CALIFORNIA EDUCATIONAL DATA PROCESSING ASSOCIATION
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DataBus

"Serving California's Public Education Technologists"

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Year 2000 Crash

Preparation: Many IT professionals aren't taking the threat seriously.

Rick Nelson, California Department of Education

For the past year I have re-focused my time from being the manager of the California Department of Education's Information Systems to getting the word out regarding the need prepare to for the Year 2000. I have felt a lot like that old guy walking around with a "THE END IS NEAR" sign. When Russ Brawn asked me to write a Year 2000 article for the *DataBus*, my initial reaction was, "What can I possibly tell these people that they don't already know?" You are all technology professionals, and much of your experience is more current than mine, (Have they updated the COBOL-74 compiler yet?) After giving it some thought, however, I decided to share with you the reactions I have seen when I mention the Year 2000.

DENIAL – "I don't have a Year 2000 Problem"

First, I see a lot of Year 2000 denial. The Year 2000 equivalency to "My hairline is not receding," and "My waistline is not expanding," is:

- "The Year 2000 is just something hyped by consultants looking for another way to make money;"
- "I'm a Macintosh shop and so I don't have a Year 2000 problem;" and
- "I just bought (or built) this system, so I don't have a problem.

Now do not get me wrong, the Year 2000 ***is*** being hyped to make money, but it is not ***just*** being hyped to make money. Year 2000 problems are real. As you know, if the technicians writing the code, even the code for a Macintosh, did not allow for a four-digit year, and the program's logic is date/year-dependent, the program will fail. Although you would prefer that a system be Year 2000 ready, the worst news is not that it fails with a massive crash, because at least then, you know you have a problem. It is far worse if the system continues to operate for weeks, or months, and pollutes your database until end-of-year processing, a.k.a. the Slow Death Syndrome.

Those in denial often forget they have purchased equipment that contains date-monitoring computer chips, or that they have "behind the scenes" computers con-

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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.

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1998 Conference Update

Palm Springs: Several changes and improvements in store for annual event.

Terrell Tucker, Panama-Buena Vista Union School District

As yet another school year draws to a close, our thoughts turn toward the next. Beginning in late August or early September, the hustle and bustle of school activity will begin anew. As technologists, we will, of course, be directly involved in rolling out new hardware and software for the New Year. One of the few glimpses of hope we'll have is the annual CEDPA Conference in Palm Springs. The opportunity to share experiences and learn from our peers will once again occupy a portion of our October.

Planning for our annual Conference is a process that seems to last all year long. Contracts need to be signed, reservations are arranged and speakers are invited to talk about timely issues that will help each of us. This year's planning has brought about some exciting changes. We will have the same valuable breakout sessions that always seem to be the "meat" of the show. Our keynote speakers will be some of the finest ever and another President's Reception will start things off in a grand way. However, there is a great deal of excitement surrounding the changes that have been instituted.

Things will begin with two tremendous Pre-Conference Sessions. The first will be a "Wide Area Network Extravaganza" that will include information on virtually every option for creating a WAN. Its focus will be on wireless technologies, including microwave and spread spectrum. The second session will be more technical and will be a presentation on terminal server hardware and software. The importance of total cost of ownership guarantees this session to be useful for all of us! It's difficult to open a technology publication these days without reading about clients, fat or thin.

This year's Conference will mark the opening of our first Network Operating Center. Numerous engineers from many of our supporting vendors will be on hand for one-on-one discussions and to make "tech-talk" presentations on hardware and software we all use on a daily basis. There will be more expertise on hand than in any other year. Naturally, we will still have workstations available for checking your e-mail and web surfing.

The vendor exhibit area will also see a few changes this year. We will have the same format as in past years, but you will be delighted to see our new entry area to the exhibit hall. We will be presenting some high profile, more innovative exhibits that will highlight a few of our vendors. As usual, we are seeing a tremendous amount of activity and support from vendors. We will see representatives from companies that have been with us before as well as some that will be with us for the first time.

We're very excited about the possibilities for this year's Conference. Be sure to check out the related articles in this *DataBus* for more specifics.

The '96 Conference in Palm Springs was one of the most successful ever and this year's trip back to Palm Springs promises to be even better. Be sure to put October 13-16 on your 1998 calendar. You will not be disappointed!

Exhibitor Update

Mike Caskey
Stanislaus County Office of Education

Preparations for the 1998 CEDPA Vendor Show are continuing. Twenty-two booths have been subscribed as of May 15th, and have commitments for several more. In addition, the Board has decided to make the Foyer area of the Marquis Ballroom available for **Kiosks**. There is space available for only four 10x20 Kiosks, and it appears that there are commitments for at least three Kiosks.

The Palm Springs Marquis is the site of one or our most successful conferences. It is also a site with a limited capacity for booths and we have commitments for about 40% of the total space available for vendor spots.

If there is a vendor that you would like for me to contact, please let me know. Thanks to new and exciting technology, I now have both voice mail and e-mail. You can reach me at mcaskey@stan-co.k12.ca.us or at (209) 525-5095. I appreciate your tips and suggestions.

The CEDPA vendor show puts you in contact with the companies that are familiar with, and work well in the education environment. These companies support CEDPA and, in turn, deserve our support as we provide technology to our districts and county offices, and go about the business of "Reaching the classroom."

Oracle: Regognizing the Importance of K-12 Education

May SIG Meeting: Database publisher presents its vision and commitment to K-12.

Warren Williams, Ramona Unified School District

It was evident from the beginning of the SIG meeting that Oracle had prepared well for the CEDPA membership. All in attendance at the May 15th event remarked about the thoughtful approach that Oracle representatives had engineered for the day. Everyone at Oracle had done their homework and no one's time was wasted. To begin with, the campus is spectacular. Five large ten story buildings with opalescent green glass surround a serene lake. Careful attention has been paid to the aesthetic with abundant art and openspace; employees everywhere seemed to harmonize with the place. Rich Seidner, Director of Marketing K-12, flew in from Pennsylvania to address the group. Cameron Orourke, Principal Technologist, was prepared to peel back the layers of Oracle's product line to the byte level if requested. From Canada, came a husband and wife team: Janet Mayfield, President, and Randy Morse, CEO, owners of Oz New Media, an Oracle partner. They offered a practical application for educators who need well-organized content from a web source. The other Oracle employees in attendance seemed as eager to hear from CEDPA as CEDPA was to hear from them. Mike Gillette, the Oracle representative who organized the day, left no detail undone.

