



2023 STATE OF TECHNOLOGY

Miami-Dade County
Public Schools





The Vision

A Vision for the future of technology at M-DCPS

that includes considerations for teaching and learning. The scope of this three-year vision is designed to provide a district-level blueprint for technology initiatives with implementation timelines spanning 2021 through 2024 *and beyond.*





Skills

Provide opportunities to develop 21st century digital literacy and problem-solving skills



Technology

Provide the technology to meet the needs of teaching and learning in the 21st century classroom.



Connectivity

Provide robust connectivity in the schoolhouse and offer options for home connectivity



Integration

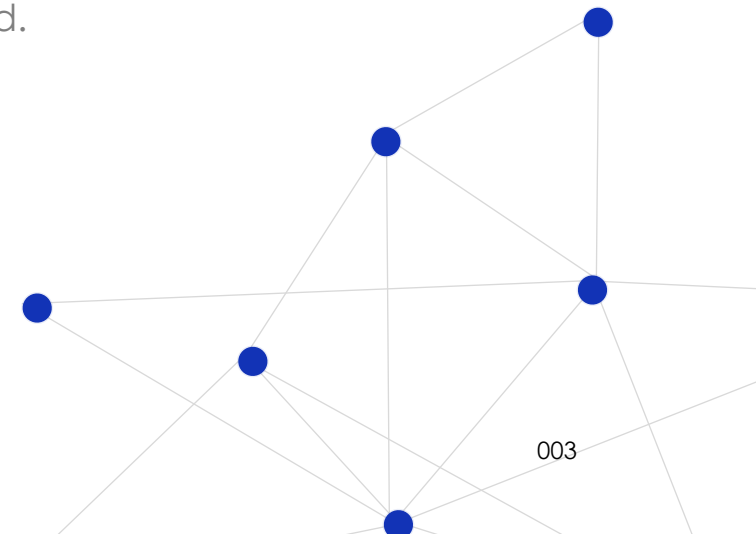
Provide technology integration strategies for instruction.

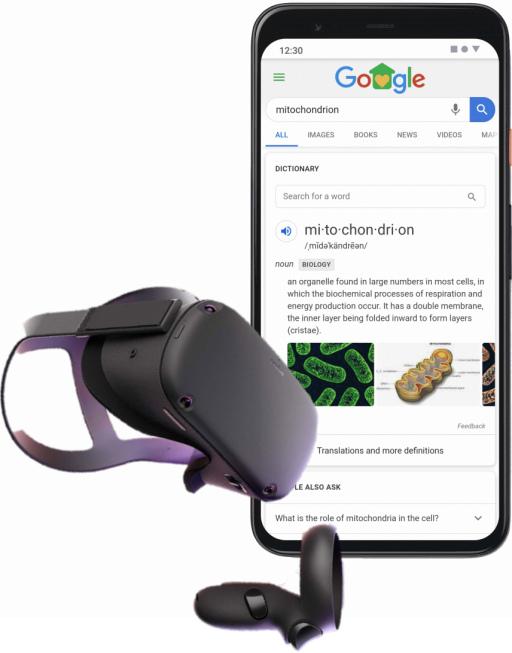


The Principles

Four principles behind the Vision

These principles are part of a much larger conceptual framework that will drive technology advancements in the District over time. The EdTech Vision for the District is based on the transition from one horizon to the next as the organization as a whole works to obtain a fundamental goal of providing personalized learning for every child.





Teaching & Learning

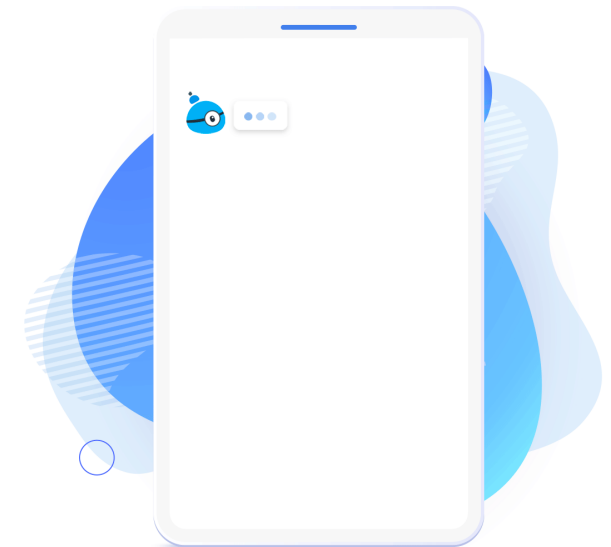
Tools of the Future

Today

- Artificial Intelligence will focus on identifying what a student does or doesn't know, and subsequently developing a personalized curricula for each student.
- The use of Chatbots to automate assessments and provide instant feedback and analytics.
- The use of Virtual/Augmented Reality creates opportunities for teachers to help students grasp abstract concepts.
- The use of interactive Video Learning tools expands opportunities to extend or support learning.



Microsoft Copilot



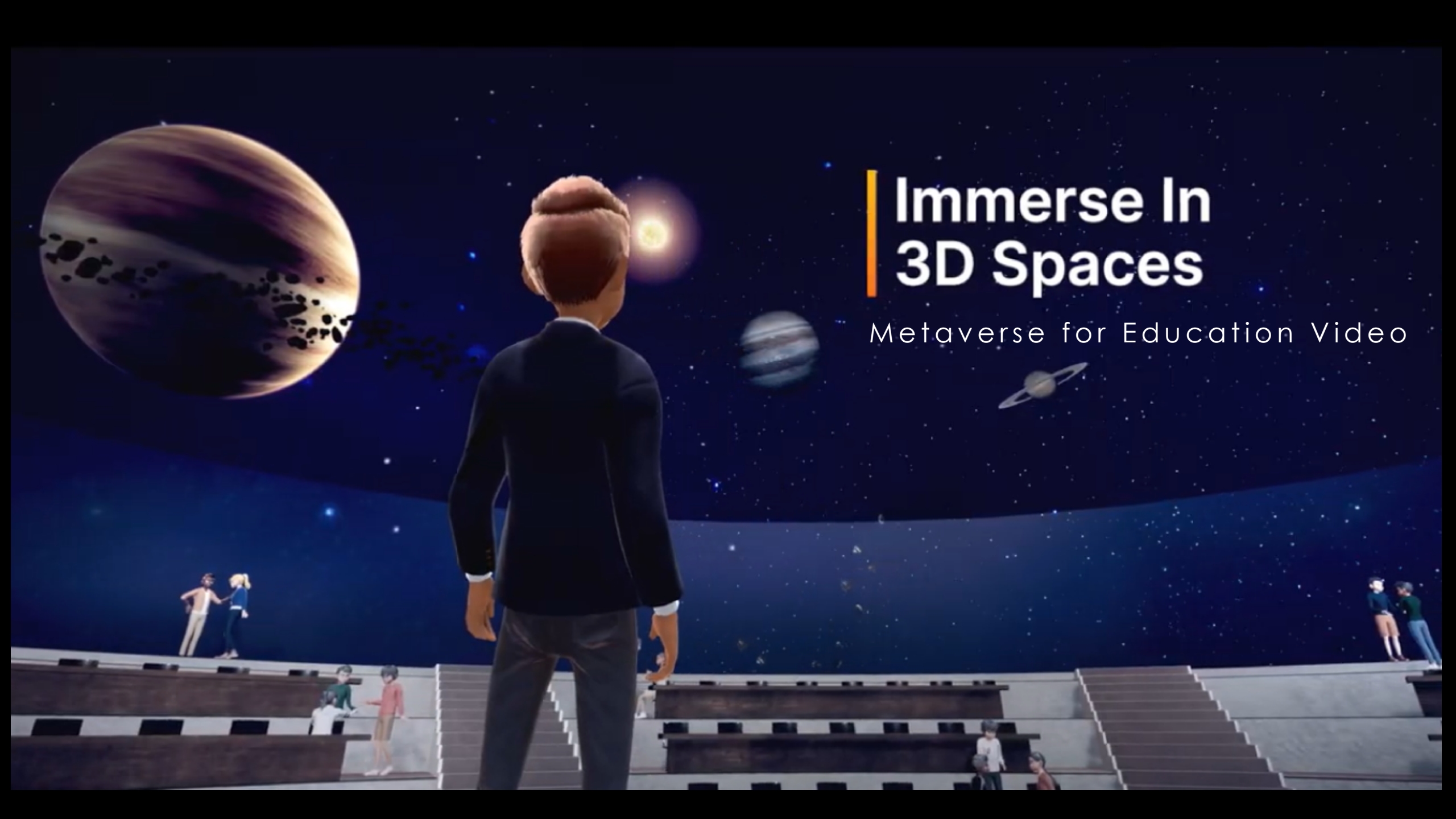


*What are we
preparing for?*



The Metaverse





Immerse In 3D Spaces

Metaverse for Education Video



See the World
in a **New** Way



AI in K-12 Education

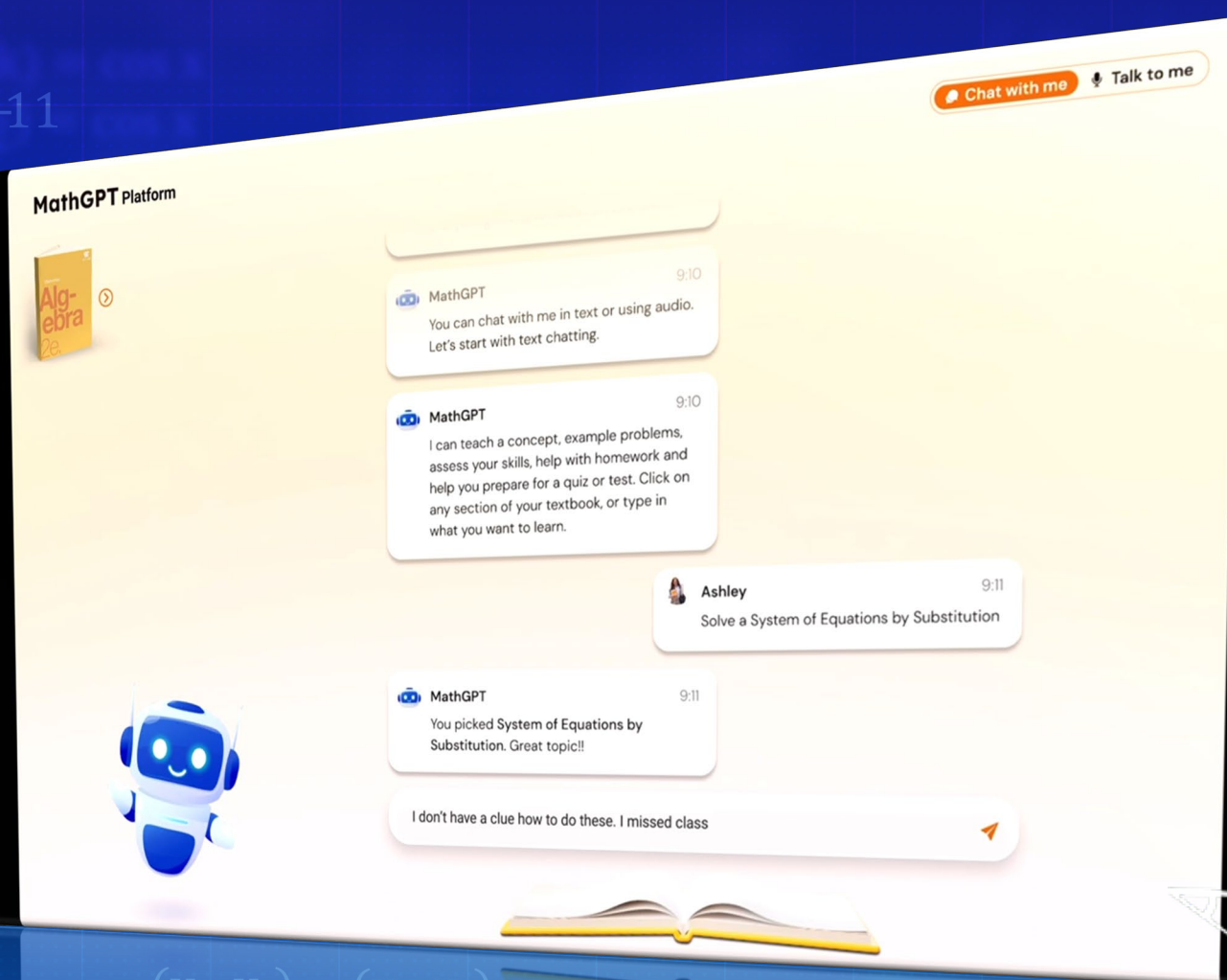
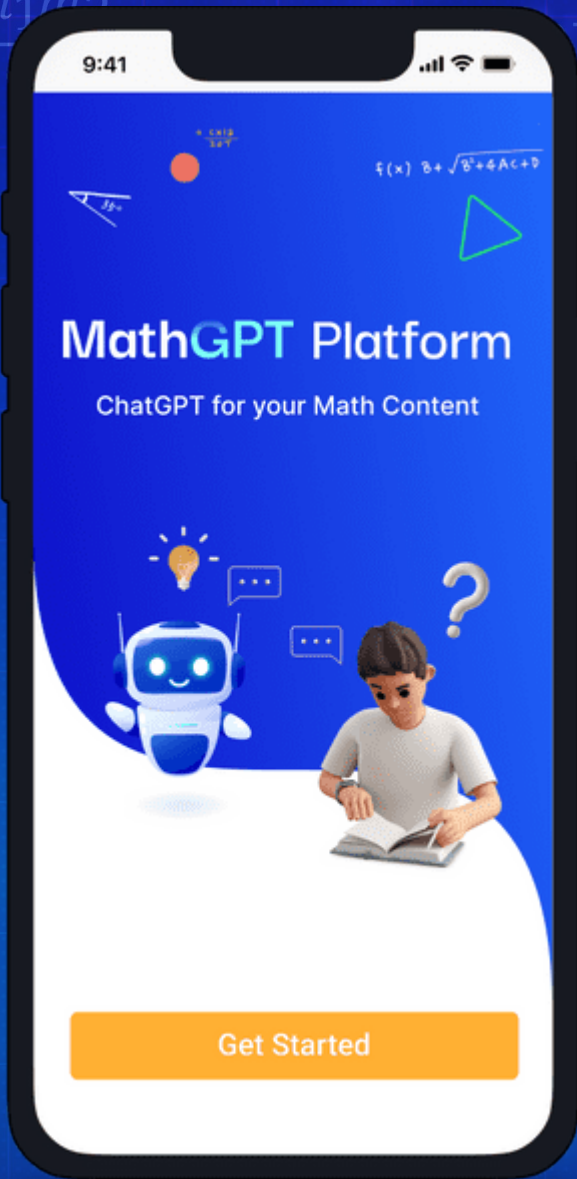
Miami-Dade County Public Schools



