Policy Options

- **Fraud prevention and prosecution.** Although the Internet does not create new types of fraud, it does create a new avenue for existing types of fraud, such as investment scams, pyramid schemes, overbilling, and failure to deliver merchandise. The Legislature could undertake to assure that state and local law-enforcement personnel are as well trained in the detection, prevention, and prosecution of fraud on the Internet as they are in combating fraud by other means, including understanding of the role of interjurisdictional cooperation in addressing crime on the Internet.

- **Sales tax on interstate transactions.** Although the Internet does not itself change the issues of sales and use taxes on merchandise sold to residents of California by companies in other states, its use as a sales medium could lead to significant increases in interstate sales and thus to larger losses of revenue. If so, California might choose to seek modification of the Supreme Court's Quill decision through new litigation focusing on the new questions raised by Internet-based commerce or through pursuit of federal legislation addressing sales tax liability for interstate sales.

- **Digital signatures.** It may be appropriate to extend California's digital signature law to establish standards for general commercial use of digital signatures, in the light of comparable legislation adopted by Utah and other states.

- **Online payment.** As commerce on the Internet grows, it may become increasingly necessary and appropriate for California state agencies to make purchases of goods and services online. In preparation for online purchasing, the Legislature could consider directing the Department of Information Technology to evaluate and report to the Legislature on payment options that may be used by state employees and agencies who must pay for goods and services online, with emphasis on security of those transactions and prevention of fraud and abuse. Evaluation of online payment systems and options could consider Internet-based options in the context of *all* types of electronic commerce, not exclusively those that use the Internet.

- **Internet access impact on local phone service.** Local phone companies have asserted that Internet access calls are overloading local loops and requiring costly equipment upgrades. Internet service providers dispute the severity of this impact. To clarify the matter, the Legislature could direct the Public Utilities Commission to examine the impact of Internet access on local telephone exchange carriers, to determine how any additional costs resulting from Internet access could be allocated among local exchange carriers, ISPs, data networks, and long distance carriers. The examination could include public hearings.

- **Internet telephony.** One of the rapidly growing features on the Internet is the capacity to conduct voice phone calls through packet-switching technology, circumventing long-distance voice carriers. As this technology indirectly affects a regulated industry, the Legislature might choose to direct the Public Utilities

Commission to evaluate intrastate aspects of issues raised by Internet phone services in order to determine whether competition with long distance carriers requires regulatory response.

- **Interstate regulation consistency.** California is not alone in its concern for the potential use, abuse, and impacts of online commerce. To assure that the state is not placed at a disadvantage in this commerce, and to maximize the ability to prevent fraud, the state could seek consistent interstate business regulation through interstate agreement and necessary federal legislation.

- **E-mail return address.** A growing problem on the Internet is "spam," or mass commercial e-mailings, often with phony return addresses. To combat abuse of e-mail and to minimize the potential for fraud, the state could require all California-based senders of commercial e-mail to provide a valid and stable (that is, not closed soon after the mailing) e-mail return address in all such e-mail. This would be broadly comparable to the existing requirement in the *Public Utilities Code* that "a caller shall not be allowed to withhold the display [via caller ID] of the caller's business telephone number when that number is being used for telemarketing purposes" (§2893).

- **Taxation of Internet access services.** Internet access services are not currently subject to sales tax or an excise tax in California. Some other states do apply such taxes. California could consider whether the sales tax could be extended specifically to Internet access charges or whether to impose an excise tax on those services. If the state chooses to impose such tax(es), it could direct the proceeds to the General Fund or earmark them for specific purposes, such as support of information resources for underserved populations or state government use of the Internet as a medium for providing information and services to the public.

CHAPTER 3: GOVERNMENT ON THE INTERNET

What kinds of information do government agencies post for the public and what services do they provide online? This chapter gives an overview and selects some representative sites for purposes of illustration.[127] There are many to choose from, as numerous U.S. Government and State of California agencies are on the Internet, as are all other state governments and numerous cities, counties, and regional governments across the country. Web sites, including "State Search," from the National Association of State Information Resource Executives, organize links to state and local governments and facilitate access.[128]

There are pros and cons to government use of the Internet to provide information and services. On the "pro" side:

- Staff time may be saved and used more efficiently by putting frequently requested documents and forms online and by listing contact persons, office addresses, and phone numbers on Web sites.

- Costs of reproduction and mailing may be reduced through online documents and forms.

- By reducing the number of phone calls for such documents, agencies may better serve those who must call for information rather than find it online.

- Inquiries and comments may be posted via e-mail any time of day or night rather than having to wait for business hours.

On the "con" side:

- Most people do not yet have Internet access, especially those with low incomes and limited education.

- Downloaded documents and forms usually must be printed by the recipient, which may be inconvenient and expensive.

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[127] A more complete list of California and federal agencies on line was originally to have appeared in appendixes to this paper. It quickly became apparent that it was futile to attempt to list all such agencies, as so many *do* now have a Web site, gopher site, or other presence on the Internet. The quality and extent of the sites vary, but it can be expected that, as experience diffuses among agencies, standards will emerge and agency sites will become more comprehensive. Some Web pages featuring extensive collections of governmental links are described in the Appendix to this paper. Web users can easily reach any publicly accessible California State Government site on the Internet through those pages, including the official California Home Page, http://www.ca.gov.

[128] State Search is on the Web at http://www.state.ky.us/nasire/. Also see state and local links at http://www.piperinfo.com/piper/state/states.html.

- The Internet may be difficult to navigate and use.

- Congestion on the Internet may make it difficult for people to access sites, especially at busy times for particular sites.

It will take time and experience to determine whether the pros or cons predominate and to work out the most effective means of using the Internet to provide government information and services.

Federal Government

The U.S. Federal Government has a large and growing presence on the Internet. "FedWorld" offers one way to find federal sites. Others include the Villanova Center for Information Law and Policy's "Federal Web Locatorand the Louisiana State University Library's "U.S. Federal Government Agencies Page."[129]   A few examples below illustrate the scope of the federal government's Web sites. These examples are merely representative. LSU's listing of federal sites fills nearly a dozen single-spaced pages.[130]

Department of Agriculture

Among other information, the U.S. Department of Agriculture site (http://www.usda/gov) provides:

- USDA's News Releases

- Speeches

- Publications

- Agency Latest Reports

- 1996 Farm Bill

- Calendar of Agricultural Events and Speaking Engagements

- Public Affairs contacts and Freedom of Information Act Officers

Many reports (for example, Monthly Feed Outlook, Oil Crops Outlook, and Rice Outlook), previously provided on paper for a fee are now available only electronically and at no charge. Summaries of other reports are available online, although printed copies of

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[129] Fedworld: http://www.fedworld.com; Villanova: http://www.law.vill.edu/Fed-Agency/fedwebloc.html (the hyphen is part of the URL); Louisiana State University Library site, http://www.lib.lsu.edu/gov/-fedgov.html.
[130] http://www.lib.lsu.edu/gov/fedgov.html.

the full reports are for sale, but the reports are not posted online. The site includes numerous sets of statistics as well as crop weather (state by state, but not for all states) and much other agricultural information.

The site also provides information about USDA programs, regulations governing those programs, and a search function that enables users to find information on specific topics.

