone from the main distribution facility (MDF) to each intermediate distribution facility (IDF). From the IDF to the classroom are multiple CAT5 or CAT6 wiring and data jacks. In regular classrooms, there are six (6) data drops. Labs have thirty-one data drops. The district needs to replace existing cable infrastructure at about 3 sites to give them a more reliable network.

Wireless Network

The current wireless infrastructure within the schools can support 30 wireless devices for every two classrooms. With the growth in use of wireless devices throughout the schools, the wireless network is approaching saturation, resulting in slower speeds and dropped connections. The district needs to move to a solution that will allow wireless density to support one wireless access point for every classroom. We also need to replace some existing wireless access points that are over 5 years old to give us additional bandwidth and coverage. In addition, the district needs a solution that will allow enhanced management and monitoring of the wireless system.

Wireless Network BYOT

A Cisco Identify Service Engine is used for guest wireless access. It is a security management platform that automates and enforces access to network resource for wireless devices needing guest access. This system requires that guest users either use a valid Active Directory (AD) account or that they self-register with a valid email to get access to our guest network. The guest network only allows filtered access to the Internet and access to the districts public facing systems.

Staff who access this network with valid AD credentials are placed in a protected environment where they are allowed access to additional district systems.

Internet Bandwidth

Connection to the Internet is provided by the Georgia Department of Education at a bandwidth speed of 5GIG at DC1, and the district provides an additional 1GIG connection located at DC2. The solution in place prioritizes network traffic to ensure mission critical applications, such as online assessments and testing, receive the amount of bandwidth needed to function properly. Additionally, with the growth of state mandated online

assessments and the increase in student learning devices and digital resources, an increase in Internet bandwidth will be required.

Network Security

The district deploys multiple levels of defense to protect against attacks, disruption of service, unauthorized access, and system takeover. Five levels of protection exist to safeguard district's employees, students, and digital assets.

The Firewall Appliance provides primary protection. The firewall provides high-performance network and application layer security. This system monitors and controls all incoming/outgoing traffic between the district and the Internet. They are located in DC1 and DC2.

Advanced Malware Protection (AMP) has been deployed to both data centers and compliments the Firewall Appliance. AMP provides advanced malware detection and blocking. It analyzes files to catch known and unknown malware, providing faster time to detection and automatic protection.

Web-based filtering is also used to protect staff and students. This service is handled by 2 URL filtering appliances locate in-line between the district and our ISP's. Together they provide granular control over what is and is not allowed into the district through web-based traffic. Websites are categorized into groups in order to help block inappropriate content and malicious websites attempting to download harmful codes through the browser. The system also has the ability to recognize educational, social networking, audio/video, and malware sites just to name a few.

Microsoft System Center End Point is used to provide protection for servers, workstations, and laptops. All incoming and outgoing files are scanned for malicious codes to include viruses, spyware, and spam. Weekly scheduled scans are run on devices to detect malware and other malicious software. The software also provides real-time protection.

Commvault software for system backups and restores. This software backs up staff and student data on a daily basis to various servers. This ensures that files/folders that are needed by staff and students are available in case of accidental moves, deletion, or destruction by malicious software. Information can be restored to a designated location for review prior to a complete restore.

Physical Security

Security cameras were installed at all middle and high schools in 2008. They were installed at all elementary schools in 2013/2014. Security cameras are installed at 59 locations throughout the district. Cameras are installed to help provide a sense of security to staff and students and help to prevent vandalism.

Access Control is being implemented at all the schools to further protect entry to the buildings. Doors are locked/unlocked on a schedule depending on the site level of instruction. Software installed on administrative staff workstations allows locking/unlocking of doors without physically getting up to open the door. A central management interface controls door access, configuration, control, and monitoring. This initiative is still in progress.

Technology Support Center

Schools and departments are provided four levels of support: central support desk, field support, engineering support, and vendor support. The central support desk is designed to be a “one-stop shop” for district employees for technology questions and support. The support desk is driven to improve support services by restoring needed service as quickly as possible, reporting systemic issues to engineers for review and resolution, and reporting training deficiencies for training guideline changes or retraining. Every support call made to the support desk is recorded and tracked from beginning to end. Customers with open service requests are kept informed of the status and progress of their requests.

The Technology Support Center follows the Information Technology Infrastructure Library Model (ITIL). ITIL is a set of practices for IT service management that focuses on aligning IT services with the needs of the business. ITIL describes procedures, tasks, and checklists that are used for establishing a minimum level of competency needed for support services and is based on industry best practices. ITIL is the most widely accepted approach to IT service management in the world and supports continuous process improvement, documentation, system monitoring, and the measurement of support services for achieving efficiencies and improved customer satisfaction.