Ms. Lisette Alves
Asst. Superintendent
Academics



Mr. Daniel M. Mateo
Asst. Superintendent
Innovation & School Choice




$$\frac{1}{2\pi i} \oint \frac{f(z)}{z-a} dz$$

ac

$$= \frac{c \times 1a}{20T}$$

LLM AI trained for M-DCPS Algebra 1 Books

 Big Ideas Learning +  Got It




Introducing



Microsoft 365 Copilot

 Microsoft 365

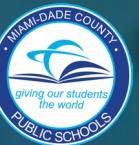
A modern, minimalist desk setup. In the center, a laptop is open, displaying the text "Microsoft Copilot Video" on its screen. To the right of the laptop, there is a white pen holder with a pair of scissors and several pens, a small white box, and a blue pen tray. To the left, there is a vase with dried, colorful flowers. In the background, a large window offers a view of a vibrant, colorful landscape with rolling hills in shades of pink, orange, and blue under a clear sky. A blue office chair is partially visible in the foreground on the left.

Microsoft Copilot Video

The next
revolution in
computing



Enhancements to Classroom Technologies



Future Acquisitions | Laptops

Mobile Devices for Students/Teachers

Intel® Pentium® Silver N6000 Processor (4M Cache, up to 3.30 GHz)

8-16 GB volatile storage

120GB SSD hard drive

Microsoft Windows 11

Integrated or Discrete graphics processor capable of 1440 X 900 resolution, or better (1920 X 1080 or 1200 ideal)

802.11 ax/Wi-Fi 6 & 5.0 BT wireless technology or greater

5 MP front-facing camera capable of capturing/recording images and video at 1080p; Built-in mono-speaker (2w); Built-in microphone

Eight-hour battery capacity

11.6-inch diagonal multi-touch capacitive touch display -1440 X 900 minimum resolution or better

At minimum, the device must include the following ports:

- 3 USB (USB 3.0 + 1 USB-C)
- 1 HDMI
- 1 3.5-mm stereo mini-jack
- 1 RJ-45

3.5 lbs. or less weight

5-year minimum with a 3-5 year battery warranty included



Extend the lifetime of devices by converting them to chrome devices: approx. 2 year extended lifetime.



chromeOS Flex

Instructional Mobile Devices

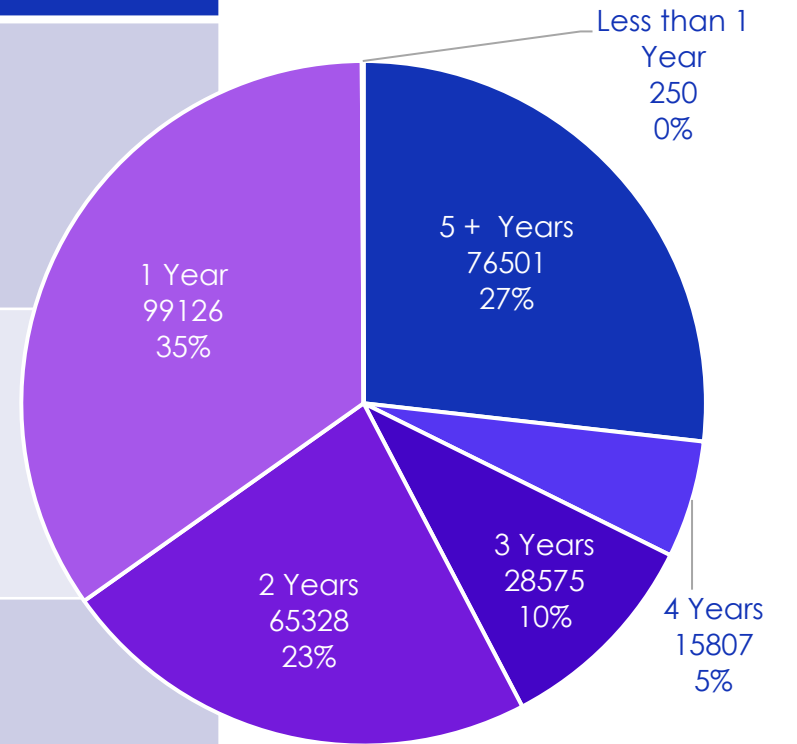


Student Laptops

Achieve and sustain a 1:1 device/student ratio by 2024

Metric	Cadence / Cost
Full Inventory Overhaul	\$ 114 million 5 years
Annual Recurring Costs	\$ 1 million
Historical Funding Sources <i>(limited)</i>	-ESSER

Age of Existing Mobile Devices



Instructional Mobile Devices

1:1 Initiative
Mobile Devices

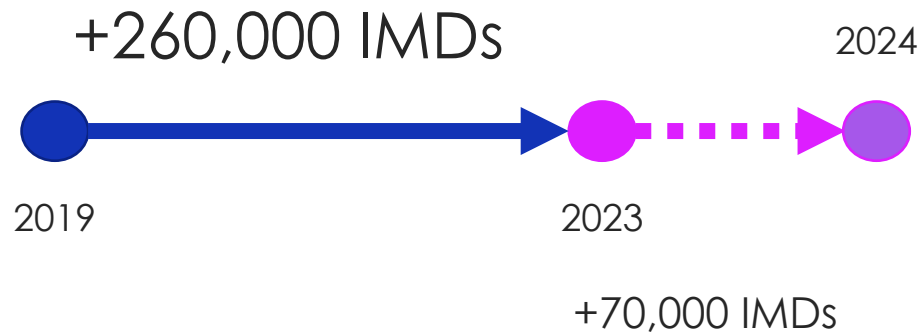


On-Going

- Lenovo
- HP
- Dell
- iPads
- MacBooks

Status	Number of Sites
Completed Sites 1:1	69
Sites 90% - 99%	81
Sites 87% - 90%	180
Sites < 87%	4

Today



Instructional Mobile Devices



On-Going

- 7-days
- 21,225 obsolete devices
- Devices are out-of-warranty, beyond economical repair, & contain obsolete technology



Obsolete Collection Site	Schools	Devices
MIAMI CAROL CITY SHS	50	2,703
HIALEAH SHS	55	3,141
MIAMI JACKSON SHS	45	3,553
CORAL PARK SHS	32	2,169
WEST MIAMI MS	27	2,024
ROBERT MORGAN SHS	105	7,635
Grand Total	314	21,225

Recycling of Obsolete IMDs

- HP ElitePad 900
- HP ElitePad 1000
- HP Pro Tablet 10
- HP 210 G1 PC
- HP ProBook 11 G1



Instructional Mobile Devices

Power BI
Inventory of IMDs



Report has been filtered to exclude devices that are broken, in repair, lost, stolen, or marked unlocated. Devices not returned by students are included and every effort should be made to inventory those devices or transfer them to the school where the student is currently enrolled. If the student is no longer with MDCPS, leave the device without inventory.

Region

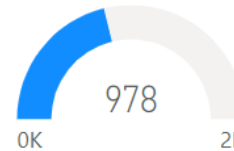
All

School Name

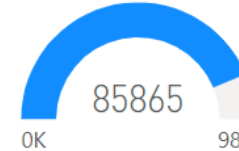
All

SPRING 2023 IMD INVENTORY STATUS TRACKER

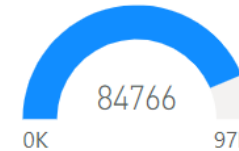
AltEd Progress



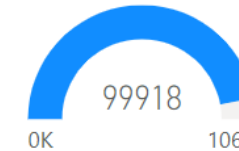
North Progress



Central Progress



South Progress



District Progress

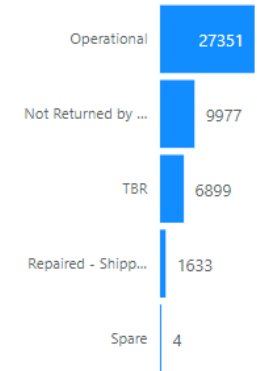


Complete

- Inventory 2023
- Preparation for rollover to IIQ
- Over 266k assets physically accounted for.
- March 1 through May 5
- District is now reconciling missing assets

School_Region	School Code	School Name	Devices to Inventory	Inventoried Devices	Pending Inventory	Inventory Co
ALTED	0331	CHAPMAN PARTNERSHIP EARLY CHILDHOOD CENTER NORTH	34		34	
ALTED	0351	CHAPMAN PARTNERSHIP EARLY CHILDHOOD CENTER SOUTH	65		65	
NORTH	0361	Biscayne Gardens ES	85		85	
ALTED	2531	THENA C. CROWDER EARLY CHILDHOOD DIAGNOSTIC SP ED	95		95	
0	2861	JRE LEE	20		20	
CENTRAL	3301	MIAMI PARK ELEMENTARY	56		56	
SOUTH	4651	Ethel F. Beckford ES	18		18	
0	6151	DORAL MIDDLE	1		1	
7	7070	YOUTH CO-OP PREP HIGH SCHOOL	30		30	
0	7202	Miami Beach Adult Community Education Center	25		25	
ALTED	8021	TITLE I MIGRANT EDUCATION PROGRAM	966		966	
	8119	THE 500 ROLE MODEL ACADEMY	40		40	
NORTH	0092	NORMAN SO EDELCLUP K-8	2,356	706	1,650	
CENTRAL	1601	EDISON PARK ELEMENTARY	572	233	339	
CENTRAL	2981	Liberty City ES	486	257	229	
NORTH	7191	HIALEAH GARDENS SENIOR HIGH	2,881	1,548	1,333	
ALTED	8012	PACE CENTER FOR GIRLS	55	30	25	
CENTRAL	1361	FREDERICK DOUGLASS ELEM	298	176	122	
Total			306,700	274,214	32,486	

Pending by Status



Definitions

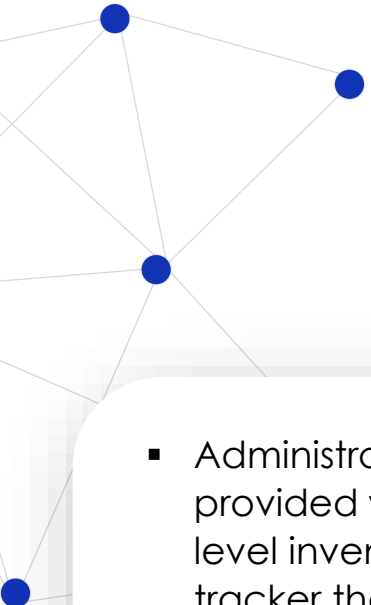
Operational - stored at School, in Loaner Groups, Checked out to Students

Not Returned by Student - include



Instructional Mobile Devices

Power BI
Inventory of IMDs



Complete

- Administrators provided with site-level inventory tracker that identified missing assets and monitored progress.
- Reports sent to school administrators daily during the inventory window.



