AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

GOVERNMENT ONLINE: STRATEGIES AND CHALLENGES

HEARING

BEFORE THE

SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION, AND TECHNOLOGY

OF THE

COMMITTEE ON GOVERNMENT REFORM

HOUSE OF REPRESENTATIVES

ONE HUNDRED SIXTH CONGRESS

SECOND SESSION

MAY 22, 2000

Serial No. 106–208

Printed for the use of the Committee on Government Reform



Available via the World Wide Web: http://www.gpo.gov/congress/house
http://www.house.gov/reform

U.S. GOVERNMENT PRINTING OFFICE

71–535 DTP WASHINGTON : 2001

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: (202) 512–1800 Fax: (202) 512–2250
Mail: Stop SSOP, Washington, DC 20402–0001

COMMITTEE ON GOVERNMENT REFORM

DAN BURTON, Indiana, *Chairman*

BENJAMIN A. GILMAN, New York
CONSTANCE A. MORELLA, Maryland
CHRISTOPHER SHAYS, Connecticut
ILEANA ROS-LEHTINEN, Florida
JOHN M. MCHUGH, New York
STEPHEN HORN, California
JOHN L. MICA, Florida
THOMAS M. DAVIS, Virginia
DAVID M. MCINTOSH, Indiana
MARK E. SOUDER, Indiana
JOE SCARBOROUGH, Florida
STEVEN C. LATOURETTE, Ohio
MARSHALL "MARK" SANFORD, South Carolina
BOB BARR, Georgia
DAN MILLER, Florida
ASA HUTCHINSON, Arkansas
LEE TERRY, Nebraska
JUDY BIGGERT, Illinois
GREG WALDEN, Oregon
DOUG OSE, California
PAUL RYAN, Wisconsin
HELEN CHENOWETH-HAGE, Idaho
DAVID VITTER, Louisiana

HENRY A. WAXMAN, California
TOM LANTOS, California
ROBERT E. WISE, JR., West Virginia
MAJOR R. OWENS, New York
EDOLPHUS TOWNS, New York
PAUL E. KANJORSKI, Pennsylvania
PATSY T. MINK, Hawaii
CAROLYN B. MALONEY, New York
ELEANOR HOLMES NORTON, Washington, DC
CHAKA FATTAH, Pennsylvania
ELIJAH E. CUMMINGS, Maryland
DENNIS J. KUCINICH, Ohio
ROD R. BLAGOJEVICH, Illinois
DANNY K. DAVIS, Illinois
JOHN F. TIERNEY, Massachusetts
JIM TURNER, Texas
THOMAS H. ALLEN, Maine
HAROLD E. FORD, JR., Tennessee
JANICE D. SCHAKOWSKY, Illinois

BERNARD SANDERS, Vermont (Independent)

KEVIN BINGER, *Staff Director*
DANIEL R. MOLL, *Deputy Staff Director*
DAVID A. KASS, *Deputy Counsel and Parliamentarian*
LISA SMITH ARAFUNE, *Chief Clerk*
PHIL SCHILIRO, *Minority Staff Director*

SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION, AND TECHNOLOGY

STEPHEN HORN, California, *Chairman*

JUDY BIGGERT, Illinois
THOMAS M. DAVIS, Virginia
GREG WALDEN, Oregon
DOUG OSE, California
PAUL RYAN, Wisconsin

JIM TURNER, Texas
PAUL E. KANJORSKI, Pennsylvania
MAJOR R. OWENS, New York
PATSY T. MINK, Hawaii
CAROLYN B. MALONEY, New York

EX OFFICIO

DAN BURTON, Indiana
HENRY A. WAXMAN, California

J. RUSSELL GEORGE, *Staff Director and Chief Counsel*
RANDY KAPLAN, *Counsel*
BRYAN SISK, *Clerk*
TREY HENDERSON, *Minority Professional Staff Member*

CONTENTS

Page

Hearing held on May 22, 2000 1

Statement of:

McClure, David L., Associate Director, Governmentwide and Defense Information Systems, General Accounting Office; George R. Molaski, Chief Information Officer, Department of Transportation; Donald W. Upson, Secretary of Technology, Commonwealth of Virginia; Patricia McGinnis, president and chief executive officer, Council for Excellence in Government; David Gardiner, vice president, architecture and technology, Unisys Corp.; Lee Cooper, vice president business development, U.S. Federal Government Group; and Kathleen deLaski, group director, editorial products, America Online 3

Letters, statements, etc., submitted for the record by:

deLaski, Kathleen, group director, editorial products, America Online, prepared statement of 76

Gardiner, David, vice president, architecture and technology, Unisys Corp., prepared statement of 58

McClure, David L., Associate Director, Governmentwide and Defense Information Systems, General Accounting Office, prepared statement of ... 7

McGinnis, Patricia, president and chief executive officer, Council for Excellence in Government, prepared statement of 51

Molaski, George R., Chief Information Officer, Department of Transportation, prepared statement of 30

Upson, Donald W., Secretary of Technology, Commonwealth of Virginia, prepared statement of 41

GOVERNMENT ONLINE: STRATEGIES AND CHALLENGES

MONDAY, MAY 22, 2000

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON GOVERNMENT MANAGEMENT,
INFORMATION, AND TECHNOLOGY,
COMMITTEE ON GOVERNMENT REFORM,
Herndon, VA.

The subcommittee met, pursuant to notice, at 1 p.m., in the Auditorium, Center for Innovative Technology, Herndon, VA, Hon. Stephen Horn (chairman of the subcommittee) presiding.

Present: Representatives Horn and Davis.

Staff present: J. Russell George, staff director and chief counsel; Randy Kaplan, counsel; Bonnie Heald, director of communications; Bryan Sisk, clerk; Elizabeth Seong and Michael Soon, interns; Melissa Wojciak, professional staff member, Subcommittee on the District of Columbia; Barbara Tempel, community outreach director for Representative Davis; John Hicks, audio/visual technician, Center for Innovative Technology; Trey Henderson, minority counsel; and Jean Gosa, minority clerk.

Mr. HORN. A quorum being present, the Subcommittee on Government Management, Information, and Technology will come to order.

New and emerging information technology is revolutionizing the way citizens communicate with their Federal Government. The Government's gradual transformation to electronic government—or e-government—already provides Internet users with access to more than 20,000 Federal Web sites. In addition to providing useful information, many agencies have begun offering interactive, on-line services.

Today Internet users on-line can file their income tax return, buy coins from the U.S. Mint or reserve a campsite at a U.S. park. On-line procurement programs, such as the General Services Administration Advantage program, allow Federal agencies to buy supplies and equipment with the click of a mouse button. Other procurement programs provide information on government contracts. This improved service reduces both the time and cost of doing business with the Government.

By the end of this year, nearly 40 million Americans will communicate with the Government electronically. And that demand will swell as even more people join the information age.

Electronic government offers the potential to reinvent the way citizens and businesses alike interact with government. The bene-

fits of this new form of government are plentiful, and the challenges profound.

To be successful, government Web sites must be well organized and readily accessible, which is not necessarily true today.

Citizens and businesses should expect government Web sites to offer the same quality and service found on many business Web sites. They must be confident that their on-line communications with the Government are secure and personal information is fully protected. Additionally, the large investment necessary to create the Government's electronic infrastructure must be carefully planned and managed to avoid risking the loss of billions of taxpayer dollars.

We must bridge the digital divide so that citizens have access to this new electronic environment.

With proper education and training the Federal work force can be up to the challenge. Currently, there is a nationwide shortage of skilled information technology workers. Over the next few years, a substantial number of Federal employees will retire. Others who are skilled in information technology will leave government service for more lucrative opportunities in the private sector. Where possible, the executive branch must find creative ways to retain and retrain this vitally important work force. If that fails, the new civil servants must gain the skills needed for the times in which we live.

Today we will hear from a number of experts from both the public and private sector who will discuss this very important subject.

I thank the gentleman from Virginia, Representative Tom Davis, who is a member of our subcommittee, and the Center for Innovative Technology for hosting today's hearing.

We welcome our distinguished panel of witnesses and look forward to their testimony. And now I ask if the gentleman from Virginia, Mr. Davis has an opening statement he would like to make.

Mr. DAVIS. Good afternoon, Mr. Chairman, and thank you for holding this important statement. I ask that my complete statement be put in the record.

Mr. HORN. Without objection.

Mr. DAVIS. I want to welcome all the panelists for being here both from the private sector and government sector and say that I have to leave early, so I will keep my remarks brief and let you proceed.

Mr. HORN. Thank you. We will now start with the presentations, and let me say we will go down the witness list in the order you see, and we will swear in the panel, which is what we do in the Committee on Government Reform, and we also—the minute we introduce you your complete document is automatically put in the record. We would like you to summarize within 5 minutes if you can. If you run over we won't be rigid about it, but we would like a summary and this focuses your testimony. We have had a chance to read many of the testimonies, but not all of them, and some people are missing today. So if you would stand ready to affirm and swear and take the oath.

[Witnesses sworn.]

Mr. HORN. We will start with David L. McClure, Associate Director, Governmentwide and Defense Information Systems, of the legislative branch's General Accounting Office. They are usually good

witnesses to begin with. They do superb work around the country in the executive branch. Please proceed.

STATEMENTS OF DAVID L. McCLURE, ASSOCIATE DIRECTOR, GOVERNMENTWIDE AND DEFENSE INFORMATION SYSTEMS, GENERAL ACCOUNTING OFFICE; GEORGE R. MOLASKI, CHIEF INFORMATION OFFICER, DEPARTMENT OF TRANSPORTATION; DONALD W. UPSON, SECRETARY OF TECHNOLOGY, COMMONWEALTH OF VIRGINIA; PATRICIA McGINNIS, PRESIDENT AND CHIEF EXECUTIVE OFFICER, COUNCIL FOR EXCELLENCE IN GOVERNMENT; DAVID GARDINER, VICE PRESIDENT, ARCHITECTURE AND TECHNOLOGY, UNISYS CORP.; LEE COOPER, VICE PRESIDENT BUSINESS DEVELOPMENT, U.S. FEDERAL GOVERNMENT GROUP; AND KATHLEEN deLASKI, GROUP DIRECTOR, EDITORIAL PRODUCTS, AMERICA ONLINE

Mr. MCCLURE. Good afternoon, Mr. Chairman and members of the subcommittee. I appreciate the opportunity to be here today with the panel of experts in e-business and e-government that you and your staff have assembled.

As you know, e-commerce, e-business and now e-government are topics of growing interest in the Congress. GAO is conducting numerous reviews involving on-line or Internet-related information issues, such as Web site privacy policies, State taxation of Internet sales, Smartcard and purchase card use and Internet access competition.

The Internet offers unique opportunities for government agencies to improve internal operations and provide on-line public access to information and services. But, as the recent rash of computer viruses have served to illustrate, this increased open interconnectivity and convenience comes with risks that must be mitigated, notably security and privacy.

In my remarks today I will focus on three points: One, the drivers behind electronic government; two, the opportunities opening up with the Government agency use of the Internet; and, third, five specific challenges that are confronting e-government that deserve increased attention.

First, let me touch on some of the critical drivers behind e-government.

The Federal Government's movement toward greater use of on-line service delivery and citizen and business access is being pushed by market forces in private industry. There are also great expectations for electronic government that comes from a diverse statutory and policy framework such as statutes authorizing agency programs and general management status that explicitly call for electronic or on-line access. In addition, the executive branch has issued numerous policies that began as early as 1993 with the NPR.

All of these actions are prompted in large part by a need for the Government to tangibly demonstrate an ability to improve its services and access to citizens and a recognition that Web-based technologies can provide a friendly citizen interface over sometimes confusing and suboptimized government structures, responsibilities and processes.

That brings me to my second major point. The Government's use of the Internet is evolving. For the most part, there seems to be a consensus that governments are in the early stages of shifting to citizen-centered services via the Internet. However, it is being accelerated by quick advances in Web-based technologies, improved software applications, and a phenomenal growth in Internet access and usage. In the interest of simplicity and time, let me just point out some examples in three areas that are common across all levels of government. The first area is interactive communication and information dissemination such as Access America for Seniors, an entry portal for seniors to reach diverse government information on benefits, taxes, health and nutrition and consumer protection.

Second, are transactions and applications such as IRS' electronic tax administration program, which makes use of the Web to allow citizens to file taxes via the Internet.

Third are on-line procurement activities such as GSA's Electronic Posting System, a pilot program that allows vendors to search for contracting opportunities over $25,000, including solicitations and awards, as well as GSA Advantage, which allows agencies to search for products and services and place orders from GSA's Federal supply schedule contractors.

Now let me turn to the five challenges that really confront us in making the transition to full electronic service delivery. These are not insurmountable areas but they deserve attention.

The first is adequate executive management leadership and involvement. Given our many hearings with you, Mr. Chairman, I feel like I am preaching to the choir on this issue. Our best practices studies at GAO confirm that top management leadership, involvement, ownership, and vision are the cornerstone of any information technology initiatives. Delegating everything to technologists can be dangerous. In our rush to electronic service delivery, it is important to remember fundamental principles and practices of good IT planning and management—they equally apply to effective customer-centric Web-based applications. For example, using such things as measurable performance improvement expectations, risk identification and mitigation strategies, and using industry standard technology and solutions where appropriate.

Perhaps the most pressing leadership challenge is how to best use the Internet to deliver services to citizens and business partners. The administration, through the efforts of agencies, NPRG, the National Partnership for Reinventing Government, and the Council of Excellence in Government is focused on efforts to help bridge this gap. At present we are confronted with realities of disparities in Internet access across citizen groups, rural area populations and the disabled and small businesses also have problems with getting Internet access as well. How we ensure continued service delivery to these segments while increasing their ability to participate in this electronic environment is an important issue. Multiple access methods to government service, via phone, fax, public kiosks, may be essential to supplement Internet use.

The second challenge is developing a "citizen as customer" focus in government. The Internet is forcing organizations to rethink basic business and service delivery processes. How customers digest information and services in a viewable electronic format can

significantly differ from traditional ways of thinking. Certainly as Internet usage matures for government, citizens may expect more consistent levels of service across agencies, such as highly navigable Web sites, intelligent search capabilities that go beyond static posting of information, and interoperable authentication policies and methods.

That brings me to my third challenge, security and privacy. Clearly all participants in the Internet age have to feel comfortable with using electronic means to carry out private and sensitive transactions, whether it be obtaining a license, to bidding on a contract, paying taxes, or receiving a benefit claim. That comfort level varies right now and concerns are certainly not unjustified. As our work has pointed out, information security weaknesses persist across the Federal Government and they are compounded by the openness of the Internet. The Melissa, "ILoveYou" and now the "NewLove" computer viruses remind us that the interconnectivity of the Internet warrants special attention to security and privacy issues. A big piece of the solution to this problem will be the continued development and implementation of the Public Key Infrastructure [PKI], technology.

Stated simply, PKI is a system of computers, software, and data that rely on specific cryptographic techniques to secure on-line messages or transactions. There are some 24 PKI pilot programs in place across the Federal Government. There are some key questions involving the interoperability of certificates used in these programs. GSA is leading a governmentwide effort to facilitate public secure access to government information and services through its ACES, or Access Certificates for Electronic Services program. Experience has been limited to date, with the first vendor authorized to issue certificates just last month.

The fourth challenge deals with other technology-related issues associated with e-government that simply cannot be ignored. Computers and networks allow information and services to be organized in dramatic new ways. Adequate technical infrastructure is absolutely essential for the Federal Government to move in this direction. That means that network capacity planning and acquisitions to support both the increased electronic traffic and the diverse voice, data, and video offerings are necessary. Operating system and software reliability matters take on a new level of priority when your transactions move on-line, especially in a 7-day a week, 24-hour environment. Good business and system architecture planning are also two areas where GAO has done significant work, and it must be done well to avoid increased and unnecessary investment costs, development times, and performance shortcomings.

The fifth and final challenge deals with human capital issues. This year it is estimated that employers will seek to fill 1.6 million new IT jobs, with the greatest demand for enterprise systems integration and Web development positions. We have a situation of high work complexity and scarcity of qualified applicants. The public and private sectors are competing with each other in these areas and the Federal Government is increasing its outsourced IT services and development, it has further increased the demand for traditional skills like project and contract management.

In conclusion, Mr. Chairman, in the future, the promise of Internet-based technologies offers exciting new ways for government to more effectively and efficiently interact with and provide services to citizens. It is already happening, as advanced by the examples I have offered and those yet to be discussed by our other panelists.

The Federal Government is certainly not standing still, and expectations, if not set by citizens themselves, are clearly set both by law and Presidential actions. The speed, the pace and the direction of Internet-based solutions in government will vary. They must effectively deal with so many of the same basic challenges that all technology initiatives face in both the public and private sector. Government executives must work effectively with their CIOs and they must embrace e-government proposals and work with Congress to develop effective investment strategies that will make them realities, and we must expect that these investments demonstrate their impact by lowering costs, raising productivity, enhancing service delivery quality and timeliness, and freeing up resources and management attention for other problem areas and priorities.

Thank you, Mr. Chairman. That concludes my remarks. I will be happy to respond to any questions.

[The prepared statement of Mr. McClure follows:]

United States General Accounting Office

GAO

Testimony

Before the Subcommittee on Government Management, Information and Technology, Committee on Government Reform, House of Representatives

For Release on Delivery
Expected at
1 p.m.
Monday,
May 22, 2000

ELECTRONIC GOVERNMENT

Federal Initiatives Are Evolving Rapidly But They Face Significant Challenges

Statement of David L. McClure
Associate Director, Governmentwide and Defense Information Systems
Accounting and Information Management Division





GAO/T-AIMD/GGD-00-179

Mr. Chairman and Members of the Subcommittee:

I appreciate the opportunity to be here today to participate in the Subcommittee's hearing on electronic government issues. There is perhaps no topic that generates more lively discussion than the rapid changes that the Internet is introducing to our personal lives, the economy, and institutions throughout our society. The United States is the world's leading Internet nation, with over 110 million users. By some estimates, worldwide Internet traffic is doubling every 100 days.

Electronic commerce and business strategies made possible by widespread Internet access and interconnected systems are transforming how organizations, both public and private, will operate in the next decade. This trend is accelerating at a rapid pace, with investments in information technology expected to account for 40 percent of all capital investment in the United States by 2004. According to recent forecasts by the Gartner Group, spending by federal, state, and local governments on e-government will quadruple over the next 5 years, from $1.5 billion in 2000 to $6.2 billion in 2005.

Mr. Chairman, the rising connectivity and interdependence fostered through information technology create both benefits and challenges. The potential for benefits to the public sector is vast. Today, governments at all levels are using the Internet and other electronic commerce means to improve internal business operations and to provide on-line public access to information and services. Opportunities for further improvements abound. New global Web technology applications and opportunities undoubtedly will continue to transform the way the federal government conducts business, communicates, and interacts with citizens, industry, and other government entities.

As we recently witnessed with the "ILOVEYOU" computer virus, the potential for improvements in service and productivity offered by the Internet come intertwined with a whole new set of management challenges.[1] As such, electronic business initiatives must still address the many costs, benefits, and risks associated with any information technology decision-making. With the speed and ease of massive interconnectivity offered by the Internet, improvements in operational

[1] *Critical Infrastructure Protection: "ILOVEYOU" Virus Highlights Need for Improved Alerts and Coordination Capabilities* (GAO/T-AIMD-00-181, May 18, 2000) and *Information Security: "ILOVEYOU" Computer Virus Emphasizes Need for Agency and Governmentwide Improvements* (GAO/T-AIMD-00-171, May 10, 2000).

efficiencies, lower costs, and improved customer service delivery truly can be dramatic. On the other hand, general business risks such as fraud, theft, and destruction of assets, along with legal issues such as liability and the loss of reputation, are exacerbated by the openness of the Internet. Other matters related to adequate technical infrastructure planning, stability in the numbers and skills of the technology workforce required to build and maintain web-enabled products and services, and adequate top management leadership and involvement further complicate the underlying challenges.

Congressional interest in both the opportunities and challenges posed by electronic government is evident from the numerous oversight hearings and legislative proposals on topics ranging from Internet taxation, privacy, computer security, consumer protection, open access, and competition. At GAO, we have numerous reviews underway examining these and other electronic government issues, such as use of the Internet to improve rule-making and the implementation of electronic commerce programs at specific agencies. We expect to be able to provide more comprehensive information and analyses on many of these topics in the near future.

In my remarks today, I would like to address a few key aspects of the evolving electronic government environment. Specifically, I'll focus on the statutory and policy framework, describe key efforts to implement electronic government programs, and outline the major challenges confronting both government and the private sector in making the transition to on-line business and service environments. Because the terms electronic commerce and electronic government are often used interchangeably, let me begin by briefly discussing how they overlap. As I will discuss shortly, the same capacities that are transforming the business community offer equal opportunities for government to excel.

