KETS Analog Line Replacement Recommendations

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Understanding Analog Lines in School Districts

Analog line(s) refers to traditional analog phone systems that use copper wiring; these may be referred to POTS (Plain Old Telephone Service) or 1FB (Single Line with Flat Business Rate Voice Service). Many School Districts have historically relied on POTS/1FB for critical communication and safety infrastructure. Often used for Fax Machines, Alarms, Elevator Lines, or Basic Voice Service, are commonly found in legacy Telephony environments where simple, reliable connectivity is required.

Key Uses of Analog in Schools:

- **911 Emergency Services** – Ensures direct and reliable emergency calls.
- **Elevator & Alarm Systems** – Vital for student and staff safety.
- **Intercom & Paging Systems** – Enables school-wide announcements and coordination.
- **Security & Fire Alarms** – Many legacy systems depend on analog lines for emergency alerts.
- **Fax Machines** – Still utilized for secure document exchange in school offices.

Why School Districts Need to Transition from Analog lines

Telecommunications providers are phasing out traditional copper-based phone lines in favor of modern, Digital solutions like Fiber Optics and VoIP. Under FCC Order 19-72, the FCC now allows providers to discontinue POTS/F1B lines where Digital alternatives exist, and many providers are doing so, meaning that districts must transition to avoid long service disruptions, dramatically increased costs and/or total retirement of Analog lines.

Modern Alternatives for Schools:

1. On-Premises or Cloud-Based Voice Technologies
    1. Suitable for general voice communications
    2. Leverage internet-based technologies like SIP
    3. May involve a PBX on-premise or a "cloud" PBX within minimal on-prem equipment
    4. Generally offered by traditional phone companies, but also by cable companies and independent voice providers
    5. In KY K-12, new implementations are expected to use the KEN Internet connection for such services. In some cases, the existing on-premise equipment or an additional connected component can provide analog connections
2. **Cellular-Based Communication Systems** – Simulate analog phone lines using secure 4G/5G networks:

    1. Provide connectivity for analog devices in environments where copper lines are unavailable or being decommissioned.
    2. Serve as a **primary or backup** communication method for critical systems.
    3. Support continued operation during network outages or infrastructure changes.

Impact on School District Safety & Compliance

With the replacement of POTS, School Districts must ensure their emergency systems comply with:

- **Kari's Law** – Requires that users be able to directly dial 911 without having to dial a prefix (such as "9" to get an outside line) from multi-line Telephone Systems. In addition, the law mandates that a notification is automatically sent to a central location - such as a Front Desk, Security Office, or other designated point of contact - when a 911 call is made, including information about the caller's location.
- **Ray Baum's Act** – Mandates precise location data for 911 calls (e.g., building and room details).

- **Alyssa's Law** – Requires silent panic alarm systems that notify law enforcement in real-time.
    - Not a requirement at this time in the State of Kentucky.

Steps for a Smooth Transition

1. Assess Existing Systems

Before replacing analog lines, conduct a thorough audit to identify where they are still in use and assess their impact on daily operations and safety compliance.

Key Areas to Evaluate:

- **Emergency Systems:** Fire alarms, security alarms, elevator emergency phones, blue light emergency stations.
- **Facility Operations:** HVAC controls, access control systems, and utility monitoring.

Key Questions to Ask:

- What systems are still dependent on analog?
    - Alarm (Burglar)
    - Elevator
    - Fax
    - Fire Alarm
    - Gate
    - Modem
    - Blue Light Call Stations
    - Voice (application)
- How will the transition impact emergency response and compliance with regulations?
    - NFPA 72* is a code published by the National Fire Protection Association (NFPA) that sets the standards for fire alarm systems, emergency communication systems, and mass notification systems. It establishes the requirements for the design, installation, maintenance, testing, and performance of these systems to ensure fire and life safety.
    - The Commonwealth of Kentucky adopted the NFPA 72 - National Fire Alarm and Signaling Code as part of its state regulations; the 2018 Kentucky Building Code references the 2013 NFPA 72. Additionally, Title 815, Chapter 10, Regulation 060 of the Kentucky Administrative Regulations mandates that required inspections or tests be recorded on applicable forms contained in NFPA 25 or NFPA 72, as determined by the State Fire Marshal.
    - Your Local Life Safety and/or Building Authority may have additional requirements. KDE recommends checking with these organizations as part of the assessment and planning process.

2. Explore Available Alternatives & Collaborate with Service Providers

Work with KDE and with technology and telecom vendors to identify suitable replacements for analog lines. Some vendors have KETS or Commonwealth contracts but there is no requirement to use those specifically.

