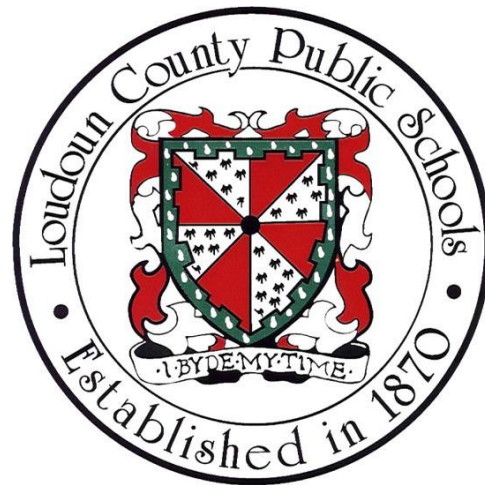


Loudoun County Public Schools
Department of Technology Services



Dr. Rich Contartesi

Assistant Superintendent for Technology Services

School Year 2016-2017

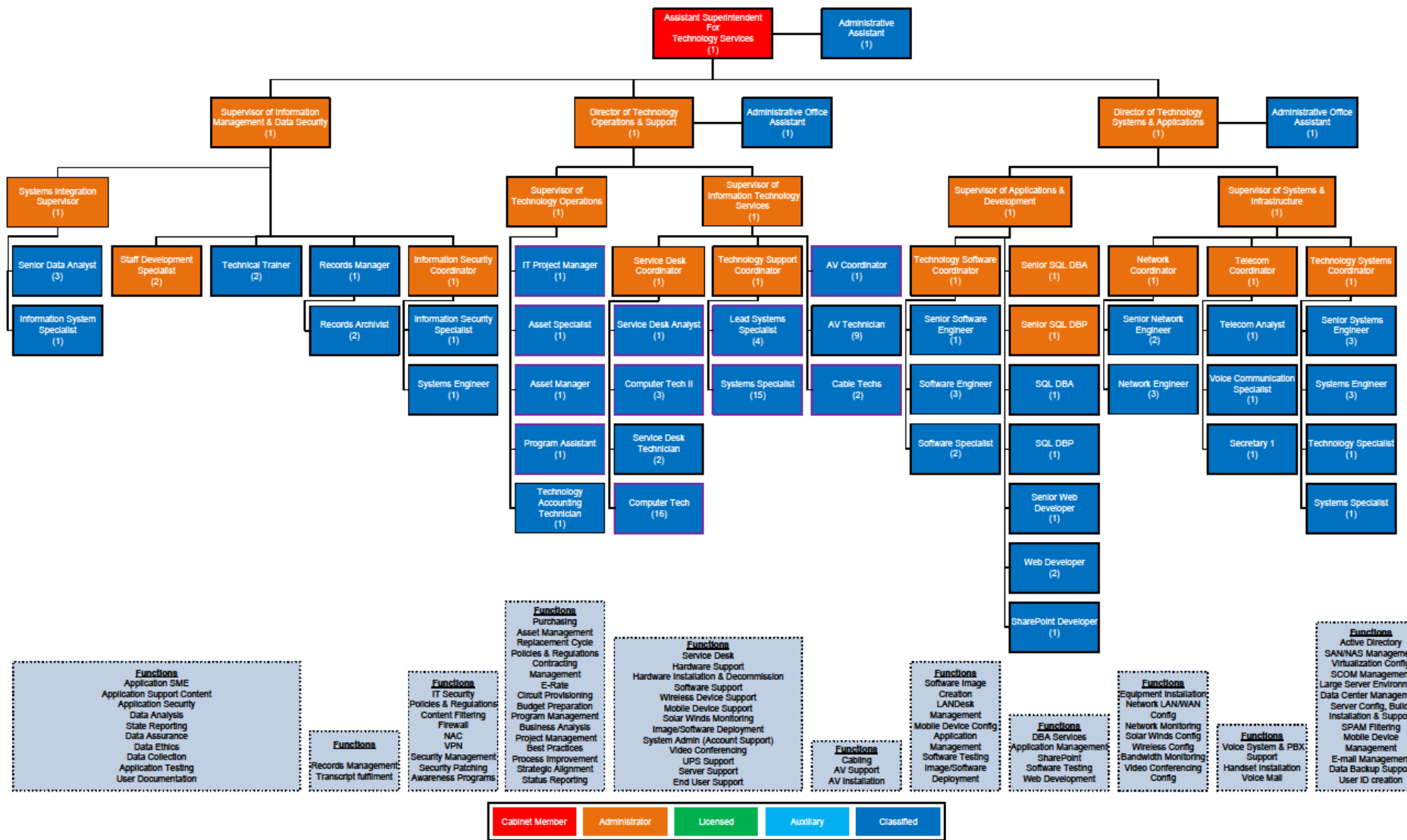
Dr. Eric Williams, Superintendent

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Department of Technology Services



Functions
 Application SME
 Application Support Content
 Application Security
 Data Analysis
 State Reporting
 Data Assurance
 Data Ethics
 Data Collection
 Application Testing
 User Documentation

Functions
 Records Management
 Transcript fulfillment

Functions
 IT Security
 Policies & Regulations
 Content Filtering
 Firewall
 NAC
 VPN
 Security Management
 Security Patching
 Awareness Programs

Functions
 Purchasing
 Asset Management
 Replacement Cycle Management
 Policies & Regulations
 Contracting
 E-Rate
 Circuit Provisioning
 Budget Preparation
 Program Management
 Business Analysis
 Project Management
 Best Practices
 Process Improvement
 Strategic Alignment
 Status Reporting

Functions
 Service Desk
 Hardware Support
 Hardware Installation & Decommission
 Software Support
 Wireless Device Support
 Mobile Device Support
 Solar Winds Monitoring
 Image/Software Deployment
 System Admin (Account Support)
 Video Conferencing
 UPS Support
 Server Support
 End User Support

Functions
 Cabling
 AV Support
 AV Installation

Functions
 Software Image Creation
 LAN/Desk Management
 Mobile Device Config
 Application Management
 Software Testing
 Image/Software Deployment

Functions
 DBA Services
 Application Management
 SharePoint
 Software Testing
 Web Development

Functions
 Equipment Installation
 Network LAN/WAN Config
 Network Monitoring
 Solar Winds Config
 Wireless Config
 Bandwidth Monitoring
 Video Conferencing Config

Functions
 Voice System & PBX Support
 Handset Installation
 Voice Mail

Functions
 Active Directory
 SAN/NAS Management
 Virtualization Config
 SCOM Management
 Large Server Environment
 Data Center Management
 Server Config, Build, Installation & Support
 SPAM Filtering
 Mobile Device Management
 E-mail Management
 Data Backup Support
 User ID creation

Cabinet Member	Administrator	Licensed	Auxiliary	Classified
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Department of Technology Services

21000 Education Court
Ashburn, VA 20148

Administrative Office (571) 252-2135

Service Desk (571) 252-2112

Assistant Superintendent for Technology Service: Dr. Rich Contartesi

Director of Technology Operations and Support: Justin Donovan

Director of Technology Systems and Applications: Aaron Smith

Supervisor of Information Management and Data Security: Rachel Johnson

The Department of Technology Services (DTS) is responsible for coordinating the vision, development, standards, implementation and support of the district's strategic technology plan, aligning instruction, business, and technology using measurable key performance indicators that ensure effective, equitable, and economical delivery of technology to support quality education. DTS is committed to building a transparent open organizational environment providing students, teachers, parents, administrators, and the community with highly functional technology that is easy to use, reliable, and cost-effective to support a consistently superior level of instruction and student achievement.

