REGULATION AND FREE MARKETS:

HOW TO REGULATE THE TELECOMMUNICATIONS INDUSTRY IN THE NEW ECONOMY

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Although it may not be immediately obvious from my resume, I've spent the last 25 years trying to make a living at the intersection of business and government. Specifically, first as government deregulated power,[1] then as government deregulated telecommunications.[2] Over that time, I've been associated with companies that have dealt with and been directly affected by regulatory bodies in every state, in Washington D.C., in the EU, and in the countries of Northern Asia.[3] This means that I am friends with a lot of lawyers. It also means I have a point of view concerning the right kind of model of regulation for the new economy. Whether that point of view has merit, I'll leave to you, but I do have an opinion.

Before I get to it, I think it's useful to provide some context-both historical and some current and important trends in our industry. Let's start with some history. In communications, for the past century, the history of the industry meant the history of American Telephone and Telegraph Company known as the Bell System. At the time of its breakup in the early '80s, it was the world's largest monopoly and it had one million employees.[4] I remember reading that, at that time, AT&T

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1. *See* Energy Policy Act of 1992, Pub. L. No 102-486, stat. 2776 (1992) (Act deregulated the electric power industry).

2. *See* Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended in scattered sections of 47 U.S.C.).

3. *Available at* http://www.level3.com/603.html.

4. AT&T had 1,009,000 employees at the time of its divestiture into the 8 entities known as the Regional Bell Operating Companies (RBOC's). AT&T, *A Brief History*, *available at* http://www.att.com/history/history4.html.

touched the average American seven times a day, more often each day than the federal government.[5]

It wasn't always a monopoly; it started as an innovative upstart. J.P. Morgan and Theodore Vail built the behemoth.[6] Vail was brought in at the turn of the century to put some discipline in an unruly company. He was a business genius as well as a confirmed monopolist. As Vail's writings make abundantly clear, he viewed competition as barbarous and unruly; and he set out to systematically eliminate it from his industry.[7] At that time, the situation was almost completely the reverse of today. Competition in the local phone business was vigorous, almost a free-for-all. Cities had two, three, or four competing phone companies. However, there was only one effective long distance company, AT&T Long Lines.[8]

Long distance service had become a necessary service for those who wished to remain competitive; this fact was not lost on Vail. He began to correct the effects of pernicious competition in an effective and rather brutal way. He used refusal to interconnect his long distance monopoly with competing local phone companies to force them to sell out at bargain prices.[9] J.P. Morgan helped by cutting off competitors' access to the capital markets.[10] Vail began his campaign just as one would expect, in the larger, more lucrative markets-the major cities-and worked his way across the country.

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5. "AT&T is a corporate state, a Super Government if you will, whose presence in the United States is felt more keenly on a daily basis than even that of the federal government." JOSEPH C. GOULDEN, MONOPOLY 9 (G. P. Putnam's Sons, 1968).

6. In 1939 N.R. Danielian described the Bell System as "a seething conglomeration of cells, ever active, ever expanding, ever expanding. In their ensemble, they make up a living organism, reaching out to take and control new fields, new industries, new sources of profits. In a true sense, this organism is a state within a state, exhibiting all the economic and political propensities of a national state in its most imperialistic moods." N. R. DANIELIAN, AT&T 379 (Vanguard Press 1939).

7. "It is believed that the telephone system should be universal, interdependent and intercommunicating, affording opportunity for any subscriber of any exchange to communicate with any other subscriber of any other exchange . . . It is believed that some sort of a connection with the telephone system should be within reach of all . . . It is not believed that this can be accomplished by separately controlled or distinct systems nor that there can be competition in the accepted sense of competition." ALVIN VON AUW, HERITAGE & DESTINY: REFLECTIONS ON THE BELL SYSTEM IN TRANSITION 5 (Praeger Publishers 1983) (quoting AT&T's 1910 Annual Report); "What we wanted to do was get possession of the field in such a way that, patent or not patent, we could control it." JOHN BROOKS, TELEPHONE: THE FIRST HUNDRED YEARS 83 (Harper & Row 1975).

8. "But AT&T's real ace in the hole in its battle with the independents was its steadfast refusal to interconnect. Bell, of course, had all the long distance lines except for comparatively few. . ." BROOKS, *supra* note 7, at 114.

9. *Id.*

10. "When the word leaked out that an independent telephone company was in trouble, Bell's ally, Morgan, who effectively controlled commercial credit, needed only to cut off that company's money supply to force it to the wall. Then AT&T would make an offer for the company's stock; thus the company would fall easily into Bell control. . ." *Id.* at 132.

