

The Telecommunications Meltdown in the United States: Reasons and Solutions

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I. Introduction

With breathtaking speed, attitudes about the information and telecommunications marketplace have careened from irrational exuberance to extraordinary pessimism.¹ Share prices, investor enthusiasm and prospects for an Information Age revolution have waned. Until 2001 many practitioners, consumers and academics thought that the Internet had the potential to change many of the ways we engage in social and commercial transactions.² Forecasters breathlessly projected triple digit annual increases in demand and revenues with no end to the “blue sky.”³ These forecasts helped fuel the view that the fundamental rules about business and markets did not apply to Information Age industries. Belief in a “rising tide raising all ships” became the prevailing wisdom, so much so that companies could emphasize the need to gain market share with little regard to the short term prospect for breaking even much less generating a profit.⁴

With painful clarity fundamental rules about business and markets do apply to Information, Communications and Entertainment (“ICE”) industries. The Internet does not change the human condition, in terms of fear, greed, wishful thinking, trust and any number of traits that affect stakeholder behavior. If greed previously drove short term thinking with an emphasis on talking up share prices, then currently fear creates disincentives for investment and triggers the prevailing wisdom that years must pass before any information or telecommunications venture can operate profitably and make the substantial investments

necessary to provide new convergent, broadband ICE services. While hindsight offers clear vision, we might benefit in reviewing the recent technological, marketplace, legislative and regulatory history with an eye toward recalibrating our critical analysis.

This paper will identify how stakeholders and governments made false assumptions about the near term demand for ICE services and the prospects for seamless convergence of information and telecommunications technologies and markets. While incumbent carriers might have tolerated significant regulatory burdens and revenue impediments during a rising tide of demand and investment, they have little tolerance now that upside opportunities, such as long distance telephone service, appear less robust. With the passing of only a few months market exuberance has careened to pessimism as stakeholders realize that the Internet does not suspend fundamental business rules.⁵ Likewise, convergence of telecommunications and information processing does not exempt the former from rules affecting the latter, (e.g., the business plan destructiveness of Moore's Law that doubles the capacity of new investments even as it halves the value of sunk investments).

The paper concludes that when all parties have a shared and flawed vision of the future they may fail to appreciate the difficulty and expense in making the necessary short term structural and regulatory adjustments. The paper provides suggestions on how legislatures and regulators might create incentives for broadband deployment and an expedited absorption of excess capacity.

II. Technological Explanations for the Dotcom and Telecom Implosion

Many industry insiders would have you believe a "perfect storm" enveloped the ICE industries thereby absolving individuals of responsibility when their blue sky forecasts and other public representations came up short.⁶ Such blame shifting attempts to free individuals of legal

and ethical responsibility for their actions that collectively primed the pump of optimism and the inflow of venture capital. The real truth about the recession in ICE markets lies in unimpeachable, but readily ignored technological imperatives.

A. Moore's Law Applies to Both Information and Telecommunications Technologies.

The primary disruptive force to both information and telecommunications technologies lies in the tremendous deflationary pressure caused by innovations. Moore's Law graphically and quantitatively captures the destructive nature of technological innovations in stating that the productive capacity available on central processor units in computers doubles every eighteen months.⁷ Moore's Law identifies how technological innovations in computing enhance user productivity and the power in computers even as it destroys the status quo in terms of what consumers expect computer manufacturers to offer by way of price and features. To maintain the same sales price for a computer in the face of substantial downward pressure on the cost of providing the device, manufacturers must continuously improve the value proposition by increasing processor speed, memory and disk drive capacity and by offering additional peripheral devices such as CD and DVD read/write units. Otherwise consumers will consider computers a commodity and base their buying decisions primarily on price.

Moore's Law applies to telecommunications, but service providers do not have as many opportunities to maintain prices by adding features, stimulating brand loyalty⁸ and differentiating offerings. The simultaneous increase in capacity and reduction in per unit costs has helped make the voice and data transport function in telecommunications a commodity business with vastly declining margins. Worse yet for operators, the nature of telecommunications facility investment involves sinking large investments in facilities having substantial capacity that cannot generate revenues until the entire investment has been made and

the facilities installed. Once sunk, these investments quickly lose value as subsequent generations of facilities offer the same voice and data transport functionality at half the cost and with more than double the capacity.