This department oversees the purchase, implementation, licensing, maintenance, security, and support of the school division's technology infrastructure. This infrastructure includes desktops, laptops, printers, audio visual devices, video conferencing, intercoms, interactive white boards, scanners, servers, software and contractual services that support students, teachers, parents and staff. This department supports the Microsoft Server and Office 365 environment, instructional and business software, internet content filtering, the Phoenix student information system; student records archival services, e-mail, data backup, technology management tools, application hosting and maintenance.

Organization

The Department of Technology Services (DTS) is comprised of three offices:

Technology Operations and Support

- **Technology Operations:** Responsible for direction, process, operational business support, and development of the DTS budget.
- **Technology Support:** Responsible for decentralized user, hardware and software support, connectivity troubleshooting and image and software deployments.
- **Service Desk:** Responsible for centralized and decentralized service desk support for user hardware and software, overseeing the service desk functions and providing a single point of contact for LCPS technology support.
- **Audio Visual:** Responsible for providing support, maintenance, and repair of school intercom systems, public address systems and all audio visual equipment.

Technology Systems and Applications

- Technology Systems & Infrastructure: Responsible for support of core enterprise systems and infrastructure to ensure optimal bandwidth and access to services.
- Applications & Development: Responsible for DBA Services, database programming support, web application development, testing and support of internal and third-party applications; software deployment, and workstation image development, workstation remote management, and workstation patch deployment.

Information Management and Data Security

- Information Management: Responsible for the Phoenix student information system including the Parent and Student Portal, grade book, system integration and enterprise application support; data management, and state and federal reporting.
- Information Security: Responsible for protecting students, faculty, and staff information, ensuring a safe and secure computing environment for the students, faculty, and staff.
- Records Management: Responsible for implementing student records retention practices throughout the district; fulfillment of alumni transcripts; permanently archiving student records in accordance with Virginia requirements.

FY 16 Major Achievements

Supported the Technology Plan and School Board Goals 1 and 5 through the following:

- Upgraded data circuits in elementary schools from 10 Mb to 100 Mb
- Upgraded all schools' Wireless LANs to the latest 802.11 N and AC technology from 802.11 A/B/G
- Increased internet bandwidth to 10 Gb for the District to support increased utilization, enrollment, and SOL testing
- Replaced servers in 19 schools
- Replaced 682 laptops in the carts at 31 elementary schools
- Integrated application authentication with Active Directory to consolidate logins and increase security
- Completed grade book implementation and integration of numerous instructional systems
- Completed implementation of parent and student portals
- Implemented e-Transcript solution
- Implemented Online Registration system for students new to LCPS
- Implemented Online Course Request solution to eliminate inefficient processes
- Completed content filter implementation
- Continued server virtualization initiative to reduce hardware costs and increase availability
- Continued SQL database implementation to support internal and purchased applications
- Completed the 22 school refresh by implementing a new hardware model that establishes technology equity across the district.
- Completed the print study
- Introduced Office 365 as a collaboration and data sharing solution throughout the district
- Restructured DTS organization to optimize staffing needs and ensure outstanding support is delivered
- Enabled BYOT at 19 schools through bandwidth and wireless networking

- Consolidated Safari-Montage servers from 90 remote servers to 5 centralized servers

FY 17 Major Work Plan Initiatives

Continue to support the Technology Plan and School Board Goals 1 and 5 through the following:

- Expand BYOT to all schools based on Department of Instruction directive
- Implement Personalized Learning solutions leveraging new iOS technology
- Increase wide area network bandwidth to all secondary schools to 1 Gb
- Implement new VPN, DMZ, and SSL proxy and transition support to LCPS
- Continue to integrate existing district software applications into Active Directory consolidating User IDs, increasing security, and streamlining user access
- Continue to develop, implement, promote and deliver online security training for teachers, administrators and staff
- Explore online form completion options for parents to reduce the amount of paperwork required; this may include registration form, health forms and instructional forms
- Implement solutions for Single Sign On for applications and services
- Expand Office 365 as a collaboration and data sharing solution throughout the district
- Ensure appropriate staffing, training and support structure to enhance the level of support provided to the district
- Complete physical DTS asset inventory and implement the LANDesk asset lifecycle management (ALM) system
- Continue to develop Staffing Standards for central office based positions

FY 18 Major Work Plan Initiatives

Continue to support the Technology Plan and School Board Goals 1 and 5 through the following:

- Expand BYOT and PL solutions as directed by DOI
- Implement storage in the cloud and cloud-based applications
- Expand Wireless coverage in schools in non-traditional instructional areas
- Procure a comprehensive, integrated suite of tools for network and security solutions
- Automate account creation through Single Sign-On
- Password self-service in the cloud
- Personalized Learning
- Loudoun Creates
- Technology Refresh
 - Computer
 - Server
 - Switches
 - Intercoms
 - Projectors
- 3.6:1 “True-up”
- Print Management Review
- Phone System Upgrade
- Records Management Software Review

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Services

Technology Support Overview

Customers Serviced

Staff (instructional and support)	10,640
Student Accounts	78,000
Parent Accounts	94,000

Hardware (what devices; categories of inventory)

Total # Desktop Computers	12,462
Total # Laptop Computers	27,477
Total # Computers	39,939
Total # Computers over 5 years old (15% of inventory)	4,801
Managed Apple iPads	8394
Interactive whiteboards	4,600+
School Intercom (includes 5000+ speaker, call buttons and handsets)	89 Locations

Network Services

Physical Servers – Enterprise Wide	304
Virtual Servers – Enterprise Wide	360
School Servers	355
Core Switches	86
Wireless Security Switches	98
Switches	2,500+
Firewall	3
Access Points	5,600+
UPS	1000+
Backup Power Generator (supports Data Center and Admin)	1
SAN (Storage Area Network)	350 TB
District link to the Internet	10 GB
Speed to the Desktop	1 GB
LAN Connectivity (from Hub to sites)	100 Mb - 1 GB

