S. HRG. 106–893

MILLENNIUM DIGITAL COMMERCE ACT, S. 761

HEARING

BEFORE THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED SIXTH CONGRESS

FIRST SESSION

MAY 27, 1999

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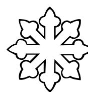

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ONE HUNDRED SIXTH CONGRESS

FIRST SESSION

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MILLENNIUM DIGITAL COMMERCE ACT S. 761

THURSDAY, MAY 27, 1999

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The committee met, pursuant to notice, at 10:10 a.m. in room SR–253, Russell Senate Office Building, Hon. Spencer Abraham presiding.

Staff members assigned to this hearing: Kevin Kolevar, legislative assistant to Senator Abraham; Lauren Belvin, Republican senior counsel; Maureen McLaughlin, Republican counsel; Moses Boyd, Democratic senior cousel; and Gregg Elias, Democratic senior counsel.

OPENING STATEMENT OF HON. SPENCER ABRAHAM, U.S. SENATOR FROM MICHIGAN

Senator ABRAHAM. Welcome. We will begin our hearing at this time. We had had, at least it had been posted, a 10 a.m. rollcall vote that was vitiated very recently, and I suspect maybe one or two other Members were like myself, heading toward the Capitol expecting to vote and come back here, and they may join us.

Today's Commerce Committee hearing will focus on S. 761, the Millennium Digital Commerce Act, a bill introduced by Senators Wyden, who is joining us now, McCain, Burns, Lott, and myself, designed to promote electronic commerce.

All of us by now have heard the prophetic pronouncements the Internet will change all of our lives, the computer age is reshaping the world, and so on, and we all have seen the figures that document the Internet's extraordinary growth. In 1993, about 90,000 Americans had access to these online resources. By early 1999, that number had grown to about 81 million, an increase of about 900 percent.

The computer industry almanac predicts 20 million Internet users worldwide by the end of the year 2000, and now the figures are coming in on how electronic commerce is transforming the way we do business. E-commerce between businesses has grown to an estimated $64.8 billion for 1999. Ten million customers shopped for some product using the Internet in 1998 alone.

International Data Corporation estimates that $31 billion in products will be sold over the Internet in 1999, and 5.3 million households had access to financial transactions like electronic banking and stock trading by the end of 1999, or will have.

It seems quite clear, then, that the Internet users are ready to go far beyond buying books and apparel online. The Internet is set

to lead a revolution in the execution of business transactions involving thousands or millions of dollars in products and services, transactions so important they require that both parties enter into legally binding contracts.

The vehicle that will move us into this new era of e-commerce is the electronic signature. Electronic authentication methods, or electronic signatures can allow organizations to enter into contractual arrangements without ever having to drive across town or fly thousands of miles for personal meetings, or mail reams of paperwork back and forth. It can allow individuals to positively identify the person with whom they are transacting business, and to ensure that shared information has not been tampered with.

In fact, many forms of electronic signatures are far more secure than manual, handwritten signatures. They cannot be forged in the same relatively easy way as handwritten signatures. These electronic signatures are also verifiable, and most become invalid if any of the data in the electronic document is altered or deleted. They can make electronic commerce the safest commerce as well as the most convenient commerce available.

More than 40 States recognizing the importance of authentication technology have adopted rules covering its use, but no two States have adopted the same approach. This means that our present greatest barrier to the use of electronic signatures in business transactions and contracts is the lack of a consistent and predictable national framework of rules. Individuals and organizations are not willing to rely on electronic signatures when they cannot be sure that they will be held valid.

Our Millennium Digital Commerce Act will ensure that individuals and organizations in different States are held to their agreements and obligations, even if their respective States have different rules concerning electronically signed documents. It provides that electronic records, produced and executing a digital contract, shall not be denied legal effects solely because they were entered into over the Internet or in any other computer network. This will help provide uniform treatment of electronic signatures in all the States until such time as they enact uniform legislation on their own.

Our bill also lets the parties who enter into a contract determine through that contract which technologies and business methods they will use to execute it. This will give those involved in the transaction the power to determine for themselves how they want to allocate liability and fees as well as registration and certification requirements.

Our legislation sets forth principles for the use of electronic signatures in international transactions. Over the last year, American negotiators have been meeting with their European counterparts to discuss electronic signatures in international commerce. The United States has been working in support of a free and open system in this regard.

To bolster these efforts, our legislation lays out principles we believe should govern international use of electronic signatures, including control by the parties over terms of their agreements and authentication technology, access to the courts for the purpose of proving the validity of authentication and transaction approaches,

and keeping governments out of the business of choosing which technologies should be favored or disfavored.

Finally, our legislation directs the Department of Commerce and the Office of Management and Budget to report on Federal laws and regulations that might pose barriers to e-commerce and to report back to Congress on the impact of such provisions and provide suggestions for reform.

In drafting this bill we face a challenging balancing act between the Federal Government's role in regulating interstate commerce and the States' rights to make their own laws in this area. With the input of experts from States and the high tech industry, we believe our bill strikes this balance, thus providing businesses with the legal certainty they need to conduct commerce across America without intruding upon the States' rights.

Today, we are joined by representatives from the States and the high tech industry who present their views, comments, and advice on this legislation.

In closing my opening statement I just want to stress that this effort remains a work in progress, and I want to assure my colleagues, as well as all those who are interested in the development of this legislation as well as the witnesses, that we will continue to work with everyone to ensure that the best possible bill emerges from the Commerce Committee.

In putting together our legislation I have been very, very pleased to work once again with my colleague from the State of Oregon, Senator Wyden. He has a great interest in the development of all of the high tech sectors, and has been a leader, as everyone, I think, knows, on a variety of legislation that has been either passed or introduced for consideration in both the last Congress as well as this one.

As usual, without his help we would not be as far down the road in terms of putting together a good piece of legislation here, and I want to thank him for that publicly, and express once again how much I enjoy working with him and look forward to continuing to do so and I want to at this point turn to him for his opening statement.

STATEMENT OF HON. RON WYDEN, U.S. SENATOR FROM OREGON

Senator WYDEN. I thank my friend, and I do not want to turn this into a bouquet-tossing kind of exercise.

Senator ABRAHAM. Well, that's OK.

[Laughter.]

Senator WYDEN. This is, as you said, just one of several bills that the two of us have worked on together. We have got the important education bill to make it easier to donate technology to the schools that we hope to pass as well, and I just want to say how much I have enjoyed teaming up with you. There is absolutely nothing partisan about these issues, and I think as you and I have discussed, Mr. Chairman, one of the most important jobs this committee is going to have in the years ahead is essentially updating principles and laws that were in place before the revolution in terms of technology, and so this will just be one of the measures that we are going to have to tackle.

It seems to me the heart of our bipartisan bill can be summed up in a sentence, and that is, it is a whole lot better to be online than waiting in line. I think what you will have with the obstacles that you outlined in your opening statement is a whole lot of folks all across this country waiting in lines that essentially could be expedited by pressing the enter button a few times.

I had a chance to be one of the speakers at the National Association of Realtors Convention over the last few days, and we talked, for example, about what is going to happen in a very mobile society as young people get recruited to come to a town and get excited about a potential position. They may want to see a place, have a chance to look at potential housing arrangements, and in effect conclude a housing transaction within a day.

Now, to do that, we are going to have to have this opportunity through our legislation to facilitate digital signatures in a way that is convenient and accessible to folks, and we have wrestled with this now through two Congresses and are very hopeful that at this time we will be able to address this in a comprehensive way.

I will also say that I think it is a natural complement to what this committee did in terms of the Internet Tax Freedom Act in the last session of Congress. We may not have invented electronic commerce on this committee——

Senator BURNS. Senator Gore did.

[Laughter.]

Senator WYDEN. Did you invent the auction? My good friend Senator Burns is always modest, and I accused him of inventing the auction, and he wanted to be more modest and back away from that.

Senator BURNS. I want to look my prospective buyer right in the eye.

[Laughter.]

Senator WYDEN. The fact is, we promoted in a significant way electronic commerce in the last session. Now we have a chance to build on that with digital signatures, and I look forward to working with you.

Senator ABRAHAM. Thank you, Senator Wyden, and I have been trying to convince Senator Roth that at least in Michigan they ought to be called Abraham IRA's, but I have not had much luck with that, either.

We are joined today by the chairman of the Communications Subcommittee here in the Commerce Committee, Senator Burns, and I will turn to him.

Senator BURNS. Mr. Chairman, I think in view of the time, let us hear from the witnesses. I have got a little old bitty statement here, but it don't mean nuthin'.

[Laughter.]

Senator BURNS. I would thank you for holding these hearings. I appreciate that very much.

Senator ABRAHAM. Senator Burns, thank you for helping us and for being here today. We will then turn to our panel, and I want to thank each of them ahead of time for having taken extra time out of their day to be here with us. We have got four witnesses, and I am going to introduce them.

Just from my left to right here we have Mr. Ray Campbell, general counsel of the Information Technology Division of the Commonwealth of Massachusetts, Mr. Ira Parker, vice president and general counsel for GTE Internetworking. We have Mr. Hardy Callcott, who is senior vice president as well as deputy general counsel for Charles Schwab, and then we have Mr. Harris Miller, who is the president of ITAA, the Information Technology Association of America.

Each of you, I know, has a perspective on what we are trying to accomplish here, and we really appreciate your offering it here today, as well as the work you and your organizations and others have done to help us as we have tried to craft this legislation.

Mr. Campbell, we will begin with you, and we appreciate your being here.

STATEMENT OF MR. RAY A. CAMPBELL III, GENERAL COUNSEL, INFORMATION TECHNOLOGY DIVISION, COMMONWEALTH OF MASSACHUSETTS

Mr. CAMPBELL. Thank you very much, Senator, Members of the committee. My name is Ray Campbell. I am the general counsel of the Commonwealth of Massachusetts Information Technology Division, and I greatly appreciate the opportunity to come before you and testify on Senate bill 761, the Millennium Digital Commerce Act.

The Commonwealth of Massachusetts has been at the forefront of the information revolution ever since Alexander Graham Bell invented the telephone in Boston in 1876, and we have been at the forefront of the Internet revolution ever since Cambridge-based BBN was selected to build the original ARPA-Net in 1968, and it has been said that failure is an orphan, and success has many parents, so in that spirit Massachusetts would like to stake its claim to having created the Internet.

[Laughter.]

Senator ABRAHAM. For the record, if anybody in the audience would like to also be given some of the credit for the Internet after the hearing today, if you would like to, we will take your names for the record.

[Laughter.]

Mr. CAMPBELL. I want to commend Senator Abraham and the cosponsors of the Millennium Digital Commerce Act for an excellent piece of legislation, and I want to express to this subcommittee my wholehearted support for the bill. Over the past several years, many attempts have been made at the State and Federal levels to introduce legislation to promote the growth of electronic commerce. In my opinion, many of these attempts have been based on mistaken assumptions about the nature of the information economy and about Government's proper role in encouraging its development.

I believe Senate bill 761 avoids all of these pitfalls, and its enactment will make a meaningful contribution toward a consistent, predictable, minimalist framework for interstate electronic commerce.

I would like to confine my comments to two topic areas. First, I want to articulate briefly a set of general principles that I think should govern or should guide Government policymaking in the in-

formation economy and electronic commerce areas, and I also want to highlight some of the key characteristics of the bill that I think are fully consistent with these principles.

The first principle I would offer is that policymakers need to recognize the unique characteristics of the Internet. The industrial revolution and industrial society was characterized by stability, standardization, hierarchy, centralization. The Internet, on the other hand, is a highly decentralized, dynamic, and complex adaptive system. It is almost organic in its ability to self-organize and respond to changes in its environment.

In light of this, I think we need to be extremely suspicious of the notion that traditional legislative and regulatory mechanisms can shape the Internet or electronic commerce in predictable ways. I think we really need to be conscious of the law of unintended consequences when attempting to regulate something as dynamic as the Internet.

The second principle I would offer is that Government action to promote electronic commerce will be most effective when it is narrowly tailored to address specific actual market failures or legal impediments.

Too much State and Federal electronic commerce legislation has been motivated by the mistaken belief that policymakers can divine where the markets and technology will be a few years into the future, and that we can hasten that future or steal a march on our competitors by creating a legal infrastructure that supports that specific vision. I believe such attempts are doomed to failure both because they rely on linear extrapolations of current technologies and business models, and because they rely on the assumption that laws create markets.

I think that is fundamentally untrue. I think that the explosive growth of the Internet has been the result of the hard work and the vision of entrepreneurs, and I think that the explosive growth in the amount of commerce being conducted by the Internet makes it clear that these people are not waiting for lawyers and legislators to pave the road to the future for them. They are doing it on their own.