B. Technological Innovations Failed to Stimulate Sufficient Demand.

The tremendous increases in capacity, even coupled with vastly declining margins, would not harm service providers if demand increased commensurately. For a time it appeared that steep market penetration increases for personal computers, modems, Internet access subscriptions, etc. would offset the impact of Moore's Law. However, even robust increases in demand proved insufficient to help service providers make up in volume what Moore Law has forced them to lose in margin.⁹

Additionally the short term increases in demand triggered congestion, particularly in the first and last kilometer lines provided by local exchange carriers and in some routers operated by Internet Service Providers. Even with Moore's Law in effect, the failure of some companies to replace embedded plant created bottlenecks and burdens on companies that had upgraded facilities. In the case of Internet access, even now most non-business consumers use old technology dial up access, because faster options have yet to reach their community, or they fail to see the value in an additional \$30-50 expense for broadband access.¹⁰ Even with latest generation modems consumers can derive only about 50,000 bits per second in output thereby creating a bottleneck in the first and last link of an Internet access route. Additionally, not all Internet Service Providers have the funds or the inclination to increase transmission and switching capacity at the onset of increased demand.

C. Convergence Proved Difficult to Implement and Exploit.

Both technological and marketplace convergence have failed to occur as speedily and easily as forecasted. Technological convergence refers to the blending of previously separate functions possibly resulting in faster, better, smarter, cheaper and more convenient outcomes. For example, technological innovations have made it possible for previously discrete voice and data networks to combine and to travel over the same telecommunications lines. However, the combination of networks does not necessarily translate into benefits business and residential users will readily seek. Integrating and exploiting raw technological innovations often generate delay, confusion and frustration. Similarly, consumers may not want to vest with any single vendor the responsibility and pricing power to install, operate and manage a single, “one size fits all” network notwithstanding the much touted benefits of one stop shopping.

D. Most Technologies Still Have High Sunk Costs.

The telecommunications technologies that drive the Internet have high sunk costs, bring large chunks of new capacity onto the marketplace and generate no revenues until fully installed. Despite these unfavorable characteristics, many new ventures anticipated offering fiber optic and other cutting (or “bleeding”) edge technologies that would help newcomers leapfrog existing technologies and develop a competitive advantage over the combination of old and new technologies offered by incumbents. However, the new technologies accrued only a fleeting competitive advantage, because what destroyed the business plans and revenue expectations of incumbents soon did the same thing to market entrants.

The Information Revolution compressed technological product life cycles, largely because a gaping dichotomy developed between technologically feasible and commercially viable usable lives. Put another way, a fiber optic cable, having a technological usable life of ten

or more years might become commercially obsolete in significantly less time in light of newer generations of cable offering substantially more bandwidth. For example, the introduction of dense wave division multiplexing¹¹ made it possible to send several different laser beam frequencies over the same strand of fiber optic cable thereby increasing bandwidth and throughput in excess of one hundred percent over previous cable vintages.

E. Legacy Facility Retrofits Proved Costly and Difficult to Achieve.

During the dotcom ascendancy the conventional wisdom condemned incumbent telecommunications carriers to financial stagnation or worse based on the assumption that market entrants had insurmountable technological, entrepreneurial and regulatory advantages. Moore's Law favored latest generation technologies and incumbents experienced great difficulty in keeping up by retrofitting existing, "legacy" networks. Newcomers, lacking the incumbents' "Bellhead" culture and philosophy, thought they had better market development and entrepreneurial skills.¹² The Telecommunications Act of 1996¹³ provided newcomers with a leg up through mandatory access to incumbent network facilities at favorable rates, below what the incumbents would have preferred to charge and possibly below their actual costs.

