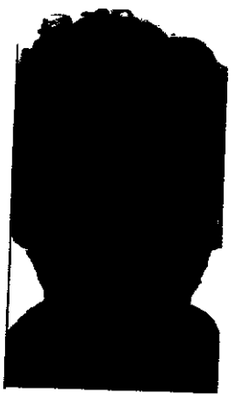

PCs, the Internet, and you

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••••••As I sit and drink my eggnog at the start of the new millennium, I pause to reflect on where the PC industry is going.

For the last two decades private firms have developed PC businesses relatively unimpeded by the government. For all intents and purposes, the PC suffered almost no government regulation—with the possible exception of the recent Microsoft antitrust trial.

It seems unlikely that this freedom will continue much longer, particularly as the PC begins to embody more communications capabilities in one form or another. That is, because communications industries in the United States have been subject to government regulation for almost one hundred years, this history will tempt politicians to meddle in the PC industry as they have in other communications markets. I'm not sure I like this future, but it appears unavoidable.

The future of the PC is tied to the future of the Internet, a future that, in turn, is tied to whether the Internet is regulated like all past communications industries. This raises concerns that soon somebody will try to eliminate the asymmetric treatment of different access modes, promote common carrier regulation over the Internet, and apply principles of universal service to the Internet.

We have quite a future in front of us.

Asymmetric treatment of access

Not all PCs connect to the Internet at the same cost, nor the same speed. Therein lies a tangled tale and the possibility for future regulatory intervention.

The first firms offering Internet access to the home simply copied their academic predecessors. These firms charged for a password, of course, but otherwise Internet access looked the same as a university modem pool. As with the previous systems used by researchers, the first Internet systems ran on top of the local phone system. This was expedient, inexpensive, and easy.

It was also quite lucky for the US. To the surprise of many observers, it turned out that flat-rate pricing encourages Internet use. This wasn't obvious when the Internet started, but it is now, especially when compared with the rest of the developed world's pricing structures and Internet use.

Do you have friends in Europe or Asia? They will tell you that the phone systems usually charge several cents a minute. A one-hour Internet session can easily cost several dollars in phone costs alone. Hence, potential Internet users in many countries don't bother to use the Internet at home because the phone call costs too much.

This is where politics enters the discussion. The pricing of telephony is an extremely sensitive political issue. To be simplistic, politicians hate raising prices—people get upset when that happens and vote against politicians who permit it. This has understandable consequences. Ergo, politicians just can't help but meddle if they can find a way to take credit for keeping prices down or making services widely available.

When politicians saw the Internet grow, at first they were caught off guard. But enough time has passed, and now many see an opportunity for action. Some simply see a possibility to grandstand, while others see a chance to make good on their vision of what's right for society. For purposes of this discussion the distinction won't matter.

Here's what worries me. When politicians look at Internet access, they see it through their experiences with telephone pricing. They see that they got lucky last time. Local phone calls had flat-rate pricing for a variety of reasons, none of which were associated with the unanticipated diffusion of the Internet. It was the right choice for encouraging Internet diffusion, but for unrelated reasons.

To put it another way, how should future access technology be priced? The future probably won't involve thousands of ISPs retrofitting access over the existing telephone network, as in the recent past. DSL can use existing phone lines but this is difficult to implement, and only a couple dozen firms will do this across the country. Another possibility is Internet access delivered over cable, which has even fewer providers. A third is some sort of wireless system modeled after NTT DoCoMo in Japan.

In any of these modes it's not clear what type of pricing makes sense for the next generation of technology. Don't get

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your hopes up that such confusion will keep the government from meddling with pricing. There's too long a history of it.

The end of common-carrier regulation

Through the eyes of long-time telephony regulation, the Internet is also part of a greater change, the end of common-carrier regulation. I'm not saying that this is good or bad; it's just different. Meddlers in the government don't know what to do about it, but will be tempted to take action.

Common-carrier regulation has a few distinctive features. In particular, it draws a distinct line between content and distribution, largely restricting any single firm from owning too much of both parts. This is the regulatory structure familiar to telephony, TV, and broadcasting prior to the diffusion of the Internet.

Common-carrier regulation arose out of concerns about the concentration of ownership over media assets or bottleneck broadcasting facilities. The thinking isn't very complicated. Society benefits from multiple sources of information—separation of ownership brings more players into the game, reducing the likelihood of a bottleneck.

It's not obvious that the Internet should have the same regulatory structure. No such principles have ever applied to the Internet and it's not clear that any will. Therein lies the potential tension—because such principles could be applied, at least in theory. But should they?

Let me be clear. At the moment several large firms have explicitly violated joint ownership over content and distribution. For example, AOL/Time Warner owns both substantial facilities in access and content. Microsoft also owns both access facilities (through WebTV and investments in AT&T) and content (through MSNBC and MSN). AT&T's ownership of Tele-Communications Inc. cable TV network raises many of the same issues too. Does this need to be regulated?

First of all, there's really not much to discuss as long as multiple channels and a competitive supply is maintained. Competition assures multiple options and obviates any need for regulation. But supply isn't competitive in the short run anywhere except, possibly, the Bay Area. After all, the number of DSL and cable providers is quite limited in almost every neighborhood in every city of the country.

Second, a limited supply of access is actually not a problem if access firms interconnect with multiple content firms without friction. Yet, it's naive to count on that. Neither the cable companies nor the telephone companies have stellar histories in this regard. In truth, there's almost no positive history here and only a future with many unknown technical constraints.

Technical unknowns also make these issues hard to understand, much less settle. Said another way, it's hard to get a firm to promise anything to the government, but it's even harder when even the country's best experts cannot forecast what the technology will look like in a few years.

The end of universal service

Through the eyes of long-time telephony regulation, the Internet also raises multiple concerns about universal service. To put it more starkly, we got lucky with flat-rate pricing; it helped diffuse the Internet. It's not obvious what policy will accomplish the same goals as we move forward.

In brief, universal service is putting a telephone in every household. Recognized many decades ago as an important social goal, it became the excuse for keeping local telephone prices low. This is accomplished through a variety of mechanisms including flat-rate pricing.

The equivalent of a universal service debate for the Internet arises under the label "digital divide." This debate has two flavors. One is about geographic dispersion of Internet access across the country. The other flavor is tied to training, education, and income.

The geographic issues are easy to understand. As it turns out, dial-up access is more expensive in low-density areas, if it's available at all. So if universal service is politically desirable, then it also turns out that it's relatively easy to address this issue in the present era.

We got lucky with flat-rate telephony pricing; it helped diffuse the Internet.

For example, the federal E-Rate program presently collects money from long-distance telephone bills and distributes it to access firms in low-density areas to subsidize Internet connectivity. As it has turned out, this amounts to two billion dollars a year. Pretty soon dial-up access will be available in every rural library, hospital, and public school. It just isn't expensive to do this.

The next generation of broadband Internet will be a much different story. Nobody forecasts that DSL upgrades will be inexpensive or necessarily feasible in low-density areas. Cable TV doesn't even exist in many rural areas. In the absence of a new satellite technology, the country is headed toward a different quality of access between its cities and farms. Therein lies a political time bomb.

Universal service issues are even harder to address when they are attached to lack of income, education, or training, as they are in inner-city areas of the US. These sorts of problems are much harder to solve with just a little bit of money. It's no exaggeration to say that government experts today are not sure what to do about it, if anything.

So where does this leave us all? The start of the millennium is also the beginning of a new era in competition policy. The more the PC resembles a telephone, the less competition in this market will resemble the unfettered market we have all known until now.

So let's all celebrate the new era and try not to be too wistful about the bygone past.