CSU Mentor Project—Promoting Higher Education Opportunities in California

Technology: Multi-phased project designed to assist students in obtaining college program and entrance information, complete and submit applications, and communicate with college campuses—electronically.

Russ Utterberg, California State University Chancellor's Office

For the past two years CSU has explored aggressively ways to provide an enhanced level of services to students and potential student through the use of technology. As part of its efforts, the CSU formed the Student Friendly Services Through Technology subcommittee to coordinate, guide and expedite the development of a CSU-specific systemwide outreach, admission, and financial aid system that would employ the latest technology. After consultation with the Admission Advisory Council, Financial Aid Advisory Council, deans/directors of admission and records, and directors of financial aid and endorsement by the Executive Council, Technology Steering Committee, a three year contract was awarded to the XAP Corporation to develop, implement, and operate CSU's electronic application and information service. During 1996, the Student Friendly project was officially named CSUMentor™.

What will be the Benefits of the Mentor Project?

There are six features of CSUMentor™, including

Exploration Phase - enables students to gain an overview of California higher education opportunities

Student Academic Portfolio - allows middle and high school students to create a personal academic portfolio,

report academic achievement and progress toward meeting CSU entrance requirements.

Preapplication Phase - enables students to retrieve information concerning individual CSU campuses to help select the campus of their choice.

Application Phase - enables students to apply electronically to one or more CSU campuses, pay required fees, etc.

Financial Aid Phase - enables students to receive an estimate of their financial aid eligibility and award

In This Issue:

CEDPA Information

CEDPA is an association of Educational Data Processing Professionals (technologists) within the State of California. Founded in 1960, the major emphasis of the association's activities are directed towards improving Administrative Information Processing in public education within the State of California and to prepare its membership to better meet and support the technological needs of the Instructional Program.

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 data processing via dissemination at an annual conference and through periodicals and special interest seminars.

(b) To foster the exchange of knowledge of educational data processing concepts, systems and experiences between educational data processing installations and other associations both at the state and national level.

(c) To inform the association membership of important information concerning educational data processing.

(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 data processing.

(e) To develop professional standards for the Educational Information Systems 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 education. Submissions, correspondence, and address changes should be sent to the editor at:

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President's Corner

Greg Lindner, Yolo County Superintendent of Schools

A lot of things are happening with K-12 Technology. Primarily, a number of new bills have been introduced to help fund Technology in K-12 Education. CEDPA is actively reviewing these bills and will keep you updated on their progress. Most of them boil down to a facilities bond that would go on the ballot. Out of the bond, approximately $200 million would be for Technology.

CASH

CEDPA has also been meeting with members of CASH, the Coalition for Affordable School Housing, working on an alliance to improve Technology in Education. Responses we have received from our membership have been quite positive about this alliance. The fact that most of the facilities bills being proposed contain a Technology component only adds to the significance of this alliance. What we are looking at is working together more to help each other achieve the goals of our organization.

I recently received the following comments from Doug Calvin, the Director of Facility Modernization at the Oak Grove School District.

"The CEDPA/CASH relationship should prove beneficial. Last year I joined Oak Grove School District (San Jose) to manage a $75 million, ten-year facility modernization program. Besides having a facilities career, I also have an IS Management career which has also been put to use.

"So now I manage the facilities modernization and the growing IS department. I'm also an adjunct professor at UCSC conducting IS Management courses.

"The facility modernization and IS work goes very well together. There is a close project relationship between the two activities with the type of project I'm currently doing.

"The Oak Grove district went from zero networks to having all twenty school sites and the DO on a frame relay WAN within nine months....this was accomplished by having, in my opinion, facility and technology working together... also, as we install CSR portables, we lay in extra conduit and plan for sufficient power for technology, the same goes for upgrading existing buildings.

"CASH could be a powerful ally in working with CEDPA....integrating technology can be a facilities night-

mare and is expensive not only for modernization or using one time money....but the key is to keep the ongoing general fund costs to a minimum....in many cases the ongoing IS department support costs can be more than the initial up front costs. Getting to the right folks to keep telecommunications cost in line for schools would be of great benefit.

Working with CASH could leverage lobbying to have tag along legislation for technology. Technology integration no longer is something new; it is a more normal way of delivering the education project to students. The more normal we can make the idea of installing technology along with new or modernization facility projects the better off the students are."

Telecommunications

Recently I met with PUC Commissioner Knight along with Jeff Bowser of BAENET who requested the meeting. We talked about how the recent telecommunications discounts are affecting K12 Education. Surprisingly very few applications have been received from schools. The money is going to be distributed on a first come first served basis so get busy and get your applications in! Jeff representing CCSESA's Telecommunications Task Force, and I, representing CEDPA, rose issues that are paramount to K-12 Education. The advice we received back was to ask for what you need from the carriers. That is.... the PUC wants to help but the carriers have to bring the requests to the PUC. One thing we hope to do (CEDPA) is to analyze the impact of the PUC Discounts and present that to the PUC. If you have had any difficulties or successes dealing with the carriers let me know via email. We will add that as background material to our report.

Software

San Diego County Office of Education has been working for some time on developing a Microsoft Select Agreement for K-12. They have put together an agreement with CTAP (the Califorinia Technology Assistance Program) which all K-12 may take advantage of.

A Select Agreement is basically a group-volume purchase agreement that makes available all Microsoft software products at the lowest prices possible. The Select Agreement allows the components of a software package—software license, media, and documentation—

Dr. Linda G. Roberts Invited Keynote Speaker for CEDPA's Fall Conference

Keynote: Speaker to present technology viewpoint of the U.S. Department of Education.

Warren Williams, Grossmont Union High School District

CEDPA is pleased to announce that Dr. Linda G. Roberts, Director of Edicational Technology for the U.S. Department of Education, has accepted the invitation of CEDPA to be the keynote speaker for its annual conference in Sacramento. Dr. Roberts also serves as Special Adviser to the Secretary of the U.S. Department of Education.

Dr. Roberts coordinates the Department's technology activities and plays a key role in developing the Clinton Administration's Educational Technology Initiative. Her leadership efforts include creating affordable access to the Information Superhighway for schools and libraries, and mobilizing state, local and private and non-profit efforts to wire our schools, upgrade the base of hardware in classrooms, train teachers, and create effective products and services that transform teaching and learning.

As Senior Adviser on Technology, Dr. Roberts represents the Secretary on the Vice President's National Information Infrastructure Task Force, and other inter-agency efforts. She is also a member of the White House educational technology working group.

To stay in touch with the field, Roberts travels extensively, speaking at conferences, conducting forums, and visiting schools, state agencies, and technology companies. Department of Education on-line forums, national conferences and working seminars are also critical components of these outreach efforts.

Roberts' work has been widely recognized. She was Electronic Learning Magazine's, "Technology Educator of the Decade," the recipient of the U.S. Distance Learning Association's Eagle Award for outstanding contributions to public policy, and the Federal 100 Award in Information Technology. In June 1995, Roberts received the Zenith Data Systems Award for Leadership and Excellence in Educational Technology at the Computerworld/ Smithsonian Awards Gala.

Roberts' career started in 1962 when she was an elementary classroom teacher and reading specialist in Ithaca, NY and Brookline, MA. She later taught elementary, secondary and adult reading programs in Oak Ridge, TN and then joined the faculties of the University of Tennessee and Lincoln Memorial University. Prior to joining the Department, Roberts was a Project Director and Senior Associate with the Congressional Office of Technology Assessment (OTA).