For a time it appeared that incumbent operators could learn from their recent market entry upstarts. Even other incumbents, such as cable television operators, appeared more nimble than incumbent telecommunications carriers. Today in the United States, cable modem service provides Internet access to far more subscribers than the Digital Subscriber Link ("DSL") alternative provided by incumbent telephone companies.¹⁴ It appeared that the telephone companies initially did not have the desire to spend sleepless afternoons competing in light of their desultory planning and deployment of broadband technologies. DSL services often lacked reliability causing the telephone companies to allocate more personnel and truck rolls to an

unproven market even as customers experienced frustration and prospective customers balked at the cost and perceived hassle.

III. Marketplace Explanations

The loss of nearly \$2 trillion in market capitalization¹⁵ painfully demonstrates that the telecommunications and information processing markets do not qualify for an exemption from the imperatives of business cycles and the laws of economics. For a time it appeared as though the Information Revolution would herald a rising tide that would raise all business plans seemingly with little risk.¹⁶ Most telecommunication and dotcom stocks rose well in excess of the overall market and now these stocks have dropped even more substantially. If fear and greed drive stock markets, we have seen both emotions predominate in a short span of time.

A. Flawed Assumptions.

The pessimism that dominates the current prevailing wisdom offers the hindsight view that convergence and Internet-stimulated demand triggered excessive and misguided risk taking. Technological convergence proved difficult to achieve, and few market convergence opportunities have appeared. Just because a single digital pipe might provide the transport for numerous bitstreams, did not mean that consumers would entrust all their ICE traffic to a single service provider.

1. One Stop Shopping Proves Difficult to Implement and Sell.

During the Information Revolution just about every stakeholder bought the view that they must vertically and horizontally integrate to provide consumers—particularly large multinational corporations—with single integrated solutions to any and all requirements. ICE ventures vertically integrated by developing or acquiring, through mergers, new competencies up and down the complete “food chain.” For example, telephone companies, such the Regional Bell

Operating Companies, perceived the need to provide both conduit and content. These companies invested heavily in video production only to realize that they could not easily replicate the success achieved by their cable television competitors. However, as recently as March, 2003 SBC expressed the desire to continue pursuing content markets by announcing its interest in possibly acquiring Direct TV, a major satellite television venture in the United States.¹⁷

2. Absence of Compelling and Legal Content.

Just as technological innovations do not necessarily push consumers to buy ICE products and services, content does not always provide the pull that stimulates demand for costly broadband service upgrades. A significant portion of the demand for Internet-mediated content has come from peer-to-peer networking¹⁸ of files that violate intellectual property rights, such as pirated music and video, from commercial pornography sites and from unsolicited content such as spam. More rigorous enforcement of intellectual property laws, reluctance on the part of some content providers to use the Internet distribution option and the maturation (loss of novelty) of the Internet market have moderated growth in Internet traffic. As well many consumers appear disinclined to pay an additional \$30-50 for broadband Internet access in the absence of applications and content that require a significant upgrade in transmission speed above dial up access.

Widespread expansion in the scope and nature of Internet content may have come to a temporary halt, because providers of the most compelling content will not pursue pay per view and subscription business models until a secure distribution technology guards against piracy. But until such time as consumers have options to access compelling content most will refrain from upgrading the access devices and services needed to handle full motion video files and to

deliver music quickly. Currently it has become safer, if not wiser, to stick with tried and true business models, such as in store video tape and DVD rentals, rather than risk piracy and disappointing revenues. In the video marketplace, the current most successful innovation, Netflix, ironically couples Internet access to a menu of content with conventional postal delivery of the content on disk.¹⁹ Heretofore content providers of music and movies appear to have embraced the Internet unenthusiastically.²⁰ Their lack of enthusiasm until early 2003, coupled with consumers' reticence to incur a more expensive ICE technology burden contributes to the general doldrums.

B. Gold Rush Exuberance Drove a Quest For Shelf-Space Without Regard to Near Term Revenue Prospects.

In light of the current corporate and consumer pessimism it seems quite foolish for venture capitalists and individual investors alike to have accepted the view that a splashy World Wide Web presence mattered more than even the prospects for revenues to approach a break even level. Nevertheless many different types of stakeholders bought the notion that the Internet provided nearly unprecedented opportunities "to get in on the ground floor." Many of the investment pitches created the impression that one could invest in new ventures with the same upside promise as when IBM and Microsoft issued their first shares of stock, yet not all of the thousands of investment options could achieve "best in class" status. Still the unbridled enthusiasm about the future made it possible to think that even market laggards could excel.