Department of Education

Many subdivisions of the Department of Education have Web pages. These include:

- Office of Postsecondary Education

- Office of Science Education and Technical Information

- Office of Science Education Programs

- Office of Science Education and Technical Information (OSETI)

- Computational Science Education Project

- Office of Education

- Special Projects, which includes Minority, Disabled, Education, Women and other Special Projects

- Directorate for Education and Human Resources (EHR)

- Division of Elementary, Secondary, and Informal Education (ESIE)

- Division of Graduate Education and Research Development

- Division of Undergraduate Education

- Engineering Education and Centers (EEC)

The main Web page for the department (http://www.ed.gov/) includes links to reports, announcements, and other publications, programs and services, department offices and employees, initiatives of the Secretary of Education, grants and contracts, educational resources, and other (external) education-related sites. Archives of announcements are available back to 1994. A search facility is available for finding information on specific topics. Documents posted at the site include *A Teacher's Guide to the U.S. Department of Education*, *A Researcher's Guide to the U.S. Department of Education*, and *The Student Guide [to] Financial Aid from the U.S. Department of Education*.

Department of the Treasury

Treasury Department offices encompassed at the Department's site (http://www.ustreas.-gov) include:

- Internal Revenue Service

- United States Customs Service

- Bureau of Alcohol, Tobacco, and Firearms

- Financial Management Service

- United States Secret Service

- Office of Thrift Supervision

- United States Mint

- Office of the Comptroller of the Currency

- Federal Law Enforcement Training Center

- Bureau of Public Debt

- Bureau of Engraving and Printing

- Financial Crimes Enforcement Network

The site offers an online tour of the Treasury Building, a historic exhibit (the War and Savings Bond Exhibition), a brochure about the department, and of course links to the individual services and agencies within the Department. The one that may be of widest interest is the Internal Revenue Service (IRS), which posts forms, instructions, and other tax information online. Treasury, too, offers a search function.

U.S. Congress ("Thomas")

"Thomas," named for President Thomas Jefferson, is the U.S. Congress's Internet-based information service, provided through the Library of Congress. The site's uniform resource locator (URL) is http://thomas.loc.gov, where "loc" stands for Library of Congress.)

The main menu choices at Thomas are:

- About THOMAS

- Congress This Week

- Bills

- Laws

- Congressional Record

- Committee Information

- Historical Documents

- The Legislative Process

- U.S. Government Internet Resources

The site offers a search mechanism for finding legislation by bill number, author, and topic, gives access to reports, and explains the federal legislative process. It also provides links to many other sources of federal government information in executive, legislative, and judicial branches, plus state and local government links. In short, the site is virtual one-stop shopping for government information, with the exception that the list of local government links that may be reached by way of the site appears to be very incomplete.

State of California

Many departments and agencies in California State Government now have Web sites or other presence on the Internet. The California Home Page (http://www.ca.gov) offers one starting point for finding State agencies online. This section describes a few of the California state department and agency sites that may be reached by way of the California Home Page.

Department and agency sites vary widely in design and content. In general, they provide routine information such as office addresses and phone numbers, program descriptions and explanations, brochures and reports, forms, and links to related sites. California state sites are sometimes slow to respond, at least during business hours.

Alcoholic Beverage Control Department

ABC's site, http://www.abc.ca.gov/, offers information on the history and mission of the department, its executives and organization, office locations, press releases, program descriptions, California law regarding alcoholic beverages, and answers to "frequently asked questions" (FAQs). The FAQ list is extensive, and appears likely to be responsive to many routine types of inquiry from vendors of alcoholic beverages and from the general public. The answers are tedious to retrieve, as each one is a separate file.

Attorney General (Department of Justice)

The Department of Justice Web site, http://www.ns.net/caag/, provides a wide range of statistics, publications, program descriptions, and crime and law-enforcement resource links. Among the latter are the California Criminalistics Institute and "Virtual Libraries" in criminalistics and criminal justice as well as a wide range of other agencies, organizations, and resources. One link, the Police Officer's Internet Directory,[131] is a comprehensive source of information and of links to agencies, including local police departments. In short, the DOJ site is not only a starting point for California Department of Justice information, but also for crime and criminal justice information in general.

According to Greg Wells, of the Public Inquiry Unit, the Web site has been a useful and efficient way to respond to public requests and to reduce the number of routine phone calls. He termed the site "quite a benefit," in that by redirecting some routine calls to the online service, it has enabled faster response to persons who do phone for assistance or who may not have access to the Internet. The site also illustrates the way in which hyper-linking may be used to ease access to online resources literally of worldwide scope.

Chapter 258, Statutes of 1996 (Senate Bill 1519, Johnson), requires the Department of Justice to establish a publicly accessible online directory regarding: persons who are the subject of an arrest warrant for a violent felony; missing children; and unsolved homicides. The bill has not yet been implemented (as of December 1996), and no specific funding was provided for implementing the bill. The missing children portion is to be addressed first, with the rest completed later, as soon as priorities and resources permit.[132]

Department of Boating and Waterways

The Boating and Waterways site, http://www.ceres.ca.gov/boating/, offers information on the department, its programs, and pertinent laws (the Harbors and Navigation Code). Few department publications are posted for downloading (as of November 1996, at least), but many are listed with information about how to obtain copies.

The site also provides links to other boating-related sites on the Internet, including the California Harbormaster Home Page, the U.S. Coast Guard, and the Scripps Institution of Oceanography.

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[131] This site is a remarkable compilation, described as: "created and maintained by James Meredith, a Boston Police Officer. This Directory is personal property, and is in no way associated with, or endorsed by, the Boston Police Department."

[132] Status information was provided by Doug Smith, Department of Justice, personal communication, December 30, 1996.

Department of Motor Vehicles

The DMV site (http://www.dmv.ca.gov) includes:

- Forms

- Handbooks

- Office Locations

- Informational Brochures

- News Releases

- Business Licensing

- California Codes

- DMV Profile

- Environmental License Plates

Some forms, documents, and information are available in Spanish as well as English.

Department of Parks and Recreation

The Parks and Recreation site (http://www.ceres.ca.gov/parks/dpr.html) offers extensive information on California's state park system, an A-to-Z list of the parks, phone numbers, answers to "frequently asked questions," event information, and links to related sites, including the State Parks Store, the California Department of Tourism, and CERES (California Environmental Resources Evaluation System). The site also offers a link to historical and archeological information on California, posted at an Indiana University Web site.

California State Legislature

Extensive information on legislation and the Legislature is available from several sites.

- The *State Senate* (http://www.senate.ca.gov) offers: legislative news; information on Senate leadership and links to Senators' home pages; bill text, status, history, and so on; information on Senate committees and offices; legislative schedules; information on how to participate in the lawmaking process; ballot measures; and other information and links.

- The *Assembly* site (http://www.assembly.ca.gov) offers a legislative search function, the ability to "watch" up to 300 bills, district and member information, links to the Democratic and Republican Caucuses, the Chief Clerk's office, Capitol Museum, and other features.

- The *Legislative Analyst's Office* (http://www.lao.ca.gov) offers legislative information, reports, and links to other legislative and governmental sites.

- The *Legislative Counsel's Office* (http://www.leginfo.ca.gov/) also offers access to legislation (current and prior session), a guide to accessing legislative information on the Internet, links to other governmental sites, and other information.

Local Governments in California

Many counties and cities in California have Web sites. Services, information, and functions offered by these sites vary widely, as do their layouts and appearances. For example:

- The *City of Los Angeles* Web site (http://www.ci.la.ca.us/) is a complex collection of governmental, cultural, historical, and other information, even including a photo archive. A "site map" facilitates navigation. The site allows comments to be sent to the overall site Webmaster or to any of 17 city departments and bureaus. The site has a link to the Mayor's Web page and links to individual City Council members' pages. It also provides links to related organizations, agencies, and institutions. The site received 882,312 visits (hits) from May through October, 1996, an increase of 70 percent over the previous six months.

- The *City of Oakland* has a comparably complex site (http://199.35.5.18/Oakweb/-index.htm), but one with a very different layout from the Los Angeles site. The site provides information on government (including links to some departments and council members), education, arts and leisure, and public services.

