



CEDPA K-12 TECHNOLOGISTS
<http://www.cedpa-k12.org>

DataBus

“Supporting California's Educational Technology Community”

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CSIS Participants to Use New Approach In Sharing Student Identifiers

Russ Brawn, California School Information Services

Several consortia comprised of some seventy districts and county offices of education are currently working with the California School Information Services Program to develop and implement working solutions that will enable the accurate and timely exchange of student transcripts and assist local education agencies (an LEA may be a school, district, county office of education or other agency providing services to students) to electronically transmit reports to the California Department of Education. A significant aspect of this work is uniquely identifying students without compromising confidentiality. Research and design work done by CSIS and participating consortia regarding the issues surrounding this need are unprecedented in the nation.

Overview

Inherent in the CSIS Program is the need to establish a means to distinguish records for the approximately 6,000,000 California K12 students. Both records transfer and state reporting require multiple years of data, a problem compounded by the fact that students attend various institutions within those multiple school years. The goal is that each student's records be uniquely distinguishable from that of other students, and that they be consistently identifiable over the entire academic career of each student from kindergarten through high school graduation.

To achieve this goal, it is necessary to assign every

student a unique, unambiguous and persistent identifier that will stay with the student as they move among districts within the state.

It is incumbent on CSIS and all local education agencies to provide extraordinary protection of any and all personally identifiable data elements.

The Challenge

Given that the responsibility for confidentiality of student data exists at the local level, it is very desirable to hold the personal data required to establish identifiers as close as possible to the local agency that maintains the students' records. However, the process to persistently and reliably determine unique student identities is en-

(See "Identifiers" on Page 21)

Also In This Issue:

Legislative Update.....	4
Technology Spotlight on: Yolo County Office of Education.....	5
Conference Updates.....	6,7,8
Building and Using Intranets and the Internet to Increase Access to Education Content and Information.....	9
California Takes the E-Rate.....	18
Dumping Old Computers.....	23

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CEDPA Information

CEDPA is an association of K-12 Technologists. Founded in 1960, the major emphasis of the association's activities are directed towards improving K-12 Technology in public education within the State of California and to prepare its membership to better meet and support the technological needs of Administrative and Instructional Programs.

CEDPA is a California non-profit corporation, as recognized by the Internal Revenue Service.

As cited in CEDPA's bylaws, the purpose of this organization shall be:

(a) To provide information to the California public educational community concerning educational information systems and technologies via dissemination at an annual conference, through quarterly periodicals and special seminars.

(b) To foster the exchange of knowledge of educational information systems and technologies concepts, systems and experiences between local education agencies and other associations both at the state and national level.

(c) To inform the association membership of important information concerning educational information systems and technologies.

(d) To provide recommendations to the State Department of Education, State Legislature, school districts, county offices of education and other public educational organizations concerning educational information systems and technologies.

(e) To develop professional standards for the educational information systems and technologies community within the State of California.

Yearly membership in CEDPA is granted to attendees of the Association's annual conference. Individuals interested in the Association's mailings may request to be added to CEDPA's mailing list by writing to the address below or filling out the interest form at CEDPA's website.

The *DataBus* is published bimonthly by the California Educational Data Processing Association and is distributed without charge to all members of the association and other selected technologists within the State of California who are interested in information systems processing and technology in K-12 education. Submissions, correspondence, and address changes should be sent to the editor at:

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Electronic editions of the *DataBus* and information about CEDPA are available from CEDPA's website at

<http://www.cedpa-k12.org>

President's Corner

Darryl La Gace, Lemon Grove School District

This issue of the *DataBus* covers a variety of topics surrounding educational technology -- from life after E-rates and what your district should be considering if these funds diminish, to new bills and appropriations for technology and what you should know about SB20 and AB1942. Highlighted this month is the ever-changing role of CEDPA's members as technology begins to truly integrate into the curriculum. You'll also get a glimpse of how the conference in Santa Barbara is shaping up. Thanks to our conference chairs, things are shaping up quite nicely!

The annual CEDPA conference is just a few months away and we are working hard to bring you the latest information and important contacts to make this conference the best yet. Our keynote speakers are Vice Presidents and General Managers of K-12 Education from two of the industry's leading companies, Microsoft and Dell. The break-out sessions have been expanded to include two featured sessions each day. And again this year, the network operations center (NOC) promises to demonstrate all sorts of new technology. We're providing lots of one-on-one time with engineers that can explain how you can make the most of these technologies in your environment. With a full day dedicated to our vendor show, you'll be able to find just the right resource to assist with your technology needs. For more details, be sure to read this issue cover to cover.

CEDPA's focus over this school year has been on the virtual learning community. As districts are developing new models, the look of technology in schools across the state is changing. In the Lemon Grove School District, we have had great opportunities to extend learning beyond the classroom. The district has adopted a model that supports a 1:2 ratio of computers to students increasing access in class while making the same resources available through affordable network appliances at home. Currently, we are in our third year of a program that includes technology implementation and professional development for an additional 20 percent of staff each year. However, this year we made a shift in the types of computers we were buying to equip the classrooms. By reallocating existing workstations and purchasing thin-client terminals instead of computers, we were actually able to increase access without extra dollars. It is an exciting experience to walk into a classroom with four multi-media computers and twelve networked appliances

and see a dream become reality! But it is not the technology that is the real excitement, it is the change that's occurring in instruction.

Our new classroom model finds student desks clustered around the room, two Wintervals with each cluster of four students. From 6th grade teacher, Jesse Johnson, "The computers are not an intrusion, they are a natural part of the environment. We pull them out when needed (and that can be either planned or spontaneous moments) and we can shove them aside and get out the construction paper or spread out materials. The computers are a natural part of the desks and classroom and not a bank of computers in the back of the room you go to. The Wintervals and the one computer to every two student ratio have totally embedded technology in the teaching and learning process."

Each day our network is expanding. As we add more students online from home or provide one more classroom with adequate access to technology, our department's role continues to make significant impact in the district's overall goal of improving student achievement. Just last week, as Bill Gates reported to the US Senate subcommittee on the importance of technology in K-12 education, he described the Lemon Grove School District's success with a connected learning community. I'm still reminded of his ending remarks that "the best is yet to come."

Editors's note: Lemon Grove School District's effort to network the school district and its community was recently acknowledged by Microsoft Chairman and Chief Software Architect Bill Gates at a Congressional hearing in Washington, D.C. He and other top high-tech executives told Congress on June 6, 2000, that improving research and education are the keys for driving new technology in the decades to come. At the hearings, Gates talked about the Lemon Grove School District's Connected Learning Community as a model where the district acts as a hub that connects student, parents and teachers over a community-wide network and provides access to electronic resources and information 24 hours a day. To view an excerpt of Gates' testimony, view C-SPAN coverage of the US Senate Technology & Economy subcommittee hearing at <http://mms://209.242.130.158/mssenat2.asf>. Windows Media Player must be installed on your computer in order to view this excerpt. Advance the time indicator to approximately three minutes into the presentation

Legislative Update

A Summary of Current Legislation Impacting K-12 Educational Technology

Greg Lindner, Elk Grove Unified School District

Two new bills in the legislature are sure to have an impact on K12 Technology should they get signed into Law by Governor Davis. They are highlighted here so you can follow them.

AB 1942

This bill would establish the Education Technology and Professional Development Grant Program. The first priority of the grant is to ensure that high school pupils in schools offering three or fewer advanced placement courses have access to advanced placement courses online. Grants awarded for the first priority may be expended to purchase or lease computers and related equipment, and wiring and infrastructure necessary to achieve a connection to online advanced placement courses.

The second priority of the grant is to increase the number of computers available to all other K-12 public schools. Grants awarded for the second priority will be awarded at the school district level and be based on a ratio of pupils per computer as determined by the Secretary of Education. This bill would require that participating Districts have a technology plan or will have one within 90 days after submitting the application for a grant.

The third component of the grant is centered on professional development. This would direct the California State University to administer training on the use of technology in the classroom .

The bill has just recently passed the Assembly with a 76 to 1 vote in favor of it. The Governors May revise contains \$200 million for this program; \$175 million in one-time grants to buy computers and support online advanced placement courses, \$25 million in one-time funds to provide the CSI program for technology staff development, and \$100,000 to CDE to administer the program. It looks like it has a very strong possibility of becoming law in my opinion.

Further information can be found on this bill at this location: http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_1942&sess=CUR&house=B
6/15/00 Update On This Bill

This is late breaking news on AB1942, ammended June 14, 2000. The bill was ammended to include Charter Schools, and

“(e) Funds appropriated to carry out this chapter in the 2000-01 fiscal year shall only be available to high schools or charter schools that serve grades 9 to 12, inclusive. “

While there is no clear language in the bill that says this is an ongoing program, it is implied—subject to, of course, funding from the annual budget act. For those school districts that had to use most of their Digital High School money for wiring infrastructure and were left with little funds to purchase computers, it appears the initial intent is to help them do that.

SB 20

This bill would extend the Digital High School Grant to new high schools built after October 6, 2000. These schools will not get the \$300 per student implementation grant but would get the \$45 per student Technology support and staff training grant. This portion of the grant is ongoing from year to year, subject to funding availability.

SB20 also extends the Digital High School Grant to provide all pupils in grades 4 to 8, and grade 9, if grade 9 is part of a middle school, instruction in basic computer skills including word processing programs, electronic publishing software, spreadsheet programs, courseware and related software, and Internet search and retrieval tools. Therefore, SB20 would provide the \$300/student and ongoing \$45/student grants to schools with grades 4 to 8/9 as noted above.

This bill has been amended a few times (6 times so far) and has gone back and forth to 1) only include new high schools to 2) include new high schools and grades 4 to 8/9. This bill has been read a second time, amended, and re-referred to the Committee on Information Technology. So, it is difficult to say if this will move all the way through to the Governors desk.

Commission on Technology in Learning

On May 26, 2000, Governor Gray Davis announced the appointments of Heidi H. Haugen (an Elk Grove Unified Teacher!), John K. Nagata, Richard A. Navarro, Betty D. Silva, Moises Torres, and Alice W. Tsou as

(See “Legislative” on Page 5)

Technology Spotlight On: Yolo County Office of Education

An Update on the Technology Literacy Challenge Grant Program

Joyce Hinkson, California Department of Education

Over 7,000 grade 6-8 students and their teachers will be impacted by Project Connect, an ambitious Technology Literacy Challenge project located in Yolo County. The Project promotes service learning as a vehicle to enhance language arts and mathematics skills while working to solve community problems in collaboration with community members. It follows a "Train the Trainer" model where the participating teachers are to train their fellow teachers in the skills they learned through the Project. Both public and private schools in Woodland, Winters, Esparto and Washington are included in the Project.