Rich Seidner knows K-12 education. It was evident from his opening slide that pedagogy, computing and marketing all are areas in which he has considerable expertise. He presented Oracle's vision for a future of education that composed a tripartite arrangement of Commerce, Community and Classroom. He used these terms in the global sense and pointed out that the future for education consists of partnerships that connect students to their community and to the world of work. He elaborated on the impact of the web and commented that its virtual ability has profoundly "changed everything." No where is this more evident than in education. Changes are happening more rapidly than perhaps our ability to manage them. He used an example. To get to ten million users for pagers, it took 41 years; for FAX machines, it took 22 years; for the web, it took only three years. The electronic, transaction-based government will become the common rather than the exception. Money, receipts, tickets are all disappearing. What does this portend for education?

Rich stressed the immediate need for K-12 institutions to become creative, dynamic, problem-solving organizations. Major reform is needed and the investigation of solutions should include a changing definition of the learner, doing more with less, educating beyond classroom walls, staff development and addressing the needs of diverse populations. He enthusiastically welcomed the challenge and opportunity of technology and in it he sees much hope. Hope to improve the quality of education by providing access to information on a scale that is almost unimaginable. Hope to teach new interpretation and communication skills and to provide broad ranging integration of these skills into all academic areas. Hope for teachers and other staff members to participate and enrich the process. All of this is predicated upon a model that includes the business community as an active partner.

Oracle has discovered K-12 education. Beginning eighteen months ago, Rich and others who work with him began drafting a business plan that had three primary goals: 1) Improve K-12 education by partnering with schools and teachers. 2) Provide an affordable suite of Oracle software to assist schools acquire the ability to manage information. 3) Create programs to enhance the regular curriculum and provide opportunities for cash strapped public education.

Oracle has made inroads in all three areas but admittedly must be diligent in its approach. A number of those in attendance remarked about previous experiences with attempts to acquire Oracle technology only to be rebuffed by heavy acquisition and implementation costs. It was suggested that the light attendance at the SIG meeting might be indicative of the perception of Oracle as being too expensive for public education. Rich Seidner pointed to *Oracle's Academic Initiative* and *Oracle's Promise* as programs specifically engineered to assist schools acquire computer technology and software training as a school-to-career component. He also talked of site-based purchasing agreements that will significantly reduce the cost of Oracle ownership.

Rich's presentation was followed by the Oz group. This Canadian company has developed an innovative suite of school-to-career curricula that are delivered via the Web. Oracle technology will ultimately provide the

(see "Oracle" on Page 16)

4CNet Update

Statewide Education Network: Infrastructure implementation is complete. Backbone upgrade already in planning stages.

Mike McLean, California State University - 4CNet

As previously reported in this publication, the California State University (CSU) has teamed with the California Community Colleges (CCC) to provide data connectivity for 106 CCC campuses and 17 administrative centers . Enabling legislation for the CCC Telecommunications Technology Infrastructure Program (TTIP) mandated the establishment of the necessary infrastructure capability for connecting the 123 CCC sites to the Internet; and also included video conferencing and satellite downlink components. To implement this mandate, the CSU and CCC established a collaborative relationship to create 4CNet, the California State University and California Community Colleges Network.

The implementation of 4CNet was accomplished by Telecommunications Infrastructure Support Services (TISS) in the Information Resources & Technology (IRT) department of the CSU Chancellor's Office in Los Alamitos. Project management was provided by Spectrum Telecom Systems. Additional support functions contributing to the success of this project were provided by the office of the Dean of Technology & Communications in the CCC Chancellor's Office, and by network staff at the campus level from both systems.

The 4CNet backbone was designed using ATM and DS-3 connections among each of 10 network nodes placed at CSU campuses and administrative centers throughout the state. The design of the new network includes the interconnection of high speed circuits throughout the state from Pacific Bell, GTE, Sprint, MCI, and TCG. The primary telecommunications equipment is from FORE Systems for the Asynchronous Transfer Mode (ATM) switches at the hub sites and from Cisco Systems for the hub and individual site routers.

An aggressive roll-out schedule was established calling for the installation of T-1 circuits to all 123 CCC sites between April 1 and December 31, 1997, as well as the configuration, shipping and installation of routers and all associated site equipment. The TISS teams in the CSU Chancellor's Office were able to meet this goal as planned. When the connections are completed for all the CCC campuses, 4CNet will serve approximately 1,800,000 post-secondary students, plus faculty and staff at both the CSU and CCC throughout the state, in addition to existing subscribers from County Offices of Education, municipalities, libraries and K-12 school districts.

Various network enhancements and upgrades were made which include the planned implementation of new network management tools, revised escalation procedures to reflect subscriber expectations, and the expansion of 4CNet's Customer Service Center (CSC) to a 24 hours a day, 7 days a week operation.

4CNet is not resting on its laurels by any means as additional backbone upgrade projects are already well underway. The current DS-3 (45 megabits per second) statewide backbone infrastructure will be upgraded to the OC-3 (155 MBPS) level beginning in August 1998. Following the completion of the OC-3 backbone a further upgrade will be undertaken to provide an OC-12 (622 MBPS) backbone. Several other projects and pilot programs in support of voice, video and multi-media applications are already underway.

