

# Final Report, 1999

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### IEEE-USA Congressional Fellow

I recently spent one year working on legislative staff in Congress, as a Congressional Fellow of the IEEE-USA. This report summarizes my activities, and my observations about this important IEEE-USA program.

## My Positions

As an Associate Professor at Carnegie Mellon University, I spent eight years working on the technology of telecommunications and computer networks, as well as the associated policy issues. I chose to address the same kind of policy issues throughout my time in Congress. However, I split the year between two very different positions, giving me an extraordinary range of experiences.

I spent half of the year as one of two telecommunications specialists on Minority Staff of the House Commerce Committee, which includes the Telecommunications Subcommittee. Since House Members have small personal staffs, the specialists are often on committee staff. House committee staff have primary responsibility for oversight hearings, and the mark-up of legislation. This was a remarkable vantage point to observe, and participate in, many of the telecommunications-related debates in the House during 1999. This staff supported the efforts of all minority Congressmen on the Commerce Committee, but we worked directly for Congressman John Dingell. After more than four decades in Congress, Mr. Dingell is a leader of his party and the Senior Member of the US House of Representatives. He has spent many of those years as Chairman of the powerful Commerce Committee. As most of his allies and adversaries alike would acknowledge, it would be difficult to find anyone who can understand and control the legislative process as well as Congressman Dingell. Consequently, working with him was a marvelous learning opportunity.

I then moved from a committee position in the House to a personal office in the Senate. I spent the second half of the year working for Senator Ron Wyden of Oregon. Despite his many years in the House, Senator Wyden is relatively junior in the Senate, which is another reason for the contrast with my first position. Nevertheless, Senator Wyden has been influential, in part because of his ability to build bipartisan support for his initiatives, and to identify important new areas for legislation which naturally do not yet have entrenched positions. He and his energetic staff are a continuous source of new ideas, from the passengers' bill of rights to physician-assisted suicide. One reason for my interest in working for him was his serious interest in emerging issues of electronic commerce. The final impetus for my decision was a court case that became the front line of one of the most important telecommunications debates in recent years. In *Portland vs. AT&T*, the Court must decide whether any restrictions can be imposed on cable operators to open their networks to potential competitors. As the Senator from Portland and an active member of the Senate Commerce Committee, Senator Wyden will play an important role on this critical issue, and he wanted more staff to support him. I joined to become the one member of his staff entirely devoted to telecommunications and electronic commerce issues.

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## Activities and Accomplishments

In general, Congressional historians will view 1999 as a year with considerably more activity than accomplishment. Nevertheless, I had the opportunity to work on many fascinating issues. Here are some of the highlights.

### Broadband Internet

Telecommunications policy debates in congress have long focused on telephone services; the voluminous and supposedly comprehensive Telecommunications Act of 1996 only mentioned the Internet twice. However, Internet data traffic now exceeds telephone voice traffic in volume. This shift is bringing new policy issues to the forefront, including the following. Some legislation is already under consideration. Perhaps more importantly, the groundwork is being laid for future action.

One such issue was introduced in the previous section, in relation to the *AT&T versus Portland* case. Many carriers are now deploying new technology that will allow consumers to access the Internet at data rates exceeding 1 Mb/s, more than 20 times what dial-up access can offer. When a Bell telephone company offers these broadband services, the company must allow competitors to provide services over its infrastructure. When a cable company offers a comparable service, it does not face similar obligations. There is considerable debate as to what the current law requires, and what the law should require.

These new broadband services are naturally being deployed first in the most profitable areas, which generally means large cities. Rural, remote, and low-income areas lag behind considerably. Thus, there is also interest, at least among members of Congress from rural districts, in enacting policies that will reverse this trend, but there is little agreement on the correct remedy

Current law also prohibits the Bell companies from offering long-distance services, including long-distance carriage of Internet traffic. The Bells would like relief from this restriction, which would allow them to become Internet backbone providers. They argue that more competition in that market is needed. The Bells' competitors oppose this policy change.

My involvement in these issues began when I worked in the House Commerce Committee, and the important Tauzin-Dingell broadband bill was created and introduced. I subsequently addressed these issues as the representative of Senator Wyden (although Senator Wyden and Congressman Dingell hold very different opinions on these matters). I had the opportunity to meet with nearly all of the major stakeholders on these issues, and to advise the senator based on what I learned.

### Internet Domain Names

In the early days of the Internet, a few engineers handed out "domain names," such as stanford.edu and nsf.gov. As the task became more onerous, the US Government hired a company called Network Solutions to manage these domain names. Now that the Internet has become a major marketplace, the number of domain names to manage (at a profit) are increasing rapidly and exponentially, and commercial names like porsche.com are valuable properties. Network Solutions inherited monopoly control over all domain names ending with .com, .org, and .net, under some supervision from the US Government. So who should control these properties in the future? Who will collect fees from every holder of a domain name, and who will decide the rightful owner of valuable names when there is a dispute? The US Commerce Department is in the process of transferring some control to a non-profit organization called the Internet Corporation for Assigned Names and Numbers (ICANN). The process has been highly controversial.

The controversy eventually reached the House Commerce Committee, which has oversight responsibility over the US Commerce Department. A Hearing was called by the majority entitled "Is ICANN Out of Control?" I had the privilege of working on this issue for the minority staff, supporting

Congressman Ron Klink, who presided over the hearing for House Democrats. As the title would indicate, the hearing was intended as a trial for ICANN. The danger of such a trial is that ICANN's destruction could leave Network Solutions free to run an unfettered monopoly. However, we were able to transform the hearing into a balanced exploration of issues surrounding both ICANN and Network Solutions. Congressional oversight continued thereafter, allowing us to play a valuable role during the Commerce Department's negotiations with ICANN and Network Solutions.