Teams of sixth through eighth graders and their teachers have been trained to use technology to research Countywide issues. Topics explored by teams have included water resources, agriculture, environmental science, current events, and community growth as it relates to land development, habitat and resources. It is not unusual to see teams of students and teachers with mud-caked shoes busily using digital cameras and probeware to gather data integral to their research topic. The Project has received so much positive attention that Yolo County issued a mini-grant to provide equipment and training for an additional 100 students and two alternative education teachers from the court community school. Laura Bailey, Technology Coordinator for Yolo County Office of Education and Patricia Turner, Coordinator for Instructional Technology in Woodland Joint Unified School District are pleased with the Project's success. They note that they have received many requests to join the Project from teachers and students who are not part of the original grant proposal's target group. Teachers Anna Martinez, Karen Dumars, Yolanda Hudson and Sally DeLaMora have successfully used the Project in their classrooms to actively engage their students in critical thinking activities that support the classroom curriculum in the area of history/social science, communications, and science.

Staff development has been a key component of this program and the main reason for the enthusiastic response from participants. During the summer, 15 teachers and 30 students will complete a two-week session in collaboration with the Yolo County Flood Control and Water

Conservation District. Jim Eagan, General Manager of the District and Christy Barton, Assistant Manager will assist with the exploration of the topic, "What is the relationship of the community to its water resources?" Teachers in the Project also complete 90 hours of university-approved extension coursework through U.C. Davis in the Teaching and Technology Program.

The goals of Project Connect: to increase student achievement in language arts, technology and mathematics and to develop a self-perpetuating team of educators skilled in the application of technology and curriculum are being realized. When asked what advice she would offer for implementing an effective staff development program, Laura did not hesitate to answer, "Accessible equipment, sufficient time, ongoing support with coaching and providing the staff development in context with the classroom curriculum." It also helps when learning is this much fun!

Project Connect will be featured as one of the pre-CUE staff development field trips in November, 2000. Pat Turner may be contacted for additional information about Project Connect at (530) 662-0201 x 4350 or pturner@yolo.k12.ca.us

Dr. Joyce Hinkson is a consultant for the California Department of Education's Education Technology Office. She may be reached at (916) 323-2241 or by e-mail at jhinkson@cde.ca.gov.

Legislative

(Continued from Page 4)

members of the Commission on Technology in Learning. Part of the Commission's mandate is to develop an education technology plan for California. For more information, check the following link: <http://www.governor.ca.gov/briefing/pressreleases/may00/a00178526.html>

CEDPA Plans 2000 Vendor Show

Russ Brawn, California School Information Services

On November 16th, CEDPA opens the doors to the Conference 2000 Vendor Show. 10,000 square feet of exhibit space will house the leading K-12 vendors for products as diverse as administrative software and computer hardware.

There will, of course, be the many familiar 'faces' that CEDPA Members depend upon. Additionally, a number of companies new to CEDPA, and in some cases new to K-12, will present interesting new options for products and services. One reason these providers are attracted is the importance CEDPA places upon consumer/provider dialogue. The CEDPA Conference has for several years been the premier venue enabling budget holders and consumers to meet and mix with suppliers on a personal level. As before, this 40th CEDPA Conference will offer dedicated time for vendors and attendees to interact – no presentations or breakout sessions conflict with the Vendor Show.

If you are new to CEDPA Conferences, you'll discover that consumer/provider dialogue is not limited to the exhibit space floor! In addition to presentations by your peers and other experts from the field, several vendors will share their expertise regarding a number of subjects in breakout sessions (see news regarding the Speaker Program), and will demonstrate technologies in the Network Operations Center (NOC). This is all to say that vendors both new and familiar to CEDPA are committing to bring sales, service and technical support personnel. But make no mistake – for many attendees, the traditional Thursday exhibit is for many the highlight of the Conference. If this describes your interest, you'll not be disappointed.

Vendors already committed to the Conference include:

- Administrative Assistant, Ltd.
- Anixter
- Apple Computer
- ATW Wrightline
- Data Impressions
- Dell Computer
- Diamond Technology Services
- Digitronics Software
- Eagle Software
- Education Technology
- Edulink Systems
- EKM Computer
- Escape Technology
- Excelsior Software
- Government Computer Sales

- GTC Systems
- Lytrod Software
- Miramar Systems
- N2H2
- NCompass Systems
- The Northstar Group
- Notesys
- Oracle
- Pinnacle Integrated Business Systems
- PowerSchool
- Quest Media & Supplies
- Safesites
- Snap Systems
- Spectrum Communications

Not to be forgotten is the wrap-up to Vendor Show day. The exhibit itself closes with a display of largesse courtesy of the vendors and CEDPA. This takes the form of an extensive drawing of door prizes (for those in attendance only) followed by all out hosting of Hospitality Suites. Several vendors will open their doors to all for food, beverage and continued discussions. Watch CEDPA's website for announcements of this year's hosts.

Questions about the Vendor Show may be addressed to Russ Brawn, CEDPA Director, by calling (916) 325-0887 or by email to rbrawn@csis.k12.ca.us.

CEDPA Announces Friday Keynote Speaker

Bill Rodrigues, Vice President and General Manager of Dell Computer's K-12 Education Business Unit, will be the Friday keynote speaker at CEDPA's fall conference. He is responsible for leading a team of Dell K-12 specialists to meet the technology needs of school districts throughout the U.S.

Prior to joining Dell, Mr. Rodrigues spent 21 years at IBM, most recently as General Manager for Global Education in North America. Other assignments while at IBM included General Manager of IBM's AS/400 brand Marketing in North America, Director of AS/400 World Wide Distribution, Executive Aide to Louis V. Gerstner Jr., Chairman and Chief Executive Officer of IBM, as well as other management positions.

Mr. Rodrigues earned a Bachelor of Arts degree from Rollins College.

Speaker Program Update

Greg Lindner, Elk Grove Unified School District

This year promises to be a banner year for our conference in terms of speakers. This year's conference is in Santa Barbara at the Fess Parker Double Tree Inn, November 15, 16, and 17th. The title of the conference is "Supporting the Virtual Learning Community". More information can be found on the theme by visiting the following CEDPA site <http://www.cedpa-k12.org/databus-issues/v40n3/virtual.shtml>. The virtual learning community is made possible through the use of technology. Via the web the traditional learning day can be extended beyond the walls of the classroom and beyond the typical school hours. Students and parents alike can access instructional materials, grades, homework, etc. at any time they want to via the web. They are no longer bound by just the classroom. Furthermore, as technologists we are now more than ever before able to better support the environment via tools that allow us to reach out to the community.

The speaker spots are filling fast but we still have room for more. If you are interested in being a candidate for one of our open spots, please fill out the form and email it to me at glindner@edcenter.egusd.k12.ca.us or fax it to 916.686.44551. The form is online at <http://www.cedpa-k12.org/2000Conference/>.

Our Pre-Conference sessions (conducted on Tuesday afternoon) this year are shaping up as follows:

Pre-Conference: Intel LanDesk: Nuts and bolts of it. Learn from actual engineers how to set it up, what it does, and how to use it.

Intel® LANDesk® Client Manager 6 Delivers Standards-based Desktop Management Anytime, Anywhere

Built upon a new, fully Web-enabled architecture, Intel LANDesk Client Manager 6 provides system administrators with access to PC health, system assets, troubleshooting, problem resolution and desktop management information from any console connected to the Internet or a corporate Intranet. Access from any location connected to the Internet or a corporate Intranet and a simplified, graphical presentation of interrelated information make Intel LANDesk Client Manager an easy-to-use tool for remotely accessing, browsing and modifying individual desktop settings and configurations.

(Excerpted from <http://www.intel.com/pressroom/>

archive/releases/ld60799b.htm)

Pre-Conference: Apple Presents the Schools Interoperability Framework utilizing XML

XML (Extensible Markup Language) is clearly emerging as the major foundation of both the SIF (School Interoperability Format) and a host of powerful robust, web-based data interchange applications from a variety of developers.

This presentation will provide CEDPA conference participants with an introductory overview of both topics in order to better understand their impact on current deployment decisions.

Presented by Javier Perez Sanchez, Apple Developer Relations

Additional information on the Schools Interoperability Framework can be found on Apple's web page and is pasted below:

The Schools Interoperability Framework (SIF) is a new technical blueprint for the seamless integration of multivendor software applications in K-12 school districts.

As K-12 schools and districts increase their use of more complex software tools, administrators have been searching for true interoperable and secure ways to share information. Borne out of these needs, the Schools Interoperability Framework (SIF) addresses this problem by creating simple specifications for the seamless integration of software applications. To help fulfill those needs and provide solutions for K-12, Apple has been decisively involved in the development of this rapidly accepted and evolving standard.

The SIF is not a product but rather an industry initiative to create a set of technical blueprints that will enable diverse K-12 applications to share data across multiple platforms under secure conditions. As applications become SIF compliant they will also become truly network interactive accessible from any authorized computer station via a web browser.

Under the management of the Software Information Industry Association (SIIA), working specifications are

(See "Speaker" on Page 25)

San Diego SIG: A Return to Topics and a Wealth of Expertise

Warren Williams
Grossmont Union High School District

On Friday, June 9, the last SIG of the year was held in the Joe Rindone Regional Technology Center at the San Diego County Office of Education. Twenty CEDPA members collaborated to work on a multitude of issues presented by those in attendance. The expertise of the group was evident as no issue was discussed without a wide variety of solutions offered. Many comments indicated that just one or two of the shared experiences made the entire day worth the trip. Attendees came from as far as Ventura, Calexico and San Bernardino and the request from all at the end was “we need more of these meetings.”

The attendees represented a range of job classifications in IT. Directors, analysts, assistant superintendents, managers and even a projects manager were able to reflect on issues from a variety of perspectives. County offices, schools and district offices were all represented. The complexity of the IT manager’s role was evidenced by the topics discussed. Staffing issues topped the list and caused the longest discussion. Retaining personnel at competitive wages was of real concern. Emergent technologies like IP telephony and thin client were thoroughly dissected and good advice was tendered to organizations heading in these directions. Student information systems – legacy to distributed – received the usual attention and indications are that some new vendors in the market offer some interesting alternatives. Of special interest was the utilization of student systems to use web access for staff, parents and students. The teacher training topic produced some interesting solutions. One district collects a \$10 check for everyone who signs up for a class and returns the check only if the person attends. This process has considerably cut down on nonattendance at inservices. Help desk, network monitoring and CSIS rounded out the list of issues.