Application Support

FY16 Work Orders Closed (July 1, 2015 – June 30, 2016)	48,315
Data audit reports (scheduled for daily, weekly, and monthly)	60
Data elements reported to VDOE (124 items per student, four cycles per year)	40,920,000

Mail

Email User Accounts	11,100
Email Resource Account	490

Telecommunications

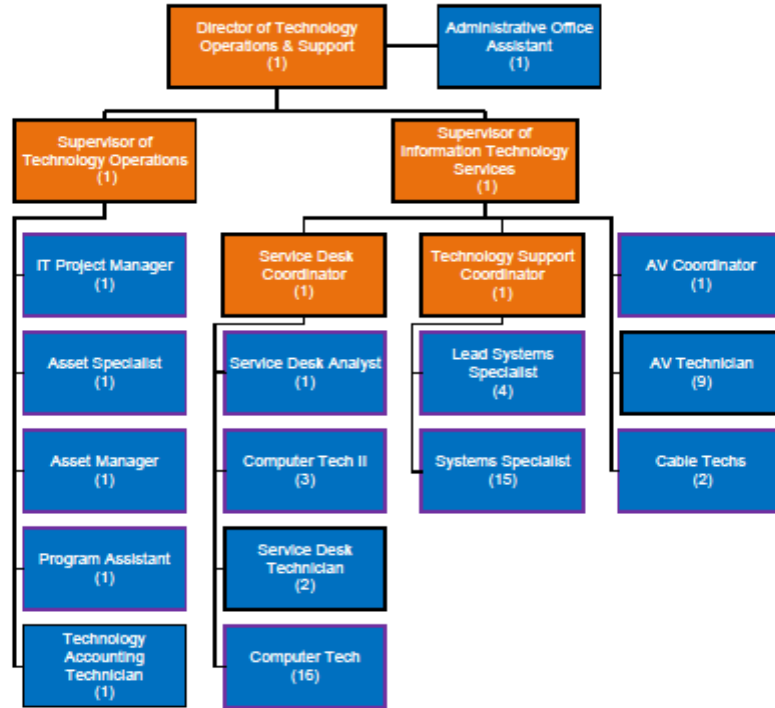
Phone Sets	3,814
POTS Lines	647
Voice Mail Boxes	1,851

Training

<p>Technology Courses Offered (SIS modules, Gradebook, FERPA) Parent facing content developed and delivered online and face to face upon request</p>	<ul style="list-style-type: none">• 70 face to face for SIS/GB modules (class size ranged from 10 to 40)• 20 videos created for various levels of staff to take on demand• 25 user guides created and published online• 40 “one pager” resources on a variety of topics developed and promoted online• 5 parent nights or morning events at schools or other community sites• 3 videos created for staff, parents and parent liaisons for Online Registration• Multiple Go To Meetings held monthly for teachers• 1 online course for FERPA required for all administrators• 1 online course for Security Awareness completed by 1,000 staff• 10 webinar trainings for ParentVUE support staff
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Team Roles & Responsibilities

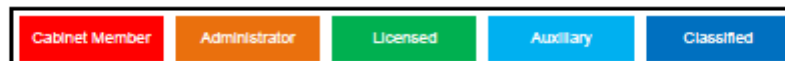
Department of Technology Services Technology Operations & Support



- Functions**
- Purchasing
 - Asset Management
 - Replacement Cycle
 - Policies & Regulations
 - Contracting Management
 - E-Rate
 - Circuit Provisioning
 - Budget Preparation
 - Program Management
 - Business Analysis
 - Project Management
 - Best Practices
 - Process Improvement
 - Strategic Alignment
 - Status Reporting

- Functions**
- Service Desk
 - Hardware Support
 - Hardware Installation & Decommission
 - Software Support
 - Wireless Device Support
 - Mobile Device Support
 - Solar Winds Monitoring
 - Image/Software Deployment
 - System Admin (Account Support)
 - Video Conferencing
 - UPS Support
 - Server Support
 - End User Support

- Functions**
- Cabling
 - AV Support
 - AV Installation



Technology Operations

Staff

7 Full Time Employees

1 Supervisor of Technology Operations

1 IT Project Manager

1 Asset Specialist

1 Asset Manager

1 Program Assistant

1 Instructional Materials Technician

1 Administrative Office Assistant

Purpose

The primary role of the Division of Technology Operations is to manage the financial and contractual functions within DTS, and develop all of the district's technology policies and regulations. The Supervisor is responsible for the development and management of the DTS budget. This individual is the primary point of accountability for the life-cycle management of all IT assets throughout the District. The Supervisor maintains an understanding of vendor master service agreements to ensure compliance and the most cost effective use of assets.

Responsibilities

- Analyze contracted services and discretionary spending to develop and maintain the annual DTS budget
 - Balance weekly budget reports
 - Process all technology related purchases
- Manage vendor contracts and licensing agreements
 - Ensure licensing compliance for technology purchases
- Provide accountability for the life-cycle management of all technology assets throughout the District
 - Configure and maintain the technology asset tracking system
 - Analyze inventory data so as to maintain equality in technology throughout the District
 - Provide a highly accurate measure of future technology needs
- Financial impact analysis of technology related projects and implementations
 - Total Cost of Ownership
 - Return on Investment
- Acceptable Use Policy
 - Finalize terms and conditions with legal
- Cost-Benefit Analysis E-Rate Process Management
 - Identify and understand the technology needs of the District to facilitate all possible E-Rate funding opportunities
 - Provide accountability as well as a detailed asset inventory to meet SLD and FCC guidelines

- Circuit provisioning
- Disaster Recovery/Business Continuity
 - Develop and maintain an up-to-date disaster recovery plan for Information Technology assets throughout the District
- Policies and Regulations
 - Develop regulations and policies to govern IT
- Oversight and management materials preparation for strategic planning stakeholders
- Work with other departments, teachers, staff, and students to develop effective solutions to diverse and complex technology issues
- Develop and implement a “satisfaction survey” for users of District IT support services.
- Work with the administrators to develop department strategy
- Seeks ways to improve current business processes
- Facilitate maintenance of the District’s computer hardware and software inventory
- Making recommendations for software and improvements of computer management
- Maintain an inventory of computer hardware
- Research and develop technology related solutions
- Procurement
 - Obtain quotes from selected vendors for required hardware and software
 - Submit requisitions for IT purchase orders as set forth in District procurement guidelines
 - Maintain proper documentation of District Technology purchases

Technology Support

44 Full Time Employees	1 Supervisor of IT Services
	1 Service Desk Coordinator
	1 Technology Support Coordinator
	1 Service Desk Analyst
	4 Lead System Specialists
	15 System Specialists
	3 Computer Technician II
	16 Computer Technicians
	2 Service Desk Technicians

Purpose

The purpose of the Technology Support team is to provide timely and efficient support for DTS supplied services to students and staff. The team is structured to provide rapid and responsive IT support for both first and second tier incidents & service requests, while maintaining a high-level of customer satisfaction and technical expertise.