March SIG Summary

Eric Boutwell
San Francisco Unified School District

The SIG meeting in Palm Springs on March 24 was hosted by Bay Networks. The theme was WAN Design Considerations that take into account the new Pricing for K-12 Telecommunications. Bay's technical team gave the group an excellent presentation of the current state of networking in both LANs and WANs. The session covered networking from A to Z. Hubs routers and switches were covered not only from a technical perspective but also included how schools use the technology today and what will be available to them in the near future. To connect the wide area together we discussed the pros and cons of ISDN, Frame Relay, point to point, microwave, radio, satellite, and connections through cable companies. The Bay team handled all the technical questions the group asked and lead us in a lively discussion. Each district or county office that was present described how they were set up, and Bay proposed alternatives for the future taking in to account new technologies and the new PUC pricing. With all the expertise in the room multiple solutions were found to most networking problems. For the latest information on The Telecommunication Act of 1996 see http://www.fcc.gov/ccb/universal_service or for PUC pricing in California see the California department of Education web page at http:/goldmine.cde.ca.gov.

The next SIG meeting is on June 12th in Yolo county The theme is "Advanced Web Pages." On July 24 we will be meeting in Costa Mesa and the main theme will be "Novell Networks." Look for the CEDPA SIG flyers on these two up coming events.

Internet Products To Help Education Promote Its Innovations

Technology: Program to help school agencies share their methods for enhancing Internet use.

Dan Shahbazi, Internet Products, Inc.

May16—Internet Products today announced that it will begin "Innovation Ovation," a program designed to help schools, districts and COEs promote information about their individual role in improving student, faculty and parental use of Internet technology.

"There are many educational points in the state that are doing some truly incredible things with Internet technology," said Internet Products' president Farley Stewart. "Our view is that if others are privy to this information it could act as a catalyst to lead more schools in more innovative directions."

Three educational sites will be selected to participate in an in depth study about their innovative approach to shaping and deploying the use of Internet technology at their school, district or COE.

Only schools, districts and COEs with Internet access will be considered for the program. Submissions are being accepted until June 30, and the results will be submitted for future *DataBus* release as well as printed copies given to the selected site. In addition, selected sites will be promoted in their local media.

For further information about the "Innovation Ovation" program contact Dan Shahbazi at 888-InterGate (468-3742), extension 109. To enter a program submission send a 150 word description of how your site is using Internet technology in an innovative manner to dan@ipinc.com.

Dan Shahbazi is Public Relations Manager for Internet Products, Inc., and may be reached by telephone at (619) 576-4100 x 100 or by FAX at (619) 576-4111. His e-mail address is dan@ipinc.com.

Sun Microsystems Partnerships to Benefit K-12

Dawn Voss, Sun Microsystems

Sun Microsystems recently announced two third party partnerships that will benefit the K-12 educational community.

The first partnership is with UR Labs. Their I-Gear software product provides the premier solution for K-12 Internet access. Powered by Sun Microsystems hardware and the UNIX operating system, I-Gear allows Internet access to be delivered to an entire network of computers with the low cost of one dial-up ISP account. I-Gear features include:

- Proxy/cache server specially designed to work with low-speed connections
- Set of tools for maintaining your Internet Gateway
- Content filtering- and important content control
- Tools to monitor, focus and control Internet access on your network.

A demo copy of I-Gear is available for download from UR Labs' website. For additional information, see their website at www.urlabs.com, or contact:

Dan Sydow, Director, Business Development
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The second partnership is with Pierian Spring Software. Their product, Digitial Chisel 3, is an authoring tool for K-12. Digital Chisel 3 is the first all-in-one authoring tool designed especially to meet the needs of education. Because both the look of the program and itsfunctionality can be customized for different ages and skill levels, students from 2nd grade to graduate school will find Digital Chisel 3 intuitive and easy to use. The exciting thing is they are developing this product as 100% pure Java. A beta copy can be downloaded from their website at www2.pierian.com/dc3/dc3main.htm.

For information about Digital Chisel 3, contact:

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Dawn Voss is Market Development Manager-Academic and Research Computing for Sun Microsystems. She may be reached at Dawn.Voss@Eng.Sun.COM

Cisco Systems Announces Networkers '97 Conference and Catalyst Switch Discounts

Los Angeles: Event provides opportunity to enhance skills, learn about technologies.

Sue Mangiapane, Cisco Systems

The time has come for the most important networking conference of the year - *Networkers '97,* Cisco Systems' 8th Annual User Conference.

Designed specifically for Cisco customers, *Networkers '97* helps you become more knowledgeable and proficient in your field - whether you're an enterprise network manager, a networking professional, or a service provider. In short, it's the one networking conference you can't afford to miss.

Networkers '97 will be held in Los Angeles on June 18-20 at the Los Angeles Convention Center.

Networkers '97 is the best opportunity you'll have all year to:

- **Take detailed technical courses taught by Cisco's networking experts.**

   Customize your own course curriculum. With more than 120 courses divided into seven tracks and taught at three different levels of technical depth, you'll be sure to get the information you need most. Tracks include:

   WAN Access - wide-area network design and product direction issues.

   Dialup Access - remote access design and product direction issues.

   Campus - key enterprise design and emerging technology issues for the wiring closet, backbone, and data center.

   General Enterprise - network design, management, and products of interest to all enterprise customers.

   Core Network - network infrastructure design and emerging technology issues as they relate to service providers.

   Customer Premises - product direction and emerging technology of interest to service providers who sell and install on site.

   General Service Provider - design, management, and products of interest to all service providers.

- **Have your individual networking questions answered.**

   Small network design clinics give you one-on-one access to technical experts.

- **Hear Cisco's President and CEO, John Chambers, and other industry leaders speak about the major issues in networking today.**

   Other speakers include Cisco Systems' Chief Technology Officer, Edward R. Kozel, and special guest, Douglas Adams, best-selling author of *The Hitchhiker's Guide to the Galaxy*.

- **Network with colleagues and peers.**

   Share information with fellow networking professionals at special events, functions, and informal gatherings.

If you'd like more information about conference courses and/or registration, call the *Networkers '97* hotline toll-free at 800 250-4800, ext. 74215.

Don't miss out on the most complete networking solutions conference of the year and your chance to get the technical training and information resources you need.

Networkers '97 Conference is pleased to offer a special discounted rate for our Public Sector customers representing government and educational institutions, state, local, and federal.

The special rate of $600 is available beginning Tuesday, April 22.

It is important that those who register for this special discount use the registration form on our fax-back service. (This way we will be able to insure that the special discount price is applied to the appropriate individuals).

The Networkers web site and Hotline will announce the new discount, as well as instructions on how to register using the fax-back form. This will be posted on Monday evening.

Government and education customers should call the Networkers '97 fax-back service at (800) 978-9651, or

In Turn? ...Intern!

Staffing: Innovative ideas revealed to supplement stretched IS/IT resources.

Mike Caskey, Stanislaus County Office of Education

Scene 1 (Management Team Meeting): Personnel Department - "When are you going to install our new computers and connect us to the network so we can use e-mail?" IS Department - "We will get to your department in turn, which should be the first part of next week." Personnel Department - "You told us that last month." IS Department - "Well, the DNS server crashed and we had to reconstruct; the fiber backbone was severed by some workmen who were building the new meeting room on the West wing;   (fill in the blank)   ....

Scene n: Personnel Department - When are you going to install our new computers and connect us to the network so we can use e-mail?" IS Department - "We will get to your department in turn, which should be the first part of next week."...

And so it goes...

Ring, Ring, Ring...

"Information Services. Can I help you?"

"Hi. This is Fred from the XYZ School District. Last month we placed an ad in the paper for a network technician and had absolutely no response. I was just wondering whether you were having any difficulty in filling any open positions?"...

And so it goes...

Most of us face similar problems: Mission critical applications; special high-priority projects; year 2000 modifications; keeping the network fully operational. But, the Personnel Department isn't interested in head crashes. And, surprise-surprise, they shouldn't have to be. What they are interested in is that they are using old equipment, with outdated software, and still don't have access to e-mail. Well, maybe the word isn't <u>interested</u>, but rather <u>frustrated</u>.

And what do you see? You probably see an IS department that is short on staff and long on commitments. The Stanislaus County Office of Education (SCOE) was facing this very situation: too much work-not enough resource. It looked the same from every angle until a closer examination of the problem pointed out that the tasks that were waiting to be done were typically short-term, one-time, repetitive tasks.