SPRING 2023 DAILY IMD INVENTORY STATUS TRACKER

Report has been filtered to exclude devices that are broken, in repair, lost, stolen, or marked unlocated. Devices not returned by students are included and every effort should be made to inventory those devices or transfer them to the school where the student is currently enrolled. If the student is no longer with MDCPS, leave the device without inventory.

May 07, 2023

233002@dadeschools.net

KINLOCH PARK MIDDLE

973

Devices to Inventory

920

Inventoried Devices

95%

Inventory Completion Rate

53

Pending Inventory

Inventory Completion Gauge



Definitions

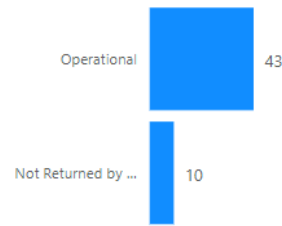
Operational - Stored at School, In Loaner Groups, Checked out to Students

Not Returned by Student - includes devices checked out to students at your school and to those not at your schools. Make sure to transfer devices to the student's current school. If the student is no longer at MDCPS, leave marked Not Returned by Student.

TBR - These are obsolete devices to be recycled that must be inventoried.

Repaired - Shipped - These devices should be en-route to the school or at the school pending an inventory check.

Pending by Status



Devices Pending Inventory

Asset Model Number	Asset Serial Number	Checked Out	First Name	Last Name	Grade	Student Feed ID	Student
HP 210 G1 PC	CND434582Y	No					Unassigned
HP ElitePad 1000 G2 - T	CND50947J5	No					Unassigned
HP Fortis x360 G9 EDUCATION EDITION	5CG3091267	No					Unassigned
HP PRO TABLET 10 EE G1	5CD51349BY	No					Unassigned
HP PRO TABLET 10 EE G1	5CD5139GQJ	No					Unassigned
HP PRO TABLET 10 EE G1	5CD51426S2	No					Unassigned
HP PRO TABLET 10 EE G1	5CD514272P	No					Unassigned
HP PRO TABLET 10 EE G1	5CD5161JSL	No					Unassigned
HP Pro Tablet 10 EE G1 - T	5CD5126PSB	No					Unassigned
HP PROBOOK 440 G6	5CD9013736	No					Unassigned
HP PROBOOK X360 11 G1 EE	5CG3011K1D	No					Unassigned
HP PROBOOK X360 11 G1 EE	5CG3011K1M	No					Unassigned
HP PROBOOK X360 11 G1 EE	5CG3011K1V	No					Unassigned
HP PROBOOK X360 11 G1 EE	5CG3011K2F	No					Unassigned



Instructional Mobile Devices

Mobile Device
Inventory
Management



On-Going

- Role-based access for all employees and students.
- Notification workflows
- Mobile App w/ scanning
- Integrated with data pools and with the repair centers.

The screenshot shows the IncidentIQ dashboard interface. At the top, it says 'incidentIQ' with a magnifying glass icon. Below that, there are four summary cards: 'Assigned to me' (17 tickets), 'Assigned to others' (998 tickets), 'Unassigned' (513 tickets), and 'Resolved by me' (3 today). Each card has a breakdown by priority: Critical, High, Medium, and Low. Below these are sections for 'Highest Priority Tickets' (listing items like 'Dell Latitude 3160 - Display > Screen cracked / broken') and 'Your Notifications'. On the right, there is a 'Your Notifications' section with a list of items like 'Apple MacBook - Connect to printer'. At the bottom right, there is a mobile app interface showing a similar dashboard with a donut chart and ticket counts.



Classroom Interactivity

Interactive Panels

The new ITPs have a 75 inch, 4K resolution screen that is hardened to ensure safety and durability. They feature enhanced security, speed, and device management. They also provide robust interactivity with multi-device mirroring, powerful audio, Wi-Fi & direct connectivity, and an on-board operating system allowing for stand-alone use.



Interactive Panels

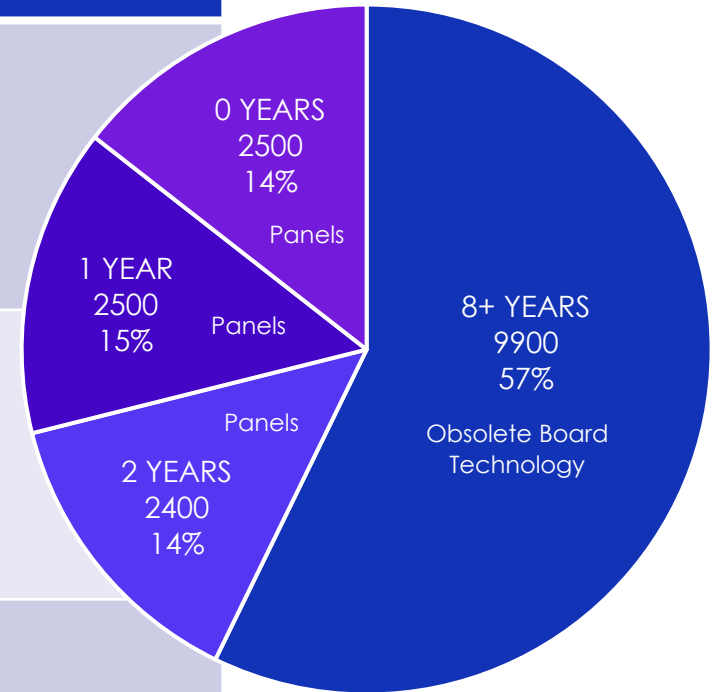


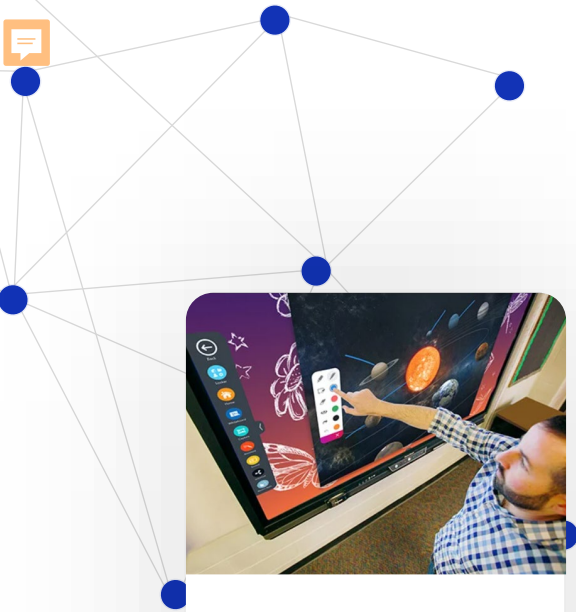
Interactive Panels

Replace existing interactive boards with new interactive panels

Metric	Cadence / Cost
Full Inventory Overhaul	\$ 60 million 10 years
Annual Recurring Costs	\$ 0 Units come with 7-year warranty on hardware/firmware
Historical Funding Sources <i>(limited)</i>	-ESSER -Capital Projects -Go Bond

Age of Existing IWBs





Hardware

Interactive Panels

Today

Status	Number of Sites
Completed School Sites	70



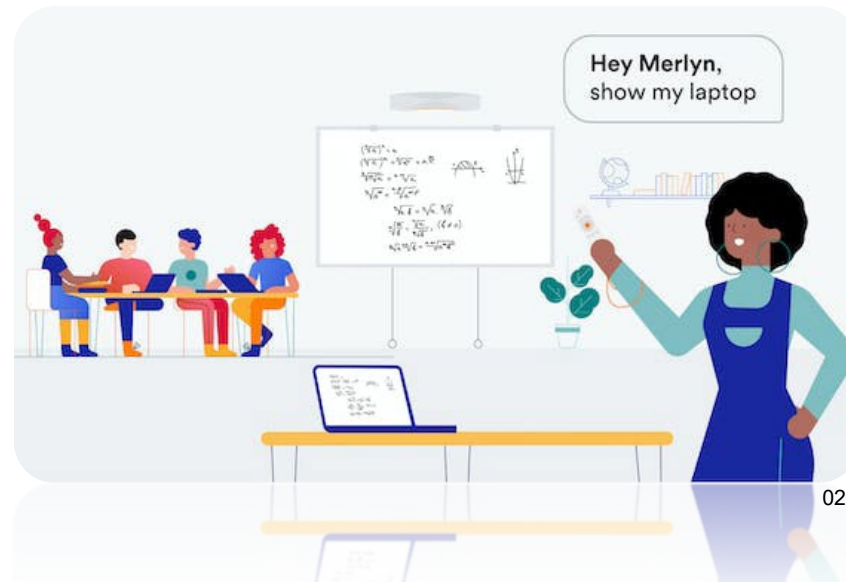
Pending Funding



- A little over 7,500 panels have been installed since 2019.
- No additional funds have been allocated to continue with replacing boards with panels.



Merlyn Mind AI Classroom Assistant





Webcam Solutions

Hyflex Classroom Readiness



“Hybrid-Flexible” (Hyflex) Classrooms are learning spaces that are remote-ready, audio-enhanced rooms that will enable easy access to distance learning. The District is moving forward with procuring and installing ceiling mounted, high-end classroom cameras for instructional use by teachers.