The quest for Internet shelf space meant that ventures had to acquire customers across the broadest geographical footprint and to offer the most diversified and comprehensive set of products and services. Presumably first movers could capture customers and secure such high brand loyalty that consumers would refrain from trying any of the numerous, readily available

alternatives. Internet marketers talked about creating communities linked via telecommunications instead of by geographical proximity.²¹ Certainly some Internet users fit the model in the sense that they opted to stay within a “walled garden” with limited content options, such as that provided by, or linked via America Online. However, many more users considered the Internet a platform for access to any store site. These users employed search engines and electronic agents to seek out the lowest price, or to match a user’s individual requirements.

It has become painfully clear that high customer acquisition costs and expansion for expansion’s sake have combined to disable most Internet ventures that failed to establish best in class status. Likewise, what matters to consumers is whether the Internet offers faster, better, smarter, cheaper, or more convenient access to products and services. Establishing a national or international presence did not contribute to accruing positive economies of scale, nor did quick diversification of product and service lines. Even now a best in class Internet venture, Amazon.com, struggles to break even with its core book sales, with later diversification efforts, such as compact disks, DVDs and clothing adding complexity and costs.²²

C. Low Interest Rates Triggered a Migration From Bonds to Stocks and Venture Financing; Vendors Willing to Finance Deals.

One cannot underestimate the market stimulation available from historically low interest rates, coupled with readily available cash from eager investors and equipment vendors. During the Information Revolution technology stocks so excelled that few investors—professional or individual—could resist the incentive to join the bandwagon. Such a herd mentality appeared safe in the sense that even if a venture lacked support based on business fundamentals the

“greater fool” theory suggested that other eager and optimistic investors would gladly buy stocks from other investors keen on cashing out.²³

The vast amount of capital flowing into the information and telecommunications technology sector has resulted in a glut of transmission and switching capacity, particularly for domestic and international long haul routes. Moore’s law exacerbates this glut as technological innovations make it possible for new generations of transmission capacity to duplicate if not exceed all of the previous operational capacity.²⁴

D. Business Fundamentals Apply to ICE Industries.

Stakeholders in ICE industries have painfully come to recognize that business cycle and other economic fundamentals equally apply to their sectors. A general downturn in the domestic and global economy exacerbated the negative industry specific factors making the recession in ICE industries more pronounced with a likely longer period of recovery. Share prices and other indications of the future had built in expectations of double digit demand growth with no apparent end in sight. However, economies tend to grow and contract cyclically, in part based on the ability of technological innovations to enhance productivity and accrue efficiency gains. Few would dispute that electronic commerce and other Internet-mediated transactions offer the potential for faster, better, smarter, cheaper and more convenient personal and commercial experiences. Likewise information and communications technologies have contributed to streamlined and improved transactions that can accrue operational and cost savings. For example, real time monitoring of inventories can support “just in time” production²⁵ and delivery of needed products with a commensurate reduction in inventory holding times. However, these enhancements may not continue in perpetuity, nor can share prices and market forecasts assume that they will.

E. Executives Talked Up Stock Prices So That Options Paid Off Handsomely.

The Information Revolution provided an unprecedented opportunity for new ventures to receive funding and for individuals to get rich quick. Stock options became the preferred currency for compensation based on the view that vastly inflated stock prices would appropriately reward innovation and entrepreneurship.²⁶ Eventually stock prices failed to maintain their upward trajectory. For many stakeholders, the temptation to bolster stocks with false claims became irresistible. Stock analysts and Chief Executive Officers alike “goosed” stock prices with overly optimistic forecasts about the future, based on assumptions even they did not believe.²⁷

F. Y2K Stimulated a Short Term Cash Infusion Possibly Misinterpreted as Evidence of the Information Revolution.

Anxiety about the operational impact of the passage of time to the new millennium provided a short term boost in facilities investment and systems integration fees even as fundamental business conditions started to deteriorate. Despite evidence of a downturn, many stakeholders chose to consider Y2K preparations as proof that the Information Revolution remained healthy. On the contrary, preparations for the turn of the century proved to be a one time boost in investment and expenditures.