Responsibilities

Service Desk: The primary, central point of contact for all incidents and service requests by way of phone and web self-service. Responsible for performing the initial triage, diagnosis, and escalations of reported incidents and service requests.

- Acts as the central point of contact for end-users requiring IT assistance by way of phone or email support requests
- Create, respond to, diagnose, document, and escalate as-needed customer generated incidents and service requests within established service levels
- Respond to and communicate major incidents to the appropriate DTS Management and personnel
- Update new and existing documentation related to DTS Service offerings
- Generate Incident and Service Request reports to DTS Management for the purpose of continual service improvement
- Communicate to customers any changes to, or planned outages of DTS Services using a variety of techniques to include email and Service Desk notices
- Responsible for the centralized inventory of spare parts and laptop loaners

Technology Support: Dedicated on-site and itinerant technicians to support the schools and administrative offices. Responsible for detailed analysis and diagnosis of reported incidents and the coordination of completing service requests as assigned.

- Create, respond to, diagnose, document, and escalate as-needed customer generated incidents and service requests within established service levels
- Install, maintain, and decommission computers, printers, and peripherals
- Deploy software images on new and existing computing hardware
- Deploy software and system tasks through a variety of techniques including both manually and remote deployment
- Troubleshoot and repair hardware and software problems as well as facilitate resolution
- Update new and existing documentation related to DTS Service offerings
- Perform preventative maintenance on all DTS Standard equipment
- Investigate, troubleshoot, and escalate network related events as needed
- Troubleshoot, diagnose, and repair Interactive White Board incidents as needed
- Responsible for the inventory of DTS assigned computing hardware
- Collaborate on technology design for new school construction
- Coordinate with 3rd party vendors to implement, maintain, and support hardware and software throughout the district

Special Project Support:

- Summer school class configuration accommodations
- Manage and execute technology upgrade projects
- Assist and coordinate new school technology installs
- Coordinate and execute annual summer reimaging project
- Project pilot deployment and support

Technology Support - Audio Visual

12 Full Time Employees

1 AV Coordinator

9 AV Technicians

2 Cable Technicians

Purpose

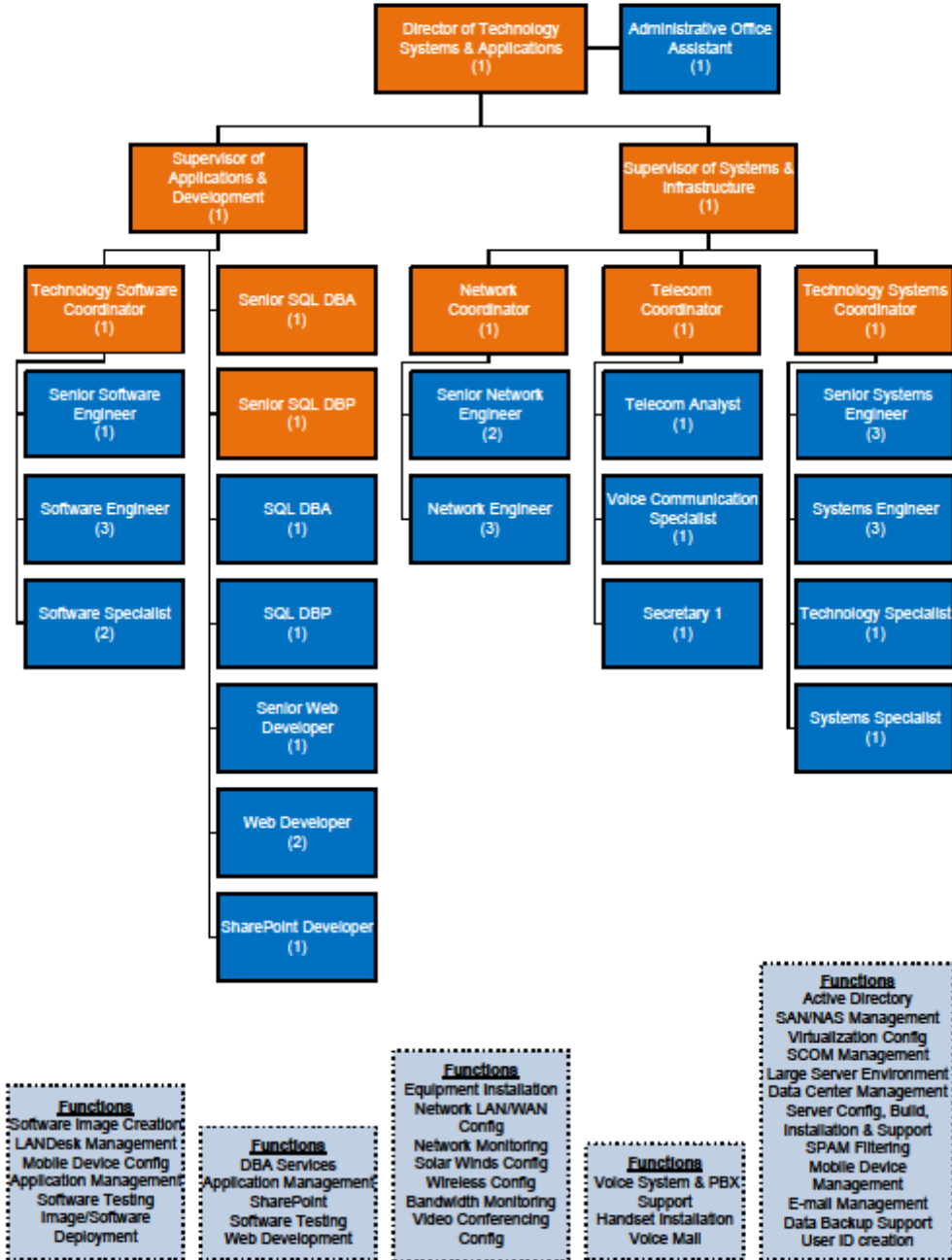
The primary role of the AV team is to manage and maintain the functionality of intercom systems, school wide broadcast systems, auditorium sound systems, interactive white boards, LCD projectors and other audio video equipment and systems. They also are responsible for setting up sound systems and other AV support for special events such as school board meetings, spelling bees, science fairs, graduations, and other LCPS hosted/sponsored events. The Cable Technicians in the office install and maintain fiber optic and other network cabling systems.

