



“The Year of Upgrades”

Information Technology Presentation

October 21, 2024

Lemont High School

Wesley Rozanski, IT Director



Infrastructure

Network Layer3 / Layer2 / Servers – Wireless APs

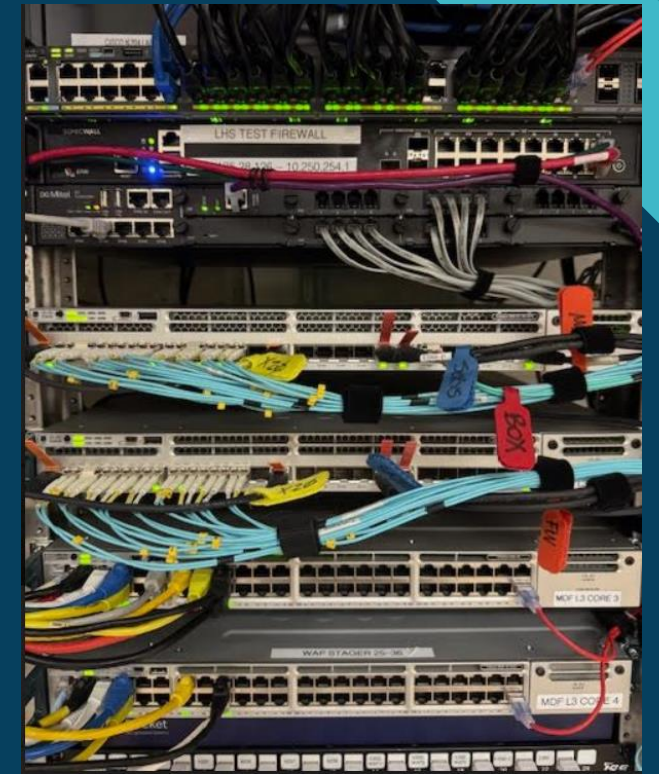
Infrastructure ...

- New Servers (brought online – Jan 2024) updated to Server OS 2022 June 2024
- Expansion of L3 Core (aka the “router”) – fully redundant at copper & Fiber
- Primary Internet Connection via SOI/DOIT/ICN is now at 10Gb
- Comcast 1Gbs up/down Fiber ISP Backup
- Outdoor Access Points for Stadium/Concession
- HUDL installation in Press Box
- Press Box now connected at 10gb via Fiber back – direct to MDF
- Dedicated stadium SSID for wireless use
- 5 new POS machines for cafeteria in their own “vlan”
- New Scoreboard connected and on the line “☺”
- PRTG Monitoring – actively monitors bandwidth usage across the entire network
- APC Power Management w/23x new batteries – “no power = no fun”

Layer 3 Edge/Firewall”s”



Layer 3 Core “Router”





Cybersecurity

Segment / Secure and actively scan

Cybersecurity ...

- Network Segmentation “v lans” are a happy place
- Abnormal Security used for Email Security (2nd / 3rd Layers)
- District Wide Phishing Campaigns via KnowBe4 (monthly) along with Cyber-Pools via Insurance Company (quarterly)
- GNC Module Employee Training
- Nexus Vulnerability Scans – this application allows our team to actively scan internal resources – new to LHS SD210 for YR 2024

A VLAN, or Virtual Local Area Network

“is a logical grouping of devices on a network that allows them to communicate as if they are on the same physical network, even if they are not.”

Key benefits of VLANs include:

- 1.Improved Security:** By isolating sensitive data traffic, VLANs limit access to specific users or devices.
- 2.Reduced Broadcasts:** VLANs help minimize broadcast traffic, improving overall network performance.
- 3.Simplified Management:** They allow for easier network management and configuration changes without physical re-cabling.
- 4.Flexibility:** Devices can be grouped based on function or department, regardless of their physical location.

Overall, VLANs are an essential tool for creating organized, efficient, and secure networks.

Tenable Nessus[®]

The first tool in your cybersecurity toolbox

Expose and close weaknesses across your constantly changing attack surface with the industry’s most trusted vulnerability assessment solution.



Instructional Technology

The Future is NOW!

Instructional Technology Upgrades ...

