"PROPOSAL FOR A TELCO/CABLE INTERFACE"

SPEECH BY

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ON

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"Every living thing is changed, owing to the advent of cable."

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SLIDE FOR JOHN J. SIE'S SPEECH "TELCO/CABLE INTERFACE"

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Good morning. I want to thank Andy Jacobson of Telecommunications Reports for inviting me back again this year to talk about the continuing saga of the telco/cable dialogue. I pick the word dialogue to indicate a subtle trend. Last year, it was the telco/cable debate. Now we are carrying on a dialogue. Perhaps next year we can progress to the telco/cable interface.

By the way, do you know why there has been so much cable talk amongst you telco guys in the last few years? No, it's not from your network operations guy asking "Now that we've finished fibering our trunks, what next?" No, it's not from Congressmen and Senators urging you to compete with cable so that we poor cable guys will be SCARED STRAIGHT. No, it's not from all those guys at Bellcore who say, "Gee, for our $1 billion a year budget, we'd better tell the RBOC's that fiber Broadband ISDN with HDTV to the home is our unquestioned destiny." No, it's not even because year after year, Howard Anderson has been baiting you with raw meat to feed a frenzy to get into cable. No, it was the result of an utterance from a guru to Charlie Brown and Ray Smith after divestiture.

After divestiture, Charlie suddenly found that selling computers against IBM was not a cake walk; and selling phones? -- forget it. Ray, on the other hand, found it emotionally unsettling to let the old enemy MCI have equal access and just

couldn't believe it when some of the new businesses he bought actually lost money. Typical handholding from McKinsey and Booz Allen didn't help much. So, they flew to the kingdom of Nepal seeking wisdom and guidance from the legendary "Phone Guru." After 5 days of hiking through the rugged Himalaya Mountains, they finally located the Phone Guru. However, what the Guru uttered was quite unexpected. SLIDE PLEASE. The Guru said, "Every living thing is changed owing to the advent of cable."

Actually, this cartoon appeared in the New Yorker Magazine two weeks ago. Since all the cartoons in the New Yorker are black and white, I borrowed a page from Ted Turner and colorized it, all for your enhanced viewing pleasure.

Seriously, I'd like this morning to address four topics. First, I'd like to give you a status report on the cable industry and my macro perspective on it, vis-a-vis The Cable Act. Second, a broadbrush forecast of the cable industry for the next decade. Third, I'd like to share with you my belief that an integrated broadband fiber network to the home providing telephone, data and "cable type" video service is inherently an unnatural, cost-inefficient and non-competitive scheme. Fourth, I'd like to paint a vision, circa the year 2000, on how the telco and cable networks can be integrated to create the world's most advanced, dynamic, and competitive communications infrastructure to improve

the quality of life of all Americans and hopefully of other peoples of the world as well.

I. Cable Industry Status and Perspective

Currently, approximately 85% of all 90 million TV households in the U.S. are wired for cable and more than 50 million households are watching cable programming. Americans will spend about $14 billion this year on cable service. The total amount of advertising revenue from both local and national cable networks is estimated to be approaching $2 billion in 1989. For 1987 and 1988, the two first years since rate deregulation took effect, the cable household growth has been 6.6% and 8.0% respectively. We anticipate an accelerated growth rate of 10.0% for 1989.

Now, let's review the status of the cable industry within the context of the Cable Communications Policy Act of 1984. It seems that everyone seems to refer to the Act as "The Cable Deregulation Act." Actually the Act codifies how the industry is regulated. Three sections are of relevance here.

First, Section 623 of the Act prescribes that local franchising authorities will regulate basic cable rates in circumstances of insufficient effective competition. However, if

there is effective competition, then cable operators can set their own basic rates according to market conditions.

The FCC has the total and full regulatory authority to determine the definition of effective competition from time to time.