The third principle for successful electronic commerce legislation is that to the greatest extent possible it should leverage existing sources of State law to promote a more flexible and stable legal basis for electronic commerce. I think this is particularly true in such established areas as the law of signatures and the law of contract formation and defensive wholesale changes in these bodies of law will introduce unnecessary complications and untested concepts, leading to confusion and litigation.

Further, the common law is more flexible and responsive to changing circumstances, including changing technologies, than is prescriptive legislation.

Finally, the fourth principle for electronic commerce policymaking that I would offer is that Government action should preserve and promote a competitive marketplace where private actors are free to choose the technologies and business models that best satisfy their cost, benefit, and risk requirements.

The use of contracts between private parties is ideally suited to the unique characteristics of the Internet. As noted previously, the

Internet is a highly decentralized medium. Any legislation that seeks to restrain rather than harness the ability of private parties to order their own relations is swimming against the tide of the Internet revolution.

The Internet promises to give rise to vastly more efficient and transparent markets in which market participants can evaluate for themselves the specific technologies and business models that best suit their needs.

Having summarized those four principles that I think should govern electronic commerce policymaking, I want to point out some of the key ways in which I think the Millennium Digital Commerce Act is fully supportive of those principles.

First, the bill broadly validates the use of electronic records and signatures in Interstate commercial transactions, but does not attempt to address the use of such methods in other types of transactions, where such a rule would be more problematic.

Second, the bill does not favor any particular technology or business model by granting special presumptions or evidentiary privileges.

Third, the bill acknowledges the freedom of parties to establish by contract the technologies and methods they can use to create legally binding records and signatures.

Fourth, the bill preserves and leverages the existing law of signatures and contracts that exist in the States, and finally, the bill only preempts State law on an interim basis until such time as uniform State law addressing electronic commerce is in place.

So based on the foregoing, I am of the opinion that the Millennium Digital Commerce Act is a timely and appropriate piece of legislation. It takes cognizance of the unique characteristics of the Internet. It is narrowly tailored to address specific legal barriers. It leverages existing sources of law in a way that promotes stability and certainty, and it preserves freedom of choice for market participants.

I would like to thank the Chairman and Members of the committee for the opportunity to testify today on this important issue, and if there is anything I can do in the future to be of assistance, please feel free to call on me.

Thank you very much.

[The prepared statement of Mr. Campbell follows:]

PREPARED STATEMENT OF RAY A. CAMPBELL III, GENERAL COUNSEL, INFORMATION TECHNOLOGY DIVISION, COMMONWEALTH OF MASSACHUSETTS

Mr. Chairman and members of the Subcommittee, my name is Ray Campbell and I am the General Counsel of the Commonwealth of Massachusetts Information Technology Division. Thank you for the opportunity to testify on Senate Bill 761, the "Millennium Digital Commerce Act."

The Commonwealth of Massachusetts has been at the forefront of the information revolution ever since Alexander Graham Bell invented the telephone, in Boston, in 1876. Massachusetts has also been at the forefront of the Internet revolution ever since Cambridge-based BBN won the contract to build the original ARPA-Net in 1968. Since that time, Massachusetts has been fertile ground for an amazing number and variety of companies that have helped transform the Internet from an isolated defense and research network into a global communications tools that is fundamentally changing our economy and our society. In addition to the role played by our companies and universities, Massachusetts state government has also been a leader in using the Internet to deliver better, more convenient government services at less cost to the taxpayers. Governor Paul Cellucci and Lieutenant Governor Jane

Swift are firm believers that we should offer citizens the option to conduct their business with the state online rather than in line.

I would like to confine Senator Abraham and the cosponsors of the Millennium Digital Commerce Act for an excellent piece of legislation, and I want to express to the Subcommittee my whole-hearted support for this bill. Over the past several years, many attempts have been made at the state and Federal levels to introduce legislation to promote the growth of electronic commerce. In my opinion, many of these attempts have been based on mistaken assumptions about the nature of the information economy and government's role in encouraging its development. I believe Senate Bill 761 avoids all of these pitfalls, and its enactment will make a meaningful contribution toward a consistent, predictable, minimalist framework for interstate electronic commerce.

I would like to confine the balance of my testimony to two topics. First, I would like to articulate a set of general principles that I believe should guide government efforts to make public policy for the Information Age. Second, I would like to highlight the key aspects of the Millennium Digital Commerce Act that are, in my opinion, perfectly consonant with these principles.

While adherence to principle is essential in any policymaking endeavor, it is particularly important when crafting electronic commerce legislation because we are operating in an arena generally devoid of empirical guideposts. Electronic commerce is such a recent development that there is no reservoir of experience on which to draw as we consider the likely consequences of government action. Recognition of, and reliance on, first principles is crucial in such an environment. As such, I would offer the following four principles to guide policymaking for the Information Economy.

First, policymakers must recognize the unique characteristics of the Internet. The industrial revolution, and hence industrial-era economic policy, was characterized by stability, standardization, hierarchy, and centralization. The Internet, on the other hand, is a highly decentralized and complex adaptive system, and is almost organic in its ability to self organize and respond to changes in its environment. Given this, we should be extremely suspicious of the notion that traditional legislative and regulatory mechanisms can shape the Internet or electronic commerce in predictable ways.

Indeed, there is a widespread appreciation that a lack of government regulation has been one of the key factors behind the phenomenal growth of the Internet. Congress itself, in the Telecommunications Act of 1996, stated that "the Internet and other interactive computer services have flourished, to the benefit of all Americans, with a minimum of government regulation" and further declared that "it is the policy of the United States . . . to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation."

The second principle I would offer is that government action to promote electronic commerce will be most effective when it is narrowly tailored to address specific, actual market failures or legal impediments. Too much state and Federal electronic commerce legislation has been motivated by the mistaken belief that policymakers can divine where the markets and technology will be a few years in the future, and that we can hasten that future or steal a march on our competitors by creating a legal infrastructure to support that specific vision. I believe such attempts are doomed to failure, both because they rely on linear extrapolations of current technologies and business models, and because they rely on the assumption that laws create markets.

In fact, the future course of electronic commerce is being charted this very minute by someone none of us has ever heard of, working in a small office paid for with a second mortgage, on the outskirts of Route 128, Silicon Valley, or Buffalo, Wyoming. The explosive growth of the Internet and electronic commerce is convincing proof that these visionary men and women are not waiting for lawyers and legislators to pave the road to the future for them. In truth, the law has always been more effective at codifying and ratifying established business practices than it has been at creating such practices out of whole cloth. Any such attempt to regulate the future into existence will surely be counterproductive. If advocates of this approach are successful, the future of electronic commerce will not be a Field of Dreams—where if *we* build it, *they* will come—but rather a Field of Nightmares—where because *they* built it, *we* have come—to regulate, to prescribe, and to tax.

The third principle for successful electronic commerce legislation is that, to the greatest extent possible, it should leverage existing sources of state law to promote a more flexible and stable legal basis for electronic commerce. While the advent of electronic commerce changes many things, it does not change everything. Massachusetts is home to the oldest judicial system in this hemisphere, and over the cen-

turies our courts and the courts in other jurisdictions have established a solid foundation of precedent that lends tremendous stability and predictability to the legal relations between parties. This is particularly true in such established areas as the law of signatures and the law of contract formation and defenses. Wholesale changes in these bodies of law will introduce unnecessary complications and untested concepts, leading to confusion and litigation. Further, the common law is more flexible and responsive to changing circumstances, including changing technologies, than is prescriptive legislation.

Finally, the fourth principle for electronic commerce policymaking is that government actions should preserve and promote a competitive marketplace where private actors are free to choose the technologies and business models that best satisfy their unique cost/benefit and risk requirements. The use of contracts between private parties is ideally suited to the unique characteristics of the Internet. As noted previously, the Internet is a highly decentralized medium. Any legislation that seeks to restrain, rather than harness, the ability of private parties to order their own relations is swimming against the tide of the Internet revolution. The Internet promises to give rise to vastly more efficient and transparent markets, in which market participants can evaluate for themselves the specific technologies and business models that best suit their needs.

Having summarized what I believe are the core principles that should guide government policymaking in the electronic commerce sphere, I would like to point out some of the key ways in which the Millennium Digital Commerce Act is fully supportive of the principles.

First, the proposed bill broadly validates the use of electronic records and signatures in interstate commercial transactions, but does not attempt to address the use of such methods in other types of transactions where such a rule would be more problematic. Second, the bill does not favor any particular technology or business model by granting special presumptions or evidentiary privileges. Third, the bill acknowledges the freedom of parties to establish by contract the technologies and methods they can use to create legally binding records and signatures. Fourth, the proposed bill preserves and leverages the existing law of signatures and contracts. And, finally, the bill only preempts state law on an interim basis until such time as uniform state law addressing electronic commerce is in place.

Based on the foregoing, I am of the opinion that the Millennium Digital Commerce Act is a timely and appropriate piece of legislation. It takes cognizance of the unique characteristics of the Internet, it is narrowly tailored to address specific legal barriers, it leverages existing sources of law in a way that promotes stability and certainty, and it preserves freedom of choice for market participants. As a policymaker with a state at the forefront of the Internet revolution, I strongly encourage this Subcommittee to act favorably on this bill.

I thank the Chairman and the members of the Subcommittee for the opportunity to testify today on this important issue. If there is anything I can do in the future to be of assistance as you weigh these crucial matters, please feel free to call on me. Thank you.

Senator ABRAHAM. Mr. Campbell, I want to thank you for being here. I also want to note the National Conference of Commissioners on Uniform State Law is expected soon to report on their recommendations with respect to a model State electronic transactions legislation, so as we are trying to provide some sort of interim option here until the States both have a chance to react to those proposals as well as to flesh them out further. We appreciate your testimony, and look forward to working with you and others of your counterparts as we go ahead here.

Mr. Parker, we welcome you today. Thank you very much for being here, and we will turn to you at this time.

STATEMENT OF IRA H. PARKER, VICE PRESIDENT AND GENERAL COUNSEL, GTE INTERNETWORKING

Mr. PARKER. Thank you, Mr. Chairman. Mr. Chairman and Members of the committee, my name is Ira Parker. I am the vice president and general counsel at GTE Internetworking. I welcome this opportunity to offer my views on electronic authentication. I

commend you and your colleagues for exploring this important issue now.

GTE Internetworking is really the successor to the company that actually did create the Internet.

Senator ABRAHAM. Oh, sure.

[Laughter.]

Mr. PARKER. We will even take a lie detector on that one. GTE Internetworking, to tell you a little bit about us, is a division of GTE Corporation, responsible for our consumer and business Internet offerings. We were formed just about 2 years ago, when GTE Corporation acquired BBN and, as I said, BBN, one of the original developers of the Internet—it actually was a contract from the Defense Department to create the ARPA-Net to prove that packet switch technology really could work.

GTE Internetworking is an integrated Internet company, providing many products and services to businesses and consumers. We are one of the largest Internet backbone providers. There are five, basically, providers that carry all Internet traffic kind of aggregated in the world, and we are one of the five, and we are building a nationwide high speed fiberoptic network to carry data traffic throughout the United States and abroad.

We are also a leading consumer and small business Internet service provider with more than 800,000 consumer customers. Additionally, GTE offers managed access to the Internet. We are posting services and a variety of value-added Internet services for businesses and other organizations.

Now, I point this out not because, to be a commercial for GTE, although I think I would get a bonus if I do that, but really to point out that we are really involved in all aspects of this space. If you think about it from the most basic level, one network, all the way kind of to the high end, kind of consumer and business services, we are involved in the Internet space in a very big way.

As a result, when we look at this legislation, we look at it from that perspective, but we also look at it from the perspective that we have a subsidiary called CyberTrust Solutions, which is a certificate management products and services subsidiary that generates digital certificates to support secure communications, secure access control, secure messaging, and secure electronic transactions for electronic commerce applications.

So when you look at this from our perspective, electronic authentication is key to our product offerings and our digital certificate business, but it is also key to our offerings in how we see the development of the Internet and what is going to be important on the Internet for the future.

So why is it important, and I think the answer, as we look at it, is because business is really being transformed by the Internet. Electronic commerce has the potential to change—I would say the potential. It actually has changed in some respects the way every American can or will do business. We already see signs of this change in almost every aspect of our lives.

According to one recent study, the number of U.S. households with Internet access rose from 5.8 million in 1994 to 38.8 million in 1999. This figure is projected to rise to 60 million in 2003, and many of these people are conducting business over the Internet.