## Electronic Signatures

Using encryption technology, one can transform a data file in a way that proves the identity of the author. Thus, it is possible to apply an "electronic signature" to an electronic document that is comparable to a written signature on a paper document. This makes it possible to conduct business over the Internet that otherwise could only be done in a timely manner in person. However, policy has not kept pace with technology. In some cases, an antiquated law requires a written signature instead of an electronic signature, even though an electronic signature would suffice. Another problem is that consumers and government agencies may be unable to identify which electronic signature products and services deserve legal weight, because there is no official evaluation or oversight.

I was first able to work on these issues on behalf of Commerce Committee Democrats in the House. Three House members introduced bills: Eshoo, Bliley, and Gordon. I dealt with the issue again in the Senate, where discussion focused on the Abraham-Wyden bill. Since it is far easier to stop legislation than to pass legislation, especially when one is in the minority party, the challenge was to develop a bill that could gain broad support. Organizations wanting strong consumer protection had very different opinions from those that represented electronic commerce companies, or those representing financial services firms. Moreover, there were fundamental differences in opinion on the extent to which federal law should preempt state law. After many months of intense negotiation, we were finally able to produce a bill that passed the Senate without opposition. The House also produced a bill, and the two are radically different. At the time of my departure, we were still preparing for what is bound to be a contentious conference to reconcile the House and Senate bills.

## Satellite television

One of the more celebrated controversies before Congress in 1999 involved satellite television. This issue was driven by both short-term and long-term concerns. The short-term concern was that millions of angry viewers were losing their television. The law only allowed satellite television carriers to deliver network stations (ABC, CBS, NBC, and Fox) to homes that could not receive a terrestrial broadcast. The satellite carriers did not obey this restriction, until 1999 when a judge ordered them to discontinue service to over two million households, many of whom called their congressman to complain. As a result, this issue has been of tremendous concern throughout congress.

The long-term concern is that there should be competition for cable television. To make this possible, satellite carriers must be able to offer the popular programs that are only available from network stations. This can be done without threatening local broadcasters by allowing "local into local service," e.g. allowing a satellite carrier to beam the Atlanta NBC affiliate back to households that are in Atlanta. This was not legal under the old law.

A comprehensive bill to address both short-term and long-term issues was co-authored by the republican and democratic leadership of the House Commerce Committee. As a result, I had the remarkable opportunity to observe and participate. Our bill survived months of intense lobbying, a hearing, subcommittee mark-up, and full committee mark-up. Since the Judiciary Committee had passed its own bill on the same topic, we were then forced to integrate these dissimilar bills, and take the result to the full House of Representatives where it was passed. It subsequently went to conference, where it was successfully reconciled with the dissimilar Senate version.

## The Chasm Between Engineers and Policy-Makers

Effective telecommunications legislation must be consistent with the underlying technology. The same would be true for legislation on energy, defense technology, the space program, and countless other issues addressed by IEEE members every day. For example, consider the important technical questions that lurk behind the issues in the previous section. Is it technically possible for competing Internet web sites to be equally accessible when accessed over a cable network? Is it possible to carry telephone traffic over the Internet? What happens when two rival companies try to manage the .com domain names without cooperating? How hard is it to forge an electronic signature? How can one be certain whether a given household can receive a high-quality television signal via terrestrial broadcast?

Although it is important to involve people with some technical understanding in these policy decisions, it is rare. Congressional staffs require expertise in so many areas that it is difficult to maintain depth in many of them. More surprising, I have met lobbyists representing major telecommunications companies whose lack of the most basic technical knowledge makes them incapable of answering some simple questions about the very issues that they were hired to discuss.

So should we blame policy-makers and lobbying firms for not consulting engineers more often? Alas, there are good reasons to exclude people with technical expertise from the process. I have observed in my time in Congress that engineering experts are often useless to policy-makers, or even misleading. Many engineers are incapable of speaking or writing in a language that policy-makers, who are typically generalists, can understand. Many engineers are incapable of writing with the brevity that policy-makers demand. Engineers are trained to provide nuanced analysis, filled with caveats, exceptions, and third-order effects. This can mislead policy-makers who are trying to grasp first-order issues, and who are trained to expect one-sided partisan statements from "experts" rather than balanced analysis. Many engineers also do not understand the importance of timing, so information is provided too late or too early to be useful. Finally, although engineers understand technical constraints, they sometimes flatly refuse to understand the political constraints on legislative solutions.

In short, understanding of both technology and policy-making are often needed, yet those with expertise in one of these areas rarely communicate effectively with those in the other camp. How do we bridge this chasm? Engineers must learn about policy-making. We must get more involved in the process - at the appropriate time and in an appropriate way.

The IEEE-USA Congressional Fellows program provides an important link. Not only does it allow engineers to offer expertise in Congress for a year, but it produces engineers who have some understanding of Congress. I entered this program thinking I had some knowledge. As a professor, I had conducted research on some of these policy issues. As a consultant, I had advised legislators and other policy-makers, as well as companies that hope to deal effectively with policy-makers. I had even presented my ideas to members of Congress and their staff on multiple occasions. However, I learned that none of this is substitute for actually working in Congress.

I thank the Committee, and IEEE-USA, for this extraordinary opportunity.

I hope the IEEE will continue to seek ways to positively influence technology-based policy debates.