Second is Section 613, which codified the then existing FCC ruling prohibiting the telcos from owning and operating cable television systems within their respective operating areas. Of course, the Cable Act permits the telephone companies to build the hardware, they just can't be involved with the programming. Incidentally, as all of you are aware, most telcos and the USTA are now heavily lobbying for the repeal of this cross ownership ban. Let the record be set straight that Section 613 was placed in the final legislation as part of a compromise between the telephone and cable industries. Cable agreed to eliminate data service as part of the definition of cable service. This served the telco's intended purpose of pushing the jurisdiction of cable's carriage of data to the various state PUCs, a step which impeded greatly our rights to provide data services.

Third is Section 612, the so-called Commercial Lease Access rule. The rule stipulates that cable systems which have channel capacities of 36 to 54 must reserve 10% of their channel capacity for commercial lease access. Those with 55 channels or greater

must reserve 15% of their channel capacity. For such leases, the cable systems should establish prices, terms and conditions. Furthermore, persons who believe that a cable operator is either refusing such access or is charging excessively unreasonable rates, may adjudicate their grievances in the federal district courts.

Finally, when more than 70% of the nation's households have 36 or more channels of cable service available to them and 70% of those cable-passed households subscribe to cable, then the FCC has the regulatory authority to establish additional rules to ensure diversity of voices.

The Congressional intent of the Act is clear.

First, the Congress intended that the cable industry be permitted to set its rates for both basic and optional services, based on marketplace demands. The Congress wanted the industry to be able to invest risk funds to create diversity and improve the quality of its programming offerings, making the public the ultimate arbitor of rates versus value. It was giving the cable industry an opportunity and a challenge to live up to its promise that cable can offer America's public and the creative community a diversity in choice, variety and quality in news, information, and entertainment that is unmatched and unimagined anywhere in the world.

Second, existing and new competition in the video marketplace would act as a counter balance to cable's upward movements in rates. Such competition includes over-the-air "free" broadcasting, VCR, MMDS, TVRO, SMATV, Subscription TV and even cable overbuilds.

Well, let's see how well we have done, two years and nine months after the Act became effective. I think remarkably well.

According to the recently released GAO report, the average subscriber received 5 more cable channels, and the average monthly bill per subscriber increased only 7% each year for the first two years. The revenue per channel remained essentially flat.

With an accelerated subscriber growth, a modest rate increase and increased number of channels being offered, the quality of cable's programming also increased. In cable households, according to the Nielsen rating, from 1984 to 1988, the cable channels' viewing share increased from 30% to 39% while the three broadcast networks' combined share dropped from 58% to 49%. The viewing shares of the independents and PBS remained about the same.

As far as competition goes, except for video rental, the other alternative distribution technologies and cable overbuilds

have not shown much robustness to date. This, I believe, is primarily due to the responsible nature of the overwhelming majority of the cable operators in their rate setting process.

Of course, there have been some operators, bent on short-term gain, that have been egregious in their rate increases and service provided. Unfortunately, they have provided the anecdotal fodder for our detractors to malign the rest of the cable industry.

On the financial front, for instance, although TCI's revenue grew by more than 400% from $450 million in 1984 to $2.3 billion in 1988, our aggregate net income in the last four years has been $144 million, or an average of 2.8% of revenue. We have invested heavily in upgrading our cable plants and improving programming. Is this the behavior of an abusive unregulated monopoly?

On a comparative note, the seven RBOCs, during the same period, increased their revenues by 28% from $58 billion to $74 billion. Their aggregate net income for the four years was $33 billion, or an average of 11.9% of revenue.

We, as an industry, have often been labeled by our detractors as "gatekeepers," a label that has stuck -- effectively -- a label that denotes that we are choking diversity by unilaterally deciding which channels to provide to our

subscribers; a label that leaves even many within the cable industry rather squeamish whenever they are being branded that way.

I say Balderdash! Instead of limiting diversity, we have done just the opposite. In spades. The cable industry has liberated the American public from having only the choices of the three broadcast networks which are aimed at the lowest common denominator. We have opened the floodgates of access so that the creative, entrepeneurial and independent artists everywhere in the U.S. can have their days in the sun on cable. Instead of LOP, or the "Least Objectionable Programming," the public can now have MDC, or the "Most Desirable Choice".