- The *City of Sacramento* (http://www.sacto.org/) provides information on and links to departments and services and elected and appointed officials. It also lists neighborhood associations, with contacts, phone numbers, and other information, and provides detailed city budget information. The site includes an A-to-Z list of public services, with office addresses and phone numbers.

- The *Lassen County* home page (http://www.snowcrest.net/scwa/lassen/lapage.htm) provides a County Map, Things to See & Do, Where to Stay, Calendar of Events, How to Get There, and Travel Information Services. Although the site is listed among county sites listed by the California State Association of Counties,[133] it is not run by the county government and does not provide information on the Lassen County Government.

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[133] http://205.187.239.2/.

- The *San Bernardino County* site (http://www.co.san-bernardino.ca.us/) provides governmental, statistical, historical, cultural, and other information on the county. It includes information on cities within the county and links to those with Web sites. It also includes links to unofficial (not government-sponsored) sites, such as the Redlands Business Directory and the San Bernardino-Inland Empire Area Chamber of Commerce.

- Although it is not itself a local government site, *LUPIN, the California Land Use Planning Information Network* (http://www.ceres.ca.gov/planning/) gives access to important local government information. LUPIN is part of CERES, the California Environmental Resources Evaluation System. The LUPIN homepage has the stated goal "to formulate and implement an information service to support and address land use and planning via the CERES Web." In short, LUPIN is an Internet-based focus for California land use planning information, bringing together information that other-wise would be difficult and costly to find. The site offers a shortcut to a large and growing array of general plans, environmental documents, maps, and other information.

Policy Options

- **State Web page design.** As state agencies increasingly establish a presence online, the Legislature could request that all agencies follow current best practices for design of Web sites, for ease of use by the public, for ease and economy of maintenance, and to facilitate interactivity, so that Web sites may become "two-way streets" for the public to communicate with government agencies.

- **Responsibility for content.** As state information is increasingly placed online, agencies must rely on technical experts to set up and maintain Web sites and other publicly accessible Internet sites. The state could adopt as policy that selection of the content of these sites is to be determined by appropriate management and policy-setting personnel, rather than left by default to technical personnel.

- **Impact on state staffing needs.** The Internet requires new knowledge and skills in the state government workforce, both to create useful state Web sites and to use information resources on the Net. The Legislature could direct the Department of Personnel Administration (DPA) and State Personnel Board (SPB) to evaluate how use of the Internet to provide information and services is affecting state personnel classifications and staffing requirements, both in information-technology areas and in management and policy areas. DPA and SPB could establish appropriate new or revised classifications and any needed standards for training in view of the changing environment and needs. This evaluation could also consider where resources might best be redirected, increased, or decreased in the light of use of the new technology. Finally, given the widespread use of information technology skills, it may be appropriate to provide for placement of persons in information technology

classifications in units where the skills are immediately needed, rather than only in centralized, separate data processing units.

- **Security.** Recognizing the balance between *benefits* of the Internet as a resource for public information delivery and *risks* of online vandalism, and considering published reports of damage done to public agency Web sites by malicious intruders, California agencies need to be concerned about similar risks. The Legislature or one of its houses could hire or contract with a computer security consultant to advise it on the security of state Internet servers and Web sites and to propose any necessary strategies for minimizing security problems in the light of benefits of placing information on the Internet for wide public access.

- **Intranets.** Growth in the use of intranets (networks that use Internet-style software and techniques) in the private sector suggests that similar technology could also be productive for state agencies. The Legislature could consider directing agencies to adopt current standard network technology and methods wherever they would contribute to efficiency and effectiveness, and might consider authorizing one or more demonstration projects within state government specifically to test intranet technology for state agencies.

- **Cross-agency coordination.** Many issues cross agency and department boundaries. A Web site is a relatively simple and easily managed means of bringing together information from different agencies. State policy and practice could encourage departments with related responsibilities to cooperate in the development of Web sites to present a comprehensive view of and facilitate public access to the issues and programs with which they are concerned.

- **State-local links.** One of the greatest strengths of the Worldwide web is its ability to "hyperlink" sites, easing users' access to related sources of information. Because many state government issues and programs have relationships with local government issues and programs, state policy and practice could encourage agency Web sites to link to appropriate county, city, and regional organization Web sites and other public Internet resources.

- **"One-stop" service centers.** As Web sites may help to coordinate the distribution of information to the public, they may also serve to facilitate submission of information and applications from the public to multiple agencies. State policy and practice could encourage, where feasible, the development and use of "one-stop" online service centers to simplify submitting reports, applications, and other information and forms to multiple agencies and finding necessary or useful information spread among different agencies, departments, programs, and offices. This would be broadly comparable to California's network of Small Business Development Centers (SBDCs), which "provide one-stop access to free business counseling, planning, marketing and training programs."

CHAPTER 4: LIBRARIES AND EDUCATION ON THE INTERNET

> "A change is upon us--nothing could be clearer. The printed word is part of a vestigial order that we are moving away from--by choice and by societal compulsion . . . This shift is happening throughout our culture, away from the habits and patterns of the printed page and toward a new world distinguished by its reliance on electronic communications." (Sven Birkerts, *The Gutenberg Elegies*, 1994)

> "Exactly which problem will Web-surfing attack? Our children's insufficient shallowness? Excessive attention spans? Unhealthy fixation on in-depth analysis? Stubborn unwillingness to push on to the next topic until they mastered the last? We need less surfing in the schools, not more. The Web is a great source of pictures--are we trying to cure our children of excessive interest in the written word? Depraved indifference to glitz and snazzy graphics?" (David Gelertner, computer scientist, 1996)

New Media, New Issues

The transition to digital media format is raising huge questions for anyone involved in the creation, dissemination, or archiving of information.[134] The Internet only adds to the urgency of the issues already raised by the growth of digital media such as CD-ROM. It is already problematic that documents can be stored, edited, copied, and altered in digital form and distributed on CD-ROM disks, floppy disks, and tapes, and transmitted via modem. Now, however, documents may be sent to countless sites around the world via the Internet. This is a two-way street, as documents may be distributed by this means *and* may also be found online and downloaded, vastly multiplying the resources available to libraries of all kinds and sizes. Now even a small elementary school may have access to resources competitive with those available to much larger schools--periodicals, reports, instructional resources, and reference materials--resources previously available only with much more difficulty or expense.

However, the ready availability of so much material online and by way of digital storage media (such as CD-ROM) is raising issues, especially with respect to copyright, authenticity of documents, future usability of the resources, and appropriate use.

Copyright

Kalakota and Whinston summarize the problem of copyright in this new era:

> It is clear that the speed of technological development has outpaced the legal system and that digital copyright issues need to be resolved with some

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[134] On this topic generally, see John V. Pavlik, *New Media and the Information Superhighway* (Boston: Allyn and Bacon, 1996).

urgency. As customers zip down the I-way, protecting intellectual property rights and collecting dues from the copyright users promise to be challenging issues.

The scope and magnitude of the problem is clear. The degree of potential copyright infringement on-line vastly surpasses the damage that can be inflicted with a photocopy machine. Anyone with a computer can make and distribute countless copies of anything digital, be it a book, a TV or computer program, or a piece of music. Even worse, the digital version can be sent to friends or even a bulletin board system (BBS) for "downloading" by anyone with a modem.

. . . .

In sum, the emergence of the I-way is dramatically changing, and will continue to change how people and businesses deal in information and entertainment products and services; and how works are created, owned, distributed, reproduced, displayed, performed, licensed, managed, presented, organized, sold, accessed, used, and stored. This leads to a clarion call for changes in the law.[135]

This is an issue that is important to California for several reasons:

- California's public schools, libraries, and government agencies use copyrighted materials of many types. They have a stake in the availability and cost of such materials *and* in avoiding potentially costly copyright infringement.