I would add parenthetically that all of these analyses have always been wrong. They have always understated the actual growth of the Internet. The economic power of the Internet was recently demonstrated by the unexpected surge in Internet sales during the Christmas 1998 season, and by the meteoric rise in technology shares, albeit not during the last 3 or 4 days, which has helped fuel the recent record-breaking rise of the Dow.

Some analysts predict that electronic commerce will be a $300 billion a year business by the year 2000. While no one knows for sure whether these predictions are reliable, it is increasingly evident that the global use of electronic commerce is here and is here to stay.

There is also much evidence to suggest that the productivity gains associated with Internet technologies was a major factor in the ability of our economy, the U.S. economy, to withstand the perils of the economic turmoil affecting much of the rest of the world over the last couple of years.

Now, in order to transact business over large open networks like the Internet, parties must find a way to authenticate, that is, to identify each other, and to ensure that the messages sent to each other were not tampered with during their transmission.

This is critical to me as we look at the Internet. The fact is that we are dealing with a medium where you do not know the person on the other side. I may go to a Web site. I might believe that Web site belongs to somebody, but today I really do not know that that is the case, or a merchant might choose to do business with me, Ira Parker, but the fact is, that merchant today really may not be sure that they are dealing with Ira Parker and, as a result, you need a technological base that really solves this issue.

Now, there are many technologies out there, and I applaud this bill for being technology neutral, because the truth is, we do not know which technology will rule the day. We are betting on one or two in our company but the truth is, is that there may be other ones which rule, but there are three principles that I believe, and believe fundamentally have to be addressed in any piece of legislation, and this legislation pending does it.

Which is, No. 1, you have to be able to authenticate the identity of the person or the information that sends the document or message, determine that the document was not modified during transmission, because it does you no good basically to know that I sent it but that was not the document I sent, and verify that the document received was the one sent by the party claiming to be the sender.

If you embody those three principles in a piece of legislation, I think you will really find that it covers any technology that comes along today, tomorrow, in the future, that can meet that, so effectively it lets the bill be very flexible in terms of how it addresses not only today's applications in this space, but applications for the future.

So why is legislation necessary or desirable? Senator Abraham said it in the beginning, and that is because there are so many States that have passed so much legislation in this area. As of January 31, 1999, some 43 States had enacted laws that dealt with electronic authentication.

These States have varying approaches regarding such matters as registration and regulation of certificate authorities. Some of them are technology neutral, some of them are technology specific, some of them deal with limitations on liability and differ from State to State. They define key terms like authentication and digital signatures differently, and they also define the minimal content and technological scope of digital certificates in very different ways.

Now, I will tell you, having said that, I think we should commend the States for their effort in this regard. They took it on. They took it on quickly. Utah, I believe, was the first State to approach it, and so I do not find—I am not critical of the States for taking this on, but the reality is, we find ourselves today with approaching 50 different regimes for electronic authentication, and the one thing that we know about the Internet is that the Internet is a space which does not respect borders.

It does not respect State borders. It barely respects, depending upon how you look at it, national borders, and so as a result, when you look at the technologies that have to be employed, they need a legal basis, just a basis, not a whole lot of stuff around it, just a basis that makes sure that we are all playing on the same level playing field.

There is also a foreign competitiveness issue, and I would say this is incredibly important. Foreign countries, particularly in the European Union, are allowing electronic authentication without a variety of conflicting intracountry rules and regulations. Thus, they facilitate commerce and the competitiveness of their companies.

For the U.S. electronic commerce industry to compete in the world market it needs uniformity and simplicity at home. That does not address the issues of uniformity internationally, and that will be looked at by U.S. Government agencies as they explore dealing with other countries on these issues, but we at least need uniformity and simplicity at home.

This is an important issue for Internet service providers like GTE Internetworking. Again, it is not just in terms of our business selling the certificates, selling the authentication. Everything that we do, whether we offer a consumer-based service to 800,000 consumers today, what they are doing, electronic commerce, or at least some of them are, or whether we are selling Web-hosting services to businesses, or whether it is selling connectivity to businesses, the reality is, in almost everything we do on the Internet, we see it as a kind of an overriding principle that kind of brings it all together.

So with this in mind we believe that points embodied in Senate bill 761 are consistent with our view that the private marketplace should take the need in promoting and directing new technologies. I agree with my colleague on that. That is critically important. Government does not have a role, I do not believe, in setting the technologies.

Where it does have a role, and this bill does it very well, is, it should take all action necessary to remove the obstacles to private market use, development, and deployment of the technologies. These are exactly the goals of Senate bill 761, and we therefore strongly endorse it and urge its enactment, as well as the enactment of similar legislation in the House.

I appreciate the opportunity to be here today.
[The prepared statement of Mr. Parker follows:]

PREPARED STATEMENT OF IRA H. PARKER, VICE PRESIDENT AND GENERAL COUNSEL, GTE INTERNETWORKING

Mr. Chairman and members of the Committee, my name is Ira H. Parker. I am Vice President and General Counsel of GTE Internetworking. I welcome this opportunity to offer my views on electronic authentication. I commend you and your colleagues for exploring this important issue.

GTE Internetworking is the division of GTE Corporation responsible for our business and consumer Internet offerings. We were formed just about 2 years ago when GTE Corporation acquired BBN, one of the original developers of the Internet. GTE Internetworking is an integrated Internet company providing many products and services to businesses and consumers. We are one of the largest Internet Backbone Providers and we are building a nationwide high-speed fiber optic network to carry data traffic throughout the United States and abroad. We are also a leading consumer and small business Internet Service Provider, with more than 800,000 customers. Additionally, GTE offers managed access to the Internet, Web Hosting services, and a variety of value added Internet services for businesses and other organizations. Through our CyberTrust Solutions subsidiary we offer a suite of certificate management products and services that generate digital certificates to support secure communications, secure access control, secure messaging and secure electronic transactions for electronic commerce applications. Electronic authentication is key to our product offerings, to our customers and to the development of electronic commerce.

Why is this important? Because business is being transformed by Internet. Electronic commerce has the potential to change the way every American does business. We already see signs of this change in almost every aspect of our lives. According to one recent study, the number of U.S. households with Internet access rose from 5.8 million in 1994 to 38.8 million in 1999. The figure is projected to rise to 60 million in 2003, and many of these people are conducting business over the Internet. The economic power of the Internet was recently demonstrated by the unexpected surge in Internet sales during Christmas 1998 and by the meteoric rise in technology shares which has helped fuel the recent record-breaking levels of the Dow. Some analysts predict that electronic commerce will be a $300 billion a year business by the year 2000. While no one knows for sure whether these predictions are reliable, it is increasingly evident that the global use of electronic commerce will change business as we know it. There is also much evidence to suggest that the productivity gains associated with Internet technologies was a major factor in the ability of our economy to withstand the perils of the economic turmoil effecting much of the rest of the world.

In order to transact business over large, open networks like the Internet, parties must find a way to authenticate—that is, to identify—each other and to ensure that the messages sent were not tampered with during their transmission. The technique known as electronic authentication meets these goals.

Electronic authentication is an electronic technique that allows the user to (i) authenticate the identity of, or information associated with, a sender of a document, (ii) determine that a document was not modified during transmission and (iii) verify that the document received was the one sent by the party claiming to be the sender.

These are simple and necessary attributes. They are a useful tool that allows certainty and knowledge about customers and transactions.

Why is legislation necessary or desirable? Internet service providers like GTE Internetworking put priority on being able to offer their services in a simple, uniform way throughout the United States. This goal is threatened by a burst of state legislation that has produced a patchwork quilt of conflicting and inconsistent state laws. While the states should be commended for their willingness to come to grips early on with electronic commerce, the resulting disparate state statutory regimes concern GTE Internetworking and other Internet service providers who seek to offer nationwide electronic commerce services over the Internet. I think all of us can agree that the Internet, and commerce conducted over the Internet, transcends state boundaries. As a result, anything short of uniformity will hinder our ability to provide these products and services and of consumers to enjoy the full fruits of Internet commerce.

What are the states doing? As of January 31, 1999, some 43 states had enacted laws that deal with electronic authentication. These states have varying approaches regarding such matters as registration and regulation of certificate authorities, limitations on liability, definitions of key terms like "electronic authentication" and "dig-

ital signature" and the minimal content and technological scope of digital certificates that provide electronic authentication.

The problem is that if there are a multitude of state regimes governing electronic authentication, the implementation of secure electronic commerce over the Internet will become costly and inefficient. Up to 50 differing legal regimes will diminish the likelihood of seamless and uniform electronic commerce, which by its very nature is interstate in nature. Up to 50 different regimes will reduce the incentive for new market entrants to offer electronic commerce products and services. Up to 50 different regimes will confuse consumers doing business over the Internet and will result in a patchwork quilt of differing legal protections, commercial standards and levels of security.

There is also a foreign competitiveness issue. This is very important. Foreign countries, particularly in the European Union, are allowing electronic authentication without a variety of conflicting intra-country rules and regulations. Thus, they facilitate commerce and the competitiveness of their companies. For the U.S. electronic commerce industry to compete in the world market it needs uniformity and simplicity at home.

This is an important issue for Internet Service Providers (ISPs) like GTE Internetworking. While we support such state efforts as the drafting of the Uniform Electronic Transactions Act by the National Conference of Commissioners on Uniform State Laws, Internet electronic commerce is moving forward at too fast a pace to rely solely on them. We need uniform national legislation more rapidly than the current state efforts are likely to produce this result. We need national uniform legislation today.

We believe that the Millenium Digital Commerce Act (S. 761) is just such legislation. We support this bill because it does six things:

First, it provides recognition and effect for electronic authentication used in any contract that relates to an interstate transaction.

Second, it authorizes parties to an interstate transaction to establish by contract, electronically or otherwise, technologies or business models (including legal or other procedures) to create, use, receive, validate or invalidate electronic signatures and electronic records. It would do this notwithstanding any state law that specifies one or more acceptable or required technologies or business models. It thus largely preempts conflicting state laws.

Third, and very importantly, S. 761 was drafted with a view to the state uniform law effort that is currently under way. Thus, if a state enacts or has in effect uniform electronic transactions legislation that is substantially similar to that reported to the state legislatures by the National Conference of Commissioners on Uniform State Laws it would be deemed not to be preempted, provided such law is not inconsistent with the principles enunciated above, namely that it gives recognition and effect to electronic authentication and allows parties to establish by contract the technologies and business models that govern their interstate transactions. Thus, the states can legislate on electronic authentication consistent with the uniform state law effort.

Fourth, the bill is a minimalist, market-oriented, technology-neutral approach. It does not purport to allocate obligations and liabilities between users and providers of electronic authentication. It leaves this up to the parties to establish by contract.

Fifth, S. 761 establishes no new bureaucracies or regulatory schemes. Electronic commerce is an infant industry, and it should not be strangled by unnecessary licensing or regulatory schemes.

Sixth, this bill does not affect existing consumer protections or the rules governing the validity of formation of agreements or system rules under the Uniform Commercial Code or uniform state laws dealing with electronic contracting.

These six points, as embodied in S. 761, are consistent with our view that the private marketplace should take the lead in promoting and directing new technologies. Government should take action to remove obstacles to the private market use, development and deployment of the technologies. These are exactly the goals of S. 761, and we therefore strongly endorse it and urge its enactment, as well as the enactment of similar legislation in the House.

Thank you.

Senator ABRAHAM. Thank you very much, Mr. Parker.

Mr. Callcott.

STATEMENT OF W. HARDY CALLCOTT, SENIOR VICE PRESIDENT AND GENERAL COUNSEL, CHARLES SCHWAB & CO., INC.

Mr. CALLCOTT. Thank you. I am Hardy Callcott from Charles Schwab & Co., Inc. I thank you for the opportunity to testify on behalf of the Millennium Digital Commerce Act, which we believe will help create the kind of predictable market-oriented environment necessary to foster the continued growth of electronic commerce in the United States. This is good, bipartisan legislation that we believe deserves your consideration and support.

I am here today to concede that Schwab did not invent the Internet. However, we are one of the largest, if not the largest company in the United States today in terms of Internet commerce. To give you a sense of scale, Amazon.com currently does about $3 million of business today on their Internet Web site. We currently do $2 billion a day in securities trading on our Web site.

Schwab has become today the second largest securities brokerage in the United States in terms of active customer accounts, and we are the largest Internet brokerage firm in the world. We currently have 2½ million customers with active online accounts containing a total of over $219 billion in customer assets.

If we are already doing this much commerce online, why do we feel this legislation is necessary, and the answer is, as my colleagues have stated, that Schwab and other businesses need greater certainty that electronic authentication will have the same legal effect as traditional pen-and-ink signatures.

