



# EDUCATION

## technology solutions

### FACING CHALLENGES

Challenges are nothing new to educators, yet with the overall use of computer technologies within the classroom and the increasing stress on school budgets, a new set of modern-day challenges are being realized. These challenges can be categorized under three broad topics: Access, Security and Budget.

**ACCESS:** This priority stems from a school's goal to provide students with the tools they need to learn and accomplish assigned tasks. In the modern classroom, this means providing students with access to computers and computer applications, as well as the Internet. Proper network design and administration are vital in order to provide reliable access to these tools.

**SECURITY:** While connecting your school to the world, it is paramount that this connection remains pleasant and secure for the sake of both the network and the students. "Security" includes proper firewall implementation and virus protection, each of which safeguards the stability of a computer network. Proper security also includes anti-Spam solutions and content filtering in order to ensure a student is able to steer clear of indecent and inappropriate material while using the network.

**BUDGET:** Of course, the long-term costs of hardware, software and labor involved with implementing, maintaining and securing a computer network can be high. Schools everywhere are consistently searching for ways to reduce these costs while not reducing the quality of the education they provide. This is now possible with the implementation of Thinix - Thin Client Solutions. Developed by the programmers and engineers at R & D Industries, Thinix can dramatically reduce a school's IT budget by reducing both hardware and long-term maintenance costs.

In our 20 years of business, R & D Industries has a long history of supporting area education leaders as they face these challenges. We sent this newsletter to you so you could learn more about what we do to assist schools, as well as discover how we can help your school address similar issues. We would welcome you to call us if we could be of assistance to your school.

A Newsletter from R & D Industries, Inc., Milford, Ia.  
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Microsoft® Certified  
Solution Provider



## RDI boosts Okoboji technologies

Logistically, summer breaks present an ideal opportunity for schools to follow through with major improvements and upgrades. During these breaks, many schools choose to address technology issues, and Okoboji Schools was no different in the summer of 2003.

With the help of the certified technicians at R & D Industries, Okoboji Schools tackled a substantial district-wide upgrade to their computer networking system. This project included the upgrade of four servers to Microsoft Server 2003, the roll-out of Microsoft XP Professional on each of the district's 276 workstations, the development of a portable wireless computer lab, and the implementation of multimedia computer labs.

Substantial wiring and fiber optic cabling work was also an integral step in creating a fast and dependable network environment for students, teachers and administrators.

Before the upgrade, Okoboji Schools was operating Windows NT 4.0 Servers and uti-

lizing Windows 98 on most workstations. Since Microsoft had ended support for Windows NT and support for Windows 98 was scheduled to stop on Dec. 31, 2003, it became critical, for both reliability and security reasons, that server and operating system upgrades were considered.

Okoboji Schools invested in 75 new HP workstations for the project, while R & D Industries technicians upgraded the memory in the remaining 200 workstations so they would support Windows XP. The workstation and server upgrades along with new fiber optic cabling between the two main network switches increased both speed and

CONTINUED ON NEXT PAGE ►



R & D Industries, Inc.  
812 10th Street  
Milford, Iowa 51351

(800) 659-3529

Email: info@rdi1.com

Web: www.rdi1.com



## Facilitating ACCESS

The ability to access, retain and share information is essential for the educational development of students, regardless of level. Within the modern classroom, these processes have expanded to include a technological element. Few dispute that students with access to a fast and reliable computer network with Internet connectivity have better tools with which to excel, as do the schools that provide these tools.

The technicians at R & D Industries, Inc. have for years worked with schools in order to best develop and refine these network tools. From network design and consulting to server implementation and wireless network development, RDI technicians go to great lengths to ensure that a school's technology goals are consistent with its overall educational vision and budget.

Maintaining fast and consistent access to information, whether it

be from across the network or across the world, begins from the ground up. The following services are offered by R & D Industries for the purpose of developing and maintaining an effective and reliable computer network:

- ▶ Network Planning & Vision
- ▶ Procurement Services
- ▶ Financial Planning & Lifecycle Analysis
- ▶ Network Design & Integration
- ▶ Server Implementation
- ▶ Internet Connectivity
- ▶ Network Security
- ▶ Local & Wide Area Network Cabling / Fiber Optic Cabling

Should your school or school district have issues with its network that may need to be addressed, or if it's simply ready for an upgrade, call for an assessment from the certified experts at R & D Industries at 800-659-3529.

## Okoboji Schools (Continued)

reliability within the Okoboji Schools network.