It appears that the “Return To The Attendee Driven Agenda” has proved successful. Next year CEDPA will again be offering six SIGs regionally located throughout the State. If you are interested in hosting a SIG, please contact Mike Caskey, mcaskey@stan_co.k12.ca.us or Warren Williams, wwilliam@guhsd.net.

Network Operations Center 2000

Scott Sexsmith
Merced County Office of Education

Planning for this year’s Network Operation Center (NOC) is in full swing. Building upon the successes of prior conference NOC setups, CEDPA is making sure that this year’s center will provide information and sessions on relevant and timely topics.

We’ve already had commitments from companies like Microsoft, Dell, Cisco, Lucent, Apple, Sehi Computing, Internet Products, AMP, Network Associates, and Wright Line to provide information, expertise, and equipment for the NOC.

Planned topics for discussion this year include network security, pro-active anti-virus protection, “server appliances”, real-time network monitoring, virtual private networks (VPN), firewalls, web filtering, wireless LANs, video streaming, and more. We even plan to have computer furniture on display that you might use to house all of your own data center’s network systems.

Plan on attending sessions in the NOC to learn about these topics and more and to see the hardware that makes it all happen. Take advantage of companies having engineers on-site to learn more about implementing these technologies in your office. Learn how to fight virus outbreaks *automatically* before they turn into widespread problems. Find out how wireless LANs can actually save you money (and labor!) and give greater freedom to users. Get tips on monitoring your network to be proactive with problems and to keep your network running in top shape. You’ll find all this and more in the NOC 2000.

If you have suggestions for hardware, software, or presentations that you’d like to see added to this year’s NOC’s winning line-up, I’d really appreciate hearing from you. Please send me e-mail at ssexsmith@mcoe.merced.k12.ca.us.

2000 CEDPA Conference
November 15-17, 2000
Fess Parker DoubleTree Resort
Santa Barbara, California

Building and Using Intranets and the Internet to Increase Access to Education Content and Information

Submitted by Tuan Nguyen, Microsoft Corporation

Why Schools are Turning to Intranets and the Internet

For many primary and secondary schools, the Internet isn't something to consider for the future—it's a crucial tool being put to use today. Administrators and teachers in these schools see intranets and the Internet as a way to:

- Increase student access—and the equity of that access—to instructional information and educational resources for better education.
- Increase staff and teacher access to real-time administrative data for decreased administrative tasks and costs and better decision making and efficiency.
- Increase the dynamic nature of community collaboration and better prepare for the future.

The increasing appeal of intranets and the Internet is evident in the most recent statistics on Internet use: Already, 82 percent of U.S. public schools have Internet access and that figure is expected to soar to 96 percent by the end of this school year. A third of all classrooms are Internet-connected and this year, for the first time, most (56 percent) primary and secondary level teachers have home Internet access.

The most common use of the Internet by teachers and students is research. The challenge you face as a technology coordinator is how best to plan, deploy, and support school- or district-wide intranet and Internet integration. In this Solutions Series White Paper, you will read about how schools and school districts have overcome challenges and are effectively using intranets and the Internet to increase access to information, improve learning and administrative efficiency, and prepare for the future. This information will include:

Houston Independent School District

One of the largest districts in the country, Houston has standardized on an intranet that increases administrative efficiency through greater cost effectiveness and fewer tasks, while also boosting student access to educational information for better and more relevant learning. On the administrative side, Houston deployed network operating systems and proxy servers to allow more affordable intranet and Internet use. Specifically, Houston used the Microsoft® Windows NT® operating system and Microsoft Proxy Server software to eliminate the need to pay for every student and administrator to have a dedicated, and costly, Internet addresses. Only simultaneous connec-

tions need separate Internet addresses, saving considerable cost and administrative burden. The centralized features of the system allow managers to conduct much of their maintenance from the central office, further reducing the need for on-site staff at each facility. With greater access to information, Houston can make its online data the basis for interactive transactions that make life easier for everyone in the district. For example, student registration and scheduling used to take up to three weeks—and now takes two hours, thanks to the online student registration database. On the instructional side, students utilize the Internet to research information on the sights, sounds, history, culture and current affairs of various countries, then create Web pages to share their discoveries with other students. They use chat groups to communicate with students around the country. Teachers find the Web enables them to better track the information they're sharing with students and to get immediate feedback on what is being learned.

Lee County (Virginia) School District

Using their intranet and a well-planned Internet strategy, Lee County School District has improved administrative efficiency through greater cost-effectiveness and fewer administrative tasks. For example, the district used Microsoft Proxy Server to set up just one IP address along with private Internet addresses for each of its 324 client computers, vastly simplifying administration, reducing intranet traffic, facilitating the monitoring and blocking of inappropriate sites, and enabling administrators to more easily move computers among schools as needed. Lee is able to further reduce costs and improve efficiency by caching frequently used Internet sites on its intranet—so users can access the popular sites without going onto the public Internet and without stressing the bandwidth of the district's Internet connection. The District has also found a filtering and monitoring solution so that Lee County students only access appropriate sites.

Hillside Elementary

This Cottage Grove Minnesota school became one of the first primary schools in the world to present Web sites designed by students on the Internet. It has now moved beyond that milestone with an enhanced solution that increases community collaboration and provides better preparation for the future. For students, collaboration means publishing Web documents and receiving almost instant feedback through e-mail - enabling them to encounter new ideas, increase their depth of knowledge and even change their opinions. For teachers, collaboration means publishing and sharing lesson plans on the Web, as well as fostering dialogs with students, other teachers, scientists, parents and others around the world. E-mail at Hillside provides a tangible link between the school and the community. Parents go to the school Web site to see what's being studied, when projects are due, and what activities are on the school calendar. They even send e-mail to their children to congratulate them on projects the children post to the Web.

You'll also read about the products and technologies

(See "Intranets" on Page 10)

Intranets

(Continued from Page 9)

that technology coordinators are increasingly using as the basis of these solutions, including the networking foundation, Internet servers, Web authoring, desktop productivity, browser and specially developed software. Although this paper won't cover all possibilities such as extranets, the paper does include pointers to resources, definitions and related information. You will also read about the factors to consider for your school district, and the help that's available to you, as you assemble these building blocks into a comprehensive solution for your institution to improve learning and efficiency.

Technology Coordinators' Requirements for Effective Solutions

Technology coordinators have found that effective Internet/intranet solutions enable affordable information publishing and access—and then go beyond those capabilities to also enable the use of that information in other applications that benefit their school or district. Technology coordinators are often concerned with how to provide the most relevant, up-to-date information for better learning, decision-making, and other needs of their school districts' teachers, students, and administrators.

Perhaps you're just getting started with your Internet/intranet solution, in which case this discussion can be a guide. If you're like some schools and districts, you may already have part of this solution in place, in which case this discussion can help suggest getting the most from your solution and continued development. These tips for planning your environment, planning your user experience, and rolling out a solution can help you enhance learning and efficiency while utilizing—not losing—the valuable assets you've already assembled. Here is an overview:

Planning Your Environment

Step 1: Planning for Web Publishing and Collaboration

The Internet and intranets can offer your school district new opportunities for sharing information and collaboration to improve student learning and increase administrative efficiency. Most Internet/intranet solutions can handle data on a publish-and-view Web server, but this isn't enough for schools and districts that want to implement solutions that allow teachers and administrators to access student records and other information, or that allow students and teachers to communicate and collaborate online. To accommodate multidirectional communications (database access for administrators such as student records, chats such as virtual study hall ses-

sions, Web pages such as student reports published to the Web, and searches such as for student research) a solution must integrate these flows on a broad range of servers. Those can include data servers that store and deliver data such as student records, mail servers that handle e-mail, and transaction servers that process transactions such as administrative requests for ordering supplies or requesting sick leave.

To enable this integration without draining your technology staff, you need tools and Web pages that are easy to use and that incorporate their own intelligence, so they can automatically update themselves, retrieve data from other servers, and so on. Active Server Pages offer this functionality and more. Open database connectivity is crucial to linking the various databases, applications and Web pages upon which new uses of the Web depend. These capabilities are at the core of delivering appropriate learning content.

Complicating your situation, you may already have older networking technology and multiple systems in place, even if you haven't yet adopted an Internet/intranet approach. So, you may need to integrate new solutions with existing and older legacy systems.

Planning Your User Experience

Step 2: Making it Easy for More People to Publish and Share Information.

For many schools, content publishing has been the primary use of the Internet—often in the form of students sharing a project on the Web. As Internet/intranet use grows, your content development needs change in key ways. For example, the population of users authorized to create and to publish content to the Web is growing all the time. Once the province of specialized employees, Web publishing is now a responsibility for many of the school districts' teachers, administrators, and students. They need to create and publish content without learning new tools, which means that Web authoring and publishing need to be integrated with their familiar desktop productivity applications.

“Teachers have been quick to adopt the new software because we've shown them how much more productive it can make them in their administrative task and in their instruction,” says Bonnie Knight, technology director for the Rockdale County (Ga.) School District. Students and administrators also can share, utilize, and deliver this

(See “Intranets” on Page 11)

Intranets

(Continued from Page 10)

information in more ways than just receiving an e-mail message or pulling down a Web page. Students and teachers can share and discuss information in live chat sessions with their counterparts in other schools or districts. They could even hold virtual meetings that include shared documents and files as well as audio and video. And they can access these multiple types of information from multiple locations—as well as their e-mail messages and Web pages—through a single, simple, convenient client interface.

“The purpose of a network isn’t so everyone can share the same application,” says Fred Goldberg, district technology coordinator for the Manhasset (NY) Public School District. “Particularly in schools, networking is about connecting people, about fostering collaboration among students, teachers, and administrators. We had to look for the operating system that provided the best environment for collaboration and sharing resources.”

Rolling Out a Solution

Step 3: Planning for Rollout and Continuing Maintenance

Rolling out a solution isn’t just a one-time concern—it includes your need to ensure reliable, secure access to information and applications on a continuing basis. As Web sites grow, as more information is published, and as more applications move to the Web, technology professionals need new ways to keep their Web sites up-to-date and running smoothly. This is especially true for schedule and class information that can change on short notice. Two tools that can help are HTML Templates that make it easy to drop information into pre-formatted Web pages and Active Server Pages that automatically update themselves according to the rules you set for them.