Let me tell you how we usually choose which channel to carry. If we determine that a "channel type" proves to be desirable to our subscribers, then it will be carried. Now, if such a channel either doesn't yet exist or doesn't have sufficient financial strength to reach its potential, we may either assist in funding a start-up venture or provide the necessary funds to existing services to nurture it to maturity. The cable operators' role in creating or supporting worthy but very risky programming ventures has been exemplary. Among the notables are CNN, The Discovery Channel, C-SPAN I & II, Black Entertainment Television, Vision Interfaith Satellite Network, Movietime, Cable Value Network, etc.

True, we pick which channels we carry on our systems and rightly so. But, we do not meddle with any channel regarding the specific programming they schedule and produce. The three broadcast networks originate 36 hours of video programming each day, yet the 30 cable originated channels we normally carry need to fill 600 hours of programming each day! Such demand from the most efficient distribution system allows the property owners of creative America to fill 600 hours of programming per day. This is ACCESS. The genre can be as powerful and current as the live coverage of the crisis in Tianamon Square on June 4 on CNN, to the relevant and poignant portrayal of potential extinction of elephants in the "Ivory Wars" on the Discovery Channel, to the light and entertaining reruns of "Saturday Night Live" on Nickelodeon. It's not the channels that matter. It's what programming is on these channels that the consumer selects and enjoys that matters. The consumer is paying to have the option to choose from a wide array of choices when he or she sits down in his or her easy chair and decides to watch television.

II. Cable in the Next Ten Years

There are three components which form the pillars that support the very core of our business. They are: a) a reliable distribution plant; b) a desirable programming package; and c) a quality customer service system. While it is difficult and often impossible to predict what's down the road, given what we know

today, and assuming we do not act foolishly or with arrogance, I am quite confident that we can successfully undertake the following:

- Concentrate and dedicate our resources to drastically improve our customer service in both form and substance, and essentially eradicate customer dissatisfaction. TCI unveiled this week its "The Customer 1st Program" as our first step.

- Upgrade all transportation and trunking routes with fiber to improve reliability and expand channel capacity.

- Deploy on-premise outdoor addressable terminals to create a cost effective infrastructure to provide customized services such as pay-per-view.

- Deploy an Enhanced Definition Television (EDTV) system to offer the American public the option to view the best in broadcast and cable programming with 35mm resolution and compact disc quality sound. The system will use the same 6MHz channel, fully compatible with the existing NTSC standard and would even improve the reception of all existing TV sets.

- Improve national and regional programming channels, many with broadcasters as partners to achieve a 50% viewing share by the mid-nineties and a 60% share by the turn of the century in cable households.

- Ameliorate the upward pressure on cable rates through local advertising revenue as more funding is used for improved programming quality.

- Develop more enhanced transactional services particularly in home shopping, banking, etc., generally using the telcos network for upstream data.

- Use its multi-media capability to be heavily involved in community affairs such as TCI's Alliance for Education, drug abuse abatement, revitalization of science and technology, etc.

- Surpass 70% of the U.S. TV households in aggregate cable penetration.

III. Why a Broadband Fiber Switched Network is Wrong for America

We heard yesterday a most eloquent and moving speech by Ray Smith imploring this country to develop and deploy a national broadband fiber switched network. Such a network, according to

Smith, will create the new communications infrastructure which will form the very foundation of our society as we enter the Information Age in the 21st century. When globally interconnected, this integrated network will allow every home and business in America access to any information in voice, data, and full motion video or any combination thereof from all points on the globe. Furthermore, such deployment will ensure the U.S. the global competitive edge in telecommunications, computer, semiconductor, and other strategic technologies. As described, it is our 21st century's Holy Grail.

And Ray Smith is not alone. Scholars from our most prestigious universities, thoughtful government research reports, and futurists like author George Gilder are all echoing his refrain. The argument sounds very compelling and intoxicating -- its logic seems impeccable.