The backbone upgrade project presently underway is intended to support the eventual provision of video conferencing services for the CCC over the 4CNet Backbone. The Video Pilots project is administered through Butte-Glenn Community College District on behalf of the CCC. This project supports the telecommunications infrastructure development effort to accelerate the introduction of advanced telecommunications technologies for CCC 4CNet subscribers. One of the essential elements of this effort is to upgrade the network backbone and the system-wide data communications network to not only provide for the rapidly increasing bandwidth needs of the CSU and the CCC but to facilitate video conferencing capabilities. All pilot tests and demonstrations will occur between May 1 and September 30, 1998. Butte College is expected to issue a final report with conclusions and recommendations in October 1998.

One other sizable project contingent upon budgetary approval by the Governor for fiscal year 1998-99, is the addition of up to 75 CCC off-site centers throughout the state to the 4CNet network. These centers include a

(See "4CNet" on Page 15)

Microsoft Happenings

Tuan Nguyen, Microsoft Corporation

Microsoft E-Rate Roadmap

If you're a qualified K-12 school or library, billions of federal dollars are coming your way for technology. The E-rate program began January 1998, and it's first come, first served.

From technology planning </education/k12/planning.htm> to Internet access to internal networks, Microsoft has a wide array of products and services to help schools and libraries take advantage of the new E-rate discounts. A simple roadmap to Microsoft resources that help you in the application process and which products are eligible for E-rate discounts is available at: http://www.microsoft.com/education/k12/erate_roadmap.htm

Windows Technology Preview: Windows NT Workstation 5.0 Image Preparation Utility

At the Windows Hardware Engineering Conference (WinHEC 98), Microsoft Corp. demonstrated a utility for the Microsoft® Windows NT Workstation operating system version 5.0, referred to as "SysClone." This technology represents a major step toward simplifying deployment for corporate customers and OEMs. It is part of Microsoft's long-term goal of lowering the overall total cost of ownership (TCO) through improvements in compatibility and manageability. For more info, please visit http://www.microsoft.com/ntworkstation/info/sysclone.htm

Get Ready for Windows NT Server 4.0, Terminal Server Edition

Microsoft® Windows® NT Server 4.0, Terminal Server Edition, is a Microsoft Windows NT® operating system product that will add Windows-based terminal support to Windows NT Server and a "super-thin client" to the Windows family product line. Terminal Server brings the Windows experience to desktops that cannot run Windows today.

Terminal Server consists of three components-the Terminal Server (Multiuser Core), the Remote Desktop Protocol, and the Terminal Server Client:

- Terminal Server - Terminal Server is a multiuser server core that provides the ability to host multiple, simultaneous client sessions on Windows NT Server 4.0, and on future versions of Windows NT Server. Terminal Server will be capable of directly hosting a variety of Windows-based desktops. Non Windows-based desktops will be supported through third-party add-on products.

- Remote Desktop Protocol ("T.Share") - A key component of Terminal Server is the protocol that allows a Terminal Server Client to connect to the network and present the familiar Windows user interface to the customer. This protocol is based on the ITU (International Telecommunications Union) T.120 protocol suite, an international, standard multichannel conferencing protocol.

- Terminal Server Client-Terminal Server Client software will allow customers to gain access to 32-bit Windows-based applications from a range of new and existing desktop hardware devices:
  - New Windows-based Terminal devices.
  - PCs running the Windows 95 and Windows NT Workstation operating systems.
  - PCs running the Windows 3.11 operating systems

For more information, please visit: http://www.microsoft.com/ntserver/guide/hydra.asp.

Tuan Nguyen is the new Education Marketing Manager for Microsoft Corporation's Southern California District. He may be reached by telephone at (949) 263-3081 or by e-mail at tuanng@microsoft.com

CEDPA Listservs

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.

SIG - A discussion forum for K-12 information management issues; also used to assist with the planning and announcement of CEDPA SIG meetings.

To join or leave a list, send e-mail to listserver@cedpa-k12.org. Leave the message subject blank. The message body should contain only two words: the word **subscribe** (or **unsubscribe**) 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 to the message.

Network Catalyst Elimnates the Need for Schools to Obtain Multiple Bids

Procurement: Bid incorporates multiple vendors' solutions for school districts.

Patrick Sullivan, Network Catalyst, Inc.

At the heart of learning is technology, and schools are clamoring to secure effective network systems at cost-effective prices. However, beyond simply installing the appropriate network system, exists the rigorous process of researching and obtaining a comprehensive and competitive bid. Moreover, the requirement to obtain multiple bids proves to be a time-intensive process that prolongs the implementation of needed network systems. Network Catalyst, the premiere network integrator, has eliminated the need for schools to obtain multiple bids.

Armed with the industry's leading vendors, Network Catalyst has designed a comprehensive bid that incorporates multiple vendors, DVBE and E-rate standards, creating a "one-stop" shop of products and services for any state-funded institution or government agency. This bid design secured Glendale Unified School District's P1498: Data Communications Bid and Hawthorne School District's 97-98-7: Data Communications Equipment, Services and Supplies Bid. More importantly, Network Catalyst's innovative strategy has transformed both of these bids into "piggybackable" bids, eliminating the laborious process to obtain multiple bids when purchasing data communications products and services.

"Network Catalyst understood the complexity of the bid process, and that we were looking for a bid that was not simply product specific, but problem-oriented. Such an innovative solution, coupled with their excellent reputation gave us faith that they could do the job," stated Patrick Kennedy, Glendale Unified School District's director of purchasing.

In addition, Network Catalyst's solution has transformed both bids into "non-quantity," bids, enabling Network Catalyst to provide schools with all, or part of needed products and services, including the design and expansion of existing technology.

Understanding the need to provide schools with a cost-effective solution, Network Catalyst, for the duration of these bids, will give back 5% on professional services. For example, for $100,000 of products purchased, Network Catalyst provides $5,000 of professional services at no charge to schools. Professional services include: installation, training, troubleshooting and network documentation.

"Network Catalyst offered us the best pricing overall on products; however, we knew that installation would be costly. Their experience and expertise, combined with giving us a 5% discount on services clinched the deal. No other bid incorporated that discount, and in the education field we have to be cost-efficient," stated Gil Mara, director of technology for Hawthorne Unified School District.