Step 4: Planning for Centralized Administration

Deployment also concerns the ability to customize your client software easily and roll it out broadly from a centralized location, without having to physically touch dozens, hundreds, or even thousands of machines. With both software deployment and ongoing system maintenance, a key concern is being able to handle an ever-growing system without needing an ever-growing technical staff. Solutions that automate much of their own maintenance and that allow you to handle the rest of the job easily and centrally, are crucial.

Step 5: Planning for Security

Ongoing security is another concern as you deploy and maintain your solution. In an educational Internet/

intranet environment, security means more than keeping files secure. It means being able to create zones of security (for example, for the administrative offices or for a computer lab) within the broader network, and to assign specific users to appropriate levels of access. As a result, security becomes a tool to allow more important and productive uses of the school-district intranet. For example, a student’s grades might be posted on a school’s intranet—but only the student, his parents, and his teacher can access and view the grades, and only the teacher has the higher security authorization to enter, change, or delete grades. With proper security, school districts can even use the public Internet for collaborative and other applications that span two or more locations.

How Technology Coordinators Meet These Needs

Here are some solutions for the key Internet/intranet issues that technology managers in schools and school districts have addressed.

Planning Your Environment

How do I move the administrative and instructional applications that my school already uses to a school-district intranet, where they’ll be easier to manage and accessible to more of my users? A network operating system foundation, an Internet server, Web server authoring and management tool, and database and systems management tools each play a role in moving applications onto the intranet to increase the efficiency and timeliness of information access. Technology coordinators have found that the combination of the Microsoft Windows NT Server operating system and its built-in Web server-Internet Information Server (IIS), Microsoft FrontPage® for Web server authoring and management, and a range of Microsoft BackOffice® family products—such as Microsoft SQL Server™—fit the bill, with each allowing you to integrate existing databases wherever they reside on your network. For example, putting a student registration database on a Windows NT server with IIS and SQL Server can give all authorized users convenient access to up-to-date records information and significantly reduce the time required for student registration. That in turn frees time for additional instruction.

On the administrative side, many tasks formerly accomplished via paper copies—such as distributing memoranda and routing forms—can be moved to the Web, as

(See “Intranets” on Page 12)

Intranets

(Continued from Page 11)

well. Instead of printing, stuffing, addressing and routing memos, administrators can create documents and use the Publish function in Microsoft productivity applications to post them to the Web. As needed, they can be posted to secure portions of the site that require authorized access authenticated by the security features of Microsoft Windows NT. For example, an administrative office can post school policy information on the intranet. The district-wide telephone directory—a vast and immediately out-of-date publication for a large school district—can be moved to the Web, making it always available and always up-to-date. Online forms can be downloaded from the intranet, then sent via e-mail to the appropriate department once completed.

As you create custom applications for your intranet, Microsoft Visual InterDev® Web development system, included in Microsoft Site Server, provides an integrated development environment for embedding logic and transaction management in your applications.

Real School Story: Return on Investment in Houston

In the Houston Independent School District, for the first time, teachers now have immediate access to student attendance records, test scores, previous grades, and course rosters—enabling them to tailor their instruction to the individual needs of their students. Planning at Houston enabled an integrated solution that accelerated registration and streamlined administrative processes. The district's Windows NT Server foundation and an internally developed Web-based database application running on IIS, SQL Server and FrontPage Web site creation and management tool allows classroom instruction to begin as early as the first day of school. That was an impossibility in the days when registration was accomplished by hand, according to Dr. Rod Paige, Superintendent of Schools.

Beyond freeing up several weeks of instruction time, the database application gives teachers immediate information about students as they transfer from school to school within the district—an important concern in a district with a 40 percent annual mobility rate.

“Once our teachers and administrators know who their students are, they're much better able to plan for their instruction,” observes administrator Susan Scalfani, Chief of Staff for Educational Services. “In the past, it was a real challenge to gather the information you needed about the children in your classroom.”

How do I provide appropriate security for my intranet? Security is an obvious concern for your intranet—and it becomes an increasingly important concern as your intranet expands to include increasingly important and sensitive student records and administrative data. The authentication, authorization and domain-level capabilities in Windows NT Server allow you to create zones of security (for example, for an administrative office or a computer lab) within the broader school or district network, and to assign specific users to appropriate levels of access. With

the Proxy Server component of Windows NT, you gain powerful firewall capabilities that enable you to use the public Internet for collaborative and other applications that span two or more schools in your district.

In addition to controlling access to your site, security means ensuring that students and other users don't misuse the Internet access you provide to visit unauthorized sites. Microsoft Proxy Server provides powerful monitoring and filtering capabilities to support this requirement as well. Because Proxy Server integrates tightly with Windows NT Server user authentication, it enables network administrators to restrict access by user name or by group affiliation. This means a school district can easily restrict access to certain protocols or from certain student groups. In an extreme situation, school administrators could easily turn off student access to the Internet altogether and make it available to the teachers only.

Real School Story: Monitoring Internet Use in Lee County

Administrators in the Lee County, Virginia School District use Microsoft Proxy Server to both monitor use and block out inappropriate sites. “To start with, we just monitored what was going on,” explains Alan Hughes, Microsoft Certified Product Specialist for the district. Originally the information was logged into a text file that was loaded into a database that Hughes reviewed weekly. Then Hughes began to develop a list of IP addresses and domain names to which they could deny access. The system uses Hughes's own automated program, which collects inappropriate site addresses to be filtered out and automatically loads them into the Proxy Server Registry every night. Other school districts successfully combine Proxy Server with software such as NetNanny, NetPartners' WebSENSE, or Educational Technology's Chaperon to maximize site filtering. NetNanny information can be found on the Web site <http://www.netnanny.com/>; NetPartners product information can be found on <http://www.netpartners.com/> and Educational Technology's Chaperon can be found on <http://www.edu-tec.com/>

Planning Your User Experience

How do my users publish content to the Web? Microsoft Windows® operating system, Microsoft Internet Explorer, Microsoft Office and the BackOffice family make it easy for end users and groups to utilize existing documents, create new content, and create and manage intranet sites. For example, a teacher might write an assignment in Microsoft Word and then use Word's Publishing function to post the information to the Web. Microsoft FrontPage makes it easy to enhance the basic content for a superb look on the Web. The teacher could insert a link to a specific Web site, for instance, even if he only knows the URL for that site, and the application can

(See “Intranets” on Page 13)

Intranets

(Continued from Page 12)

accommodate the HTML coding by itself.

Microsoft Windows NT Server provides the platform for basic publishing by providing a Web server, content indexing and authoring tools, and multimedia publishing right out of the box. Microsoft Site Server extends this functionality by providing a comprehensive environment for enhancing and deploying intranets. Features in both Microsoft Access 97 and Microsoft SQL Server make it easy to integrate databases into intranet sites.

Real School Story: Students, Teachers Publish to the Web in Hillside Elementary

Hillside Elementary in Cottage Grove, Minnesota finds that students love the ability to publish Web documents and receive feedback through e-mail, according to sixth grade teacher and Internet coordinator Chris Collins.

“The kids who actually communicate with their readers become incredibly motivated to improve their writing,” Collins says. “Once they publish a report, it doesn’t end there; they see learning as an extended process, not something you learn a piece of then walk away.”

Teachers are learning the benefits of Web publishing, too, Collins adds. “Now, a teacher has the opportunity to construct a lesson plan or a project in Microsoft Word, make it look cool in the Microsoft FrontPage Web authoring tool, and present it on a Web page. All of the sudden we have teachers buying their own computers. They’re taking this stuff home with them. I have never seen that before.”

Real School Story: Putting the Library on the Web

In 1995, Lee County (Va.) schools had to find a highly cost-effective way to automate all of the school libraries in the district. Lee’s solution: publish the public-access library catalog on the Internet and the school’s intranet. This way, the schools could still use their numerous older personal computers (mostly 486/33s and 486SX computers with 8 MB of memory) to run a browser to access the school libraries even though the machines couldn’t handle client software. This setup enabled them to provide access to the system with most of their existing PCs.

“Any computer that can run a browser can have access to all 13 of our libraries from anywhere in the school system,” notes Alan Hughes, Microsoft Certified Product Specialist at the district.

How do I help students, teachers, and administrators to communicate and collaborate over the intranet? With Microsoft Exchange Server and Microsoft Outlook® messaging and collaboration client, users can tap into rich, reliable messaging, integrated calendaring and scheduling, and powerful information management tools. Tight integration with Microsoft Office makes it easy to collaborate on documents and share the results on the school’s Web site. Students can even create their own Web pages using Microsoft Office as the final stage in a class research project.

Innovative, real-time collaboration is enabled with

Microsoft Chat and NetMeeting® conferencing software, which allows students to exchange comments, and even files, with students elsewhere in the district or around the world. Microsoft Exchange and Outlook also enable easy-to-use electronic forms and routing, and simple workflow tools.

Real School Story: From Web Publishing to Community Building in Houston

The Internet figures prominently in the instructional aids available to students in the Houston Independent School District.

“Giving students access to the whole world of information certainly energizes them to move forward and do the type of in-depth research that is most rewarding,” says Sharon Valear Robinson, principal at Houston’s The Rice School. “Children are able to share and learn a great deal more in a way that they have not been able to do before. But students aren’t the only ones who benefit. Efficiency has greatly increased in both learning and teaching. Teachers are able to really track the information they’re sharing with students and to get immediate feedback on what’s being learned. Best of all, the technology helps build students and teachers into a community.”

Real School Story: Creating Collaborative Excitement in Hillside

At Hillside Elementary in Minnesota, collaborating via the Internet gets students excited about learning. “One student said what he liked about the Internet was that it gave him a window to see what it’s like to be an adult,” says teacher Chris Collins. “People were actually listening to what he had to say. Students find that whole communities of people exist with similar interests who communicate through the Internet - as equals.”

Teachers are also discovering the power of network communication. “Now there’s teacher-to-teacher dialogue, teacher-to-scientist dialogue,” says Stephen Collins, who helped design the intranet.

“That’s a real shift from the process where you look something up in a textbook or a manual, use it in the classroom, and you’re done,” Stephen continues. “With Microsoft Internet technology, there is a real exchange going on within the classroom, between schools and the community, and with people all around the world every day. Ten years ago that was unimaginable.”

Rolling Out Your Solution

How do I handle intranet management with a limited technology staff? The Windows Zero Administration Kit and Internet Explorer Administration Kit make it easy to preconfigure and lock down desktop operating systems and browser settings. That addresses one of the chief problems otherwise requiring remote maintenance: inadvertent or deliberate tampering with desktop system settings, particularly when several students alternate use of a single machine, such as in a computer lab or classroom.