For example, there was a substantial back-log of computers, sitting in boxes, waiting for software and/or network cards to be installed, and then to be connected to the network. Even though there were thirty or forty machines, they all had pretty much the same configuration, and were waiting for the same software to be installed. In other words, the **same task** was going to be performed thirty or forty times.

Additional full-time staff is costly and difficult to "sell" to superintendents and boards based on thirty or forty short-term tasks. Use of private companies is also expensive. Besides, the question posed by several department heads was, "Isn't the indirect rate providing funding for Information Services? Why should we have to pay more to have our equipment installed and connected when we already have an Information Services Department?"

After spending four years mastering their subject area, future teachers spend the better part of two semesters as "student teachers". Those working toward administrative credentials spend a semester or two serving as interns. It occurred to me that a similar program might prove useful in an information services department. Internships are usually short term in nature, and the task list was very top-heavy with short-term tasks. So an old idea resurfaced and started to come to life.

In order to make such an idea viable, it seemed logical to follow the teaching credential model: Install individuals with some mastery of their subject area into functioning positions where those installed can learn and grow, yet at the same time, produce useful results without overly costing or obligating the organization. Where can individuals with limited experience, but with more than a rudimentary knowledge of computers (hardware and software) be found? How about in the computer club or computer science department of your local high school, community college, state college, or university? Would the school be interested in such a partnership? Would there be any interest from the students? The short answer

SMDS: A Cost Alternative Case Study

Data: Analysis of network requirements results in redefinition of firm's infrastructure.

Bob Schupe, Grumman Systems Support Corporation

Commercial industry and educational institutions face many similar challenges in their current trend towards heavy multimedia usage. Both environments can require the movement of large chunks of data over a shared network. Northrop Grumman has been especially challenged over the last three years as the consolidation of the aerospace industry has resulted in the merging of three other companies with the Northrop Corporation. The new company went from a half dozen plant locations to over a hundred! The people in these locations required access to common corporate data, as well as access to other employees across the street and across the country. All forms of electronic communication were required by these diverse groups: voice, video, e-mail, interactive collaboration, Web and file transfer to name a few. So, as you can imagine, a cost effective infrastructure design was a critical requirement. The following is a case study of a solution that Northrop Grumman has embraced that has relevancy to demanding education communication requirements.

In an effort to take advantage of new and cost effective technology, Northrop Grumman has decided to utilize SMDS, or "Switched Multi-megabit Data Service". This revolutionary new service provides faster, money saving and effective means for networking and transporting large amounts of data. In addition, SMDS offers a wide variety of options, such as faster service and addressing features. Most importantly, however, SMDS has multimedia capacities, having the ability to carry voice, video and data simultaneously with a high quality of service.

According to network engineering manager Marty Keller, SMDS is a natural transition from private line hybrid networks (used previously) to future services such as ATM, or "asynchronous transfer mode". because like ATM, it uses cell relay with a 53 octet cell. SMDS is an exciting new service that has many specialized features and important benefits. Subscribing to this service will be beneficial to Northrop Grumman in a multitude of ways.

Previously, private line hybrid networks with T1 technology were used to transport data. Many sites all over the United States were used as connecting points for data transportation. However, there are several problems with this type of networking. First of all, it can only transport 1.536 megabits per second. Due to priority deadlines and increasing amounts of data, information needs to be transported at a faster rate. Second, this type of networking is hardly cost effective. Similar to a landline phone situation, Northrop Grumman must pay for service on a monthly basis. Even when the system is not being utilized, the end user is still being charged. Further, the cost cannot be abolished until the T1 line is removed. SMDS offers workable solutions to these and other problems.

Finding a new means of transporting data was first attempted by the Working Group IEEE P802.6 within Bell Laboratories. Following the breakup of the Bell System, Bellcore (Bell Communication Research) continued the development. The basic concepts of SMDS were finally developed around 1986 (Klessig and Tesink, 1995). In other words, it operates according to a "cloud theory." Information is sent out, and is transported to any given receiver without having to connect to a landline site. Instead, it is transported in or out, and analyzed further within the SMDS systems.

There are many beneficial features of SMDS that were not present in past services. First of all, end users only pay for the amount of data actually received. Unlike former data transport systems, SMDS does not charge fees when the service is not in use. Clearly, this is much more cost effective to the company. Specifically, as Keller claims, using SMDS will result in an approximately 20% savings to Northrop Grumman. This will result in a $1 million savings per year. A second benefit is that peak bandwidth to any given site (determined by the access line and SMDS port) can increase or decrease in incremental jumps. As opposed to the rigid capacity levels of past services, SMDS offers access classes to meet bandwidth needs for rates that are greater than T1, yet less than full T3, which has the capacity of 28 T1s, or 44.736 megabits per second (Pacific Bell User's Guide, 1995). Subscribers can decide the amount of transport they need, and SMDS will react accordingly.

A third benefit of SMDS is that it uses cell-based technology. As previously mentioned, this type of technology plays a major role in the inner workings of ATM.

SMDS

Since the adaptation of ATM is a future networking goal due to its ability to handle multimedia (voice, video and data) information with anticipated high quality, it is helpful to be exposed to some if its features beforehand. A fourth benefit of SMDS is its screening and control options. As Northrop Grumman works with and has access to important and often classified information, it is of utmost importance that these documents be protected. End users of the service are able to make up member lists that allow and/or disallow specific addresses from sending or receiving pertinent documents. When information is sent out or tries to be received, SMDS switches screen the addresses involved to insure that there is proper authorization. If the addresses are not authorized to work together, the file will be dropped. This feature also helps authenticate against fraudulent activity. An unauthorized user is unable to hack into the system to gain access to any documents. Finally, a fifth benefit of SMDS is that it has been described as being user friendly and easy to use.

Although SMDS provides many interesting benefits, there are also some potential problems that might serve as temporary obstacles to data transportation. As pointed out by Keller, if the pipeline fails for any given reason, it may be difficult to achieve a connection. Fortunately, however, there are alternate routes by which documents can travel by. A second possible obstacle is that if the sender or receiver address is incorrect, the file will be dropped (Pacific Bell User's Guide, 1995). However, this problem is present in almost any application, including electronic mail and faxing. Therefore, this problem is not major, and can be corrected by having accurate addresses.

Because ATM will not be available for several years due to extremely high costs and lack of standardization across the world and the industry itself, it is necessary to use another service—one that is similar to ATM but does not have its present faults. In addition, a new service must be an improvement over the obstacles of previous ones. Clearly, SMDS is a service that meets both of these criteria. It appears to be an excellent service, one that has many benefits without many problems. By subscribing to SMDS, Northrop Grumman is likely to reap benefits that will service to better the company as a whole.

New SprintLink DS3 Augments CSUnet-4CNet Internet Access

Mike McLean, CSUnet-4CNet

In the continuing effort to provide premium service to the California State University and others in the California educational community, the CSUnet backbone has been augmented with a second dedicated full-speed DS3 (45 Megabits per second) Internet connection. This new access line connects from the CSUnet site at San Francisco State University to the SprintLink Internet service and augments the existing MCInet Internet service. This represents one of the first steps in the transition of CSUnet into 4CNet.

"Upgrading to new facilities comes at a time when we are expanding the network to interconnect all 123 California Community College sites with full T-1 capability to 4CNet andthe Internet by year-end," says Dave Reese, project director of 4CNet. This investment is expected to provide our subscribers with better direct access to the Internet." Reese continues, "This new connection will allow subscribers to gain the most direct access to both MCInet and SprintLink services (the two largest Internet network service providers in North America), and we believe the lowest latency [round-trip times]."

Users have already seen improvement in their access to web sites connected via the SprintLink Internet service. CSU has already begun upgrading their hub sites to DS3 (45 Megabits per second) access to every service area in the State. These upgrades will enable the network to grow beyond just the Internet and allow for additional growth of existing video applications. Users have some of the best access to California's networks.