IV. Legal and Regulatory Explanations

Legal, regulatory and judicial actions regularly have a significant impact on ICE industries, and the extent of such impact may have reached above average levels in the last few years. Since 1996, with enactment of the a comprehensive revamping of the basic telecommunications law in the United States, the Federal Communications Commission (“FCC”), reviewing courts and stakeholders have struggled to interpret legislative intent. The

Telecommunications Act of 1996 (“’96 Act”) contemplated a more robustly competitive telecommunications marketplace, particularly for local services.²⁸

Congress ordered the FCC to make regulatory changes to achieve this goal. In its broadest sense the ’96 Act provided the major incumbent local exchange carriers (“ILECs”) an opportunity to generate new long distance telephone service revenues in exchange for the likely loss of market share and revenues resulting from having to open their local exchange networks more extensively for access by new competitors, typically referred to as Competitive Local Exchange Carriers (“CLECs”).²⁹ Both incumbents and newcomers negotiated this quid pro quo through their active lobbying of Congress. At enactment, it appeared that most stakeholders could live with their bargain they helped shape, but over time ILECs felt that their costs well exceeded the benefits. The ILECs litigated and delayed their implementation of the ’96 Act perhaps with an eye toward achieving long distance market opportunities without having to comply fully with a 14 point competitive checklist to ensure a level competitive playing field in their core local service markets. As it turned out, delays in implementing the ’96 Act coincided with delays in the ILECs receiving FCC authorization to provide long distance services. In time the technological and marketplace forces mentioned above reduced the profitability of long distance voice telephone services, so much so that ILECs saw their financial sacrifices, in terms of local access, as unfair and unlawful.

A. Implementation of the ’96 Act has Generated More Litigation Than Competition.

ILECs have come to consider the bargain they helped negotiate as unlawfully obligating them to subsidize competition. With their considerable regulatory and legislative affairs budgets, the ILECs have reshaped the debate in terms of confiscation of their facilities investment by regulatory fiat. They claim that the FCC has ordered them to offer facilities access to CLECs at

below cost. The RBOC position has generated some academic support.³⁰ In retaliation and in response to the overall downturn in the economy, ILECs have drastically cut their investment in new facilities and have concentrated on seeking judicial relief.

The courts have provided only qualified support for the ILEC position. The Supreme Court has endorsed the FCC's use of a forward looking cost estimates for establishing access and interconnection models.³¹ The Court held that the ILECs had failed to demonstrate that any specific rate they were required to charge actually caused them to incur a loss. However, a federal appellate court rejected the FCC's establishment of national rules that required ILECs to disaggregate their network facilities and to offer each element on favorable terms to competitors.³² This court held that the FCC failed to consider the specific degree of impairment entrants would face in particular markets if unbundled network elements were not made available. The court also vacated and remanded the FCC's order requiring ILECs to share local exchange lines so that a competitor could provide high speed data services via the same line the ILEC used to provide voice services. ILECs objected to having to share and to provide access on favorable terms and conditions, and this court accepted their argument that the FCC failed to consider the availability of other competitive broadband access alternatives.

1. Congress Failed to Gauge ILEC Willingness to Forgo Existing Revenue Streams for New Market Opportunities.

ILECs continue objecting to the requirement that they offer competitors facilities access at rates below what the ILECs would seek to charge in arm's length, market driven negotiations. The legislative history of the '96 Act clearly demonstrates that the law contemplated regulatory intervention to stimulate competition. ILECs view having to provide access at regulator prescribed rates as subsidizing competition, but the complex nature of cost allocation makes it

difficult to determine the veracity of this allegation. It is clear that the ILECs would prefer to charge much higher rates to competitors, or better yet to deny competitors any access to incumbent facilities. It comes as no surprise that incumbents seek to thwart competition and the loss of market share. Competition policy in many nations requires incumbent operators of essential and bottleneck facilities to provide access. Having every incentive to deny access, but compelled to provide it, incumbents then resort to delay, litigation and confiscation arguments to raise competitors' cost of doing business. Regulators and courts have to guard against price squeezes, particularly if they have determined that the public interest supports efforts to stimulate competition. Congress made such a decision in mandating affirmative regulatory steps to expedite the onset of competition rather than to await the duplication of incumbent facilities by a newcomer.

