

# KDE Kentucky Educational Network (KEN)

## *Pre-Migration District Checklist*

A Guide for Kentucky School Districts



10/03/06



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## Introduction

### **Kentucky Educational Network (KEN): The next generation high-speed network**

In 1995, Kentucky became the first state in the nation to have every district connected to the Internet by what was considered then to be a “high speed” connection. In 2000, Kentucky became the first state in the nation to have all schools connected to the Internet by a true “high speed” connection. That investment has served Kentucky students and teachers very well for a long time.

In a survey that generated nearly 2,000 responses from Kentucky teachers, students and their parents and guardians, respondents identified the state of the districts’ Internet speed as a significant factor affecting their use of technology for instructional and learning efforts. According to *Education Week* magazine in 2005, Kentucky’s teachers outpaced the rest of the nation in the area of incorporating the Internet into instruction.

However, this growing demand and use for Internet content over the years has led to that original high-speed network to now look and feel like a single-lane dirt road. The Internet currently runs very slowly, and downloads of materials for the classroom are impossible to do any time during the teaching workday, according to students’ and teachers’ responses to the survey. The piloting of online testing last year also brought out the significant limitations of the current network in Kentucky.

There also have been some new educational initiatives in the most recent Master Plan for Education Technology that also depends on the use of the Internet.

The Kentucky Educational Network (KEN) initiative is a collaborative effort between Kentucky’s P-12, Council on Postsecondary Education, Education Professional Standards Board and workforce organizations. KEN addresses the need to improve the speed in which information (e.g., The Ky Instructional Data System), content (e.g. students accesses instructional Web sites via Internet 2), applications (e.g., online testing, individual learning system, the virtual high school) and communications (e.g., e-mail, desktop video conferencing) comes into and leaves the district. The increased bandwidth supplies additional capacity throughout the state and satisfies the large demands being asked of the current network by students, teachers and educational staff members. The legislature appropriated funds for FY07 and FY08 to increase the Internet response rates.

There are a series of preparatory steps that should occur in each district prior to implementation of the new KEN broadband WAN infrastructure.

This document is provided as a guide to help districts adequately prepare for the smooth migration of their existing KDE infrastructure to the new broadband WAN. The goal is to have each district similarly configured and completely prepared for migration.

After thoroughly reading this document, each district must complete the checklist in the indicated sequence with their KETS engineers to verify checklist completion and establish a migration date.

Note: **Each district should review and understand this information carefully before authorizing implementation of the KEN WAN migration.**

## Executive Summary:

**History:** A primary goal of the KEN initiative is to continue to maintain equitable access to technology for all Kentucky students. For the past 10 years, school districts have been responsible for the implementation, maintenance and replacement of virtually all technology components within the local environment. Local school districts have historically researched methods to reduce escalating recurring technology costs and manage an increasingly complex environment. The funding for education technology has not increased during those years to match the increasing complexity and user demand. Consequently, districts have, with varying degrees of success, attempted to absorb the increasing costs of the hardware, software and personnel needed to support technology initiatives. This variance in success sharply contradicts the spirit of equity on which the KETS program was founded.

The efforts of the KEN project are focused on equity while also maintaining a network infrastructure that is:

- reliable
- robust
- secure
- cost-effective

**Rationale:** The transition to the KEN broadband-based platform will reduce the total district cost of ownership for the statewide educational network and help to alleviate some of the district support burden. At the same time, centralization and standardization of core services will allow KDE support staff to more proactively and efficiently manage the WAN environment without compromising the level of autonomy that local school districts require to service end users. Through extensive research, planning and testing, the solution being designed will meet these identified needs, while providing a stable, flexible, reliable and secure WAN network infrastructure, preserving local district administrative autonomy and providing the foundation for a feature-rich collaboration medium for the students, teachers and staff in Kentucky — all helping to reduce costs and allocate more resources to educating Kentucky's children.

Based upon the input and recommendations from our nine-member KEN Advisory Committee (see Page 8 for a list of the members), many of the critical business requirements, project planning, design and testing phases are well underway.

**KEN Benefits:** A KEN WAN environment will benefit all parties in several ways, including:

- **Improved Security:** Single policy management, consolidated logging and administration for all districts. Will provide the ability to recognize and block network, application and protocol attacks (DoS, SYN, Nimbda, Code Red, Scripts ...), protecting network infrastructure, services and applications more efficiently.