I hate to be the one who shouts quietly "the emperor has no clothes." But I must. <u>There is one major and fundamental flaw in this scenario.</u> It's major because the societal consequences can be catastrophic. It is fundamental because it is irreconcilable. For the last two days we have discussed the many facets of the telco/cable issue, including the potential for legislation, Judge Green's role and regulatory aspects. In addition, we have discussed the logistical, economic, marketing, and financial implications of the telcos deploying an integrated

broadband fiber switched network to provide telephony, data video and "cable-type" services to the residential homes. This dialogue will doubtlessly continue. No, I am not addressing any of these component issues.

I submit the flaw lies with those who fail to perceive and understand two fundamentally different modes of communication. On the one hand, there is the personalized or customized communications; on the other hand is the quite different distributive or mass media communications. Some examples of personalized communications are: letters, telephone, telegraph, computer communications, and work stations. Examples of distributive communications are: newspaper, magazines, radio and television broadcasting, cable television, satellite distribution systems, DBS, etc.

Yes, a personal system can be operated as a distributive system and vice-versa. But, always at a cost. If we unnaturally force both modes on a single system, then the system performance will suffer drastically, becoming totally inefficient and ultimately failing to serve either mode.

AT&T can now interconnect many regional offices to a customer's headquarters for a conference call. This is an example of a personalized communication system being used in a distributive mode. Such a use may work on a small scale. But

what happens if there are 1000, 1 million, or 10 million regional offices? The system simply can't handle it.

Let me give you more examples to which you may be able to relate.

This nation is universally wired for voice telephony. In fact, in many cities the telcos have upgraded central switching offices for touchtone service with digital capabilities. Ever wonder why no one has ever proposed such a telephone system for radio broadcast transmission? Because the use of a personalized system for a distributive mode application is not cost-effective. If the telcos cannot use their audio telephony network for radio, why should we accept the proposition that, with the advent of fiber optics, they would be able to serve as the distributive medium for video?

Another example -- we all know that AT&T has the most advanced fiber network routes linking almost all the cities in this land. It can provide full NTSC video digital transport service from city to city. This national network is analagous to the personalized fiber switched network to the home proposed by Ray Smith.

And yet, when AT&T won the job to feed ABC's network programming to its affiliates throughout the country, a clearly

distributive mode of communications, guess what technology AT&T picked? A very expensive, new state of the art satellite costing several hundred million dollars. Was fiber ever considered? No. Why? Because different types of communications require different types of architectures.

It is important to put the telcos proposal for a broadband fiber switched video network in perspective. On the one hand, the telcos are talking theory, without <u>any</u> distributive transmission experience. On the other hand, the U.S. already has the world's finest and most advanced national mass media system. Quality over-the-air broadcasting reaches virtually all the nation's households. These over-the-air outlets coexist with more than 75 cable networks, which reach a total of more then 50 million households, and 3 million TVRO dishes serving rural America.

We have looked at the awkwardness of the personalized communications system for distributive uses. Those who would have the United States embark upon this expensive crusade for the holy grail must address this fundamental flaw. Indeed, such a major shift in national policy commitment puts our current, superior mass media system at great risk.

IV. The 4 C's, a Vision Circa 2000

Dr. Koji Kobayashi, Chairman and CEO of NEC, first coined the phrase "C&C" in 1977. That phrase has guided the culture, mission, and even the persona of that respected world class industrial company. C&C stands for Computers and Communications. He foresaw data and teleprocessing as intrinsically intertwined. Today's telecommunications network can no longer simply be viewed as a transparent transmission medium, but rather as a sophisticated value added teleprocessor.

I envision the merging of Kobayashi's C&C with another C&C -- Cable and Consumer -- perhaps by the year 2000. This combination will result in the optimum communications system architecture for residential applications. Such architecture can serve with ease and efficiency either distributive or personalized services or a combination of both.

Imagine an ISDN system with either fiber to the curb or to the home and a hybrid fiber-coax distributive cable system. This cable system would provide both a group of video channels for distributive use such as basic, pay, or pay-per-view and another group of video channels for personalized use in a party line fashion sharing such capacity per several hundred homes. The two systems are integrated at the customer's premises with a CPE. The communications paths used for voice, data, and images would

be either via the cable network or the ISDN, depending on whichever mode is more applicable. All video paths would use the cable network. The CPE would integrate, format and process information from both networks for presentation on display screens. The display screen could be either the HDTV set in the family room or a computer terminal in the study.