Litigating and limiting access to ILEC local exchange facilities parallels a strategy executed by the Bell System when confronted with the onset of long distance service competition.³³ When AT&T provided both local and long distance service it was in a position to favor its long distance service through superior technical access to its local exchange facilities by raising the cost of access to the same facilities by competitors. Both the FCC and reviewing courts identified anticompetitive practices, required favorable access terms and conditions and rejected the notion that consumers should not have competitive options unless and until new carriers could duplicate rather than access the facilities of incumbents.³⁴ Bear in mind that even the most facilities rich long distance competitors to AT&T, such as MCI and Sprint, started business with a limited backbone network. Market entrants needed to resell the services of incumbents where the entrant had not yet installed facilities. Likewise as long distance market

entrants concentrated on the long haul they needed to access the local exchange facilities of incumbents for long distance call origination and termination.

The FCC made a determination that the public interest supported procompetitive initiatives.³⁵ In time market entrants weaned themselves off of leased facilities and built out their own networks. ILECs claim that CLECs have no intention on building their own networks and that the FCC-prescribed access rates create financial incentives to continue reselling the services of incumbents. However the fact that CLECs have invested billions of dollars in facilities demonstrates that few consider resale margins sufficiently generous to obviate the need to make sunk investments.³⁶

At least one example exists where Congress made a public interest determination mandating competitor access to incumbent facilities without even the prospect of facilities duplication. Because incumbent telephone and electric utilities already had invested in poles and conduits and because ample space existed to accommodate an additional line, Congress ordered incumbent utilities to provide cable television operators with access.³⁷ While the parties have debated and litigated the cost and scope of access,³⁸ no one disputed the rationale for mandating access. It made no sense to hold up the availability of cable television service until such time as the operator installed duplicate poles and conduits. Similarly, Congress made the national interest determination that local exchange telecommunications competition deserved regulatory stimulation.³⁹

2. Moore's Law and Market Entry Rendered Long Distance Telephony a Commodity Business.

Upon enactment of the '96 Act the ILECs appeared satisfied that they had driven a hard bargain: the potential for lost market share and revenues in local exchange service markets in exchange for a likely large share of the \$110 billion in annual long distance service revenues.⁴⁰ As part of the divestiture of AT&T the spun off Regional Bell Operating Companies ("RBOCs") faced several line of business restrictions, including long distance telephone services limited to calls within a geographical region known as a Local Access and Transport Area ("LATA"). The '96 Act offered the RBOCs unlimited long distance service authority after having satisfied a 14 point competitive check list designed to ensure a level competitive playing field for local exchange services, including ones offered by CLECs that resold, or used ILEC facilities and services for part of the call.⁴¹

In 1996 long distance service authority appeared quite enticing and more attractive to the RBOCs than their riskier investment in privatizing carriers and new mobile radio service providers abroad. However, Moore's Law quickly eroded long distance telephony margins without the possibility of brand diversification and value adding service options like that available for computers and information services. A minute of long distance telephony became a fungible commodity as every carrier used fiber optic cable conduits and limited quality of service differentials existed. Seeing the declining value in long distance services, ILECs grew increasingly restive and dissatisfied with the deal they helped shape.