When a user experiences a technology issue, a support desk request is submitted by using one of the following methods: the district’s intranet website, sending an E-Mail, using MS Lync, or placing a call to 395-HELP. When this number is called, a Cisco Unified Communications Manager Auto-Attendant answers and routes the call according to the support needed. Support desk personnel have several tools at their disposal to assist customers. One tool that provides the most value is Remote Control. Remote Control allows a support desk technician to quickly access a customer's computer from anywhere in the district and resolve technology issues remotely. The use of this tool has dramatically cut down the number of dispatched calls for onsite support and has reduced the number of dedicated field support personnel. The primary solution for resolving support calls will be through Remote Control.

If an issue cannot be resolved by the support desk, a field technician will be dispatched for onsite support and resolution. The field technicians are assigned to three county zones and are in groups of three. They are geographically arranged to allow for quick resolution that requires onsite visit. Each zone supports several schools, programs, and departments. If the field technician is unable to resolve the issue, it is escalated to an engineer for advanced troubleshooting. On rare occasions when issues cannot be isolated and resolved by an engineer, it is escalated to a vendor for additional support and final resolution.

Infrastructure Refresh Cycle

Type of Equipment	Warranty	Support	Recommended Refresh Cycle	Current Refresh Cycle
Desktop Computers	3 Years	5 Years	5 Years	5 Years
Laptop Computers	3 Years	5 Years	4 Years	5 Years
Servers	5 Years	Indefinitely*	3 Years	6 Years
Chromebooks	90 Days	3 Years	3 Years	5 Years
Tablets	90 Days	3 Years	3 Years	5 Years
Switches	Lifetime	Indefinitely*	6 Years	7 Years
Projectors	3 Years	Indefinitely*	5 Years	As Needed
Voice Enhancement Systems	5 Years	Indefinitely*	5 Years	As Needed
Security Cameras	3 Years	Indefinitely*	5 Years	As Needed
Wireless Access Points	90 Days	Indefinitely*	5 Years	6 Years

FUTURE STATE OF TECHNOLOGY

Goal 1

To Ensure all Students are College and Career Ready

Objectives	Benchmark	Funding Source	Responsibility
Expand technology access to GK-2 to support and enhance early quality teaching and learning	iPads, software, and training deployed to all K-2 grades for Reading and Math	ESPLOST II&III	Instruction Technology and Media Services
Expand 1:1 student to learning device access in G3-12 for increase access to digital information and online resources	Portable learning devices, software, and training to all G3-12 grades	ESPLOST II&III	Instruction Technology and Media Services
Rethink and Redesign Library Media Center spaces to support academic learning activities, project collaboration, and individual study	Supports BYOT, charging stations, high-speed Wi-Fi. Flexible learning environment that supports new technologies and innovation learning. Space that is mainly used for students and staff instead of books and material storage.	ESPLOST II&III	Instruction Technology and Media Services
Provide high quality student assessment tools for teachers and administrators to use	A unified platform that handles multiple measures throughout the school year for Reading/ELA and Math.	LEA	Accountability, Assessment, and Reporting Services
Provide a high quality Reading/ELA and Math intervention program to support teachers and students	A unified platform that is accessible to GK-8 for supporting Reading and Math	LEA	Academic Affairs Accountability, Assessment, and Reporting Services
Provide technology mini-grants to teachers to support innovation and creativity in the teaching and learning process	Yearly mini-grant applications with training and support	ESPLOST II&III LEA	Instructional Technology and Media Services
Provide Multimedia Presentation Systems to all instructional spaces and main conference rooms	Instructional spaces and conference rooms with projectors, cabling, and sound systems.	ESPLOST II&III	Information Technology

Provide audio enhancement systems to large instructional areas	Solution deployed to Band, Chorus, and Orchestra classrooms	ESPLOST II&III	Information Technology
Provide a common assessment platform for Reading/ELA and Math	A unified platform for conducting formative assessments on Reading/ELA and Math. Aligned to GaDOE grade level standards. Ability to run reports based on LEXILE scores.	LEA	Academic Affairs Accountability, Assessment, and Reporting Services
Provide a Student Early Warning System	Solution that assist in identifying students who are struggling for the purposes of intervening and providing support services.	LEA	Academic Affairs Accountability, Assessment, and Reporting Services
Maintain a student to modern device ratio of 3:1	Schools with a minimum ratio of 3:1	ESPLOST II&III	Information Technology

Goal 2

To provide a safe, healthy, and clean environment that is conducive to teaching and learning