On the server side, Microsoft Systems Management Server provides centralized, remote software distribution

(See “Intranets” on Page 14)

Intranets

(Continued from Page 13)

and desktop management capabilities, so both your installation and proactive system management can be handled with minimal need to send technicians to touch each machine. Systems Management Server even allows your help desk staff to take over the desktop of a remote user when that user calls in with a problem. Windows NT Server and Proxy Server reduce costs in a variety of small ways that add up to big savings. For example, the software allows dynamic Internet protocol (IP) addressing without having to worry about subnet masking or other problems. That has avoided the need for several dedicated people just to manage IP addresses. With the centralized domain administration of Windows NT Server, there's no need for on-site staff at each facility to add and subtract users - it's all managed from a single location. And Microsoft Site Server provides complete intranet life cycle management, including features for content deployment, management, and advanced usage analysis.

Real School Story: Windows NT Supports Lower Support Costs for Houston

Administrators in the Houston Independent School District credit the central management capability of Windows NT Server for helping to keep down costs, especially support costs for onsite maintenance. With a district stretching across 312 square miles, those repair trips could easily consume the full day for a \$35,000-a-year technician. Windows NT has also reduced training costs for support engineers, by about 70 percent because they are now trained and certified on fewer systems.

"We knew that administration would be easier with Windows NT but, frankly, we were surprised by how much easier it became," says Daryl Ann Borel, assistant superintendent of Technology and Information Systems for the district.

Real School Story: Simplifying Internet Administration in Lee County

With its 13 schools, the Lee County School District may be more modest in size than Houston, but it too is seeing big savings from the use of Windows NT Server for its intranet. Originally, Lee County was encouraged to set up a Class C address for every school and an IP address for each client computer. The District resisted this notion because it would create more traffic, complicate network management, and make it virtually impossible to monitor and block access to inappropriate sites.

With Microsoft Proxy Server, Lee County was able to set up just one IP address along with private Internet addresses for each of its 324 client computers. This configuration simplifies administration of the WAN and enables administrators to move computers from school to school without having to reconfigure them each time.

Key Components of Internet/Intranet Solutions

Here's a closer look at Microsoft products for your Internet/intranet solution. On the Server Side Microsoft Windows NT and Internet Information Server (IIS) offer a superb solution for networking and the Internet. They

transform the Web into simply another part of your school's operating system. Windows NT offers comprehensive, usable security in the form of a robust security model. Key services in Windows NT Server also include Index Server, Windows NT Server 4.0, Terminal Server Edition, message queuing, and transaction processing.

- Microsoft Internet Information Server (IIS), the only Web server integrated into Windows NT Server, is powerful enough for the world's biggest Web sites, yet easy enough for schools or districts to set up in minutes and immediately improve their information sharing. Innovative Web publishing features, customizable tools, and new wizard technologies unique to Internet Information Server 4.0, make Windows NT Server with IIS the easiest way to publish information and share it securely over your school or campus intranet and the Internet. IIS also includes everything you need to deploy reliable, scalable Web applications on Windows NT Server. By integrating directly with other Microsoft BackOffice applications, Internet Information Server is the best platform for the new generation of Web applications. With the powerful management tools in IIS, you can easily set up Web sites, manage content, analyze usage patterns, and improve your site as it evolves.

- Microsoft Transaction Server (MTS), part of Windows NT Server, is a component-based transaction processing system for developing, deploying, and managing high-performing, scalable, and robust enterprise, Internet, and intranet server applications. MTS combines the flexibility and low cost of desktop applications with the mission-critical transaction processing features normally found in high-end mainframe systems. MTS 2.0 is a built-in feature of Windows NT Server 4.0. In addition, existing licensees can obtain MTS through the Windows NT 4.0 Option Pack.

- Microsoft Proxy Server is an extensible firewall and content cache server, providing Internet security while improving network response time and efficiency for schools and districts of all sizes. The product is redefining the firewall and content caching categories because it is the first product to include both capabilities. Proxy Server acts as a gateway with firewall-class security between a LAN and the Internet. The product also blocks access to undesirable sites and provides other easy-to-use management features. It works with existing networks, including IPX networks, and supports several Internet protocols and services.

(See "Intranets" on Page 15)

Intranets

(Continued from Page 14)

- Site Server allows users to easily publish information by providing a structured content submission, posting and approval process. Users can easily search and find information in a variety of sources including Web sites, file servers, Microsoft SQL Server and ODBC databases, and Microsoft Exchange folders throughout their school or campus. Site Server can then deliver relevant information to users through personalized Web pages, Active Channels™ and e-mail, and enable administrators to analyze use of the site to maximize its effectiveness.

- On the Client Side Internet Explorer 4.0 is an open, integrated suite of Internet software that includes the industry's premier Internet client and basic collaboration solution (including e-mail, conferencing, broadcasting, and Web authoring) for end users and IT managers. Internet Explorer 4.0 achieves Microsoft's vision for integration of the Internet and the PC. The end result is a dramatically easier and more personalized way for people to get the most out of intranets and the Internet. And with support for every major platform - including Windows 95 or Windows 98, Windows NT, Windows 3.1 and the Macintosh - technology managers only have to support one browser across all their platforms, making administration easier and less costly.

- Microsoft FrontPage 98: Web Authoring and Management Solution combines ease of use, innovative imaging tools and design assistance, and seamless integration with the Microsoft Office family of applications to deliver a complete solution for creating and managing great-looking intranets without programming. That makes it a great solution for teachers, students, and administrators who don't have the time to learn HTML and the intricacies of Web programming.

Easily create great-looking Web sites. Include powerful Web functionality in your sites by adding Java applets, ActiveX® controls, and browser plug-ins. Support for databases and Active Server Pages allows you to include database content in your intranet easily and lets users perform dynamic database queries on your site, giving them direct access to the information they need. Manage your intranet your way. Comprehensive management tools let you quickly build and maintain well-organized intranets. View your site's navigational structure, directories of information, hyperlinks, hyperlink status, or all files at once. Plus, flexible collaboration features such as Tasks lists and remote and/or local authoring let you work with others to create and manage

your Web site. Integrate what you already have. Seamless integration with existing content and with desktop applications you already have like Microsoft Office 97 makes you productive from the start. Also, strong browser integration makes it easy to customize and view your Web site's content. Microsoft Office is more than a great suite of productivity applications. Now, it allows your users to publish information online as easily as they now print and save documents. Every Office 97 (or newer) application has built-in support for viewing and creating HTML, so users can create rich content for the Internet or an intranet using familiar tools. Office 98 for Macintosh provides the same functionality for Macintosh users.

Implementing Your Internet/Intranet Solution

60 Minute Intranet Kit

60 Minute Intranet Kit makes it easy to use FrontPage 98 and Office 97 to create a fully functional intranet in less than one hour. You can download Microsoft's free Building an Intranet in 60 Minutes White Paper, obtain free predesigned intranet solution templates and drag-and-drop modules, take a guided tour around a sample intranet, and read more about intranet benefits. All of these kit contents are available free, online at the Microsoft Office Web site. School Web Template for Windows NT Server

The Microsoft School Web Template is the perfect complement for technology managers seeking to quickly build an intranet based on Windows NT Server, IIS and FrontPage 98. The Template provides education-specific templates and wizards, and easy Internet and intranet publishing. The Template includes easy but powerful Web-browser based tools for the school environment and ensures that your Web site is tailor-made to be managed with Microsoft FrontPage (included with your Windows NT Server 4.0).

Easy Setup - With the automated setup process, just add your school name, colors, and any pictures or images and you have a Web site. The template features school and faculty announcements, a school calendar, instructional resources, and class-by-class pages where the teacher, curriculum, and homework can be easily posted for each class.

Security - The School Web Template includes specific functionality and security levels for administrators, teachers, students, and parents. It's fast and easy to use the template to post and manage school information and to

(See "Intranets" on Page 16)

Intranets

(Continued from Page 15)

restrict that information to the specific areas you have chosen. It is also simple to make the information only accessible to specific readers that you have chosen.

Classroom Connections - Students, parents, and educators can stay on track and up-to-date when they use the class-by-class page, which communicates instructor information, course descriptions, thematic units, teacher messages to parents, and day-to-day assignments.

Calendars and Communications - Quickly post the school menu, meetings, or events on the intranet and/or Internet with the built-in calendar tools. Enter your event information and it does the rest. Download the Web Template and Getting Started Guide for Windows NT Server and IIS 4.0. The two files total over 10MB, so plan your download accordingly.

Internet Explorer Administration Kit (IEAK)

IEAK makes it easy for technology managers in schools and colleges to customize and deploy Internet Explorer to students, faculty, and staff. The Internet Explorer Administration Kit allows you to:

- Customize the look of Microsoft Internet Explorer with your school logo.
- Create a single, one-click installation package of all Microsoft Internet Explorer components, including Microsoft Internet Explorer, NetMeeting conferencing software, and Internet Mail and News for distribution or download.
- Preconfigure and control options for users within the school or university.
- Manage browser settings and user options on an ongoing basis from a single, central server location within an intranet site.

For IEAK information and to download IEAK, go to the Microsoft Internet Explorer Administration Kit Web site.

Certified Solution Providers

Microsoft products and tools make it easier than ever to implement your Intranet/Internet solution-but you don't have to go it alone. Many independent Microsoft Certified Solution Providers specialize in the technology needs of schools and educational institutions like yours. They can be invaluable in helping you with any or all phases of your implementation, from evaluation and planning through maintenance, training, and support. Solution

Providers are also located throughout the United States and around the world. To find a Microsoft Certified Solution Provider near you, go to our Partnering Opportunities Web site.

Resources and What You Need to Know

Definitions and More Information

To learn more about technology planning in school districts, definitions of technology terms such as extranets, Microsoft BackOffice and more, check out the following resources:

- Microsoft in Technology Planning
- <http://www.techweb.com/encyclopedia/>
- Enhancing Your Network with BackOffice Products

To see an online guide to children's safe use of the Internet and to learn about Internet safety see: A guide to your child's safe use of the Internet

Performance Issues

Whether you plan to phase in your intranet over time, expect to expand your school or district sometime soon, or just want to keep your options open, Microsoft solutions can be distributed across several servers, so they can scale to meet growing needs.