- California is a significant producer of copyrighted works of all descriptions, software, motion pictures and television shows, books, artwork, and more. California has an economic interest in the viability of these endeavors, just as it does in the viability of other sectors of the economy.

- Tax revenues derived from commerce in copyrighted works could be lost as a result of piracy of such works.

- The University of California is a publisher of copyrighted works and derives revenue from that source.

Copyright is a matter of federal law and of international agreement, the details of which are beyond the scope of this paper.[136] The essential point here, though, is that California has a stake in this issue from both sides of the picture, as producer and as consumer of information.

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[135] Kalakota and Whinston, *Frontiers of Electronic Commerce*, p. 585.

[136] But for more information, see: Kalakota and Whinston, *Frontiers of Electronic Commerce*, pp. 585-594; Thomas J. Smedinghoff, ed., *Online Law* (Reading, Mass.: Addison-Wesley, 1996), Chapters 8-11.

Authentication of Electronic (Digital) Publications.

The apparent ease with which the contents of Web sites belonging to the Federal Bureau of Investigation and the Central Intelligence Agency have recently been altered by malicious hackers illustrates the new risks and temptations of the internetworked world.

The alteration of the FBI and CIA sites was so blatant and obvious (intentionally so, of course) that it could not be missed by anyone. But what if someone had instead chosen to make subtle changes in a policy document, for example? What if someone were to alter the text of articles, books, reports, or even legislative documents posted online? How much damage could be done by such means, both directly and indirectly? Trust in the good will of the users of Internet is, on the basis of experience so far, plainly not sufficient protection against such damage.

Although discussion of the technology is beyond the scope of this paper, there are methods of authenticating documents. For example,

> Mathematical algorithms can be used to create digital signatures that, in effect, place a "seal" on a digitally represented work. These algorithms can be implemented through software or hardware, or both. Digital signatures can play an important role in ensuring data integrity.[137]

To make digital signatures an effective tool, however, it would be necessary to have some agreed upon standard(s), for publishers to apply digital signatures to works that are to be authenticated (a process that could be automated), and for users of the works to have the software, hardware, or both, as appropriate, to authenticate the work in question. For further security, authenticated copies of works would be filed with an archiving agency, such as the Library of Congress or an industry clearinghouse.[138]

The Corporation for National Research Initiatives and the Library of Congress are experimenting with an Electronic Copyright Management System. The system, now in a "testbed" phase, is designed "to gain experience with the technology, identify issues, develop a prototype of appropriate standards, and serve as a working prototype if full development is pursued later."[139] The system "will allow users to electronically submit a copyright registration application and its associated object [to] the Copyright Office," substantially reducing the time now required by the manual, paper-based system.[140]

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[137] Kalakota and Whinston, *Frontiers of Electronic Commerce*, p. 591.

[138] *Ibid.*, p. 592.

[139] *Ibid.*

[140] CNRI, "Electronic Copyright Management System," http://www.cnri.reston.va.us/home/cstr/LoC.html.

The Downside of Electronic Publication

The arrival of digital media has not been welcomed unanimously as rare and refreshing fruit. One critic is Clifford Stoll, well-known computer security expert and author of *The Cuckoo's Egg*, a book about the tracking of malicious hackers through cyberspace. Stoll raised his reservations about the information highway in his book *Silicon Snake Oil*. He considers the institution most threatened by wide area networks (including the Internet) to be *libraries*:

> . . . the more information that's online, the less reason for the library. A fully online library needs neither books nor reference librarians; in their place are CD-ROMs and help files. It's a bookless library.[141]

This may be overstatement. Printed books have advantages and attractions that digital books do not. For example, you can put a book in your backpack and take it with you to the park or read it on the bus, and there is something very pleasant about opening a new book for the first time. Besides that, you can open a book and look at the pictures without having to wait for them to appear on a display screen, which can be a very long process on the Internet.

Nonetheless, there are some very real concerns as information moves toward digital form. Not the least of these is the long-term ability to use those digital files. Hardware and software standards change, and as they change they make old media (or at least old file formats) obsolete and sometimes unusable. A few years from now, today's reference books on CD-ROM may be difficult to use because some new type of device has taken the place of the CD-ROM drive. New standards for video and sound may likewise make old interactive software unusable, requiring the purchase of new versions of the software along with new computers. For comparison, think about the countless recordings on 78 and 33-1/3 RPM records that are now unusable for most people because record players are scarce and difficult to keep in working order.

Libraries and librarians will face the challenge not only of maintaining printed resources (books, magazines, newspapers, pamphlets) but also of taking care of--and maintaining *access to*--disks, tapes, CD-ROMs, and other media.

Appropriate Use

Public libraries that provide Internet access may be subject to special concerns in several areas:

- Is library equipment being used to access or distribute pornography or "indecent material"?

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[141] Clifford Stoll, *Silicon Snake Oil: Second Thoughts on the Information Highway* (N.Y.: Doubleday [Anchor Books edition], 1996 [copyright 1995]), p. 174.

- Is library equipment being used to access or distribute hate-oriented sites (anti-Semitic, anti-Black, and so on)?

- Are library patrons abusing copyright restrictions by means of library-provided access?

- How should libraries view advertising online? Is it inappropriate on publicly funded terminals? Is it simply a necessary aspect of using a commercially supported medium that provides real benefits to users?[142] Is it no different than the advertising that is a normal part of magazines and newspapers found in libraries?

Public libraries serve a diverse clientele and one that is less appropriately limited in its Internet use than public school students in the classroom. It might be considered unacceptable to restrict adult library patrons from some materials that would be considered inappropriate for schoolchildren. Community standards, however, might well dictate some restrictions, especially on sexually explicit or graphic content. Administrators might also be concerned about unduly limiting genuine research access to sites dealing in socially unacceptable content, including that which is racist.

Libraries on the Internet

Libraries of all kinds are already on the Internet, and more seem to arrive daily. Online libraries do not meet the needs that traditional libraries do. For example, the vast majority of books are not available in digital form or online, and one is unlikely to find a reference librarian to help when searching for information on the Internet, except possibly by leaving an e-mail message. Nonetheless, online libraries can be very useful in meeting at least some information and assistance needs. This section gives an overview of some sites in California and the nation.

The California State Library's Web Site

The California State Library established a Worldwide Web home page[143] in 1995 concurrently with development of the California State Home Page (http://www.ca.gov).

The Library's site currently includes information about the Library and its services, the State Librarian's columns on California history and institutions, and information on other libraries in the state. It does not include links to such Web and Internet resources as the Gutenberg Project archives of public domain books, online catalogs, reference and statistical information (the CIA World Data Almanac, for example), and subject-area resources.

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[142] The same sort of question could be asked about government employees' use of Internet access, where many sites involve on-screen advertising. Personally, I simply ignore most that I encounter when doing research, but follow up on that which is related to research interests, as for example advertising that explains new technology.

[143] http://www.library.ca.gov/

Plans are already underway for revising and improving the site to reflect the rapid changes in the online environment.

The Library of Congress Online

The Library of Congress's Web site (http://www.loc.gov) offers a wide range of information. LOC provides access to its own catalog, to documents (including a remarkable and growing historical collection), to other Federal Government sites, to libraries (including the University of California catalog), and to search engines and other resources covering every imaginable topic.