Electronic Government Can Build Upon Electronic Commerce Experiences and Approaches

Many private sector enterprises are now working hard to take advantage of the new opportunities created by ubiquitous Internet connectivity. For these companies, e-commerce has three important aspects. First, it means streamlining the way business is conducted to reduce paperwork and delays, increasing operational efficiencies, and enhancing customer service. Second, beyond enhancing existing business avenues, the world of e-commerce is leading to the creation of entirely new digital products and new markets for those products. Finally, in response to these new products and markets, new classes of buyers and sellers are emerging to take advantage of those opportunities.

The basic idea of e-commerce has actually been around for quite some time, but the World Wide Web has brought a lot of changes and new opportunities in the last few years. Until recently, e-commerce was mainly identified with electronic data interchange, or EDI. EDI allows one business's computer system to send routine information about transactions to another business's system, following standardized formats. Its focus is on business or trading partner data interactions, not serving consumers directly. The rise of the World Wide Web over the last few years has dramatically broadened the scope of electronic commerce. Electronic commerce is now seen as encompassing all aspects of buying and selling electronically, including marketing, end-to-end transactions with consumers, and on-line auctions. It is transacted through a variety of technologies, including EDI, electronic mail, electronic funds transfer, and web-based applications.

Electronic commerce often involves two kinds of relationships: business-to-business and business-to-consumer. Generally business-to-business relationships are ongoing and contractually established, involving many transactions over a long period of time, such as between a commercial business and its suppliers. Typically, the seller extends credit to the buyer, and transactions are initiated with purchase orders, which are used to monitor and control the entire buy-sell-pay process.

The business-to-consumer relationship is a newer one that largely builds on the emerging power of the World Wide Web. It involves moving information, products, and services on-line for consumption and purchase by consumers. Indeed, the Web is forcing businesses and governments alike need to rethink their methods of communicating and interacting with the public, and, in some cases, rethink how they deliver their core mission services and products. Already we have seen a wave of new electronic businesses spring up on the Internet to capitalize on the Web's advantages of (1) attracting broad new customer communities, (2) setting up and maintaining a Web "storefront," and (3) highly targeted marketing with tailored offers that the consumer can accept and finalize on the spot.

The recent advances in web-based commerce mean that comparable advances in e-government are just as possible. Generally speaking, electronic government refers to government's use of technology, particularly web-based Internet applications, to enhance the access to and delivery of government information and service to citizens, business partners, employees, other agencies, and government entities. It has the potential to help build better relationships between government and the public by making interaction with citizens smoother, easier, and more efficient. Indeed, government agencies report using electronic commerce

to improve core business operations and deliver information and services faster, cheaper, and to wider groups of customers. For example, the Department of Defense (DOD), the National Aeronautics and Space Administration (NASA), the General Services Administration (GSA) and other agencies have been implementing on-line procurement operations for several years. The Internal Revenue Service (IRS), the Department of Education, and the Social Security Administration have been actively using electronic commerce techniques to improve service delivery to taxpayers, students, and senior citizens. As such, e-government includes many of the same characteristics of electronic commerce used in the private sector, with the exception of having a more defined customer base and less focus on revenue generation as a primary business driver.

A Diverse Statutory and Policy Framework Underlies Expectations for Electronic Government

While market and technology developments in private industry are inevitably bumping the public sector more and more into the e-business domain, an evolving framework of laws and policies are influencing the speed, pace, and direction of electronic government initiatives. In many cases, statutory requirements authorizing agency programs may explicitly mandate action that involves electronic and on-line processes. These agency actions can vary widely, ranging from efforts to improve internal business operations to mandates for reforms outside the agency. For example:

- The Clinger-Cohen Act of 1996 requires GSA to provide governmentwide on-line access to information about products and services available under the multiple award schedules program.[2]
- The Fiscal Year 1999 DOD Authorization Act required DOD to establish a single, Defense-wide electronic mall system for ordering supplies and materials.[3]
- The Electronic Benefit Transfer Interoperability and Portability Act of 2000 requires the Department of Agriculture (USDA) to establish a national standard of interoperability and portability for electronic food stamp benefit transactions.[4]

[2]Sec. 5401, P.L. 104-106, 40 U.S.C. 1501

[3]Sec. 332, P.L. 105-261, 10 U.S.C. 2451 note.

[4]P.L. 106-171, 7 U.S.C. 2016.

Additionally, federal departments and agencies are governed by general management statutes that affect electronic processes, again, in a variety of ways. For example:

- In response to the Clinger-Cohen Act, federal agencies are developing internal investment control and performance management processes designed to improve their acquisition, use, and management of information technology. This has spurred attention to new information systems—many web-based—such as the Information Technology Information Processing System (I-TIPS) supported by the federal Chief Information Officers (CIO) Council and currently used by several federal agencies including the Departments of Housing and Urban Development, the Treasury, Labor, Energy, and Agriculture.[5]

- The Privacy Act requires agencies to protect the confidentiality of records containing personal information and forms the basic requirements that are now being applied to protecting personal information that is captured by agency web sites.[6]

- The Government Paperwork Elimination Act of 1998 sets a deadline of October 2003 for agencies to develop capabilities to permit, where practicable, electronic maintenance, submission, or disclosure of information, including the use of electronic signatures.[7]

In addition to legal statutes, the executive branch coordinated cross-agency projects and issued numerous policies in the last few years encouraging the growth and adoption of electronic government. For example, in 1993, the National Performance Review (NPR), initially developed proposals to implement electronic government. In 1997, NPR outlined further steps to encourage and increase citizen and business Internet access to the most commonly requested government services.[8] These and other similar efforts reflect two overarching themes supported

[5]I-TIPS is a web-based Internet or intranet decision support and project management tool for managing information technology investments. It was initially funded through an award from the Government IT Services Board and the Interagency Management Council's IT Innovation Fund.

[6]P.L. 93-579, 5 U.S.C. 552a; OMB Circular No. A-130, Appendix I, "Federal Agency Responsibilities for Maintaining Records About Individuals."

[7]Title XVII, P.L. 105-277, 44 U.S.C. 3504 note.

[8]*Creating a Government That Works Better and Costs Less: Reengineering Through Information Technology*, accompanying report of the National Performance Review, Vice President Al Gore, September 1993, and *Access America: Reengineering Through Information Technology*, National Performance Review, 1997.

by champions of e-government: (1) a need for the federal government to tangibly demonstrate an ability to improve its "service and access to the citizen" and (2) a recognition that web-based technologies can be effective levers to override cultural and organizational barriers to change. That is, web-based applications can provide a friendly citizen interface over confusing and suboptimized government agency structures, responsibilities, and processes.

Other executive branch policies seek to ensure private sector leadership and avoid unnecessary governmental regulation. For example, in 1997 the Administration outlined the following policy principles in a special report:[9]

- The private sector should lead.
- Governments should avoid undue restrictions on electronic commerce.
- Where governmental involvement is needed, its aim should be to support and enforce a predictable, minimalist, consistent, and simple legal environment for commerce.
- Governments should recognize the unique qualities of the Internet.
- Electronic commerce over the Internet should be facilitated on a global basis.

Particularly in the last 6 months, the administration has devoted increasing attention to promoting electronic government. On December 17, 1999, presidential memoranda directed agencies to undertake numerous actions to provide "one-stop access" to government information and services and better, more efficient services and accountability, and to promote the broader social benefits of information technology.[10] Among other things, agencies are tasked with providing easy public access to government information on the Web, making forms available on-line, and making assistance benefits available through private, secure on-line transactions.

In addition to these actions taken by the administration, a number of cross-agency groups have emerged to assist agencies in managing the transition from paper to electronic services. For example, the Federal Electronic Commerce Program Office, co-chaired by GSA and DOD, is

[9] *A Framework for Global Electronic Commerce*, The White House, July 1, 1997.

[10] Presidential Memorandum on "Electronic Government"; Presidential Memorandum on "Use of Information Technology To Improve Our Society," Dec. 17, 1999.

chartered to provide central leadership, coordination, and reporting on the governmentwide electronic commerce implementation. In addition, the Interagency Acquisition Internet Council was established to promote ways of using the Internet to streamline the federal acquisition process. Similarly, the Interagency Electronic Grants Committee (IAECG) was established to promote the use of electronic commerce throughout the federal grants community.

Both the President's Management Council (PMC) and the CIO Council have announced initiatives to support the goal of promoting electronic government. The PMC, for example, has formally set a cross-agency goal of committing the necessary resources and priorities to ensure creation of a one-stop on-line help center that will be available through a central web access point, or portal. The PMC has committed to reprogram the necessary resources, currently estimated to be several million dollars, to get this effort started. Called WebGov, it will help guide citizens to various federal government web sites with the information or services they need. The PMC is currently evaluating how best to facilitate the efforts of Internet Service Providers and other Internet companies to improve their customers' access to government information.

The CIO Council recently established an e-government committee that is formulating a strategic plan and undertaking various short-term initiatives. Several of these efforts involve working in partnership with industry and state governments. For example, CommerceNet (a nonprofit market and business development organization) is working with the federal government to allow citizens to find on-line government surplus items.

Government Use of the Internet Is Evolving

For the most part, federal, state, and local governments are in the early stages of shifting their perspective to citizen-centered services and are just beginning to move towards the real potential of e-government. In August 1999, GSA in conjunction with the Intergovernmental Advisory Board (IAB), reported that the development of on-line transactional services is in its early stages and the number of governments producing a wide variety of integrated services was still small.[11] But government use of Internet-based services is broadening and becoming more sophisticated. In particular, agencies are increasingly turning to the Internet to conduct paperless acquisitions (electronic malls), provide interactive electronic services to the public, and tailor or personalize information. The GSA/IAB

[11] *Integrated Service Delivery: Governments Using Technology to Serve the Citizen*, Intergovernmental Advisory Board, August 1999.

study mentioned above suggests that the next step is to determine whether the use of the Internet is actually improving government services and being integrated across different levels of government.

To provide a better picture of the scope and range of ongoing e-government activities, I would like to elaborate on some ongoing individual efforts as they relate to trends in using the Internet to conducting basic transactional services, on-line procurement, and interactive communication and information dissemination.

Transactions and Applications

It is increasingly common to find governments are using the Internet for basic transactional services, such as submitting and paying taxes, processing renewal fees, and filing applications. For example,

The Electronic Tax Administration (ETA), is designed to reduce taxpayer burden by making it easier and faster to file returns and communicate with IRS. IRS expects to receive over 33 million electronically filed individual tax returns in fiscal year 2000, or over 26 percent of all individual tax returns. One key initiative for fiscal year 2000 is expanding the use of identification numbers to facilitate secure filing by tax preparers. IRS also plans to make more electronic payment options available and to accept more forms and schedules through electronic filing.

Several state and local governments offer on-line, form-based transactions, such as job applications, business and professional licensing, and registering vehicles. For example, the state of Florida's web site[12] offers easy-to-navigate categories of information and services, including on-line job applications, consumer complaint forms, and business and professional license searches. The state of Virginia became the first state to allow citizens to renew drivers' licenses via the Web. It allows citizens to log onto the Department of Motor Vehicle's web site, check on whether personal information is correct, and pay the renewal fee with a credit card.

On-line Procurement

In addition to serving citizens, governments are also using the Internet to buy the goods and services that support their operations. Many federal agencies and state governments are using on-line catalogs, ordering, payment, and posting of contracting opportunities and awards. For example:

[12] *http://fcn.state.fl.us/gsd/.*

- The state of West Virginia has an electronic bid submission program and the state of Florida has Web site services relating to purchasing and leasing. The state of Texas also receives electronic bids and proposals and is establishing an electronic procurement marketplace, which is expected to be operating statewide by September 2001.

- Since 1998, the GSA has been working with several other agencies to provide businesses, large and small, with convenient, single point-of-entry Internet access to synopses of government contracting opportunities, solicitations, awards, and other acquisition-related documentation. The Electronic Posting System (EPS) initiative—currently in a pilot stage—allows vendors to search for contracting opportunities over $25,000, receive automatic e-mail notification about agencies' requirements for specific supplies or services, receive automatic e-mail notification about changes and amendments to solicitations, download documents related to a specific procurement; and view summaries of contract awards.

- In September 1995, GSA Advantage went on-line. It was the federal government's first electronic catalog on the Internet. Advantage allows agencies to search for products and services and place orders from GSA's federal supply schedule contractors. According to GSA, there are currently over 2,000 schedule vendors on Advantage and fiscal year 1999 sales were $86 million.[13] We are currently conducting a review of the Advantage program for this Subcommittee and expect to report on our assessment later this year.

Interactive Communication and Information Dissemination

Governments are also establishing "portals" or integrated web sites for targeted citizen information and services. Increasingly, agencies are working together to aggregate government information and services by category and citizen interest. For example:

- Access America for Seniors[14] is designed to be an entry portal for senior citizens to reach government services and information on such topics as benefits, taxes, health and nutrition, and consumer protection. Similarly, the Access America for Students web site[15] acts as a gateway to

[13] In 1998, the GSA Inspector General (IG) reported that GSA was experiencing difficulties in placing schedule products on-line and vendors were concerned about data formatting and transmission. Some vendors also felt that Advantage duplicated their own Internet web site development efforts. The IG recommended that GSA develop a comprehensive plan that outlines the critical actions needed for achieving Advantage's objectives.

[14] *http://www.seniors.gov.*

[15] *http://www.students.gov.*

information of interest to students, with links to some on-line transactional resources such as applications for federal financial aid, a calculator (to compute monthly loan repayments), a form to consolidate loan repayments, selective service applications, and links to the IRS e-filing service.

- Several federal agencies are developing expert systems and intelligent technology to provide businesses compliance assistance and to reduce burden. For example, the Department of Labor has developed 18 "E-law Advisors," web-based expert systems that the public can query through menus and routine questions to better understand and comply with DOL regulations. Occupational Safety and Health Administration is working on the next generation of these systems that would combine interactive questionnaires and electronic forms with legal analysis.

- More than 20 federal agencies are participating in the Federal Commons, an interagency effort to use electronic commerce to streamline grants administration. The federal government has over 800 grant programs managed by 33 agencies. Each program has a unique legislative base. As a result, there is a plethora of different forms, procedures, award decision-making processing systems, and payment systems. The Federal Commons web site is expected to become the single point of entry for federal grants programs and a central repository for grant-related information. At present, the site accepts data from grant applicants and recipients for the 20 participating agencies in any format and transmits the data to each agency in its desired format.

Challenges in Transitioning to Electronic Government

As you can see, Mr. Chairman, the opportunities for the growing use of e-government to provide faster, convenient, and efficient on-line services to citizens are immense. Many innovative applications and services are just in early development and adoption stages. However, past mistakes serve to remind us that technology solutions may often involve risks in addition to expected benefits. Let me briefly address some significant challenges confronting government in making the transition to full electronic service delivery. None are insurmountable, but they deserve attention and must be addressed to ensure successful e-government outcomes.

Effective Executive Leadership and Management

Effective top management leadership, involvement, and ownership are a cornerstone of any information technology investment strategy. Effective and responsive management processes must support electronic government initiatives—like any other information technology project—

and decision-making that is focused on achievements in quality improvements, cost-effectiveness, speed in service delivery, or operational effectiveness.

As government expands the volume and scope of its electronic business transactions and the diversity of the users of electronic services, it will become increasingly important for government leaders and managers to devote time and attention to interagency and intergovernmental design, implementation, and coordination of these programs. Information technology (IT), particularly web-based applications, provide the opportunity to reengineer government and to allow government services to be organized in ways that fit the needs of citizens rather than the requirements of bureaucracies.

In government's rush to electronic service delivery, it is important to remember that fundamental principles and practices of good IT planning and management apply equally as well to effective customer-centric web-based applications. Some of these fundamentals include

- developing a well-defined project purpose and scope and realistic, measurable expectations,
- understanding and improving business processes before applying technology,
- performing risk assessments and developing appropriate risk mitigation strategies,
- using industry standard technology and solutions where appropriate,
- adopting and abiding by data standards,
- training thoroughly and supporting users, and
- reviewing and evaluating performance metrics.

An immediate and complex leadership challenge confronting government policymakers and managers is the need to adopt informed strategies to guide agencies in how best to use the Internet to deliver services to all citizens and business partners. Today there is considerable disparity in access to and use of the Internet among citizen groups and businesses. Those with limited access include many small businesses and citizens who live in remote areas and the inner city, businesses and citizens with little or no computer knowledge, and the disabled. An important policy consideration governments face is how to provide services and access to

these segments of the population and ensure their participation in this new electronic environment. Multiple access methods to government services and processes—in person, by phone, via fax, using public kiosks—may be essential to supplement Internet use.

Developing and Sustaining a "Citizen as Customer" Focus

Today, governments at all levels increasingly recognize the individual citizen and citizen "communities of interest" as customers. However, translating this growing awareness into better, efficient, and friendly services can be challenging. Among other things, it requires commitment to a "customer-centric" vision throughout the agency, and a long-term, enterprisewide view of operations rather than the "silo" thinking that has long characterized the way governments have operated.

Just as the Internet and web-based technologies force organizations to rethink their business processes, they force organizations to reconsider their customers—specifically how their customers need, perceive, and digest information and services in a viewable, electronic format. For example, private industry web sites are increasingly being tailored to allow for individual preferences and needs to restrict information only to those products and services desired. Interactive and e-mail messages are transmitted to remind specific customers of products, services, and information that they have expressed past interests in. "Interactive" consumers meanwhile are starting to demand even more convenience and operational excellence from the on-line companies they deal with on a regular basis. Although there are privacy concerns related to these practices, the same expectations can surface for electronic government service delivery as well.

Government agencies and other organizations have identified a number of areas in which there needs to be a governmentwide strategy, guidance, and framework of policies and practices to ensure effective design, development, and implementation of customer-focused electronic service delivery. For example, some agency officials have pointed out that the public will expect a more consistent level of service across agencies, including navigable web sites with intelligent search capabilities, similar user interface conventions, and interoperable authentication policies and methods.

Security and Privacy

Electronic government will only succeed when all its participants—including government agencies, private businesses, and individual citizens—feel comfortable using electronic means to carry out private, sensitive transactions, such as obtaining a license, bidding on a contract,

or making a benefit claim. While progress is being made, the necessary comfort level is not there yet. Stories in the press of hacker attacks, web page defacements, and credit card information being posted on electronic bulletin boards makes many federal agency officials—as well as the general public—reluctant to do "real" business over the Internet. Their concerns are not unjustified. In recent years we have consistently found security weaknesses at many federal government agencies.[16] Weaknesses at agencies such as IRS, the Health Care Financing Administration, the Social Security Administration, or the Department of Veterans Affairs could place sensitive tax, medical, and other personal records at risk of unauthorized disclosure. Moreover, federal web sites themselves have been subject to cyber-attacks.[17]

A big piece of the solution to this problem will be in the development and implementation of so-called Public Key Infrastructure or "PKI" technology. I would like to address this in some detail because it is integral to ensuring a successful future for e-government. A PKI is a system of computers, software, and data that relies on certain sophisticated cryptographic techniques to secure on-line messages or transactions. A key component is the use of electronic "certificates" that vouch for a particular user's identity. A properly implemented and maintained PKI can offer several security services. Specifically, it can provide assurance that (1) the parties to an electronic transaction are really the people they claim to be, (2) the information has not been altered or shared with any unauthorized entity, and (3) neither party will be able to wrongfully deny that they took part in the transaction. Key federal security experts believe these assurances would provide the comfort level necessary to spark widespread implementation of electronic government services.

The federal government is aggressively promoting the deployment of PKI technology. Currently federal agencies—including NASA, DOD, and the Patent and Trademark Office—are experimenting with 24 pilot PKI programs. A Federal Public Key Infrastructure Steering Committee has been established to coordinate PKI pilot projects on a governmentwide basis and to take initiatives to encourage the adoption of PKIs. For example, the Steering Committee has sponsored the development of a prototype Federal Bridge Certification Authority, which is a mechanism

[16] *Federal Information Security: Actions Needed to Address Widespread Weaknesses* (GAO/T-AIMD-00-135, March 29, 2000) and *Information Security: Serious Weaknesses Place Critical Federal Operations and Assets at Risk* (GAO/AIMD-98-92, Sept. 23, 1998).

[17] *Information Security: Recent Attacks on Federal Websites Underscore Need for Stronger Information Security Management* (GAO/T-AIMD-99-223, June 24, 1999).

that will allow disparate agency PKIs to recognize each other's electronic certificates. GSA built the prototype on behalf of the steering committee, and it was demonstrated in April 2000. The intent of the demonstration was to show that the bridge authority can interoperate with other PKI domains with varying certificate policies, including DOD's separate demonstration bridge certification authority. However, the Federal Bridge Certification Authority is still a prototype, and so far it has only been demonstrated in a test environment. Questions have been raised as to whether the technology will be able to handle large numbers of users and transactions in a real-world environment.