Some examples. Suppose I tuned into Channel 4 here this morning to watch the "Today Show" and Bryant Gumbel was reporting about a plane crash at LaGuardia. I could request that the UPI's coverage on the crash be displayed split screen on my HDTV set. Or I might view other edited but unused footage on the crash while Jane Pauley moved on to interview Irwin Jacobs about his latest takeover target. Or if Irwin's comments on the cosmetic industry have piqued my interest, I may choose to review cosmetic stocks in general or the status of my own Revlon holdings. A decision to sell my Revlon holdings could be executed and confirmed in a few minutes. Lastly, I could pull up what's coming up next on Channel 4 and preview some video promo clips for the upcoming show. Now, in this sequence of events, I have utilized both networks efficiently.

There are so many other possible applications. But whatever new services we may find that the consumer wants, the dual network, integrated at the consumer's premises will be able to handle it dynamically and efficiently.

Both the telecommunications and the mass media industries have contributed significantly to this country's well being. Both often complain, for different re ons, that governmental actions or inactions are cramping their respective industries' "styles." Yet, both have grown and prospered under the best governmental system in the world, where freedom of thought and marketplace balance are still king at the end of the day. I urge that, with our government's blessing, we put our best minds together, and jointly develop the truly most advanced and globally competitive communications infrastructure for the United States as we enter the 21st century. Thank you.

Prepared for the United States Telephone Association Capital Recovery Seminar.

MAKING MONEY AS A TELEPHONE COMPANY
RISKS, OPPORTUNITIES AND LIKELY FAILURES

John F. McLaughlin
Executive Director
Program on Information Resources Policy
Harvard University
October 23, 1989

Good evening.

I am here to talk to you tonight about a subject which I assume is close to your hearts, "Making Money in the Telephone Industry."

Before I go too far, I think I should warn you that this is a negative view of the subject. I expect to stand here and close more doors than I open: As a long-time bureaucrat and academic, I can assure you that I am much more proficient in telling you about strategies that probably will not work than those that will. If I was great at predicting things that will make money, I would be relaxing on a tropical beach with my wife at the moment, not singing for my supper here!

Smart people, however, do not avoid negative advice simply because it is negative. The essence of education is to learn from accounts of the experiences of others so you do not have to suffer their mistakes personally.

Two other preliminary warnings are in order:

I have cut the cloth of my ideas to fit the time available this evening. As a result, I will be making some highly generalized statements. Sweeping and as grating as they may sound, I assure you there is a lot of analysis backing up the conclusions.

A lot of my remarks concern the Regional Holding Companies. I am sensitive to the differences between the RBOCs and independents, but I think most of my comments apply to the entire industry, not least because the fate of the RHCs will do much to determine the fate of everyone else in the industry.

In the rapidly fleeing years since the famed "1/1/84," I have spent a lot of time with people in the telephone industry. I have tried to work with them to identify strategies that had a chance of flying in their markets and their public policy arenas, and strategies that did not stand a prayer. Here is how I see things at the moment.

THE PROBLEM FOR TELCOS

Let me start with the observation that the American telephone industry is largely a victim of its own success. In little more than a century since its birth the industry created what most people would agree was the best, most

efficient and most equitable telephone system in the world. This progress was achieved as a result of an historical "deal" between the telephone industry and the State, "the State" in this case meaning both federal and state govrnments. The essence of this deal was that the industry would invest lots of capital to wire up the nation, and also do lots of price averaging to encourage universal access to telephony. In return, the State promised the industry protection from competition. The State also promised the opportunity to earn a fairly healthy and predictable return based on your invested capital. It was deal that seemed to work well for a long time, but it started to collapse in the 1970s.