3. Appellate Courts Accorded the FCC Little Deference and Rejected "Rough Justice" Policies.

Appellate courts have held the FCC to a high standard of clarity and consistency in the Commission's implementation of the '96 Act. Generally U.S. federal courts defer to the

expertise regulatory agencies possess when addressing matters within their jurisdiction. However, increasing economic sophistication of jurists and their law clerks coupled with political philosophies favoring the marketplace or state jurisdiction appear to work against such deference. Given the ambiguity in the language contained in the '96 Act and the vast amount of mandates for the FCC to implement Congressional intent, one can appreciate the difficult assignments the Commission had received. While the legislature may strive for compromise and “rough justice,” courts will hold the FCC to a more rigorous standard of having to engage in rational decision making based on the evidentiary record it must generate. On several occasions courts have rejected FCC decision making as insufficiently justified, or overbearing in light of the limited scope of regulatory intervention the '96 Act authorized.

Much of the judicial opposition lies in the scope and breadth of burdens the FCC chose to impose on ILECs to ensure full and fair local exchange service competition. Courts have interpreted the '96 Act as authorizing the FCC to mandate CLEC access to ILEC facilities and services only to the extent no other options exist and the absence of such options would harm, if not prevent, competition from evolving. Likewise, courts appear to agree with ILEC arguments that the FCC should have quite limited authority to mandate compulsory resale at favorable rates, prescribed by regulators instead of established by arm's length negotiations between carriers.

Excessive reliance by CLECs on ILEC services and resale opportunities does create disincentives for CLECs to construct their own facilities that would provide more robust and complete competitive options for consumers. On the other hand, because ILECs do not want to see any competition develop, they have every incentive not to cooperate with CLECs and to create price squeezes by raising the costs CLEC have to pay for essential facilities such as first and last kilometer access to end users. On numerous occasions both Congress and the FCC have

considered it in the national interest to jumpstart competition by authorizing resale of incumbent carrier services and by mandating interconnection on favorable terms and conditions.

B. Procompetitive and Trade Initiatives (reduced restrictions on foreign ownership) Reduced Market Entry Barriers and Contributed to the Supply Glut.

Even as technological and market forces stimulated investment in ICE industries, procompetitive and trade initiatives provided additional incentives. One of the first major market restructuring initiatives in the U.S. involved the divestiture of AT&T and the elimination of a captive market for telecommunications equipment by the spun off local exchange carriers. Upon divestiture the RBOCs no longer had to commit most of their equipment purchases to a corporate affiliate known as Western Electric. Companies such as Northern Telecom, Alcatel, Siemens and Ericsson took advantage of new opportunities to sell to the RBOCs. These manufacturers achieved greater market access with the successive rounds of trade negotiations that culminated in formation of the World Trade Organization ⁴² and an Agreement on Basic Telecommunications Services. ⁴³

One of the expanded market access opportunities in the United States was the relaxation of restrictions on foreign ownership of carriers operating in the U.S. ⁴⁴ The opportunity for greater foreign investment in the U.S. provided additional capital at the same time as venture capital and stock purchases flooded ICE industries.

C. Governments' Efforts to Cash in On the Rising Tide Through Spectrum Auctions and New Carrier Licensing Added a Debilitating Financial Burden.

Even as venture capitalists and individual investors were banking on a continuing upward trajectory in share prices, consumer demand and company revenues, governments attempted to cash in as well. At the same time as ventures sought maximum financial leverage to acquire market share through investment and acquisitions, national governments sought to extract revenue

from spectrum auctions and new license tenders. The FCC accrued billions of dollars from its spectrum auctions, particularly for additional spectrum and licenses to provide mobile radio telephone services.⁴⁵ Third generation cellular radio telephone license tenders also fetched billions in the United Kingdom, Germany, France and other European nations.

As the ICE industry downturn began, winning bidders either could not meet their payment schedules, or had second thoughts about the wisdom of making such substantial payments. Some bidders filed for bankruptcy protection, but even blue chip incumbent carriers such as British Telecom, Deutsche Telekom, KPN and France Telecom experienced severe financial distress.

V. Near Term Outcomes

The macroeconomic downturn coupled with the more severe ICE industry implosion has triggered widespread pessimism, revived the importance of generating earnings instead of market share and caused stakeholders to exercise extreme caution in their capital expenditure decisions. If businesses previously overinvested in the Information Revolution, many now underinvest based on the need to conserve capital, despite historically low interest rates. Current conditions appear to favor incumbents, particularly ones with a proven customer base and the ability to generate positive cash flow.