Ceiling Mounted, High-end Cameras | Specifications

- USB 3.0 Port
- 4K Ultra HD Video calling (up to 3840 x 2160 pixels @ 30 fps) w/ 5x HD Zoom & motorized pan/tilt
- Integrated microphone with 3 beamforming elements & 95dB SPL speaker





Hardware

Hyflex Classroom Cameras

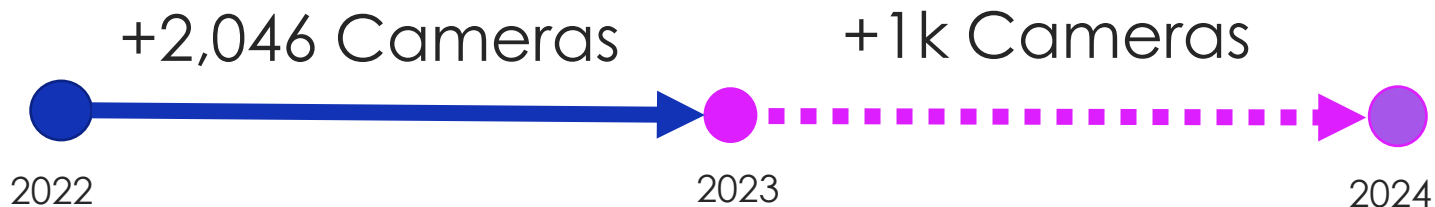
Camera Stats



Complete

Today

Status	Qty
Completed Classrooms	2,046 classrooms in 179 sites



- Cameras requested by teachers
- Installed facing front of room
- Working with Logitech & Zoom on unique opportunities to engage learners with technology.

logitech 

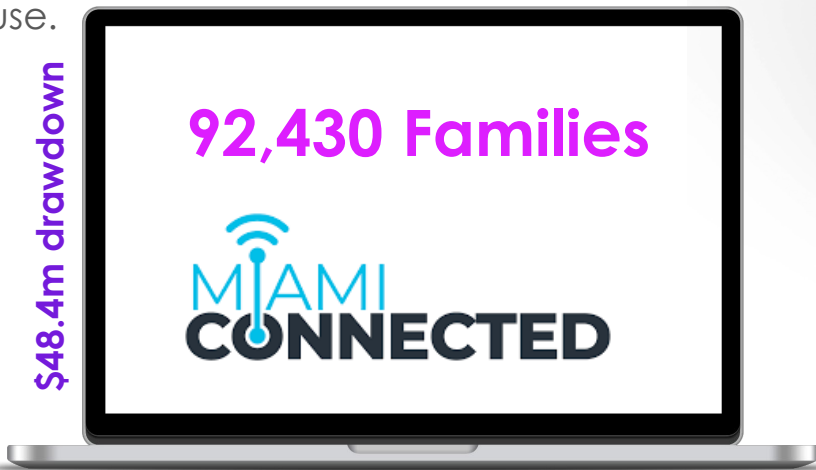
+

zoom 



Closing the Digital Divide

The District is providing options for families including partnering with T-Mobile via the ECF to provide 35,000 free unlimited data hotspots to students as well as partnering with Miami Connected to provide high speed internet via Comcast. Moving forward, the vision is to collaborate with a network of partners to create a mesh of networks in Miami-Dade County for educational use.



Free Hotspots

High Speed 5G Network
Unlimited Data

9,000 Students

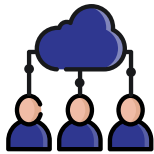




Enhancements to The Network

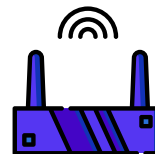


Network Hardware Upgrades



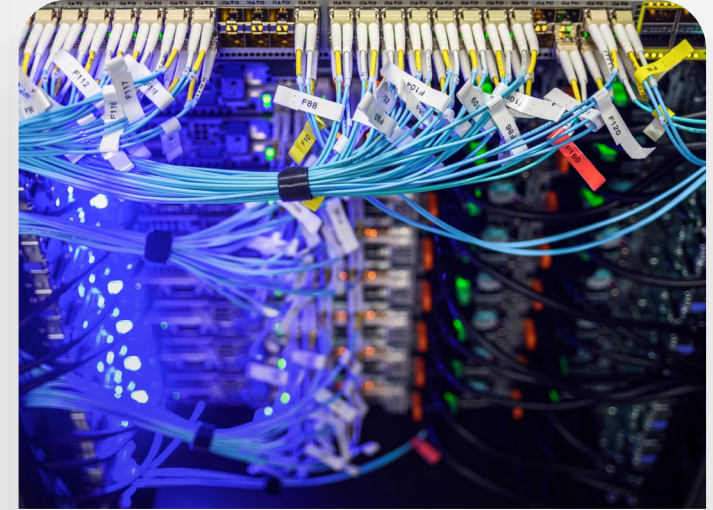
Wireless Connectivity

Upgrade 27,000 APs and add additional to "Dead Zones"



Routers

Upgrade Routers to enhance Traffic Control at schools

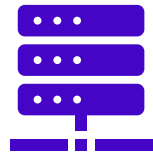
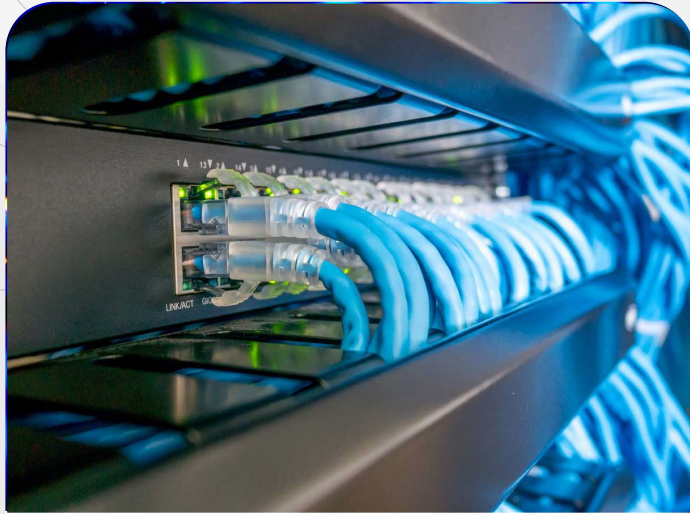


Power

Expand electrical infrastructure to support the expanding network.



Network Hardware Upgrades



Switches

Upgrade all schools to the new HP Aruba CX Architecture



VOIP

Provide each school with a Voice Over IP (VOIP) telephone system



School Network Hardware Upgrades

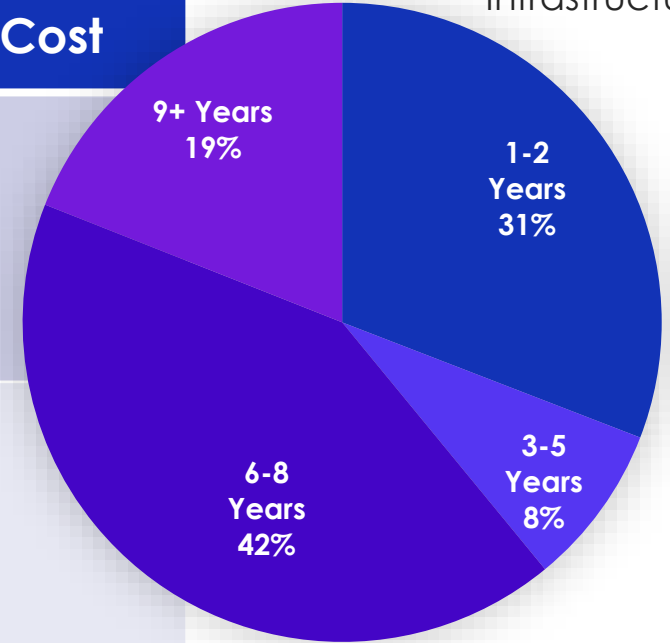


Wireless Connectivity

All schools will be at wireless systems standard **802.11.ax (Wi-Fi 6)** by the end of calendar year **2023**

Metric	Cadence / Cost
Full Wireless Network Overhaul	\$ 30 million 3-5 years
Annual Recurring Costs	\$ 2 million
Historical Funding Sources <i>(limited)</i>	-ESSER -E-Rate -Capital Projects -Go Bond

Age of Existing Wireless Infrastructure

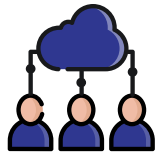


- Higher level encryption
- Advanced Intrusion detection
- Increased client count
- Increased bandwidth

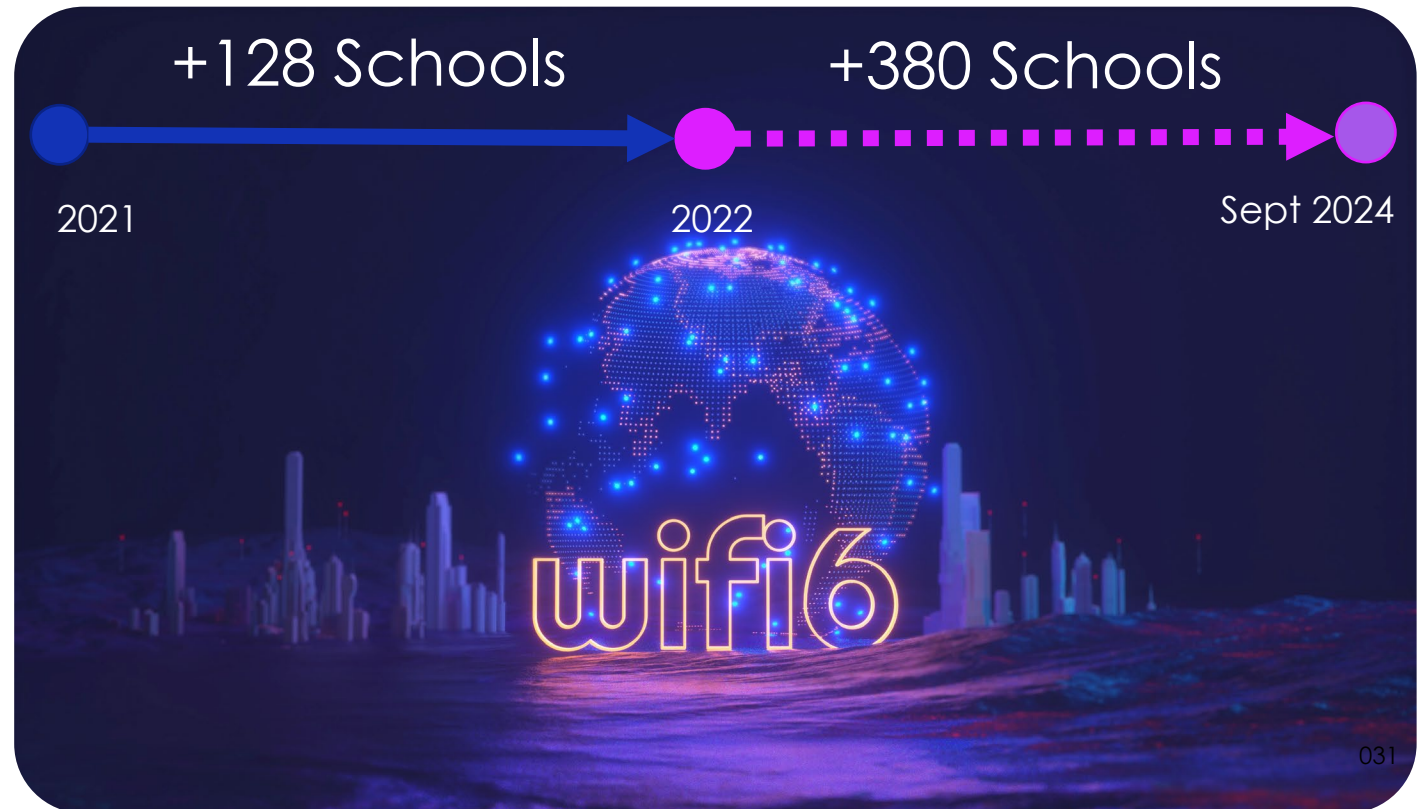


School Network Hardware Upgrades

Wireless
Infrastructure



Status	Number of Schools Completed as of May 2023
Wi-Fi 6	211



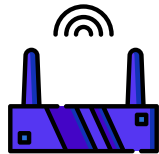
On-Going

- 211 sites upgraded to Wi-Fi 6
- Increased speed & bandwidth
- Improved Security
- Better support for mobile devices
- Better support for emerging tech
- Remaining schools to be upgraded by Sept 2024 barring supply chain issues