Other key aspects of Okoboji's upgrade project included the development of an elementary media center lab, as well as a new interactive classroom/computer lab at the high school. The high school's 24-workstation lab features a digital projector and a Numonics interactive whiteboard to increase teaching effectiveness. Effectiveness was further enhanced with the installation of NetOp software within the lab. NetOp allows instructors instant access to view, control, display, and even lock down any student PC in the lab without leaving the front of the classroom.

The computer lab also features a VHS/DVD player which can be used in conjunction with the room's digital projection system.

Additionally, a sound system was installed within the lab to ensure that all students can hear the VHS or DVD programming, regardless of their location in the classroom.

Along with the improvements in these computer labs, R & D Industries designed and implemented a portable wireless computer lab for use at the Okoboji Middle School.

The lab consists of 24 laptop computers, two printers and two wireless access points, all of which are stored on carts that can be transported to any room in the school. Laptops can be used either

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**- Chris Williams**  
Okoboji Technical & Integration Specialist

plugged in to the carts or powered by a battery.

According to Chris Williams, Okoboji's technical and integration specialist, classes throughout the Middle School frequently rely on the portable wireless lab.

"It's awesome," she said. "You can't describe the difference it makes bringing the computer lab to the students rather than the students to the computer lab."

In addition to the planning, consulting, engineering and implementation work performed by R & D Industries, technicians took steps to secure Okoboji's network. Through proper firewall implementation, anti-virus and anti-Spam protection, content filtering, and the implementation of group policies, R & D Industries took a multi-faceted approach to fortify the network from both intentional and unintentional harm.



## Contact R & D Industries, Inc.

812 10th Street, Milford, Iowa 51351

Phone: 800-659-3529  
Email: info@rdi1.com

Web: www.rdi1.com  
Fax: 712-338-2990

# SECURITY

Your school's monetary investments are second only to the investment it has in its students. Through the proper implementation of a solid, multi-faceted network security system, both investments can be protected.

No single, all-inclusive measure exists that can adequately secure a school's computer network. Instead, properly secured networks are a result of a number of cooperative measures that must be enforced both electronically and in policy. The proper marriage of these security measures will create a trouble-free network environment that:

- ▶ Protects your school's investment in network hardware and software;
- ▶ Protects the invaluable data your school has stored within its network;
- ▶ Enhances student, teacher and administrative efficiency;
- ▶ Increases the reliability of your school's network; and
- ▶ Protects students from indecent and inappropriate material.

A school's heavy reliance on its computer network requires that it remain stable, resilient and protected. The network experts at R & D Industries are well-versed at what it takes to keep your school's network out of harm's way, keeping it in good working order.

## Internal Security

It is vital that steps be taken to protect your school's network from outside harm, but not before steps are taken to protect the network from internal threats.

Figures have shown that as much as 80 percent of all network security incidents originate from within the network. Many times, the causes of these incidents are unintentional, but that certainly does not mean they are unpreventable.

The following are steps that R & D Industries technicians take to properly secure a network from the inside:

**AAA Implementation:** Establish strong passwords, restrict unnecessary access to portions of the network, and record an audit trail for consistent review.

**Implement Group Policies:** Allow students to use their computers only for purposes consistent with their needs. Group policies can be set to restrict changes in desktop properties, disallow the installation



of software, and even establish a universal set of online "Favorites".



**Set Up Content Filtering:** Filter the content of incoming email and files to prevent indecent and inappropriate material from entering your school's network.

**Establish Data Backup & Contingency Plans:** Should there be a serious security incident involving your school's computer network, a proven data backup system along with a thorough contingency plan can help to get your network back up to par quickly.

**Write, Approve & Enforce Network Policies:** Acceptable Use Policies, Password Policies, Administration Policies, etc., can be your most important tools in maintaining security — and consistency — within your network. Of course, they must be strictly enforced.

## External Security

Potential external threats to computer networks can have such negative effects to communications that large disruptions often make national news. Needless to say, protecting your school's network from these threats should not be left to chance.

R & D Industries does not take the threat of hackers and viruses lightly. The security specialists understand that you can't put a price on the information stored within a school's network, nor can you place a value on the effortless access of this information.

To lock out the external threats which exist throughout the Internet, R & D Industries applies the following:

**Firewall Implementation:** The guard at the gate so to speak, a properly-configured firewall examines each connection coming into or leaving your network and blocks those that do not meet specified security criteria. For example, firewalls can be set up to prevent specific file types from entering a network, as well as help to conceal details about a particular network from the public.