Objectives	Benchmark	Funding Source	Responsibility
Generate a deeper understanding and awareness of the benefits and risks that digital access can have on staff and students	Digital Citizenship training for staff and students. Students and staff making safe and smart decisions while online. Digital resources available to staff, students, and parents online.	LEA	Instructional Technology and Media Services Information Technology Library Media Technology Specialists Classroom Teachers
Protect and safeguard student and employee personally identifiable information and control access to data to ensure privacy	In compliance with FERPA, COPPA, CIPA, and PPRA. Staffing provided to manage and oversee security and compliance. Enhanced cybersecurity measures in place.	ESPLOST II&III LEA	Information Technology
Establish and maintain a Learning Management System (LMS) to manage district online content, courses, and digital resources	Staff and students with access to a common platform for teaching and learning. Access to course materials, schedules, projects, and online collaboration.	LEA	Academic Affairs Instructional Technology and Media Services
Provide the ability to create and maintain Digital Student Portfolios	Students have online digital portfolios that follow them from grade to grade.	LEA	Teachers Instructional Technology and Media Services Library Media Technology Specialists
Hold a district-wide Media Festival for grades K - 12	Number of schools participating and number of projects submitted by students	Sponsors LEA	Instructional Technology and Media Services
Provide security auditing software for monitoring systems and data	Ability to monitor and track changes to the network such as moving/deleting files, and sudden changes in data activity.	ESPLOST II&III LEA	Information Technology
Enhance surveillance video system	100% operational cameras and DVR systems. Central management system in place.	ESPLOST II&III LEA	Campus Police Information Technology

Goal 3

To maximize and promote opportunities to build strong relationships with stakeholders that contribute to the advancement of student success and community pride.

Objectives	Benchmark	Funding Source	Responsibility
Upgrade the public website to support public relations and provide essential information to families, businesses, and the community	Website design that is user friendly, ADA accessible, and supports mobile devices	LEA	Public Information Web Services
Expand access to parents on student progress, assignments, work, and behavior	Training to schools and parents on Portal Services. Marketing on Portal Services.	LEA	Information Technology
Improve services and integration on the callout management system	Schools using the callout system for communicating to parents.	LEA	Communications Information Technology

Goal 4

To build capacity to achieve a premier workforce that fosters a professional and supportive teaching and learning environment

Objectives	Benchmark	Funding Source	Responsibility
Deploy an online platform for capturing student growth for the TKES platform	Ability to administer SGM exams online, collect scores, and create new assessments	LEA	HR Accountability, Assessment, and Reporting Services
Hold Video Broadcast training for staff and teachers to support shows, training videos, service announcements, and curriculum-related projects	Teachers and staff creating training videos, shows, service announcements, and projects. Teachers recording classroom best practices and using the technology for self-evaluation purposes.	State Grant LEA ESPLOST II&III	Instructional Technology and Media Services Library Media Technology Coach Video Broadcast Trainer School Video Broadcast Supervisor
Provide professional learning opportunities in the use of G Suite and/or Office 365 tools for communication, collaboration, and learning across the district	Number of teachers and students using G Suite and/or Office 365	Sponsors LEA	Instructional Technology and Media Services
Provide professional development on technology using various resources; online, face-to-face, blended, and job-embedded	Teachers, administrators, and staff participating in online learning cohort, face-to-face, combination of both, or onsite classroom training.	LEA	Instructional Technology and Media Services Accountability, Assessment, and Reporting Services Information Technology

Goal 5

To maximize resource stewardship and fiscal responsibility by ensuring district resources are used effectively, efficiently, economically, and equitably (4e's)

Objectives	Benchmark	Funding Source	Responsibility
Build infrastructure to support Big Data for handling Volume, Variety, and Velocity V ³).	Ability to manage and safeguard terabytes of data consisting of data files, audio, images, and videos.	ESPLOST II&III LEA	Information Technology
Increase system integration and interoperability to support the sharing of security and data across multiple platforms	Unified account management system for enabling and disabling accounts. Data entry entered once and propagated to multiple systems in order to avoid duplicate data entry. Server and services consolidation.	ESPLOST II&III LEA	Information Technology
Build the network infrastructure and resources to support the Internet of Things (IoT)	Ability to support remote management, status monitoring, tracking, and alerts through network enabled intelligent devices from multiple divisions.	ESPLOST II&III ERATE LEA	Information Technology
Improve data quality and integrity	Additional days added to the work calendar of Information Specialists	LEA	Information Technology
Upgrade district's imaging solution for digitizing critical district records	Additional staff in Records Department. High speed imaging system in place.	LEA	Information Technology
Consolidate district licenses of Microsoft Office	Microsoft EES Desktop Agreement in place.	LEA	Information Technology
Deploy a non-fixed asset management system	A district-wide system in place for managing non-fixed asset items.	LEA	Information Technology
Upgrade the mainframe HRM and FIN system to support modern processes and improved security for protecting access to district information	Modern system for FIN and HRM with workflow, security, and enhanced functionally and reporting capability.	LEA	Information Technology