Responsibilities

Audio Visual Support

- Install and repair intercom systems (i.e. Life Safety Systems)
- Install and repair interactive white boards
- Create, respond to, diagnose, document, and escalate as-needed customer generated incidents and service requests within established service levels
- Identify, diagnose, manage, and repair auditorium audio systems
- Maintain schools' ability to broadcast video in a variety of platforms including modulation, IPTV, and other CATV systems
- Responsible for the inventory of DTS assigned AV hardware
- Install, repair, and maintain fiber optic and Cat 5e-6 network cabling
- Distribution and repair of expendable AV assets (DVD players, headphones, video cameras)
- Install systems to support events and meetings, to include large screens, audio, and other AV systems
- Advise the LCPS construction department and other departments on the configuration, design, and implementation of AV systems
- Coordinate with 3rd party vendors to implement, maintain, and support AV equipment throughout the district.

Department of Technology Services Technology Systems and Applications



Cabinet Member	Administrator	Licensed	Auxiliary	Classified
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Systems and Applications

The Division of Systems and Applications (SysApps) provides enterprise technology systems, infrastructure, software, applications, and support for Loudoun County Public Schools. SysApps is responsible for centralized support of LCPS infrastructure, networks, applications, technology equipment, systems and data storage and serves as an escalation point for infield support teams. SysApps uses a centralized technology management approach to ensure standardized, stable and consistent service delivery to all students, staff and other stakeholders. This includes the use of monitoring and management tools for alerting, configuration, troubleshooting, planning and maintenance. This centralized approach helps to limit the resources required to perform tasks and provides for a proactive support structure.

The Division is organized into two functional teams: Systems & Infrastructure and Applications & Development

Technology Systems & Infrastructure: Responsible for support of core enterprise systems and infrastructure including servers, email, network, telecom, and wireless to ensure effective transmission of secure data and services

Applications & Development: Responsible for DBA Services, database programming support, web application development, testing and support of internal and third-party applications; software deployment, workstation image development, workstation remote management and workstation patch deployment.

SysApps is responsible for district wide technologies for both enterprise and individual levels. The division is responsible for supporting all school and administrative locations by utilizing central management tools. All the functional teams work together to ensure the technologies deployed throughout the district are supported, equitable, available and efficiently managed.

Support Responsibility for SysApps Teams

97	Schools and Administrative locations
90,000	Staff and Student accounts supported
71	Developed Applications & Services
350 TB	Terabytes of Data
108	WAN Connections

The division is also responsible for researching, reviewing and recommending new technologies and solutions to address the goals of LCPS staff, students and the community. SysApps works closely with other DTS divisions, the County of Loudoun Department of Technology, other LCPS departments and vendors to provide a high level of customer service and to meet the LCPS and School Board goals for technology.

Systems & Infrastructure

23 Full Time Employees	1 Supervisor
	3 Coordinators
	4 Senior Systems Engineers
	3 Systems Engineers
	1 Technology Specialist
	1 Systems Specialist
	2 Senior Network Engineer
	3 Network Engineer
	1 Telecom Analyst
	1 Voice Communication Specialist
	3 Telecom Specialist
	1 Secretary

Purpose

The purpose of Systems & Infrastructure is to maintain, update, repair and implement network and server equipment, email and Active Directory infrastructure, virtualization systems, email filtering, data backup, telecommunications equipment and SAN storage solutions. The Systems & Infrastructure team monitors the performance of systems and services to proactively identify and resolve performance and availability problems.

Systems Support

- Architect and build the Loudoun Enterprise Active Directory (LEAD) structure to ensure proper operation
- Design, manage and maintain the DNS and IP services required for proper communication and access throughout the network
- Configure server hardware and software to meet the needs of specialized applications based on vendor requirements
- Support server hardware for enterprise clustered SQL and Windows environments to ensure high availability and minimize down time
- Monitor and support the virtual environment for effective use of resources, high availability and efficient access
- Provide full support for e-mail throughout the district

Infrastructure Support

- Design, manage and maintain the network infrastructure for the district for LAN/WAN connections
- Ensure appropriate IP protocol design is used to provide access and security for all devices accessing the district network
- Configure, monitor and maintain all network hardware required for proper connectivity throughout the district for workstations, wireless devices and phone systems

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- Configure monitoring tools to ensure timely issue resolution
 - Install and configure wireless network

Telecommunications Support

- Architect and build the Telecommunications structure to ensure proper operation
 - Design, manage and maintain voice communications services required for proper communication throughout the county to all school and administrative locations
 - Configure voice server hardware and software to enable specialized voice applications to interact over the LAN/WAN to provide voice services such as local, long distance, 5 digit dialing and voicemail
 - Support server hardware for enterprise voice to ensure high availability and minimize down time
 - Monitor and support voice communications for effective use of resources, high availability and efficient access
 - Provide full support for voice communications throughout the district
-

Responsibility

# Devices	Devices	Purpose
250	Data Center Servers (Physical & Virtual)	Hardware devices that host all services, applications, and data storage on the District level
355	School Servers	Physical and virtual servers that host domain controllers, applications, and data storage at the schools
196	Domain Controllers	Active Director Domain Controllers
360	Virtual Servers	Virtual Servers at school and data center locations
304	Physical Servers	Physical Servers at school and data center locations
2,500+	Switches	Network switching hardware providing LAN/WAN connections (wired and wireless) throughout the district
5,600+	Access Points	Wireless controllers and Access Points allow wireless devices to gain access to the LCPS network resources
1000+	UPS	Surge Suppression and Voltage Regulation, provides uninterrupted power to server and switch equipment in case of power failure
1	Backup Power Generator	Provides uninterruptable power in case of a prolonged power failure at the data center
3	SAN (Storage Area Network) & Server storage	Enterprise SAN disk array for application and file storage used by the district, providing a total of 350 TB of available data space
107	Data Circuits	District wide data circuits and the Internet data circuits
11,000+	Staff E-mail Accounts	Individual e-mail accounts for staff, application and resource use
3814	Phone sets	Digital and VoIP sets for accessing PSTN/VoIP services
647	500 POTS/130 Centrex lines	Plain old telephone lines for fire alarm, security, elevator, fax
616	PBX Trunks	Local in/out dialing/Paging system tie trunks
3680	DID Telephone numbers	Direct inward dial numbers (10 digit numbers)
1	Dial Plan	Manage dial plan to allow conflict free five digit, local and long distance dialing for all sites
3	Toll Free numbers	Toll Free numbers
26	Local PRI circuits	District wide local in/outbound voice circuits
2	Long Distance PRI circuits	Dedicated long distance circuits
1851	Voice mailboxes	Individual voicemail accounts for staff, application and resource use