As an aside, in the early days of local competition RBOC executives sometimes accused my first company, MFS, of cream skimming, since we began business in the larger metro areas. Whenever that occurred, I would take out a map showing the service areas of the RBOCs versus the independent telecommunication companies (telcos). As you know, they are largely concentrated in the big cities, because AT&T began as an unabashed cream skimmer. In any event, Vail continued to force local telcos to sell out with hardball tactics until the trust-busting federal government finally intervened.

In 1913, AT&T agreed to discontinue its local phone purchase in return for a de facto monopoly in its then current local phone areas and in long distance.[11] It was around this time that Vail's master stoke occurred. Unlike the big oil and steel monopolies, he actually embraced government, embraced regulation in return for monopoly. It is only idle speculation, but it is interesting to think what might have happened if Vail had resisted regulation and AT&T had been broken up like the other trusts. Households with phones grew explosively when local competition flourished at the end of the 18th century and slowed markedly when telecommunications became a monopoly in most markets.

From the time AT&T achieved its monopoly it systematically went about defending it with all the considerable means at its disposable, often assisted by regulators who became convinced by Bell System economists that telecom was a natural monopoly. At the end of the 1930s the newly created FCC was struggling to understand the already enormous entity it was seeking to regulate. It hired an economist by the name of Danielian to assist in developing a rational regulatory framework.[12] After intense study, Mr. Danielian reported that the FCC's difficulties were caused by an improper assessment of the fundamental nature of the phone giant. He said that the FCC attempted to understand AT&T as an economic entity when in reality it was a political organization that like most political entities, sought to maintain and extend its sphere of control.[13]

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11. In order to avoid antitrust litigation, AT&T agreed to divest itself of Western Union, cease aggressive acquisition of competing telephone companies, and to offer independent local providers the ability to interconnect with the long distance bell system. This agreement became known as the "Kingsbury Commitment" because of a letter sent to the U.S. Attorney General by Nathan Kingsbury. *See* Letter from Nathan C. Kingsbury to Attorney General J.C. McReynolds (Dec. 19, 1913) reprinted in 1913 AT&T Annual Report.

12. Danielian published a book detailing the activities of AT&T and his recommendations for regulating the telecommunications industry. *See* DANIELIAN, *supra* note 6.

13. "In a larger view, the Bell System is a political organization of the first magnitude. Its methods of control, its means of expansion, its relations with government and the public, are fundamentally political in nature. In fact, even its price policies and investment of funds follow the pattern of political behavior." *Id.* at 400.

That characterization is aptly applied to many of our major phone companies even today.

It was about this time that today's regulatory framework was developed. Then and today it was aimed at universal service, meaning both AT&T and regulators viewed achieving affordable access to local voice phone calling by all Americans as a central mission.[14] Note that I said local voice phone calling, not long distance. At that time, society was much more oriented around local community and long distance was a luxury. The urban areas were where wealth was concentrated; rural meant poor, and the suburbs of today did not exist. Subsidies were constructed that were aimed at achieving affordable local calling by pricing long distance and local service in urban areas above cost, and rural local calling below cost.[15] And that system of regulation and subsidy has largely survived to the present. It is a system that overprices urban local calls and long distance calls in order to subsidize suburban and rural local calling.

So what? We have the best communications system in the world. It is changing, maybe slowly, but that is appropriate given the enormity of the industry. So what is the problem? To a certain extent, I agree, we do have a great system. Like students and businesses, government and regulators are correctly graded on a curve, on that basis we are doing rather well. But we can and should do much better.

Today, urban is no longer synonymous with rich. Needy residents of our inner cities overpay. I have an acquaintance who is quite wealthy; he owns a wonderful fishing camp in Wyoming. Qwest is forced to provide him local service at a hugely subsidized price because of a system that is no longer appropriate. Today, subsidies are buried in an arcane accounting construct managed by de facto local monopolies in a way that makes it impossible to determine what funds are subsidizing service, inflating profits or is simply waste caused by too many years of too little competition. All this is caused by a system that is no longer appropriate or necessary.

Many in this room and in state and federal government understand these problems, many of which are currently being addressed. However, there is another less well-understood and very important effect of 100

14. "The effective government policy was the implementation of universal service and value-based pricing under regulatory oversight. The PUC's were to ensure that AT&T and the independents extended service to all." JEFFREY E. COHEN, THE POLITICS OF TELECOMMUNICATIONS REGULATION: THE STATES AND THE DIVESTITURE OF AT&T 56 (M.E. Sharp 1992).

15. "Station-to-station theory had a beauty to those interested in promoting universal service. By requiring AT&T Long Lines, the company's long distance unit, to add to its operating costs part of the local loop, AT&T's profits fell. Simultaneously, the local operating companies could deduct those parts now being paid for by AT&T. The resultant reductions in local operating costs could then be passed on to the local subscriber in the form of lower rates, thereby encouraging universal service." *Id.* at 57.

years of rationalized monopoly, an economic distortion that affects a critical part of the US economy. To understand this enormous and pernicious economic distortion, I will turn to a discussion of the broader industry of which communications is a part-Information Technology (IT).