Common Replacement Options:

- **Current Phone System**

    Your existing Phone System (Avaya IP Office, Mitel, Merlin, etc.) may be capable of supporting analog devices, allowing for a seamless transition from traditional analog lines. Additionally, if needed, an Analog Terminal Adapter (ATA) can be used to convert digital VoIP signals into analog, enabling continued use of legacy analog devices while leveraging your existing system(s).
- **Cellular-Based Solutions:** Uses LTE or 5G to provide voice and emergency communication

Examples can be provided by telecommunications vendors/partners and your KETS Field Staff.

Key Questions to Ask Providers:

- What backup and failover options are available to ensure reliability?
- How does the solution integrate with existing security and emergency systems?

    - Some older systems and legacy security and alarm systems rely on specific signaling protocols designed for analog lines, and not all digital replacements can fully replicate these requirements. This can lead to compatibility issues, requiring districts to upgrade some sites or replace certain systems for functionality.
        - These would need to conform to NFPA 72 – National Fire Alarm and Signaling Code, to ensure compliance and functionality.
- What are the installation and ongoing maintenance costs?
- Does the provider offer 24/7 monitoring and support?
- Has your solution been implemented in KY K-12 already? If so, where?

3. Implement & Test New Systems

Once a replacement solution is chosen, plan a phased implementation to minimize disruptions.

Implementation Considerations:

- **Compatibility:** Ensure new systems integrate with existing infrastructure.
- **Scalability:** Choose solutions that allow for future expansion.
- **Redundancy & Backup:** Establish failover mechanisms (e.g., battery backups, secondary network connections).
    - Power Continuity: Unlike traditional POTS lines, which draw power from the Telephone Central Office and often function during power outages, modern VoIP and Cellular-based Solutions require local power. To ensure reliable communication for life-safety devices such as Fire Alarms and Elevator phones, School Districts should install backup power solutions like UPS units or battery backups rated for a minimum of 4 hours. This is particularly critical in disaster-prone regions of Kentucky where extended outages are possible.
- **Regulatory Compliance:** Verify alignment with **Kari's Law and Ray Baum's Act, and consider proactive compliance with Alyssa's Law,** for 911 and emergency communication.

Key Questions for Testing & Validation:

- Does the new system maintain or improve call quality and reliability?
- Can 911 calls be made seamlessly, with accurate location data?
- Have emergency alerts and notifications been tested across all communication channels?
- Are alarm and security systems properly integrated and functioning?

4. Train Staff & Administrators

Effective training ensures smooth adoption and proper use of new communication tools.

- Transitioning from Analog to Digital systems requires not only technical updates but also operational awareness. Digital solutions may have different limitations, such as reliance on local power and internet, and introduce new features like automated Alerts, Portals, or Call Logging. Staff must understand how these systems differ from traditional phones, what to expect during outages, and how to activate Emergency Protocols.

Training Focus Areas:

- **Emergency Protocols:** How to make Emergency Calls and activate Alarms under the new system.
- **New Features:** Training and other added features and functionalities.
- **Troubleshooting Basics:** How to identify and report issues.

Key Training Questions:

- Who needs training, and what level of detail is required?
- How can training be reinforced through refresher sessions or documentation?
- Who will be responsible for ongoing support and troubleshooting?

5. Monitor & Optimize

After deployment, continuously monitor the performance of the new communication infrastructure and make necessary adjustments.

Ongoing Maintenance Considerations:

- **Regular System Checks:** Periodic testing of emergency lines and security integrations.
- **Policy Updates:** Revising emergency communication procedures as needed.
- **Feedback Mechanisms:** Gathering input from staff and administrators to identify pain points.

Key Questions for Long-Term Success:

- How will system performance be monitored and reported?
- What contingency plans are in place in case of outages or disruptions?
- How can future technological advancements be incorporated?

Conclusion

The transition from Analog lines to modern communication solutions is essential for School Districts to maintain reliable operations and safety compliance. Proper planning, collaboration with service providers, and adherence to regulatory standards will ensure that School Districts continue to operate securely and efficiently while embracing future-ready communication technologies. KDE can support districts in migrating to new Analog line replacement solutions.

CODES CURRENTLY ADOPTED BY KENTUCKY:
https://dhbc.ky.gov/Documents/DHBC_CodesCurrentlyAdopedbyKentucky.pdf

FCC Rulings:
https://www.fcc.gov/document/fcc-grants-relief-outdated-burdensome-phone-industry-regulations
https://docs.fcc.gov/public/attachments/FCC-19-72A1.pdf?
https://docs.fcc.gov/public/attachments/DOC-358873A1.pdf