Named Bay Networks' Western Regional Partner of the Year, 3Com's Enterprise Solution Provider, FORE Systems' ATM Enterprise Partner, and Cisco's Premier Partner, Network Catalyst offers the full product lines of Bay Networks, 3Com, Cisco, FORE Systems, ADC Kentrox, Liebert, Adtran, Intel and Asante under these Data Communications Bids. For complete pricing contact Patrick Sullivan at 1-800NETCAT3 or visit Network Catalyst's web site at www.netcat.com.

As a result of Network Catalyst's innovative strategy of combining multiple vendors to offer a comprehensive product line, and providing 5% in services, schools no longer need to obtain multiple bids for their data communications needs.

Patrick Sullivan is Education Account Manager for Network Catalyst, Inc. He can be reached at (800) NETCAT3 or by e-mail at sully@netcat.com.

CEDPA Directors In The News

Greg Lindner
Yolo County Superintendent of Schools

CEDPA directors Oswaldo Galarza, Manager of Information Systems at ABC Unified School District, and Mike Caskey, Director of Data Processing at Stanislaus County Office of Education, have been appointed as liasons to the California Department of Education State wide Technology Planning Committee (see related article on page 15 for additional information.) Greg Lindner, Director, ITS at Yolo County Superintendent of Schools, has been appointed CCSESA's Telecommunications and Technology Steering Committee Liason to ECTL (Educational Council for Technology in Learning).

Operations Management

Organization: Goals can be accomplished by empowering people.

George Sullivan, Northrop-Grumman

Editor's note: This is the third and final installment of a three-part series on Network Technology Planning. Part I appeared in the December-January issue of the DataBus, *and Part II appeared in the April-May issue.*

In Part I we discussed the role and importance of strategic planning for the network connection and the Internet Enabled Classroom. In Part II we discussed tactical planning, which is a specific form of Project Management to implement the technologies identified in the strategic plan. In this, the concluding segment of this series, we will discuss operations planning, the 3rd equal leg of our 3 legged stool.

Operations management is not about technology. It is about empowering people to reach specific goals for their organization. It deals with managing the people entrusted to complete the tasks necessary to achieve results.

At the operations level, managers deal with staffing, leadership, and control. This article will concentrate mostly on the control issues involved with a network.

Selecting the right people is critical. Here, technical ability often takes a "backseat" as more fundamental issues surface. "How well does she work with the network engineers?" "Does he take the initiative to complete his tasks without requiring excessive supervision?" These questions and many more like them — the fabric of human relations – is the bailiwick of operations managers.

Yet technology, especially computer network technology, has the potential to greatly ease the coordination efforts required of a manager. Here we refer to the use of electronic schedules, such as *Schedule +* or *Outlook*. These programs facilitate finding common times for meetings and tasks, and allow "peeks" at each others activities. They also have the ability to schedule resources such as conference rooms and/or VTC sessions. However, these tools are installed and then promptly forgotten, or inadequate training is provided for the users. It is a cultural issue within the organization, people must find compelling incentives to learn and use them. Here, the intervention of a supervisor who sets an example by using the program for his or her self is a good idea. People usually want to emulate their leaders.

Controlling is often thought of as a financial exercise, but true managers establish standards of performance, measures of those standards, and feedback mechanisms to correct sub-standard performance.

For the network itself, control has the following aspects:

• **Data Collection about SLAs** (Service Level Agreements) This item is about controlling expectations. Carriers for example often supply numbers such as 99.5% availability. Set up a tracking system (or have your integrator do it) to make sure they "meet their numbers". Most carrier SLAs include penalties if the SLA performance is substandard.

• **Data Collection about Resource Utilization** Get your SNMP based management system to record the utilization levels of key network devices, such as switches, routers, and WAN links. Publish a summary of these (quarterly is recommended) so that all interested parties (especially those who control funding) can see the trends. This helps justify equipment and bandwidth upgrades.

• **Fault Management** Once a problem is noted, have procedures about who will handle it. Maintaining a high level of communications is especially critical at this time, because all everyone wants to know is: "How long will it take?". You should be oriented towards minimizing the escalation of problems and reducing the elapsed time to service restoration. A recovery procedure should be in place if events beyond your control occur. The recovery procedure should be thoroughly documented and rehearsed at least annually.

• **Network Tests** Tests should be performed on a regular basis to insure the integrity of the network. Test results should be recorded in a database so that they may be retrieved as required. Examples of tests would be BER (Bit Error Rate) of communications links. Another test would be latency (time delay) using PING (Packet INternet Groper) packets. Other parameters to monitor are the % of "lost" packets and the number of collisions as a % of traffic on an Ethernet LAN.

• **Configuration and Documentation** Network configuration profiles should be centrally stored. Provision for downloading a configuration to a piece of equipment (or even servers) should be made to effect rapid restoration if hardware is replaced. The need for documentation

(See "Management" on Page 9)

Do Your Switches Really Stack Up?

Doug Snelling, LANNET, Inc.

The price of fixed configuration Ethernet switches has come down dramatically in recent years. The cost per port on today's stackable switches is less than what shared ports once were. Because of these price factors and increasing bandwidth demand, in almost all cases, it makes more sense to install switched ports to the desktop instead of buying shared hubs.

When you are looking around for "stackable" Ethernet switches to put into your wiring closets, pay close attention to how they are stacked. I was reading a recent article by Kevin Tolly, president of the Tolly Group, in the May 4, 1998 issue of Network World and he brings up some very important issues.

There are three main issues that Kevin Tolly cites. And according to Kevin, "all three issues become bigger problems at higher speeds". As we move from 10Mbps to 100Mbps and now 1Gbps, these problems are magnified greatly.

The first problem is lack of bandwidth from switch to switch. In most cases, the switches are linked together with 100Mbps uplinks or ports. While this might be enough for several 10Mbps ports, it clearly is inadequate for ports operating at 10/100Mbps. The solution would be to truly extend the backplane between the switches allowing non-blocking communication within the stack.

