

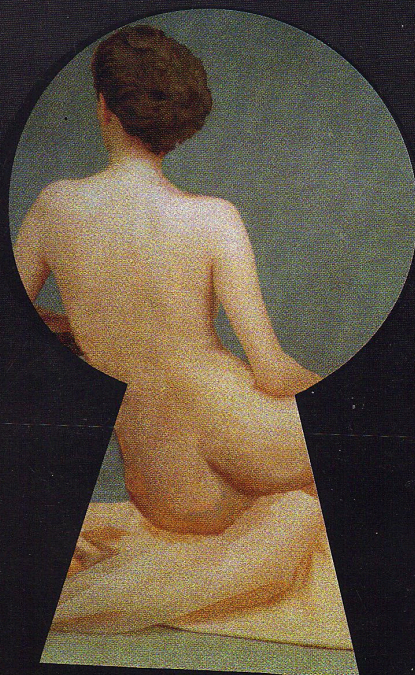
FIBER OPTICS • INTERNET BUSINESS • O'REILLY • SELL SIGNALS

# SONOMA BUSINESS

CELEBRATING 21 YEARS  
JANUARY 1997 \$3

**smut.com**  
Drives  
the  
Internet

page 12





# SELL Signals

Bill Erikson needs to sell his business. Three buyers have shown interest. Erikson hired a mergers and acquisition attorney to help him figure out which buyers are sharks.

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**CELEBRATING 21 YEARS!**

# SONOMA BUSINESS

January 1997

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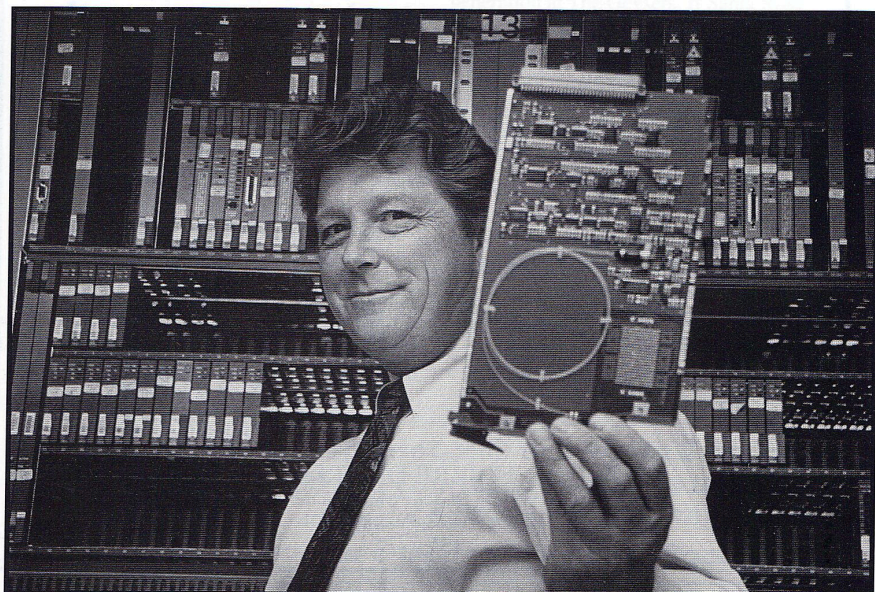
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Pornographic traffic still accounts for half the Internet transmissions, and such scruffiness helps to drive technology forward, a computer expert says.

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DUNCAN GARRETT PHOTOGRAPHY



*"You have to let some scruffiness in there. If you want everything neat, you will be deprived of all the good stuff."*

**T**echnology glides forward in peculiar ways. Picture the worldwide network of sophisticated computers, all linked by modems and phone lines with billions of bits of information whizzing in every direction around the globe. An intellectually curious traveler on the Internet can dip electronically into potent information pools managed by the Library of Congress, the Smithsonian Institution, the United States Patent Office and *The Wall Street Journal*.

Yet despite abundant hype about exploding commercial uses of the Internet, more than half the traffic on the Net is transmission of pornographic images, according to a top local computer scientist. The desire to send these images with higher pictorial resolution and greater speed has

been the primary engine of technological advance for years, according to George Ledin, Jr., chairman of the Department of Computer Sciences at Sonoma State University. "Most of the use is still dominated by photographs of naked body parts," Ledin says.