School Network Hardware Upgrades

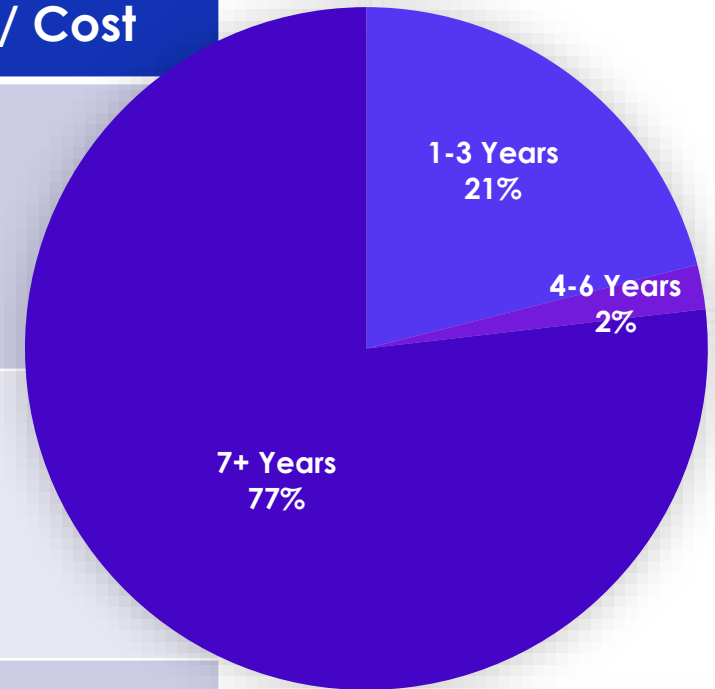
Age of Existing Routers



Routers

The goal is to deploy a high-capacity network router with elevated security features at every school

Metric	Cadence / Cost
Full Router Overhaul	\$ 7 million 5 years
Annual Recurring Costs	\$ 2,000 per unit
Historical Funding Sources <i>(limited)</i>	-ESSER -E-Rate -Capital Projects -Go Bond

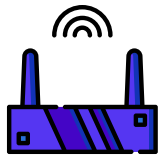


- Increased port bandwidth
- Enhanced security features
- Greater visibility from Core Network
- Threat Management

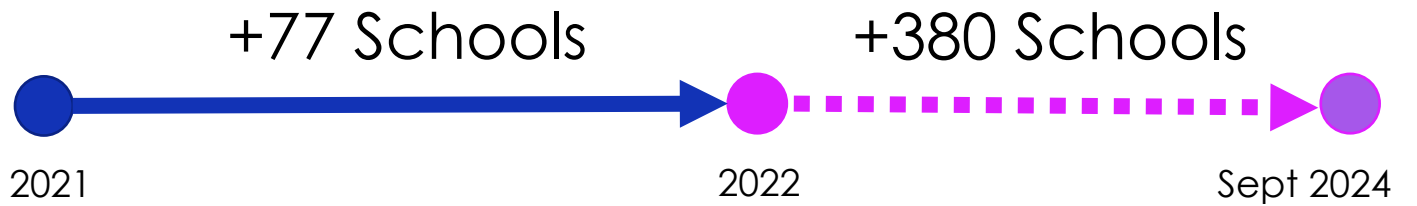


School Network Hardware Upgrades

Communications Router



Status	Number of Schools Completed as of May 2023
Enhanced Router	310

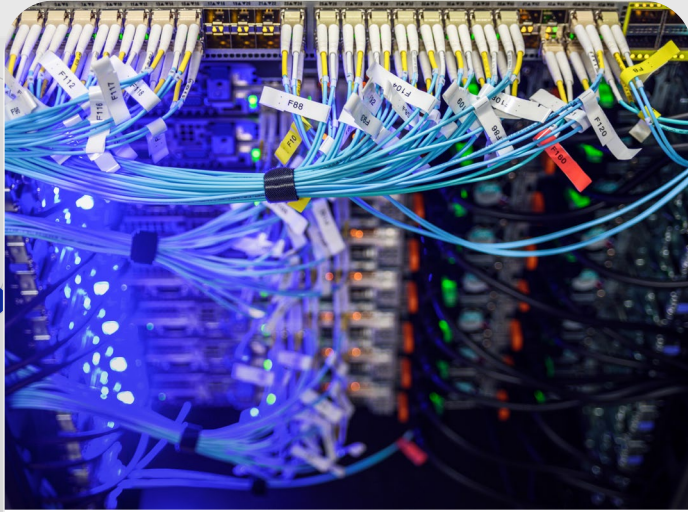


- 310 schools upgraded to enhanced routers
- 20 Gbps firewall throughput
- Application control, web filtering, intrusion prevention
- Remaining schools upgraded with future E-rate by Sept. 2024

On-Going



School Network Hardware Upgrades

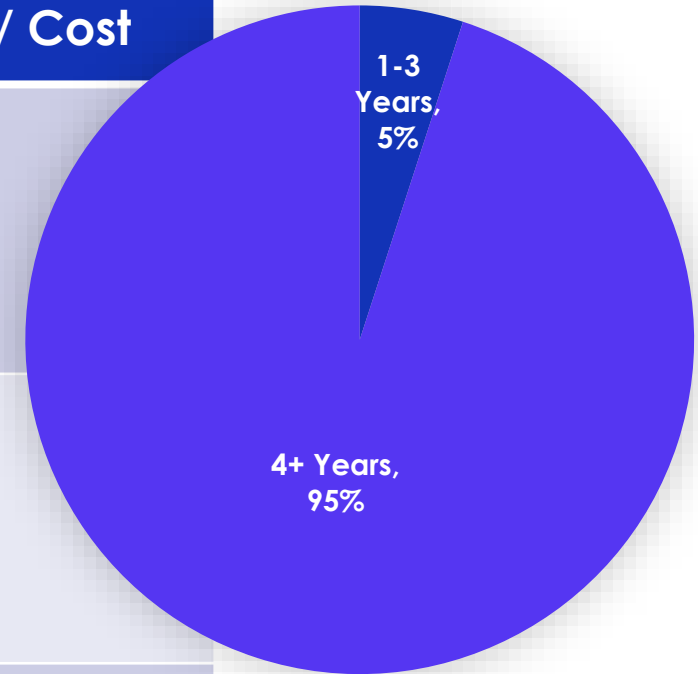


Power

Equip Lithium-Ion UPS units in all MDF and IDF closets by the end of calendar year 2023

Metric	Cadence / Cost
Full UPS System Overhaul	\$ 7 million 5-6 years
Annual Recurring Costs	\$ 0 Must be fully replaced when batteries fail
Historical Funding Sources <i>(limited)</i>	-ESSER -E-Rate

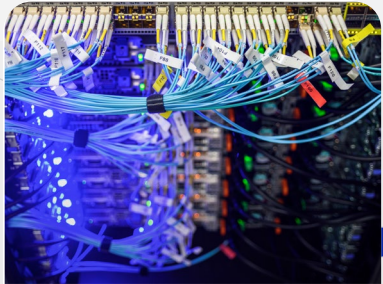
Age of UPS Units



- Power Flux Protection
- Critical systems power back-up
- Remote monitoring of UPS health

School Network Hardware Upgrades

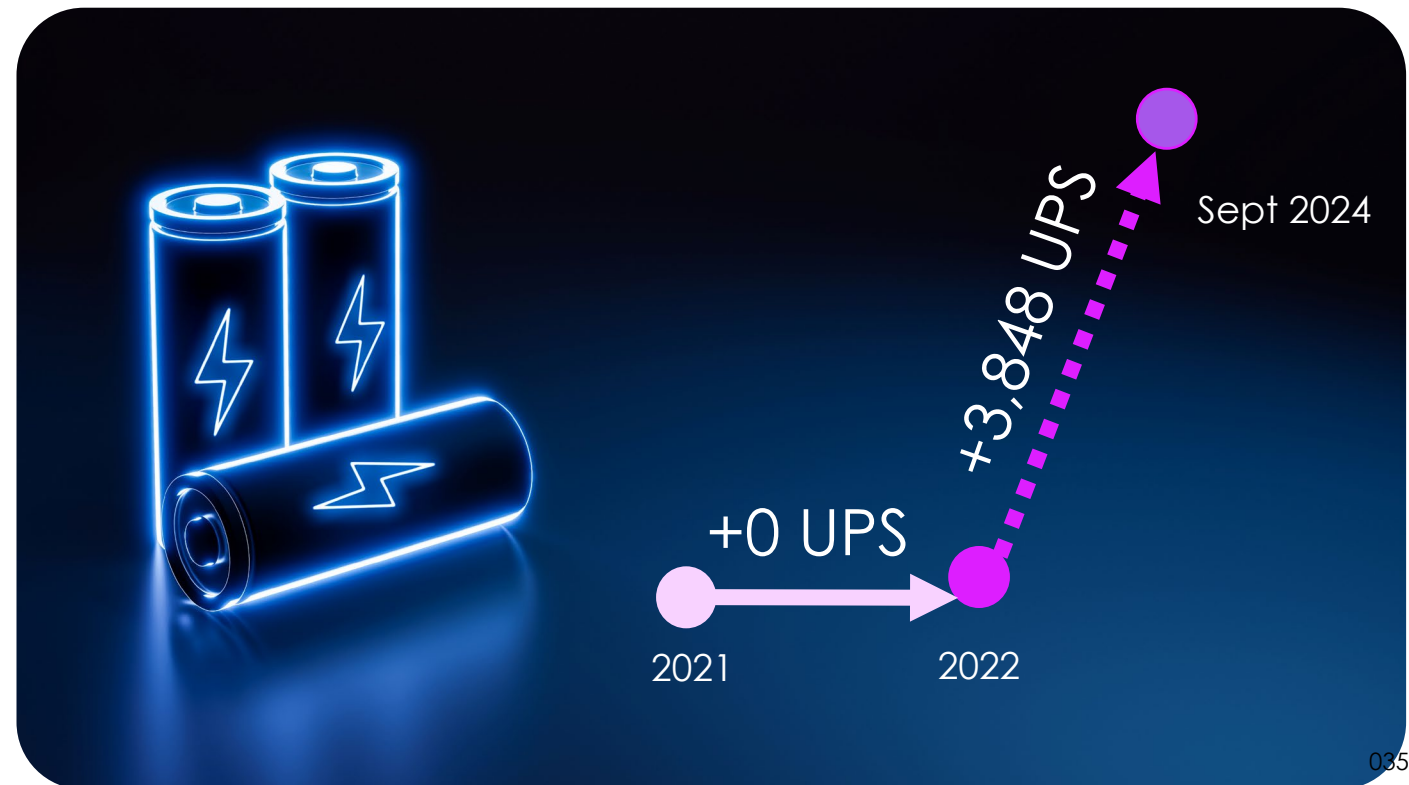
UPS Power Supplies



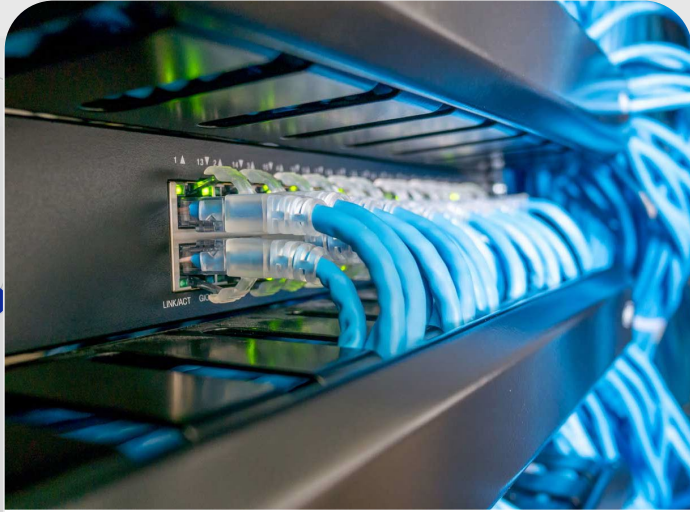
On-Going

- The Main Distribution Frame (MDF) has been updated with a new UPS at every school
- An additional 2,474 UPS units will be deployed barring any Supply Chain Issues