In attempting to solve the first problem, some switches use multiple links "trunked" together to form a faster link between switches. This causes the second problem, "overconsumption of ports". As you add ports to the trunk, you take away user ports and still end up in an oversubscribed trunk situation. In addition, the cost per port of the switch goes up as you take away usable ports to add to the trunk. By reducing the available user ports, you will likely need to purchase more switches to get the same number of ports.

The third problem, according to Tolly, is erratic response to congestion. When you have an oversubscribed link between switches, there exists a potential for random discard of packets as the switch tried to contend with the congestion.

As you might expect, LANNET has an answer to all of these issues in the Visage Switching System. With Visage, LANNET combines the benefits of plug and play stackable switches with the flexibility and high-end features of modular switches.

The Visage Switching System is powered by the Exoplane™ 4 Gigabit external backplane. Visage has the flexibility to build a single 4 Gigabit switch from multiple Visage units in several combinations. Up to 4 Visage units may be combined with the Exoplane interconnector mixing 10Mbps, 100Mbps, ATM, and 1Gbps in a single stack.

The Visage Switching System addresses all three issues that Tolly talked about. The Exoplane solves the first issue of bandwidth between switches. It also addresses the port consumption issue by allowing all of the user ports to be used for the users. The Visage Switching Systems architecture takes care of the third issue – congestion management. Visage guarantees the delivery of each and every packet by using highly effective flow control. Even on the busiest switch ports, no packet loss is ensured by the unique active congestion management mechanisms built into every Visage VLSI switching engine.

LANNET is very interested in working with California's Public Education Technologists and welcomes inquiries about our products or technology in general. Check out our web site for more information. (www.lannet.com)

Doug Snelling is the Territory Manager for LANNET in Southern California. He can be reached by telephone at (949) 224-0413, by FAX at (949) 752-6641, and by e-mail at dsnellin@lannet.com.

Management

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is well known; I won't dwell on it in this article. What may help are automated network "discovery" tools, that provide a drawing based on information collected directly from the network. Examples here are NetSuite and Netformx.

George Sullivan is Senior Network Architect at Northrop Grumman. For further information, contact Bob Shupe, Major Accounts Manager at Northrop Grumman, for additional information or followup. He can be reached at (714) 838-9849, by FAX at (714) 838-9849, or by e-mail at bobshupe@aol.com.

Using Windows 95 Policies With a Proxy Server

Software: Districtwide implementation made easier through Office 97 templates.

Terrell Tucker, Panama-Buena Vista Union School District

The Panama-Buena Vista Union School District has been using an InterGate Internet server for over two years. Last summer, we made the switch to the Microsoft Internet Explorer as our District "browser of choice". This was a dramatic change since our 500 teachers had already received training on Netscape Navigator. Actually, the decision was made easier by our Internet presence being controlled by a proxy server.

The 97/98 school year marked the first time we would use student logons to access the Internet. Combined with the fact we control desktop access with Windows95 policies and profiles, this became a difficult issue. With Windows95 policies and profiles enabled, individual user settings are contained in a file named user.dat, which resides in each user's network home directory. This is especially important since the proxy settings are also stored in the same file.

We were faced with the impossible task of configuring over 12,000 students to allow access through the proxy engine. Without that configuration, students would have to access the Internet through generic user accounts. This would work fairly easily if it weren't for the fact that many students would then share a common home directory, allowing them to delete other's work and even cheat on assignments by "borrowing" another student's work.

This is when we made our decision to switch to Microsoft Internet Explorer. I heard about the administration kit that Microsoft made available for IE 3.02. While learning how to use the kit, I heard about one that Netscape had made available for Navigator. The Netscape solution was not as attractive since it required the use of the Communicator 4.x product. We found this to be unacceptable since numerous schools still use computers with a 486SX processor. The IE 3.02 program outperformed Communicator on these machines, so we decided to use it on a District-wide basis.

Things have worked quite well throughout the District until a recent purchase of web filtering software. I learned one week ago that our InterGate would soon be dealing with the proxy function through a different port number. This was a disastrous revelation for me since it created the need to re-install a new customized version of IE 3.02 on **every computer in our District**! I was devastated by the realization of the amount of time required to carry out this task.

Not long after this knowledge came my way, I was the recipient of a miracle! One of our junior high lab teachers (who happens to be techno-literate) told me about some new policy templates available for Office 97. Upon closer review, we realized the new templates contained settings for proxy servers. After testing at that school, it has been confirmed that the proxy setting even controls access for computers where we have installed the customized version of IE 3.02! All of a sudden, my summer appears brighter than ever since I no longer have to spend four to five "person-weeks" to re-install software that currently works.

We have also realized that another problem has been lessened through the use of these new templates. It has always been difficult to deal with the problem of students returning a signed acceptable use policy in order to gain access to the Internet. Once the acceptable use policies are turned in, we were faced with the task of enabling proxy access for that student. It didn't take long to realize we could accomplish this by installing the customized version of IE 3.02 for a generic student, then copying that user.dat file to the appropriate student's home directory. The next time the student logs onto the network, he/she has immediate access to browsing the Internet. However, this was a somewhat cumbersome process, to say the least.

The Office 97 policy templates now give us the ability to define two student groups – one with the proxy settings enabled and the other with them disabled. Then, when a group of students turn in a signed acceptable use policy, we simply make a mass change of the primary student group in User Manager of NT.

Windows 95 policies and profiles can be installed from the \admin\apptools\poledit folder on the Windows 95 CD. Office 97 polices can be obtained from the Microsoft web site as a file named "SetupPol.exe". After decompressing the file, the new templates and updated

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Novell's GroupWise 5.5 Gives Companies the Ability to Harness and Manage the Power of Corporate Information

Software: Suite offers enhanced document management, inter-company collaboration and Internet standards and security support

Joe Rodehaver, Novell Corporation, and Warren Williams, Ramona Unified School District

Novell, Inc. has announced a beta version of GroupWise™ 5.5, Novell's premier collaboration product for corporate networks and intranets. An enhanced business-class, collaboration tool, GroupWise 5.5 gives network users immediate value through improved tools that gather, access and communicate corporate information. It does this through expanded information manageability and inter-company collaboration capabilities. Users will benefit from support of industry-standard Internet security, improved open Internet standards support and Novell's continued commitment to offer the lowest cost of ownership for its networking solutions. In addition, this latest version of GroupWise will include increased functionality of E-mail, calendaring and scheduling, and enhanced performance and administrative capabilities while remaining the easiest collaboration solution to use.