- Student Computer Lab Upgrades “Windows 11”
 - N211 – Fine Arts Lab
 - N221 – Business Lab/Programming
 - Robotics
 - CAD LAB
 - Woodshop



“New” CAD Systems



N221



AI in Education

Artificial Intelligence in the Classroom Helps Learning

Artificial Intelligence...

- Curriculum Led
- Committee Formed
- Participants in Google AI Pilot
- Testing several applications
 - Brisk teaching
 - Canva
 - Adobe Creative Cloud
 - Google Gemini
 - Microsoft Co-Pilot



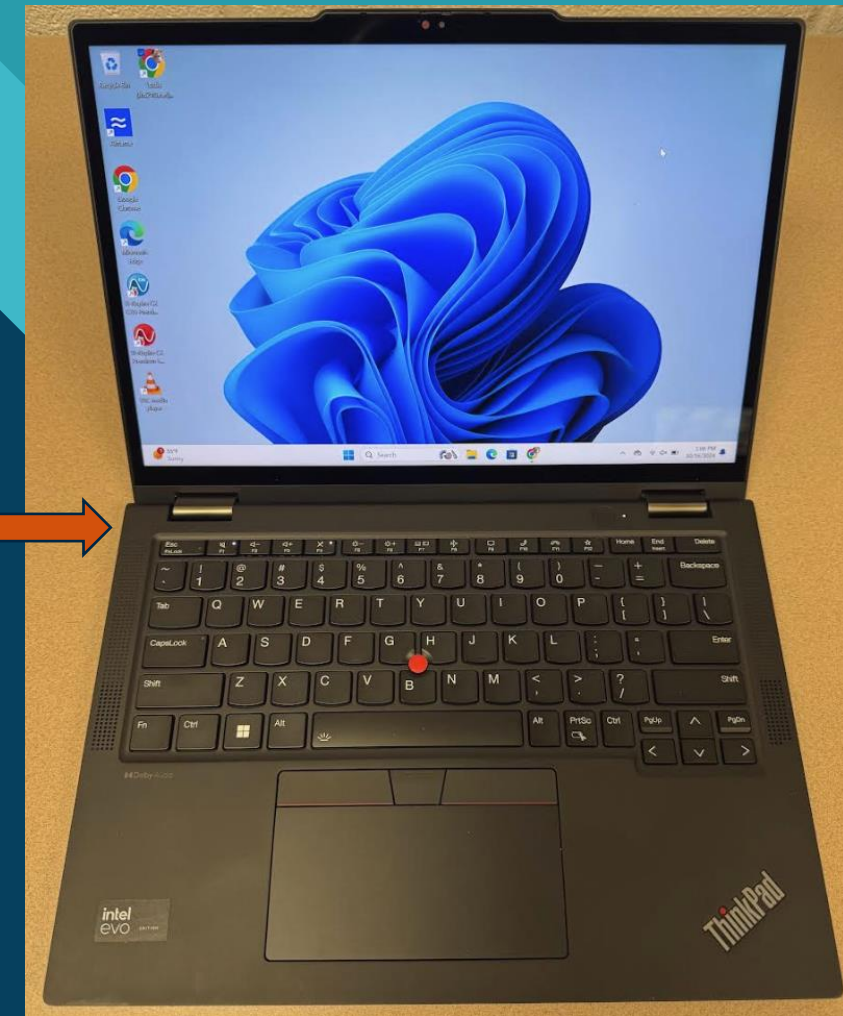


What's Next?

The Future is NOW!

In our Future ...

- Windows 11 Beta Testing – CAD/Robotics/Programming/Graphics are all running win11 along with a handful of teachers
- Windows 12 incoming
- Upgrade Wi-Fi to 6e
- New Faculty Laptops – Lenovo Yoga X13 Gen 5 configured to support Windows 12
- Incident IQ Ticketing System
- Hyper-V testing continues “may replace” VMWare (virtualization)
- Bell Road “Sports Complex” coming online at 10Gb: Outdoor Wi-Fi – Backup (appliance will be relocated there)
- Microsoft 365 to replace current licensing (provide ONE Drive/Office – In-Tune – additional security features)



IT Department Mission Statement:



Our mission is to empower our organization through **robust and secure network infrastructure that enables seamless connectivity, collaboration, and innovation**. We are dedicated to providing reliable technology solutions that support our EDUCATION goals and enhance user experience. By prioritizing network resilience, security, and scalability, we ensure that our digital environment fosters productivity and growth. We strive to anticipate and respond to the evolving needs of our users, driving operational excellence and creating a foundation for future advancements. Together, we build a connected community that thrives on technology.