The historical telephony deal dissolved for many reasons, but I would like to cite two:

1- "Universal service" became, for the most part, a realized ideal. Between the efforts of telephone companies and the regulators (via Lifeline services" and welfare allowances for telephone service), just about everyone who wanted telephone service in the U.S. got it. The result is that the State has a lessened interest in providing "universal service." For all intents and purposes, it has been achieved. That is what I mean about the industry being a victim of its own success. It is worth noting that this achievement was facilitated by the coincidental depopulation of many rural areas which highlights a second reason for the collapse of the historical deal between the industry and the State.

2.- To a great degree state regulated tariffs, the Ozark Plan for separations and settlements and the REA Rural Telephone Program reflected our rural, agrarian, and populist past. Politically powerful rural interests could extract subsidies from urban centers to provide low cost services to rural areas. The Supreme Court's 1962 decision in *Baker v. Carr*, commonly known as the "one person, one vote" decision, accompanied by drastic demographic changes, altered the political landscape for such urban-to-rural subsidies. As political representation increasingly reflected the demographic realities of American life, politicians, quite gradually, have shifted their votes. The Postal Reorganization Act of 1970, airline and trucking deregulation legislation (1978 and 1979), eased regulations for rail line abandonment and a host of other state and federal actions over the past 20 years reflect the political and demographic realities of modern America. The drastic "re-regulation" of our telephone industry during the 1980s has been one part of a larger political and social change.

As it happens, I do not think that our political representatives meant to harm local exchange companies as they started this process of re-regulation. The LECs were left with their local franchises and the Rate-Based/Rate of Return system that has served them well over the years. I think that our state and local politicians meant to leave the local operating companies in place, but I suspect that some of the pols wanted to force some reasonable productivity and rate improvements by allowing the door open to some competition around the edges of the franchise. Wittingly, or not, the re-regulation of the past decade has exposed LECs to two important vulnerabilities:

1.- Public policy has allowed, even encouraged, competition for business traffic within the local exchange franchise. This competition threatens to siphon away the "cream" of LEC revenues. I am talking about IntraLATA competition, competition among CPE vendors, competition among Inter Exchange Carriers with their proliferating Points-of-Presence, and the growth of alternative local carriers like Teleport and Metropolitan Fiber Systems. LECs may be guilty of crying "wolf" too early and too frequently, but the "bypass" monster is a real and growing threat.

2. Technology is undermining earlier assumptions about the value of the local franchise. Telephony was once a scarce good. Providing it to most users entailed building a capital-intensive infrastructure, entailing, in turn, a monopoly franchise and a high likelihood of a fairly certain return on investment. This situation led to Rate-Based/Rate of Return Regulation (RB/ROR) which made a lot of sense when communications infrastructure was expensive. Technology has changed. An ESS5 or a DMS 100 today costs half as much as either did only three years ago. The capital requirements of maintaining a high quality voice network, and expanding it to meet natural growth are now declining, not growing. This means, effectively, that LECs have ever-less justification for investing capital to maintain and expand their systems, which means, in turn, that their earnings, based on RB/ROR, are fated to long term decline. LECs can grow their businesses, but if they cannot justify ever larger capital investments, they cannot grow, or even maintain, their earnings.

To summarize the current environment I would say that LECs are faced with increasing competition for current revenues and declining opportunities to harvest profits when existing or future revenues are based upon capital investment requirements fated to decline by technological realities. This looks like the proverbial rock and hard place!

FOUR STRATEGIES THAT PROBABLY WILL NOT SOLVE YOUR PROBLEM

A lot of LEC, RBOC, or RHC executives sensed or understood this problem early in the game, and pursued one or more of the following solutions:

1- We Will Make Money in "Unrelated" Businesses.

Some telco managers viewed their earlier telco franchises as straitjackets, not gifts. They believed "deregulation" or "reregulation" would give them license to make unlimited profits in unregulated ventures, ranging from retail computer stores and real estate management to software houses and vehicle fleet management.

Results in this area have been predictably bad. Most telco executives, having trained and matured in the regulated monopoly world of telephony, lacked both the knowledge and the instincts to thrive in new competitive worlds. Any entrepreneur or economist would have been pleased to tell these executives that there are not multi-billion dollar businesses lying about unexploited in a market economy.