This latest, enhanced version of GroupWise is an important implementation step in Novell's strategy to deliver the most scalable, reliable and powerful collaboration solution as one of the pillars of its intelligent networking platform, said John Gailey, director, Novell Collaboration Services Group. GroupWise 5.5 provides a high-performance, Internet-ready collaboration solution that lets businesses easily manage the daily deluge of information they must effectively deal with in order to be successful today.

GroupWise allows users to manage all information types in the enterprise, from spreadsheets, word processor files, graphics, E-mail and calendars from a single point. Users receive immediate value from the new features of GroupWise 5.5 in the form of powerful, easy-to-use tools that strengthen and support business processes.

Expanded Information Management and Inter-Company Collaboration

GroupWise 5.5 incorporates new and expanded functionalities that lets users leverage the power of traditional document management via the GroupWise Universal Mailbox. Enhanced calendaring expanded calendar printing options and appointment descriptions let users accept an appointment or see the results of a busy search with such specifics as "free," "busy," "tentative appointment" or "out of the office." Calendar views have also been expanded to include a multi-user view and a month view.

Full-Text Indexing

All incoming information, including E-mail, documents, tasks and scheduling, is full-text indexed, allowing the user to more easily view, prioritize and manage the daily flow of business information.

Dynamic References/Attachments

GroupWise systems dynamically recognize when a user sends a document reference to users outside of their GroupWise system and attaches the document for those users. Document property fields have been expanded to allow users to relate property fields to one another, enhancing contextualized retrieval of documents.

Document Echoing

Documents are dynamically "echoed" from a GroupWise library to a user's local hard drive, giving users access to all of their documents and network information even if the user is remote.

Enhanced Internet Security

GroupWise 5.5 now gives users the confidence to send business critical information across the Internet securely, while still maintaining the full encryption security already provided within GroupWise systems. GroupWise 5.5 users are now enabled to sign, encrypt, decrypt, authenticate and access non-repudiation capabilities across the Internet through Entrust 3.0 for S/MIME and/or PGP via the respective products which are enabled for GroupWise. Users may also set defaults to sign and/or encrypt all messages.

Improved Open Internet Standards Support

The upcoming version of GroupWise provides users with a combination of extensive, out-of-the-box Internet and intranet functionality that enables them to fully leverage the Internet and corporate intranets for E-mail, document management and collaboration processes. GroupWise WebPublisher is integrated into this latest version and allows users to publish documents directly to

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Groupwise

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the Internet and corporate intranets and dynamically share information while maintaining the robust security, concurrency and version control of GroupWise document management. GroupWise 5.5 further supports open Internet standards through native Internet addressing and HTML viewing. Native DNS-based Look-up and routing have been added as a first step toward full inter-company communication, allowing for a dynamic link between unconnected GroupWise systems that retains the rich attributes of shared information such as tasks, E-mail or calendar items. Through Intelligent Content with HTML and Embedded Scripting, GroupWise lets users enrich their GroupWise environments through the creation of individualized scripts or forms in industry-standard languages such as VisualBasic and JavaScript. These languages allow users to access and manipulate information in the GroupWise repository.

GroupWise 5.5 supports the vCard electronic business card format, which lets users exchange information and instantly create a new GroupWise address book record. Users may also send and receive vCard signatures via E-mail.

Commitment to Total Value Networking

As with other versions of GroupWise, this latest version lowers total cost of network ownership by providing customers with the immediate value of deploying one of the easiest to use collaboration solutions. All the enhanced GroupWise 5.5 features designed to expand the information management capabilities of Novell's collaboration solution can be easily accessed and immediately utilized through the familiar and powerful GroupWise interface.

GroupWise 5.5 further lowers the total cost of network ownership by leveraging Novell Directory Services™ (NDS™), reducing administrative costs and keeping system maintenance to a minimum. NDS helps to reduce administrative time and effort by providing enterprise-wide administration tools that automatically replicate all GroupWise object changes on the user's client/server platform of choice. GroupWise 5.5 also saves administrative time through automatic database maintenance and link scheduling.

GroupWise 5.5, Novell's premier application for NetWare™ and NDS, continues to expand upon the Internet standards support introduced in GroupWise 5.2, and offers sophisticated collaboration functionality through GroupWise WebPublisher and WorkFlow Professional™ capabilities. GroupWise remains one of the most scalable collaboration solutions in the market, powerful enough to easily meet large scale enterprise needs, yet easy enough for small businesses to use and maintain. Further addressing network users' concerns, GroupWise 5.5 has been thoroughly tested and meets all Novell Year 2000 readiness specifications.

On the client, GroupWise 5.5 will support Win 95 and NT, Win 16, Mac and UNIX. On the server, GroupWise 5.5 will support NetWare 3.X, 4.X and 5.X, NT and UNIX. Upgrade and pricing details will be provided at the time of first customer ship.

Additional information about GroupWise 5.5 beta can be accessed on the World Wide Web at http://www.novell.com/groupwise.

Information about Novell's complete range of products and services can be accessed on the World Wide Web at http://www.novell.com.

Novell, Novell NetWare and GroupWise are registered trademarks. Novell Directory Services and NDS are trademarks of Novell, Inc. All other registered trademarks and trademarks are the property of their respective holders.

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Policies

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system policy editor can be installed with the same procedure as the original Windows 95 system policy editor. The updated editor also allows you to open multiple templates to give you easier control of the many policies that determine user access levels.