Among the text collections posted on the LOC site are:

• Documents from the Continental Congress and the Constitutional Convention, 1774-1790

• The Evolution of the Conservation Movement, 1850-1920

• Life History Manuscripts from the Folklore Project, WPA Federal Writers' Project, 1936-1940

• African-American Pamphlets from the Daniel A.P. Murray Collection, 1880-1920

The Library of Congress provides MARVEL (Machine-Assisted Realization of the Virtual Electronic Library) and LOCIS (Library of Congress Information System):[144]

• MARVEL provides information by and about the Library as well as links to worldwide Internet resources worldwide, arranged in an easy-to-navigate hierarchical menu structure.

• LOCIS (Library of Congress Information System), gives Internet users access to more than 27 million records in the following files: Library of Congress Catalog, Federal Legislation, Copyright, Braille and Audio, Guides and Organizations, and Foreign Law.

Some Other Public Libraries on the Internet

Many state, university, and local libraries have Internet sites.[145] A few examples of these sites follow. Typically, libraries use their Web sites both to provide information about themselves and their services and locations and to provide links to other useful sites.

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[144] The descriptions of MARVEL and LOCIS are adapted from the Library of Congress's online documentation.

[145] Links to 34 state libraries (as of September 20, 1996) may be found at http://www.slis.missouri.edu/-state.html. Most are Web sites, although several are gophers. Gophers lack a graphic interface, but are otherwise similar in function to Web pages.

*Sailor*â, *"Maryland's Online Public Information Network"* (http://sailor.lib.md.us)
provides links to information about Maryland as well as links to numerous research and
reference topics. Sailor is an initiative of the Maryland Department of Education,
Department of Library Development Services. The Sailor home page lists Maryland-
specific options and the following "general interest" topics:

- Arts & humanities

- Business & consumer

- Children

- Education

- Employment & Career

- Entertainment & Recreation

- Government & law

- Health & medicine

- Internet & computing

- Libraries

- News & reference

- Science & technology

- Society & culture

In short, Sailor serves as a general-purpose online library.

The Queens Library System (http://www.queens.lib.ny.us/) is headed by former California
State Librarian Gary Strong. The Queens Library Web site includes information about the
Queens Library system and search options (in English and Spanish) for investigating the
library's catalog, community resources, and Internet resources.

The Louisiana State University Library offers *Webliography: A Guide to Internet
Resources* (http://www.lib.lsu.edu/weblio.html), which includes access, via e-mail, to
reference librarians. The page is a subset of the LSU Virtual Library (http://www.lib.lsu.-
edu/index.html).   Some of the LSU resources are available only to LSU students, but

most are open to anyone. Among the site's highlights are Black History Month resources and a page devoted to Martin Luther King, Jr.

Other virtual libraries organize access to Internet resources through extensive sets of links, but, unlike sites for the Library of Congress, California State Library, and various university libraries, are not associated with a traditional, physical library. These include:

- The Argus Clearinghouse (http://www.clearinghouse.net/).

- The World-Wide Web Virtual Library (http://www.w3.org/pub/DataSources/).

- The Internet Public Library (http://www.ipl.org/).

- The Talbot County (Maryland) Arts Council (http://rio.atlantic.net/~sinclair/-bookmarx.htm).

Finally, the School of Library and Information Science at San Jose State University main-tains a list of *Professional Organizations in the Information Sciences*, "a list of links to Internet sites maintained by various professional organizations in the library and informa-tion sciences" (http://witloof.sjsu.edu/peo/organizations.html). This is an enormous set of links covering all imaginable library resources.

Schools and Colleges

The Internet was available for research and educational use long before it opened up to commercial traffic on any significant scale. It has therefore had longer to develop *as* an educational resource and to penetrate the schools, especially at the college and university level.

Now that the Internet is not restricted to non-commercial use, its content has expanded to encompass resources not available previously. Some are paid services (The Electric Library, for example) and others are supported by advertising (many online newspapers and magazines, for example). Resources online serve the needs (even if unevenly) of students, teachers, and administrators at all levels from pre-school through post-graduate, not to mention adult learners not enrolled in formal coursework.

Internet in K-12 Education

One of the most talked-about areas of impact for the Internet has been kindergarten through twelfth grade (K-12) education. The "Net Day" phenomenon, in which volunteers wire schools for Internet access, has spread across the country. Californians have participated actively in that effort. The role of Internet access in K-12 education is very much in transition, as there is much to learn about how online resources may be applied in the classroom and about how use of the Internet may improve school outreach and accessibility.

The ways in which Internet access may serve education are quite varied, some directly involving students and others not. For example, schoolrooms can look toward internet resources for instructional assistance, to supplement textbooks, and for communications with other classrooms across town or around the world. Teachers and administrators may look to the Internet for lesson plans and for guidance on curriculum development and school management and may place their own materials on these subjects online for use by others, as the Internet is a two-way medium.

A growing number of classrooms now have their own Web pages, presenting information about student activities and interests.

The Internet may facilitate communication between teachers and their students, especially where special resource teachers serve multiple classrooms, schools, or even school districts. Further, parents may communicate with their children's schools and teachers and may get help online from educational resources provided by colleges, publishers, and others. Some parents might also post information on their own experiences (as, for example, on Usenet groups or in America Online forums) for the benefit of others or to get comments and suggestions on problems.

The Internet can serve the needs of kindergarten through 12th grade (K-12) education in many ways, some of which have already been mentioned:

- Classroom access to information online.

- Students' access from home or libraries, to supplement classwork.

- Parents' access from home or work, to contact teachers, check on school schedules, and so on.

- Students' access to their schools when ill or otherwise absent from class.

- Teachers' access to curriculum materials.

- Administrators' access to resources for managing their schools and functions.

- Exchange of ideas, information, and techniques among educators.

- Improved access to continuing education for teachers and administrators through collegiate "distance learning" programs.

- Supplementation of school library resources.

- Parent-teacher interaction.

Some of these uses require extensive technical resources (computers and wiring to enable access to the Internet) at the school, others do not.[146]

The move to incorporate Internet access poses risks and difficulties for K-12 education as well:

- Lack of well-developed and tested methods for using online resources in the classroom.

- Potential for wasting time in online activities of little or no educational benefit, or at least crowding out instruction and practice in more basic skills.

- Extensive and possibly unavoidable exposure to advertising on Web pages.

- Expense and difficulty of keeping up with technical standards and requirements, especially as multimedia applications become more common on the Web.

- The need to train teachers and administrators in a complex and rapidly changing technology--and demands on teachers to stay current with the technology and techniques.

- Difficulty of selecting the truly useful material from a sea of resources.

- Increased potential for plagiarism by students. Term-paper mills have already gone online, one posting its catalog on the Web and selling papers for $6.50 per page.

- Risks of computer theft at schools that buy the equipment but cannot afford campus security.

Of all of these, perhaps the most critical at this time is that teachers are not well prepared to use Internet-access technology, or even to use personal computers effectively.[147] In an informal discussion of the issue, San Juan Unified School District trustee Estelle Werve noted that teachers lack training in use of computers and in navigating the Internet. She also indicated that other demands on teachers leave little time or opportunity for develop-ment of expertise with computers in the classroom.[148] That district, however, does have a Web site, and has established at least a minimal presence on the Web for each of its schools.

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[146] Many examples of school and classroom use of the Internet are provided in Ferdi Serim and Melissa Koch, *NetLearning: Why Teachers Use the Internet* (Sebastapol, California: Songline Studios and O'Reilly Associates, 1996).
[147] The daughter of one California high school teacher told me, "My mom does not even know where the 'on' switch is on a computer."
[148] Personal communication, October 19, 1996.