2- We Will Make Money in "Unregulated" businesses.

The two major "unregulated" businesses of most telcos are mobile cellular and yellow pages and it is pretty debateable whether the yellow pages business is really unregulated in most jurisdictions. While both cellular and yellow pages show that telephone companies can make money in fields related to their core telephone business, it is very hard to see new growth in either of these businesses proving to be a financial promised land for telcos.

Yellow pages probably will continue to contribute nicely to earnings, but everyone has been pushing rate increases, sales, book redesign and operating economies pretty hard for the past five years. It is hard to see the same growth rates continuing for yellow pages in the next five years. Besides, if earnings look too rich, you will be back on the mat with the regulators wanting "their" share.

The growth prospects for the cellular business look great, but it is difficult to see that being translated into mega-profits for telephone companies. The existence of a second carrier in every major market presumably will keep prices competitive and thereby limit profit margins. If the current duopoly does not result in price competition, I suspect we might see Washington emulating Mrs. Thatcher's approach of granting more and more mobile licenses until sharp price competition does result.

3- We Will Make Money in the "Prohibited Businesses," After We are Allowed In.

I continue to be perplexed by the number of telephone executives who are anxious to lose money in the three areas forbidden the RHCs by Judge Greene. As far as I can tell, there is not enough business around for those who currently manufacture CPE, switches, transmission equipment and other telephone related hardware. An RHC might bring something to some small niche market, but I do not see any goldmines created by removal of the manufacturing prohibition.

"Information services?" Maybe there is something there, but it is more smoke than fire for the foreseeable future. There are markets for voice store-and-forward, for gateways and for CLASS services, but these are markets requiring long term development and, they all are shared with many actual competitors.

Then there is Inter Exchange Carriage. Somehow I find it difficult to believe that many players will make much money if seven RHCs go charging into a highly competitive IXC market where prices have been plummeting for years. Seven RHCs in the IXC market would create a new definition for the term "bloodbath."

I do not believe that Judge Greene envisioned himself as a grand

protector of RHC stockholders when he barred the RHCs from these three areas, but the stockholders should bless him every day because he did.

4- We Will Make Money by "Glassing America."

This brings us to the technocratic visionaries and their solution for all of your problems: Fiber optics to every home. The Electronic Highway. Information Infrastructure. The Information Utility. Brrroad Band!

As a financial solution to telephone company problems, fiber optic cable to homes ranks right up there with the magic Kool-Aid of James Jones. If you still have people in your companies selling this particular panacea, you should bundle them off to a techie Siberia where they should be incarcerated forever along with the Bell Labs and BellCore people who perpetuate this form of madness.

Crank a few numbers. The only tangible market for broadband services to the home is for video entertainment. In 1988 all of the CATV system operators in the U.S. generated $13.4 billion in revenues from all sources. That includes basic and pay subscriptions, installation fees, advertising revenues and home shopping commissions.

A lot of analysts see future growth of CATV revenues as highly constrained. With cable now passing 85% of U.S. homes, there are fewer new potential subscribers being added to the base each year. There is increasing political resistance to price increases for basic cable service, while the availability of VCRs and cheap video rentals has cooled the growth of pay services.

Assuming that the telephone industry were allowed to compete for this market through deployment of fiber optics, the estimated entry price ranges from 150 billion dollars up to 400 billion dollars. And that is the price to compete with cable operators who have political friends, who know the business and who have plant in place today. If we assume that capital investment costs are at the lowest point in the range -- $150 billion -- and, if we assume that you eventually captured half of the total CATV revenues -- about $7 billion in 1988 dollars -- we are talking about gross return on invested capital of less than 5% per year. ($7/$150 = 4.67%) And that totally ignores operating costs.

I do not know of any industry where numbers like these would invite entry.

WHERE TO NEXT?

I said I would try to shut some doors this evening. Perhaps I have been unduly harsh in my appraisal of these four frequently discussed strategies, but I think some perspective is needed. In 1988 the average RHC had revenues of