One word SUMMARY: We are here to build an AUTOBAHN for Lemont HD SD210

IT STAFF

Our “Conduit” to the Educators



BO KRUPA

Cybersecurity / Server Engineer



JAKE VONDRAK

Google Workspace Admin



LAWRENCE LORENZO

Technology Support Specialist
Help Desk Admin



ERIN HITCHCOCK

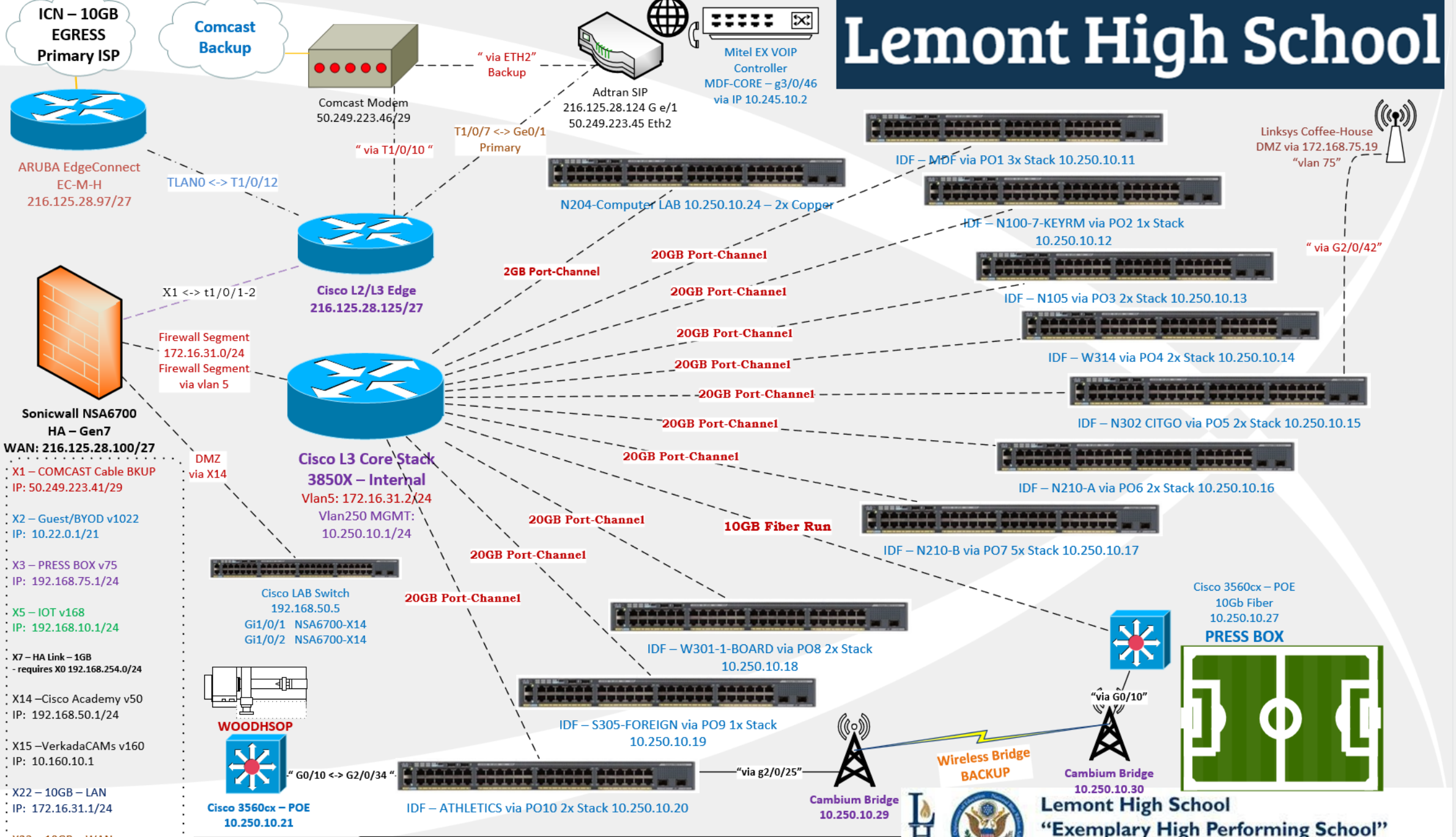
Technology Integration Specialist

Thank You!