A few of the new benefits and features include:
- aggregate 90 Megabit full-duplex access to the Internet
- reduced round-trip times
- improved access for existing CSUnet subscribers

When complete, the network upgrades will provide:
- automatic backup/failover for Northern and Southern California 4Cnet sites
- improved access for home dialup users using other ISPs

For further information check the 4CNet home page at www.4c.net.

Michael A. McLean is Manager of Customer Service Support for CSUnet, a service of the CSU Chancellor's Office. He can be reached by e-mail at help@csu.net.

Connecting to Windows NT

Jeff Zwier, Interim Technology

Staying on top of growing academic networks isn't easy. In addition to the daily problems involved in maintenance, administration, and growth, district network administrators face the challenge of adding new capabilities to their networks. Unless you have recently built up your school's network or invested in a major migration effort, your servers, classroom PCs, and Macintosh computers probably run a number of different operating systems, all demanding equal access to services spread across widely varying server hardware and software platforms. Yesterday's solutions—whether in the form of network operating systems (NOS) or varied client PC operating systems—may not meet all of today's classroom technology needs. In this article, we'll take a look at how the Microsoft *Windows NT* operating system can be integrated into an existing network and at some of the tools that make the process easier.

Why Use More Than One Network Operating System?

Media attention to the Internet and an explosion in the number of available products have created an unprecedented demand for leading-edge classroom technology. Your old reliable network operating system may simply not be up to the task of sharing multimedia resources or providing World Wide Web access. However, it may be handling printer services just fine. Do you really need to migrate the entire network over to the new operating system? Depending on your school's budget constraints and the real benefits offered by the latest, greatest product you have in mind, the answer may be yes, no—or both.

If you do decide to have it both ways and retain your in-place system when adding a new network operating system, you're not alone. Nick Rodriguez, a managing consultant with Interim Technology's Network Integration Services practice, has seen corporate network administrators choose to work with several different network operating systems, taking advantage of the features of each to meet their specific needs. "You might maintain [more than one network operating system] because one NOS does something a little bit better than another." Strong competition in the NOS market has encouraged developers such as Microsoft to add attractive features— built-in Internet access, centralized administration tools, advanced security features, and more—in an attempt to win over users who are reluctant to trade in familiar and reliable file-sharing and print-services tools.

The decision to add Windows NT into an existing network is often based on local expertise as well. While NT certainly isn't classified as an entry-level product, its ease of use and stability are appealing to many who need to set up minimum-support servers. This is often the case in districts depending on one skilled technician to maintain several sites. "[For example, Windows] NT is a really good choice for smaller, entry-level, or low-administration sites," says Interim's Rodriguez. Windows NT setup and user administration wizards, for example, may be a key feature for novice networking professionals or those who will depend on less experienced staff for routine administration tasks.

Adding Windows NT to Your Network

A Windows NT server can play many roles in your network, adding a variety of services without requiring a large investment in setup time. Making the connections— both physically and in software settings—is a fairly straightforward process. Many schools and businesses have added Windows NT to the LAN as a multipurpose server, linking to existing NetWare servers and other environments as well. A technology coordinator might add Windows NT in this general-service role to deliver print services and to take advantage of built-in tools for Internet/intranet publishing and remote access. This often sets the stage for an eventual migration of all users to a Windows NT-based network.

NetWare Interoperability

Still others plan to capitalize on the strengths of both Windows NT and Novell's NetWare in the near term. This may sound like an administrator's nightmare, but thanks to built-in client and server compatibility, adding the benefits of Windows NT does not necessarily mean reconfiguring all of the clients accessing Novell servers. Windows NT and the family of Windows client operating systems all support NetWare file and print services via direct NCP links and the Microsoft version of the NetWare communications transport protocols, IPX/SPX. (See Tricks and Tips below.)

Communications compatibility at the server level via NWLink, the NetWare-compatible protocol, means com-

Dial-Up Internet Access

Service: Modem connectivity launched for all County schools and districts.

Judy Acosta, Ventura County Superintendent of Schools

Ventura County Superintendent of Schools Office, Information Technology Services, is offering dial-up Internet access to all employees of the County Office, schools and districts in Ventura County. While this may be "old hat" to some of you, it is a new experience for us.

We started with a small pilot group of about 15 people from our own office, and that was great. We then extended it to all VCSSO employees, and that went pretty well also. We then expanded that group to include one school district in the County—mind you, we were still in the pilot phase. Hey—this isn't so bad. Famous last words. We mailed out brochures about our service to all schools and districts in the County at the end of April, and our phones haven't stopped ringing yet.

The major problems we have encountered relate to installation. Once past installation and successful connection, we seldom hear from the user again. So far, that is. We are supporting three different platforms—Windows 3x, Win95, and Macintosh. If we were having a contest to see which platform presented the most problems, it would be—#1-Macintosh, #2-Win95, and #3-Windows 3x. We purchased software to help with the Mac installation, Netscape Navigator, Personal Edition, or the users can use the Apple Internet Connect Kit which many of them received when they purchased their computers. This has helped tremendously. We are providing Internet Explorer for the other two platforms because it contains a dialer and mail all in one package.

We offer installation services at an additional cost, but discourage users from selecting this option. The installation is simple and the directions are step by step and easy to read. *However,* quite often there are minor differences between what's displayed on the user's screen and what's in the instructions. Sometimes, though, they are in sync! Most users cope well with this, but it does tend to worry them a bit. Some users don't bother to read the instructions from beginning to end (surprise, surprise) and try to start somewhere in the middle. It's a real challenge to find out what the problem actually is.

Modems seem to be another problem area—sometimes they just are not compatible with the dial-up adapter. When this is determined to be the problem, the users have accepted our judgment with no hesitation and are willing to replace their old modems in order to "get connected". The cost of the service is so reasonable that they don't mind spending money to bring their hardware up to date. As one user laughingly stated, "You know Judy, it has cost me $xxx, in order to get this cheap rate. I'm not sure that's much of a savings." Of course, this particular user needed a memory upgrade and a new modem plus they wanted to move from Windows to Win95.

At the current time, we are offering support between the hours of 8 AM and 5 PM. Our phones get real busy around 4 PM, believe me! Thank the powers that be for voice mail. Our users have been great. They are polite, patient, and grateful for the help that you give them. We have made a few "house calls", but for the most part, if a problem cannot be solved over the phone, customers will bring their computers (CPU) and modems to us and we can work on the problem here. This saves everyone a great deal of time and money.

We are having a lot of fun with this new venture, and we hope our customers are too. They seem to be. We'll see where this takes us, and if we will continue to grow at the pace that we are growing now. This may become a "Perils of Pauline" series for future DataBus articles.

I'll keep you posted.

COMING EVENTS

• SIG Meeting (North)
    June 12, 1997
    Yolo County Office of Education
• SIG Meeting (South)
    July 24, 1997
    Orange County Area
• Annual Conference
    October 29-31, 1997
    Radisson Hotel, Sacramento

Telecommunications Discounts for Schools, Libraries Approved

WestEd News Service

Schools and libraries will receive technology discounts totaling up to $2.25 billion annually, thanks to a unanimous May 7 vote by the Federal Communications Commission (FCC) accepting the bipartisan recommendation of its Federal-State Joint Board on Universal Service. Under this recommendation, schools and libraries will be eligible for discounts on telecommunication services (such as phone service), internal connections (bringing technology into classrooms), and Internet access. These discounts will range from 20% to 90%, depending on poverty and geographic location. The average discount is expected to be 60%.

Secretary Riley called it "a day to celebrate" while pointing out that approval of the E-rate is not only "a great opportunity, but also a great responsibility.... We must show that it really makes a difference in the classroom, and that means helping students to learn the basics and other core subjects to high standards." (For the Secretary's full statement, as well as the Vice President's remarks, please see: http://www.ed.gov/news.html#pr and http://www.ed.gov/PressReleases/WhiteHouse.html)

Over the next few months, the Department will work with the education community, the private sector, and the fund administrator to develop an easy-to-use application process for schools and libraries seeking the discounts. Details on the application process, which could begin as early as this fall, will appear here in the coming weeks. Meanwhile, schools and libraries may prepare for it by assessing their current resources and future needs, and developing and refining their own technology plans.