Even with its misgivings in the security arena, Windows 95 has turned out to be a great timesaver, especially in the networking process. By combining policies and profiles with Windows 95 clients and Windows NT 4.0 servers, we are able to provide a reasonable level of access control. In the process, we enjoy the relative ease of connecting network clients and managing them on an ongoing basis.

Year 2000

(Continued from Page 1)

nected to equipment. Examples include elevators, card-key security systems, and telephone PBXs.

Let me make a comment about consultants who contact you looking to charge premium prices to conduct a Year 2000 inventory and assessment. Often, if you spend a little time on the Internet, you can find a web page that contains excellent, accurate, ***free*** information about your equipment. For instance, we often hear about elevators and the Year 2000. Consequently, I used the Internet to investigate whether or not there really was an elevator problem. It took me one telephone call and about two minutes to find a web site maintained for and by elevator professionals. What I learned was that although many new elevators do contain computers, and those computers do monitor the day of the week, they seldom monitor the date. Those that do, usually do so via a separate computer attached to the elevator controls. This standard personal computer would require the same Year 2000 BIOS upgrade any older machine in your office might need. You should check out your own manufacturer's web site about the Year 2000, however.

Concerning those who are in denial because they have recently bought, or built, a computer or application system. Just because it is new, does not mean it is Year 2000 compliant. At a recent presentation, a fellow from the audience told me he recently installed an NT server. Soon after that installation, he learned that NT's default date "window" assumed that if the two-digit year is greater than or equal to "50", NT assumed the century value is "19," otherwise, it assumes the century value is "20." One of his applications depended on NT's interpretation of two digit years, and was generating database entries containing birth years occurring in the future, i.e. 2049.

Similarly, because it is a new computer new is not a guarantee that it is Year 2000 compliant. Last October, the Department of Education received a letter from one of its personal computer manufacturers, saying that as of October 1, 1997, all of their new systems were "Year 2000 compliant." That meant that all of the computers purchased from this manufacturer, including four generations of Pentium machines, were not Year 2000 compliant. To help you avoid this problem, in December the Department of Education sent each school district language that could be used in contracts and purchase orders. That language requires vendors and contractors to guarantee their products to be Year 2000 compliant. A copy of that letter is available on the Department web site, www.cde.ca.gov/y2k.

Also falling into the denial category is "I don't use the date that is in the record, so I'm okay." You must first ask yourself the question, "Does anyone use the date?" Since systems share databases, if anyone requires a date format change, then everyone must accommodate the same change.

THE "WRIGHT STRATEGY"

The second reaction to the Year 2000 is to adopt the "Wright" Strategy, as in Wright Brothers. I am sure you are familiar with the Wright Brothers' computer testing methodology: "We test systems the way the Wright Brothers test an airplane: put it together, push it off a cliff, and if it crashes, start all over again." I have received two calls from individuals saying that their Year 2000 strategy is to fix anything that crashes. I have to admit that there is a strong temptation to adopt the Wright Strategy, since we are all busy and it seems to ensure that we won't waste our time fixing things that really are not a problem. The problem is, some systems may require several days or months to fix, and those waiting for the Payroll System or the Class Schedule System will not be as patient as we might wish.

The Wright Strategy also leaves us vulnerable to the Slow Death Syndrome mentioned earlier. Clearly, everyone is going to back up their databases on December 31, 1999, but many will forget to back up their Year 2000 input transactions. Since the Wright Strategy is awaiting a violent crash before acting, and since the Slow Death Syndrome does not provide you with a violent crash, you continue in ignorance until end-of-year processing, when you learn your database is corrupted. You can restore the database to its clean 1999 status, but you have no transactions to recreate the database after you fix the Year 2000 problem.

MAÑANA

Finally, we have the "mañana" reaction to the Year 2000; you can do it tomorrow. This reaction is easy to understand, since we have more than eighteen months to fix everything, right? Not right! Remember that it is always later than you think. The computer chips and BIOS changes might wait until December 1999, but many computer systems will fail long before the Year 2000 gets

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Year 2000

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here. We, in the Department of Education, were fortunate in that the Year 2000 caused our Budget System to crash in 1995 because we did five-year projections. That crash gave the Department a necessary Year 2000 wake up call. What is important to remember is that you must ask the question, "How far into the future does my system project?" Think about things like expiration dates when you are asking yourself this question. The answer will tell you when you could be vulnerable to Year 2000 failures.

Also under the "mañana" heading, is the 1999 problem. In the "old" days, a programmer would often use "all nines" to flag certain conditions, such as end of file. I can visualize situations when systems receiving transactions dated September 9, 1999, might start doing some strange things. In the same vein, do not forget that the Year 2000 is a leap year, and that February 29, 2000, is an instruction day, (it is a Tuesday.)

In addition, while we are talking about why you should not wait until the last minute to start addressing the Year 2000, I am certain that somewhere out there exists a system written in a language, or a version of a language, that is no longer supported by the vendor. The reason you have not upgraded it is because the hardware lacks the horsepower to run the new version, and there is too little money to upgrade the hardware. Now, because the Year 2000 is requiring a change, you must upgrade both hardware and software before you can address the Year 2000 issues.

FINAL WORD

Those are the reaction highlights to the mention of the Year 2000. The only parting suggestion I could make is to perform thorough testing. Remember that you must test that your systems will continue to operate flawlessly in 1999; that they will transition to 2000; and that they will continue to perform flawlessly in 2001. Testing application systems for these three conditions is problematic, since to test adequately, you must create a hardware environment that believes it is already the Year 2000. Make certain that you fully test all end-of-year processing and any special processes that might be required.

I would be interested in hearing any Year 2000 "was stories," since they help to enliven my presentations. The Department's Year 2000 web page has some information that might be useful in your Year 2000 projects and you can always reach me at 916-323-8538, or by email at rnelson@cde.ca.gov.

Career Advancement for CEDPA Technology Professionals through Education

Oswaldo Galarza, ABC Unified School District

Are you looking for that dynamic District, County Office of Education, University or private sector job in order to make that great career move? Perhaps you are not in a management position but would like to move into management. At any rate, today's technology job market is highly competitive. A bachelor's degree does not always guarantee that your application will be considered.