A *Sacramento Bee* report on the second "Net Day," October 12, 1996, alluded to some of these issues:

> [T]he enthusiasm for what has been touted as a great technological leap forward also has been tempered in many school districts by practical concerns over obsolete computers, tight budgets[,] and a shortage of computer training for teachers.
>
> . . . .
>
> [E]ven with the hookups in place, most computers are ill-equipped for the information highway or the use of CD-ROMs, a concern voiced in several area school districts.
>
> "We find ourselves in an interesting situation," said Jim Potter, an assistant superintendent in the Rio Linda Union School District, which sat out Saturday's NetDay activities. "We've had a lot of computers donated . . . but a lot of them aren't able to do what we want."[149]

The onrushing presence of the Internet has outpaced the ability of public schools to respond entirely on their own resources. Private initiatives, however, loosely encompassed under the name "Net Day," have made some progress toward wiring schools for at least basic access. Like everything else having to do with the Internet, this effort, too, has its own Web site.[150] That site includes (or provides links to) information on progress made so far in states and localities, directories of resources, and even step-by-step instructions for wiring schools and classrooms. California's first Net Day took place in March of 1996, and a second on October 12, 1996. In some instances, unions have waived rules in order to allow volunteer Net Day assistance.

One concern about the movement to bring Internet access to the schools is that poor and minority neighborhoods are likely to be overlooked or reached last. If the effort depends on volunteers with the time, technical ability, and money to support the work, then it is likely (and experience is bearing this out) that more affluent areas and areas with a high proportion of technical expertise will be reached first. These are the areas that are also most likely to have many homes with computers and Internet access. To the extent that Internet access in fact contributes to an improved educational experience, a wide disparity in access between richer and poorer areas is a matter of public concern.

Colleges and Universities

Internet access has been available to many college students since long before the Internet came to wide public attention. Little need be said on that point here, as Internet access by college students does not pose the kinds of problems and issues posed by Internet access for K-12 students and schools. Internet-based resources are, however, obviously of immense potential value to college students, possibly even more so at this time than to

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[149] Jan Ferris, "Second NetDay at schools lacks some luster," *Sacramento Bee*, Oct. 13, 1996, pp. B1, 6.
[150] http://www.netday96.com.

elementary and secondary school students, given the range of literary, cultural, and historical documents, technical information, college and university library catalogs, and reference material available online.

Going beyond established types of college student access to information on the Internet, Governor Pete Wilson has announced plans for California to develop an online "virtual university." To this end, the Governor's office "is putting together a design team with advice from leaders at the state's public and private colleges and universities [including] university administrators, faculty[,] and students as well as leaders in finance, telecommunications[,] and information technology."[151] As of this writing, the proposal is only sketchy, although the online university is to begin to be operational by next spring, according to the *San Francisco Chronicle's* report. The Governor's initiative is an alternative to California's participation in a previously announced consortium of Western states. The other 13 states will pursue their own joint venture, the potential impact of which has been compared to that of the GI Bill after World War II.[152]

Development and management of an online university will require decisions about degree fields and courses, staffing, enrollment, instructional methods, record-keeping, accreditation, fees, marketing, authentication of the participating students (fraud prevention), and technical implementation (hardware, software, security, and telecommunications).[153] However, the online university can draw from experience, as UCLA already offers online courses in cooperation with The Home Education Network (THEN). Current courses (Fall 1996) include Accounting Fundamentals, Behavior in Organizations, Business Writing, Food and Beverage Management, and 13 others.[154] The University of California at Berkeley is also offering 25 courses in psychology, fiction writing, AIDS and film via America Online.[155] The *New York Times* cited institutions (including UCLA and UC Berkeley) currently offering coursework via the Internet.[156]

A private institution, the University of Phoenix, also offers extensive online programs, including a two-year MBA program. The school's founder (and chairman of its owner, Apollo Group, Inc.), John G. Sperling, "predicts that about half of the school's students will earn their degrees via the Internet in just a few years. Before long, a class of students, each at a computer in a different city, will use interactive video to communicate with their instructor, he said."[157]

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[151] Pamela Burdman, "California Wants Own Online University, Wilson Says," *San Francisco Chronicle*, October 3, 1996, p. A17.

[152] Attributed to Educom Vice President Carol Twigg, in the *Chicago Tribune*, October 28, 1996, as cited in *Edupage*, November 3, 1996.

[153] Detailed analysis of these issues is beyond the scope of this paper, although a future CRB publication may analyze the topic in depth.

[154] Information available at http://www.unex.ucla.edu.

[155] Maria Newman, "College Courses at Your Convenience on the Internet," *New York Times* (online edition), November 3, 1996.

[156] *Ibid.*

[157] *Ibid.*

Lifelong Learning

As it becomes typical for workers to have not only several jobs, but even several careers during a lifetime, continuing education is increasingly necessary. The Internet and the resources available on it could offer broad and deep assistance in coping with this need.

- Expanded opportunities for non-traditional students (older, part-time), especially those who must fit education in around job and family responsibilities or whose needs do not fit any of the established categories in colleges and universities. These opportunities need not involve formal degree or certification programs and may be tailored to individual needs and schedules.

- Non-campus-based formal education for "traditional" students pursuing a degree or certificate. Here, too, the flexibility offered by online programs could expand the opportunities for students in the typical age bracket for undergraduate and graduate programs (although those brackets have broadened in recent decades), as well as facilitating formal education for those returning to school after a time away for work or family. A new type of degree-granting institution could emerge to capitalize on the potential of the Internet. The online universities proposed by Governor Wilson and by the Western states governors certainly offer another alternative.

At this time, the key need in Internet-based education for learners not enrolled in formal programs appears to be for systematic means of finding, organizing, and accessing resources. There is an abundance of information online, as a stroll through the resources listed in and available through the "Selected Internet Sites" appended to this paper will prove. For those seeking to update their knowledge or explore new fields, though, there must be some guidance through the material. Formal coursework at a college, university, or technical school provides such guidance, but in a framework that may be too inflexible for many potential learners. That is, a counselor at, say, California State University, Sacramento, or at Sierra Community College can help a student develop a course schedule leading to needed knowledge, and teachers structure their classes to meet specific goals. But how does the individual achieve the same end if not enrolled in an institution that provides this much structure?

A student with extraordinary initiative and organizing skills might be able to successfully coordinate resources on his or her own, but how might this need be met for typical students who may not even know where to begin? There are many possible ways, encompassing private initiatives, public programs, and combinations of the two, and using both Internet resources and paper publications.

A full examination of this question would go far beyond the scope of this paper, but a few possibilities, focused specifically on Internet-based methods, include:

- Public library, college, and education department (federal and state) Web sites with subject guides and links to resources.

- Private college and university Web sites offering subject outlines, links to external resources, and a selection of on-site resources in a range of subjects.

- Commercial sites offering fee-based access to resource material, syllabi, consultation, and counseling.

Some combination of free and fee-based sites could provide opportunities for everyone who has access to the Internet and who wishes to pursue continuing education or independent learning. It remains to be seen whether and how well private enterprise will meet these needs and to what extent an active role must be taken by public institutions and agencies if the educational potential of the Internet is to be realized.

Policy Options

Libraries

- **State Library online services.** As increasing numbers and types of resources, including periodicals and reference materials, are offered in digital form, libraries need to encompass these resources as well as the traditional print media. In order to make these types of resource broadly available to the public, it may be appropriate to designate funding for the California State Library to provide proprietary information resources (such as reference works and full-text periodicals) to state officials and to the public via its Web site by arrangement with copyright holder/publishers.

- **Agency and department online documents.** In recognition of growing access to and use of the Internet for governmental information and services, the Legislature could require state departments and agencies to place their own libraries of reports, forms, and other public information on the Web as a matter of standard procedure.