The FCC is offering 2 listservs for updates and communicating with other educators about ways telecommunications can be used to improve learning (http://www.fcc.gov/learnnet or learnet@fcc.gov). PBS offered a videoconference on June 3 from 1-2:30 (Eastern time), "Maximizing Your E-Rate: Making the Most of New Telecommunications Discounts for Schools and Libraries." For more information, please see: http://www.pbs.org/learn/als/programs/live/erate.html (or call PBS at 1-800-257-2578).

Vendor Update

Terrell Tucker
Panama-Buena Vista Union School District

The vendor program for this year's conference in Sacramento is beginning to pick up speed. Applications have been received from a number of vendors, each wishing to impart helpful ideas, software, hardware and a plethora of prizes and gift. We will be providing attendees with more goodies than ever before, not to mention door prize items and many handouts in the exhibit area.

Our registered vendors include Bi-Tech Software, Quest, Comlink, Digitronics Software, Panduit, Sehi Computer Products, Schoolhouse Software, Maplewood Computing, Bay Networks, Western Telecomm Consulting, Bon Appetit Software and PC Connections/Destiny Computers. These vendors also represented themselves at last year's conference and were well received by all attendees. Applications are being received on a regular basis and we expect to sell out the exhibit space early once again this year.

Make your plans to attend this year's conference and urge your favorite vendors to contact me to reserve a space. My e-mail address is tt@pbvusd.k12.ca.us and my phone number is 805-831-8331 ext. 111. Feel free to contact me with questions or your vendor's name and phone number. Space is on a first come-first served basis and our goal is to provide a high level of information in the exhibit area. The Internet Room once again will be used for technical sessions as well. This provides vendors an excellent venue to impart technical information on specific topics. It also gives attendees a chance to obtain answers to nagging problems and enhance the experience only a CEDPA Conference can provide.

Keynote
(Continued from Page 5)

Roberts holds a B.S. from Cornell University (1962), an Ed.M. from Harvard University (1963), and an Ed.D. from the University of Tennessee (1973).

Other main speakers and breakout sessios are being developed for the conference. If you are interested in presenting a breakout session, please complete the Call for Speakers form in this issue and send it to me as soon as possible.

Intern

to the last two questions is yes. But, I'm getting ahead of myself.

In order to bring this idea to fruition, several steps were taken. First the problem of having insufficient staff was formally documented with task lists, corresponding estimates for time required to complete each task, and matching the task list estimates to available staff. It wasn't a shock that the IS Department was overloaded with work, but rather that the problem would get substantially worse before it got better.

The second step was to sell the idea of attacking this problem with an intern program, to the proper individual or individuals. This might be a superintendent, school board, cabinet, management team, or chief business official. It turned out to be a reasonably easy "sell". The suggestion was made to the cabinet that this program would provide educational opportunity for local students, establish closer partnerships with local schools and colleges, would be relatively inexpensive, and could be terminated at any time without causing a major disruption in the lives of full-time employees.

The third step was to contact local schools and colleges to see whether there was any interest in such a program. The institutions contacted for this particular program were the local community colleges (there are two within 30 miles). In both cases, the computer science program is administered through the Business Division, so the chair of each of the divisions was contacted. The proposal to the colleges was that the student should receive credit (units) for the work performed in accordance with an existing work experience program at that college, and that the student would receive a small stipend. This was agreed upon, and again, in both cases we were referred to a computer science teacher that had a track record helping students find positions.

Once the contact was made and it was determined that there was interest in the program, some sort of "Job Description" was needed so that students could be matched to the available positions. Our approach was to use an existing Job Description prefaced with a cover letter that explained that the successful candidate would perform some, but not all of the duties of the Job Description. Of special note was the duty of assisting customers with hardware and software problems - sort of a "junior" help desk operation. There is, in effect, no Job Description for

the functions served by the interns. And, they are not filling vacant positions.

Our next step was the procurement of a list of interested students, interviews with the student candidates, and ultimately selection of the interns. At one college, the computer science teachers recommended the candidates. At the other college, the candidates were solicited via campus bulletins. The interviews were then conducted by an interview panel consisting of SCOE and college personnel. The interviews followed the same format used for all SCOE interviews.

Following selection, the interns were put through a short, but intensive orientation on the Office of Education and the tasks that they would be performing.

The program that has been put into place at the SCOE is designed to provide the equivalent of two full-time junior network technicians to the IS Department. To help ease the administrative load of such a program, a maximum of four interns will be active during any one semester. Each intern is expected to provide around 20 hours per week during normal business hours (half time equivalent), depending on the student's class schedule. Additionally, the interns are scheduled, when possible, such that at least one intern will be in the office at any one time. This helps the IS Department to provide "help desk" coverage throughout the day. It is expected that an internship will last for a period of six months, and will be coordinated with the semester schedule of the college. Each student will be eligible for a maximum of two internships. Successful candidates must meet the requirements of the work experience (or similar) program that is in place at the school or college attended by the student. If there is no such program at the school or college, suggest they start one. The process used for intern selection very closely follows the hiring procedures used for full-time employees, including filling out a formal application for employment, providing a resume, and going through a formal interview and evaluation.

So, what's in it for the school or college? The primary benefit to a school is the opportunity to provide access to "real world", practical experience as part of the curriculum. It is much easier to "place" graduating students with practical experience. The college that provides such work

Intern

experience opportunities is more attractive to students seeking a career in the technology field.

What does the student get out of this? The intern program is designed to provide the student with an employment experience. The process of building a resume, filing an application, and then going through an interview with a panel, is an experience that many students have never had. It provides an opportunity for the student to learn how to groom and prepare for an interview as well as how to interview. The student receives a couple of units. The student also receives a small stipend. But, probably the biggest benefit is the addition of the work experience to the student's resume.

An then, of course, what does the district or county office get out of the internship program? In the case of the SCOE, the once daunting back-log of hardware and software installations is almost gone and other projects are now possible. Since there are now several people to answer the "Help Help" calls, the customers are less frustrated. And the cost is very reasonable. The cost of four half-time interns is less than $20,000 per year.

Is there a down side? It is necessary to provide supervision, and that time has to come from somewhere. At the SCOE this amounts to about 8 hours per week. In our experience, we have found that you give up 8 hours per week to gain approximately 60 hours per week of productive time. By the very nature of the program, there is a high turn-over rate. However, the candidates have proven to be productive very quickly. And we can't forget that it is necessary to provide work space and equipment.

So, what does the SCOE think of this program? Probably the best indicator of success of the program is the acceptance of the interns by all SCOE personnel. The interns are treated by SCOE employees as though they are full-time staff, with the same ability and knowledge level as that which would be expected of full-time staff. The intern program has been budgeted for the next fiscal year. Other staffing alternatives are so expensive that without the intern program, the work simply would not get done. The customers are extremely happy to be able to get a quicker response to questions and problems. The program can be discontinued at any time with minimal disruption of the lives of employees. The program can be set up for many different technology support efforts and it can be designed around your own particular situation.

If you have too much work and not enough staff, I recommend that you look into the possibility of establishing an Intern program. There are many talented and knowledgeable students that will do fine work for you. This is a "deal" in which all participants will come out ahead. You'll be able to say, "We'll get to your department in turn, and your department's turn is now because I'm sending you an Intern."

Windows NT

plete two-way access for applications based on the Windows NT or NetWare side of your network. Migration and access for existing NetWare clients on your network are controlled via the Windows NT Migration Tool. Version 4.0 of Windows NT Server also includes the Gateway Service for NetWare (GSNW), enabling access to the Windows NT network by NetWare clients and providing support for the latest Novell Directory Services (NDS).