Today, if someone wants to open an account at Schwab, they have to fill out a paper application, manually sign it, and submit it to us either in person, at a branch or through the mail. With electronic authentication, this entire process could be done entirely online. So could other transactions which require signatures and are now handled manually.

Examples would be change of address forms, IRA distribution forms, or wire transfer requests. Handling these transactions online would be quicker and more convenient both for brokerage firms and for our customers.

There are a number of reasons why we support this legislation. First is that it provides uniformity. The securities markets are interstate in nature. We do business in all 50 States, and we may not even know where one of our customers who is using a laptop or the next generation of hand-held wireless computers, we may not even know where that customer is located.

Consistent, uniform Federal standards in our view are necessary if the securities industry is to engage in electronic commerce with certainty. The same need for Federal uniformity led Congress to adopt the National Securities Market Improvements Act and the Internet Tax Freedom Act, and we believe uniformity in electronic signatures is the logical next step.

As we have heard, although there are efforts, which we strongly support, at the State level to create uniform electronic authentication legislation, currently patchwork regulation at the State level is a significant barrier. The State statutes that exist today vary greatly in terms of their definitions, the types of transactions they cover, the scope, some of them are technology-specific, and the re-

sult is a lack of consistency between States and continuing legal uncertainty for businesses.

Second, this bill is technology-neutral. As you all know, technology in the electronic commerce area is evolving very rapidly, and we believe technological neutrality is important so that legislation does not stifle continued innovation by broadly defining electronic signature.

This bill allows the markets to select the technologies that work, to balance the cost and the risk, and to reach an innovative and cost-effective result for businesses and consumers.

Finally, we strongly support Senator Abraham's introduction of a companion bill, the Electronic Securities Transactions Act, S. 921. The securities industry faces not only contract law concerns but also Federal regulation. We therefore need certainty that electronic signatures will also satisfy the Federal securities laws.

S. 921 does this while also continuing to recognize the SEC's authority to ensure that the use of electronic signatures is consistent with investor protection. So we are very pleased that Members of Congress on both sides of the aisle, including all three of the Senators here today, as well as Senator McCain, have supported electronic signature legislation.

We would also like to thank Chairman Tom Bliley in the House, who has introduced H.R. 1714, which contains similar provisions.

To conclude, the Millennium Digital Commerce Act is simple, forward-looking, market-oriented legislation, and precisely the kind of approach which is needed if the United States is to continue to lead the world in electronic commerce, and it is an approach that is sensitive to the concerns and interests of the States. We urge you to support and pass this bill.

[The prepared statement of Mr. Callcott follows:]

PREPARED STATEMENT OF W. HARDY CALLCOTT, SENIOR VICE PRESIDENT AND GENERAL COUNSEL, CHARLES SCHWAB & CO., INC.

Mr. Chairman and members of the Committee, my name is Hardy Callcott. I am General Counsel at Charles Schwab & Co., Inc. of San Francisco, California. Thank you for the opportunity to testify on behalf of the Millennium Digital Commerce Act (S. 761). We at Schwab believe that this is good legislation and that it deserves your serious consideration and support.

Schwab is the second largest securities brokerage firm in the United States in terms of customer accounts, with over 6 million active accounts. In just 3 years, Schwab has become the largest online brokerage in the world, with 2.5 million active online accounts holding some $219 billion in total customer assets. For purposes of comparison, Amazon.com currently conducts about $3 million per day of business on its Internet website. Schwab conducts about $2 billion of Internet commerce per day.

Online investing offers tremendous benefits to individual investors, the most important of which is better information: real-time access to investment research, market news, company press releases and SEC filings, earnings estimates and consensus recommendations, quotes, account balances, and other investment tools such as stock screening, stock charting, and portfolio tracking. The Internet has done more to put individual investors on a level playing field with large institutional investors than any development since fixed commissions were abolished in the 1970's.

Online investing has also dramatically reduced costs for individual investors. Most online trades at Schwab cost $29.95, compared to average commissions of several hundred dollars per trade at full-commission firms. Online investing is also convenient: customers can do research and place trades at their convenience for execution during market hours. Online investing offers speed, accuracy and control. And online investing allows customers to make their own decisions without having to trade through a broker who, especially at full-commission firms, may not have the

customer's interest at heart. These factors help explain the rapid growth in customer demand for online investing.

If so much business is already being successfully conducted online, why, then, is electronic authentication legislation necessary? The answer is a simple one. Schwab and other broker-dealers need greater certainty that electronic authentication will have the same legal effect as traditional pen-and-ink signatures.

Take the simple example of account-opening procedures. Currently, customers must fill out account applications on paper, sign them manually, and then submit them in person or through the mail. With electronic authentication, this could be done entirely online and would save the industry—and, inevitably, the customer—tens, if not hundreds, of millions of dollars in operating costs. It also would be quicker and more convenient for the customer. Other transactions which require signatures and now must be handled manually could also be performed online if we are able to obtain legal assurances that electronic authentication would be recognized. These include: allowing margin trading, allowing option trading, power of attorney forms, change of address forms, wire transfer requests, beneficiary forms, IRA distributions, and letters of authorization.

Let me address the issue of uniformity. The securities markets are national in scope and operation, and they involve transactions that are entirely interstate in nature. Schwab does business in all fifty states, and we may not even know from where a customer with a laptop is accessing our systems. Consistent and uniform Federal standards are therefore imperative if brokers and others in the securities industry are to engage in electronic commerce with any degree of certainty and reliability. Congress has already recognized this reality in the area of books and records, for example, and uniformity was the impetus behind the National Securities Markets Improvement Act ("NSMIA"), adopted in the last Congress. Uniformity in electronic authentication, then, is the logical and necessary next step.

Today, patchwork regulation by the states poses the greatest barrier to the use and development of electronic signature technology and the continued evolution of e-commerce. This marketplace reality coexists uneasily with the fact that virtually every state either has already adopted or is in the process of adopting its own individualized law governing electronic authentication. The unfortunate fact is that the states have taken widely disparate approaches to electronic authentication. Thus, some states, such as in Utah's Digital Signatures Act of 1996, address the use of electronic authentication by the general public and regulate the providers of electronic authentication services through various systems of registration, licensing and payment of fees. On the other hand, several states have adopted laws that regulate only transactions with the state government. An example of this approach would be the Florida Electronic Signature Act of 1996.

Beyond these two basic formats, state laws take varying approaches with respect to such matters as registration of certificate authorities and the definition of "digital signature" and other basic terms. They contain varying treatment of licensed and unlicensed certificate authorities, differing fee payment schemes, different rules for suspension of certificates, varying treatment of liability between parties, divergent standards for agreement between parties on the use of electronic formats, and similar considerations. Some of these state laws favor particular technologies, such as public key infrastructure, or "PKI," technology, while others are technology-neutral.

One important effort to rectify the problem of conflicting state laws is the Uniform Electronic Transactions Act ("UETA"), sponsored by the National Conference of Commissioners on Uniform State Laws, due to be presented to state legislatures later this year. We enthusiastically endorse this effort. However, there is no assurance that it will be adopted by all or even a majority of states, or that it will be achieved in a reasonable timeframe. It is worth recalling that it took eleven years (from 1958–1967) for the Uniform Commercial Code ("UCC") to be adopted nationally, and even then two jurisdictions, Louisiana and the District of Columbia, failed to adopt it. Very simply, the electronic commerce industry does not have the luxury of that kind of time. We need Federal action now to allow us to go forward with certainty and clarity in the marketplace.

We are therefore pleased that Members of Congress, on both sides of the political aisle, including the Leadership of both bodies, have made electronic authentication legislation a policy priority in this Congress. In particular, we want to congratulate both Senator Abraham and Chairman McCain, among others, for the introduction of S. 761 and S. 921 in the Senate, as well as Congressman Tom Bliley of Virginia, the Chairman of the House Commerce Committee, who has kicked off the debate in the House through the introduction of his bill, H.R. 1714.

In our view, it is essential that these bills be quickly considered and acted upon, and that Federal legislation, such as S. 761 proposes, be put in place to provide the uniformity we need without usurping traditional state functions or continued efforts

at the state level to address these issues. Indeed, we believe that, while the states should continue to proceed on a parallel track through UETA, S. 761 now represents a careful and sensitive balancing of needs between those of the industry and the legitimate needs of the states, and it is a measure that can and should be supported by all parties.

I would like now to focus briefly on some of the main attributes of the legislative approach that we support. In its July 1, 1997, Framework for Global Electronic Commerce, the administration called for a predictable, minimalist, consistent and simple legal environment for [electronic] commerce. We at Schwab endorse this approach to legislation in this area: that is, enabling legislation that removes existing barriers to the use of, and reliance upon, electronic signatures. We believe in the creativity and innovation of the marketplace, and we see no need for legislation that over-regulates, attempts to resolve all open issues in this area or sets up new standards or regulatory regimes. What is needed is simple legislation that constructs the framework within which the market and its participants can develop the technologies and systems that work best for our various and wide ranging needs.

Similarly, we would like to see a broad definition of electronic signature that enables market participants to choose among themselves which technology and which level of security and liability meets their individualized needs for any particular situation. In this connection, we note that the definitions in S. 761 generally follow those of UETA. Existing law does not establish minimum standards of security and liability for pen and ink signatures (for example, there are no minimum standards to make signatures harder to forge). Similarly, it seems to us, this legislation should not set minimum standards for electronic signatures. The market will quite naturally work this out, selecting the best technologies, balancing costs and risks, and inevitably reaching a result which is innovative and cost effective, both to the broker and the customer.

In Schwab's view, technology neutrality also is critical. Technology in the electronic commerce area is evolving rapidly. Legislation must be neutral so as not to stifle continued innovation. We must allow technology to develop and compete in the marketplace. Federal legislative attempts to dictate what technology is or is not acceptable, however well-intentioned they might be, will be a prescription for failure. The administrations Framework also endorsed technology neutrality in the application of any rules affecting e-commerce. The market therefore should naturally select those technologies that work and deliver appropriate security and reliability, and it will, equally naturally, reject those which do not. Legislation that enshrines any particular technology, such as public key infrastructure, or sets standards that give one technology an advantage over others will stifle innovation at these critical early stages.

Allowing and fostering technological innovation through competitive market forces has historically worked well in all areas, particularly the securities industry. For example, in the 1975 amendments to the Securities Exchange Act of 1934 (the 34 Act), Congress mandated that the SEC follow a facilitate-but-not-design approach to overseeing the development of the national securities markets. A technology-neutral enabling statute like S. 761 would follow this same approach by facilitating the development of electronic commerce without mandating a particular system or design. We believe that such an approach will result in the same beneficial technological innovation that has made the U.S. securities markets the envy of the world.

Finally, Schwab supports separate provisions dealing specifically with the securities industry because the industry is faced with not only contract law concerns but regulatory requirements. We therefore need the certainty that electronic signatures will meet the requirements of the 34 Act, as well as the Investment Advisers Act of 1940, while at the same time recognizing the SECs authority to provide guidance to ensure that the use of electronic signatures is consistent with investor protection. For this reason, we also support Senator Abraham's introduction of a separate but related bill, the Electronic Securities Transactions Act (S. 921).

In conclusion, Charles Schwab believes that the Millennium Digital Commerce Act (S. 761) constitutes simple, forward-looking, market-oriented legislation, precisely the kind of approach which is needed if the United States is to continue to lead the world in electronic commerce. And it is an approach that is sensitive to the concerns and interests of the states. We urge you to support and pass this bill.

Thank you.

Senator ABRAHAM. Mr. Callcott, thank you very much. We turn now to Mr. Miller.

STATEMENT OF HARRIS N. MILLER, PRESIDENT, INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA

Mr. MILLER. Senators, it is really an honor to be before this committee, and three of the leading Senators in terms of promoting the information technology age. On behalf of the Information Technology Association of America and our 11,000 member companies, I want you to know we strongly endorse the Millennium Digital Commerce Act of 1999 and urge its quick passage.

Our companies are involved in software services, the Internet, electronic commerce, professional services, information services, and telecommunications. I also serve as president of the World Information Technology and Services Alliance, which consists of 38 high tech associations around the world, so I have an international interest in this legislation as well as a national perspective.

Our companies are helping to shape the future of the electronic commerce age. The importance of electronic commerce, as the previous witnesses have indicated, cannot be overstated. Estimates vary widely, but the most recent estimates are by Forrester Research that electronic commerce will grow to over $327 billion within 2 years. Our own recent surveys indicate that the electronic commerce marketplace will double in just the next 6 months.