Furthermore, GSA has been working since 1996 on a program called Access Certificates for Electronic Services (ACES), which is intended to help jumpstart agency adoption of PKI technology to provide the public with secure access to privacy-related government information and services. In 1999, GSA awarded ACES contracts to three vendors to provide a range of support services to agencies wishing to adopt PKI technology.[18] The first vendor was authorized to issue ACES certificates in April 2000, so the capability has only very recently become available. The significant feature of ACES is that it can support the use of digital signature certificates without individual agencies having to build their own PKIs. In this kind of arrangement, certificates are provided to the public for free, and whenever they are used to support a transaction, the agency involved must pay a fee to the relevant ACES vendor.[19]

Some agency officials believe it will be difficult to budget for ACES certificates because the total cost, which depends on how heavily the service is used, is not known. Agency officials also worry that if their programs are successful and heavily used, their ACES costs may be high. In addition, it would be advantageous for certificates to be interoperable and certificate policies to be consistent across the government. Guaranteeing the authentication of certificate holders, for example, can be problematic if agencies and vendors all use different processes.

Despite all the useful development work that has been conducted to date, PKIs are not yet commonplace, either in the private sector or in government. And a number of significant challenges must still be overcome before the technology can be widely deployed and implemented. For example:

[18]The three vendors are AT&T, Inc.; Digital Signature Trust Co., Inc.; and Operational Research Consultants, Inc.

[19]The fee will range from $0.40 to $1.20 per transaction.

- *Most large-scale implementations have been limited to pilot environments or specific applications.* Issues have been raised regarding how well PKI technology can scale to the level of hundreds of thousands or millions of users, as will be encountered in government applications. A network of trusted registration authorities may be needed to verify the identities of all users. In addition, another vast network of electronic directories will need to be in place so that every user's identity can be looked up and verified before any transaction takes place. As such, problems with verification failures or unacceptably slow response times are possible until further operational experience is gained with large-scale PKI implementation.

- *It can be expensive to establish a PKI.* A significant up-front cost is involved with fielding and maintaining a PKI capability in a production environment. New systems must be set up to positively identify users, issue them electronic certificates, and manage the exchange and verification of certificates. In addition, existing software applications and legacy systems must be modified so they can interact with the PKI. These activities can involve significant costs. Funding for some key governmentwide PKI infrastructure has not yet been established but they will be needed to build and maintain an operational federal bridge certificate authority for fiscal years 2001 and beyond.

- *Although many PKI products are currently on the market, they generally are not interoperable.* Choosing among them means taking the risk of adopting a "dead end" technological approach that may soon need to be replaced. The Federal Bridge Certification Authority may help resolve some agency-to-agency interoperability issues, but it is not yet operational. Having additional standards to help facilitate interoperability can also help resolve this issue.

- *PKI implementations are not always user-friendly.* Some early adopters of PKI have found it difficult for users to interact with PKI systems. Users need proper training to perform functions such as generating their private/public keys, protecting their private keys, backing up and using their certificates. As you know, in the world of computers, a system that is too difficult to use probably won't be used at all.

- *Compounding the security problem are concerns about sharing private information electronically.* Individuals should be able to determine when, how, and to what extent personal information is collected and used. However, if not properly implemented and managed, the technologies that have been developed to manage massive volumes of personal information could also be abused. It is no longer technically difficult for the government to establish databases that collect extensive personal

information about large numbers of individual citizens. This means that when technologies such as PKI are implemented, extra care must be taken to avoid improperly gathering or using personal information.

As you know, we are currently reviewing the development and implementation of PKI technology throughout the federal government at your request and will be providing a fuller report later this year.

Technology-Related Challenges

A solid technical foundation needs to be in place before e-government services can be offered reliably and effectively to the public. We have already reported some trial-and-error attempts, such as the Social Security Administration's effort to provide earnings and benefits statements over the Web in 1997.[20] In that case, concerns were raised that one person could access another individual's record if the first individual knew the second person's personal authenticating information. It was held that the information needed to answer these questions was relatively easy to obtain from sources other than the Social Security Administration. In short, the public was not comfortable with the way the service had been implemented. After approximately 1 month of service, the capability was withdrawn.

The key to success in e-government is to plan for and implement an adequate technical infrastructure that will support a user's experience of easy and reliable electronic access to government. Elements of this supporting infrastructure include:

- *Adequate network capacity, or bandwidth.* Government agencies will need to consider the amount of electronic traffic that will be generated by an electronic offering and provide adequate connectivity to support that load. Some web sites have been completely overwhelmed and disabled when far greater numbers of users visited the sites than their developers had anticipated.

- *Platform and software application reliability.* The web servers and other computer platforms that support e-government services—including their operating systems and the software that connects them—must also be capable of supporting potentially heavy user demands and must run reliably. The system must reliably confirm that a transaction is complete and also must reliably abort a transaction completely and consistently in

[20] *Social Security Administration: Internet Access to Personal Earnings and Benefits Information* (GAO/T-AIMD/HEHS-97-123, May 6, 1997).

the event that some problem intervenes. The technology in use today does not always respond consistently and unambiguously. Users may fill out lengthy on-line forms and submit them without getting any clear response from the system at all, leaving them unsure whether their submission was received and accepted.

- *Interoperability.* Even a smoothly operating electronic delivery service will fail to fulfill the promise of e-government if it is isolated from or unable to work with other related applications. Instead, e-government applications should be able to communicate and exchange relevant data with each other. To ensure interoperability, government officials need to recognize its importance and design it in from the start. The emergence of key technical standards for electronic business will help.

- *Technical roadmaps.* Application developers will need to agree upon an overall systems roadmap to guide the development and evolution of e-government systems. Architecture development is a primary means of integrating systems and business processes across an organization in a cost-effective manner. Architectures align information system requirements with the business areas and processes that they support and promote systems that readily exchange and share information. They also can help avoid inconsistent design and development decisions and their associated increased costs and performance shortfalls. Our work at other agencies, such as the Customs Service and IRS, has illustrated the criticality of an agencywide architecture in helping reduce systems development risk and minimizing investment costs.[21]

- *Alternative media, such as wireless devices.* Finally, it is important to note that technology is continuing to evolve at a rapid pace, and today's web-based applications are not necessarily the final incarnation that e-government will take. As the public moves to more compact wireless devices, the government will need to move as well, perhaps supporting a variety of media through which to conduct transactions, from traditional paper-based methods on end of the spectrum to small wireless receivers on the other.

[21] *Tax Systems Modernization: Blueprint Is a Good Start But Not Yet Sufficiently Complete to Build or Acquire Systems* (GAO/AIMD/GGD-98-54, Feb. 24, 1998) and *Customs Service Modernization: Architecture Must Be Complete and Enforced to Effectively Build and Maintain Systems* (GAO/AIMD-98-70, May 5, 1998).

Human Capital: Demand for IT Skills

As governments at all levels increase their efforts to provide electronic service delivery systems, they face the reality that IT human resources to develop and manage web-based Internet applications are in short supply. The demand for IT workers is large and growing. Employers will attempt to fill 1.6 million new IT jobs in 2000. The largest skill gaps are for enterprise systems integration and web development positions. These positions have high complexity and a scarcity of qualified applicants. The increasing need for qualified IT professionals puts governments in direct competition with the private sector for scarce resources. In addition, the increasing government reliance on private sector service providers and outsourced application development has created a growing demand in the federal workplace for more traditional skills, such as contract management and project and program management.

Agencies are also becoming acutely aware that electronic government technology applications work only if people have the right training to execute them properly. The challenge of new technology and the mandate on improving customer service have led to an increased commitment to training. Without fully developing staff capabilities, agencies stand to miss out on the potential customer service benefits presented by technology. Employees must have the training and tools they need to do their jobs. The process of adopting a new system can be made much less difficult by offering well-designed, user-oriented training sessions that demonstrate not only how the system works, but how it fits into the larger work picture and "citizen as customer" orientation. A significant challenge for all agencies is providing internal incentives for customer service, reducing employee complaints, and cutting the time employees spend on non-customer-related activities.

Conclusions

Mr. Chairman, our government stands today poised for a dramatic transformation. When the transition is complete, our citizens will view obtaining government services no differently than conducting any other business transactions. Standard interactions with government—like renewing a driver's license or claiming social security benefits—may be no different than buying a book today from *Amazon.com*. As some of the limited examples I have discussed today illustrate, significant progress is being made. New opportunities for further changes brought on by web-based and other information technologies are just now emerging. Clearly, there is a substantial amount of legislation and policies issued that provides strong incentives for government agencies to adapt to this new electronic environment.

Nevertheless, despite its promise, technology advancement is not a panacea for government performance problems. I want to emphasize that we still face some formidable challenges. While considerable technological progress has been made, successful e-government must still deal with some of the same basic challenges that have plagued information systems for decades—inadequate attention to technical and business architecture, adherence to standards, and security. We still have limited experience in implementing the mechanisms for security and privacy—especially PKI—which is just one among many factors affecting the large-scale use of e-commerce and e-government. We also need systems that operate together seamlessly behind the scenes, offering a single face to the public and allowing transactions to occur in a way that is reliable, and easy to navigate.

Beyond technology, government executives and senior managers must recognize and embrace the efficiencies offered by e-government proposals and develop effective investment strategies and plans to make them reality. Moreover, top leadership must effectively merge the power of electronic interactions—among agencies, with businesses, and with the public—with necessary and corresponding management and process improvements that will better ensure positive outcomes. In addition, the Web provides new challenges for several traditional information policy areas. The mechanisms used to ensure freedom of information, copyright protections, records management, and privacy may need to be reevaluated given increasing reliance on the Web and its capacity to distribute and present information to both known and unknown audiences. These, too, are familiar themes behind recent information management reforms and should not be ignored.

Mr. Chairman, that concludes my statement. I would be happy to answer any questions that you or other members of the Subcommittee may have.

(511976)

Ordering Information

Orders by Internet

For information on how to access GAO reports on the Internet, send an e-mail message with "info" in the body to:

Info@www.gao.gov

or visit GAO's World Wide Web home page at:

http://www.gao.gov

To Report Fraud, Waste, and Abuse in Federal Programs

Contact one:

Web site: http://www.gao.gov/fraudnet/fraudnet.htm

E-mail: fraudnet@gao.gov

1-800-424-5454 (automated answering system)

Mr. HORN. Thank you, Mr. McClure.

Mr. Molaski, we are delighted to have you with us. He is the Chief Information Officer from the Department of Transportation.

Mr. MOLASKI. Thank you very much, Chairman Horn and Congressman Davis, for this opportunity to discuss electronic government.

I am pleased to be making my first appearance before the subcommittee to address the challenges and opportunities we face in migrating to an e-government environment. I appreciate having the opportunity to offer the perspective of someone who up until last June worked in the information technology environment as president of an Internet company and now is a Federal Chief Information Officer and also serving as co-chair for the E-government Committee for the CIO Council.

As most of us here today realize, we are sitting on the threshold of a major transformation of government. Industry has shown the effective use of Intra and Internet companies to build stronger ties with their customers, deliver information and services more effectively, and drive costs out of business processes. Government has made the first steps down the same operations road, but we must more fully embrace the use of these and future technology advances to truly transform government into a customer-centric, interactive, responsive, results-based entity that prides itself in the effective low cost delivery of services to its stakeholders.

We have the opportunity to make this vision a reality. However, we must be willing to change traditional ways of doing business and learn to operate in Web time. As a start, we could reduce our dependency on paper processes and make doing business electronically our modus operandi. Accepting information electronically instead of requiring multiple paper copies of documents would improve efficiency and be environmentally friendly.

While we as a government need to move farther faster, much has been accomplished. The Government has created over 20,000 Web sites, containing over 100 million Web pages. Citizens can now buy coins from the U.S. Mint site, students can apply and find the status of their loan application on the Department of Education student loan site. Drivers can find the results of automobile crash tests from our NHTSA website. Computer road warriors can have better information on the status of a flight than passenger agents at an airport by viewing an FAA radar feed available on many travel Web sites.

However, many Federal Government stakeholders do not know where in the Government to go to get information or instructions on how to do something. Work is underway to develop a central access Web site to government that would serve as an electronic service center/help desk to guide the stakeholder to the site or the person that can provide the requested information or answer questions that the individual stakeholder has. This would be a unique and a valuable contribution by government to its citizens. This gateway to government Web site would be more attuned to the information and service needs of the public and what they are getting from the commercial sites.

I consider this type of site to have wow factor and by that I mean when citizens come up there they can say, wow, my government fi-

nally got it right. But to truly take advantage of the opportunities e-government brings, we must move beyond providing information and services or doing transactions over the Web. We need to make them partners in the deliberations on issues we are wrestling with and be responsive to their suggestions for improvements, streamlining and providing new services, or eliminating outdated services.

When we look at the Internet, the Internet was built really as a Web of communication of individuals out there. It was not built on just providing information or doing transactions. Those are really no brainers, but when we get to the point where we are truly interacting with citizens out there and stakeholders, then we have really accomplished something.

I have included in my testimony three areas where we talk about having structural changes, and that is looking at the CIOs and the authority CIOs have. That is taking a look at the work force challenge that we have, and that was reported in June 1999 on "Meeting the Federal IT Workforce Challenge," done by the CIO Council, which is done on the Web site www.cio.gov, and then finally it is taking a look at what happens when we get to e-government, and what e-government is going to reveal is a lot of the stovepipes that we have both in all branches of government, and we need to think ahead. When somebody puts in a request for exports and allowing them to export something and gets multiple Web sites coming up with multiple sites, how are we going to handle—what process are we going to put in place to really take a look at how we consolidate those types of activities within government.

Thank you very much, Mr. Chairman, and I will be glad to answer your questions.

[The prepared statement of Mr. Molaski follows:]

STATEMENT OF GEORGE R. MOLASKI
CHIEF INFORMATION OFFICER
U.S. DEPARTMENT OF TRANSPORTATION
BEFORE COMMITTEE ON GOVERNMENT REFORM
SUBCOMMITTEE ON GOVERNMENT MANAGEMENT,
INFORMATION, AND TECHNOLOGY
E-GOVERNMENT (E-GOV)

FIELD HEARING
May 22, 2000

Thank you Chairman Horn and Subcommittee Members for this opportunity to discuss Electronic Government (E-gov).

I am pleased to be making my first appearance before the Subcommittee to address the challenges and opportunities we face in migrating to an E-gov environment. I appreciate having the chance to offer the perspective of someone who up until last June worked in the information technology (IT) industry, most recently president of an internet company, and now, as a federal Chief Information Officer (CIO) serving as Co-Chair of the Federal CIO Council Committee on E-gov.

As most of us here today realize, we are sitting on the threshold of a major transformation in government. Industry has shown that the effective use of

inter and intra net companies can build stronger ties with their customers, deliver information and services more effectively, and drive costs out of business processes. Government has made the first steps down the same operations road, but we must more fully embrace the use of these and future technology advances to truly transform government into a customer-centric, interactive, responsive, results-based entity that prides itself in the effective low cost delivery of services to its stakeholders.

We have the opportunity to make this vision a reality. However, we must be willing to change traditional ways of doing business and learn to operate in "web time." As a start, we could reduce our dependency on paper processes and make doing business electronically our "*modus operandi*." Accepting information electronically instead of requiring multiple paper copies of documents would improve efficiency and be environmentally-friendly.

While we as a government need to move farther faster, much has been accomplished. The government has created over 20,000 web sites containing over 100 million web pages. Citizens can now buy coins from the U.S. Mint Site. Students can apply and find the status of their loan application on the Department of Education student loan site. Drivers can

find the results of automobile crash tests from our NHTSA web site. Computer road warriors can have better information on the status of a flight than passenger agents at an airport by viewing a FAA radar feed available on many travel web sites. I have enclosed with my written testimony a list of over 400 government web sites that have been nominated for awards over the last couple of years as an example of the good work done by the federal work force.

However, many federal government stakeholders do not know where in government to go to get information or instructions on how to do something (e.g., apply for a student loan, renew a passport). Work is underway to develop a central access web site to government that would serve as an electronic service center/help desk to guide the stakeholder to the site or person that can provide requested information or answer questions. This would be a unique and valuable contribution by government to its citizens. This "gateway to government" web site would be more attuned to the information and service needs of the public and what they are getting from commercial sites by:

- Operating 24x7;
- Continuing to minimize the "mouse clicks" necessary to obtain sought

after information;

- Improving search methodologies; and
- Using multiple communications media (e.g., wireless, cellular technologies, Internet) to connect and interact with stakeholders so that they are a more integral part of our operations.

But to truly take advantage of the opportunities e-government brings, we must move beyond providing information and services or doing transactions over the web. We need to make them partners in the deliberations on issues we are wrestling with and be responsive to their suggestions for improvements, streamlining and providing new services, or eliminating outdated services.

It is up to us in government, all branches of government, to work together with industry, much as we did in the Y2K effort, to remove the barriers that slow our progress and to implement structural changes that will increase our speed down the road to e-government. I would like to address my remarks today on the structural changes that need to be made. In particular, making some very basic structural changes in the way CIOs operate, getting an IT literate generation to come into government, and setting processes in place

to deal with the E-gov changes are essential in traveling farther and faster down the information superhighway.

When a private company decides to make a major move into the e-business world, it places the responsibility with a senior management team usually led by the CIO to effect the change. The company also funds the efforts, sets expectations and monitors progress, and reports on the return that these investments and changes are making to the bottom line. But most importantly, the firm gives the leader the authority to decide on what and how to implement what is necessary to create the promised result. Management then judges the results achieved, and if their expectations were not met, places the responsibility in other hands. These principles are not much different than what the Congress intended when it passed the Clinger-Cohen Act in 1996.

Unfortunately, most federal CIO's do not have the authority to drive a quick transformation to the e-government world. If the federal CIO's are to lead the way to e-gov, they need:

- More authority over departmental IT expenditures to effectively use the scarce dollars available to cause this transformation;

- the staff to carry out these responsibilities;
- shared line authority over agency and bureau CIO's; and
- responsibility for the operations of the IT infrastructure.

The Federal CIO Council has made great strides in identifying and proposing solutions to government IT, sharing best practices, and developing cross-departmental systems. Unfortunately, the Council itself is not funded and must rely on department appropriations to fund its operations. Further, Council decisions and recommendations are not mandatory for departmental implementation. Again, if government wants to move faster toward implementing e-gov and using technology to accomplish what industry has, then:

- just like I've recommended for the departmental and agency CIOs, the CIO Council must be given the authority to cause the implementation of cross-cutting IT initiatives (e.g., a common grants or civilian personnel system for government);
- CIO Council operations must be funded without having to take increasingly scarce resources from departments that have not budgeted for them; and
- the Government must "eat its own dog food" by requiring federal IT

> initiatives to justify and manage investments in accordance with the same statutory and OMB mandates that departments must follow, including establishing cost, schedule, and performance measures and monitoring progress against those measures.

The second structural change is to take action on solving government's IT work force problems. Not only is government being hurt by the inability to attract and retain people, government is not getting the new blood it needs to challenge with new ideas and connect with a generation where, quite frankly, government and public service do not have much relevance in their lives. While we need to look at pay and civil service reform, especially about the outdated rule on justifying grade levels in terms of how many people must report to you, there is immediate action we can take to address this problem.

The CIO Council produced a workforce report in June 1999, *"Meeting the Federal IT Workforce Challenge"*, that contained 14 recommendations to help address this problem. One of the recommendations is doing what was necessary when government could not attract medical professionals it needed. Government then and now pays for education or forgives student

loans in return for government service. We need to implement a very similar program for IT workers and other much needed skills in government. Government will never be able to compete with industry on wages, but we must be creative in closing the wage gap that currently exists and is much too wide today.

The third structural change involves organizational reengineering. E-gov, much like Y2K, is a cross-cutting organizational issue. As E-government evolves, we will find ourselves faced with opportunities to streamline government to become more customer and functionally oriented. We in government will need to consider how to remove organizational barriers and stovepipes to better serve the needs of the public. Unless we alter our current organizational structures, we will lose much of our ability to streamline government and drive costs down.

For example, when, through e-gov, it becomes very visible that there are multiple agencies imposing duplicative or contradictory requirements (e.g., with regard to hazardous materials or international trade), the public will demand that the government promptly determine who has what authority, how conflicting regulations will be resolved, if organizations or functions

should be consolidated, etc. The challenge will be for government to be responsive to take advantage of the opportunity to provide our common stakeholders with the results they want and expect.

Information technology is of vital national interest. American leadership in the world depends on our continued technological excellence. While there are indeed obstacles to be overcome, the opportunities afforded by the Information Age are already transforming the new millennium, improving the quality of life in a way undreamed of by our founding fathers. As the Secretary of Transportation would say, we must be "visionary and vigilant." As we demonstrate vision and exercise vigilance, we will fulfill the promise of E-gov -- to provide unparalled and unprecedented service to our citizens.

This concludes my oral statement, and I would be glad to answer any questions you may have.

Mr. HORN. Thank you very much. That is a very helpful presentation. And now I am delighted to see that the Honorable Don Upson, Secretary of Technology for the Commonwealth of Virginia, has made it out of the suburban traffic of Richmond up to the beautiful part of northern Virginia.

Mr. DAVIS. May I say one word on the Honorable Don Upson. I had the privilege of working with Mr. Upson in our previous lives in the private sector and he has been a mentor to me on a number of these issues, and he used to be a staff member of this committee. He is the first Secretary of Technology. I am pleased to welcome you here.

Mr. HORN. And he is a graduate of the beautiful campus. That was known as the playboy school. However, he did learn computing along the way.