"The fact that there is this traffic, this perversity, that is the fuel for development," Ledin says. In effect, technology rides on the back of sex. "It's very strange," he says. "People will not pay \$10 to download an encyclopedic document, but they will pay \$200 for pictures of body parts."

Ledin compares the development of the Internet to the development of the home video rental market. "In the beginning, adult categories were very big," he says. "It took a decade or more to shake it down to where Blockbuster could make money at it."

Some Internet users fancy that their travels in cyberspace are anonymous when they're grabbing megabytes of nudity through the phone lines. In fact, every computer leaves an electronic imprint when it visits any other site on the Internet. "It's not terribly discreet," Ledin says.

Much of the pornography is downloaded onto business computers during business hours, he says. "It's General Motors and IBM," he says. There, employees "are sitting in office cubicles, downloading naked body parts."

Last year Ledin surveyed 50 major corporations, asking them about their policies governing appropriate use of computing resources at those companies and what guidelines they provide employees about such use. Boeing, for instance, reported that it trusts employees entirely and has no policies on computer use; 3M notifies its employees that the company monitors computer use. Other companies have installed electronic caches to store files that are frequently downloaded by employees.

"If I were to visit the cache of General Motors, in addition to plans for next year's



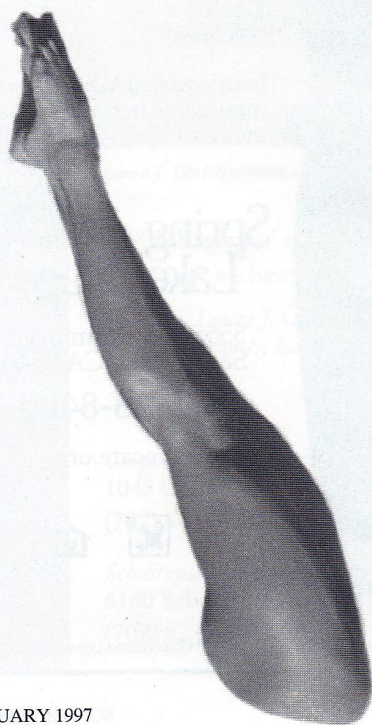
cars they have huge gigantic files of naked body parts," Ledin says.

The downloading of pornography is so rampant at big companies that reining in the practice is nearly impossible without a harsh censorship approach, Ledin says. Catching employees who download pornography during business hours is tough, he says. One obvious strategy a company might adopt is to

*Much of the pornography is downloaded onto business computers.*

have a computer monitoring program that flags any downloads that have "sex" as a suffix. But that strategy is primitive. "The majority of photos and video clips are hidden under very respectable names," he says. Some pornographic Internet pages are run from universities by students, using university computing resources, he notes, and he routinely warns students at SSU when he catches them misusing the university's computers. "We say, 'This picture is inappropriate,'" he says. "The meat ax approach is to say no student will be allowed access to the Internet."

"You have to let some scruffiness in there," Ledin says of the rapidly developing Internet. "If you want everything neat, you will be deprived of all the good stuff." Ledin likens the unfettered aspects of the Internet to the openness of a democratic society, where weird folks have their say. Tolerance for scruffiness and sleaze is a necessary part of an open system, Ledin says, and the freedom in such a system is good for technology.





# smut.com Drives the Internet

Pictures of naked body parts  
consume half the online realm while  
they propel technology forward.

*An interview with George Ledin, Jr.  
Chairman, Department of Computer Science,  
Sonoma State University*

*by James Dunn*

When media reports surfaced a couple of years ago about the ease of access to pornography via computers for adolescent boys, numerous software programs hit the market promising to curb access to smut. But none of these programs does a creditable job of halting the flow of pornography online, Ledin says. "It's so easy to bypass," he says. "Anyone who sunk money into these software programs put money down a gopher hole." The problem of kids accessing pornography through the Internet has to be solved through human education, he says.

Ledin spends an hour or two a day on the Internet, he reports, but he's very specific about his travels. "I know all the domain names I am interested in," he says. "I don't go around doing the totally touristy browsing that some people do. I am hardly a tourist on the Internet."