Given this rapid growth, we did a recent survey to get some indication of what kind of concerns people have about using the Internet. We did this in conjunction with the well-known firm, Ernst & Young. The survey, which measured the perceptions of top executives from across the information technology industry and their customers, found that 60 percent of respondents believed lack of trust was the top overall barrier to electronic commerce.

When probed for more specifics, they identified privacy protection, authentication, and security as the three top level areas of concern.

Privacy and security have garnered a lot of attention in the media, and in Congress, but the issue that this bill focuses on, authentication, has not received as much attention. We believe it needs it, deserves it, and that is why we support this bill.

Given the importance of electronic commerce, we have to realize that the famous New Yorker cartoon which says that the great thing about the Internet is that you can be a dog on the Internet really is not very funny in the commercial world. What real people want to know, whether they are consumers or business people, is that the people that they are dealing with are not dogs.

Protecting the integrity of the content is critical. They want to know that what you have communicated is what you mean. The continued growth of electronic commerce depends upon the development of an updated legal framework, as Senator Wyden said, so that contract law can exist in the digital age.

We were very strong supporters of your legislation last year, Senator Abraham, S. 2107, the Government Paperwork Elimination Act. It was the first legislative step in electronic authentication by pushing the U.S. Government to recognize electronic signatures have the same legal recognition as the handwritten signature. We are pleased that the U.S. Office of Management and Budget appears to be following through on this law which you authored, Sen-

ator Abraham, with the strong support of your Commerce Committee colleagues.

S. 2107 dealt with how private parties relate to the Federal agencies in the realm of electronic signatures. S. 761, as you and the other witnesses indicated, focuses on commercial environment, and it is the next right step. It is an important bill, but at the same time, it is a modest bill that strikes a successful balance.

For example, as you indicated in your opening statement, this bill uses a very light form of State preemption. It will not apply to States that embrace the forthcoming Uniform Electronic Transactions Act which, as you stated, will be forthcoming soon. It is also cautious in that Government does not skew the evolving marketplace for authentication services. In other words, it does not get out ahead of the private sector in the development of technologies and standards.

An important provision in S. 761 which will help to build trust in electronic commerce is what are called the party autonomy provisions. These provisions ensure that if several parties agree to use a specific authentication technique, then this should be respected in the courts regardless of jurisdiction.

Examples abound of why this legislation is important. Mr. Callcott talked about how much this will simplify the ability for individual customers to get online and use the various trading services that his company and many others are now offering. It is also important in business to business transactions.

For example, a company that is selling auto parts, as many are frequently doing online now, needs to know that the person who is buying the auto parts product is a legitimate vendor who will install them correctly and follow the prescribed procedures. Obviously, the person who is buying the auto parts wants to know that the parts being supplied are legitimate, and he or she can adequately represent that.

They require types of transactions authentication. They require legal standing. They require that you cannot subsequently go back and repudiate a transaction because this transaction took place online.

Just yesterday, I had the opportunity to testify before the House Small Business Committee. One of the witnesses was a lobster fisherman and salesman from Maine who has now gone online, and is now selling lobster dinners online. By the way, they did a transaction in the middle of the hearing, but at the end of the day Chairman Talent decided not to give him his credit card number, so we did not have lobster dinners as part of the hearing.

This gentleman described that one of the concerns he has about electronic commerce is that as much as 10 percent of his customer orders are later repudiated by the people who ordered the products.

Now, he has to make a business decision about how far he wants to carry the authentication. Clearly in larger orders if he knew that there was an authentication process he could go through which would not be repudiated, that would give him simple recourse. Then he could expect to be much more confident that when he sells a large order online, that he would be able to collect the moneys which he is properly owed.

As indicated by previous witnesses, there are important basic principles that we support. The private sector must lead in the setting of standards. The legislation must be technology-neutral. It must be industry-neutral. It must let the marketplace decide what is the appropriate level of the solution to any questions on agreement of transaction.

Encryption and the issues of trust of third parties should be treated as separate issues from electronic signatures. We need not just State harmonization, not just national harmonization, but also international harmonization, with mutual recognition of national and subnational laws.

Now, S. 761 cannot deal with all these questions. But it is consistent with these goals, and we particularly commend you, Senator Abraham and your colleagues, for introducing provisions in the bill which encourages the negotiating position of the United States in both its bilateral and multilateral discussions.

Legislation which establishes a consistent legal framework for electronic authentication and thereby fosters a secure environment for electronic commerce will maximize the benefits of the global electronic marketplace for American consumers and the economy. We wish to thank you for your leadership on this bill. We look forward to supporting the legislation as it moves through the Senate and Chairman Bliley's bill moves through the House of Representatives and onto the President's desk.

[The prepared statement of Mr. Miller follows:]

PREPARED STATEMENT OF HARRIS N. MILLER, PRESIDENT, INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA

Mr. Chairman, and distinguished members of the Committee, on behalf of the over 11,000 direct and affiliate member companies of the Information Technology Association of America (ITAA), I thank you for inviting me to participate in today's hearing on the "The Millennium Digital Commerce Act of 1999," S. 761. Our companies are involved in software, services, the Internet, electronic commerce, professional services, information services, and telecommunications. In addition to serving as ITAA President, I am President of the World Information Technology and Services Alliance (WITSA), consisting of 38 information technology associations around the world. Because electronic commerce is a global issue, ITAA is interested in the topic of today's hearing from both a national and international perspective.

ITAA member companies are helping to shape the information age by creating thousands of new sources of information, turning local and regional markets into global markets, and giving businesses and consumers new and efficient means of trading goods and services. In short, our members are at the forefront of the revolution called "Electronic Commerce."

The importance of electronic commerce to the U.S. economy and to American consumers cannot be understated. While estimates of the growth and size of the electronic marketplace vary widely, the Department of Commerce predicts that electronic commerce will account for more than $70 billion in sales in the year 2000, and Forrester Research projects that more than $327 billion will change hands over the Internet by 2002. Based on ITAA's own surveys, we see a doubling of the electronic commerce marketplace in just the next 6 months. Given this dramatic growth, the creation of a secure environment for electronic commerce is vital to both American consumers and the American economy.

ITAA last month released the results of a survey on electronic commerce barriers that—we conducted in conjunction with Ernst and Young. The survey—measuring the perceptions of top executives from across the information technology industry and their customers—found that 62 percent of respondents believed lack of trust was the top overall barrier to e-commerce. When probed for specific obstacles, respondents identified privacy protection (60 percent), authentication (56 percent) and security (56 percent) as the three top-level trust concerns. While privacy and security have received a good deal of media attention, concerns about authentication—

knowing who you are really dealing with on the Internet—appear to be growing in significance.

We are clearly in a remarkable stage of growth in electronic commerce. It is no surprise that concerns about authentication are growing, too. When people are online, they want to know with whom they are dealing. They want to know that people are who they say they are and are going to follow through with commitments made over the Internet.

The famous New Yorker cartoon says the great thing about the Internet is that no one knows you're a dog. That is humorous, but it is not what buyers and sellers really want. They want to know they are not dealing with dogs. Protecting the integrity of the content is also critical. They want to know you mean what you communicated you mean. The continued growth of electronic commerce depends on the development of a legal framework of contract law that will supply uniformity and legal certainty to transactions in cyberspace.

We were strong supporters last year of S. 2107, The Government Paperwork Elimination Act. This legislation was the right first legislative step on electronic authentication. The bill was simple and straightforward: it required Federal agencies to make all of their forms available online in a reasonable period of time, and gave an electronic signature the same legal recognition as a handwritten signature. We are pleased to see that the Office of Management and Budget (OMB) is following through on this important new law, and prodding the agencies to move forward with the implementation.

S. 2107 dealt with how private parties deal with Federal agencies in the realm of electronic signatures. S. 761 addresses the commercial environment, and is the right next step. It would do what is needed more than anything else to encourage the growth of electronic commerce: it will build trust in the medium by creating a consistent legal framework across the states. It is a modest bill that strikes a successful balance in a number of ways. For example, the bill uses a very light form of state preemption. Its provisions will not apply to states that have embraced the Uniform Electronic Transactions Act, which should be completed soon. S. 761 is also cautious in ensuring that the government does not skew the evolving marketplace for authentication services. In short, the bill does not get out ahead of the private sector in the development of technologies and standards.

An important cornerstone of S. 761—which will help to build trust in electronic commerce—is what are called the "party autonomy" provisions. These provisions ensure that if several parties agree to use a specific authentication technique, then this should be respected in the courts, regardless of jurisdiction.

Why is this bill important?

Let me illustrate how S. 761 will create legal trust and certainty in authentication techniques, creating efficiencies and reducing costs. Let's assume that a major auto manufacturer is based in the U.S. with operations and dealers around the world. The company has created a site on the Internet not only for its dealers but also for the hundreds of companies globally that perform repairs and do maintenance on these cars. So the web site contains catalogue information—which is changing constantly and needs to be kept up to date—on what models are available at what cost, and the prices associated with all the various parts available for repairs. The web site is password protected, but also requires dealers to authenticate the purchase of cars using a digital signature to verify the purchase. Such a system creates enormous efficiencies and reduces costs by improving inventory management and reducing paperwork costs. It also improves the company's supply chain management, and allows the dealers to tell its customers what kinds of cars are available with what features and when they will be delivered. There may still be some negotiation over price—the Internet can't change all realities overnight!

S. 761 creates the legal trust and certainty necessary to make it easier for our car manufacturer to develop and use such an efficient Internet-based system. The bill ensures that when a dealer buys 30 new cars, a legal framework exists to authenticate the purchase using the digital signature that all the parties have agreed upon. And it ensures that the laws of individual states respect the agreement reached on the specific authentication technique used by the car manufacturer and its dealers should any disputes arise. Such a system also makes it virtually impossible for a hacker to corrupt the system or submit false orders.

In our example, the overall benefit of such a system is reducing the cost of cars for consumers, and allowing consumers to order cars with specific features that will be delivered in shorter time-frames.

S. 761 also ensures that if the company and its dealers wanted to use a different kind of authentication technique (for example, a biometric method), that they could do so. So the bill is technology neutral and allows the marketplace to develop the best possible procedures.

Further, S. 761 supports a similar consistent framework on an international level. It supports the U.S. Government's efforts to negotiate multilateral and bilateral treaties to accomplish the same goals. This is important because the Internet is a global medium that transcends national boundaries.

ITAA has embraced a number of important principles on authentication and electronic signatures. S. 761 is totally consistent with these principles:

The private sector must lead in the setting of standards and approaches on digital signatures. For example, any accreditation standards for certificate authorities (CAs) should be developed by the private sector. Legislation and regulation should not impede development of industry-led, cost-effective, market-trusted authentication services created in a competitive environment.

Any legislation on electronic signatures must be technology neutral.

Any legislation on electronic signatures must be industry neutral.

Let the marketplace decide what is the most appropriate solution for any given level of agreement or transaction. For example, a major financial transaction involving the transfer of millions of dollars might involve a CA, hewing to a specified level of standards, protected by unbreakable security. Whereas a consumer buying a product over the Web might accept a lower and less expensive standard with high, but not unbreakable security.

Encryption and the issue of trusted third parties should be treated as a separate issue from electronic signatures.

State, national, and international laws governing electronic authentication need to be harmonized, with mutual recognition of national and subnational laws. A framework needs to be in place that allows for electronic authentication to be used across national borders. Governments must avoid using electronic authentication laws as non-tariff barriers.

Legal authorities should recognize the equivalency of traditional and electronic signature and record requirements.

While S. 761 cannot deal with all of these questions, it is consistent with these goals. For example, the bill is supportive of the negotiating position of the U.S. in both bilateral and multilateral discussions designed to foster trust in electronic authentication across borders, without mandating legislative solutions.

Legislation that establishes a consistent legal framework for electronic authentication and thereby fosters a secure environment for electronic commerce will maximize the benefits of the global electronic marketplace for American consumers and the economy.

We wish to thank the sponsors of this bill for your leadership. ITAA looks forward to supporting this bill aggressively as it moves through the Senate, as well as similar legislation in the House.

Senator ABRAHAM. Thank you, Mr. Miller.

In that you deferred on an opening statement, Senator Burns, I will start with you for questions and we will go to Senator Wyden.

Senator BURNS. Is anybody out there against this bill?

[Laughter.]

Senator BURNS. I just want to throw out a couple of questions here, and I have to run, but again I want to thank Senator Abraham for doing this. How important a role does encryption or e-privacy play, and Mr. Miller, I was interested in your statement that encryption should be treated in a different light.

I know, and you know, that around our different States, Montana we set up a long time ago a committee out there to oversee systems to make sure that all the systems were interoperable. We did not want a bunch of different systems that could not talk to one another, because sometime down the line we are going to have to do that, because we are all interfaced, so to speak. What role do you think those two issues play?