- **Enhanced Bandwidth:** The KEN WAN also will provide districts with additional bandwidth that will allow them to gain access to greater content on the Internet for instructional use in the classroom.
- **Policy Enablement:** The system will be able to apply traffic filtering policies quickly across multiple device types, using a single console and prioritizing business-critical traffic flows for effective bandwidth management and Quality of Service (QoS).
- **Stabilization of services:** The consistency of WAN equipment across all districts and standardization of critical network and security devices will allow for a more stable and robust KETS environment.

Given the scope of this project, strategic partners are systematically being engaged to assist in the gathering of business requirements, design, planning and implementation of KEN. The magnitude of this implementation has captured the interest of many in state and local government.

## Task Checklist

Carefully read the following checklist. It lists the activities and sequence that are necessary to prepare for the migration process.

As always, as we progress with the design, this checklist may need to be modified to reflect necessary changes to the design.

KEN Pre-Migration Tasks
1. Can you identify and allocate enough space so the KEN components can be physically placed in your district?
2. Can you provide sufficient electrical power so the KEN components can be turned on?
3. Can you provide sufficient conditions so the KEN components do not get too hot, cold or wet, which would cause these components to frequently fail (e.g., overheat) or become unreliable for Internet access for students, teachers and administrators?
4. Can you identify how your internal district network will need to connect to the KEN components so your students and teachers can get to the Internet and other educational resources?
5. Can you provide access to an existing regular phone line close to the KEN components that will allow the Internet provider to quickly fix problems telephonically from a remote site rather than the district's Internet access being down for several days?

### A few of the important details:

The KEN components require a space that is at least 78.7 inches in height, 23.94 inches wide and 39.93 inches deep, with enough clearance in the front and back for ease of access by maintenance staff. The KEN components require a 30AMP, 208V circuit for power. The components work best in an environment where the temperature does not exceed 100 degrees and where there are not extreme levels of moisture or static electricity. Successfully connecting to your existing district network with a minimal amount of disruption will require the KETS engineers and your technology

staff to work closely together so that all clearly understand the best way to connect your district to KEN. Also, KDE recommends that a regular phone line be accessible for the KEN components, so that someone can quickly get access and fix them through this simple alternate route. In most cases, there is an existing district phone line that can be identified for this use.

The KETS engineers will review this checklist with each district to ensure completion of all required tasks specified and in the indicated sequence. The KETS engineers will provide detailed explanations of each checklist.

The following list of items shows which are provided by the KEN Project and which by the district:

Item	KEN Project Provided	District Provided
<b>KEN components (This includes hardware, software, data lines and services that are required to provide a primary high speed connection from the district to the state, Internet and the rest of the world)</b>	X	
<b>Installation of KEN components</b>	X	
<b>Maintenance and ongoing costs of KEN components</b>	X	
<b>Physical space, electrical power and environment for KEN components</b>		X
<b>Reallocation of regular phone line for KEN support</b>		x
<b>The ongoing costs for the existing data lines or fiber connections that districts use now and in the future to connect their schools together on their internal district network</b>		X

## KEN Advisory Committee Members

Along with the previously mentioned benefits of the new product, several aspects of the new WAN environment will be vastly different than in years past.

Foreseeing the possibility of change was a primary factor in the assembly of an advisory committee comprised of local school district representatives. These nine individuals, representing nine different districts from all over the state, have been actively engaged since August 2006, providing customer feedback, outlining business requirements, updating their respective regional peers and ultimately providing critical input on key decision points. They have been assembled as the voice of the people and cast into the role of an active member of our internal project team to strike the necessary balance between customer needs and IT capabilities. The members of this committee are:

<b>Name</b>	<b>Title</b>	<b>Region</b>	<b>District</b>	<b>KETS Engineer</b>
John David Son	CIO	1	Marshall County	Jody Rose
Ron Milliner	CIO	2	Owensboro Ind	William Haight
Ferrel "Bo" Lowrey	Dir. Of Telcomm Operations	3	Jefferson County	Greg Davis
Nikkol Bauer	CIO	4	Henry County	Charlotte Chowning
Bret Foster	CIO	5	Anderson County	Damon Jackey
Henry B. Paslick	CIO	6	Laurel County	Greg Davis
Terry Marshall	CIO	7	Carter County	Frank Wells
Harold Morgan	CIO	8	Leslie County	Harold Burchell
Kenny Franks	Student	4	Shelby County	Charlotte Chowning