Enterprise Support Applications

Office 365	Enterprise email, IM, and calendaring system
Active Directory	Core directory service for the district
Service Desk	Central repository for incident management
Backup Exec	Server Backup Software
SQL	Standardized database providing a centralized database location used by many of the district's departmental applications
SolarWinds	Network Monitoring application
McAfee/Intel	Virus Protection application
LANDesk	Workstation management, software deployment, imaging, asset management and patching applications
SpotLight	AD & SQL Database management applications
CallPilot	Enterprise voicemail system (60 Voice channels/2000 mailboxes/2400 hours storage)
CallPilot Reporter	Application report server
Telephony Manager	System Manager for legacy Nortel systems
Network Routing Service	Routing server for H323 Trunks (Admin Bldg. Primary, Freedom HS Backup)
System Manager	System Manager for IP office phone system and UCM
Session Manager	Routing server for SIP Trunks (Admin Bldg. Primary, Freedom HS Backup)
UCM	System Manager and Security Server for legacy Nortel systems
Verasmart	Call Detail Report server

Application Server Support

Application Served	Department	Description
AceWare Application	Instruction	Adult Education online class registration and tracking system
Active Roles Server	DTS	Active Directory Management- Sync with SIS, GroupWise Database, and Web based management
Alchemy Application	DTS	Records archiving system
Building Utilization	Planning	Building utilization and room allocations system
EduLog	Support Services	Bus route creation and management system
Expressions	Personnel	Employee ID badge creation system
Faster Application	Support Services	Transportation garage maintenance records management system
Office 365	DTS	Support ADFS and DirSync for e-mail system
Groeware	Personnel	Workflow and resource scheduling system
Key Management	DTS	Microsoft KMS key management server
HyperV	DTS	Microsoft Hyper V virtual server and workstation system
Image X Application	Support Services	Transportation garage document scanning and processing system
Imagine Learning	DOI	Instructional Tool
Infrastructure Servers	DTS	Infrastructure systems Active Directory, DNS, DHCP, Security and other such system
LANDesk Application	DTS	Hardware, software and asset management system
LANDesk Service Desk	DTS	Service Desk application
LDAP	DTS	LDAP connectivity for several internal and external applications (Clarity, Phoenix, Mackin VIA)

Application Served	Department	Description
Log Rhythm	DTS	Event and Server Log consolidation, tracking and management system
McAfee EPO Application	DTS	Virus Protection system
Personnel Web App	Personnel	Area for Personnel office web development applications
Phoenix Application	DTS/Pupil Services/DOI	Student Information, Grade Book and IEP system
Pupil Services Web App	DTS	Area for Pupil Services staff web development applications
School Interoperability Framework	Instruction	Vertical SIF system in cooperation with VDOE
SharePoint	DTS	Part of Office 365
Shavlik	DTS	Server and OS patch auditing system
SpotLight	DTS	SQL database alert and management system
Stanley	Support Services	Badge access monitoring and control system
Synovia Application	Support Services	GPS bus route tracking and management system
Teleforms Application	Instruction	Survey software and test administering system
Trip Tracker Application	Support Services	Field trip and extra bus trip request, creation and management system
Web Applications	DTS	In-House developed web applications
WinOcular	Personnel	Employment application and applicant tracking system
Xerox Application	Support Services	Xerox print management system
CallPilot Applications	Various	Auto-attendant menus for callers
Absentee Mailboxes	All Schools	Attendance voicemail boxes

Applications & Development

16 Full Time Employees	1 Supervisor
	1 Coordinator
	1 Senior Web Developer
	2 Web Developers
	1 SharePoint Developer
	1 Senior Software Engineer
	3 Software Engineers
	2 Software Specialist
	1 Senior SQL Database Administrator
	1 Senior SQL Database Programmer
	1 SQL Database Administrator
	1 SQL Database Programmer

Purpose

The purpose of Applications & Development is to develop web-based applications, maintain internally developed as well as purchased applications, test software, build workstation images, manage databases and provide appropriate access to application data. The team also supports SharePoint development throughout the enterprise. The Applications & Development team also responds to service desk requests for third-tier application support, researches new software and ensures software requirements are addressed to work within the district standards.

Application Development

- Design and develop customized applications based on customer requirements to meet specific LCPS needs
- Maintain and monitor existing in-house applications for performance, availability and security
- Provide support and development for the LCPS student information system (Phoenix)
- Provide third-tier support for purchased applications, work with vendors and support staff to address issues
- Standardize the development language, tools, methodology and processes used by all web development staff across the division
- Perform all project management tasks using ITIL and PMI best-practices
- Test the developed applications to ensure utility and warranty are based on customer requirements
- Perform application troubleshooting and remediation

Software Engineering

- Provide remote image deployment, software deployment, remote control, inventory and security patch management support of over 35,000 devices using systems management software (LANDESK)

- Design and administer systems management software strategy and deployment
- Provide training for 50+ analysts on systems management software and best practices

- Design and administer hardware-independent operating system “images” for distribution on over 50 models of desktop, laptop, tablet and virtual machines
 - Images include OS, enterprise software and required settings and security setting required for proper operation in the district’s environment
- Provide testing, packaging, distribution and licensing support on 111 LCPS-approved Instructional software titles (referred to as Combined Matrix)
- Evaluate, test and prepare new software solutions for deployment following standardized processes to ensure appropriate utility, warranty and security requirements are met
- Provide third-tier support for software troubleshooting and problem resolution to field staff
- Work with 3rd party vendors to implement, maintain and support applications throughout the district

Database Administration

- Manage and maintain all SQL database environments for the district
 - Environments include Active/Active and Active/Passive clusters as well as un-clustered SQL instances
- Setup scheduled SQL maintenance plans for backups, indexing and optimization based on best practice or specific vendor requirements
- Monitor database alerts, troubleshoot, and remediate problems
- Analyze and perform database configuration setting changes to address recurring system and performance problems
- Provide primary database support for the LCPS student information system (Phoenix)
- Provide support and assistance to vendors for performance and optimization-related database issues
- Ensure all databases are fully optimized and configured to function within the requirements of the application
- The team provides direct support for 424 databases throughout the enterprise
 - Production databases: 58
 - Test/Development/Staging/Other databases: 366

Application Development Technologies

- Architectures - Internet Application Delivery, Client/Server, Data Retrieval, ODBC, CVS, Team Foundation Server Change Control Systems, LDAP, Patterns, Windows Workflow Foundation, MS Entity Framework
- Programming Languages – C#, C, C++, Visual Basic, LINQ, Java, XML, HTML, HTML5, CSS, CSS3, jQuery, JavaScript, AngularJS, MVC, VB Script, SQL, Flash, Silverlight, Adobe Illustrator, Adobe Photoshop
- Operating Systems - Windows XP/Win7, Linux, Macintosh, LANs, WANs
- Mobile System Support – Support for mobile platforms
- Databases - Microsoft SQL Server 2005, 2008, 2012, 2014, 2016, Oracle, DB2, Microsoft Reporting Services, Microsoft Access, Jet Engine
- Enterprise Application Servers – IIS, ASP, ASP.NET, MVC, SharePoint