Now, I am an old-fashioned guy. I like to go and I like to see who I am doing business with, and I like to give a check, OK, and I have a little bit of nervousness about a lot of things on the Internet, not all of them, but about some of them, and I would like to find some way that we could build confidence.

To me, the integrity, and to really do a lot of business on the Internet is going to depend upon what we do here on this issue and on encryption for security.

Mr. MILLER. I would say, Senator, encryption is absolutely essential to electronic commerce. We very much appreciate your efforts and those of many of your colleagues who are trying to convince the Administration either to change its policies regulatorily or to pass legislation.

We are very pleased at the support of the Full Committee Chairman, Senator McCain, who is now a supporter of the reform legislation. It would change the current situation, which restricts the ability of the U.S. companies to export products above a certain encryption strength, except in limited cases of financial services.

It is a global economy, Senator, as you said over and over again, and because of that we have to have absolutely strong encryption. Without it, as Mr. Parker and Mr. Campbell and Mr. Callcott indicated in their testimony, it is impossible to do electronic commerce because of the issue that we must be able to protect the integrity of the information that goes across the Internet.

Privacy is also an incredibly important issue. That is why the entire community on the Internet, all of the stakeholders, the information technology industry, and all the people that are selling over the Internet, are working together for an important self-regulatory effort, the Online Privacy Alliance.

You may have seen the results of the privacy survey that came out just a couple of weeks ago that was done by Georgetown University. It indicated the dramatic increase to now over 70 percent of all Web sites, and something like 90 percent of the most heavily trafficked Web sites having very explicit, clearly posted privacy policies. This is because individual consumers as well as business people, when they come to the Web sites and they do a commercial transaction, want to know that their privacy is being protected. They want to understand what the privacy roles are of the merchants they are doing business with. So when you decide you are going to stop walking down the street and handing out a check and ordering lobster online.

Senator BURNS. I am not going to do that.

[Laughter.]

Mr. MILLER. Whenever your children or grandchildren or friends and neighbors begin to do that, they want to be sure that the information they are giving is first of all trusted and confidential, and is not going to be stolen by some hacker or given away. They want to make sure that the information they are giving to a merchant is not then going to end up in the hands of hundreds and thousands and millions of other people who have no right to that information, except to somehow take advantage of it for purposes that do not serve your interest as the consumer.

Senator BURNS. Mr. Callcott, I am interested in—give me some kind of ideas of the problems you run into, and what your biggest complaint is when individuals start doing business with Schwab on an individual basis in the market. I know it cannot be all roses. Give me your idea, your biggest challenge you have.

Mr. CALLCOTT. Well, the biggest challenge we have had, and I think it is true for a number of people in the securities industry,

is keeping up with the customer demand for our services. Last year we had almost a 1,000 percent increase in the capacity of our Web site, and this year we are going to increase the capacity of our Web site another 900 percent.

To do that is a complicated matter. We have gone from two mainframes at the beginning of last year. We are going to have 10 mainframes by the end of next month. That is very complicated to do, to add that much additional capacity, and as a result we have had a few times where our Web site has gone down.

Now, I must say, our Web site has gone down on average between 1 and 2 hours per month so far this year, which we will put up against any computer system anywhere in the country, especially one that is adding capacity as fast as we are, so I think that is an area, like the privacy area, where the market is very aware of what the issues are, and the market is addressing those issues.

But if I can followup on your encryption question, Schwab runs what we believe is the largest secure encrypted Web site in the world. Any time you are looking at your customer account data, you are doing research for a security you might buy, or are trading, that is all coming back to you in a secure, encrypted form, and that, of course, takes much more capacity to run than an unencrypted Web site.

Similarly, we were a leader in posting our privacy policy on our Web site. I think we were the first brokerage firm to do that, and we think that is absolutely critical for our customers, and in the privacy area our view is that if people—people should be required to post a privacy policy, and if they violate that policy, they should be subject to sanctions, but we do not support sort of broad Federal legislation telling firms what their privacy policy should contain.

Senator BURNS. You have a person, let us say, violates the law. How tough are they to find, and how tough are they to prosecute?

Mr. CALLCOTT. We have had less problems with fraud in the online area, frankly, than in the telephone area, where we have had problems of what is called account takeovers, where people will call up and impersonate a customer. Every time you go onto the Schwab Web site, if you are a customer you have got to use your password, and so far we have had very few instances where people have had their passwords stolen or mislaid. It is frankly not one of our top three security problems that we have had.

Senator BURNS. Thank you, Mr. Chairman. I just think that these other elements are very important as we walk hand-in-hand with this legislation, and I am certainly happy that the chairman of the full committee has come to the altar on encryption.

[Laughter.]

Senator ABRAHAM. Thank you, Senator Burns. Before I turn to Senator Wyden, I just will indicate that Senator Lott is also one of our original cosponsors and has provided us a statement for the record which we will enter into the record of this hearing.

[The prepared statement of Senator Lott follows:]

PREPARED STATEMENT OF HON. TRENT LOTT, U.S. SENATOR FROM MISSISSIPPI

Senator Abraham, thank you for holding this important and timely hearing on the Millennium Digital Commerce Act. A solid legislative measure that will promote exponential growth in electronic commerce.

Your sponsorship of this bipartisan legislation is yet another example of your continuing leadership on important technology issues. I am truly grateful for your efforts to author and spearhead common sense legislation that both directly and indirectly benefits the citizens of Michigan, Mississippi, Arizona, and every other state.

This hearing follows the Department of Commerce's public conference on "Understanding The Digital Economy—Data, Tools, and Research." A workshop that included leaders from industry, government, and academia. Government-sponsored conferences and Congressional hearings, like the one being held today, that explore the challenges and opportunities of the Internet and approaches to facilitate electronic commerce, are good for all Americans.

As my colleagues are aware, it was Senator Abraham's initiative last year that led to the 105th Congress' enactment of the Government Paperwork Elimination Act. An important first step toward the eventual broad use and acceptance of electronic signatures. The act, now law, requires Federal agencies to automate their forms and allows computer users to complete, electronically sign, and submit government forms online.

Because of Senator Abraham's efforts, the Federal Government will save thousands of square feet of storage space. More importantly, Americans in every state, every county, and every city and town will save countless hours completing and submitting government paperwork. It will allow parents to spend more quality time with their children and will save them billions of dollars over time.

The Government Paperwork Elimination Act, which I proudly cosponsored, was also supported by the Administration. This good government measure also facilitates the Federal Government's transition to a paperless document management system. It allows agencies to collect and maintain forms and other records faster, easier, and cheaper.

Now it is time for the 106th Congress to take the next logical step. To enact e-commerce friendly legislation that is a direct outgrowth of and a natural extension to the Government Paperwork Elimination Act.

Senator Abraham, your bipartisan Millennium Digital Commerce Act provides a baseline national framework for online business to business transactions. It is important to interstate commerce because it provides legal standing for electronic signatures on contracts and other business transactions.

As we all know, advancing interstate Commerce and establishing appropriate and necessary parameters for state-to-state transactions falls squarely within Congress' jurisdiction under Article I, Section 8 of the Constitution of the United States.

Electronic signatures are a revolutionary communication tool. Unlike manual signatures, which can easily and fraudulently be duplicated, automated signatures are highly controlled and extremely safeguarded. A document that contains an electronic signature is far more secure than a hardcopy signed and passed off by hand. While someone can easily make an unnoticeable pen and ink change to a paper document, an electronically signed file becomes invalid if any of the data in it is altered or eliminated. Electronically signed documents can also provide additional security measures by automatically time and date stamping a document so all parties to the agreement know exactly when the signature was placed. No more post dating that electronic check. Electronic signatures are an emerging technology that will springboard even greater electronic commerce than our nation has experienced to date.

As Secretary Daley commented just last month, "the proportion of retailers selling on the Internet tripled in just one year, from 12 percent in 1997 to 39 percent in 1998. In the year 2000, Internet shopping is expected to generate $30 billion [in revenue]."

Promoting continued growth in electronic commerce is good for business, consumers, and the overall American economy. It is Congress' responsibility to ensure that roadblocks to the e-commerce superhighway are taken down.

Senator Abraham's bill, which Chairman McCain, and Senators Wyden, Burns, Allard, and I have cosponsored, would help eliminate one potential barrier that stands in the way of progress.

The Internet is local, regional, national, and global. Businesses and customers are becoming increasingly frustrated with the hodgepodge of state laws aimed at governing what is clearly a ubiquitous communication tool. Today, more than forty states have laws on the books concerning the use of authentication technology such as electronic signatures. While such rules are well intentioned, the fact that no state has chosen to adopt the same approach has had a chilling effect on the potential growth in interstate commerce available through the World Wide Web.

Congress cannot sit idly by and watch the milieu of state laws on electronic signatures adversely impact electronic commerce. Interstate and international commerce that benefits us all. Commerce that is a significant contributor to our nation's eco-

nomic health. Commerce that creates new businesses, big and small, and thousands of new jobs all across the country.

In our fast-paced global and highly technical environment, where time is money, companies transacting business across state lines need assurance that electronically signed documents are fully and legally executable. Senator Abraham's measure will ensure that businesses located in different states are held to their agreements and obligations even if their respective states have different rules and approaches concerning electronically signed documents. It creates a much needed level playing field across all fifty states. It is a baseline—not a floor. It is an approach that recognizes that all states in the union need to participate if America is to have a successful electronic signature regime.

The Millennium Digital Commerce Act is a much needed and timely precursor to state-by-state adoption of the Uniform Electronic Transactions Act (UETA). Once UETA is finalized, its enactment by all fifty states is not expected to occur for several years. Those who want to transact business online cannot wait until then. They want Congressional action now. They are looking to the members of this committee for leadership now.

Without objection, I would like to introduce a few documents into the record, following my statement, that will help inform the discussion we are having today. The first is an April 1998 report from the Department of Commerce on "The Emerging Digital Commerce" and a specific appendix from the report on "Electronic Commerce Between Businesses: Analysis and Case Studies." The second document is an Executive Summary of the OECD's report on "The Economic and Social Impact of Electronic Commerce." [1]

In its report on the digital economy, the U.S. Department of Commerce concluded that:

> Internet Commerce is growing fastest among business. It is used for coordination between the purchasing operations of a company and its suppliers; the logistics planners in a company and the transportation companies that warehouse or retailers that sell its products; and the customer service and maintenance operations and the company's final customers.

The report goes on to say that:

> Companies are quickly moving to utilize the expanded opportunities created by the Internet. For instance, Cisco Systems, Dell Computers and Boeing's spare parts business report almost immediate benefits after putting their ordering and customer service operations on the Internet. They are so convinced of its benefit to their own companies and their customers that they believe most of their business will involve the Internet in the next three to 5 years. . . . Growth of business-to-business electronic commerce is being driven by lower purchasing costs, reductions in inventories, lower cycle times, more efficient and effective customer service, lower sales and marketing costs and new sales opportunities.

Senator Abraham, enactment of your bill is an important interim step toward eventual national uniformity. The kind of uniformity needed to support electronic commerce. Baseline national standards that the Commerce Department's case study participants, Federal Express, Cisco Systems, Dell Computer Corporation, Boeing, Garden Escape, W.W. Grainger, and General Electric, can realize the tens of billions of dollars worth of online transactions possible as a result of Congress' enactment of the Millennium Digital Commerce Act.

Senator Abraham's Millennium Digital Commerce Act merely establishes legal certainty for electronic signatures when they are used for interstate business transactions. It strikes a necessary balance between a state's individual interests and the need for reciprocity among and between states. It fosters the expansion of trade on a state-wide, national, and international basis while promoting continued innovation.

This much needed and desired legislation is technology neutral. It allows businesses to determine their own methods for executing online transactions. It also establishes guiding principles for the use of electronic signatures for international transactions. A framework founded on open, non-discriminatory standards. Last, this legislation requires Federal agencies to identify rules or regulations that impede electronic commerce and make recommendations for improvements. Another important step toward eliminating unnecessary and harmful barriers to trade.

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[1] This material is maintained in the Committee's files. In addition, the U.S. Department of Commerce Report, "The Emerging Digital Economy" and Appendix 3, "Electronic Commerce Between Business: Analysis and Case Studies" can be obtained at www.ecommerce.gov/emerging.htm.

Our trading partners east of the Atlantic are already working toward recognition of electronic signatures. The United States should not—cannot—lag behind our industrial trading partners.

I also appreciate Chairman McCain's efforts to move the Millennium Digital Commerce Act forward. Today's hearing and the questions and answers provided by the esteemed panel before us, will help move the Commerce Committee forward on this necessary journey.