Where do you have to start with Windows NT-based solutions? When using a personal computer as a server, the type of CPU and amount of RAM you choose can affect performance. The amount of RAM you need depends on several factors, such as the number of services you plan to run. Your Web server should be able to accommodate more users when they are running sessions that are not CPU intensive, such as electronic mail (e-mail), Telnet, and FTP. Sessions that are CPU intensive include those running common gateway interface (CGI) scripts, making database queries, and downloading HTML files.

For most educational institutions, here are Microsoft's minimum hardware recommendations for an Internet/intranet server based on Windows NT Server and IIS:

Hardware Recommended

CPU 200 MHz Pentium
Digital Alpha
RAM 64 MB
Free hard disk space 2gb HD
Monitor Super VGA
CD-ROM drive 6X

(See "Intranets" on Page 17)

Intranets

(Continued from Page 16)

Support

Microsoft Windows NT Server operating system administrators can choose from a comprehensive array of support options. Besides a suite of support options, you have access to these online services:

- Built-in help. Just click on the Start button and then click Help. Try the new Answer Wizard that lets you ask questions in your own words.
- The Internet and online services. Get up-to-date support information from the Microsoft Web site and major online services. You'll find FAQs, a searchable knowledge base, software library files, discussion threads, chats with Microsoft support engineers, and more. The Microsoft Download Service contains sample programs, device drivers, patches, software updates, and programming aids. Fast tips. Get quick answers to common technical problems by voice or fax through this automated toll-free service.
- Microsoft product support services. If you need immediate assistance with a critical problem, or you can't locate the answers you need through our other support services, AnswerPoint Priority Comprehensive support provides technical assistance for Microsoft Windows NT Server through a variety of fee-based options.
- Microsoft AnswerStation. Our technical support software lets you establish remote support links with specially equipped Microsoft engineers.

Training

Microsoft provides a variety of training opportunities in self-paced and instructor-led formats. The Training and Certification Web site lists the available training options for each product. From the Training and Certification Web site, you can find out about the various types of Windows NT Server training and choose the one that suits your needs.

One of the best ways to learn about Microsoft products and technology is to attend a Microsoft Official Curriculum instructor-led course at a Microsoft Certified Technical Education Center (Microsoft CTEC). These instructor-led courses are developed to provide a hands-on classroom environment with labs, lectures, and supplemental materials optimized to complement the in-classroom learning experience. Microsoft Certified Trainers teach these classes.

Testing Cycle

Before you put your Web site on the Internet, test your

design. You will want to test for the following items:

- Security breaches
- Proper permissions set on downloadable files
- Test Web pages on more than one Web browser
- Functional links on all pages
- Proper display of graphics and text at different resolutions and color depth
- Proper operation of scripts
- Test all gopher menus
- Download and check all FTP files
- Simultaneous connections to a server

Windows NT Planning Guides

Still worried about deployment issues? This series of planning guides will give you peace of mind. The Windows NT Planning Guides let you take advantage of Microsoft's experience in beta testing, evaluating, piloting, and deploying new technology. They help you to review your current environment, define your functional and business objectives and standards, and design, evaluate, and test your plan. The guides can even walk you through rollout and transition, including development of a training plan.

Microsoft Site Builders Network

The Microsoft Site Builders Network might help your students or staff who are creating interactive, high-traffic, revenue-generating, and just-plain-beautiful Web sites. It's your one-stop, direct link to a wealth of technical information, products, technologies, services, and support that makes it easy to incorporate the latest Internet technologies, such as new HTML extensions, ActiveX controls, and Java applets.

Additional Tools and Resources: Contact Information

To learn more about Microsoft solutions for your school, go to the Microsoft in K-12 Education Web site.

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Tuan Nguyen is K-12 Education Marketing Manager for Microsoft Corporation's Southern California District. He may be reached by telephone at (310) 449-7408 or by e-mail at tuangng@microsoft.com

California Takes the E-Rate

A Summary of the Current State of E-Rate from the California Department of Education

Van Wilkinson, California Department of Education

Life After (E-rate/CTF) Discounts

Superintendent of Public Instruction Delaine Eastin sent a letter dated April 11, 2000, to all district and COE superintendents reminding them about E-rate and CTF, with a special advisory about options for use of the savings realized by these programs (<http://www.cde.ca.gov/erate/de4-11-00.pdf>).

The special advisory read, in part: "The CDE's advice is that the best use of savings realized by those participating in the E-rate or CTF discount program requires two components. (1) Take measures to ensure that if the discounts stop there will be sufficient locally-available funds to maintain the level of access to connectivity stated in the your technology plans. (2) Take measures to ensure that **savings are directed back into education technology** so that sustainability and growth of the system can continue as stated in your technology plans."

The point is: the possibility of these discounts diminishing or vanishing over time is real, and this may leave local education agencies (LEAs) facing full, non-discounted telecommunications bills. Threats to the E-rate program are coming from at least three potential directions: (1) The US Supreme Court agreed in early June to hear GTE's suit against the FCC regarding E-rate (99-1244 GTE SERVICE CORP., ET AL. V. FCC, ET AL) challenging the E-rate fee collection process; (2) There is a national election this year, and not all candidates have the same regard for the E-rate program; and (3) The Government Accounting Office (GAO) is intensifying its scrutiny of the Schools and Libraries (SLD) procedures in proportion to the potential abuses by applicants and vendors as the program matures.

In the cases of highest-discount LEAs, their bills could jump 900% if E-rate and CTF were to disappear. The effect could be a sudden shrinkage or abandonment of some WANs and a corresponding reduction in Internet access.

For further consideration is the E-rate requirement that the applicant is positioned to make use of the discounted goods and services as stated in their technology plans. As E-rate dollars shrink for internal connections (cable plant, LANs, and eligible hardware) but continue

on for telecommunications and Internet access, it is possible that some LEAs will have discount-based high-capacity WAN access to the Internet without LANs and other downstream end user equipment to handle it.

This advisory is not designed to discourage, rather to refocus each LEA's attention on what is stated in its technology plan and how it will deliver on promises if the downpour of discounting dries up.

Other Recent News

May 8, 2000, Update

1. On May 5, 2000, the FCC ordered that the Year 2 installation completion window be 1. On May 5, 2000, the FCC ordered that the Year 2 installation completion window be extended through September 30, 2000 for nonrecurring (internal connections) only (Docket No. 96-45). Contracts for these already-approved services may be voluntarily extended to coincide with the FCC's extension. This was in response to an Illinois State Department of Education waiver request that was endorsed by the Council of Chief State School Officers (CCSSO), on which the CDE is represented regarding E-rate.

2. The FCC has given the SLD more authority to correct clerical (typographic, computational) errors without the applicant having to appeal to the FCC. This should result in more applicants being able to receive discounts.

3. Two sensitive issues (cell phone vs. calling cards and routers with remote access ports) are in front of the FCC and decisions should be made very shortly.

4. All Form 470s that were signed by a service provider have been purged from the SLD website and all Form 471s based on those 470s will be denied.

5. Of all the FCC appeals (measured in dollars), about 8% are ruled in favor of the appellant.

6. The Year 3 Form 486 was released on May 31, 2000. This will allow earlier notification and should allow more discounted services to be delivered closer to July 1.

7. The Year 3 Form 500 (formerly 486A), also released on May 31, 2000, will make it easier to correct or reduce the amount of an FRN.

(See "E-Rate" on Page 19)

E-Rate

(Continued from Page 18)

8. The FCC is leaning towards continuing the BEAR form (Form 472) into Year 3.

9. Wave 4 for Year 3 brings the discount level down to 86% for internal connections.

May 25, 2000 Update

The SLD posted clarification on the eligibility of certain types of routers that permit remote (dial-in) access (http://www.sl.universalservice.org/whatsnew/default.asp#052500_2). A most important aspect is that they provide specific language that the applicant must use to make the case that their router type is eligible. The language is:

“The remote access router(s) for which I seek discounts either will not be used to provide remote access in the funding year or, if it is to be used remotely, I will take steps to ensure that only entities eligible for support under the Schools and Libraries program have the capability to access it. In the latter case, for example, access will not be available from homes or other non-school or non-library sites.”

June 1, 2000 Update

There are several main items related to the new (revised) Form 486:

(1) If you already have a funding commitment decision letter for Year 3, you may file the new Form 486 now if your services are to begin July 1, 2000. See the SLD web site (<http://www.sl.universalservice.org/whatsnew/default.asp#053100>).

(2) Once a Year 3 applicant selects on the new Form 486 a payment method (discounts vs. BEAR) for its first invoice, that method will remain in place throughout the whole program year. No changes mid-year. The “default” SLD position will be that if there is no BEAR, a discount arrangement has been made between the applicant and vendor.

(3) Old Form 486s will not be accepted after mid-June, and a specific date will be stipulated by the SLD. The new forms have been mailed to all applicants through Wave 7, and there is an error on the instruction sheet regarding where the original signature must be sent. The correct instruction sheet is on the SLD web site version.

(4) Any Year 3 applicants who used old Form 486s to try and establish a start date will have them rejected; they must use the new Form 486 for this.

(5) Soon, the SLD will convert this form so it can be

filled out online.

There are several main items related to the new Form 500:

(1) For Year 2 applicants who need to take advantage of the FCC’s recent waiver extending the completion date of non-recurring services (internal connections) beyond June 30, 2000 up to September 30, 2000, they MUST file a Form 500 now. The contract expiration date must coincide with the completion date and a Form 500 must have been filed.

(2) Soon, the SLD will convert this form so it can be filled out online.

Other News

(A) Applicants whose denials were based on the ineligibility of routers that have remote access should have appealed that decision within the 30-day appeal window. However, a number of applicants were not made aware of the reason (remote access) for denial until after the 30-day window was over. Unfortunately, at this time, there is no exception to the appeal window rule. The USAC/SLD staff and the CCSSO state leads all recognize the unfairness of this condition and are working on possible solutions.

(B) “Internet access” applications that include components (even one component) necessary for the LAN to operate are generally being denied on their face. These are characterized by the SLD as “self-evident” internal connections. This may be appealed if the contract is structured precisely after the Tennessee model which, simply put, requires the contractor to provide continuous (24 X 7) Internet access to the property in such a way that the LAN operates independently of the Internet access. However, the SLD may not necessarily reveal the exact reason why it denies such applications, making it difficult to decide if an appeal is warranted.

(C) Through Year 3 Wave 7 (approx. June 1, 2000), approximately \$547 million has been committed and approximately 75-80 percent of all applicants have been contacted (30,000 applicants). Many of the large-dollar applications are still being reviewed.