Information Technology is fundamental to our economy and it is fundamental to our national security. It is my belief that to understand where the role of communications in our economy and to develop a proper regulatory framework, it is necessary to understand communications in the context of its role as part of IT. To do that, we'll look at the basic economics of each of the component technologies of IT, which are simply the three things we do with information: processing information or computing, storing information on chips, magnetic or optical media, and moving information or communications

The price performance improvement rate of computing and storage has been incredible, doubling every 18 months. At that rate, you can buy one million times as much computing and storage per dollar as in 1970. In comparison, the price performance of telephone communications has been static over the same period until recently, circa 1995. Long distance dropped in price less than 10% per year and local service pricing has actually increased. Why? I believe the answer to this question is key to developing any kind of rational regulatory policy for communications going forward. It's not differences in technology. The technical underpinnings of computing, storage, and communications are similar. In fact, many of the technologies used in computing and storage came from communications companies and institutions like Bell Labs.

I believe the differences are in the fundamental ways in which the markets for the components of IT have developed. Take the technical standards development processes. These technical standards are called protocols. Protocols ensure that parts of a system work together, that hardware and software can be combined in networks. An example is a rail system. The curve radiuses, the track gauge, the wheel configuration, and the car sizes are all part of a rail system protocol. Telecommunications networks work the same way. In computing and storage, technical standards are set in the market. It's messy, risky and very fast. In communications, until very recently, a central planning process set standards. Companies argue about the future, publish standards and then the hardware and software is produced. It's elegant, predictable, and glacially slow. This same central planning applies to pricing and to capital allocation. In effect, we continue to view communications, wrongly in my view, as a slow moving utility industry.

This view has distorted investment on a massive scale. We process and store information cheaply with incredible new technology, but still

move it the way we did years ago. To prove the point, what's the cheapest way to move information? By truck! We distribute computing and storage to the point of use instead of centralizing and getting economies of scale and moving information to the point of use. At the office, companies spend enormous amounts on hardware and software when all they really want is to own information about transactions and customers. At home, we all must deal with complicated ways to store and process info. Some obvious examples are software and computers. The not so obvious examples are VCR's, DVD's, CD's, Books, Newspapers, Cable, and Satellite.

This situation created one of the great arbitrage opportunities in history. The dam broke sometime around 1995, as the result of two complimentary technical developments. One was the Internet and IP technology. The other was optical technology. Neither of which came from the traditional communications industry. Both advances came from startups; IP from companies like BBN, Cisco, Netscape and Microsoft. Optical from Ciena, JDSU and more recently from numerous venture funded startups.

Both technologies are market based and not centrally planned. IP improves at the same rate as computing, about 50% per year. Optical technology is improving at an unprecedented rate, maybe doubling every nine to twelve months or twice the rate of computing. The result is that technology makes it possible for properly designed communications networks to have price performance improvement that makes computing look slow—maybe 90% to 120% per year. That's twice the rate that computing and information storage has historically improved. The result is a tsunami that is swamping the old order and bringing incredible new opportunity.

This means that communications, networking, and connectivity, and I might note regulation of the same, will be where action is. To start with, look at what the effect will be on existing information distribution. The more expensive older means of moving information will give way. In the home, information means entertainment. Today information is distributed by car, truck, ship, and airplane networks in the form of books, newspapers, CD's, videotapes DVD's, etc. These media will move, quickly or slowly, in fits and starts, to IP / optical networks.

At the office, this means more and more outsourcing of processing and storage of information. Maybe you've heard the term ASP, it simply means a company that sells that processing over a network. This is a long-term trend; I remember when most businesses and governments ran their own long distance systems, now it's outsourced. The same thing will happen to data processing and storage. But the longer term picture is harder to see.

A caveat, technology development is not smooth. It is punctuated by unexpected, disruptive inventions, and capital markets or regulation can slow it. However, it is perhaps possible to anticipate the shape of the likely change. We have spent the last hundred years building a network serving our ears. The next several years are going to be about our eyes.

This is difference of kind. Humans are visible animals, 99.5% of the information comes from eyes. This means that the time will come when it is possible to interact with the information at a distance with a quality approaching actual physical presence. To give some sense, we have 12 conduits. We are lighting 4 fibers, 432 are commercially available. If we filled all conduits, 5,184 fibers, and lit at 10 Gigabits at 160 colors we could support maybe 30 telepresence sessions. At today's prices, that's a half-billion dollars per month. I'll sell it to anyone who would like it.

