



**Office of Education Technology (OET)**  
**District Wide Area Network Standard**

Version 1.1 – 3/11/2021

**Summary:** This document provides standards for the design and implementation of wide area networks within Kentucky school districts.

**Purpose and Scope:** These standards are intended to help each district implement a wide area network that will provide a good experience for staff and students, support effective instruction, be easy to support and maintain, and be secure and cost-effective. This standard does not address the design of networks within individual schools or other district facilities.

**Reason for Implementing:** Cost-effective, performant, and reliable network connectivity within each district is essential to maximize the potential of other education technology investments at the state, district and school level.

## I. Components

1. Network components used to connect district sites must be purchased from KETS contracts.
2. Components should be replaced before vendor support becomes unavailable or unreasonably expensive.
3. Key components should have appropriate warranty and support arrangements in place to minimize downtime.
4. Component firmware should be regularly updated to the latest stable version per vendor recommendations.

## II. Links

1. Links between district sites may use a variety of approaches, including district-owned fiber, leased fiber, managed services provided by local organizations, or even (for small sites) VPN connections over separate Internet connections.
2. Links to sites serving students should be sized to balance providing a good experience for the students and staff at that site with cost-effectiveness. Districts should consider their instructional models, analyze traffic usage, gather user input and seek guidance from reputable sources (including OET Field Staff) when projecting bandwidth needs for a site. Links between district sites should provide synchronous bandwidth (same capacity in both directions).
3. Any connections between district sites that rely on a VPN connection over the Internet must follow the Extending the District Safe Computing Environment standard, available from the KETS Service Desk.
4. Links between district sites must be dedicated to the district's use at the IP level; in other words, devices at non-district sites must NOT be able to access the district network at the IP level. This does NOT prohibit using shared network infrastructure at lower levels (in OSI terms, the Physical and Data Link levels).

### **III. IP Address Assignment**

1. IP Address assignment must be based on the KETS Private IP Numbering Standard, available from the KETS Service Desk.

### **IV. Monitoring**

1. Wide Area Network components should be monitored for health and utilization; note that network component vendors often provide such capabilities, either bundled with their products or at extra cost.
2. Wide Area Network health and performance should be comprehensively checked on a periodic basis. Health checks help ensure that educators, students and staff continue to have positive experiences using the entire network and help uncover performance, security and support issues that are more complex than simple failures.

**Acronyms/Abbreviations:**

- OET: Office of Education Technology
- KDE: Kentucky Department of Education
- KETS: Kentucky Education Technology System
- IP: Internet Protocol
- OSI: Open Systems Connection (model)
- SETDA: State Educational Technology Directors Association
- COSN: Consortium for School Networking


**List of Appendices:****Related Documents:**

KETS Private IP Numbering Standard  
Extending the District's Safe Computing Environment Standard

**References:**

  
[Mike Leadingham \(Mar 17, 2021 16:45 EDT\)](#)

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[Phil Coleman \(Apr 12, 2021 12:05 EDT\)](#)

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# KETS District Wide Area Network Standard

Final Audit Report

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