Microsoft also offers File and Print Services for NetWare (FPNW). FPNW software lets Windows NT servers directly emulate NetWare 3.x binderies, allowing PCs running Novell's Virtual Loadable Modules (VLMs) to log on to Windows NT.

In the Mix With UNIX

Although a large installed base of educational networks are concerned with NetWare compatibility, you may have the challenge of linking to other systems. Many schools who joined the Internet community a few years ago still depend on UNIX for Telnet, PPP/SLIP access, and other basic connectivity services. One possible strat-

Windows NT

(Continued from Page 14)

egy these early Internet adopters can consider is moving to the graphical interface-based TCP/IP utilities provided by Windows NT. Windows NT Server offers built-in native TCP/IP for fast performance, wizards, and online documentation, plus a growing suite of communications and Internet tools, such as Internet Information Server (IIS).

If you plan to integrate UNIX with Windows NT, both built-in emulation and additional support tools are available. For example, FTP services can be provided to UNIX clients directly from the standard Windows NT software, as well as both TCP/IP and LPD (Line Printer Daemon) print support to allow UNIX clients to access Windows NT print queues. Network File System (NFS) software is also available from third parties to allow any UNIX host to access your Windows NT file server as if it were a UNIX server.

Adding Windows NT on the client side of the network can also be a cost-savings rather than performance strategy. For example, in university settings, some schools have taken advantage of the ability of Windows NT Workstation to connect to UNIX servers (which have been historically used for large scale computing applications, Internet, and mail services in that environment). For these schools, the alternative is spending thousands of dollars for RISC processor clients.

Tricks and Tips

As mentioned, Windows NT has a number of built-in tools and features that can ease your transition and allow smooth integration of NT servers into your network. Here are a few suggestions to make your introduction of Windows NT a success:

• Know your network. Make sure your inventory and software management tools are up-to-date before you add to the network. Know what versions of server software, client access tools, and drivers are in place to ensure that you are using the right tools to achieve your goals.

• Take advantage of Windows NT compatibility, migration, and integration tools. Start with making sure that TCP/IP and NWLink (NetWare IPX-compatible protocol) are installed on your Windows NT Server. To integrate with NetWare networks, activate the Gateway Service for NetWare (GNSW), which enables server-to-server communication. The Gateway Service is installed through the Network Control Panel, which then generates a separate Control Panel icon once the Gateway Service for NetWare service is installed. The Migration Tool (used to physically move user and group accounts and NetWare volumes to a Windows NT server) is accessed through the Start button. Double-click the Administrative Tools program group to view, and run the Migration Tool.

• Simplify user administration and leverage your NetWare knowledge. Use File and Print Services for NetWare (FPNW) to make your Windows NT server(s) look like NetWare resources to existing NETX-, VLM-, or Client32-based clients. FPNW facilitates Windows NT integration into NetWare clients and lets you run many NetWare user-administration commands to manage both clients and resources. Director Service Manager for NetWare (DSMN) allows clients single-logon, single-password access for both Windows NT and NetWare networks. FPNW and DSMN are available as a separate upgrade to the basic Windows NT Server 4.0 installation.

• Remember, your clients are depending on you. Windows NT can emulate file- and print-sharing features for Macintosh and UNIX clients, as well as run services such as TCP/IP and LPR. Client software for a wide variety of non-Microsoft clients is included on the Windows NT Server 4.0 CD-ROM in the Clients folder. The Clients folder also includes a 32-bit TCP/IP stack for Windows for Workgroups. Be sure to install the Microsoft Network Client for DOS on both DOS and Windows 3.1 clients to enable these clients to interact properly with Windows NT domain controllers.

• Plan your services. Take the time to determine exactly what services you would like each of the servers in your network to provide. Compare the relative strengths of both the hardware and software in place, and avoid unnecessary duplication of services by choosing the best tool for each application in your unique network environment.

For more information on interoperability, visit the Windows NT Web site at http://www.microsoft.com/ntserver/.

Jeff Zwier is a technology services consultant with expertise in technical training, recruiting, and Windows NT networking. He is currently a consultant with Interim Technology's Technical Communications and Training Practice in Oak Brook, Illinois. You can reach him at jzwier@msn.com. This article reprinted by permission of Microsoft Corporation.

CSUMentor™

(Continued from Page 1)

amount, and to help provide a simpler financial aid delivery process.

Electronic Mail Capability - allows students to communicate directly with CSU campuses.

Implementation of Project Modules

In September 1996, at the request of the Executive Council, the Chancellor directed XAP Corporation to make available on the Internet the 1997-98 undergraduate and graduate admission application by November 1, 1997. We are pleased to report that as of March 31, 1997, **32,918** individuals have accessed the CSUMentor™ application website and **1,878** applicants have applied on line (1,345 undergrads and 533 graduates).

Through an extensive collaborate process involving campus staff members, XAP Corporation is continuing to build the remaining modules with an implementation date of November 1, 1997.

Tasks Assigned to Campus Participants

Campus staff members have indicated which design committees they wish to participate in to advise XAP Corporation.

In addition to the work of the design committees, directors of Admissions and Records (with copies to the VP, Student Affairs, etc.) have been asked to complete a detailed survey which will be used describe your campus in the various modules. In order to provide sufficient time for campus response, the deadline date will be extended to April 15th. The data collected is critical to the information provided in the project modules.

Future Issues To Be Resolved

As the project is developed, campuses have raised important issues and suggestions to further improve the scope of the project. The Chancellor's Office encourages campus participation and input to ensure that the project best represents all twenty three CSU campuses.

It was the intent of the project that applicants be provided the option to use credit cards via the Internet to pay for application admission application fees. Chancellor's Office staff hosted a meeting with campus representatives in February to discuss the issue and is still working CyberCash to ascertain the ability and convenience of applicants and campuses to use this process.

Campuses will be kept informed of progress in this area.

Other Steps

In addition to Project Mentor, the CSU is working with the other segments of higher education to develop a statewide website to provide electronic access to every college and university in the state. This web page will link the CSU Mentor to the UC Pathways electronic application for admission procedures as well as linking to each campus home page on the web. A student from a computer with Internet access should be able to tour all of California higher education campuses and programs and then apply to the campus of his/her choice without ever leaving home.

This website is currently under development and, when completed, will provide a single, centralized starting point to the California State University system (teaching and education), the University of California system (research), the California Community College System (trades and vocational arts development), and California private and independent colleges. The website can be accessed at http://www.colleges.edu.

Russ Utterberg is (title to be filled in) for the California State University Chancellor's Office. His e-mail is russ_utterberg@calstate.edu.

E-mail Experiences Wanted!

According to Telecommunications Report International, there are now 137 million electronic mail boxes in use worldwide! Setting up these mailboxes requires many resource hours of support. Converting from one e-mail system to another could become an implementation nightmare without proper planning.

IMAP4, a new Internet e-mail standard, will become an important issue in the near future. Many of us will be faced with converting existing e-mail systems to address and support IMAP4.

CEDPA is interested in hearing about your e-mail implementation experiences. If you've recently installed or converted an e-mail system, we'd like to hear from you. Please contact CEDPA at the address on Page 2.

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Elisa Bartell, Microsoft Corporation

Microsoft Open License for Education can provide you with the pricing you need to bring the vision of the Connected Learning Community to life. And now, it can also provide you with free Office 97 and Encarta® 97 licenses!

As part of our long-standing commitment to education, we offer specially reduced volume prices for schools with as few as ten desktops. By providing you with licenses, as opposed to packaged products, we can offer you prices up to 70% less than what you would normally pay. For example, Microsoft Office 97 Professional academic edition is $199 U.S. for the full-packaged product. An open license for Office 97 Professional is just $52 U.S.—that's a savings of more than 70%!

The Microsoft Open License for Education is designed to reduce the costs associated with acquiring, upgrading, maintaining, and managing software by providing simple and flexible volume-based pricing over a two-year period. You simply acquire the minimum number of units at one of two price levels, and continue to receive that discount level for reorders over the next two years.