We calculated that at 60% price performance improvement, it would take 25 years before it would become affordable. It is an exciting development and means that the world will be smaller place. It would allow physical boundaries to mean less and communities of interest to mean more. It certainly means that enormous improvements in productivity, like the kind we have begun to see here in the US.

I believe the lessons for those who set policy are clear. First, communications is not a utility industry with long asset lives, slow product development, and is most certainly not a natural monopoly. It is the vital third leg of the IT tripod and it is a leg whose development has lagged due to central planning, embraced and encouraged by entrenched incumbents. Second, innovation comes from competition. It is rarely the companies who dominate one technology era that break new ground and usher in exciting new developments. The faster the pace of change, the more we need the entrepreneur backed by risk capital. The faster the pace of change, the more we need to resist those who defend de facto monopolies on whatever grounds.

Today, it is particularly important not to forget the importance of new innovative companies. Some may say that the number of failures, some very public and no doubt difficult for those involved, diminishes the importance of startups and competition to IT. While these are certainly difficult times, they will pass. I believe the fundamental trends I have discussed will continue as will the role of competition and innovation created in large part by new companies. But competition and regulation are not mutually exclusive. The answer, as some would say, is not simply to immediately loosen the fetters of burdensome regulation and let the free market work. Competition is not the terminal forest of economics, that is, the species of economic organization that inevitably crowds out all others if well enough is left alone.

In fact the lessons of history are clear, market leaders often achieve monopolies especially in technology industries, where a 6 or 12 month lead can mean an overwhelming cost and price advantage. Networking industries like rail or air transportation are especially susceptible to monopolization by incumbents who simply refuse to interconnect with competitors. Communications is especially difficult since it is a networking industry and it is an industry moving inexorably from a utility financial model to a technology one, where asset lives are short and investment is high.

It is an industry with over one hundred years of rather intense regulation; most of it applied to a single monopoly whose divested parts retain essential monopolies in local markets. So what is a regulator to do when too much regulation leads either to irrelevance as technology moves too quickly to be pinned down, or to economic distortions of the kind I just described; and too little regulation leads to damaging monopolies.

I said I had an opinion, well here it is in the form of guidelines for regulation of the new economy. Regulation is to fast moving technology industries as garlic is to cooking, use it sparingly. Governments should not interfere unnecessarily with the operation of free markets or the introduction of innovative technology. The primary goal should be as little regulation and as much free market as reasonably possible. I think a new model of regulation is needed. One formed around the notion that the universe of entities in communications can be divided into two categories: users or consumers and service providers.

The difference between the two is one of privilege and responsibilities and degree of regulatory oversight. Users are just that, users. Regulators and policy makers should ensure that all users have access to certain basic services. Defining the scope of these basic services is the domain of policy makers, not the industry. For my part, I believe that today it goes beyond local voice service. I am deeply concerned about the growing gap between those who have access to the digital world and those who are left behind.

Two interrelated matters should distinguish service providers. First, providers should be required to interconnect on a fair, non-discriminatory basis and at cost. In return for the benefit of interconnection, service providers should be required to contribute to and participate in the provision of basic service. Except for monopolies, no company would be required to accept service provider status or accept basic service obligations. However, the privilege of interconnection should only be provided to those who do. Funds for basic service should be collected in a fair, open, and competitively neutral way. Those who

elect service provider status should have access to public and private rights-of-way on a fair non-discriminatory basis.

In general, the FCC and state regulators should move, over time, to oversight of industry self regulation of interconnection, funding, and provision of basic services. Since the industry does not have a history of such self-regulation, this should be a careful and cautiously managed process, but when it matures it provides a much more efficient and effective result. No distinction should be made between service providers based on the type of service or technology employed. It seems increasingly obvious that to do so only creates distortions. Communications by circuit, by packet, wireless or wired should be treated equally. Limited regulation is necessary to prevent firms from abusing a dominant position or monopoly control of essential facilities. Bottleneck firms controlling essential facilities should provide access to them on reasonable, transparent, and non-discriminatory terms. Essential facilities should not be owned or controlled by vertically integrated firms that abuse such control to maintain a dominant position by thwarting competition from other potential users of the facilities. Where the record is clear that firms have abused essential facilities, divestiture is the only effective remedy, period.

Regulators should provide a rapid, cost-effective mechanism to resolve disputes between market participants, especially those involving a dominant firm. I realize that many of these recommendations will require significant changes to a century old legal/regulatory regime. I realize that some are political third rails. However, the stakes are high, over the long term our national economic welfare and or security depend on us getting it right. I look at the past and the progress we've made-at times halting and convoluted, but real progress nonetheless, and it gives me optimism about the future. Thanks for the chance to give you my thoughts.