Van Wilkinson is with the California Department of Education Educational Technology Office. He may be reached at (916) 323-4709 or by e-mail at vwilkins@cde.ca.gov.

Receive the latest E-Rate information and updates by joining CEDPA’s E-Rate Listserv.

“It Ain’t the Same Old CEDPA”

Warren Williams, Grossmont Union High School District

In a CEDPA Board meeting a few years ago, a spirited discussion arose about the emerging role of CEDPA that necessitated support for classroom instruction. At the core of the dialog was the question, “Where should CEDPA’s support for classroom instruction transition to other organizations like CUE and ISTE?” The answer was easy then. CEDPA should focus its organizational energy toward supporting the infrastructure and information systems that ultimately stop at *the computer jack in the classroom*. CEDPA clearly was not an organization that was in the business of curriculum or instructional support. That was then and the unanimous vote came easy. Enter Digital High School, school-to-career, internships and a labor shortage in the technology industry.

At the CEDPA conference in Santa Barbara, you will notice an orientation and theme that reflects the changing role for IT staff in school districts across the country. At ever increasing levels, IT personnel are being asked to design inservice opportunities for teachers. Staff development has always been the purview of the curriculum side of the house, but that side has asked for a partnership with IT to assist in bringing the 21st century to teachers. As teachers are finding themselves administering networks that require sophisticated network diagnostic and management tools, they look to IT for standards, policies, inservice and help.

The need for support does not stop at inservice opportunities. Teachers are delivering a new curriculum that is technology based. At Granite Hills High School in El Cajon, a fourteen year old sophomore just got his A+ certification - the youngest person in the nation to do so. Along with his fellow classmates this student can now take classes that will gain them certification for Microsoft, CISCO, 3Com, structured cabling and Novell. This curriculum is distinctly different from even ROP or Adult coursework that is used to delivering career oriented classes. It requires a high level of sophistication and demands of its students the ability to communicate, solve complex problems, work in teams and develop a methodology for managing constant change.

So CEDPA’s membership finds itself smack in the middle of the classroom doing what was never expected –delivering curriculum. At the recent SIG in San Diego, one of the longest discussed topics was “inservice opportunities for teachers and how we (IT staff) could deliver them.” In Santa Barbara, CEDPA will offer a complete

breakout strand devoted to support of the virtual classroom. These sessions will touch on the need for IT staff to assist in curriculum design and delivery and will offer the advice of individuals who have moved past *the computer jack in the classroom*.

CDE’s Volunteer E-rate Trainer (VET) Collaborative

Van Wilkinson
California Department of Education

Question: When you are dog-tired of E-rate and CTF and need help in the form of quality training, where do you go? Answer: You may soon benefit from a VET (Volunteer E-rate Trainer).

The California Department of Education’s Education Technology Office has recently selected four vendors (Cisco, GTE, EdMin.com, and Spectrum Communications) to join with representatives from the Department of General Services (DGS) and the California Public Utilities Commission (CPUC) in designing and delivering E-rate and CTF (California Teleconnect Fund) training. This all-volunteer effort is aimed at producing vendor-neutral, accurate training materials presented in strategic training sessions statewide in the late summer and into the fall.

One usually learns about E-rate and CTF through trial-and-error or by reading listservs, being familiar with key web sites, even attending training offered by various entities (the federal SLD, the CDE, county offices of education, or vendors/consultants). The VET collaborative attempts to combine varying perspectives and knowledge bases into one commonly agreed upon set of training documents, delivered through a schedule of seminars around the state using VET trainers and others recognized for their successful experiences with E-rate and CTF. By involving vendors and other key public agencies, it is hoped that specialized materials and sessions will be offered, addressing the needs of beginner to veteran.

For further details, see (<http://www.cde.ca.gov/vet/>) or contact Van Wilkinson, (916) 323-4709 (vwilkins@cde.ca.gov).

Identifiers

(Continued from Page 1)

hanced by having many personally identifiable data elements. Several other states have addressed this problem. Research into other systems with a need to create a unique personal identifier indicates that useful data elements that make up an identifier include:

- Student's Legal Name
- Student's also known as names (AKA)
- Parents' Name(s)
- Gender
- Ethnicity
- Birth Date
- Birth Place
- Plus, other potentially sensitive demographic data.

The Solution

Working with consortia members, CSIS has devised a unique strategy for establishing the Identifier based upon three key recommendations:

1. Use "Soundex"¹ encoding for names and birthplaces to avoid sending these very personal data elements outside of the local education agency systems. Further, scramble the soundex codes such that even phonetic representations of the name could not be reverse-engineered, in the event of accidental viewing of the database content.

2. CSIS provides a utility to standardize all soundex transformations, along with other data manipulations necessary for CSIS data exchange.

3. Use a focused-random number generation utility to assign non-intelligent identifiers for each K12 student.

Recommendation 1 — Soundex

The soundex is a coded name index based on the way a name sounds rather than the way it is spelled. Surnames that sound the same, but are spelled differently, like SMITH and SMYTH, have the same code and are filed together. The soundex coding system was developed so that you can find a surname even though it may have been recorded under various spellings.

Basic Soundex Coding Rule

Every soundex code consists of a letter and three numbers, such as W-252. The letter is always the first letter of the surname. The numbers are assigned to the remaining letters of the surname according to the following scheme:

Number	Represents the Letters
1	B, F, P, V
2	C, G, J, K, Q, S, X, Z
3	D, T
4	L
5	M, N
6	R

Disregard the letters A, E, I, O, U, H, W and Y. Zeroes are added at the end if necessary to produce a four-character code. Additional letters are disregarded.

For example, **Washington** is coded W-252 (W, 2 for the S, 5 for the N, 2 for the G, remaining letters disregarded).

For example, **Lee** is coded L-000 (L, 000 added).

Additional Soundex Coding Rules

If the surname has any double letters, they should be treated as one letter.

For example, **Gutierrez** is coded G-362 (G, 3 for the T, 6 for the first R, second R ignored, 2 for the Z).

If the surname has different letters side-by-side that have the same number in the soundex coding guide, they should be treated as one letter.

For example, **Pfister** is coded as P-236 (P, F ignored, 2 for the S, 3 for the T, 6 for the R).

For example, **Jackson** is coded as J-250 (J, 2 for the C, K ignored, S ignored, 5 for the N, 0 added).

If a surname has a prefix, such as Van, Con, De, Di, La, or Le, code both with and without the prefix because the surname might be listed under either code. Note, however, that Mc and Mac are **not** considered prefixes.

For example, **VanDeusen** might be coded two ways:

V-532 (V, 5 for N, 3 for D, 2 for S)

Or

D-250 (D, 2 for the S, 5 for the N, 0 added).

Recommendation 2 – CSIS Utility

To ease implementation and support issues, a common utility developed by CSIS is to be used for each consortia's preparation and hand off of data to CSIS. After examining several different potential architectural

(See "Identifiers" on Page 22)

Identifiers

(Continued from Page 21)

solutions from completely centralized to totally decentralized, CSIS and the consortia recommend hybrid architecture to achieve acceptable levels of efficiency without sacrificing privacy.

The strategy is to employ a centralized database containing only non-personally identifiable data with local formatting of locator data. The centralized locator database at CSIS provides extraordinary separation of personally identifiable data from any other information about a student. All formatting, including soundex encoding, is at the local education agency – so personally identifiable data stays at the local level, except for records transfer to other local agencies.

The actual soundex code will be scrambled and then encrypted prior to leaving the local agency. Once it is received at the CSIS server, it will be de-encrypted, but not de-scrambled, providing another level of security for the locator database. Eventually, this utility will be a callable routine, allowing for vendors to embed the utility within their proprietary systems.

Recommendation 3 – Calculating the Identifier

The final recommendation is how to actually calculate the student identifier. There are basically two schools of thought on “id code” assignment: *random* vs. *intelligent* numbering. An “intelligent” identifier is one that carries some embedded data that attempts to personally identify the individual. Embedded information typically adds to the length of a number. For example county/district/school codes add up to 14 digits for a number. Birth date adds eight. All of this information can be carried elsewhere, reducing data entry requirements, security requirements on the identifier itself and lowering potential for errors. With “random” numbering, the identifier self contains no intelligence.

CSIS has adopted a calculation method that is nearly random:

- Identifiers are 10 digits – all numeric.
- The 10th digit is a check digit.
- The 1st digit is never zero.
- There are no occurrences of more than 2 repeating digits (e.g. 333 is not allowed, but 33 is ok).
- Numbers will be assigned evenly spread across the range from 1,001,001,001 to 9,989,989,989 to enhance database search and retrieval efficiency.

There is no intelligence within this numbering system to that can be translated to a student identity, and further protection of the student confidentiality is enforced within that part of the CSIS data warehouse used for reporting. That further level of protection is accomplished via the generation of another layer of ‘secret’ surrogate keys that provide identifier values that are never associated with even a soundex of student names.

Results to Date

Other states have implemented statewide identifiers in ways that are unacceptable to our situation in California. Some states have used social security numbers, and most share personally identifiable information such as student names with other educational agencies including their state departments of education. Developing a new solution for a problem that has been solved very differ-

(See “Identifiers” on Page 26)

CEDPA Listservs

As a service to K-12 Technologists, CEDPA hosts several e-mail discussion distribution forums (listservs) on various technology topics. These lists are open to anyone with an interest in the topic area.

Edtech - A discussion forum for educational technology issues.

Erate - A discussion forum for E-Rate, the FCC ruling on Universal Service that provides schools and libraries significant discounts on telecommunications services.

To join a distribution list, send an e-mail message to listserv@cedpa-k12.org. Leave the message subject blank. The message body should contain only two words: the word **subscribe** and the name of the discussion list you wish to join. The rest of the message should remain blank. Do not append your signature line or any other text to the message.

To leave a list, send a message to listserv@cedpa-k12.org as above, except use the words **unsubscribe** and the name of the list you wish to leave.

Dumping Old Computers

By Helen Soulé

At a time when funding for educational technology is under fire on Capitol Hill, it's hard to oppose a well-meaning piece of legislation designed to increase the number of computers in the nation's K-12 schools. But as currently drafted, the proposed New Millennium Classrooms Act is not only bad public policy, it could also end up costing the very schools it seeks to help.

The legislation is designed to encourage businesses to donate used computers to schools by expanding the tax breaks they receive for doing so. Currently, companies can take a tax deduction when they donate a computer that is no more than 2 years old. Under the legislation, the tax deduction would be changed to a more substantial tax credit and, more significantly, would be expanded to include 3-year-old computers. An even larger tax credit would be provided when the equipment is donated to schools within designated empowerment zones, enterprise communities, and American Indian reservations.