**Anti-Virus Protection:** While having anti-virus software on your network is nice, it can quickly be rendered useless if it is not consistently updated. To achieve maximum anti-virus protection, networks should be programmed to automatically update the software daily on all workstations and servers.

**Anti-Spam Protection:** R & D Industries implements anti-Spam protections that are highly effective. For some customers, these protections have eliminated literally thousands of Spam messages each day. This Spam protection includes, but is not limited to: using Reverse Blacklist (RBL) servers; protocol filters that can be set to block specific subjects, topics, senders, etc.; global whitelists and blacklists; and the intelligence to "read" email content to determine the difference between Spam and legitimate email using Bayesian filtering.

**Enforce Network Policies:** Policies help to create simple safety habits within both the student body and the faculty, and these positive habits can prove to be the final line of defense in protecting your network and keeping students and staff out of trouble.

For more information about securing your school's computer network, simply call R & D Industries, Inc. at 800-659-3529.

# Watching Your BUDGET

Today more than ever, school districts are being forced to maximize depleting education budgets without lessening the quality of the education provided to students. During this process, computer network technology within the district – a positive sign of the district’s progressive approach toward education not long ago – is often viewed as an area of budgetary concern.

However, there is an answer to inflating information technology (IT) budgets. The implementation of Thinix thin client systems within a school or school district can dramatically reduce IT budgets by thousands of dollars per year.

## What is “Thin Client” Computing?

Thin client computing is a simple concept dating back to the early years of computer technologies when an office computer system consisted of a single mainframe computer and several mainframe terminals. These early office systems were developed under the accepted position that multiple users could share a single computer, interacting independently with it via their terminal. Thin client technology revives this concept and updates it to include a modern Microsoft Windows-based desktop virtually identical to those end users have become accustomed to in recent years.

On a thin client system, the server’s processing power is divided into individual user sessions on the server, and only screen information is transmitted over the network to local computers.

Users still interact with the system using a familiar Windows desktop, but on a thin client system, workstations no longer must be so robust. Processing, memory and storage all occur at the server level, and all applications – including the operating system, the Internet, and email – run from the server as opposed to the workstation.

Thus, smaller, less complex and more cost efficient computers — even older computers nearing the end of their expected lifecycles — can be used as thin client workstations without a loss of quality. And since these computers are required to do less, they maintain much longer life spans.

## A Paradigm Shift

Thin client computing technology represents a paradigm shift away from installing a high-maintenance Windows-based computer system on every desk. In traditional (Windows-based) networks, each worksta-



## What is Thinix?

Thinix “Thin Client Solutions” is a branded thin client system created by the programmers at R & D Industries, Inc.

The software acts as a network-based operating system which, on a thin client network, creates a desktop environment identical to those users have grown accustomed to in recent years.

Thinix establishes connections to individual sessions on the server and allows administrators to administer all desktops from one location.

tion brings its own set of issues to the table as far as configuration, service packs, the installation of new applications and/or software, compatibility issues, security, and its eventual replacement.

The constant upgrade and maintenance cycle for each workstation quickly adds up to hours of labor and a high cost of ownership. Thin client computing eliminates a great deal of this.

## Why Consider a Thin Client System?

The reasons for developing a thin client computing system are many, yet for schools it boils down to a single advantage: *the cost savings can be enormous*. According to an in-house cost savings estimate based on a network with 200 workstations, the savings could reach into the hundreds of thousands of dollars within a five-year timeframe.

Much of this savings comes from the

simplification of workstations on the network. For example, thin client computers:

- ▶ Do not require service packs or the typical day-to-day maintenance that standard PCs do;
- ▶ Are impervious to misconfiguration either intentionally or accidentally;
- ▶ Do not require anti-virus software;
- ▶ Do not require operating system licenses or operating system upgrades (such as Windows 98 or XP) on each desktop computer;
- ▶ Do not require a high-level technician on site for day-to-day maintenance;
- ▶ Is made up of hardware that lasts longer as it does not become obsolete as rapidly;
- ▶ Requires less skilled staff for workstation maintenance (replacing an old computer requires no configuration).

Consider that the maintenance and upgrades described above, on a traditional network, would have to be multiplied by the number of workstations connected to the network in order to achieve a true picture of their costs. Then consider that on a thin client system, maintenance and upgrades would be performed on a single machine or terminal cluster, and achieved in a fraction of the time. The difference is amazing!

For a free assessment of whether Thinix Thin Client Solutions can work for your school or school district, **call the thin client experts at R & D Industries at 800-659-3529.**