- **Central resource for online document preparation.** To facilitate development of online documents, the state could provide a centralized service to state agencies that need to convert documents to a form suitable for posting online. Such a centralized service might allow economies in this processing and free individual departments from the need to each have such expertise and equipment.

K-12 Education

- **Availability in schools.** Internet-based resources have been demonstrated to be valuable in K-12 education, helping to meet needs of teachers, students, and administrators. However, not all schools and school districts yet have equal access to this technology. To the extent that these resources are productive in K-12 education, the state could take steps to encourage appropriate and equitable availability of Internet access in school classrooms, libraries, and technology laboratories.

- **Teacher training.** In view of increasing use of the Internet for educational purposes, the Legislature could encourage K-12 teachers to be trained in the use of Internet-based resources for classroom purposes. This training could encompass both the means of using the Internet for classroom purposes and an understanding of where Internet-based resources are and are not preferable to traditional resources. Knowledge of appropriate classroom Internet use could be included among teacher credentialing requirements and encouraged as a desirable qualification for promotion of current teachers.

- **Internet access for teachers and administrators.** If teachers are to be conversant and comfortable with Internet technology and resources, it is important that they have personal access to the Internet. To this end, the Legislature might consider a tax credit for home Internet access for teachers and administrators for purposes of training, school-related communications, and professional development.

- **Evaluation of K-12 Internet use.** The Legislature could commission or undertake a formal evaluation of K-12 educational use of the Internet in order to determine where school resources could be adjusted or redirected to make best use of Internet access, and to report to the Legislature on related findings and recommendations.

- **Online education clearinghouse.** There is an enormous amount of education-related information available online, but it is not necessarily easily found or used by those who need it. In order to facilitate use of available resources, the Legislature could direct the California State University system or the California State Department of Education to provide an online clearinghouse (Web site) helping teachers, administrators, parents, students, and the public to find and access education-related information.

Colleges and Universities

- **Online open university.** The Governor has already announced plans for an online "virtual university." In order to encourage continuing education among the broadest possible public, the Legislature could provide funding for a state "open university," with coursework, examinations, and resource materials available free online to anyone who chooses to access the information. Such a system could be run alongside a more formal online system that awards credit and requires registration and payment, as appears to be envisioned in the Governor's proposal.

CHAPTER 5: PRIVACY, FREEDOM OF SPEECH, AND INTERNET ABUSE

> "When every transaction leaves electronic footprints, pretty soon a computer knows things about us that we may want to keep hidden. I'm not talking about illegal things here, but simple stuff: a computer may know how much someone spent on liquor last week. How often I traveled to San Francisco. What phone calls I've made." (Clifford Stoll, *Silicon Snake Oil*, 1995)

The Internet can protect privacy through "anonymizers" and though pseudonymous screen names or user IDs. At the same time, however, the Internet and other computer technologies facilitate invasion of the privacy of individuals. This chapter outlines issues of personal privacy, freedom of speech, and risks to children and adults from materials and activities online. It then turns to Internet data security risks and types of misuse and abuse.

Personal Privacy

Computer databases have been widely used for decades and have posed controversial threats to the security and privacy of personal information.[158] Chapter 1025, California Statutes of 1996 (Senate Bill 1659, Peace and Calderon), cautions:

> (a) All people have an inalienable right to privacy as declared in Section 1 of Article I of the California Constitution.
>
> (b) Advances in technology have made it easier to create, acquire, and analyze detailed personal information about an individual.
>
> (c) Personal information, including information about a person's financial history, shopping habits, medical history, and travel patterns, is continuously being created.[159]

That bill established a "Joint Task Force on Personal Information and Privacy to make recommendations as to what changes to existing laws . . . are necessary to ensure that state law adequately protects the right of privacy and addresses the issues raised by the rapidly changing nature of information technology and systems." The Joint Task Force's findings and recommendations are to be compiled by the Legislative Analyst not later than March 1, 1998.

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[158] For one overview of the issues, see Ann Wells Branscom, *Who Owns Information: From Privacy to Public Access* (N.Y.: BasicBooks, 1994). Also see John V. Pavlik, *New Media and the Information Superhighway* (Needham Heights, Mass.: Allyn & Bacon, 1996), esp. pp. 277-81, and Smedinghoff, *Online Law*, Chapter 17, "Right of Privacy."
[159] From Section (1) of the bill.

The Internet has expanded access to information stored in databases and has made privacy concerns related to those databases more urgent, but it has not *fundamentally* changed the issues that already existed. Where the Internet does pose new issues and questions is in the use of online services themselves, as users' visits to Web sites may be logged, information observed in transit along the system, and patterns of information extracted from users' online activities.

This section summarizes some of the pertinent issues and methods affecting personal privacy on the Internet.

<u>Sale of Data</u>

The case that has generated the most publicity recently about privacy on the Internet is the Lexis-Nexis P-TRAK system. An e-mail chain letter circulated widely in the summer of 1996 reported that P-TRAK made personal information available to anyone with a credit card. The letter asserted that the file included Social Security number, credit histories and other financial information, addresses (current and former), mother's maiden name, phone number, birthdate, and other information. Lexis-Nexis responded to the chain letters and to press reports about P-TRAK, denying many of the allegations but ignoring others and confirming some. Lexis-Nexis, in a letter to the editor of the *Los Angeles Times*, explicitly denied that P-TRAK ever included "credit histories, bank account information, personal financial data, mother's maiden [name,] or medical histories."[160] Lexis-Nexis also emphasized that the system is a business-to-business service, available to subscribers only, not a consumer online service.

Nonetheless, P-TRAK does provide name of individual, current address, up to two previous addresses, month and year of birth, possibly the *individual's* maiden name,[161] and telephone number. In response to the flap, Lexis-Nexis removed Social Security numbers from the files only 10 days after initially including them in the files. Lexis-Nexis allows consumers to request removal from the database, and offers mail, fax, phone, and online methods for such requests.

Although all of the information in the P-TRAK file is publicly available (possibly at the cost of laborious research in public records), its availability online combined with the potential to link the information to other databases worries privacy advocates. Other information providers, for a sometimes substantial fee, "offer considerably more [personal data], including Social Security numbers, credit history and other personal information that would turn Sam Spade green with envy," according to a report in the *San Francisco Chronicle*.[162]

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[160] Posted at http://www.lexis-nexis.com/lncc/p-trak/ed.html.
[161] The distinction is critical, as mother's maiden name is often used to establish identity for credit account transactions.
[162] Julia Angwin and Jon Swartz, "P-Trak Defends Database," September 20, 1996, p. E1.

Tracking Online Activity

Internet users may think that what they do online is private, but they are wrong.   Some-times users knowingly give out information about themselves, as when they register for a site or complete an online questionnaire. Other times their visits and transactions are logged silently by the system they are visiting.

One means of tracking Web visits is the "Cookies" file. Quoting Netscape's concise but jargon-laden documentation of the concept:

> Cookies are a general mechanism which server side connections (such as CGI scripts) can use to both store and retrieve information on the client side of the connection. The addition of a simple, persistent, client-side state significantly extends the capabilities of Web-based client/server applications.[163]

To translate: "cookies" refers to a file placed on the user's hard disk. Under Netscape Navigator, the file is titled "cookies.txt." (If you are a Netscape user, look in your Netscape directory for the file, open it in a word processor, and take a look, but do not edit the file, as the file may be damaged if you do. Exit it without saving.) A "server side connection" is the business end of the Web transaction, so to speak. For example, if the user contacts the *New York Times*'s site, that site is the server (which means that it is serving information, or serving the visitor--the server provides service). A CGI (common gateway interface) script is a type of computer program used on the Web. The client side is the user's end of the transaction, his or her PC. A "persistent client-side state" is a set of information (a state) that remains in place (persists) between sessions. This is what enables a site to "know" a user's username and password for that site (if the user has requested that the information be stored on the local hard disk) and to track other information about that user. The information may be used to customize advertising displayed on the site for that user, to make specific features available, or to keep an accounting of usage or to track purchases from the site.