DTS Developed SharePoint sites (within Office 365)

- 29 Elementary School Sites
- 18 Secondary School Sites

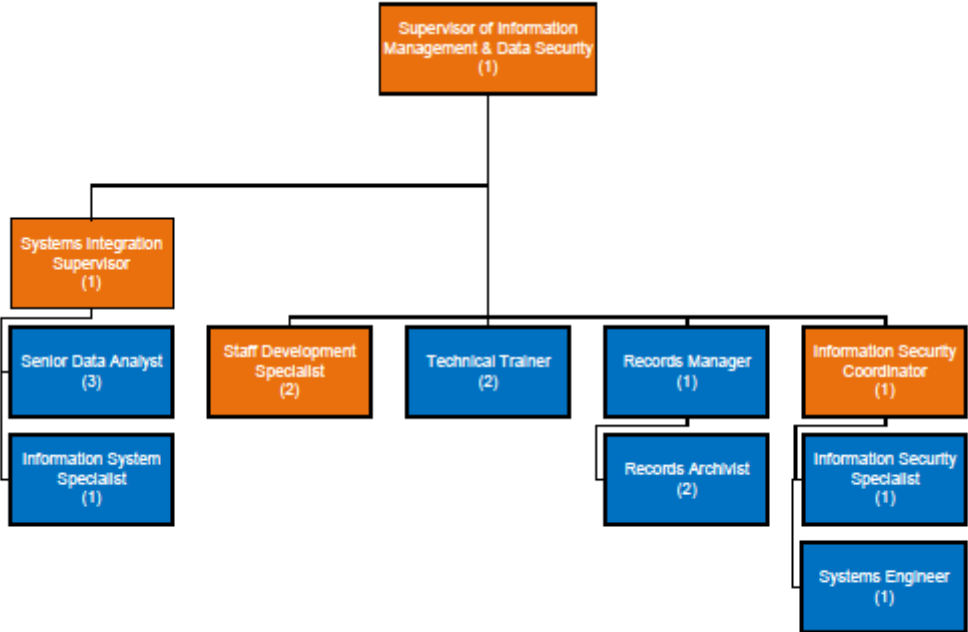
- 46 Administrative Sites
- 15 Cross Utility Sites

DTS Developed Applications

Application	Dept./Division
Academy of Loudoun – AET Registration	Instruction
Admin Visitor Sign-In System	Support Services
AT Tracker	Pupil Services
Athletic Trainer Student Tracker	Instruction
BMS	Business & Finance
Business Card	Public Information
CALS	Pupil Services
College Fair	Instruction
Concern Registry	Transportation
DPS Kiosk	Personnel
Electronic Forms Manager	DTS
ELL Program Student Records	Pupil Services
Facilities	Construction
Forms Catalog	Pupil Services
Grandfathering Survey	Planning
Home Instruction (Notice of intent)	Pupil Services
Home Instruction (Notice of intent) Internet	Pupil Services
ID, Interventions & Monitoring	Instruction
Incident Management System	Business & Finance
Instructional Software Review	Instruction
Intranet	District
Job For A Day	Instruction
Label (Internet)	Planning
Label (Intranet)	Planning
LCPS Applications (Warm Up)	DTS
LCPS Applications Portal	DTS
Leave Calendar (Business & Finance)	Business & Finance
Leave Calendar (DTS)	DTS
Musical Events - MESO (Internet)	Instruction
Musical Events - MESO (Intranet)	Instruction
One To The World Survey	Instruction
Online Courses	Personnel
Payment Portal	Business & Finance
Personnel Query Tool	Personnel
Positive Behavior	Pupil Services
Pro Staff Development	Instruction
School Profiles	Instruction
School Survey	Planning

Application	Dept./Division
Science Fair	Instruction
Software Engineering SharePoint	District
SPAR (Sports Physicals)	Instruction
Special Permissions	Pupil Services
Staff Directory	District
STEM Camp Registration	Instruction
Substance Abuse (SSORS)	Instruction
Summer In The Arts	Instruction
Summer Programs (Summer School Registration)	Instruction
Virtual Loudoun	Instruction
Total Compensation	Business & Finance
Web Code Manager	DTS
Web Services AT Tracker	DTS
Web Services ELL	DTS
Web Services Employee Lookup	DTS
Web Services IMS	DTS
Web Services Is Alive	DTS
Web Services Job For a Day	DTS
Web Services Locator	DTS
Web Services Payroll	DTS
Web Services Phoenix Student Information	DTS
Web Services School Lookup	DTS
Web Services Science Fair	DTS
Web Services Send Email	DTS

Department of Technology Services Information Management & Data Security



Functions
 Application SME
 Application Support Content
 Application Security
 Data Analysis
 State Reporting
 Data Assurance
 Data Ethics
 Data Collection
 Application Testing
 User Documentation

Functions
 Records Management
 Transcript fulfillment

Functions
 IT Security
 Policies & Regulations
 Content Filtering
 Firewall
 NAC
 VPN
 Security Management
 Security Patching
 Awareness Programs



Information Management and Data Security

16 Full Time Employees	1 Supervisor
	1 Information Security Coordinator
	1 Information Security Specialist
	1 Systems Engineer (Security)
	1 Information Systems Specialist
	1 Systems Integration Supervisor
	3 Senior Data Analysts
	2 Staff Development Specialists
	2 Technical Trainers
	Records Manager
	Records Archivists

Purpose

The primary role of Information Management is providing a structure for data governance for LCPS, promoting data assurance, data ethics, data collection and reporting, data exchange, and end-to-end functional support to ensure business process efficiencies, uniformity and continuity.

Information Security is responsible for protecting students, faculty, and staff information, while ensuring a safe and secure computing environment for the students, faculty, and staff. Information Security is also charged with developing and implementing a district wide information security program, documenting and enforcing information security policies and procedures, development and implementation of a district wide information security awareness training program, and coordinating response to an actual or suspected breach of information assets or IT systems.

Records Management is responsible for promoting and auditing the records retention practices for student records as determined by GS-21, and for developing and implementing the district-wide FERPA staff development efforts to ensure protection of data.