By a 96-2 vote, the U.S. Senate approved the measure earlier this year as an amendment to the Elementary and Secondary Education Act reauthorization. Although the fate of its parent bill is unclear, the overwhelming support displayed for the donated-computers bill suggests that it could eventually be approved.

According to the Detwiler Foundation, which had been involved with promoting the donation of computers to schools, the bill was necessary because companies just weren't donating enough equipment. The foundation had advised Congress that companies found that the existing tax deduction "does not fully meet their business-cycle needs." In other words, the 2-year-old computers were still too valuable for the businesses to donate. But a 3-year-old computer, now that's another story!

The truth of the matter is that technology is already moving into the nation's schools—and at a relatively fast clip. In its recently released survey on K-12 technology spending, Quality Education Data reported that in the 1998-99 school year, K-12 districts spent \$6.7 billion on educational technology—a 24 percent increase over the

previous year and the highest annual percentage increase in the past decade. Nearly half of that spending, QED estimated, was for hardware.

Similarly, as part of their applications for support under the E-rate telecommunications-discounts program for the current school year, schools reported that they would be acquiring close to 4.5 million new computers to connect to their new networks and the Internet, according to figures compiled by the Arlington, Va.-based consulting firm Funds For Learning.

The truth of the matter is that technology is already moving into the nation's schools—and at a relatively fast clip.

In another measure, *Education Week*, using data from Market Data Retrieval, reported last fall that in 1999 the number of students per instructional computer nationwide dropped below six for the first time ("Technology Counts '99," Sept. 23, 1999). That is down from one computer per 19 students in 1992. Even more impressively, the ratio of students per multimedia-capable computer has been cut in half in just two years—from one computer for every 21.2 students in 1997 to one for every 9.8 students last year.

As more and more hardware flows into schools, the new challenge becomes helping teachers integrate it into the classroom—and managing the long-term costs of operating and maintaining that multibillion-dollar investment.

School districts are beginning to learn the lesson that businesses learned when they began building networks in the late 1980s—that the "total cost of ownership" (what's known as the TCO) of a computer over its lifetime represents much more than the cost of the hardware itself. There are costs associated with software, technical support, maintenance and repairs, and staff training.

As the University of Southern California professor Lawrence O. Picus wrote in a white paper on school budgeting commissioned by the BellSouth Foundation: "Schools should take advantage of any and all sources of funds for their technology programs, but should be aware that securing one-time funding for the purchase of computers or other equipment is, by itself, inadequate for operating an important program."

(See "Dumping" on Page 24)

Dumping

(Continued from Page 23)

Last year, the Consortium for School Networking launched an initiative to help school administrators better understand the issues surrounding total cost of ownership. One of the long-accepted principles for controlling ongoing technology costs is that standardizing an organization's computers on a single platform or operating system will, in turn, reduce the long-term costs of maintenance, technical support, and staff training.

In October, more than 120 school districts participated in an online survey organized by the consortium and the National School Boards Association to find out more about how they manage their tech support. Nearly nine out of 10 of the respondents said that they had "taken steps to standardize the model of computer used" as a way of trying to control their costs.

Even before businesses start unloading incompatible 3-year-old computers, those districts are having trouble achieving that goal. Asked how many operating systems their tech staffs were required to support, 31.4 percent of the overall group said they had to support four or more different operating systems. Among the largest districts, those with 20,000 or more students and many of them in some of the low-income urban areas that the Senate bill is designed to help, the problem is even more acute. More than 56 percent of the technology staffs in large districts are required to support four or more operating systems, and nearly 35 percent are required to support more than five.

At a time when virtually all districts are required to adopt carefully prepared technology plans as a prerequisite for qualifying for state and federal technology support, legislation that encourages the donation of more older computers can only serve to disrupt those plans, increasing the schools' long-term technology costs—and their headaches. The proposed legislation contains no requirement that a donated computer be in line with a district's technology plan or be brought up to the standard of the district's most common computer in order for a business to enjoy the tax credit. Instead, districts would have to spend several hundred dollars per computer to bring older machines up to the district's standard for

memory, operating systems, and software applications.

The last thing American schools need is legislation that encourages companies to dump obsolescent machines on their doorsteps.

Occasionally, older stand-alone machines can be used to teach tasks such as keyboarding and word processing. But, as Mr. Picus noted in his paper, "computers purchased as little as three years ago are often obsolete today, and incapable of running the most recent versions of instructional software." In addition, stand-

alone machines will be more expensive to support and maintain if they cannot be connected to a centrally managed network.

If Congress wants to promote the donation of computer equipment, it should expand the current tax deduction to a tax credit, but continue to limit it to computers that are 2 years old or less. That would reward those companies that make donations that are truly valuable, not for passing along equipment that was headed to the dumpster anyway.

The lopsided vote by which the donated-computer amendment passed the Senate in March suggests that many members of Congress believed they had found a way to promote technology in the schools at a minimal cost to the federal taxpayer. We hope that Congress will take a closer look—and that school districts will also be careful to consider the ultimate price of such donations.

It is hard to say no to friendly members of Congress, or to well-meaning local business men and women looking for a new home for an aging machine. But at a time when American schools are wrestling with the challenges of installing fast-changing technology, training their teachers on how to integrate technology into their lesson plans, and meeting state-mandated learning requirements, the last thing they need is legislation that encourages companies to dump obsolescent machines on their doorsteps.

Helen Soulé is the chairman of the board of the Consortium for School Networking and the director of education technology, training, and support for the Mississippi Department of Education in Jackson, Miss. Reprinted by permission from Dr. Soulé and Education Week. This article originally appeared in Education Week, Vol. 19, number 36, May 17, 2000. © 2000, Editorial Projects in Education.

Speaker

(Continued from Page 7)

about to be released for the robust implementation and development of application interoperability. Educators and educational software developers have developed these specifications based on the Extensible Markup Language (XML) after two years of hard work. While XML defines common data formats and high-level rules of data interaction and architecture, it is not constrained to a particular platform or operating systems. The main goal of SIF is to allow all the systems in a school or district to share information across multiple applications regardless of platform.

(Excerpted from <http://www.apple.com/education/k12/leadership/sif/index.html>)

Breakout Sessions

We have received several breakout topics and speakers so far but still have room for more. If you have a topic that is relevant to the theme of our conference this year or relevant in general to our membership, please fill out a speaker form and email it to me (g lindner@edcenter.egusd.k12.ca.us). The forms are online at www.cedpa-k12.org under the conference section. When submitting a form please try to tie your description to the theme.

It looks like we are going to have another great speaker program thanks to all of you who are contributing your time and efforts. Thank you very much. I look forward to seeing you at the conference.

Restarting a Crashed Windows NT System

Every Windows NT system crashes sooner or later. Your success in bringing it back online depends on how well you have prepared yourself for the eventual. Here are some tools that can assist you; the more tools you have, the better success you'll have in quickly and successfully returning your system to operational status.

1. A current backup
2. Mirrored or RAID protected disk system
3. NT Boot diskette
4. Emergency Repair Disk (ERD)
5. A second copy of WinNT OS installed for recovery purposes on the primary drive
6. A standby computer with identical hardware

Employment Opportunities

Los Angeles County Office of Education

DIRECTOR OF INFORMATION TECHNOLOGY SERVICES

Annual salary: \$86,160 - \$106,740.

The Los Angeles County Office of Education (LACOE) is seeking an exceptional individual to serve as the Director of Information Technology Services. This position plans, organizes and directs the Information Technology Services (ITS) Division of LACOE; formulates programs and policies for data processing planning, development and operations services to school districts, community colleges and LACOE; advises, counsels and directs the development of data processing capabilities and applications to meet user's requirements, and performs related duties as assigned.

Minimum requirements are any combination of seven years experience including four years at a management level in a large-scale computer data center, and a Bachelor's degree in a related field - Master's preferred.

Additional information and application materials are available on our web site on the Internet, <http://www.lacoe.edu/doc/pc/pc.htm>, or call (562)803-8567.

Apply now for priority consideration in the next examination process.

ASSISTANT SUPERINTENDENT BUSINESS SERVICES

Annual salary: \$94,992 - \$117,684 + comprehensive fully paid benefits package.

The Los Angeles County Office of Education (LACOE) is seeking a leader for the position of Assistant Superintendent Business Services. This position serves as the Chief Business Manager for LACOE planning, organizing, directing and administering business, financial, and regional information systems services for local school districts and community colleges in Los Angeles County and internal business functions of LACOE. Minimum requirements are combination of 7 years related experience and a Master's degree with major coursework in education administration, public administration, business administration, or a closely related field.

Application packets are available on our web site on the Internet, www.lacoe.edu/doc/pc/pc.htm, or call (562)803-8567. For more information, contact Rosemary Sawyer (562)401-5517. APPLICATION DEADLINE: Friday, July 28th, 2000.

Identifiers

(Continued from Page 22)

ently in previous situations, calls for very deliberate steps.

A prototype routine has been developed by CSIS and tested by each of the consortia. Results have been very promising as evidenced by these results:

- Using its historical data for 242,014 students, one consortium district found that the CSIS routine uniquely identified 99.82% of the population, and that using full student names produced unique identifiers for 99.92% of the same population.
- Using Department of Health Services files that equate to the incoming kindergarten class of 2001, the CSIS routine uniquely identified 99.97% of the 537,707 records.

Further, CSIS is contracting with a firm specializing in security applications to:

- Verify the results to date, and consider the efficacy of this approach to the student population of six million.
- Attempt to ‘break’ the separation of the CSIS

Identifier from the student’s identity, that is attempt to reverse engineer the student names from the ten digit number used as the key to a student record.

Further Information regarding CSIS

The CSIS website contains several documents of both a general and detailed nature. More explicit documentation of the CSIS Student Identifier strategy may be found by linking to <http://www.csis.k12.ca.us/library/> and selecting “CSIS Statewide Student Identifiers: Recommendation for Establishing Identifier Elements”. Any questions regarding the strategy and solutions described in this article may be directed to either Russ Brawn or Charles Burns, consultant to CSIS. The respective email addresses are rbrawn@csis.k12.ca.us or cburns99@pacbell.net.

¹ “Using the Census Soundex,” General Information Leaflet 55 (Washington, DC: National Archives and Records Administration, 1995), a free brochure available from inquire@nara.gov (include your name, postal address, and “GIL 55 please”).

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