Session is now open

for Q & A

Lemont High School



- X1 - COMCAST Cable BKUP
IP: 50.249.223.41/29
- X2 - Guest/BYOD v1022
IP: 10.22.0.1/21
- X3 - PRESS BOX v75
IP: 192.168.75.1/24
- X5 - IOT v168
IP: 192.168.10.1/24
- X7 - HA Link - 1GB
requires X0 192.168.254.0/24
- X14 - Cisco Academy v50
IP: 192.168.50.1/24
- X15 - VerkadaCAMs v160
IP: 10.160.10.1
- X22 - 10GB - LAN
IP: 172.16.31.1/24
- X23 - 10GB - WAN
IP: 216.125.28.100/27

OCT 2024

Lemont High School Network Diagram



Lemont High School
"Exemplary High Performing School"
2017 National Blue Ribbon Schools Program

95

All Sensors

- 0 Down
- 0 Down (Acknowledged)
- 0 Warning
- 88 Up
- 0 Paused
- 7 Unusual
- 0 Unknown

Sensors



Sonicwall NSA6700 HA Pair "WAN-x23" via virtual IP 216.125.28.100 "LAN-x22" via IP 172.16.31.1

✓ (001) X0-TEST (LAN) Non-Production Traffic	< 0.01 Mbit/s
⚠ (002) X1 (WAN) Comcast Cable BKUP Traffic	< 0.01 Mbit/s
✓ (003) X2 (BYOD) Traffic	112 Mbit/s
✓ (004) X3 (PRESS-BOX) Traffic	0.04 Mbit/s
✓ (006) X5 (IOT) Traffic	0.13 Mbit/s
✓ (008) X7 (HA-Link) Traffic	7.58 Mbit/s
✓ (009) X8 (HYPER-V) Traffic	< 0.01 Mbit/s
✓ (011) X10 (SW-COOP) Traffic	0.43 Mbit/s
✓ (013) X12 (CB-STAGER) Traffic	76 Mbit/s
✓ (014) X13 (LHS-SECURE) Traffic	43 Mbit/s
✓ (015) X14 (ACADEMY) Traffic	< 0.01 Mbit/s
✓ (016) X15 (VERKADA) Traffic	3.01 Mbit/s
✓ (021) X20 ***CHROMEBOOKS (CB-v155 via 10.155.0.1/21) Traffic	139 Mbit/s
✓ (023) X22 Primary LHS 10GB (LAN) Traffic	139 Mbit/s
✓ (024) X23 CONNECTED to 3850 - L3 EDGE via TWINAX 10GB (WAN) Traffic	446 Mbit/s
✓ Ping	0 msec
✓ SonicWall System Health	20 %

SecureCRT for Secure Remote Access to the Network Infrastructure

Session Manager

Filter by folder/session name <Alt+I>

Sessions

- CISCO ACA - DMZ 192.168.50.5
- IDF ATHLETICS - PO#10 10.250.10.20
- IDF N100-KEYRM - PO#02 10.250.10.12
- IDF N105 - PO#03 10.250.10.13
- IDF N210-A - PO#06 10.250.10.16
- IDF N210-B - PO#07 10.250.10.17
- IDF N302 - PO#05 10.250.10.15
- IDF S305-LANG - PO#09 10.250.10.19
- IDF W301 PO#08 10.250.10.18
- IDF W314 - PO#04 10.250.10.14
- L3-CORE-MDF 10.250.10.1
- L3-EDGE-216.125.28.125
- MDF L2 STACK N227 PO#1 10.250.10.11
- PRESS-BOX-3560cx 10.250.10.28-####
- Press-BOX-3560cx-10GB via 10.250.10.27
- Single LAB Switch 10.250.10.24
- WOODSHOP-3560cx 10.250.10.21



This concludes our presentation for tonight!