I have to swear you in, as you know.

[Witness sworn.]

Mr. UPSON. Mr. Chairman, members of the committee, subcommittee, welcome. As a former Republican staff director of Government Operations, it is a pleasure to be here and it is a pleasure to be here in this building, which is in the Center of Innovative Technology. I always welcome people to northern Virginia, which is the most exciting place on the planet in the most exciting period of the history of man. Congressman Tom Davis welcomes people to his congressional district and it is both the same.

Mr. Chairman, I know my testimony is going into the record. I would like to talk about a couple of things that I think we are doing that are special in Virginia and how that might translate into what you are trying to do at the Federal level. What I think is special and at the forefront is that the chief executive walks the talk and Governor Gilmore put in place a structure of government for technology which I think links the critical functions of infrastructure with policy. If you look at what is going on in the private sector today, the chief information officers are very quickly the heirs to be chief executive officers in the next generation of leadership in corporate America.

The infrastructure is the enterprise and as someone who took this job with a little trepidation, having worked in your field for a long time, I wasn't sure where this would go, and I can tell you there is an appreciation in Virginia, time and time and time again I get pulled aside. If you are doing your job you are stepping on toes, and I think you know where those toes are because we need a government that is responsive as an enterprise to the needs of our citizens.

Our vision for technology in general: Generally, the Governor views technology as the focus for his administration to do two things. One, we have an objective to create the best business environment anywhere. Two, provide all our citizens access to this new economy. Government should serve those functions, but I would ask and I think what we have done special in Virginia is, with the chief executive support, created an Interagency Management Council which reports at the right level of government, and I think often that has been the one of the issues at the Federal level. I have an Interagency Management Council that meets monthly, and it is that council, 23 members, 17 from each major agency and depart-

ment, what they do is meet monthly and they are charged with creating electronic government, creating a desk top environment that is standard, fast, and permanently modern, which gets to this whole notion of leasing versus buying computers, which you will find often occurs agency by agency, platform by platform. A digital signature environment. Without a real digital signature environment, there is no electronic government.

Privacy and security. Now, to us electronic government, while these individuals have respective close leadership in their organization, they also meet monthly and are ordained by the Governor to put in place enterprise systems. It is not good enough that agencies take their functions and put them on-line. What is important is that when things go on-line, they are coordinated, they are in uniform communications.

Our vision is of a citizen looking through a single port executing multiple transactions across multiple agencies with a single digital signal. To get there, we have to have a buy-in from the agencies themselves, and I think that is what we created through our council.

The Governor has issued one executive order requiring priorities for each agency, their priorities for electronic government to be put in place and submitted to the Secretary of Technology by June 1. He is following that up this week with what may be one of the most comprehensive electronic government executive orders anywhere, asking implementation plans for seed management from every agency of government. Seed management is not a contract in Virginia. It is an initiative to put permanent state-of-the-art technology on every desktop.

Digital signatures. It is not important that every agency puts in place the digital signature plan. We have to have a single policy that cuts across all platforms, all agencies. Security of our data, which is one of the biggest concerns to citizens, isn't about police protecting their data one way and corrections protecting it another and the tax system another. That puts all systems at a high level of vulnerability. It is about a scalable, standardized security environment, and you don't get there unless you have the buy-in and cooperation of the participating agencies.

I see my yellow light is on. I would like to end that the Federal Government, we interact quite regularly with the Federal Government, especially in the area of procurement. It has done much in the area of procurement. But I think what is—and it is great that there is a CIO Council. I think the questions that you have to ask in your positions, are the officers that hold those positions at the right level. It will be a rare Assistant Secretary of CIO that you find at the Federal level that thinks have not changed much, and it is a rare Secretary that asks for technology and how does technology play or not play in this, and it is establishing that link between the person that controls the infrastructure and the policy that I think is what we have done in Virginia. I think it has captured the imagination and interest of our communication and education community and our Governor, and the red light went off.

Thank you, Mr. Chairman, for having me.

[The prepared statement of Mr. Upson follows:]

Testimony of
The Honorable Donald W. Upson
Secretary of Technology
Commonwealth of Virginia
to the
Subcommittee on Government Management, Information and Technology of
the Committee on Government Reform
United States House of Representatives
May 22, 2000

Mr. Chairman and Members of the Subcommittee:

May I add my welcome as you meet today in Virginia, the world's Internet Capital. It is indeed appropriate that you have come to our Commonwealth to hear testimony on improving electronic government. I appreciate having the opportunity to speak before you on Virginia's electronic commerce and Web-enabling initiatives. While I feel have been invited to provide information, based on Virginia's experience, on how the Federal government can improve electronic service delivery, in all candor, we continue to learn from each other.

The new information age is upon us. Citizens and businesses are doing things in a much different fashion than our parents and grandparents did in the past. The Internet has provided our society with the ability to pass through the barriers of time and space. Underlying all the newly emerging technologies is a profound social and economic transformation. Every

sector of our society is challenged to adapt to the new Internet economy. Business is being conducted differently. Business models are changing. Companies are more efficient and productivity per employee is increasing exponentially. The same transformations are occurring in education, in the way Americans live, obtain information and conduct their own lives. Fundamentally, this technology empowers. It empowers businesses, business leaders, employees, educators, and mostly it empowers each individual citizen.

As Governor Gilmore recently stated, "All of this evidence validates the maxim: *The Internet changes everything.* More to the point, the Internet changes everything *including government.*" Old rules do not work well in this new borderless economy. Sometimes they do not work at all. Regardless, change is everywhere, and government has to change as well.

In the Internet economy, government at all levels must change its *policies* as well as *the way it operates*. Government at all levels must harness the capabilities the Internet to become more productive in the delivery of government services. The result should be a dividend to American taxpayers through lower-cost, more efficient government. We are striving to accomplish these goals in Virginia, and through our unabashed embrace of technology and innovative thinking, we are achieving results.

On more than one occasion, in both Washington and in Richmond, I have invited federal leaders in electronic government to visit with my multi-agency advisory body, the Council on Technology Services, or COTS, as we have come to call it. We have particularly benefited from lessons learned in

federal efforts at procurement reform and electronic purchasing, and we're implementing many of those lessons literally as I speak to you today.

In the next few minutes, I'd like to highlight for you what we in Virginia regard as the critical success factors in the e-government accomplishments we've enjoyed to date and are continuing to achieve. I will tell you up front that there is really no secret to what we've attained. It simply takes three things: high-level commitment, stakeholder support, and focus.

In Virginia, commitment begins at the top. From the day of his inauguration in January 1998, Governor Jim Gilmore committed Virginia to be a leader in technology—within state government operations, in attracting high tech industry, and in affording all its citizens access to the benefits of the Information Age. The Governor's Commission on Information Technology, which I had the privilege of chairing, not only recommended what became the nation's first Internet Policy Act, but it also provided us with an excellent set of recommendations on Web-enabled Government. Governor Gilmore formalized those recommendations as charges to state government in his July 1999 Executive Order 51.

As part of that Executive Order, all Executive Branch agencies will submit to my office by June 1 comprehensive plans for Web enabling their interactions with citizens. Further, all forms from those agencies used by our citizens will be available for downloading from the Internet by December 31 of this year.

As directed by that Executive Order, workgroups of my Council on Technology Services, along with the agencies with my Secretariat, are also engaged in demonstrating digital signature applications, establishing e-commerce consumer education programs, and standardizing statewide privacy and security polices and practices. Our date-certain milestones demonstrate that we are committed to leading by example, and the active participation of over 100 individuals from agencies in all branches of state government (and from local government as well) in COTS workgroups equally exhibits our commitment to stakeholder involvement.

The Governor's leadership in setting these "e-targets", coupled with the stakeholder-driven processes we've established to implement them, are producing impressive results. Leadership, however, is not a one-time event, and operating in "Internet Time" is becoming as much a requirement for government as it is for business and industry. So, while we are in the process of wrapping up our Executive Order 51 assignments, the Governor has already told us he is raising the bar on his e-government expectations.

The Governor's next e-government Executive Order, to be issued imminently, formally establishes an Electronic Government Implementation Office within my Secretariat. This office will provide a clear, top-level focus for implementing electronic government initiatives just underway, in the planning stages, and even some yet-to-be-defined. It will expedite and facilitate statewide electronic procurement, Web-based processes for such common administrative procedures as employee leave and travel, and statewide rollout of electronic signatures. It will also identify and prioritize funding needs for other e-governance strategies and initiatives, with an

emphasis on crossing traditional program and agency boundaries to deliver "seamless" service to the citizen.

Governor Gilmore firmly believes, however, that his commitment to e-governance is not totally fulfilled if it only addresses the delivery of services. True e-governance must encompass efforts to ensure that all citizens can access and utilize those services. The Governor envisions a comprehensive public/private initiative—positively named "Digital Opportunities". Its objective is no less than creating a community-based infrastructure to ensure access to computers and the Internet for all citizens without barriers of race, income, education, geography, or disability—and the ability to use this technology effectively to fully participate in the Commonwealth's economic, political, and social life.

The Governor will therefore also task this new E-Government Implementation Office with establishing and supporting a Digital Opportunities Task Force, comprised of energetic representatives directly involved in addressing this issue from private industry as well as state and local government and community groups. This Task Force will both coordinate implementation of Digital Opportunity initiatives and promote best practices in developing and executing such programs.

While I am proud of the citizen-centric focus Virginia is striving to achieve, I suggest to you that all levels of government have much farther to go in this regard. A survey of state CIOs released just this month indicates that one of the biggest barriers they see to implementing Web-enabled government is government's "stovepipe" mentality—the maze of single purpose programs

we've created and the entrenched organizations, funding mechanisms, and legacy computer systems we've built to support them.

Today's Web-savvy user knows that "one-stop shopping" based on the customer's needs is the de facto standard of service in commercial Web sites. Tomorrow's Web-savvy citizen will accept nothing less from government sites. If I can leave you with but one bit of advice today, it would be that the most important thing you can do to promote electronic government is to break down these barriers to true customer-centric service—programmatic, financial, and system-based alike—in both federal agency operations and in the federal programs that impact state and local governments.

Finally, I would like to make one more point with regard to government and its need to change. In the procurement of information technology goods and services, government must address the cumbersome regulations it imposes on itself. Education requirements in the new economy are much different than the economy most of us here grew up in as children and young adults. Today, a four-year degree from a recognized, traditional institution of higher education is not necessarily the "be all, end all " answer to a successful and prosperous life. The technology industry demands different skills for many different vocations. Government must recognize the differences between what is required and what is necessary. I am proud to say our very own Virginia Representative, Tom Davis, has realized this and introduced HR 3582, the Federal Contractor and Flexibility Act of 2000. I am also pleased to say the House of Representatives has passed this important piece of legislation and sent it to the "other body" for consideration. I can only hope

it meets with an equal amount of success over there and is subsequently signed into law by the President.

On behalf of the Commonwealth, I sincerely thank you for the opportunity to speak to you today. We must continue this dialogue on improving e-government via this and other venues. As they increasingly sample the capabilities of the Web, our mutual customers' expectations of adequate seamless service levels will inevitably and understandably increase. We must show them by continual improvement in the electronic government services that we collectively provide, that we can and will be responsive.

Mr. HORN. We appreciate you coming and your last comments get into CIO placement. You are absolutely correct. We now go to the president and Chief Executive Officer, Council for Excellence in Government.

Ms. MCGINNIS. Thank you, Mr. Chairman. I want to applaud your leadership in creating this conversation to imagine the possibilities of e-government and designing a strategy to carry it out. The Center for Innovative Technology is a perfect setting for this hearing, and the conversation is really about connecting government with the American people, and in this part of Virginia there is a lot of connecting going on with very entrepreneurial enterprises not only thinking about pushing the envelope of technology but focusing on delighting their customers. Kathleen deLaski from AOL is here and it is definitely one. There are many others.

My organization is the Council for Excellence in Government. We are a nonpartisan, nonprofit group of leaders in the private sector who have served in government and are committed to improving its performance and also raising the understanding, participation, and confidence of the American people in government, so our work is aimed at two audiences: First, people in government with whom we have worked to improve results and leadership and actually get results in the public interest and also the American people, most of whom at this point say they feel disconnected from government.

According to a poll that was conducted for the council last year by Peter Hart and Bob Teeter, most Americans, especially young people, say that government is no longer of, by, and for the people. They think of it as the Government rather than our government and we take this as a significant challenge that the work that you are doing can go a long way to address that.

The good news in our research is that most Americans, again especially young people, think that in terms of improving people's lives, government will play an equally or more important role in the future and they see themselves as an important part of the solution, even more than elected officials, by the way. They want to be more involved, and I think these initiatives are going to provide that opportunity. So with a mission as important as excellence in government and an audience as large as the American people, naturally we have focused on information technology and the Internet as a way of accelerating change and also as a leadership tool.

Imagine government of, by, and for the people and proceed that way, hopefully perceived that way, where all Americans can choose to go on-line anytime, anywhere, not only for the information they need but also to complete transactions, receive services, conduct research, interact with their representatives, and even to vote. Imagine people in government creatively managing for results, from curing diseases to regulating health and safety to providing Social Security and Medicare benefits in a seamless network which crosses agency and process boundaries and seeks to serve the public interest.

That is the vision of e-government that has been created by our Intergovernmental Technology Leadership Consortium and a very substantial e-government initiative that we have undertaken, involving 100 leaders from the public and private sector, the research community and the nonprofit community.

We have held two major meetings, one at the Smithsonian, a historic setting, and the other one here at CIT last March, and the people involved have organized themselves into four working groups addressing four issues. First, they are looking at transformation by addressing the challenge of transforming rather than simply automating government. Thinking about the culture, the organization, the processes, how it all works.

Second, they are looking at the roles of the public and private sector in terms of who should do what, what are the comparative advantages in creating the e-government that we seek.

Third, we are looking at infrastructure, addressing the issues that have been raised this morning and are extremely important, issues of privacy, security and authentication.

And fourth, we are looking at information. That is the content, format, architecture and accessibility of information.

The Congress has put a stake in the ground through the Paperwork Reduction Act, saying that all Federal services and transactions will be offered on-line by 2003. We have got a long way to go but I think we can meet that goal and the e-government initiative that we have put together is aimed at helping to meet that goal.

We are not at this point ready to offer specific recommendations. We plan to have a blueprint and release it in the fall. When you have 100 people working together, you want to be careful that you consider all of the options and listen to different perspectives before you end up with specific recommendations, but there are several principles which will guide our blueprint and I think will help in your deliberations as well.

We envision e-government as, first, citizen driven and user friendly. More and more people are becoming accustomed to using the Internet 24 hours a day, 7 days a week, and information has to be organized to how people will use it rather than how the agencies create it. People want one-stop access without having to go from Web site to Web site. We actually said in our last meeting "three clicks to satisfaction" ought to be the motto for e-government.

Second, it has to be responsive and results oriented, and by that I mean not just providing information but allowing people to actually complete transactions and receive services on-line. The best example is in Virginia, where citizens can renew their driver's licenses on-line. This was mentioned in a conference a couple of weeks ago and the whole room broke out in applause. There are Federal services and transactions that occur on-line, you can file for taxes and apply for student aid, but it is still a very small percentage and it needs to grow.

Third, e-government has to be universally accessible. You mentioned the digital divide. It is real and we need to address it. We need to be careful not to lock into any one technology in addressing it because it may be through hand-held devices, cable television, in addition to computers and all of the efforts that are going on in communities, libraries, schools and homes. We can't address this, but it has to be done.

Fourth, e-government has to be collaborative. That is the public and private sectors working together doing what they do best. And

the Federal Government has to play a certain role, but the private sector has a lot to contribute and we need to figure out how to harness that in an accountable way.

Fifth, it has to be innovative, not just thinking about transactions. We gave an Innovations in American Government Award last year, for example, to the Centers for Disease Control for an Internet tracking system for DNA fingerprinting of foodborne diseases so the E. coli breakout of a few years ago will never have the impact again because it will be tracked down too fast.

Sixth, it has to be cost effective, and we know that it can be cost effective. IBM's Institute for Electronic Government, one of our partners, has indicated that the governments that they are working with are saving up to 70 percent by moving services on-line. The Department of Agriculture, as you know, issued its organic food standard regulations on-line and received more comments than ever in history and saved money. The administrative costs were $300,000 less than they expected.

And seventh, it has to be of course secure and private. There has been a lot of discussion about that. There is no question that we have to address that issue.

The transformation to e-government will require leadership at all levels starting at the top, and that has been mentioned a number of times. It will require significant investments in technology and people. Even though there may be savings in the long term, I think we can also look at some up front investments and, particularly, investing in ways that can cross agency boundaries that we are all confronted with, and a lot more flexibility in funding and personnel policies. Perhaps as we consider what it will take to attract, develop and retain a high quality information technology work force in the Federal Government, and we have to do that, we will also discover ways to invigorate the Federal civil service.

We welcome the opportunity to help you design a system for e-government which cannot only improve performance but also help deliver government back to the American people. Thank you.

[The prepared statement of Ms. McGinnis follows:]

Statement of
Patricia McGinnis
President and CEO, Council For Excellence in Government
before the
Subcommittee on Government Management, Information, and Technology
of the
Committee on Government Reform
U.S. House of Representatives

May 22, 2000

Thank you for inviting me to participate in this hearing on the issues and challenges that lie ahead in creating e-government. The Center for Innovative Technology is a perfect setting for this conversation about how to offer the American people the choice of getting online rather than in line to connect with their government. Indeed, there is a lot of connecting going on in this part of Virginia, where creative, entrepreneurial enterprises are not only pushing the envelope of technology, but also focusing on delighting their customers now and far into the future. I applaud the leadership of this subcommittee in reaching out to imagine the possibilities of e-government and to design a strategy to create the future of government online.

My organization, the Council for Excellence in Government, is a nonpartisan, nonprofit group of leaders in the private sector who have served in government and are committed to improving its performance and increasing citizens' understanding of government and their confidence and participation in it. The work of the Council is aimed at two audiences – first, people in government with whom we work to develop leadership and produce results in the public interest; and second, the American people, most of whom say they feel disconnected from government.

According to a poll conducted for the Council last year by Peter Hart and Bob Teeter entitled, *America Unplugged*, most Americans, especially young Americans, say that government is no longer of, by, and for the people. They think of it as the government rather than our government. The level of disconnection between citizens and government rises with each succeeding generation – a disturbing trend for the future of our democracy.

The good news in this research is that most Americans, again especially young people, think that in terms of improving Americans' lives, government will play a role in the future that equals or is more important than its role in the past. Most people see themselves as having the greatest potential to improve government. Fifty-two percent say citizen involvement is most important for improving government; compared with 28% who say that leaders who inspire us are most important. I will make available to you a copy of the results of the 1999 Hart-Teeter poll. The challenge for government is to reconnect with the people it serves so that America once again has government that is truly of, by, and for the people.

I have brought with me materials which describe the Council's programs and publications, including the Excellence in Government Fellows Program, the Innovations in American Government Awards, in which we partner with the Kennedy School and Ford Foundation, our Partnership for Trust in Government, including organizations outside government ranging from IBM to MTV, and our *Government from the Inside* workshops for journalists, sponsored by the Pew Charitable Trusts. You may also be familiar with the Council's *Prune Book* series, which describes the leadership and management challenges facing presidential appointees and what it takes to serve the public interest in the critical jobs they occupy.

With a mission as important and ambitious as excellence in government and an audience as large and diverse as the American people, we naturally are focusing very intensely on e-government both as a leadership tool and as an accelerator of change in government.

Imagine government, of, by, and for the people where all Americans can choose to go online, anytime, anywhere, not only for the information they need but also to complete transactions, receive services, conduct research, interact with their representatives, and even to vote. Imagine people in government creatively managing for results from curing diseases, to regulating health and safety, to providing social security and Medicare benefits in seamless, secure networks that cross agency and process boundaries to serve the public interest.

This is the vision of the e–government Initiative that the Council's Intergovernmental Technology Leadership Consortium has undertaken in partnership with the National Partnership for Reinventing Government (NPR). It involves leaders from business, government, civic groups, and the research community to develop a blueprint for e-government. This Initiative held its first collaborative meeting at the Smithsonian Institution last November. The group identified four groups of issues in making e-government a reality, around which working groups have been organized:

1. Transformation. Addressing the challenge of transforming rather than simply automating government;

2. Roles. Examining and recommending how public and private organizations will work together to achieve e-government;

3. Infrastructure. Addressing issues of privacy, security and authentication; and

4. Information. Determining the content, format, architecture, and accessibility of information and transactions.

Through the Paperwork Reduction Act, Congress has set an ambitious goal -- that the federal government will offer all of its services and transactions online by 2003. The Council's cross sector e-government Initiative is designed to help meet that goal.

Last December, after the meeting of the e-Government Initiative, the President issued a series of directives to improve the accessibility and functionality of government online. For example, he directed federal agency heads with putting online by December 2000 the forms for the top 500 government services used by the public and building rigorous privacy policies into their websites. Agency heads are also charged to develop strategies for upgrading the capacity of their organizations to use the Internet, and for workforce training and development, the use of best practices in leading public and private organizations, partnerships with the research community, and mechanisms to collect feedback from stakeholders. The General Services Administration (GSA) is responsible for working with the Chief Information Officer (CIO) Council, NPR, the Government Technology Services Board, and others to promote access to information online in a functional, user-friendly way. The Secretary of Commerce was asked to work with the private sector and others to develop a national strategy to make computers and the Internet available to all Americans.