CEDPA has contacted several universities including the University of Southern California (USC) and Pepperdine University to begin a dialogue that would lead to the creation of an advanced Technology degree. This degree would be customized for CEDPA members. Many CEDPA members are classified technical staff who direct the operations of most Information Systems and Technology departments across California. The responsibilities of these leaders have expanded to include support of the instructional needs of students and districts across the state. In short, we support the technology, infrastructure, and strategic planning. Although our members are not usually involved in incorporating technology into the curriculum, some exposure to this area would benefit CEDPA members.

Both USC and Pepperdine are interested in pursuing such a program. To proceed with this project, I would like to find out the level of interest in this program, which would be structured to meet the needs of CEDPA members. Alternatives for classes might include the Internet, video conferencing, classes offered during nights and weekends and in Northern and Southern California sites. I am looking for possible participants, as well as ideas and suggestions. I am also interested in suggestions for a funding mechanism for which we can apply as an organization to assist our members in this endeavor.

Please send your suggestions and/or interest in the program, intent to participate, or comments to Galarza@abcusd.k12.ca.us or Oswaldo Galarza, ABC Unified School District, 16700 Norwalk Blvd., Cerritos, CA 90703 or fax them to me at (562) 802.0338.

Developing an Agencywide Technology Planning Guide

Oswaldo Galarza, ABC Unified School District

The recent updating, creation and submision of E-rate discount applications, the Digital High School grant and other grants requiring technology plans has led to the obvious conclusion that unrelated multiple technology plans are being developed and, in many cases, submitted by different schools, departments and/or individuals within an agency. Coordination between school plans and district plans is virtually non-existent. The majority of the plans do not include all the elements that demonstrate coordination between the educational, technology, and business areas of the applicant districts or schools.

The California Department of Education (CDE) is working on the goal of a single district technology plan which could serve as an active document that would be submitted with all technology applications. Grant specific requirements could be added as addenda or appendices. Existing and future technology grants at the state level would rely on these plans as a method of awarding grants/funds.

With these issues in mind, the CDE is in the process of creating a technology planning guide. This document would serve as a guide for districts and counties to develop technology plans. In addition, it would serve as a mechanism for the CDE and counties to approve such plans. Jackie Lamb, Visiting Educator to the CDE, who has been in charge of E-Rate coordination and planning statewide, chairs this group. Group members include representatives from:

- ECTL - Education Council for Technology in Learning - Selma Sax
- CSBA - California School Board Association - Kari Becker
- CTAP - The California Technology Assistant Project - John Lindsay
- CUE - Computer-Using Educators - Gail Lovely and Harvey Barnett
- CCSESA - California County Superintendent Educational Services Association - Jeff Bowser
- CISC - Curriculum and Instruction Steering Committee of CCSESA - Carol Pugmire
- Tech Corps - John Cradler, and
- CEDPA - California Educational Data Processing Association - Mike Caskey and Oswaldo Galarza.

As your representatives, we would like to receive your suggestions regarding technology (or any other) items that should be included in a good technology plan. Please send your suggestions and/or comments to:

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Modesto, CA 95355
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FAX (209) 525-5112

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4CNet

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variety of educational locations affiliated with various CCC districts that are either not connected to a network or have very limited connections currently. CCC Chancellor's Office staff reported that in their first progress meetings with CCC sites regarding 4CNet implementation, the opening comments were something like: "Yes the campus connection is great, but when are you going to help us connect the rest of our centers?" This demand exemplifies the realization by 4CNet, like other educational networks of the significant shift in campus dependence on network service and reliability. As little as one year ago, a campus Internet connection was an instructional tool with limited to moderate use. Today it is a mission critical tool with daily application. With that mission critical status in mind, 4CNet continues to develop plans for improved functionality, service, and reliability for the CSU and California Community Colleges.

Mike McLean is Director, Customer Support Services for 4CNet, a networking initiative of the Califonria State University Chancellor's Office, Information Resources and Technology-Telecommunications Infrastructure Support Services (IRT-TISS). He can be reached by telephone at (562) 985-9637 or by e-mail at mclean@csu.net.

Oracle

(Continued from Page 4)

ability to manage curriculum and student progress. Those IT managers in attendance were impressed by the organization and presentation of this product as it is currently developed. Oz's web page provides this information:

"Oz New Media is a multimedia company delivering on-line quality education from kindergarten to grade 12 curriculum subjects anytime and anywhere! At Oz we believe that every child has the right to a quality education. Going on-line with our products helps educators use the power of the Internet to teach effectively, and students to learn enthusiastically, regardless of learning styles, physical location, or socio-economic status. Dedicated to the notion that technology can be harnessed to provide outstanding instructional support, and a superb learning experience, Oz New Media was established in 1994 in Edmonton, Alberta Canada. As a high-energy company, Oz develops multimedia products designed to replace textbooks in classrooms. Drawing on the backgrounds of educational publishing, design, software development, programming, and sales and marketing, the company's staff devotes themselves to creating and delivering exciting electronic learning materials through Oz's Wisdom Bridge™."

Attendees were also fascinated by the depth of development of the Oracle suite of products as presented by Cameron Orourke. Oracle technology, including Network Computing Architecture (NCA), can have complex effect on information technology as it is applied in the K-12 arena. It portends a large potential saving in technology infrastructure costs particularly at the desktop. NCA represents the newest wave of networking models with extensible clients, application servers, and database servers situated ubiquitously throughout the enterprise.

Oracle presents a strategy that needs to be considered by all IT professionals. Look for future information about company initiatives in the K-12 market in the *DataBus*. You can visit Oracle, OZ and download Cameron's presentation at the following addresses:

Oracle Corporation
http://www.oracle.com
http://education.oracle.com/
http://education.oracle.com:8000/html/home.htm
http://education.oracle.com:8000/html/about0.htm

Cameron Orouke - http://govt.us.oracle.com/~corourke/

Oz New Media - http://www.oznewmedia.com

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