But WAIT there is MORE – next slide please

AI “Artificial Intelligence” in Action “DEMO” BONUS SLIDE...

Utilizing “<https://notebooklm.google.com/?pli=1>”

NotebookLM EXPERIMENTAL

I fed the AI engine a .pdf that was created from the PowerPoint, 2 things occurred:
it created “A Briefing” and a “PODCAST”

Lemont High School Information Technology: "The Year of Upgrades" – “A Briefing” generated by AI

This briefing document summarizes the key themes and facts presented in the "The Year of Upgrades" IT presentation delivered by Wesley Rozanski, IT Director of Lemont High School, on October 21, 2024.

The following SLIDE “bonus” #2 has the entire “briefing/summary” posted

Podcast Click Here



The Briefing....

1. Significant Infrastructure Upgrades for Enhanced Connectivity and Security:

Robust Network Infrastructure: The school has implemented a 10Gb primary internet connection through SOI/DOIT/ICN, a 1Gb Comcast fiber backup, and expanded the Layer 3 core for full redundancy at both copper and fiber levels. This ensures high-speed, reliable connectivity for all users.

Stadium Connectivity Enhancements: The stadium now boasts outdoor access points, HUDL installation in the press box, and a dedicated 10Gb fiber connection back to the MDF, enabling seamless streaming and data transfer during events.

Enhanced Security Measures: The implementation of PRTG monitoring actively tracks bandwidth usage, while APC power management with new batteries ensures uninterrupted operations.

2. Cybersecurity Takes Center Stage:

Network Segmentation: VLANs are employed to segment the network, enhancing security by isolating sensitive data and restricting access. The presentation emphasizes: "Network Segmentation "vlans" are a happy place."

Multi-Layered Email Security: Abnormal Security provides robust second and third layers of email security, protecting against phishing and other threats.

Proactive Security Training and Vulnerability Scanning: Monthly phishing campaigns through KnowBe4 and quarterly cyber-pools via the insurance company ensure staff awareness and preparedness. Additionally, the newly implemented Nexus Vulnerability Scanner actively identifies and addresses potential vulnerabilities within the school's network.

3. Instructional Technology Investments for Future-Ready Learning

State-of-the-art Computer Labs: Student computer labs have been upgraded to Windows 11, with specialized labs for Fine Arts, Business/Programming, Robotics, and CAD, providing students access to the latest software and tools.

Embracing AI in Education: The school is actively exploring the potential of AI in the classroom. A dedicated committee is participating in Google's AI pilot program, testing applications like Brisk teaching, Canva, Adobe Creative Cloud, Google Gemini, and Microsoft Co-Pilot.

4. A Vision for the Future:

Preparing for the Next Generation of Technology: The IT department is beta testing Windows 11 in select labs and preparing for the upcoming Windows 12 rollout.

Further Network Enhancements: Plans are in place to upgrade to Wi-Fi 6e and connect the new Bell Road Sports Complex with a 10Gb connection and outdoor Wi-Fi.

Streamlining IT Support: Implementation of the Incident IQ ticketing system and exploration of Hyper-V virtualization are key initiatives to enhance efficiency and support.

Comprehensive Software Solution: Transitioning to Microsoft 365 will provide a unified platform with OneDrive, Office suite, In-Tune, and enhanced security features.

5. A Dedicated and Mission-Driven IT Team:

Empowering Education Through Technology: The IT department's mission is clearly articulated: "Our mission is to empower our organization through robust and secure network infrastructure that enables seamless connectivity, collaboration, and innovation. We are dedicated to providing reliable technology solutions that support our EDUCATION goals and enhance user experience."

A Skilled Team: The presentation highlights the key roles within the IT team, including Cybersecurity/Server Engineer, Google Workspace Admin, Technology Integration Specialist, Technology Support Specialist, and Help Desk Admin. The Technology Integration Specialist is specifically referred to as the "Our "Conduit" to the Educators," underscoring the team's commitment to supporting teaching and learning.

Overall, the presentation underscores Lemont High School's commitment to providing a secure, robust, and future-ready technology environment that empowers students and staff to thrive in the digital age.