Ledin was one of the early users of the Internet, which formerly was known as the Arpanet more than 30 years ago. "I cut my teeth on computing in the late 1950s and 1960s," he says. Back then, most users were computer scientists and the Department of

Defense. The files transferred were entirely text, and even those files, tiny by today's standards, took hours or days to download. "It was decidedly user-unfriendly," he recalls, "even user-hostile. The phone lines were noisy and dirty. Now we are in a mindset where someone who is a total newcomer finds something interesting on the Web and expects an instant download.

"I don't know very much about the Internet," he says, even though he's an expert on it. "People who have been doing computing for 35 years are spooked by the



avalanche of stuff out there."

Computers surround Ledin: he has seven computers at home, all linked in a network. "I'm unusual," he says. "Most people will not set up a network in their own home."

Access technology from the Internet to homes is developing rapidly. The cable network that is used now to deliver television signals can also carry Internet traffic by using a special modem. But Ledin expects the conversion to carrying Internet traffic may be slow because cable companies are accustomed to the pay-per-view revenue, he says. "They want to deliver content."

Wireless links to homes are becoming

available in certain areas although the "wireless ethernet" is susceptible to interference, he says. He expects a shakedown period of about two years before the hardware that allows a wireless ethernet finds a standard design for the industry.

Ledin predicts a massive shakeout among Internet service providers, cable companies and telephone companies. Internet service providers will only survive in the interim, he predicts. In addition, he sees a market squeeze on Internet providers such as America Online, CompuServe and Prodigy. Much of the traffic on these providers is driven by prurient interest, he says, with the providers serving as

*The traffic is driven by prurient interest, with providers serving as cyberspace singles clubs.*

cyberspace singles clubs. "It's sex chat," he says.

For the Internet to gain acceptance as a mass communications technology, the way the telephone and television are, access will have to be dramatically simplified, Ledin says. "Go to the post office," he says. "Many people in line still don't know the basics of mailing something—the difference between certified mail and return-receipt mail, how to prepare a package for priority mail." Such people stand in line to get help because they don't know how to do the mailing themselves. "To deal with an Internet service provider is a quantum jump above the post office," Ledin says. "Most people have heard of the Internet but to expect them to log onto it" is asking the improbable.

Computer technology in the United States is the most advanced in the world, Ledin says, but the telephone infrastructure on which most Internet traffic rides is outdated, based on copper wire. The wire is fine for sending conversations, but it lacks the band width to carry massive quantities of data needed for video and graphics.

In Bolivia, Peru and other developing countries, new installation of telephone equipment is state-of-the-art, often using fiber-optic lines that readily carry immense quantities of data. In effect, these countries have leapfrogged into 21st century technology, Ledin says.

An expert on computer viruses, Ledin describes thousands of viruses that infect IBM and compatible personal computers, but only about a dozen that infect Macintosh computers. "It's a cottage industry" writing viruses for PCs, he says. Many software companies produce anti-viral software that is only "as good as last year's virus," sending code writers back to invent ever-more-wily viruses. "It's a never-ending spiral," he says, "a constant game."

The PC platform run by Microsoft's disk operating system (DOS) and its various incarnations of Windows is far more vulnerable to virus attack than Macintosh, Ledin says. "It's easier to screw it up. It's like a building design that invites certain

## Electronic Ease.

### The Merchant Bankcard Program from NBR.



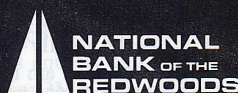
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problems. The operating system has various layers. In the PC, these layers are attackable. In the Macintosh, the operating system is very tight. The Mac operating system itself resists viral attack." The last reported Mac virus was discovered about two years ago, he says.

"Something tight and poetic is bad for viruses but also bad for business," Ledin says. The comparative sloppiness of the PC operating system may invite viruses, but it's good for business, he says, noting that MS-DOS-based computers dominate the marketplace, with far more software written for them than for Macs.

The openness of the PC operating system and its vulnerability to viruses is comparable to the openness of the Internet and its vulnerability to pornographic traffic. "We can tolerate a certain amount of mischief," he says. "In a perverse way, it helps the business itself."

Ledin expects commerce online to develop the way it has for television and radio, with practically free access and content supported by paid advertising. Transactions via the Internet may be made secure by use of encryption software, Ledin says, or by use of trusted third-party intermediaries so that the buyer pays the third party, and the seller receives money from the third party. "The Internet is not yet Macy's or Sears," he says. Mail-order operations already have adapted to the online marketplace, he notes, by putting their 800 numbers on Internet pages and conducting transactions as they always have. Only the act of viewing the merchandise takes place online.