This important pro-technology, pro-electronic commerce legislation will help stimulate our nation's economy and move us forward into the 21st Century.

I hope my colleagues on both sides of the aisle will consider the bill's merits and join in supporting this legislative effort.

Again, I want to say thank you to Senator Abraham for his continued stewardship on technology and other public policy issues facing Congress. The folks back in Michigan should be proud to have you here promoting their interests.

Senator ABRAHAM. Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman. I think Senator Burns' questions were very helpful as well, and I only have a couple of followups. In fact, you all were so supportive in your statements one is almost thinking one should quit while one is ahead.

[Laughter.]

We will get the proxies and move this. One question I had for you, Mr. Callcott, is, tell us the difference in terms of time saved between what we have today with the filing of all the paperwork that you are talking about and what would happen under the legislation that we are talking about here. What kind of time will actually be saved, in your judgment?

Mr. CALLCOTT. Again, it depends on a variety of circumstances.

Senator WYDEN. Take a couple of transactions and tell us the amount of time saved.

Mr. CALLCOTT. Well, let us take, for example, a wire transfer request. That is a transaction which we will not—you can trade securities online today without getting a manual signature, just as you can trade over the telephone, and have been able to for decades.

A wire transfer request by contrast is something which every brokerage firm requires a signature to process. You do that online, your wire transfer can be sent within a matter of minutes. If you do not go in an online environment you will have to drive into a Schwab branch. If you drive into a Schwab branch we can process that wire transfer request probably same day but maybe not until the next day, depending upon on the West Coast you are probably not going to get in on time to meet that day's batch of wire transfer requests.

If you are sending it in by mail, 3 to 4 days, maybe 5 days, depending if you are in a part of the country that has slow mail delivery, so we are talking about the difference between days and minutes.

Mr. MILLER. Senator Wyden, I think there is a cost factor, too. Clearly, when I register with my online broker by mail, they have to have someone to open the envelope, sort it out, process it, review it, enter the data into a system, as opposed to being able to register online, where basically you're removing all those costs. That would enable the consumers to benefit, because then the online brokers could offer even better services.

Mr. CALLCOTT. Just to followup, that is exactly right, and that has allowed us in online trading to drop our commission from the several hundred dollars you would pay at a New York full commis-

sion firm to $29.95 for our firm, and there are other firms that charge even less.

We would similarly view in the area of some of these other kinds of documents the kind of cost savings that we can pass on to our customers in the form of lower commissions and transaction charges.

Senator WYDEN. It would seem to me, as I listen to you particularly, and having watched Schwab and various advertising efforts you have made, this bill is going to change millions and millions of transactions all across the country, transactions that used to take days and mail and people can be accomplished, in effect, in minutes. I think, Mr. Chairman, that it would be helpful, and I think we have done this—you and I have done this on a number of occasions, to maybe just hold the record open, and if you all could give us a couple of examples from your own experience that we could cite as this discussion goes forward, I think that would be very helpful, and that would be the first question.

The second question that I had is, you will recall with respect to the Internet tax freedom legislation we had quite a dust-up in our efforts to work with the various States and local jurisdictions around the country. I think Chairman Abraham has worked very responsibly in this kind of area to try to avoid that this time out.

What we basically said—and I gather we have got Massachusetts, Michigan, New Jersey, New York, Pennsylvania, and South Dakota at this point without laws on the books. We have got a number of States that have inconsistent language. I am going to ask you about that in a second, but what the chairman and I have essentially said is, we are going to let the States do their thing where you have valid business contracts while there is this effort to come up with a uniform kind of approach.

Is it your judgment that that kind of Federal-State effort to sort this out will help us to avoid some of the friction that we had on the Internet Tax Freedom bill, and in effect made it very hard to enact that legislation for months and months, and it was only at the end of the session that we finally got it together? Is it your view that this Federal-State approach is going to avoid some of that?

Mr. CALLCOTT. Let me speak for Schwab on that. First, we would like to thank you for your efforts on behalf of the Internet Tax Freedom Act, and similarly for your bipartisan efforts on this bill here today.

Our view is that this bill sets a sort of minimum standard but allows the States freedom first of all to work through the Uniform Electronic Transactions Act which a number of the panelists have mentioned here today, but also to set—where there are specific consumer protection issues that warrant different treatment, the States will be free to do those, to impose those, and similarly in the securities bill, S. 921, the SEC will be able to set specific consumer protection standards at the Federal level for securities investors. So we believe this bill does reflect the principles of federalism that will allow the States to do what they feel they need to while setting a minimum standard that gives all of us the level of certainty and uniformity we need to move forward with electronic authentication.

Mr. CAMPBELL. If I can jump in on that, because that addresses matters of State policy. First, I should point out that Massachusetts is one of the very few States that supported the Internet Tax Freedom Act. We are always in favor of pretty much any tax reduction or tax moratorium that you people can come up with. That is one area where we do not mind preemption.

Also, you mentioned the States that do not have electronic signature legislation. Massachusetts is one of them, and really that was a conscious decision. We have been such champions of a minimalist approach to electronic signature legislation that we have taken it to its logical conclusion and simply not filed legislation.

We have a court decision that has been handed down in Massachusetts that found that an E-mail message satisfied the legal requirement in a particular transaction that required a statement to be signed under the pains and penalties of perjury, and the court felt that an electronic E-mail message satisfied that requirement so we think in Massachusetts under the common law you get to where you need to be, and we do not need any legislation.

But in terms of the preemption issue, I think that the Congress should tread very lightly when preempting the States in this particular area, and I say that not out of some turf or jurisdictional type of thing, but one of the fundamental principles I mentioned in my opening statement was that to the greatest extent possible you should leverage and build on and take advantage of the incredible strengths and stabilities provided by hundreds of years of common law development in the States in dealing with commercial transactions, and so it is not a territorial type of thing, but it is just, I think you get better law when you do not throw out tested bodies of law and introduce untested concepts.

But having said that, this bill treads extremely lightly, and therefore we feel we can support it. It is limited both in terms of the time that the preemption will occur, because upon enactment of the Uniform Electronic Transactions Act the preemption goes away, but also it is very limited in scope. It only applies to interstate commercial transactions, not all bodies of law dealing with signing requirements and, furthermore, it only preempts State law to the extent that it is inconsistent with the principles articulated in the bill, so that is such a judicious use of preemption that we think it is entirely appropriate and it can be supported.

Senator WYDEN. How serious are some of these inconsistencies that we are seeing at the State level? I gather from some of the reports that in some States they use electronic and digital interchangeably.

Now, I gather you can have something electronic that is not digital, but are these the kinds of terms that are really going to cause problems, or is this a more ministerial kind of exercise to try to get some agreement, and something we ought to be able to do fairly quickly?

Mr. PARKER. I have been involved in this effort, I guess starting back from the American Bar Association's uniform digital signature guidelines, I guess about 3 years ago now, and like I said, Utah was the first State to create a regime. Utah has what I call the extreme in terms of really trying to regulate almost every aspect of the digital certificate process, but there are inconsistencies all

across the board. I mean, every place you look you can kind of find inconsistencies when you have 40-some approaches to unifying inconsistencies.

Now, in fairness, a lot of these inconsistencies are not mandatory. What I mean by that is, a lot of the statutes are such that you do not have to apply them. You can take advantage of them on a voluntary basis, and then you get certain protections once you have opted into the regime, and so I think if you look at some of these statutes you would say, "Yeah, they are inconsistent, but they are inconsistent only in a limited way."

So I think when I look at this, kind of the whole picture, I think there are places clearly on liability, for example, where they are inconsistent. This legislation does not deal with liability, nor should it. That is a place where the Electronic Transactions Act, the uniform State effort, probably will come in and play some role.

But the more important place where you see inconsistency is kind of how the States look at this. Some States look at technology-specific solutions, digital certificates. That is a classic one, because a lot of States say, this is the technology that is around today, so this is the technology we are going to endorse. It does not mean that there are not other technologies, but they looked at the one that was around when they passed the legislation.

So when you look at this you say, "Well, you get certain protections if you use digital certificates," but you do not get certain protections if you use other forms of technology, then you can start to see that even though it is, "voluntarily in some respects," that it creates this body of law that really makes it confusing for business to really play in this space.

So I think that is where you really will find this, and as a result business, because of the fear—and there is a lot of uncertainty out there of what has happened here. When you look at 42 regimes, that means you have to think about this. Even if you conclude it is voluntary in many respects, and I am now a company, I want to do business out there, what do I have to do, I have to go hire law firms in 42 States to figure out what those inconsistencies are, how thy are going to apply to my specific business, what does this mean to me, and that is a chilling effect on electronic commerce.

So when I listen to this voluntary argument, because I have heard it for the last few years, I think it really does not understand the concerns of business and why you need something like this, which sets a baseline, very baseline, this bill does, playing field.

Mr. CALLCOTT. Let me just followup on that to say, digital signatures has come to be understood by an awful lot of people in several of the State laws to refer to a specific kind of technology, the public-private key infrastructure technology, which I think all of the panelists today have said is one of many possible technologies, and we do not think legislation should choose one technology over another.

Many of the State laws that exist today only deal with transactions with the Government itself, much as the Federal legislation that you pioneered last Congress, and the greater problem from our perspective is that in many States there are literally thousands of signature requirements in existing State laws.

They are frequently phrased differently, but many of them can be interpreted as requiring a manual pen-and-ink signature, and it is a very difficult process for States to go through and amend hundreds or even thousands of different State laws to remove that bias toward pen and ink, and that is why we think this sort of uniform standard saying that you cannot discriminate against a signature solely because it is electronic is very valuable, because it frankly saves the States from having to go through that monumental process of reviewing State laws and repealing and amending them.

Senator WYDEN. Mr. Chairman, I have to go off and fight the crusade to get the Y2K liability reform legislation moving again.

Senator ABRAHAM. I am sure the panelists would prefer you to stay.

[Laughter.]

Senator WYDEN. I am going to leave saying we very much appreciate the panelists, and though I am departing, I remain your lieutenant in this cause, and look forward to working with you and getting it passed.

Senator ABRAHAM. Thank you, Senator Wyden. We appreciate, as I said earlier, what you have been doing to help us on this and other legislation, and actually we will probably have to end this hearing fairly soon because I understand there are several rollcall votes that have been set for just a couple of minutes from now, and obviously, as I think Senator Wyden indicated, when a panel is as supportive of legislation as this one has been, it is probably wise to not open any additional opportunities for criticism.

I do want to stress that we have tried to work with both the chairman's office here of this committee and the Ranking Member to offer opportunities to anyone that they might suggest as possible witnesses who might offer differing views, but I do think none have been forthcoming, and I think we have tried to work out with various people on this committee as well as elsewhere in the Senate as many of the issues that we did encounter that we raised when we initially began working on this.

As I indicated in my opening statement, we want to continue that effort to the extent we hear of things that might pose potential impediments either to the passage of the legislation or because of the content of the legislation might be difficult in some fashion in terms of achieving our goals, and so I want to just limit myself right now to one or two things, and we will leave the record open for a while if you all would like to respond and followup to Senator Wyden's request.

Because I think, as he indicated, the more anecdotal information and evidence that we can add to, obviously, the very substantial amount of objective, substantive information, it helps us to try to explain to people in a more specific way exactly why this is important.

There are two things I just wanted to maybe have response on. One is the international issues, and Mr. Miller alluded to it a little in his comment, but when he did, I think several of you nodded your heads in agreement about the efforts within this bill to try to position the United States in the best possible fashion for any kind of international effort, and I would just throw it open.

We will start with you, Mr. Miller, and just go down the table. If there is any comments anyone would like to add as to both: (1) how this bill will be helpful to that process, as well as any thoughts you might have on what we should be attempting to achieve, I would like to hear it for purposes not only of this legislation but potentially for dealing with future legislation.

Mr. MILLER. Well, the key is your bill, Senator, is a win-win situation. If you look at the States versus the Federal Government, as Mr. Campbell and others have said, it is not a win-lose situation. Some people thought, incorrectly, that the Internet Tax Freedom Act, for example, was a win-lose: where they thought that somehow the Federal Government was taking something away from the State government. They thought if this law passed, they would lose the certain degrees of freedom that they had.

This bill moves in the direction of saying, as long as there is consistency among the States, Federal preemption, can be removed. We have to try to achieve the same thing internationally.

Obviously, we do not want to challenge the sovereignty of other Nation-States, or groups of Nation-States such as the European Union. But we have to convince them, through the arguments of persuasion, that we are a part of the global economy, and all of these companies who are doing business on the Internet globally, need consistent laws.