These directives, coupled with the overall goal of putting all federal services and transactions online by 2003, offer a powerful context for our e-Government Initiative. The Initiative's four working groups are now in the midst of a 90-day effort that began at a meeting in March right here at this Center. They are setting objectives, identifying barriers, and developing specific options for the whole group to consider in issuing a blueprint for e-government. These leaders will meet again in June to discuss their issues and options, and to launch a broad public discussion online to seek feedback and further suggestions. We will complete the blueprint this fall.

Although we are not ready at this point to offer specific recommendations, there are several principles which will guide our blueprint for e-government and which may be useful in your deliberations.

We envision e-government as:

1. Citizen driven and user-friendly. With the number of internet users expected to increase to 177 million by 2003, Americans are rapidly growing accustomed to using the internet to obtain information, communicate, and conduct transactions at their convenience, 24 hours a day, 7 days a week. Information has to be organized according to how people will use it, rather than how agencies will create and maintain it. It must be searchable by key words or topics, interactive, and available in multiple languages. Users want one stop access without having to go from website to website.

2. Responsive and Results Oriented. Citizens want not only easy access to information, they want to be able to complete transactions and receive services online. For example, Virginians can actually renew their drivers' licenses online, IRS offers taxpayers the option of filing and paying taxes on line, and students can apply for financial aid online. These best practices can spread throughout government.

3. Universally accessible. All Americans must have access to government online, at home, at work, in schools, or in their communities. The digital divide is real and must be addressed cooperatively by the public and private sectors. The statistics tell the story. According to the National Telecommunications and Information Administration, between 1997 and 1998, the divide between those at the highest and lowest education levels increased by 25 percent and the divide between those at the highest and lowest income levels grew 29 percent. In wealthy schools, 74 percent of classrooms are connected to the Internet compared to 39 percent of the poorest schools. Among people over age 15, 11 percent have access to the Internet at home, compared to 31 percent of people without disabilities, according to the Disability Statistics Center.

4. Collaborative. E-government should designed, built, and maintained with public/ private cooperation. The public interest must be defined and priorities set in the public domain. Government policies, standards, and performance measures should be shaped to make e-government a reality, harnessing the creativity and expertise of the private sector in an accountable way.

5. Innovative. We must take care not only to allow breakthroughs in new technology and applications, but to actively encourage them. E-government must be much more than websites and transactions. Consider for example, the application designed by the Centers for Disease Control, which won an Innovations in American Government Award last year. "Pulse Net" is a nationwide network of public health laboratories that electronically tracks and shares DNA "fingerprints" of food borne-bacteria. This tracing of bacteria and the rapid response it makes possible mean that future illness and death from e-coli, for example, will be rare.

6. Cost Effective. Through reduction of transaction and other costs, savings can be expected over time. Studies by IBM's Institute for Electronic Government indicate that governments are saving up to 70 percent by moving services online compared to the cost of providing the same services over the counter. A Booz-Allen & Hamilton study found that banks could lower their transaction costs to one cent over the Internet, compared with 27 cents by ATM, 54 cents by telephone and $1.07 at a full service bank. Similar savings are possible for government. The U.S. Department of Agriculture issued draft regulations for organic food standards online. During the open comment period, 270,000 public comments on the proposed rule were received –the highest number of comments ever received on any USDA proposed rule-with administrative savings of $300,000.

7. Secure and Private. High standards for privacy, security, and authentication will be required for e-government to serve the public, grow, and thrive. Privacy and security standards and protocols, coding, firewalls, and audits must be rigorous and clear. Smart cards, digital certificates, and other forms of authentication must be accurate and reliable.

The transformation to e-government along the paths I have outlined will require leadership at all levels, significant investments in technology and people, and a lot more flexibility in funding and personnel policies, combined with clear accountability for results in the public interest.

Perhaps, as we consider what it will take to attract, develop, and retain a high quality IT workforce, we will also discover ways to reinvigorate the federal civil service.

Mr. Chairman, we welcome the opportunity to help you design a system for e-government which can not only improve performance but help deliver government back to the American people.

Thank you very much.

Mr. HORN. Thank you. That is very helpful. We will take up that offer. Our next panelist is somewhere in the midst of Philadelphia, so David Gardiner did not make it. He is the vice president, architecture and technology of Unisys Corp., but Lee Cooper is here in his stead. He is the vice president, business development, U.S. Federal Government Group. It is nice to have you here.

Mr. COOPER. Thank you, Mr. Chairman, and Mr. Davis, for the opportunity to share with you my observations on the dynamic changes taking place in the e-business arena today. My name is Lee Cooper and I am the vice president of Business Development at Unisys Corp. I am testifying on behalf of both Unisys and the Professional Services Council, of which Unisys is a long-standing member. The Professional Services Council is the principle trade association representing the professional and technical services industry. This segment performs more than $400 billion in services nationally, including over $100 billion annually in support of the Federal Government.

Unisys is a $7½ billion electronic business solutions company whose 36,000 employees help customers in 100 countries build and manage the infrastructure they need to conduct e-business. Unisys derives about $1 billion of its annual revenues from business conducted from within the U.S. Federal Government, from the Federal Government Group headquartered in McLean, VA.

Let me begin by providing a framework for where Unisys believes the e-business marketplace to be heading. I would like to summarize points made in the written testimony submitted to the committee. These points are derived from our experience at Unisys as we have strived to become a premier e-business company.

There are three main ideas. First, we see an emerging 7 by 24 electronic business environment that will require new levels of computing and network infrastructure. We believe that e-business will really be about managing the growth of the number of transactions conducted electronically. As commercial organizations increasingly interact electronically with our customers, suppliers and employees, new service standards are quickly emerging. These new standards will address efficiencies, speed and value. Governments are serving the same end users, therefore we believe that these same service expectations will become the baseline for interactions with the Government.

Cost efficiencies are part of the benefit accruing to commercial organizations from electronically serving their customers. The cost of an electronic transaction is pennies compared to a direct face-to-face interaction with a customer service employee. This means that there are cost reduction opportunities for governmental organizations that adopt e-business models of operation. It also means that commercial e-business organizations will increasingly compete to outsource government services if government computing infrastructures are unable to handle a constituent's service needs in a similar manner.

Second, our experiences at Unisys suggest that once the computing and network infrastructure is in place, organizations should expect a rapid acceleration of e-mail, voice mail, and other computer based communications volume leading to vibrant e-communities. We use that term to describe large groups of people connected by

organizational and other ties, electronically communicating with each other at high intensity. We have found once a global e-mail standard was established, we saw e-mail volume explode. We are now managing over a million per day and the volume continues to grow. We believe that government organizations should anticipate similar results as they interconnect their employees.

Government should also prepare for the challenging technology resource management issues associated with these tools. Examples are desk top hardware complexity, network bandwidth growth and support personnel retention. We see opportunities to develop information portals which can help address productivity opportunities and strengthen organizational culture. Unisys defines a portal as a Web site that provides a common meeting ground for a population that shares a common interest or organizational mission. The best portals provide a means to easily locate information and use. They also provide access to other internal and external Web sites and databases. Portals can be equally effective in attracting customers and constituents with news, general information and transaction capabilities. Unisys believes that portal development holds strong promise for progressive organizations of all types.

Third, computing and networking infrastructure needed for the e-business environment also facilitates delivery of sophisticated Web-based tools to improve manager and employee productivity, satisfaction and loyalty, and allows deployment of world class business processes. These tools, now in wide commercial implementation, will quickly become a standard that commercial and public sector organizations will implement. One example is the electronic customer relationship management. Customer relationship management is on-line automation of the monitoring and management of customer transactions and relationships. This is a key requirement in the e-business world. As governments continue their shift to viewing constituents as customers, the likelihood is that the CRM tools now transforming commercial organizations will be adopted by the public sector with similar transformational impact. Government organizations may find this direction challenging, especially where incumbent legacy systems are well-ingrained and process culture and employee acceptance. But over the longer period, adoption of world class solutions for core process delivers the best performance results.

In closing, let me underscore one important point. The key benefits in productivity, communication, speed of operation, service quality, and value delivery that derive from the e-business transformation that Unisys and other commercial organizations are now pursuing are dependent on a robust, innovative, standards-based computing, and network infrastructure. Successful deployment of e-business capability in the commercial and public sector will depend on that infrastructure.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Gardiner follows:]



Testimony of
David Gardiner
Vice President, Architecture & Technology
Unisys Corporation

On behalf of
The Professional Services Council

Before the
U.S. House of Representatives
Subcommittee on Government, Information and Technology

May 22, 2000

ACCELERATING E-BUSINESS TRANSFORMATION: THE UNISYS EXPERIENCE

Mr. Chairman, members of the committee, thank you for the opportunity to share with you today my observations on the dynamic changes taking place in the e-business arena. My name is David Gardiner, and I am Vice President for Architecture & Technology at Unisys Corporation.

I am testifying on behalf of both Unisys and the Professional Services Council (PSC) of which Unisys is a long standing member.

About PSC

PSC is the principal trade association representing the professional and technical services industry. Our sector's products are ideas, problem-solving techniques, and systems that enhance organizational performance. Primarily, these services are applications of professional, expert, and specialized knowledge in areas such as defense, space, environment, energy, accounting, education, health, international development, and others that are used to assist virtually every department and agency of the federal government, state and local governments, commercial, and international customers. Our members use research and development, information technology, program design, analysis and evaluation, and social science tools in assisting their clients. This sector performs more than $400 billion in services nationally, including more than $100 billion annually in support of the federal government.

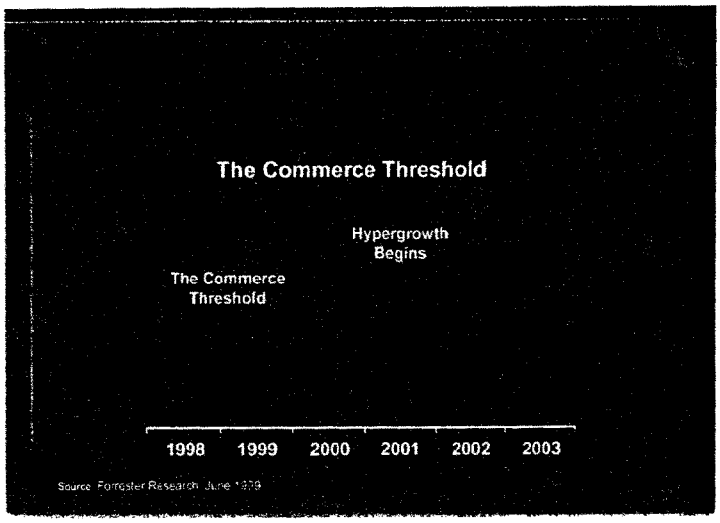
About Unisys

Unisys is a $7.5 billion electronic business solutions company whose 36,000 employees help customers in 100 countries build and manage the transaction infrastructure they need to conduct e-business with their customers, suppliers, and employees. Unisys professionals integrate, deliver, and manage Unisys e-@ction solutions, services, server platforms, networks, and outsourcing capability that are the building blocks of this infrastructure.

Unisys serves the financial services, transportation, communications, publishing, commercial, and public market sectors worldwide, including U.S. federal government customers. Unisys derives about $1 billion of its revenues from business with the U.S. federal government through the Unisys Federal Government Group, headquartered in McLean, Virginia.

Unisys, formed from the merger of Burroughs and Sperry in 1986, maintains its corporate headquarters in Blue Bell, Pennsylvania, in the Greater Philadelphia area.

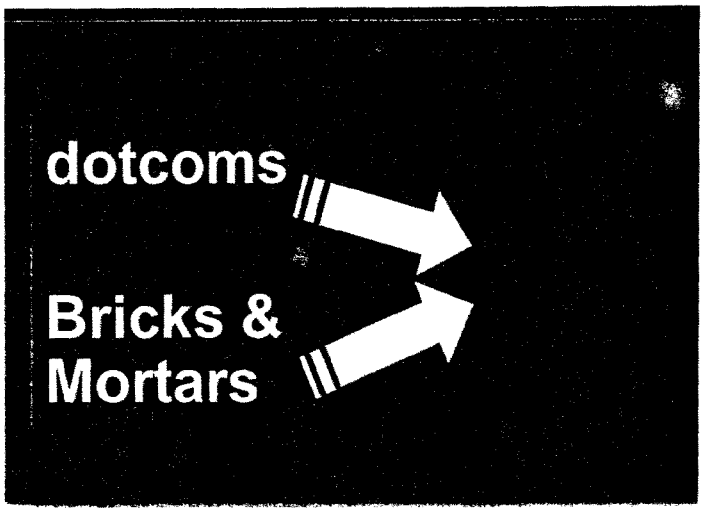
E-BUSINESS: THE FIRST AND SECOND WAVE



Unisys

Unisys' view of the marketplace is that a second wave of e-Business is just now taking form, **suggesting** a rapid acceleration of Web and Internet-based activity by organizations both commercial and governmental. This acceleration is usually described as transformational, but on any measure – a typical market growth metric is presented above -- this is an unprecedented phenomenon. The First Wave of e-Business was dominated by the so-called dotcoms – amazon.com is the most-recognized example. These newly formed organizations took advantage of the low cost of market entry, the high interest of venture investors in "Internet pure-plays," and the belief that physical infrastructure, inventories and distribution systems were business models of the past.

We see two phenomena in the Second Wave. Traditional "bricks-and-mortar" companies have recognized the strengths of the dotcoms as well as their vulnerabilities, especially where product fulfillment and customer service infrastructures re-assert their importance in conducting true, high-volume e-Business with real customers. The brick-



Unisys

and-mortars are quickly investing in a robust Web presence and competing with the pure dotcoms on their own ground.

At the same time, many early dotcoms, as well as new start-ups, are recognizing that physical infrastructure, distribution systems and fulfillment capability -- even physical space to interact with customers -- are critical elements for success. We see the dotcoms and the bricks-and-mortar organizations moving to what we term "hybrids," where a blend of Web and physical presence is the winning formula and where robust, enterprise-level computing capability typical of traditional, large corporate and governmental organizations is recognized as the next requirement.

What is clear is that the transaction intensity of a 7 X 24 X 365 service environment means that new levels of computing and network infrastructure will be required as the Second Wave unfolds.

Implications for Government

What does this Second Wave mean for government? First, as companies interact more frequently, efficiently, and effectively with their customers, suppliers, and employees, new service standards in terms of speed and value delivery are quickly emerging. Governments are serving the same end-users and these new service expectations will easily migrate to their interactions with government. Second, the 7 X 24 service model

will place new demands on transaction access – if the world at large is open, government will be challenged to be open too. Third, cost efficiencies are accruing to commercial organizations from the way they serve customers. The cost of an electronic transaction is pennies compared to a direct, face-to-face interaction with a customer service employee. This will mean that commercial organizations will increasingly compete to outsource services since government computing and staffing infrastructures cannot or will not operate at Internet speed.

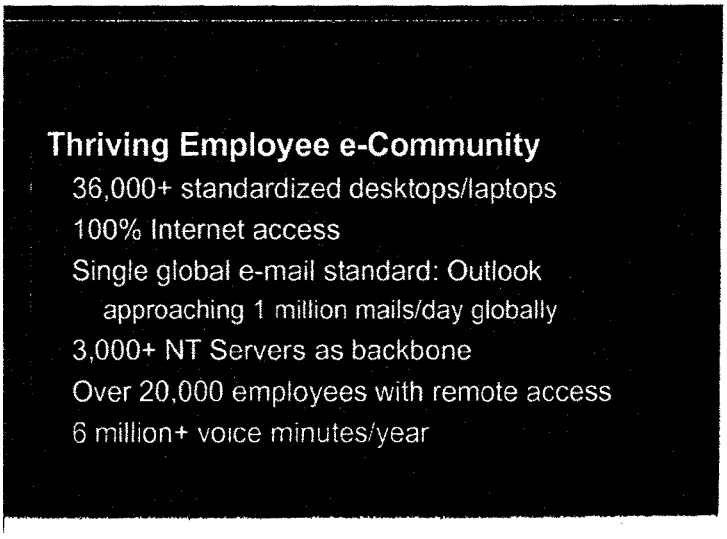
The Unisys Experience: Transforming Within

Unisys has five functional areas that have driven our internal transformation to a premier e-Business:

1. How we communicate and interact as an e-Community
2. How we manage and develop our people
3. How we manage global business processes
4. How we go-to-market
5. How we build new, Web-enabled solutions to help customer organizations transform

I. THE UNISYS E-COMMUNITY

When we speak of our e-Community at Unisys, we include our base of over 36,000 employees which also extends to our customers, suppliers, and other stakeholders that



interact with the Company to accomplish their missions. As with most global, technologically advanced organizations, Unisys has invested aggressively in building the global network and computing infrastructure needed to support and enhance our thriving e-Community.

Over the past few years, Unisys has moved to standardize our desktop/laptop computing environment so that our 36,000 employees now enjoy a common operating system level, common standard desktop applications, and related training and support. For any organization that has watched the accelerating pace of new generations of operating environments and rapidly evolving technology platforms, this is no small feat. In fact, one of the greatest challenges of public sector organizations will be the management of desktop resources and support of the critical networks that link employees and constituents on an increasingly electronic basis.

We have seen Internet access grow rapidly over a three-year period, with almost every single one of our employees having regular access to Internet resources, again transforming how we think about the information we need to do our jobs.

Even something as straightforward as a common e-mail system with uniform transfer capabilities for attachments was a challenge. Unisys inherited many legacy systems and differing e-mail environments due to mergers and acquisitions, but has successfully come to a single, global standard for e-mail.

When we include e-mail traffic generated across the e-Community including employees, customers, suppliers and stakeholders, we are generating a disarming one million plus e-mails a day through our global network. The server infrastructure that manages that mail and supports our desktop assets now consists of over 3,000 Windows 2000/NT servers across our facilities.

We have also seen a transformation in terms of where our people can contribute to our success. Some 20,000 of our employees have active remote access to the Unisys network, meaning that the way we think about physical infrastructure is rapidly evolving, with more and more Unisys employees working from home sites and other non-traditional office settings. There may also be lessons from our experience in shifting a traditional business-day model with employees at their workstations, to a more fluid, flexible, and, in the end, a more satisfying work style enabled by technology.

We also see acceleration in terms of how we use voice communications and the voicemail capability. Voicemail volume now approaches 6 million minutes per year and is growing.

Implications for Government

The acceleration of Unisys employee use of e-mail, voicemail, and other computer-based communications technology continues unabated. As we see continued growth in these communications tools, we expect that other emergent e-Communities in all sectors should anticipate similar dynamics. The challenging resource management issue associated with these tools is effective management in computer memory terms of a burgeoning mountain of e-mails awaiting action and voicemails clogging limited system space.

Organizations of all kinds will face training and other investments to meet demands as these tools become central to effective daily operations.

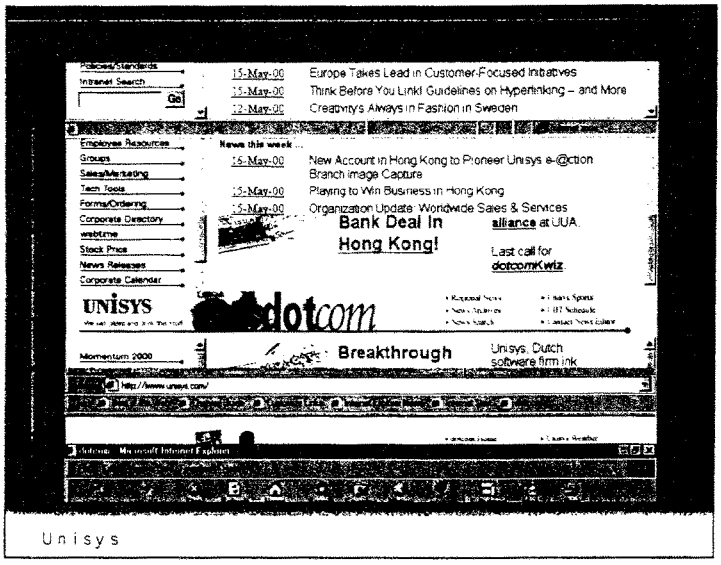
The Unisys e-Community: Keeping Employees Informed

The global network infrastructure discussed above has been key to our exploration of how we use the technology to keep employees informed. Of course, e-mail allows real-time, effective, and inexpensive communications with literally all employees and also allows targeted messages to specific demographics of the population.

The ability of the leadership of the organization, especially our chairman & CEO Lawrence Weinbach to communicate regularly and personally with all employees is especially important to organizational understanding and morale. A monthly letter is e-mailed to all employees chronicling progress and challenges and recognizing specific employee teams that have made an important contribution.