The Internet could be adapted to provide daily updates of prices at various retail outlets, Ledin suggests. For instance, a shopper could upload a list of grocery items he or she intends to buy. A research service could search prices for those items at various stores in a local area and tell the shopper which store will minimize the total bill for the items. Or the service could show the shopper how to make purchases at more than one store and bring the total down even further by taking advantage of specials at markets.

The problem with such a research format is how to get the information from stores and how the research company would make money. "It's a lot of work, and what's the payoff for someone who does it?" Ledin says.

Nowadays, the search engines on the Internet are crude, and most searches bring up lots of debris along with a pick of sites the user wants to visit. "They give you all kinds of mumbo jumbo," he says.

Ledin sees the potential for using the Internet in publishing textbooks chapter by chapter, with students paying for each chapter

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with credit cards as they receive it. Still, protecting such online sites from copyright infringement is a problem, he says, because dishonest users might download one copy and then sell bootlegged copies to other students.

Small computer programs that resemble viruses can be embedded in published material in efforts to protect intellectual property, Ledin says. These "good viruses" can be written to delete a file if more than a set number of copies are made, with warnings that flash on the screen of someone who is taking written material without paying for it.

Using computer viruses to protect intellectual property online might work

technically, but the strategy might backfire in terms of public relations, Ledin warns. "It has to not be viewed as a negative. Sometimes the best technical solution will not play very well in the PR arena."

The likelihood that Internet magazines and books will replace printed versions is remote, Ledin says, unless laser printers are developed that can print at 1,200 dots per inch, 100 pages a minute and cost \$500 or less. So far, with Internet publications, "the browsability is not there," Ledin says. He describes the computer screen as a periscope used to obtain information, and the periscope has severe limitations compared to print.

**The PC platform  
is far more  
vulnerable to  
virus attack.**

"Hard copy allows instant access to any part of it," he says. "I can lay all the magazines I want on my desk top and look at them all" in the time it might take to download one picture on the computer. "Once I pay my dollar for the magazine, I can rip out a page. The printed form, while cumbersome, has a lot of advantages. Books and magazines are not going to disappear any time in the future."

Soon software will be regulated by the federal government much the way the pharmaceutical industry is, Ledin predicts, especially as more expert systems software is used to handle such complex matters as screening loan applications. If a corrupt programmer were to write a program for screening loan applications and add a section of code so that applications with certain elements were always accepted, the programmer or accomplices could conceivably obtain loans without being qualified. Now, anyone can write and sell computer programs without licensing. "We are enjoying or suffering this period of amateurs. It's the Wild West. Regulations are looming on the horizon," Ledin says. "The software industry will be like the FDA."

Software will especially need regulation as it affects transactions at automated teller machines, with credit cards and trading in securities. For instance, Ledin says, when a programmer designs a system that scans markets and beats everybody else trading stocks, reaping a \$100 billion profit, "people will want a level playing field" and regulations will ensue.

Negligence lawsuits against software programmers will also proliferate, Ledin predicts. Many companies hired programmers years ago to design systems and now find themselves scrambling to fix the so-called "millennium bug"; the programmers saved a few bytes of computer memory by using just the last two digits of the year portion of a date—"96" instead of "1996." Now the programs must be rewritten using the full year.

Programmers using such a shortcut did not have to reckon with the potential consequences of their actions, Ledin says. "It's negligent design. The effort (to enter four digits instead of two) is minimal. The consequence is billions of dollars." Once programming standards are established, poor design would expose the software developer to malpractice lawsuits, he says. □