Status	Number of UPS Upgraded as of May 2023
Lithium-Ion UPS	1,375



School Network Hardware Upgrades

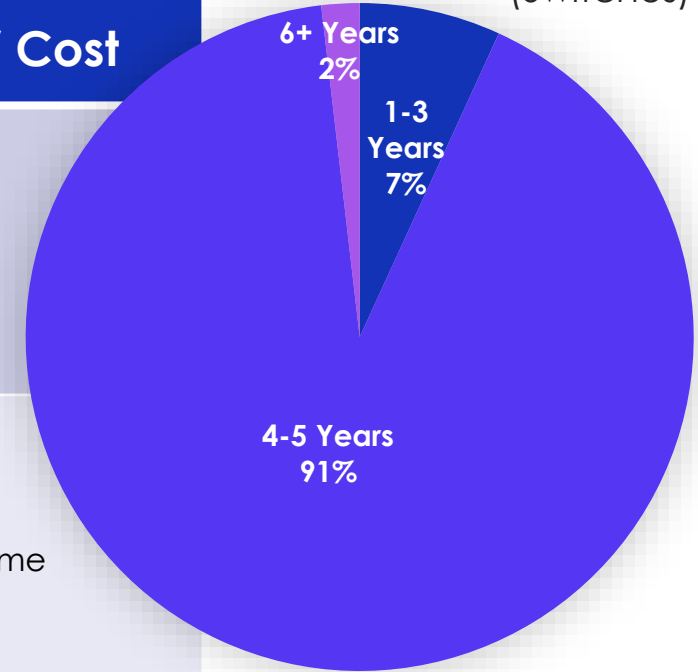


Switches

Upgrade all schools to the new HP Aruba CX Architecture

Metric	Cadence / Cost
Full Backbone System Overhaul	\$ 165 million 5 years
Annual Recurring Costs	\$ 0 Units come with lifetime warranty on hardware/firmware
Historical Funding Sources <i>(limited)</i>	-ESSER -E-Rate -Capital Projects -Go Bond

Age of Network Backbone (Switches)

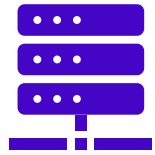


- Security updates
- Increased port bandwidth
- Increased POE
- Enhances identity mgmt. and Network Access Control



School Network Hardware Upgrades

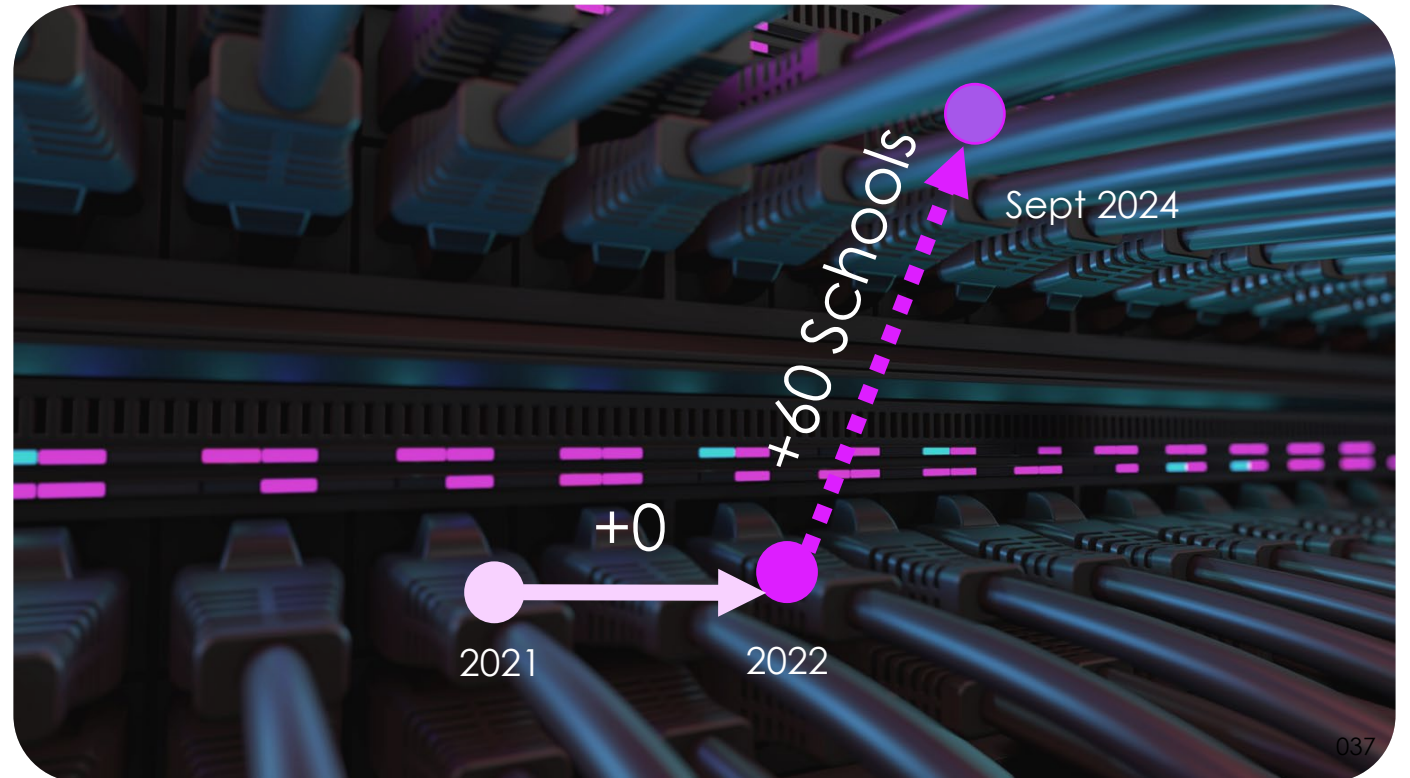
Network Backbone (Switches)



- 25 Gbps network switches
- High Speed, Scalability, Reliability, Enhanced Security
- 45 site upgrades via ESSER FY23/24
- 18 sites via FY23/24 E-Rate
- 320 remaining sites – future E-Rate
- Deployment contingent on supply

On-Going

Status	Number of Schools Upgraded as of May 2023
Network Switches	0



School VOIP Telephone Systems

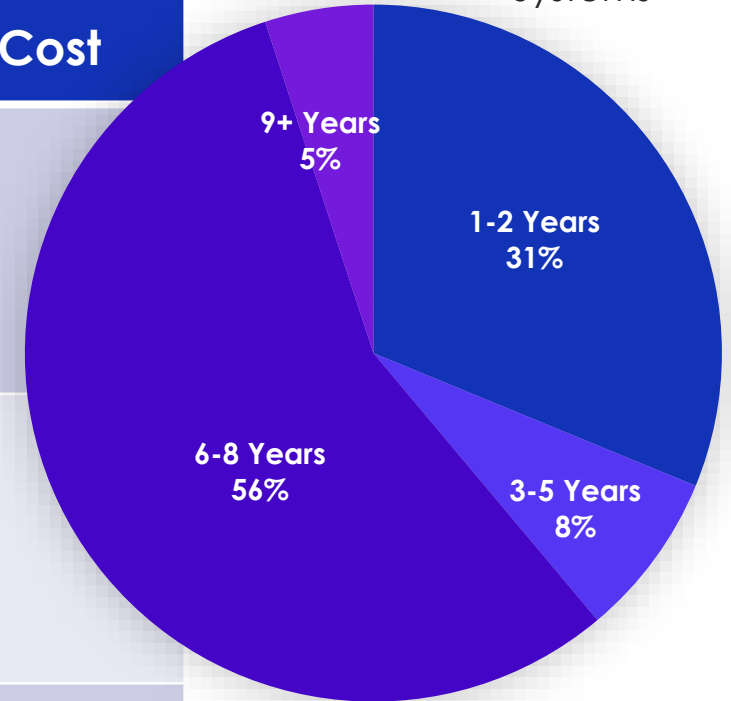


VOIP Phones

Goal is to provide each school with a Voice Over IP (VOIP) telephone system

Metric	Cadence / Cost
Full VOIP System Overhaul	\$ 33 million 7-10 years
Annual Recurring Costs	\$ 900,000 per 5 years
Historical Funding Sources <i>(limited)</i>	-ESSER -General Fund -Capital Projects

Age of Telephone Systems



- Reduced Infrastructure wiring expenditures
- MTBF and system reliability



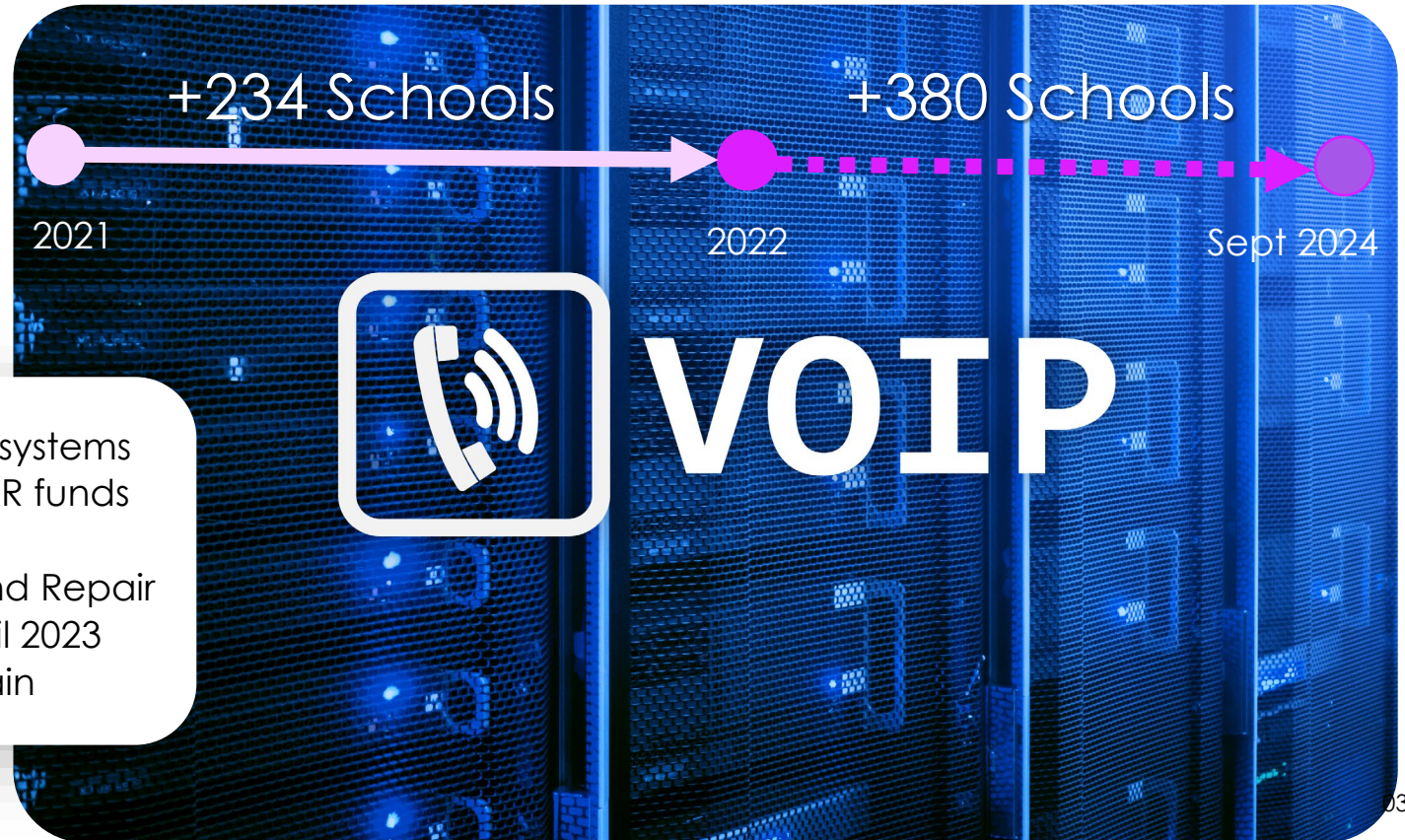
School Network Hardware Upgrades

VOIP Telephone Systems



On-Going

Status	Number of Schools Completed as of May 2023
VOIP Telephone Systems	234

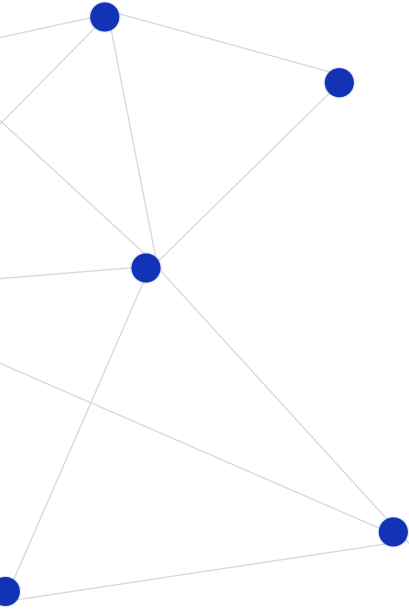


- To-Date 234 schools upgraded to VOIP systems
- 146 schools will be upgraded using ESSER funds contingent upon Supply Chain
- ITB-021-050-VF Telephone Equipment and Repair Services Awarded by School Board April 2023
- Deployment dependent on Supply Chain



Bandwidth Upgrades

Given the increased reliance on technology and online tools in teaching and learning, the District has been using traffic shaping tools to stay within the 100 Gbps network capacity and prioritize instructional use. Recognizing that technology is now the foundation of teaching and learning, the District has made the internet and network bandwidth a high priority. To support this vision, the District has the following initiatives on its current and future road map.