The Microsoft Open License for Education offers the full benefits of an innovative volume-based licensing program, including:

Value. Consistent volume licensing helps you manage overall costs, facilitate consistency school-wide, and maintain control of licensed use of the Microsoft software products you need to operate your academic institution.

Simplicity. The Microsoft Open License volume licensing agreement is easy to understand, communicate, and administer. It features simple, clear terms for acquiring your software licenses. Tailored to meet your needs. Customer input helped design this simplified licensing model, which enables you to cover the products you need and offers purchasing levels that best fit your organization.

For a limited time, when you enroll or reorder at least 20 application licenses from Microsoft Open License, you will receive Office 97 and Encarta 97 licenses free. Order 20 application licenses from popular titles like Microsoft Office, Microsoft FrontPage®, Microsoft Works, Encarta World Atlas, Microsoft Visual J++™ and more and receive one free Office and one free Encarta license. Order at least 40 application licenses, you'll receive two licenses for Office 97 and two for Encarta 97 - - -FREE! Order 60 and receive three each, and so on.

For more information on Microsoft Open License, or the Open License Promotion for Education, contact your Microsoft Authorized Education Reseller. Call 800-426-9400 in the United States or 800-563-9048 in Canada for the name of a reseller in your area.

Teacher Training at Microsoft

Elisa Bartell, Microsoft Corporation

To help school districts and teachers integrate technology into their classrooms, Microsoft's Professional Development Partnership Program is currently being revised and improved. The program was recently renamed to teacher.training@microsoft and has a new Web site still "under construction" at http://www.teachertraining.com. No new applications are being accepted at this time but please feel free to revisit the web page by June 15 for the application RFP.

Through the teacher.training@microsoft program, Microsoft will team with over 350 State Department of Education and College of Education teacher training sites. Our associates serve an important need by providing pre and in-service staff development for teachers who will be implementing Microsoft technology in their classrooms. Microsoft supports their training efforts through annual software donations for teacher training lab sites and preview/demonstration sites. By year end 1997, over 200,000 educators will be trained on Microsoft software via these programs. Comments and questions can be submitted to teachers@microsoft.com.

Elisa Bartell is Education Market Manager for Microsoft Corporation, SoCal District. She may be reached at (310) 449-7344, by FAX at (310) 829-4111, or by e-mail at elisaba@microsoft.com.

In Graphics-Friendly World of the Net, Poor Writing Is All Too Common

By Andrew Marlatt

When it comes to companies' approach to the Web, "Most of them are still really drunk on graphics," says Robert Holmes, production director at FreeRange Media in Seattle.

Ironically, this focus on visuals has led to text that often appears to suffer from inebriation.

Travel Agents International, for instance, claims its reservation lines are open "24 hours a day 356 days a year." Celebrity Cruise Lines tells online users the ships on its Alaska route "cruise thru walls of granite." A restaurant called Jake's Grill offers "fresh native cod broiled in lemon butter and wino." Business sites are teeming (often written as "teaming") with examples of sloppy writing, a phenomenon that Holmes believes harms not only the company guilty of it, but the Web itself.

"It inherently wounds the perception of the Web and how effective it is," he said. "For people just coming into a relationship with it, very often we find this is a part of their cynicism." If it's bad for everyone, why does it pervade the medium? "I think it's because a lot of people doing the media now don't come from a communications background or a writing background," said Timothy Garrand, author of "Writing for Multimedia." "They come from a graphics or computer background, and they don't have a clue about the whole communications process and the idea of working toward an audience and developing a message." "I think a lot of it is the money people are willing to put into their pages," offered Rebecca Gilson, a producer with Web designer Cybernautics in Sausalito, Calif. "They'll get someone from accounting who says, 'I know HTML. I'll put up the Web site!'" If companies turn to Web designers, she added, "Most shops really don't have in-house copywriters and don't focus on the quality and the style of the writing." And so we have the world's largest networking software company stating, "Novell maintains its headquarters is in Provo, Utah," apparently attempting to squelch any rumors that it is based elsewhere.

And we read paragraphs such as this: "**Softwiz Communications** is your one stop solution for all of your computer consulting needs. With Softwiz Communica-

Copy should be edited before it is posted, just as software is tested before final release

tions you will find that you can count on us to satisfy all of your computer consulting needs." To combat the problem, copy needs to be edited before being posted, just as software is tested before its final release. But the problem goes deeper.

The current Web paradigm has to be turned upside down, Garrand argued. "Every other field you look at—motion pictures, television, magazines—they all start with the writing.

But they seem to have abandoned it when it comes to the new media," he said. "It's got to start with the writing. I'll figure out the message first, and how the text is going to explain that message, and then bring in the nifty visuals—if they serve the message." "Each piece is equally important," added Gilson. "We look at copy for a site as an inherent part of the design. We don't design and then just slap in the words." The text should also be tighter and more concise than print copy, she said. "People don't want to read as much on screen. Your eyes get tired going through line after line after line of text." Large design firms can afford to give copy such attention. FreeRange, for instance, has 63 employees, works on 30 to 50 projects at a time, and has producers with editing experience and a stable of copywriters on retainer, says Holmes. Conversely, **Blue Moon Internet Services LLC**, of Mystic, Conn., has a staff of four, works on "one or two" projects at a time, and doesn't have copywriters on staff, said owner Stephen Dahl, a computer science graduate. But, he asserted, "We're college graduates, so, you know, we can handle the writing." Blue Moon does have a freelance writer available if clients ask for one, but only three of sixty have. "Most folks are interested in the visuals and displaying their products first before the writing," Dahl said.

"They say, ''I've already got my writing, can't we save some money there?''' Even if a client produces the copy, it has to be typed in, and those handling input are usually programmers, Webmasters, or producers with little writing experience, Holmes observed. Exacerbating the problem, Web pages are living documents edited

Poor Editing

online while users view them. Hit "refresh" and the page changes. There's no intermediate stage and often no proofing.

To illustrate that point, one software company marketing manager offered Web Week a hypothetical exchange between herself and the company's in-house Webmaster:

Webmaster: I need copy from the press release.

Marketing: OK, I'll write a new one for the Web.

Webmaster: I need it tomorrow.

NEXT DAY

Webmaster: Thanks for the Web press release.

Marketing: No problem.

Webmaster: But it was a little too short. So I added to it. It's up on the Web site.

Marketing: (after perusing the misspelled, grammatically incorrect, poorly written press release) Arrgghh!!!!!!!!!

This approach to Web copy is unlikely to change, said this marketing manager, because "Nobody wants to spend the money on the copy."

This may explain why the sites of those responsible for putting businesses on the Web are themselves sometimes peppered with embarrassing, often amusing mistakes. Johnson City, Tenn., design firm Netstar, for instance, boasts awards won on two "SEPERATE OCCASSIONS." (None for writing, presumably.) Mouse Ads, Auburn, Wash., touts its Internet service company, which "revolutionizes the way a business establishes a Web Presents." ("Web Presents" is actually in bold.) Liquid Silver, of Vermilion, S.D., which claims to have public relations and advertising pros on staff, offers a panoply of errata, including, "We recommend the use of either one of this Browsers" (above the Navigator and Explorer logos).

"It does make you look bad," concedes Dahl, who says Blue Moon has received its share of flaming grammar e-mail. "Most folks would say, 'I'm not doing business with these folks. Look, they can't even spell.'" But now that the issue has come up, will Dahl go back and edit his pages for errors? "There's too many [pages] to do it, so go to town," he said. "Just e-mail me so I know where the mistakes are."

Troubleshooting: Windows NT Server 3.51 and 4.0

Q. **Why does the Microsoft® Windows NT® Server fail to start Directory Service Manager for NetWare (DSMN) services?**

A. This is by design. You can install DSMN on the primary domain controller (PDC) and backup domain controller (BDC). However, you can only run DSMN on servers functioning as the primary domain controller. In cases where the PDC is not available, you must promote the BDC to a PDC before the DSMN service can be started.