This letter and a regular stream of news and information is updated several times daily through dotcom, our internal intranet site. Dotcom also acts as an information portal guiding employees to all other Unisys intranet resources. In terms of a complex, internal information environment with literally hundreds of web sites scattered across the organizations and many database environments supporting the organization, the information portal/news vehicle is an essential productivity and morale building tool.

With more than one million hits per month, we aggressively use this tool to support employee understanding and access to information.



Implications for Government

With regard to Web-based information portals, there are two implications in our view: internal and external. Internal to the organization, the development, continuing investment, and promotion of an intranet portal can be an extremely effective tool in helping employees understand the priorities and dynamics of the organization. **The more successful a single, "official" portal is in presenting a useful tool for news, a recognition device for employee performance, and a coherent entrée to organization information that employees need to perform their work well,** the stronger the return.

Externally, a portal approach can be equally effective in attracting, engaging, and servicing customers, constituents and others with news, general information, and necessary services. Unisys believes that the combination of internal and external portal development holds strong promise as a design model for progressive organizations of all types.

Delivering complex media content...Increasing impact through Web-casting important content

The information portal is, of course, a pull medium: your employees or customers/constituents elect to visit and interact with the content. The quality of that interaction is dependent to some extent on the quality of the site in terms of navigational clarity, content quality, and other factors.

Complementing this pull medium is a "push" dimension: both well-established broadcast and CATV channels and new, Internet-based "broadcasting" that is emerging as an important complement to the portal notion. On the traditional broadcast/CATV front, Unisys has maintained and aggressively used a private, satellite-based network to deliver important content to our key employee, customer and supplier audiences for a number of years. This has been particularly effective since we maintain our own studio and production facilities and can originate broadcasts from anywhere with our own producers and local technical crews.

Unisys has more recently been experimenting with Web-casting key audio and video content of general interest to our employee, investor and customer audiences. A recent example that impacted both investors and employees was the Webcast of the Unisys Annual Stockholders Meeting. Held in Philadelphia, we carried both audio-only and full video streams using a third-party service that specializes in this new medium. The content is also archived for later playback.

The opportunity here is direct, real-time involvement of key audiences in events where location, event space capacity, or other limitations preclude that involvement. We see this as the next important step in connecting our employees, customers, suppliers and stakeholders of all kinds with the Unisys story. Internally, our ability to do so depends on server capacity and desktop capability, which in turn requires infrastructure investment.

Implications for Government

Web-casting will take its place alongside broadcast media, mass e-mail, portals and related Web environments, and telephony and voicemail as important channel options to reach and serve customers and other constituencies. Taken together, the investment issue is bandwidth and infrastructure capability and the limited investment base available to government organizations.

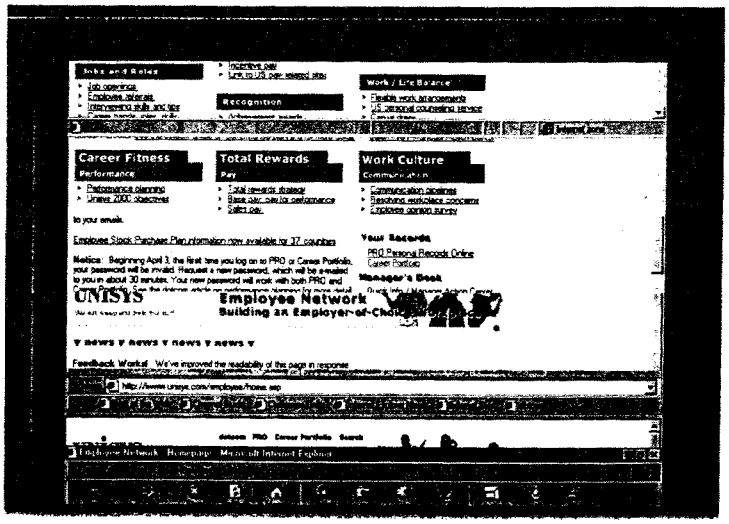
Clearly, constituents will be enjoying a growing set of options about how, when, where, and in what media they can seek information, act on information and conduct transactions. Organizations of all types should expect their customers to be presuming such options to be part of a service standard, rather than an occasional exception.

Our internal experience over the last few years in extending, standardizing, and strengthening our computing and network infrastructure has been challenging but absolutely essential. Without this work, we would not enjoy the thriving e-Community that provides a vital link supporting a diverse, global workforce.

2. HOW WE MANAGE AND DEVELOP OUR PEOPLE

We have applied a similar philosophy – make it electronic, available, and high quality – to building support systems to manage and develop our people. This includes everything from tools for managers to easily and remotely conduct "people transactions," to tools for employees to help access and use training materials, seek new opportunities within Unisys, and manage and advance their careers.

Two examples will underscore our commitment to what we term "Unisys e-HR." First, we have built our entire HR support and transaction system around a Web model. The



Unisys

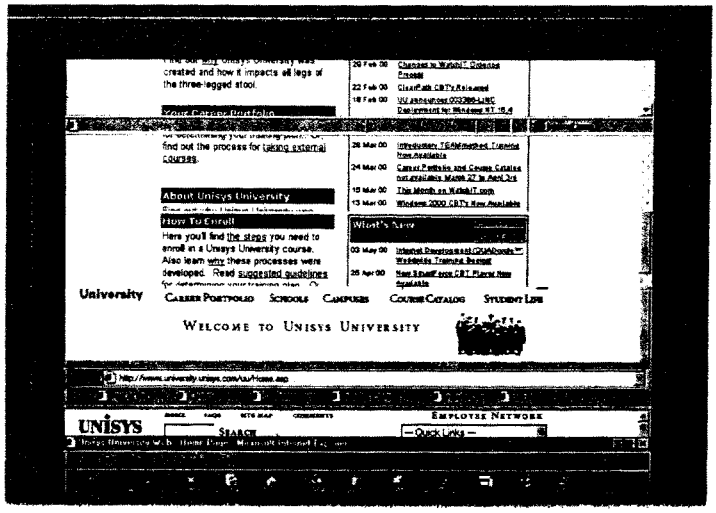
Unisys Employee Network is a portal that integrates all the resources and transaction options supporting managers and employees. Features include:

- Manager's Desk – a link to a set of transaction environments including PeopleSoft for compensation management, as well as others for performance management, etc.
- The Unisys Career Fitness Center – an electronic career assessment center for employees
- Webtime – a global employee time reporting system that allows modeling on how our talent is deployed and where talent is needed
- Access for employees to their personal Unisys records to allow information updating, verification, and much more.

The intent of the Employee Network is to provide a universal, standard, electronic support tool for employees. The ability to use this tool is an important part of the employee experience – a positive experience that builds the employee perception that Unisys is a good place to work and a good place to make their best contribution and build their career.

The second example is Unisys University (UU). UU was established in early 1999 as part of our strategy to assure that our people had or could effectively secure the skills Unisys needs to compete in the marketplace. Both commercial and public sector organizations face the same challenge today: attract, develop, and retain key talent or suffer the organizational performance and customer satisfaction consequences that follow.

Pertinent to this testimony, UU features a recently-formed Electronic Business School,



which is developing and delivering the training needed by our employees to effectively help us transform Unisys to become a premier e-business and to help our customers transform their organizations to take advantage of their e-business opportunities. The bulk of the coursework at UU is delivered electronically through interactive tools.

The Unisys Employee Network and Unisys University are critical drivers of our e-business transformation.

Implications for Government

Providing sophisticated, Web-based tools to improve manager and employee productivity, satisfaction and loyalty, will become a standard that both commercial and public sector organizations will need to perform against. The same computing/networking infrastructure discussed earlier in this testimony is the foundation investment to accomplish this performance, but in this instance needs to be complemented by a progressive Human Resources team committed to change and to e-HR.

The return on the foundation technology infrastructure investment grows as it effectively serves more and more organizational functions and business processes.

Training delivery is the other implication here. The skills requirement to compete and serve customers well will continue to grow, and the skills will increasingly include competence in using technology systems and tools. The "make-or-buy" decision that all organizations face with regard to training is an important one, dependent on operating context, resources, and specialized needs. Unisys believes that public sector organizations could benefit greatly by tipping the balance to more internally-sourced, electronically-delivered training regimes.

3. HOW WE MANAGE GLOBAL BUSINESS PROCESSES

Partly as a result of what was in 1986 the largest merger to date in the information industry (Burroughs and Sperry), Unisys operated for a number of years with many incompatible legacy systems supporting global business processes.

In 1998, Unisys launched Cornerstone: a global initiative to standardize, simplify, and integrate these systems, accelerating our e-business transformation. Our goal was to implement world class applications that winning global organizations were using to manage their business and deliver the integrated enterprise information any large organization requires to manage itself effectively. We attacked literally every process:

- Time Reporting
- Financials

- Order Entry
- Procurement
- Delivery & Logistics
- Project Accounting
- Manufacturing
- Engineering
- Marketing & Sales
- Recurring Services
- Data Warehousing/Datamarts
- Central Reference Databases

We are now releasing the integrated, globally standard applications that link these various functions into a seamless, enterprise-wide system that supports efficient operations. The roll-out has been by major geographic theater and will be completed over the next year. We expect to see significant economies as we train our people on the single, common enterprise system. This direction will also allow us to deploy talent anywhere and everywhere we do business, since our employees will enjoy a uniform knowledge of common tools.

Implications for Government

Many business processes are common to commercial and public sector organizations. Unisys believes that the best base strategy for the Second Wave of the Internet economy is to migrate to business process solutions that boast world class performance, support and adoption, and that address the 24X7X365 world. These characteristics help ensure that your organization is benefiting from the external competitive pressure on providers and customer demand for continuing performance improvement, stability, and functionality.

Government organizations may find this direction challenging, especially where, like many commercial organizations, incumbent legacy systems are well-ingrained in terms of organization process, culture, and employee acceptance. But over the longer term, adoption of world-standard solutions for core business processes delivers the best risk/reward and performance metrics.

4. HOW WE GO-TO-MARKET

Again, we have applied our e-business transformation model to how we execute our sales & marketing function in the field. Similar to our view for business process solutions, adopting and implementing a uniform, world class standard is a base strategy for the New Economy.

In this regard, Unisys is currently implementing a leading sales automation tool which will be globally available to our entire sales force through the Unisys intranet. As we deploy, we will be disabling a host of geographically-unique, incompatible sales automation tools that have grown up since the merger period. This new tool will support efficient collection of customer interactions and market intelligence; allow a global view of customers relationships and opportunities; and, perhaps most important, will allow all levels of sales, delivery, and administrative management to see and act on opportunities to serve the customer and strengthen the relationship.

This e-sales management approach – which itself is also dependent on the computing and network infrastructure discussed earlier – will largely complete the Unisys e-transformation internally.

Implications for Government

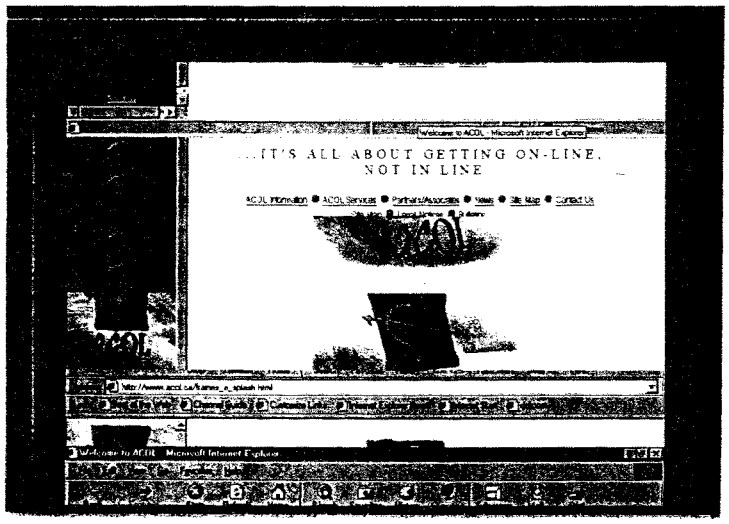
Unisys sees Customer Relationship Management (CRM) and the online automation of how customer transactions and relationships are monitored and managed as a key opportunity in the e-business world. As governments continue their shift to viewing constituents as customers who need to be served and satisfied, the likelihood is that sales automation and CRM tools now transforming commercial organizations, will be adopted by public sector organizations with similar transformational effects.

5. HOW WE BUILD NEW, WEB-ENABLED SOLUTIONS TO HELP CUSTOMER ORGANIZATIONS TRANSFORM

Our efforts to transform Unisys internally to become a premier e-business is complemented by how we develop solutions and work with customers to help them explore and exploit their e-business opportunities. I would like to share an example of our work with a public sector partner to underscore these marketplace efforts.

Like governments everywhere, the Canadian provincial governments of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland are constantly challenged to improve service delivery to their citizens while maintaining and even reducing costs.

These four provinces teamed with Unisys to establish Atlantic Canada On-Line (ACOL). This public/private partnership provides citizens and businesses with broad online access to important regional government services through the Web. Constituents can use ACOL to access selected government information databases and quickly retrieve, search, update, and register information in a secure environment. Essentially, a disparate group of government agencies and departments -- spread out across the four provinces -- now



Unisys

provide a seamless online environment supporting their respective constituent groups. The departments include land registry, motor vehicle registration, personal property registration, and many others.

The first application was the Registry System, which automates the recording, tracking, and access to liens on mobile personal assets. For example, when an individual takes out a car loan, to secure the loan, the lender -- say a bank -- registers a lien on the automobile. The province records and tracks these liens. Before the loan can be approved, the bank would register a lien checking, in the process, to make sure the car was unencumbered.

Before ACOL, this process took weeks, whereas the new system provides real-time turnaround. When Nova Scotia went live with this application, it was able to consolidate 16 registry offices into 1 -- cutting costs while dramatically improving service.

An important aspect of the partnership is an innovative revenue-sharing arrangement based on fees paid by constituents for transactions and access to the databases. These fees are deducted from deposit accounts established as a constituent-user initiates the online relationship. The provinces and Unisys operate on a risk/reward approach, which has also reduced administrative costs.

Implications for Government

There are three implications from this example. First, the e-business phenomenon will allow different levels and functions of government to form new partnerships based on common service operations and common electronic infrastructure. Second, fee-based transaction services can take advantage of e-transaction models to increase efficiency and reduce costs. Third, innovative partnering with commercial information services and e-business solutions providers can accelerate transformation opportunities for public sector organizations of all kinds.

Summary

In closing, all the key benefits in productivity, community, speed of operation, service quality, value delivery, and cost efficiency that are available from the e-business transformation that Unisys and other commercial organizations are now pursuing are dependent on one key factor: a robust, integrated computing and networking infrastructure. That infrastructure is the springboard upon which successful deployment of e-business capability in the commercial and public sector depends.

Mr. HORN. Thank you very much. We appreciate that. Give Mr. Gardiner our best. We are sorry that he couldn't make it. You did a great job.

Our last presenter is Kathleen deLaski, group director, editorial products, America Online. I hope you have stock options.

Ms. DELASKI. Of course. Welcome to our neighborhood. Thank you, Chairman Horn, for inviting me to speak and Representative Davis as well.

In the lobby of AOL, which is just down the road, our plaque that states our mission statement is that we strive to make the Internet central to people's lives, as central to their lives as the telephone and the television and even more convenient, and nowhere more so in e-government is the opportunity to reinvent, to borrow another expression, is this more prevalent than in the government space. We began—we saw the promise in 1996 and began in the Presidential cycle that year trying to develop ways that consumers could have on-demand access to information about the candidates that were running against each other, to be able to cut through the 30-second sound bites. We saw even at that early stage hundreds of thousands, more than a million visitors to that kind of information, and we saw the promise then.

In 1998, we developed a site called My Government, which allowed a member—our members; in other words, citizens, to type in their ZIP Code and up pops the pictures and contact information for all of the people that represent them down through the State level so you could e-mail and track their votes. That also was very successful.

In late 1999, we launched a brand new service, Government Guide. We saw the explosion coming of services, as we have all been talking today, on the Web, and we began to try to figure out what is the best way to present that to the consumer and it quickly became apparent that you needed to organize it by consumer needs instead of by agencies. And we are in the middle of developing a State and local version of this, but the piece that we launched last December is mainly a Federal site. It is called Government Guide on AOL. It is also on the Web.

I brought—since we couldn't show pictures of it, I brought some color copies so you can see what it looks like afterwards. But it has been very successful and it says to us that the demand is there, as most of us suspected. But our way of doing it is to—for instance, we have developed checklists, government checklists that allow you to answer a series of questions about paying for college through Federal student loans, can I file my taxes electronically. We partnered with the IRS this year to offer that service. How do I get a passport or visa which walks you through from what types of forms do I need to fill out to where is the post office that I can pick this thing up. These have started to become very popular.

Our government services site is growing 100 percent a month. We saw 13 million page views last month, which means that 13 million sets of eyeballs are seeing government information that didn't have on-demand access to that information even 6 months ago.

Consumers have come to expect a lot from government. They want renewing the driver's license in Virginia or paying their taxes

to be as easy as ordering a book from Amazon.com which has become very easy, and so that is where the bar is. And while there are some impressive examples in Federal Government, we feel and I know that many of the government agencies feel as well that information is still either too hard to find, too out of date or simply not available in a digital format. So I have three areas that I would just like to touch on by way of suggestion in the short to medium term.

First of all, the notion that the Federal Government should try to be an AOL or a Yahoo, to create portals is I think valiant but may be very difficult. We believe that it is the role of government to create the applications on-line, to Web-enable paying your taxes, to Web-enable getting your passport or voting, but to try to create the consumer interface across many agencies is a very difficult job and there are specialists in this field, and AOL is not the only one but we have enough trouble hiring people to do this for us and we have stock options, as you said.

So the examples that we have seen of this at the Federal Government level, the people involved in these projects are very up front about how difficult it is, No. 1, to make the portals work but also to drive traffic to them. This is what any dot-com will tell you; you can build it but they won't necessarily come. So where we have been able to help with government agencies is in driving traffic to the applications and we recommend a syndication model whereby all of the dot-coms will drive traffic to the Mint site, for instance, or the Social Security application forms.

The second thing that I wanted to mention is the whole area that has been talked about already here, digital security authentication privacy. I am not an expert on the pending legislation on digital signature right now, but we do feel that it will go a long way to Web-enabling government. It is true that we really have been having to cobble together strategies in the absence of such legislation whereby digital signature means that you can bring a lot of the transactions, both financial and information on-line. What we can't stress enough is the importance that these applications, these digital signatures, the digital certificates be handled in a way that they are not an impediment to the consumer because it has been very difficult to look at different technologies across the board and try and make them interoperable. If I have to have one pin number to renew my driver's license in Virginia and another one for every other consumer transaction I want to conduct, that is going to be very difficult and I think an impediment to progress.

Finally, I want to make one quick point about Members of Congress as well as agencies continuing on the drive to have public e-mail addresses. We find that consumers, their No. 1 desire is to be able to communicate with somebody at the other end and to the extent that we can empower through mail systems and good back office consumer-oriented service centers at the individual agencies and on Capitol Hill, that will go a long way to making feel that there is someone on the other end of not only the phone but of the e-mail.

Thank you.

[The prepared statement of Ms. deLaski follows:]

Testimony from Kathleen deLaski
America Online
Group Director for Editorial Products
Government and Politics

Thank you for inviting me to share AOL's experiences in e-government.

AOL's role in e-government
Our focus is on the consumer...and creating ways to make government convenient and useful for our audience of 22 million members. We began in the 1996 presidential campaign, helping voters compare positions of the candidates. In 1998, we launched My Government, which helps citizens determine who represents them in Congress and in state government. We have delivered roughly 2 million mails to congressional offices, with an anti-spam feature, I should add, that doesn't allow citizens to send a letter to more than one member. And we require a postal address, so you can verify if the sender is in your district.
In late 1999, we launched a brand new service. GovernmentGuide is an effort to organize the federal government and its web sites by consumer tasks, not by agencies. We put a consumer friendly interface on the information and interactions that citizens need to have from government. We've developed checklists where you answer a series of questions and we generate a tight list of federal web sites that help you answer government questions ...Can I file my taxes electronically, how can I pay for college is about student loans, how do I get a passport or visa... and we are working with the federal agencies to do this.

Our government services site is growing 100% per month. We saw 13 million page views last month. This is 13 million pairs of eyeballs on government information that didn't have on-demand access to that information even 6 months ago. We're starting to drive traffic to the government information and applications.
Consumers have come to expect that every government service--like trying to renew your passport, pay your taxes, or checking your social security contributions--should work like ordering a book from Amazon.com. While there are some impressive examples in federal government, the bulk of the information is either too hard to find, too out of date or simply not available online in a convenient way.
I would like to outline three general areas of suggestions in the short time that I have:

1. **Prioritizing federal spending on web-enabled government**: The mistake I have seen is that government agencies are trying to be AOL or Yahoo, developing a portal around a government agency or across government agencies. In some cases, this has been wasted money and resources. Learn what many dot-com companies have learned. Just because you build it, doesn't mean anyone will come.

Government agencies should specialize in what they do best, delivering the service and web-enabling the service ---paying your taxes, getting the passport, reporting a faulty product, searchable archives, student loan payments. What does that mean? Create a back office, digitize your information, so that consumers can track a claim online, or search for the latest cancer cure.