01

Internet Management

Using ESSER funds, the District has increased its network capacity from 40 Gbps to 100 Gbps, allowing more flexibility in bandwidth usage. Individual school traffic is monitored to ensure a good user experience and equitable usage.

02

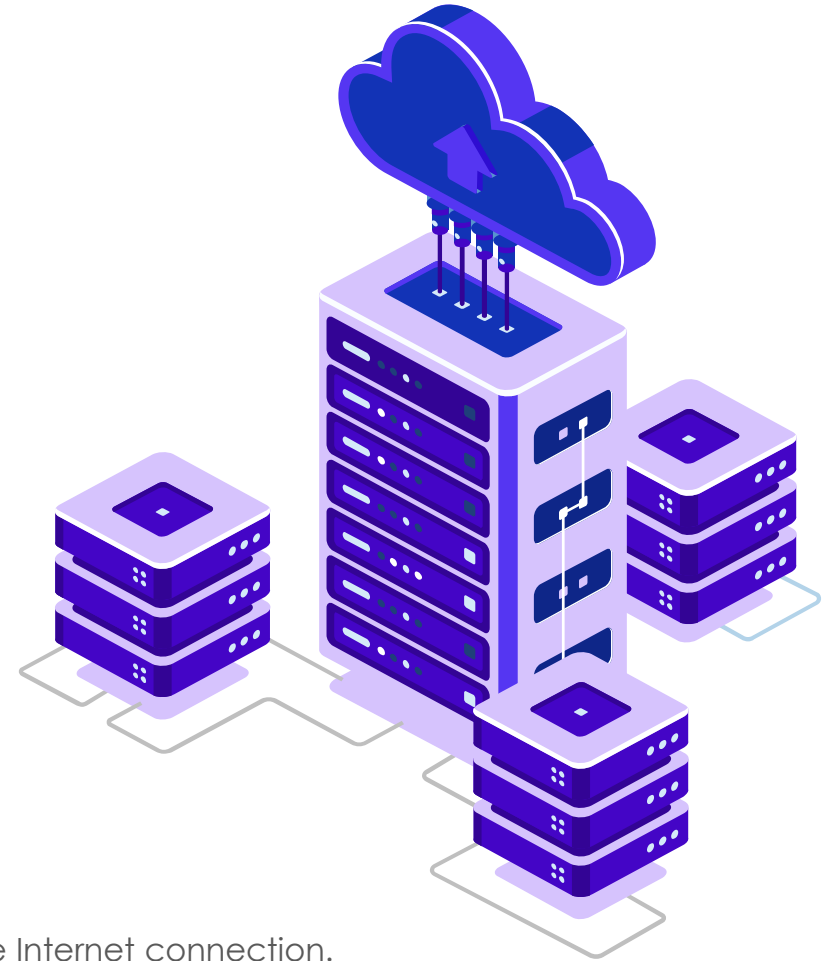
Security Enhancements

Additional DDoS protections have been added to the Internet connection. Advanced firewall features are being added to all school sites, with a completion date of September 2024.

03

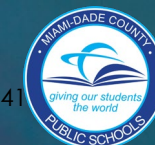
Multiple Internet Paths

The long-term goal is to build a second 100 Gbps path within the network. This solution is considered a best practice and will eliminate the reliance on a single Internet gateway, create divergent internet paths which provides redundancy should one path go down, and increase total bandwidth district-wide.





Enhancements to Our Systems



Student Information System



- Improved User Experience
- Increased Efficiency
- Enhanced Security
- Improved Compliance
- Reduced Costs
- ITN generated to be partially-funded for implementation through ESSER/ARP.



- Online Registration
- Curriculum Bulletin
- Scheduler
- Records/Transcripts
- Attendance
- Case Management
- Special Programs
- Health Info
- Certification
- FTE/DECO
- CASAS
- Online Payments
- Analytics
- SIS Reporting

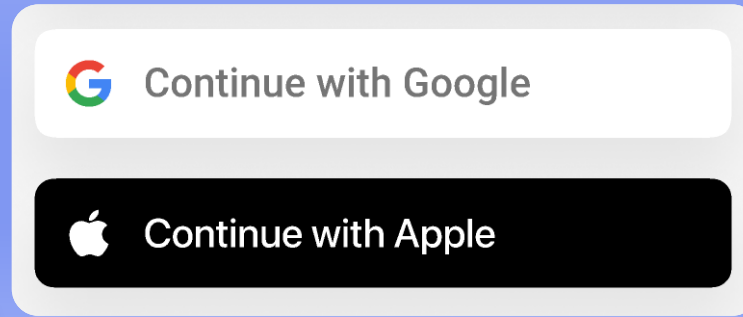


Systems

Parent Portal Accounts



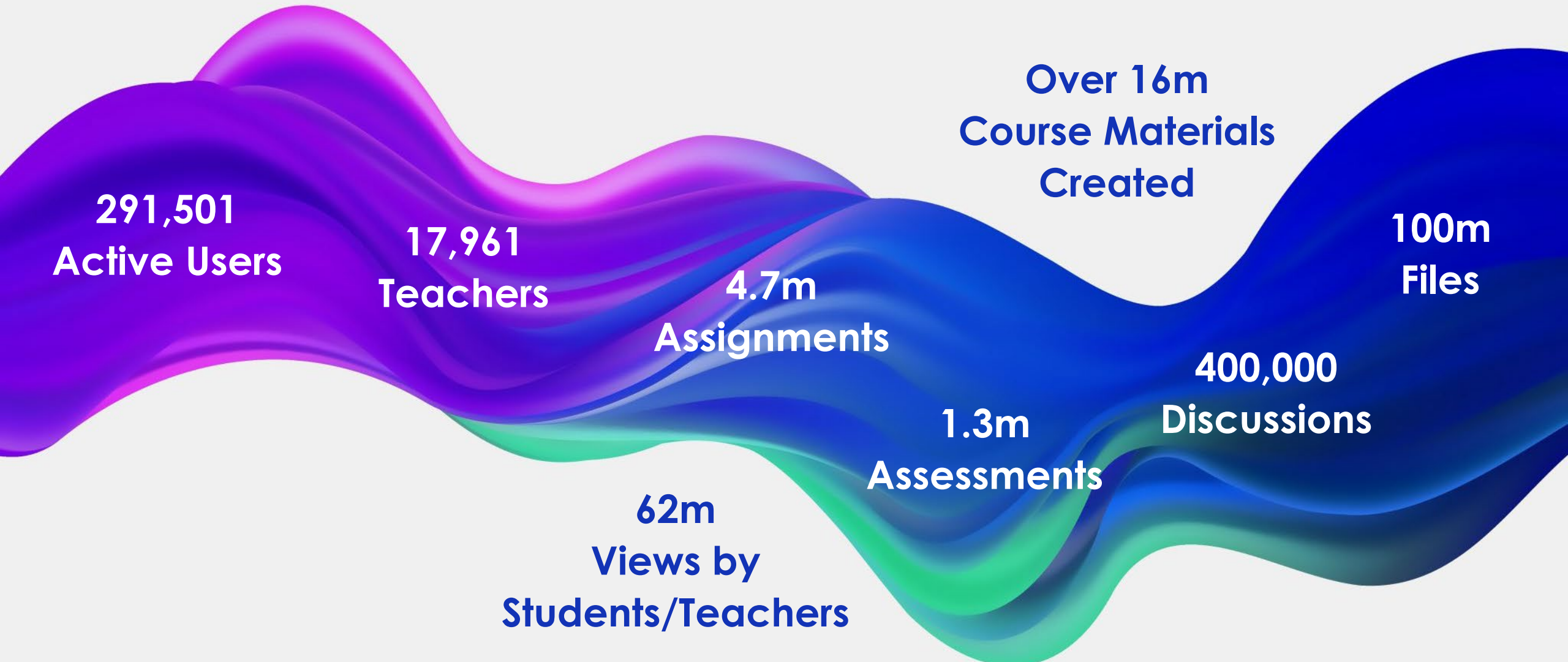
- Increased Security
- Improved Access with Google & Apple
- Reduced Costs
- Increased Flexibility
- Improved Compliance





- Upcoming Projects
 - Parent Access
 - Parent Academy
 - Upgrades to Apps





291,501
Active Users

17,961
Teachers

4.7m
Assignments

1.3m
Assessments

62m
Views by
Students/Teachers

Over 16m
Course Materials
Created

400,000
Discussions

100m
Files



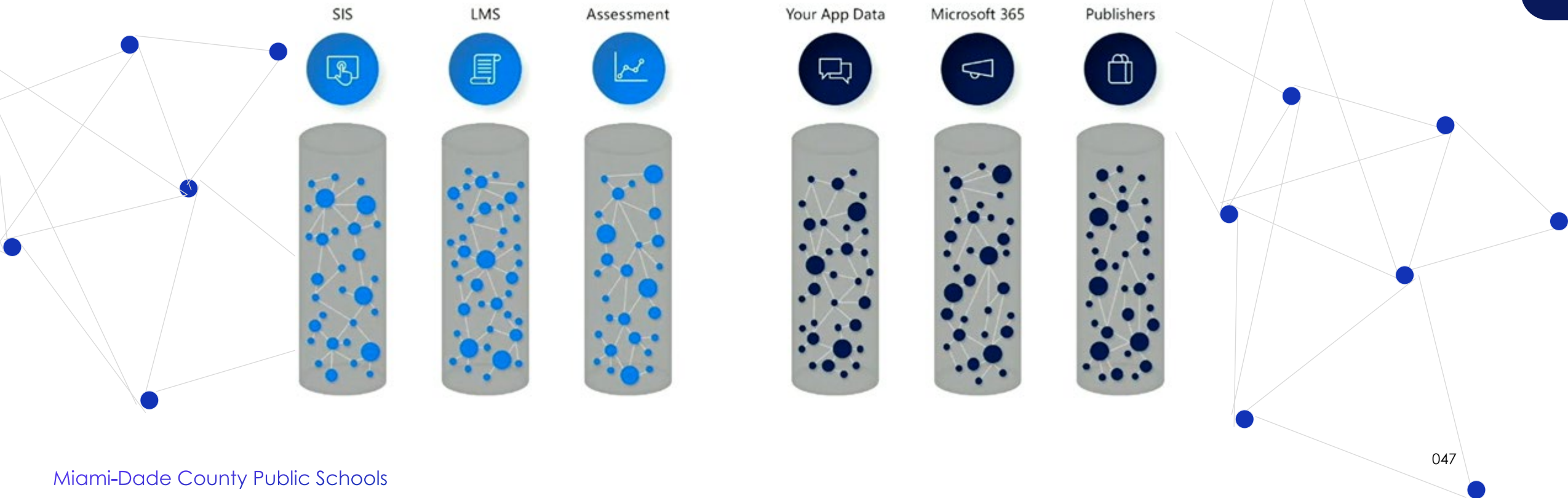
**Over 61 EdTECH
apps deployed**

**Over 941
Textbooks
deployed into LMS**



Data Lakes

For years, reporting environments have relied on a data warehouse stored in a single, separate relational database management system (RDBMS). But now, due to the growing use of Software as a service (SaaS) applications and NoSQL database options, data may be stored outside the data center and in formats other than tables of rows and columns. It's increasingly difficult to access the data these applications maintain, and a data warehouse may not be flexible enough to house the gathered information.