If the PDC fails and you do not have DSMN installed on any BDC, you must promote one of the BDCs to be a PDC before installing DSMN on this server. If you don't do this, you'll receive an error message stating that the domain controller is not found.

Q. Why doesn't the Windows NT connection clear from the Novell server?

A. This problem occurs under the following conditions:

• A connection is made to a NetWare print queue, you log on, and then log off. Every time you log on and off, another connection is used up.

• An application fails to close properly when you are logging off, and another connection is used when you log on again.

About 90 percent of the time, these connections remain until you shut down and restart the system. If you have a limited number of connections, the following message might appear at startup: "You cannot be authenticated on <server name>. Do you want to select another preferred server?"

To resolve this problem, log back on, go back into Print Manager, and remove the printer. The prior connection is dropped.

Microsoft has confirmed this to be a problem in Windows NT versions 3.51 and 4.0. We are researching this problem and will post new information in the Microsoft Knowledge Base at http://www.microsoft.com/kb/articles/ q154/7/04.htm as it becomes available.

Tips courtesy of Microsoft Corporation.

Cupertino Union School District

10301 Vista Drive • Cupertino, CA 95014-2091 • (408) 252-3000 • Fax (408) 255-4550

MANAGEMENT EMPLOYMENT OPPORTUNITY
(Senior Manager Position)

TITLE: **DIRECTOR OF TECHNOLOGY**
WORK YEAR: **225 Day work year**

SELECTION PROCEDURE
1. All applications are to be sent to: **Patricia De Parlo, Assistant Superintendent, Human Resources, Cupertino Union School District, 10301 Vista Drive, Cupertino, CA 95014-2091.**
2. All applications must be received by **June 30, 1997, 5:00 P.M.**
3. Please submit:
   A. Management Application
   B. A letter of application
   C. Resume
   D. Photocopies of valid California teaching credentials and certificate, if available
   E. Photocopies of undergraduate and graduate college transcripts
   F. College placement file or three(3) letters of recommendation related to your skills as a teacher or administrator
   G. Writing sample following guidelines distributed with the application form
4. All applications will be reviewed by a screening committee.
5. Reference of candidates passing the "paper screening" will be contacted.
6. Personal interviews will be scheduled with screening committee.

BASIC FUNCTION
Provides leadership in the development, implementation, and evaluation of all technology related activities including voice, video and data.
Reports to: Superintendent of Schools

RESPONSIBILITIES
1. Develops with Instruction, Business and Human Resources Departments plans to implement technology systems and applications.
2. Supports schools to develop and implement technology.
3. Supervises and evaluates instructional and administrative technology programs.
4. Develops and coordinates staff development activities.
5. Maintains knowledge of current developments in technology.
6. Coordinates the evaluation of hardware, networking, and software for district use.
7. Supervises, develops and evaluates assigned personnel.
8. Directs Electronic Services and Data Processing MIS Departments.
9. Defines problems and formulates guidelines, policies, and procedures for implementing resolutions.
10. Consults with teachers and principals to implement technology applications that integrate with the district.
11. Coordinates the implementation of the District Technology Plan.
12. Represents the district at county, state and federal agency meetings pertaining to assigned duties.
13. Develops, submits, and monitors budgets for the operations of assigned programs.
14. Serves on the facilities planning committee.
15. Provides public information as it relates to district technology in coordination with the Public Information Offices.
16. Performs additional duties and responsibilities as may be assigned by the Superintendent.

QUALIFICATIONS
1. Minimum of four (4) years demonstrated success as a principal and/or program administrator experience desirable.
2. Masters degree desirable.
3. Ability to make independent judgements, analyze difficult situations, and make decisions.
4. Demonstrated expertise in curriculum and technology.
5. Demonstrated ability to communicate effectively both orally and in writing.
6. Demonstrated ability to maintain cooperative working relationships with those contacted in the course of work and to effectively manage assigned programs.
7. Ability to pass district physical examination and maintain physical standards to carry out job requirements.
8. Possession and maintenance of a valid California driver license desirable.

SALARY
Range: $64,193-74,166 annually. Excellent benefit package.

Los Angeles County
Office of Education

The **LA County Office of Education** invites you to join a visionary team
to help shape the future of education as a:

NETWORK MANAGER - $61,176-$75,780 yr

Bachelor's degree in computer or physical science, business or closely related field;
5+ years of experience in the design, development, integration and implementation of
local and wide area networks using a variety of mediums and protocols including
Internet; 2+ years experience managing/directing employees.
Deadline: Friday, June 20, 1997 at 5:00 p.m. OR at the close of the business day
when 40 applications have been received, WHICHEVER OCCURS FIRST.

SENIOR NETWORK ENGINEER - $55,488-$68,736 yr

Bachelor's degree in computer science, data communications, electrical engineering
or closely related field; 5+ years in the design, development, integration,
implementation and/or maintenance of local and/or wide area networks which can
transmit using a variety of mediums and protocols.
Deadline: Testing will be held on a continuous basis. However, once an adequate
number of applications and/or eligibility list has been received/established, filing may
close at any time.

NETWORK ENGINEER - $45,096-$55,860 yr

2 years of college level course work in computer science, data communications,
electrical engineering or closely related field or completion of a job training program in
networks or data communications certified by Novell, Microsoft or Apple; 2+ years in
the design, development, integration, implementation and/or maintenance of local
and/or wide area networks which can transmit using a variety of mediums/protocols.
Deadline: Testing will be held on a continuous basis. However, once an adequate
number of applications and/or eligibility list has been received/established, filing may
close at any time.

ASSISTANT NETWORK ENGINEER - $35,664-$44,292 yr

2 years of college level course work in computer science, data communications,
electrical engineering or closely related field or completion of a job training program in
networks or data communications certified by Novell, Microsoft or Apple; 2+ years in
computer systems with experience in the design, development, integration,
implementation and/or maintenance of local and/or wide area networks which can
transmit using a variety of mediums and protocols.
Deadline: Testing will be held on a continuous basis. However, once an adequate
number of applications and/or eligibility list has been received/established, filing may
close at any time.

In view of the above deadlines, candidates are encouraged to file ASAP. Resumes
are not accepted in lieu of applications. Call (562) 803-8567 to request an application
packet.

Cisco

(415) 596-4447. Voice prompts will give instructions on how to request the special discounted registration form.

New Discount Programs

In preparation for the peak summer education purchasing season, Cisco is happy to announce a very special promotion designed to offer affordable ethernet switching to qualified US education customers for as low as $78 per port for the Catalyst 1900 Series, the fastest selling line of Cisco switches! This is a savings of an additional 25% off the standard 30% education discount from the US list price of $3995:

Model #	US List	Education Price (30% off)	Promo Edu (25% off Education Price
WS-C1900	$3995	$2797	$2097($78/port)
WS-C1900C	$4495	$3146	$2360($87/port)

Available dates: April 21-July 31, 1997

Sue Mangiapane is Account Manager for Cisco Systems, Inc. She can be reached by telephone at (714) 789-5006, by FAX at (714) 789-5005, or by e-mail at smangiap@cisco.com.

President

to be purchased separately. For example, a classroom purchase might include twenty seat licenses, ten documentation sets, and two media sets.

This program is intended for institutional use only and is restricted to all California K-12 Public School Districts, County Offices of Education, and Community Colleges. No staff purchasing or private use is available through these programs.

The program is administered through VALCOM Computer Center, 17518 Von Karman Avenue, Irvine, Ca. 92614-6208, and is effective through March 1, 1999. Additional information and program registration can be found at the SDCOE's website at http://ca-soft.sdcoe.k12.ca.us/msselect.htm.

That's all for now... I just got back from vacation so I'll need time to catch up.

CEDPA
P.O. Box 6552
Huntington Beach, CA 92615-6552