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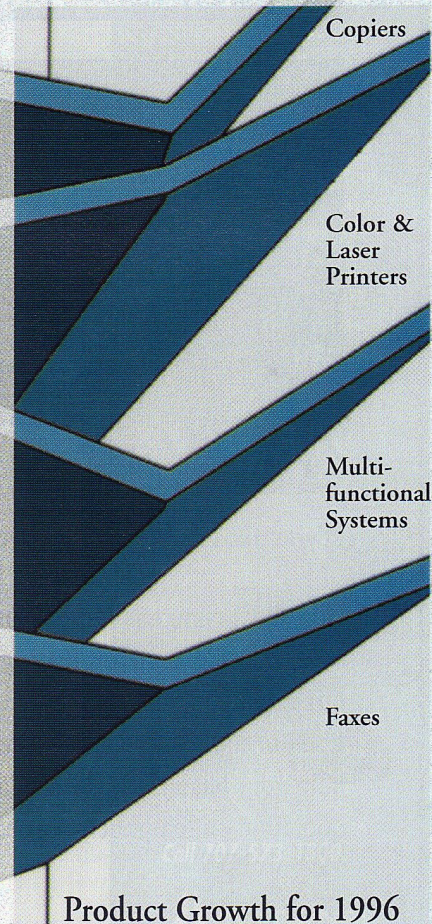
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## E-mail and World Wide Web Drive the Internet, Not Smut

I am writing to express my disappointment with Sonoma Business magazine for the terribly misleading article in your January issue—"Smut.com Drives the Internet." I am amazed that an intelligent man like Mr. Ledin would continue to propagate the myth that smut drives the internet. I am equally dismayed that your magazine would print such an unsubstantiated viewpoint, particularly from someone who admits "I don't know much about the Internet" (p. 13).

Smut certainly exists on the Internet, just as it exists in the video rental industry and the magazine industry. Suggesting that smut drives the Internet is just as silly as suggesting that smut drives the video and magazine industries.

Most industry experts would agree that it is electronic mail and the World Wide Web which drive the Internet, not the Usegroups which are the primary means of transferring smut over the Internet.

In my position as an Independent IS Consultant, I have helped many clients connect to the Internet. Not once have I been asked where the smut can be found, nor have I ever seen anyone accessing it while using a company computer. On the contrary, my clients are more concerned with electronic mail, doing research and investigating marketing opportunities: three aspects of the Internet that really concern business and which should have been the cover story for your magazine.

Todd Eastman, teastman@eastman-is.com  
Eastman Information Services

**Editor's Note:** Mr. Ledin, chairman of the computer sciences department at Sonoma State University, is obviously an expert on computers and the Internet, which he has watched develop from its infancy. His comment about "not knowing much about the Internet" is meant as irony; his point is that many so-called experts hold themselves out as knowledgeable about the Internet without much experience.

Why did we run this as a cover story? Because it's major news, both locally and nationally. Ten days before our publication date, The Wall Street Journal ran a story about misuse of Internet connections—including the downloading of smut—by employees of large corporations. Two days after our publication date, on December 6, 1996, the U.S. Supreme Court voted to review a lower court ruling that had blocked the Communications Decency Act, which was Congress' attempt to curb pornography on

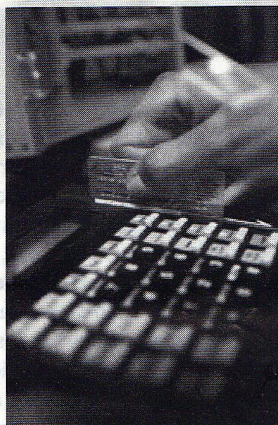
the Internet. So the U.S. Congress finds transmission of sexual material on the Internet to be sufficient in volume to warrant passage of a law to try to stop it, and the Supreme Court has to wrestle with the constitutionality of such a law. This is national news presented from a local viewpoint; isn't such news and its analysis appropriate for Sonoma Business magazine?

Our role as a business magazine is to present and examine the full range of business news, not to ignore bad news and present only the good. We don't approve of the use of the Internet to carry smut any more than you do. We're simply reporting such use as a business problem.

In Ledin's view, the problem has a peculiar benefit: the desire to transmit smut makes people who send it work to improve the means of transmission. Thus, technology moves forward. E-mail, because it is only text and by comparison simple to transmit, has no such effect. Sophisticated Web site design could similarly drive the Internet. See the stories on Web site design also in the January 1997 issue.

Lastly, I can't imagine that anyone who hires a computer consultant would then ask that consultant where to find smut online. Does that mean the smut doesn't exist?

### Electronic Ease. The Merchant Bankcard Program from NBR.



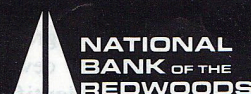
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