Data Lakes



Machine Learning



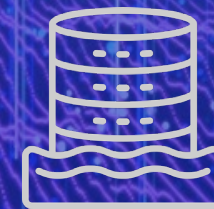
On-Premises Data



Real-time Data



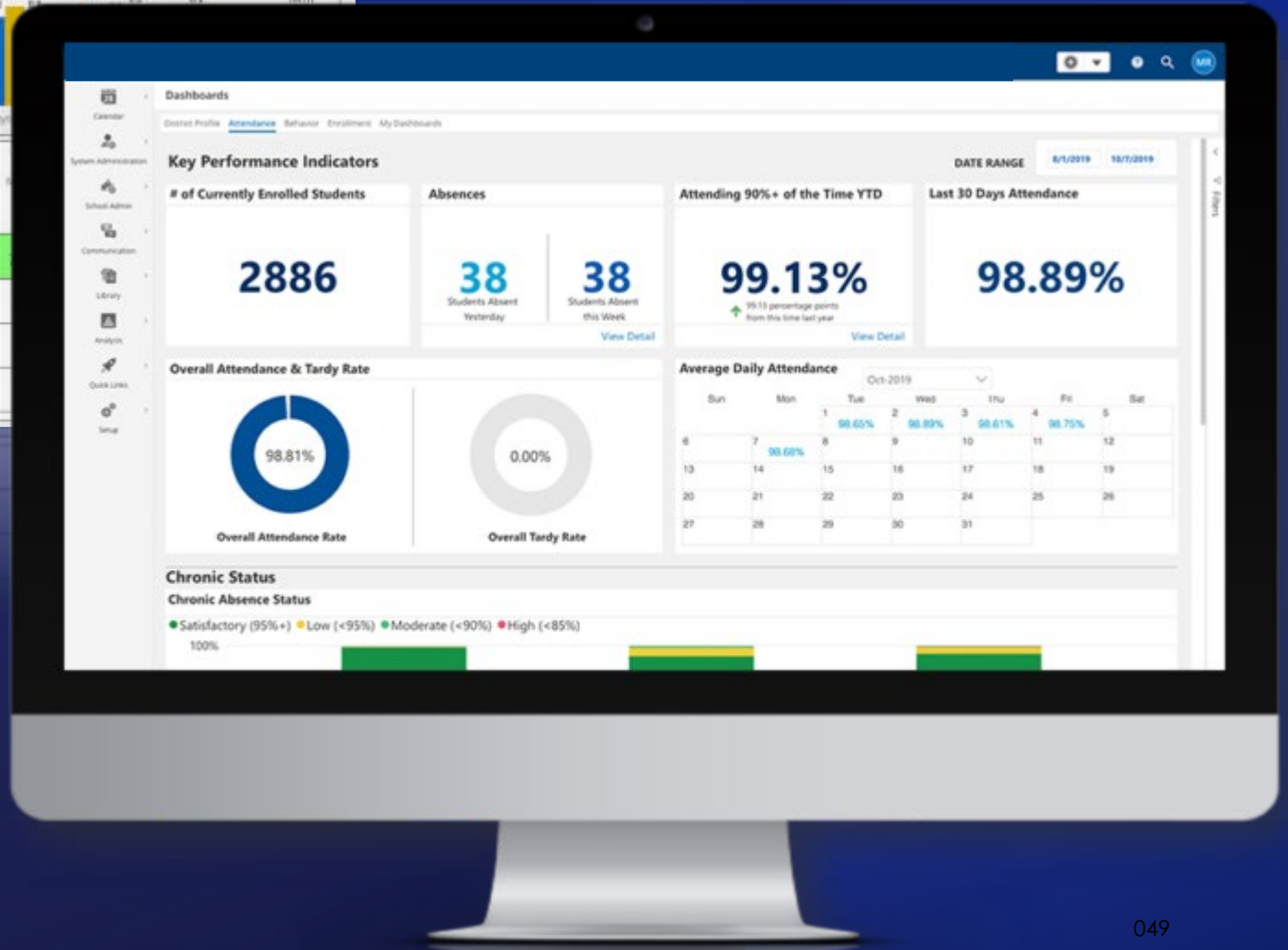
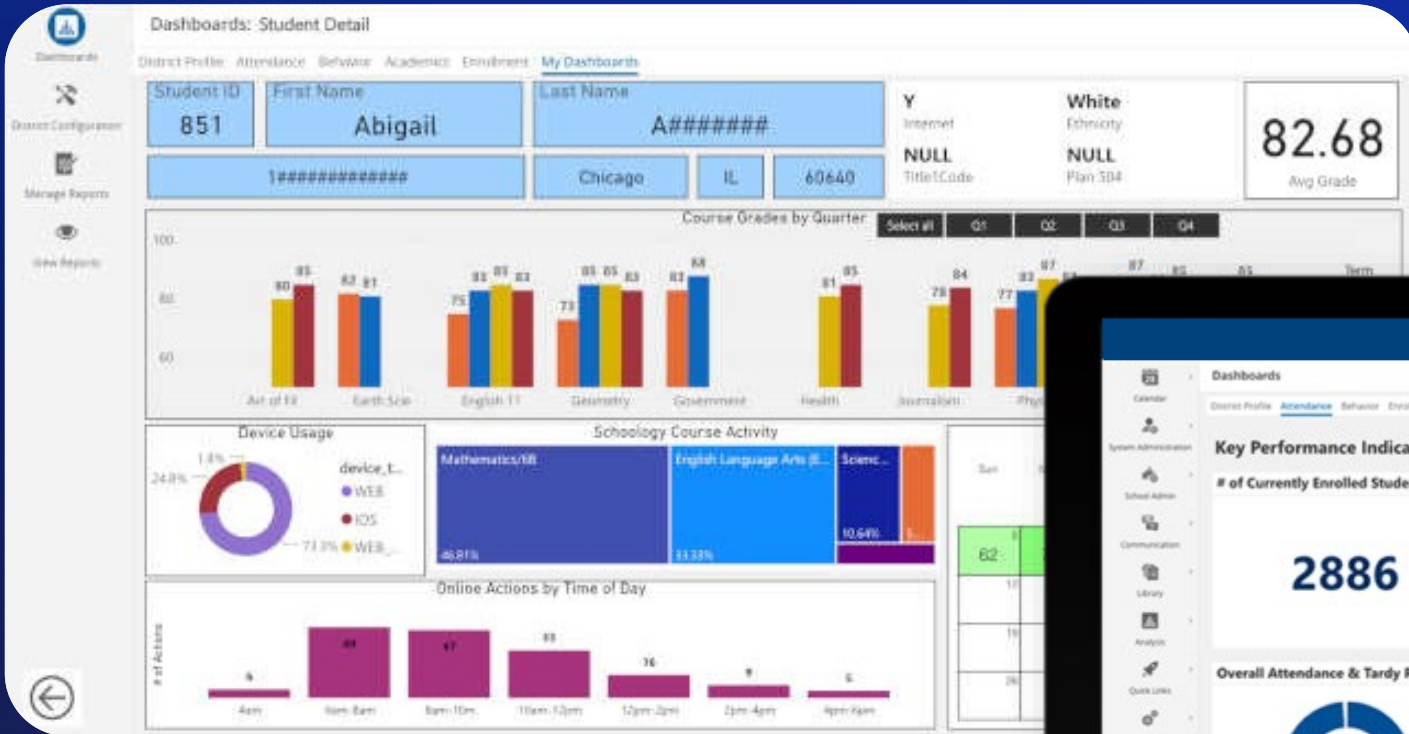
Analytics & Insights



Data Lake

- SIS
- LMS
- EdTech Software
- Performance Matters
- Microsoft 365
- Textbook Publishers

Insights & Dashboards



- Future Collaborative Effort:
- Innovation & School Choice
 - ARDA
 - ITS



Finances & Human Capital



Non-Personnel

PROJECTED 5-YEAR REVENUE RELATED TO NETWORK INFRASTRUCTURE, CONNECTIVITY, & INSTRUCTIONAL TECH		
SOURCE	PURPOSE	5 YR REVENUE
General Fund	Hardware & Software Maintenance/Support & Licensing	\$75,000,000.00
General Fund	Network Infrastructure Upgrades	\$0.00
E-Rate Fund	Network Infrastructure Upgrades	~ \$40,000,000.00

Generate: ~\$23m Annual Revenue

ESSER I, II, & III SUPPLEMENTAL REVENUE THROUGH 2024		
DEPT	PURPOSE	REVENUE
ITS	Network Hardware & Systems Upgrades	~ \$109,000,000.00
IT	Hardware / Software	~\$151,000,000.00

Supplement: ~\$260m Revenue

PROJECTED 5-YEAR RECCURING COSTS RELATED TO NETWORK INFRASTRUCTURE, CONNECTIVITY, & INSTRUCTIONAL TECH.	
ITEM	5 YR EXPENDITURE
ISP Costs - 2x100 Gbps pipes – recurring cost	TBD
Equipment Costs - 200 Gbps upgrade	\$6,000,000.00
Infrastructure Upgrades (Wiring, Electrical, POE, etc)	\$47,688,000.00
Wireless Communication	\$30,000,000.00
UPS	\$7,000,000.00
Router	\$7,000,000.00
Network Infrastructure	\$165,000,000.00
Mobile Devices	\$114,000,000.00
Interactive Panels	\$30,000,000.00
Data Security Licensing	\$50,000,000.00
Telecom PBX	\$24,000,000.00
School Site Servers	\$3,000,000.00

Require: \$96m Annual Budget

Ongoing Technical Support & Training

The District supports more than 400,000 connected devices with a staff of less than 178 School Based Technicians (SBT's) and 19 "Roaming" District Technicians. There is also a lack of established tech-leader at each school site.

Roaming District Technician

Upgrade



Increase the number of "Roaming" District Technicians by 20 in order to provide more effective and efficient technical support to schools by highly skilled individuals.

Avg Cost \$80,000 | Qty 20

\$1.6m annually

Instructional Technology Liaison



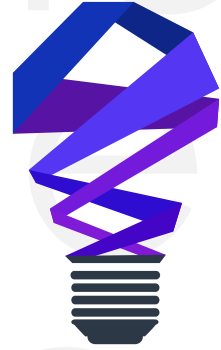
New Position

To provide application support for the expanded list of applications, be responsible for IMDs, be the leader in instructional technology, and to reach parents and students where they are with technology will require a new staff role.

Avg Cost \$80,000 | Qty 380

\$30.4m annually





The Why?

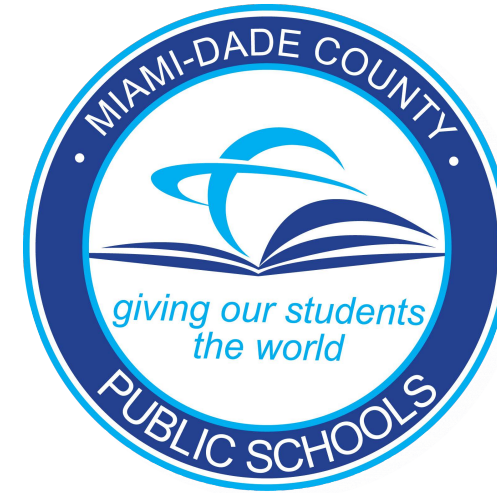


1. AI and machine learning specialists
2. Sustainability specialists
3. Business intelligence analysts
4. Information security analysts
5. Fintech engineers
6. Data analysts and scientists
7. Robotics engineers
8. Electrotechnology engineers
9. Agricultural equipment operators
10. Digital transformation specialists



Top 10 Jobs of Tomorrow

World Economic Forum. (2023, May). *Future of Jobs Report 2023. Inside Report May, 2023.* World Economic Forum.
https://www3.weforum.org/docs/WEF_Future_of_Jobs_2023.pdf



2023 STATE OF TECHNOLOGY

Miami-Dade County
Public Schools