That they can still maintain their national laws, or subnational laws in areas like consumer protection and, in particular, laws regarding signatures. But at the same time there has to be a consistent baseline, as Mr. Callcott said, across the global economy: an understanding that as long as there is consistency that these transactions done electronically, whether they are done from someone in Boston to someone in San Francisco, or someone in Boston to someone in London, they still have the same force of law.

The enactment of your legislation we hope very quickly would send a very strong signal around the world, because the United States is the information technology leader and the electronic commerce leader. It would send a very strong positive signal to the international community that wants to be a part of this exciting global economy, that wants to emulate what we have done in the national environment.

Mr. CALLCOTT. I would agree with all of that. Schwab has the first and largest online brokerage firm in the United Kingdom. We recently established an online brokerage firm in Canada. We believe there is enormous potential international growth for online commerce, and it is very important for the United States to be a leader in this type of legislation and to establish standards which we think other countries will copy, because we are the leader, and we have remained the most successful.

One of the points I think one of the earlier panelists made was that if we do not do this and we have conflicting laws in the United States, that could put us at a competitive disadvantage vis-à-vis the European Union, where they are moving toward uniformity on this issue.

Mr. PARKER. Let me give you an interesting approach to this, which is that we do business in 40 countries, approximately, on the Internet space, so I have traveled abroad, I have been in Japan,

and Asia, and Europe, and this issue comes up, and it comes up in this context.

We say, “Look, we have global reach.” That is where a lot of our business really is. American companies are trying to do business abroad, not so much companies that are sort of indigenous to other countries, and we go in there and we say, “Really we need international uniformity,” so we should all sit in these groups and say, “You know, we should have international uniformity.”

The response you get back is one, well, “how could you guys be pushing for international uniformity when you do not even have national uniformity, and it really takes away the credibility of our argument that we should have international uniformity” when we cannot get our act together at home, essentially.

That is one perspective, and I will tell you, it is an important one, because you really feel it when you go over and you are making these arguments, and so it is what I will call the loss of leadership in this area, and this is a space, by the way, that the United States basically invented, much like the Internet, and would be ashamed, because we cannot do this, because we cannot pass a bill like this, to lose that leadership position.

The other thing is, there is a real practical problem for American companies, and that is, the Internet really does in very many respects transcend international boundaries, and so I think what we do is, we get this bill passed in terms of having this baseline national uniformity, then we go out there, as the bill suggests, and we negotiate from a position of strength for international uniformity, and I think we will find a lot of receptiveness around the world, having done this at home.

Mr. CAMPBELL. I think it is an excellent idea, sort of putting a stake in the ground essentially saying the U.S. Government, in pursuing international uniformity, is going to be abiding by certain principles, the principles are articulated in this bill, because I think it is the most sensible approach, the technological neutrality, nonregulatory approach.

I would like to point out that the Commonwealth of Massachusetts, and actually the National Electronic Commerce Coordinating Council, which is a group of State organizations, have endorsed through formal resolution the proposed U.S. convention that is being pursued by our negotiators, and the principles set forth in Senate bill 761 are completely consistent with the position that our negotiators are taking in a variety of forums, whether it be UNCETRAL or OECD, or the European Union.

So I think it is great to have a piece of legislation in place that puts a stake in the ground that says, “This is the American position.”

Senator ABRAHAM. As I said, we have got votes coming pretty quickly, and we have appreciated very much everybody’s contribution here. I will certainly leave the record open, as I said, for other members if they want to add questions, and hopefully given the support we have heard today, we can move this legislation forward here in the Commerce Committee.

I am happy to report, as I did in the opening statement, that we have the support of both the chairman of the committee as well as the Communications Subcommittee chairman, Senators McCain

and Burns, and the Majority Leader as well, so I think that, combined with Senator Wyden's strong efforts on our behalf and his co-sponsorship gives us a good chance to move this quickly, and we will do our best to accomplish it.

I want to thank the panel as well as our guests today for today's hearing. We have appreciated your participation.

[Whereupon, at 11:20 a.m., the committee adjourned.]

APPENDIX

CHARLES SCHWAB & CO., INC.,
San Francisco, CA, June 21, 1999.

Hon. SPENCER ABRAHAM,
Committee on Commerce, Science and Transportation,
U.S. Senate,
Washington, DC.

Re: Millennium Digital Commerce Act (S. 761)

DEAR SENATOR ABRAHAM: At the May 27, 1999 hearing on the Millennium Digital Commerce Act before the Senate Committee on Commerce, Science and Transportation, Senator Wyden requested that the record be held open so that Charles Schwab & Co., Inc. ("Schwab") could provide supplemental information. Specifically, Senator Wyden asked us to provide an example of how the bill could result in time and cost savings for Schwab and its customers. This letter responds to Senator Wyden's request, and we ask that it be made part of the record as a supplement to my written testimony.

The account opening process is the best example of how the ability to accept electronic signatures could save Schwab and its customers significant time and expense. Currently, in order to open a brokerage account, we require the handwritten signature of the customer on an account application. There are two main ways in which retail customers open accounts at Schwab.

First, a customer can bring a completed account application into one of our branch offices or can come into the branch and fill out an application there. If the customer wants to deposit a check or make a trade immediately, a branch employee will open the account and the customer will have access to the account that day. Otherwise, the application will be accepted by the branch and mailed overnight to the nearest operations center where an account will be opened within one to 3 days. In order to take advantage of this method, a customer must take the time personally to visit a Schwab branch.

Second, a customer can fill out and manually sign an account application and mail it to one of our operations centers. Depending on the customer's location, it may take anywhere from two to 5 days for the application to reach us. Once received, the application must be reviewed by an employee in our operations center to make sure it is complete and has been signed by the customer. Depending on the volume of applications received, this can take as long as 48 hours. If the application is complete, an account is opened and the customer may begin trading or otherwise transacting business with us. However, if any information is missing, the account opening process will be further delayed.

If the customer has forgotten to sign the application, it must be mailed back to the customer for signature and then remailed to us by the customer. Since the customer may take a day or two to sign and remail the application, this can add anywhere from four to 10 days to the process. In the case of other types of missing information, such as a social security number, Schwab makes three attempts to reach the customer by telephone over a 72-hour period. If these attempts are unsuccessful, the application must be mailed back to the customer with instructions to provide the missing information.

Thus, under the best of circumstances, this manual process can take from two to 6 days to complete. If there are problems, it can take considerably longer. In our experience, between 15 percent and 20 percent of all account applications require some form of followup to obtain missing signatures and information, thus delaying the process for the customer and requiring the commitment of employee resources by Schwab.

Until the account opening process is complete, a customer cannot place a trade. Thus, for example, a customer who wishes to open an account so that he or she can sell a security will be at market risk until the account opening process is complete

and Schwab can accept a trade. In a falling market, depending on the size of the customer's position, the customer's potential loss could be substantial.

In contrast to these current means of opening an account, were we able to accept applications bearing an electronic signature, the account opening process could be reduced to a day or less. This would not only greatly benefit customers, but would result in considerable cost savings to Schwab, primarily in employee resources which could be redirected into areas of productive customer service.

We appreciate the opportunity to provide this supplemental information to the Committee, and would be happy to provide any additional information you might require.

Very truly yours,

W. HARDY CALLCOTT,
Senior Vice President and
General Counsel.

PREPARED STATEMENT OF PENOP, INC.

PenOp, Inc. is pleased to submit this statement in support of S. 761, the Millenium Digital Commerce Act (MDCA). S. 761 builds upon the foundation for electronic authentication that was put in place through the enactment of the Governrnent Paperwork Elimination Act (GPEA) during the last Congress. PenOp is proud of its role in supporting the GPEA in hearings before the Commerce Committee last July, and we appreciate being invited to participate in the working group that provided technical input during the drafting of the MDCA.

OVERVIEW

The GPEA established three basic policy principles for the utilization of electronic signatures by Federal executive branch agencies:

- A general rule mandating acceptance of electronic authentication by Federal agencies by a date certain.
- An explicit policy of Federal neutrality regarding acceptable authentication technologies.
- A clear sense of Congress that electronic contracts are the legal equivalent of physical contacts.

The MDCA would buildupon that sound foundation by establishing key principles guiding the use and acceptance of electronic authentication in interstate commerce:

- A contract used in interstate commerce shall not be denied effect solely because an electronic signature or record was used in its formation.
- Parties to an interstate contract shall be free to determine the technologies and business methods utilized in the execution of electronic contracts.
- In international discussions, the U.S. Government shall continue to champion technology neutrality based upon freedom of contract.

PenOp endorses these principles and urges expeditious favorable action on S. 761 by the Commerce Committee.

PENOP'S PERSPECTIVE ON ELECTRONIC AUTHENTICATION

PenOp has spent the last several years assisting private and public sector organizations to employ electronic authentication in their business and official activities. PenOp has also been an active participant in a wide variety of public policy forums. These include various sections and committees of the American Bar Association; the National Conference of Commissioners on Uniform State Laws (NCCUSL) Drafting Committee on the Uniform Electronic Transaction Act (UETA); the United Nations Commission on International Trade Law (UNCITRAL) Working Group on Electronic Commerce; and various bodies within the European Union (EU). PenOp has provided its views on electronic authentication in testimony before this and other Congressional Committees, and to numerous state and Federal agencies. PenOp authentication software is now employed on a daily basis by pharmaceutical, financial services, and other private sector firms, as well as units of state and local government.

PenOp's best-known product is its biometric authentication software. This software analyzes 90 separate biometric measurements of a handwritten signature applied to a digitizer pad. It then cryptographically binds that analysis to an electronic document to provide both authentication that a particular person has signed it with the legal intent necessary to be considered a signature, as well as non-repudiation protection against alterations of the document made subsequent to its signing.

More recently, PenOp has developed and is now marketing software for its Uniform Document Authentication Component (UDAC). UDAC allows any type of au-

thentication technology or combination of technologies—biometrics, personal identification numbers (PINs), private cryptographic "keys," or even credit card numbers—to be captured as legally effective signatures.

PenOp's extensive legal research on the law of signatures has established that the creation of a binding electronic signature rests on four basic components, each of which is satisfied by our software:

1. Symbol of intent. This is any symbol that the user intends to use as a signature.

2. Link to signer. This is the gathering of evidence that links the symbol to a specific signer.

3. Ceremony. This is a series of manual and visual steps that inform the signer of what is happening and thereby conveys the understanding that is essential to establishing requisite legal intent. *It is critical to understand that normally a process which automatically affixes an electronic symbol to an electronic document is deficient as a legal signature because it lacks the element of intent—the informed and conscious choice of an individual to be bound to a specific record or transaction.*

4. Transcript. This is a secure record of the signing event showing what occurred, when, and under what circumstances and that is available to any judge or jury if a signature is challenged in the future.

COMMENTS ON S. 761

The most important provision of S. 761 is its definition of "signature". That is because it is broadly inclusive—encompassing *any* symbol, sound or process—so long as it is executed by a person with intent to authenticate or accept a record. Preserving the requirement for intent as commerce moves into cyberspace is a critical protection for both individuals and businesses. It protects individuals because it assures that they will not be bound to contractual obligations by automated or incomprehensible processes in which they did not knowingly intend to partake. It protects businesses because, once intent is present, they can be assured of a binding contract if a subsequent challenge occurs.

While we applaud the incorporation of the requirement for intent within S. 761's definition of "signature," we urge the Committee to strengthen this critical protection through appropriate legislative history. In particular, the report on S. 761 should clearly state that the utilization of an appropriate ceremonv in the signing process, regardless of the technology employed, is necessary to inform signers that they are binding themselves to specific legal duties subject to penalty for nonperformance and/or false statements. Such legislative history is consistent and explanative of Section 6(d) of the bill, which states that the intent of a person to execute or adopt an electronic signature shall be determined from its context and surrounding circumstances, including accepted commercial practices.

We are also particularly supportive of provisions of S. 761 that:

- Permit the parties to an interstate transaction to establish by mutual contractual agreement the technologies and business models acceptable for their use and acceptance of electronic signatures and records.
- Preempts state law only to the minimal extent necessary to provide assurance of the validity of interstate electronic contracts.
- Reinforces the negotiating position of the U.S. in international forums in support of freedom of contract and technology neutrality.
- Mandate that Federal agencies identify all provisions of law and regulation that impose a barrier to electronic transactions, and report those findings to Congress where remedial legislation is required.

CONCLUSION

PenOp appreciates its inclusion in the development process for S. 761. This narrowly drawn but nonetheless important proposal can accelerate the growth of electronic commerce by providing assurance of the validity of interstate electronic contracts. S. 761's perpetuation of traditional signature law's intent requirement into the realm of virtual contracts preserves a fundamental protection for individuals utilizing new electronic technologies.