If the applications are good, we...the commercial portals...will promote them. And send you traffic. I understand that one day last month, the Mint's e-retail site sold $2.7 million worth of new quarters and other items in just one hour. Overall, the agency expects to bring in $150 million in revenue this year off the site.

2. **Digital signature/authentication/privacy** I am not an expert on the pending legislation on digital signatures. We believe that the legislation will go a long way to allowing consumers to conduct more information and financial transactions online. But, I can't stress enough the importance of how these digital certificates or PINs are implemented across government...not just across federal government, but across all jurisdictions. I got a PIN number when I renewed my driver's license online in Virginia recently. I can't be expected to have a different PIN number to access each government agency, and I can't be expected to understand which interactions are federal vs. state vs. local. As each agency develops its applications, the whole federal government needs to think about creating this as one consistent interface, with the government equivalent of what AOL calls "Quick Checkout," which allows customers to enter their information once and shop across many merchant partners.

3. **How members of Congress use the Internet to respond to constituents**. As we facilitate the sending of e-mails from constituents to congressional offices, we still hear that some offices don't want to regard e-mail with the same the value of a phone call or letter. We believe that elected officials should look at e-mail and the Internet, the same way that online stores do and the same way we are suggesting that government agencies do this. With the right software, you should be able to track your actions in response to constituent requests, track their opinions on upcoming votes and begin to foster a new kind of relationship with the voters. In the meantime, we ask that you work with the companies that deliver e-mail Congress features to consumers to give the voters a tangible sense that their emails are having an impact.

Mr. HORN. Thank you. We will now start the Q and A, and I yield 10 minutes to Mr. Davis, the gentleman from Virginia, for questioning.

Mr. DAVIS. Let me say that e-mail is the most frustrating part of the job. The e-mails are messed up half the time and sometimes they are a couple days late and we can't respond.

Ms. DELASKI. Yes, sir.

Mr. DAVIS. It is all security related. We don't have it right now.

Ms. DELASKI. Right.

Mr. DAVIS. During the impeachment I was getting 2,000 to 3,000 e-mails a day. People know how to find us; at least they can find us.

I have a fundamental question.

Mr. Molaski, we are dealing now with a government structure that is starting to change a little bit in the way that government is organized. My question would be do we really have a structure? You see what Virginia has done with the Secretary of Technology. Don, you had turf fights. Nobody wants to give up turf. They have created the Technology Committee, but it is turf fights who is going to have oversight and that means a lot in fundraising. How does it work having one oversight, and I get asked at the Federal level, should we have a chief information officer over all of the other chief information officers. What is the coordination?

Mr. UPSON. My response would be that it is a progress, the Federal Government is making progress but there is no time to go as slow as it has been going. I think you need two things in the structure. The individuals responsible for technology within an organization, within the departments should have power. They should be at least Assistant Secretary and the law exists to do that. You need a position to have authority within its own organization, and the collective authority reporting to not only the Federal Government but you have a Secretary of Technology, but maybe the Director of OMB, monthly meetings where the Interagency Management Council meets and at the President's direction are working. I think there has been a lot of talk. I think $36 billion is spent at the Federal level. NPR, the GITS committee, the Hammer awards, they are great things, but I often say they are like well-tuned instruments in a high school band playing different songs. You need power in the organization and power in a collective group, and I think that I would challenge you for the things that have been done.

NPR has great goals. What were the big three accomplishments? And do the citizens know and what is the vision for electronic government, and I don't see that executive leadership coming. I think that Congress has built a foundation against which you can work. I think you could have assistant secretaries right now. I think you could make those assistant secretaries part of an Interagency Management Council reporting to an OMB Director, and I think you could reform procurement. You could take GSA and put it—what I think is interesting, Mr. Davis, you have got every agency of government putting out contract vehicles to sell computers not only with themselves but everybody else. NIH should be curing diseases, not selling computers. I think if you had an independent GSA along a Postal Service model, try to put together a structure that

empowers and allows the professionals of the infrastructure to manage not only the infrastructure and build it, but to connect the bigger policy initiatives.

Mr. DAVIS. We found in Y2K that you have some CIOs who have empowerment, and in Y2K we found there are some agencies who could walk the talk and there are others that didn't. It is frustrating.

Mr. UPSON. The biggest challenge to electronic government and the reason that it cannot work without that structure is that government agencies, like bureaucracies in the private sector, they behave as stovepipes and they want to do things their own way. As America Online said, everybody will have a digital signature environment and security environment which puts at risk all of the databases that we have in the government. Because—by the way, I would say that the interagency management council at the Federal level ought to include some State and local representatives, and maybe some from the private sector. Everything that we do connects to the Federal Government. People are not concerned about privacy per se. If they were, you wouldn't have $1 trillion in e-commerce. They are concerned about the government. We are the ones with police records, criminal records, the driving records, health records. Unless we have that standardized continuum across government, I don't see it working. I think that the structure is at the level that needs to be at the Federal level.

Mr. MOLASKI. I believe that the structure has to be revamped within the Federal Government at this time. I think that the CIOs have made long strides since they were first implemented in 1996, and I think it is time that—as the Secretary has said, Secretary Upson, that they be given more power and authority over the information technology structures and operations within each one of their individual agencies.

We have an organization called CIO council, which is an organization, an interagency body involving all of the CIOs within the Federal Government. Unfortunately, it has no teeth. Any recommendation that comes from it or that comes out of the CIO council is voluntary for the agencies.

I would suggest that we follow similar cascading-down type of structures within the CIO community where it starts with the CIO council, and the council has power to be able to make some decisions, and especially as it is attuned to infrastructure. Then each one of the individual CIOs not only becomes an Assistant Secretary, but also has operations underneath them. Many of the CIOs are not responsible for the infrastructure within their own agencies. And for those departments like DOT that have multiple bureaus and multiple agencies, each one of those organizations needs the CIO to work with their administrator and work with the CIO to determine infrastructure and architecture.

The one caveat I would make is that the program people still need the budgetary funds and the ability to direct what information technology they need to be able to perform their missions, and that decision should be made in concert with the CIO. For example, I would not want to be in a position where I make the decision on what flight traffic control systems the FAA should be using. However, I should be in a position to make sure that they are spending

their dollars wisely in those areas, and they are following good business practices such as Clinger-Cohen.

Mr. DAVIS. Do you want to comment on the structural issues, Mr. McClure?

Well, fedcenter.com, and several others, those are commercial sites that are providing citizens and businesses with access to online government transactional services. Do you think that government should be concerned about these or should we be applauding these commercial efforts?

Mr. MOLASKI. I definitely think that we should be applauding them. I think that part of the beauty of the Internet is the multiple access sites that we have to the government. I think what government has to follow is some of the subscription models, like Kathleen was saying, that we need to be able to prepare our sites and index our sites and have our sites available for the rest of the Internet universe to be able to utilize.

Also, we should be investing Federal Government dollars where industries are not, and that really works when we start looking at a help desk. Portals are great providing that information is connected to the Web sites, but if I am a frustrated citizen and can't find that information in three clicks or don't know how to use a computer, where do I go? And that is, where we need a multi-access help desk to be able to provide the services to the stakeholders so that they can get that information.

Mr. DAVIS. We have two issues. One is where you are providing for the occasional citizen, but the other is companies who are dealing with government in terms of purchasing goods off the Internet, how is the government doing those endeavors?

Mr. COOPER. It is a significant challenge to interact with the government in a common standard way. There are several initiatives, the electronic procurement system and GSA, other initiatives that have helped. The portals that have been made available for understanding the services available or the procurement activities where opportunities that are available to Unisys and other members of the commercial establishment.

The key is the infrastructure and the standardization of the infrastructure so that we can communicate in a common way to a common set of databases and a common methodology. And that is where we are greatly missing the boat at this point. We are in the early stages of the second wave, as we call it in our testimony that was provided to the committee, where you have the brick-and-mortar companies coming together with the dot-coms, those who put the pure Internet, such as AOL and the ability for those two to come together into a blending and work with the government to provide that full integrated capability is going to be the key to the future.

Mr. DAVIS. My time is up. I would note one thing. We had one level of government that knew the love bug was a problem and by 4 a.m., they ferreted it out, but it was 11 a.m. before it got to other agencies. We still have problems within government because of the way that we are structured in terms of getting that information out. The more we hear from you all and hear anecdotes helps.

Mr. UPSON. We have a structure, and I think we are building a stakeholder. That love bug is a good example. We notify the provid-

ers and we used our management mechanisms in Y2K and across council to set up contacts at every agency, shut down the servers within State government and literally had no—people did not communicate until we were able to put the patches on our servers, but we had a reporting mechanism across and government and we had a response, and we patched it and 24 hours we were up and running.

Mr. DAVIS. Thank you. I have to leave, but I am pleased to be able to join you here today, and I would like to say to all panelists, we appreciate you for coming here and Mr. Chairman, thank you for holding this hearing.

Mr. HORN. I am glad to do it. This is a Virginia unlike what I came to in 1958.

This is terrific to have all of you here. I just want to ask a few questions. The one that is the question that I ask frankly to anybody I can see on the street, as well as experts, and that is, how do we measure Federal programs that are a success. We had a hearing of this committee about 3 years ago in Oregon, which is the only State in the union with a guide for measuring the programs to see if they are working, to see if the people are satisfied, and I would really like to hear from you, just going down the line.

What do you think we can do to get the Federal Government out, and obviously they have done at the local level also, your excellence in government and that type of thing. But I would be interested in what your thoughts are.

Mr. McClure? I am sure that GAO has piles of studies on it. How do we get agencies to say let's use the computer to have people assess these programs? On the other hand, you have got a whole group of people that you leave out when you do that. Do you take a random position that most pollsters would do or how do you do it? Do you say we did it this way and here are the data and here is what we are doing on this side on the noncomputer side.

I think the help desk is certainly a good idea to get all of these systems that you use and you can use very constructively to have people look at the agency.

Mr. MCCLURE. Well, Mr. Chairman, the value coming from investments and technology is always a challenging area. It requires a combination of quantitative and qualitative information.

One of the things that you'll see good companies, public or private, focusing on when they are investing in technology solutions are metrics that focus on speed, cost and quality. If you can show how you are improving those kinds of operational metrics in your organization in investments in technology, you can show that you are having an impact.

There are other measures that are more soft, such as enhanced customer satisfaction, that are just as revealing and important to show that you are moving your business, your operations and your program outcomes in the right direction. In our advice to agencies that are struggling in the Federal Government with measurement issues, we argue that there is a real need to focus on both quantitative hard ROI-type numbers and qualitative data that can come from surveys and interactions with customers to know that you are producing good results, and I think that is where the heart of the matter lies.

Mr. HORN. Any thoughts, Mr. Molaski?

Mr. MOLASKI. Fortunately, when I was appointed 11 months ago, I joined an agency which was leading the government as far as performance measures, and that is the Department of Transportation, and they have been noted for their strategic plan and performance measures and their performance report this past year.

That said, it is an evolving process that we have to get better at. We need to be able to have a dashboard for each agency not too unlike your grading system in Y2K that indicates what the agencies are doing as far as around their primary goals. For example, in the Department of Transportation, one of our goals is north star safety. We need and have been reporting internally to each other as far as how are we doing on that. We need to be able to simplify that to a great extent, to be able to come up with an index of some sort that we can work with and show Congress and show the public exactly the good work that we are doing.

Mr. HORN. Are there other Federal agencies, say the 24 or so other agencies and departments, are they doing some of this program analysis work?

Mr. MOLASKI. I really can't comment on other agencies outside of DOT because——

Mr. HORN. At the CIO level, do they ever discuss some of these possibilities?

Mr. MOLASKI. We are looking at—one of our committees right now is on the security situation. We are more focused on technology as opposed to program relevancy. Our security committee right now is coming up with a security maturity model, and what that means is that we come up with a model that agencies can actually take a look at and where they fit within the maturity model on security so they have some ideas, and so that the administrators have some ideas of where they fit within the spectrum.

Mr. HORN. Mr. Upson, in your role as Secretary, does the Governor say how do we look at some of these agencies I inherited? And have you used that to some degree and if so, how have you used it?

Mr. UPSON. Not so much in your question in terms of measurement, but actually, we took, and I meant to commend you, and I think I did in my written testimony, in the approach that this—that your subcommittee took with Y2K. What you asked fundamentally: What do the agencies do and what is important? We have changed a little of that. We now have a blueprint for what we think is most important. We use that as a blueprint for managing our technology now.

But the most important thing to measure when you measure performance with technology investments, it seems to us, is that you be able to have a system that is accountable. What is it you do and how do you use technology to create an accountable system, and by that, let me give you two examples: One, there is a building permit process that has the builders in northern Virginia being up in arms. They are required to submit a hard copy, very thick application to agencies. Fairfax County, the Secretary of Transportation and Secretary of Natural Resources, they never know who has it. They never know how long it is going to take. They hire lawyers to manage it.

It is never about the technology, it is always about the management. We put the stakeholders in the room, myself and two of my colleagues, and we are designing a system in real time that when you send that application in, it will be registered. You will know who has it and how long it is. The same thing with driver's licenses. There is a 90-some-odd percent Virginia approval rating of people who have been to RD&V in terms of their experience. Why? Yes, you can renew it on-line, but that is not good enough today. It is our database, we have the data. We know who is qualified. We send you the PIN number and you just simply put in your driver number and your PIN number and you don't type in name and address, at some point it all pops up. If you wait until the last minute, when you get to the transaction page and press click, the police are automatically notified that your driver's license is renewed and that receipt is a driver's license.

That is a system of accountability and allows for measurement. Both of those instances are taking real priorities that we established through Y2K. It was the first time we actually have agencies that told us that they didn't have any priorities. Deal with that in the budget process. But I think the tools are there to make the technology more accountable, and I think one opportunity that the Federal Government has is to build on the discipline system that I honestly think the Government Reform Committee put in place, because government has defined what it does agency by agency. It is a great blueprint to work against and judge your technology investment against.

Mr. HORN. Another thing I tried 3 or 4 years ago with my Transportation and Infrastructure Committee membership, we had testimony from the California EPA that they had turned over to the people on behalf of whom you had to file those reports how you can computerize that, and it worked. Somewhat like you are saying. Let them figure out the codes and all of the rest of it that you have to go through, and the result is that they saved a lot of trees for one thing, and they didn't have these reports where you couldn't find it, and you couldn't find what part you wanted because they were sitting somewhere in a warehouse in the paper world. So I asked EPA, which was also testifying at the time, can you do that. Oh, yes, I think we could.

Well, they haven't done a darn thing yet, and yet California has this thing moving. This was under Governor Wilson years ago.

These are the kinds of things that innovative States do, and we are sort of behind the cities of America and some of the counties of America at the State level and the Federal Government is behind all of you. So we are trying to stimulate the interest there.

Any thoughts, Ms. McGinnis?

Ms. MCGINNIS. Yes, I think measurement is very important. In terms of e-government, we can measure the transactions completed. We know that a lot of people visit government sites, but very few transactions are actually completed at this point. Service is delivered. Satisfactory two-way communications. You can measure customer satisfaction, whether the customers are citizens or businesses or universities, in terms of the quality and the timeliness of the transaction. You can measure cost savings in the long

run and I think return on investment. Particularly for investments in the short run, access can be measured.

We know a lot about how many people who are on-line. There are a lot of projections about that in the future. Knowing that in terms of specific categories of people who access government services would be very helpful, and then the security and privacy measures are also important, and some audits, so that we understand how government is doing on those dimensions. So I think there are a lot of measures, and for e-government, those are measures of how e-government is doing, but for each agency the most important measures are their mission-oriented measures like the Department of Transportation and how it is doing on safety. And I think the e-government networks will contribute to that. But the most important measures are the results.

Mr. HORN. Mr. Cooper, any thoughts on how you measure programs?

Mr. COOPER. It is obviously very important to conduct measurements of Federal programs and the Federal service to the citizen. We believe that the most important measure is the value that the government provides to its customers or constituents. Value, we believe a customer constituent is looking for, is how effectively does the government operate as a business? Does it operate like a business that we are all used to interfacing with, and will we pay our money for that service?

Along that line, important metrics are needed for maybe three areas: One, customers or citizen satisfaction, supplier satisfaction and employee satisfaction. We put all of those under the first category of satisfaction. And what is happening in the commercial industry is that customer relationship management systems and tools and procedures are being built and being implemented for managing the customer or the constituent, and there are a few initiatives within the Federal Government where CRM is being implemented. So looking for the measurement of customer satisfaction is extremely critical.

The second one is what we call service level agreements, and that is where you look at technical performance of the system or solution. The Federal Government is, in many ways, on a performance-base contracting, which I know that you have supported in the past, and the government is doing a good job of implementing service level agreements, and I think we are well on our way to establishing what a service level agreement is for an infrastructure or a computer system.

The third, of course, is the financial metrics. We still have to work on what are those financial metrics, and what will be the acceptable level of the financial metric, again, in customer satisfaction and technical performance.

Two more real quick points, in order to achieve either of these metrics, it is going to require integrative business processes, and that is where we have the difficulty, the stovepipes, that Secretary Upson mentioned earlier. We need to standardize the processes and the tools, the methods which are going to drive the demand for the common infrastructure, the standard networking, the standard access, access to data, data warehousing, data mining, which, again, is going to drive the need for Web enabling some of the legacy sys-

tems. We can't throw away all of the legacy systems that we have today and replace them with new whiz bang systems that may or may not be tailored to meet the unique needs of the Federal Government.

So it is going to be very critical to look at the business processes and determine which processes can be implemented through Web enabling at the existing legacy systems and which ones will have to be removed and replaced.

Mr. HORN. Well, I am sure that Unisys has a lot of experience with the private sector, and you are sowing a lot of these systems. As I remember, when I was a little kid in the thirties, the Standard Oil Co. of California had a separate organizational group that reported essentially to the chairman of the board, and that was a group on organization which took a careful look constantly were we doing the right thing, what are we achieving and so forth, and helping other people.

One of the things that I am going to be putting in in the next month is the Office of Management Proposal which is to separate out from under OMB. When Nixon did that, I thought he was right on track because he could use the budget to get their attention in some of the cabinet departments and agencies. It didn't work out that way.

I remember they had very—when I was in the Eisenhower administration, they had very fine people in OMB who were professionals and not political hacks, and they were people who knew what they were doing, they had served Roosevelt and Truman and Eisenhower, at which point it went downhill because they started to politicize Democrats like Kennedy, Johnson, or Nixon, and they started putting their own people, and you lost a lot of that professional approach, how you draw up government organizations.

These are people that had drawn up the TVA, the Tennessee Valley Authority, and they put together a lot of government operations. They wrote the Marshall Plan. It wasn't the State Department, it was this unit. And so the question is where are these people? They aren't around too much now. This is what we have to build if the President is going to have choice and options. Sure, he needs somebody that can worry about the budget, but they are different skills when you are worrying about the management style. I am trying to split them off.

Mr. COOPER. One comment, please, you mentioned Unisys's experience, and I would just like to remind you of the history, and we can provide more for the record, if you would like. Unisys came from Sperry and Burroughs in the 1980's, and when Burroughs and Sperry were formed, there were 51 data centers around the world. Today, there is one data center in Egan, MN serving 36,000 employees. Over 22,000 of those employees have access to Unisys broadcast television, so it is a push of the information and technology out to those employees in over 100 countries. Nearly all of the 36,000 have access to the same standard e-mail system. We all have one EHR system.

Every employee has access to his personnel records all over the world. One system is achievable, it is a little more difficult when we have the situations that we have over many years of management, as you've indicated, missions and responsibilities that has

been placed in the various agencies. We need to get started trying to work them together and across agency service to the citizen initiative would be very important.

Mr. HORN. Ms. DeLaski.

Ms. DELASKI. Two quick points. One, some agencies seem to judge their success by the number of hits to their Web sites. It is how many tax returns are filed on-line, not how many hits came to your Web sites. So that is one point.

The other is just a cursory service which we are offering in government guide which might be of interest to your committee, your subcommittee, is that we are offering the opportunity for visitors to each of these government sites to rate the government site when they go there because we have put a button at the top of each government site which says, rate this government site, and up pops the screen that says was the information helpful? Was this worth my tax dollars? And we have ratings for 2,200 Federal sites now which we would be happy to share, and we share with agencies as well.

Mr. HORN. Yes, that sounds very interesting. Does it really change at the other end when they read that material? Is anybody doing something about it?

Ms. DELASKI. The agencies have asked us for the information. I imagine it is being used more for the purposes of flag waving when they get a good rating than the other way around.

Mr. HORN. Well, we heard the building offices and the local governmental jurisdiction. That is one of the key things if you are trying to get economic development in an area where you can get access, because time is money and it is taking all of the time, and we had this in California and I can't say that we really have done much about it. I think what you are doing in Virginia makes a lot of sense and to be a model to tie in these things so that people who want decisions made can get them made. I don't know how you found that working in other parts of Virginia or in other parts of the United States.