Responsibilities

Strategic Operations

- Manage student information system for district, including teacher grade book and parent and student portals
- Promote efficiency of operations and data integrity through process improvement
- Audit, analyze and report on student demographic and academic achievement data
- Plan for, evaluate, and assist with integration of software applications related to student information, including other data systems, classroom instructional management systems, e- Transcripts, and academic and career counseling systems
- Produce VDOE state reports related to federal and state accountability, pupil accounting,

membership, graduate and dropout reports, certain personnel reports, foreign language reports and special education reports

- Produce monthly reports for the Superintendent and senior staff on enrollment and attendance data, course enrollment, student mobility, and discipline statistics
- Ensure Virginia pupil accounting laws and regulations are communicated and enforced at local schools
- Manage all software development initiatives related to the student information system
- Implement data collections as mandated by USDOE and VDOE
- Conduct training for all levels of management on how to use student data to meet local, state and federal requirements, include FERPA training for all users of student information
- Supervise records management operations for inactive files and ensure retention schedules are communicated and adhered to
- Serve as liaison between school system and Library of Virginia for management of student records

Student Information

- Demographic Information includes
 - Household Information
 - Contact Information
 - School zone information
- Enrollment Information includes all data related to students including
 - Past, present and future enrollments
 - IEP and ELL tracking and reporting
 - Title 1 tracking
 - GATE participation
 - Migrant and Immigrant tracking
 - Residency
 - CTE
 - Free/Reduced Lunch
 - VHSL eligibility (sports and competitive activities)
 - Graduation and Drop Out tracking
- Attendance Information includes
 - Maintenance of calendars for all buildings
 - Daily Attendance
 - Attendance letters
 - Extract data to Connect ED (parent communication system)
 - ADA and ADM reporting
 - Audits of attendance
- Health Information includes
 - Health conditions
 - Immunization status
 - Clinic visits (past, present, future)
 - Health alerts

- Scheduling Information includes
 - Maintenance of bell schedules for all buildings
 - Student and teacher course requesting
 - Audits of schedules and requests
 - Master schedule and individual scheduling
 - Mass scheduling and scheduling reports and analysis
- State Reporting includes
 - Student record collection (Fall, December, Spring, End of Year, Summer)
 - Instructional Personnel and Licensure
 - Career and Technical Education
 - Master Schedule reporting
 - Grading and assessment
- Behavior Information includes
 - Event and Resolution information for all incidents
 - Discipline reporting for local, state and federal use
 - Audits of incidents and dispositions
- Grade-Reporting Information
 - Definition of grading scales and weights
 - Publication of grading process
 - Audits of grades
 - Loading of grades extracted from grade books
- Student Transcripts
 - Maintenance of student academic records for prior school years
 - Maintenance of credit totals, calculation of verified credits, and GPA calculation
 - Audits of transcript data for elementary schools
- Assessment Information
 - Match data and transform files for score import
 - Extract data for use in District and State assessments
- Employee Demographic Information
 - Staff number
 - If licensed staff, type of license and number ○
If licensed staff, endorsement information ○
Job Title
 - District location
 - Employment start and end date
- User/Security Information
 - Verify and remove duplicate user ID's
 - Give access to district location/s
 - Give access to correct areas of responsibility
 - Disable accounts due to resignation/retirement/lack of use
 - Monitor proper usage of accounts

File Transfers

- Creation and automation of file transfers between systems both internal and external

Support

- Publish user documentation, including videos and quick reference guides
- Respond to requests for information
- Provide data extracts for other applications
- Provide support for analysis of data

Information Security

- LCPS's commitment to information security is embedded in the expectation that all members of the organization will meet the professional, ethical and regulatory standards associated with their individual roles. Information Security is responsible for developing, implementing, maintaining, and promoting a district wide information security awareness program. This includes, but is not limited to, compulsory information security awareness training for both new and current students, faculty and staff.
- Develop, implement, maintain and enforce information security policies, procedures, and regulations for all areas of the district. Actively monitor for policy compliance, and serve as a point of contact for reporting any instances of possible noncompliance.
- Evaluate, implement, monitor, maintain, and enhance systems designed to protect LCPS's assets, information, information systems, and databases from; vulnerabilities, theft, unauthorized or illegal access, accidental or intentional damage or destruction, inappropriate use, and unauthorized disclosure. This includes assuring that information security systems and applications used by LCPS operate effectively and provide appropriate confidentiality, integrity, and availability, through the use of cost effective management, personnel, operational, and technical controls.
- Develop a structure for assigning information security responsibilities, both at an overall organizational level and at each functional level within the organization.
- Ensure School Board and management awareness of the need for information security and their participation in the development, implementation, and approval of security policies and regulations.
- Ensure timely investigation and forensics of information security events, incidents, breaches, to meet all regulatory and industry requirements and to minimize their impact.
- Coordinate incident response (IR) activities based on established policies and procedures. Participate in "Lessons Learned" exercises and communications as a follow-up to major incidents.
- Monitor developments in the security, information security, information technology, and educational fields to identify new opportunities and new risks. Perform research to identify new detective and preventative controls and based on the aforementioned research, recommend and/or implement measures to improve LCPS information security.

- Interpret information security requirements emanating from external bodies, such as government agencies and standards-setting groups. Provide support to Information Management’s compliance efforts for Children’s Internet Protection Act (CIPA), Family Educational Rights and Privacy Act (FERPA), Health Insurance Portability and Accountability Act (HIPAA), Protecting Children in the 21st Century Act by ensuring proper information security controls are in place.
- Act as an information security consultant to the organization and represent LCPS on information security matters to external groups (e.g., participating in meetings to establish technical standards).
- Information Security will periodically review (assess) the procedures, records, and activities of the various areas of the division to assure that information security management, operational, and technical controls are appropriate and functioning effectively.

2017 Security Awareness Calendar: Interesting and informative security related subjects sent via email to all LCPS staff and posted on Intranet page as well.

• Jan – It’s Everyone’s Job	• Jul – Safe at Home
• Feb – Mobile (Portable Devices)	• Aug – Back to School (Policy Updates)
• Mar – Compliance (Internal & External)	• Sep – Online Security/Privacy
• Apr – Passwords (Best Practices)	• Oct – National Awareness Month
• May – Spring Cleaning	• Nov – Common Sense (Tips & Tools)
• Jun – Travel Safe (Wi-Fi, Internet Cafe)	• Dec – Insider Threat (Hacker vs Us)

Security/Tools Management

LCPS utilizes a robust suite of industry standard security services, applications and tools in order to protect the privacy, integrity, and availability of information, data, and electronic resources within the LCPS environment. These include, but are not limited to; anti-virus, firewalls, monitoring and filtering methodologies all implemented in conjunction with established policies, procedures and guidelines.

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Information
Technology**

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Tasks DIT performs for LCPS or performs with the cooperation of LCPS staff

- Financial and HR mainframe servers and application support - joint use with County
- Tivoli backups for some data and application servers