Servers need not access a cookie file to determine some information about a visitor to a site, as the user's IP address and browser enable the server to know the user's geographi-cal area, possibly company affiliation, and operating system. But these are fairly innocu-ous pieces of information.

Users may find their activities tracked in other ways, although not necessarily by servers or even for commercial purposes. Conversations online (chat sessions) may be logged to disk by any participant or by a system administrator and forwarded to any e-mail address. E-mail may be copied and forwarded, as may newsgroup posts. In short, users should assume that anything they say or do online outside of secure commercial transactions is or could become public.

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[163] "Persistent Client State HTTP Cookies Preliminary Specification," http://www.netscape.com/-newsref/std/cookie_spec.html.

Online Anonymity and Pseudonymity

Notwithstanding the previous assertion, the Internet does offer ways for users to be anonymous or pseudonymous. While the ability to hide or disguise one's identity online may serve privacy, it also may enable or encourage intrusions into the privacy of others.

The largest of the online services (about seven million members as of December 1996), America Online, allows each account up to five "screen names," or user names. Screen names may not exceed 10 characters and must consist of numerals and letters (upper or lower case or a mixture). Each screen name may have an associated "profile" presenting whatever information the user wishes to place online for others to view. *There is no requirement that any of this information be truthful.* This system allows multiple users (members of a family, for example) to have separate online identities (screen names) under the same master account, each with its own password, e-mail address, and Web space. It also allows users to present themselves under completely phony identities, with occasionally pernicious results.

Internet Relay Chat (IRC) allows the user to select a nickname and to change it at will, although others on the system may query the system to find the user's account (for example, jsmith@localservice.net), somewhat limiting anonymity. The amount and accuracy of information available varies. Some users of IRC might be easily traced by someone who chooses to do so, and others not traceable at all. In any event, at this point, it appears that IRC has been eclipsed in popularity, at least in the U.S., by AOL, Prodigy, and other services with chat features.

It is possible to use fraudulent return addresses on e-mail, a technique frequently used by spammers (junk e-mailers, see below) to prevent a barrage of angry responses or by individuals wishing to hide their identity.[164]

Anonymous remailing services (anonymizers) also facilitate anonymity by stripping identifying information from e-mail and resending with only a code number and the return address of the anonymizer. The most prominent and popular of these services, located in Finland, closed as a result of assertions that the site harbored pornographers (a charge that the proprietor disputes) and in response to requirements that the proprietor provide information to the Finish authorities about users of the system charged with crimes or copyright infringement, thus violating the assurance of anonymity.

One of the reasons for anonymizers and other methods of assuring anonymity is that some Internet users use e-mail, newsgroups, IRC, and bulletin boards to discuss sensitive topics and to participate in support groups. Issues include, for example, health concerns (cancer, communicable diseases, mental health), drug abuse, and sexual orientation. At the same time, however, anonymity can protect those who wish to harass participants in gay- and

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[164] The techniques and their limitations are beyond the scope of this paper.

lesbian-oriented newsgroups or to intrude on people seeking support for cancer, drug addiction, or depression.

Junk E-Mail: Who Owns your Internet Address?

One of the most publicized and acrimonious disputes on the Internet is over unsolicited commercial e-mail, known as "spam" or junk e-mail to those who dislike it.[165] Spammers (bulk commercial e-mailers) argue that they are entitled to send e-mailings just as users of the Postal Service are entitled to send commercial material to mailing lists. They also maintain that bulk e-mail is ecologically sound, as it saves paper, and that e-mail addresses are public information, just as street addresses are. Even with very small response rates, bulk commercial e-mail appears to be sufficiently profitable to keep its practitioners in business.

The analogy of bulk e-mail to bulk postal mail breaks down in that paper mail is easily sorted and disposed of (albeit at a waste of paper), while bulk e-mail may be costly to the recipient and, if received in large enough quantities, may make an e-mail box unusable. Those who have metered (non-flat-rate) e-mail may have to pay for the time required to sort, read, download, or delete unwanted e-mail. Further, spammers typically use phony return addresses, preventing unwilling recipients from even responding to the spammer to complain. Spammers argue that they provide a means of getting off of their mailing lists, but using the removal feature may be time-consuming and difficult, and the spammed maintain that the removal requests are ignored.

America Online, CompuServe, and other online services have sought to block junk e-mail and to kick spammers off their systems. Although America Online and others have won in the courts (pending further appeal), the onslaught of bulk e-mail continues, and the issue remains unresolved. E-mail filters offer some relief to beleaguered recipients, but spammers continue to change their network addresses to defeat filters at least temporarily.[166]

Freedom of Speech on the Internet

Speech on the Internet encompasses many facets, not all accorded the same weight under American law and treated even more diversely elsewhere in the world. These facets are as diverse as commercial speech, political speech, and "adult material." Courts have ruled that protection of free speech is as important on the Internet as it is in any other venue.[167] Yet what is available to one user online is available, directly or indirectly, to all, every-

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[165] The term "spam" is derived from a Monte Python Flying Circus skit that features prominent and repetitive references to Hormel's familiar delicacy.

[166] There is a Web site devoted entirely to "Beating the E-Mail Spammers": http://www.cciweb.com-/iway7/spam.html.

[167] For example, with reference to the Communications Decency Act. See below.

where in the world. No Internet governing body determines what content is and is not acceptable online.[168]

May restrictions on speech on the Internet *exceed* those imposed on other media? May restrictions be imposed on Internet postings *comparable to* restrictions imposed on other media? Fraudulent securities data and defamatory statements[169] are not protected on the Internet any more than they are when printed in newspapers or in circulars distributed via the Postal Service or spoken on a radio or television program. Legal redress is available against such postings in any format or medium, so the Internet does not raise fundamental new issues in those areas, although it may extend the reach of securities scams and libel.

The Internet allows material posted on a host computer in one jurisdiction to be immediately accessible from everywhere else in the world, including places that might take a very different view of the acceptability of the material in question or that are not reached by the legal system. Should the restrictive policies of one nation or area affect rights to post images or documents in another? This is a question that *ultimately* must be resolved through international agreement or worked out in practice, but that cannot be decided by any local or national jurisdiction acting alone.

Nonetheless, the United States Congress has attempted, via The Communications Decency Act of 1995 (CDA), to regulate certain aspects of speech on the Internet. CDA, part of the Telecommunications Act of 1996 (Public Law No. 104-104, 110 Stat. 56 [1996]), reads in part as follows:

> Section 223 (47 U.S.C. 223) is amended -
>
> (1) by striking subsection (a) and inserting in lieu thereof:
>
> "(a) Whoever --
>
> "(1) in interstate or foreign communications -
>
>   "(A) by means of a telecommunications device knowingly -
>
>   "(i) makes, creates, or solicits, and
>   "(ii) initiates the transmission of, any comment, request, suggestion, proposal, image, or other communication which is obscene, lewd, lascivious, filthy, or indecent, with intent to annoy, abuse, threaten, or harass an other person;

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[168] Network administrators and ISPs may, however, exercise such judgment. For example, the president of one Sacramento ISP told me that he had removed a pedophilia-oriented newsgroup from his server, and America Online requires subscribers to adhere to Terms of Service limiting what they may say, do, and post on the system.

[169] Defamation is *libel* if in print, and *slander* if spoken. (*Black's Law Dictionary*, Revised Fourth Edition.)