Mr. UPSON. The key too, Mr. Chairman, is I think it is working in Virginia because we are bringing the stakeholders to the game, and I think it is about the structure. On the other hand, I would like to—and it is about the whole supply chain that I think Y2K showed us. It is not just about what you do at the Federal level, but State and local government. I would like to put out one other example where the government can do something. Part of Governor Gilmore's executive order is going to call for the uniform project management system of all projects over *X* value. We have a management structure so we are in a position to do that, but the Federal Government is spending $36 billion a year, and the statistics, I don't know what they are now, but 2 years ago, 16 percent of all IT systems projects were successful on time within budget. 84 percent weren't.

I think the reason they weren't is that there is no accountability. People change requirements. We are putting in place not only a uniform project management system but a reporting requirement monthly. Every project in that category, everyone enters data the same way, and it comes to me and our council on technology services. Every 3 months it goes to the Governor and key members of

the funding committees of the legislature. I believe that even the minute parties, both the public and private sector, managers know that there is accountability in the system, and the costs will go down. Every 1 percent savings is $360 million. We are trying to build incentives.

I think those are things that can be done as well. But it does get back to one of the focuses of your hearing, and that is the structure, and for me, everything revolves around that.

Mr. HORN. I thought your suggestion was very interesting and ought to be acted on is to get the States' representatives of counties and cities in that CIO council, because this is a partnership deal, and part of our problems in Y2K, even Social Security said oh, my heavens, we have our partnerships with the States and we haven't looked at them. They have done a great job on their situation and they scurried around and brought the States in. But that is the kind of thing that we need, where these partnerships are, we need to be working together with the States, and I happen to be a big fan of revenue sharing, and I hope that we get back to that one of these days. You know what we should be doing with the money, and, of course, the other party and the lobbyists just hate it because they can lose all of their power and all of their money. So it lasted at least for 10 years, and regretfully, in the Reagan administration they stopped it, and that was a mistake.

Mr. MOLASKI. Mr. Chairman, I would be remiss in not commenting on working with States that the CIO council is very much in favor of that, and in fact, has developed a relationship with organization of all of the State CIOs and had a joint meeting with them this past June, this past December, when we had our first government conference. We think that is one of the things once we get our act together.

Mr. HORN. On that very point in getting your act together, do you find some of your colleagues who have CIOs, do they have access to the Deputy Secretary or Secretary? Where are they? We are going to be looking at that. I am just curious.

Mr. MOLASKI. They are all over the place. Some are political appointments with confirmations. Most of them are career SESs at the present time. It is not so much the access to the Secretary that really impinges—whether the CIO can perform the functions. It is really do they have the authority to impact the budgetary dollars, and even more so, I think it has been proven again and again, take control of the infrastructure which is broken out between many departments as Secretary Upson was saying here, and bring it together into one single type of activity. I think that has been proven at NASA where they went from spending $400 million a year to $100 million a year on their telecommunications costs, and most recently the Treasury, where they are looking at saving $400 million a year.

Mr. HORN. To what do you attribute that? The location of the individual that could make these decisions?

Mr. MOLASKI. Right. And in NASA, it was somewhat the lack of complexity and the drive of the organization to get a common infrastructure. And I think we will see more and more agencies doing that.

Mr. HORN. That has been brought up with the CIO council so they can spread the word?

Mr. MOLASKI. Absolutely. Again, the CIOs in my opinion want to do a good job and are engaged in doing a good job, but really don't have the authority or the funding to be able to really implement those changes in Web time that we are talking about. We have to bring a lot of consensus together and spend a lot of time building coalitions that in industry is handled more efficiently.

Mr. HORN. Any other suggestions on measurement or hierarchy? I don't see any, so I will finish up with a few questions here.

The benefits of the electronic government are numerous, and there are risks, and, of course, we talked about the love bug and the virus struck an estimated 45 million computers in 20 countries causing $8 billion in damages is the current estimate, and as we move toward greater reliance on the Internet to conduct business and provide services, how can we ensure the seamless operations in light of such devastating attacks?

You had a good assistant who shut down the servers. Go ahead.

Mr. UPSON. That is true. Again it goes back to we are dependent, and the Internet and Web-enabled anything is going to do nothing but keep coming at us, and the question is how do we manage both risk and security. Having in place a system that can get the information shut down and the servers put the corrections in, and communicate with the agencies and the enterprise, and that really is the challenge. I don't think that we will turn back the clock, and what we did in Y2K pales on what we are going to do in data security and infrastructure security.

Mr. HORN. One of the things that we want to look at, and we would like your advice, obviously, all of you, and that is, the degree to which we should look at a system in agency or department where they have certain types of things you go through to try to prevent that happening, and to try to block it off or divert it or whatever you want to say. Do we have some good examples of that in the private sector or in some level of government, because as the Secretary says, we have a real problem on our hands. They are going to be bombarding us all of the time. It is not just the 17-year-olds, it is foreign governments that want to look at things which lead to economic wealth or deficits.

Ms. DELASKI. We would be happy to link you up with those folks who are experts and have that conversation. I am not an expert on that.

What we want to stress is whenever there is a problem, we can put up in red letters on America Online which reaches 40 million people, we can put up something that says alert, do this or don't do this, so we can work with the government agencies, but we often have trouble knowing who is the lead in what message needs to go out to consumers. So to the extent that we can identify who those folks are, we would be very happy to act as a public service address system for those kinds of things.

Mr. HORN. Fascinating. When GAO goes around and looks at these models, and what is the high risk and what is the low risk, and you do a great job on that. We have asked the Controller General to put a team ongoing through all Federal employers, all Federal computer people in terms of both the software and the hard-

ware. And to what degree does Congress and the OMB face up to new equipment, which should make Mr. Cooper happy. In other words, we are a few generations behind if we are still playing with COBOL in the Department of Defense.

Mr. COOPER. We have not been successful in bringing in a commercial solution. So the customer and the field believes he is getting access to a very modern system, but it is the old COBOL code behind the Web-enabled application.

Mr. HORN. That is fascinating.

Mr. COOPER. It is part of a solution.

Mr. HORN. Maybe we better learn COBOL again.

Mr. MOLASKI. It is not an official administration position, but I think one of the things that we are going to have to take a very hard look at in government is that as the United States becomes more and more dependent on electronic commerce, I think, likewise, our expenditures at the Federal Government level need to start being far more reaching as far as the security effort goes. Right now it is somewhat of a decentralized effort with GSA playing part of the role. Something happens at the DOD or CIA or NSA. Somehow we have got to be able to bring those activities together so that we can get ahead of the curve, if that is possible at all. Because it is going to have such a devastating economic impact, actually, if something like this would occur that would be attacking our national security.

Mr. HORN. That is a good point. Mr. Cooper, to what degree is Unisys and other firms, IBM, and all of the rest, looking at this, how we can create blockages and not have the viruses get through the network right now?

Mr. COOPER. At Unisys Corp., we have set up a management structure at the corporate level and policies procedures, looking for tools, methods. And then we have acted upon those at the local level, such as, in this case, the U.S. Federal Government. We have chosen the best tools that are available today.

Norton Utilities is a good example. There are some modern virus, antivirus software that we are using, but I would like to bring in the fact that being a global corporation, we have to look at what is going on around the world and what we find in many parts of the world. Even in South America, they are ahead of us in various aspects of information security.

Part of the reason is that they don't have the Privacy Act requirements that we have here in the United States, and recently, in working on a procurement for the General Services Administration called GSA Smartcard, when we went looking for capabilities around the company to respond to that program, we found most of the experience coming out of Venezuela, Portugal, Canada, Brazil, places that you wouldn't anticipate. There is a lot going on in the world. We need to continue to work it at the corporate level, both from a management structure and the technology investments, and with commercial off-the-shelf tools to build a corporate-wide strategy that gets implemented at the local level.

Mr. HORN. That's interesting. We need to look south of the border.

Mr. COOPER. And north.

Mr. HORN. Are there statutory impediments that you are aware of to make effective, more effective the e-government initiatives? What are the statutory gaps that need to be filled in terms of the Federal Government? And are there other statutes that are giving you a pain that you would like to change? Presumably, Clinger-Cohen was designed to help people, not the opposite. I don't know what the experience has been. We ask, but sometimes we don't hear an answer.

Mr. MCCLURE. Mr. Chairman, I think there is actually a great body of law already in place driving e-government. I think we have an analysis of these statutes that showed that a lot of what is going on in electronic transactions and on-line services is driven both by authorizing legislation that pertains to individual departments and agencies. We find provisions bearing in law that require agencies to do *X, Y,* and *Z* by a certain date. We have general management improvements status such as Clinger-Cohen and the CFO Act, which require agencies to move aggressively toward greater use of information technology, and particularly through the Government Paperwork and Elimination Act on-line transactions.

I think there is a very robust framework in place right now that is moving government in this direction. There is also lots of Presidential directives of trying to accelerate the attention and pace of government agencies to the issues. Again, I think there is a very, very robust framework. As far as overlapping and duplication, I don't know if our analysis really dug down that far, but I don't think that you can say that there is a lack of attention for this from certainly both the executive and the legislative branch.

Mr. HORN. Has the GAO, in their studies of this, how much government do we really want to put on-line, and what is the ultimate goal? Is there any thinking in GAO when you go around and talk to the people in the executive branch?

Mr. MCCLURE. There are certainly questions that we want to ask agencies, not necessarily questioning about what they put on-line, but how they have gone about making decisions on what are the requirements that they want to put on-line. One of the challenges that we see at government agencies is oftentimes they try to do too much without enough capability or skill or attention to get results in a few areas.

So some of the problems are simply taking priorities, moving aggressively in certain areas, getting a good track record, and showing success and moving on, and I think that is a real challenge for many of the agencies, particularly when you look at the scope of what they are being asked to do by some of the deadlines that are now being imposed.

Mr. HORN. Mr. Molaski.

Mr. MOLASKI. I think a couple of things, Mr. Chairman. No. 1 is that if we are going to allow and use the CIO positions within government to be the change agent within government, we have to place the accountability authority and responsibility in that position as we have been talking about.

I think probably the most critical function for that that we really need to look at is manpower functions. We are not getting the young blood. The average age of DOT employees in the civil work force is 43.7. Over 50 percent of the technology workers in IRS are

over 50. We are not getting challenged from the bottom. We are not connecting with a whole generation, and we need to bring this new generation into government and make government relevant in their lives and get their perspective on the way that the government has to move. And again, I would highly recommend that we go into government service in return for paying for their education or forgiving student loans-type of scenario, which would bring and cause this to happen.

The last thing is that we have a tremendous opportunity that is going to be facing us here as we start rolling out e-government and moving forward. Currently, we are stovepiped within the executive branch. Congress is also stovepiped and there is no overarching committee that is looking at e-government and across government. We need to put some processes in place so when these opportunities for streamlining and for consolidation present themselves, that we have a workable process in place to be able to attack them and give the stakeholders and the citizens what they deserve.

Mr. HORN. You have eloquently stated the problem, and we will steal all of your words, but we will attribute them to you, but we don't pay any royalties. You are right on the mark on that, and that is one of the euphorias, as a Californian, I have been trying to upset the community college people and Silicon Valley, where I had a hearing a few weeks ago and say look, why can't you people get together. We have to bring all of these people from abroad.

These are $60,000 jobs, and the community colleges were designed in California starting back in 1910, 1917, and the whole purpose which you can never achieve in a State agency is you just don't have the money, so you are going to train and educate people. You need to have the people that make the equipment, hardware, software, whatever, and working with the teaching profession so you have a decent curriculum that makes sense to people.

And the military are usually very good at teaching, and that is where we try to work. The community colleges need to be working together, and it needs to be continuous. Chico had audio and television going all over that area in the seventies and eighties, and we had a statewide nursing education program. I am trying to think now whether it was the Johnson Foundation—one of them gave us $2 million to get this rolling. Nobody ever had a chance to get an education before, and that is the kind of thing that we need to have, the industry working with community colleges and people in the agencies, and I would think that we have got to start in kindergarten.

So we have just got to get together and do it, and if we have every one of us at this table be a—the private sector that sells, computing, teachers, and consumers, we have to do that and focus on and keep at it. You have put yourself on the mark on that one. The problem is how do we get it done?

Ms. MCGINNIS. The e-government initiative that we have underway involving a lot of the companies represented here and others in government is looking specifically at the barriers to e-government and computer statutory barriers, so we will give you the very specific analysis of that when we have it. I think they will fall in the categories of personnel issues. That is a big one in terms of recruiting, training, development, developing; and we are hopeful

that you might take a look at information technology as a special case, think about the changes that are necessary in computing practices, pay, and all sorts of things, and then learn from that to look at the civil service system as a whole.

The other barriers I think will come in the way money flows, and that gets to the point that George Molaski made about the way the executive branch is stovepiped, and Congress, in terms of the appropriations committees and how the money flows. It flows in such a way that it doesn't allow the integration, integrated investments and funding for technology, and we may want to look at something like a working capital fund, we may want to look at some possibilities, such as sharing savings, to provide some incentives for savings down the road.

So there will be very specific, both barriers and recommendations, that will be offered by fall, and hopefully that will fit within your timeframe.

Mr. HORN. We certainly welcome it. I can tell you one thing, and I have seen it work any number of places, it took me 5 years to get our trustees in the California State University system to collapse all of the civil service positions that were anywhere near management, if we are going to actually get something done, get rid of them. And we got down to four basic things. It went from 10,000 to 100,000. The President could set the amount anywhere on that scale and we wouldn't have personnel directors which drove me nuts for 30 years. They were not created in the Federal Government when I was Assistant to the Secretary of Labor. He said Steve, you go across the hall and talk to them. This was a guy who was Secretary and the top personnel person in the country, he couldn't stand Federal personnel directors. It was always like that. It is like Groucho Marx, what is the magic word? If you don't get it, you don't get the raise. Nonsense.

So what you do is put a contract on that manager. What are you going to do in 6 months, where are your goals? If something happens, great. If it doesn't happen, you put the squeeze on them and you move the money around. Overnight things started to happen. People said gee, they really care about how we do things, and that will work again, but you have to fight personnel people.

So I don't know what degree we have made any progress in the Federal Government. That is not my bailiwick, so I stay out of it right now. That is the problem. We do need to reward the purchasing people that are being stolen off. That I do want to see happen. Also, we need to get rid of a lot of political appointees and have professionals. I tried that one in 1975. Some people said we might be in some time. That is crazy. You want good professionals who make a lifetime of it.

Mr. COOPER. I would like to add one comment to the discussion on the community college and the hiring of personnel with 2-year associate degrees, or even nondegree.

The private sector that is doing business with the Federal Government believes very strongly that Congressman Davis' bill that requires the Federal Government to enter into contracting practices to require opportunities in those labor categories without—for performance without degrees to be passed. That is an important piece of legislation for us.

Mr. HORN. We carried that through the House the other day. Bill Gates couldn't have qualified.

Mr. COOPER. It is extremely important because there is a large group of personnel coming out of the community colleges, and more importantly maybe is the people who are leaving the military service that have 4, 8, all of the way up to 20 years experience and no degree, and we can't place them on a Federal contract. That is nonsense.

Mr. HORN. Absolutely. So right there are a few statutory things that we need to work out and not wait until election night. Let's get this show on the road.

Any other thoughts on this? Do you have any last questions, counsel?

He thinks that we have not gone far enough. Secretary Upson mentioned the digital opportunities program being developed by Virginia as a way to ensure access to the electronic government for all citizens. What initiatives are underway at the Federal level to ensure electronic government for all citizens without regard to education, geographically or disability? Anything beyond the statutory initiatives that have been managed earlier? It is a real problem. Income, little kids have laptops at 4, not every family can afford that. So are we going to have a digital operation where you have people that are really impoverished, and they might be able to make the transition to buy a small laptop. The question is, what do they know about it?

That is one of the things that we have to do. Money talks. When you say $60,000 down the line, I think you might get a lot more people there than we have in the past. That is what is needed.

Mr. UPSON. Mr. Chairman, one of the points on this goals to personnel issues, maybe just an observation, it is going to be very difficult for the government to hire qualified people as long as the technology people are over here and policy people are over here which, in many ways, is the issue today. As long as that is the case, medicine will be a different speech than health care.

I think one of the things, the power at the Federal level, is we use State government not to build a network, but to bring together our technology experts and our business leaders, and we use the power in the Federal Government, both its buying power and expertise in technology, to bring together the communications companies, for example. I know President Clinton was in North Carolina talking about in 3 years he has an agreement to provide high bandwidth communications in rural parts of North Carolina.

We did that last December, and were rolling out the omniband, high bandwidth communications network for any business in Virginia based on using the power of government to bring the companies together, and all of the enterprises are paying the same price so people in northern Virginia are paying the same as people in counties which are in far southwestern Virginia.

It is without those building blocks, without those building blocks, rural America and nobody else is going to participate. We are going to have a divide where we have opportunity. It goes back to that point about networks. Canals, networks and superhighways all have prosperity. This network can be everywhere and government—I think some of the technology people in government with

executive leadership and coordination are in the best position to bring about an infrastructure that will give all of our citizens opportunity, I think, for generations. That is a different model.

Mr. HORN. Well, I sure empathize with you about rural. I happened to grow up on a ranch, and in college we all found out that a lot of us had grown up on farms. We knew how hard it was to work on a farm, and going to college would get us off that place.

Mr. COOPER. Mr. Chairman.

Mr. HORN. Mr. Cooper.

Mr. COOPER. I cannot pass up the opportunity to say something about the part of the country that I come from and the difficulty that we have in this area. Just across the State line in Tennessee, the hills of Tennessee and it is atrocious the situation that we are in. We also, here in the Washington area, we often make jokes about the Federal Government moving to West Virginia. There are government contracts, there are opportunities for moving some of the performance of the Federal business to these parts of the country. Being the oldest of 12, the rest of them are still in the hills, they need the training. It is not just the people of our age, it is the teachers in the public schools who do not—who are not computer literate. They don't have the schools wired and they don't know how to train the kids.

If you look at the industry, whether it be Saturn moving to Tennessee, there are many industries who are moving industry to those parts of the country and are doing a good job. The Federal Government has not done its share.

Mr. HORN. You know, in the Eisenhower administration when I asked the personnel director where we were getting our supply of clerical people, they were full-time living in West Virginia. That got people out of the classrooms to get them up here to get an education. That was helping West Virginia before Senator Byrd.

You are right about some places do get favored more than others.

Mr. MCCLURE. We do have a request in from Congress to look at that very issue—what are the factors that are influencing relocation of data centers and virtual service providers, customer centers in other parts of the country. In today's environment, they don't necessarily have to be located in the urban centers. So we have a dialog with some of the members of our executive council who come from the private sector to look at what some of those factors are that could be influencing the relocation of some of the power of the Internet via some of the call centers and the customer relation centers that you see in the private sector. We would be happy to share that with you when we get it done.

Mr. HORN. I would be glad to see it. When President Eisenhower was in office, he wanted to decentralize the government in case of bombs, and this was during the cold war, or anything else that were dropped in Washington, he wanted the government moved out of range, at least piece by piece. He wanted it 50 miles, 100 miles, so some things did get moved, which was good.

Mr. MOLASKI. Back to the digital divide, Mr. Chairman, I think that some of the transportation companies are showing us, such as Ford Motor Co., has given all of its employees access to the Internet and a computer. American Airlines has also. The chairman said his payback and his cost to the organization was less than a year.

I think it is very difficult for us in government to keep on talking about e-government when some of our employees in government don't have access to the Internet. If we want them to think about it in their jobs, how they can use the Internet to be able to perform better services, they need to be on it and playing with it.

Likewise, we need to encourage industries to continue the model that these fine organizations have started.

Mr. HORN. You are absolutely right on that. This rejuvenates a number of areas, and we have to keep going on that. We have had a lot of things, in fact, sometimes the grade is wrong. We had a lot of problems with the—I think it was Columbus, OH Army processing center on contracts. They had GS–1s there. I thought that they went out with the Civil War. That is why they were spewing out contracts for people who didn't have any orders. That was rather amusing.

But they needed to up the level, and that is what we had to do. The military is terrific in that. If you want to get a Ph.D., join the Army. They will send you to Harvard or Princeton or Long Beach. We need that constant upgrading and giving people a chance.

I happen to have a small subsidiary of a German firm in my district, and 8 years ago when I was campaigning for the first time, I went through there, and if a person logged 1,000 hours on the computer, the firm would give it to him. He could take it home or whatever. They taught them computing and those people have a career now. But it took good management to have the idea and get people involved and excited about it.

Any other last questions or thoughts you have?

If not, I thank each of you for coming. We deeply appreciate the work of everyone who worked to put this hearing together. We have the staff, and I thank J. Russell George, staff director and chief counsel; Randy Kaplan, counsel; Bonnie Heald, director of communications; and Bryan Sisk, clerk; Liz Seong and Michael Soon, interns; and minority staff, Trey Henderson, counsel; and Jean Gosa, minority clerk; and the staff from Representative Davis' office, Melissa Wojciak and Barbara Tempel, and the court reporter is Doreen Dotzler.

[Whereupon, at 3:10 p.m., the subcommittee was adjourned.]

○