A. Incumbents Leverage Investment in Exchange for Favorable Deregulation and Relaxed Antitrust Enforcement.

Incumbents currently exploit the dire economic conditions in ICE industries to pursue aggressively a campaign for further deregulation and relaxed antitrust law enforcement. As the only stakeholders with the wherewithal to invest in new facilities, incumbents condition investment on legislative and regulatory relief. Their legislative and regulatory campaign seeks

freedom from having to unbundle network elements, provide competitors with access to facilities and services and offer access at favorable terms and conditions. Through relentless repetition, incumbents have gained traction in their argument that they should not have to subsidize competition, that resale does not provide any consumer benefit and that having to share access creates severe disincentives to invest in facilities needed to make broadband access ubiquitous.

B. Congress and the FCC Will Abandon Procompetitive Policies that Favor Market Entrants.

Both Congress and the FCC have responded favorably to ILEC strategy of coupling more investment in broadband facilities access with regulatory relief. The House of Representatives passed legislation that would largely free ILECs of unbundling, line sharing and favorable interconnection policies for high speed services and newer, non-copper, local loop investments.⁴⁶ Although the Senate did not pass a similar bill, thereby nullifying the House of Representatives' effort, the FCC has proposed much of the same regulatory relief.⁴⁷ As well the climate appears favorable for regulatory approval of additional industry reentrainment through mergers and acquisitions.

It appears both ironic and unfortunate that just as the '96 Act belatedly accrues some procompetitive benefits, Congress and the FCC appear poised to dismantle the requirements that have helped make competition viable. While many CLECs have declared bankruptcy and have exited the marketplace, major interexchange carriers, such as AT&T and MCI Worldcom, have packaged attractive local plus long distance telephone service plans. CLECs now account for about 11.4 percent of all local exchange lines in the United States.⁴⁸ Procompetitive policies designed to jumpstart local exchange competition in the U.S. possibly have reached a critical

mass, but this benchmark may lack permanence if ILECs have the option to refuse to deal with competitors, or can engage in a price squeezes.

C. Telecommunications has Lost Its Public Utility, Low Risk Status as Well as Its Growth Market Cache.

Regardless of what Congress and the FCC do to stimulate facilities investment, the ICE sector has lost its traditional public utility, low risk characteristics. As well the sector may not regain its high growth nature until such time as consumers see the value in paying \$30-50 more monthly for high speed Internet access. Incumbent carriers, such as ILECs stand to benefit the most, or at least to tolerate conditions of low growth and suppressed facilities investment. Competition, if it exists at all, will result from inter-modal competition (e.g., cable television and fixed wireless service operators) and less significantly from intra-modal competition (e.g., CLECs). However, inter-modal competitors, face the same incentives to conserve capital and may be content to nibble at ILEC market share, e.g., through cable modem Internet access, instead of making the more substantial investments necessary to provide competitive telephone services. On balance it appears that ILECs are in the best position to survive the current downturn, and to consolidate market control in the near term.

VI. The Way Forward.

The dotcom implosion has shaken regulators and operators alike, creating incentives for greater caution even though prudent risk takers typically win in the marketplace. Congress and the FCC need to refrain from adopting a risk averse strategy that shifts from procompetitive policies to incumbent insulating ones. The way forward integrates incentive creation with strict enforcement of common carrier responsibilities and carrier commitments, including ones made to secure regulatory approval for mergers and acquisitions.⁴⁹

A. Retain Common Carrier Interconnection Requirements and Enforce Incumbent Commitments Made to Secure Long Distance and Merger Approvals.

ILECs appear keen on using current economic exigencies to reduce substantially the scope and nature of their common carrier responsibilities. Understandably the regulatory compact that created common carrier rights and responsibilities has changed. Much of the public utility characteristics of telecommunications industry has eroded as market entry barriers drop due to both technological and regulatory factors. A compelling case for market entry exists even for local exchange services and Congress has enacted a law to promote competition. However, to achieve market entry, which would support significant deregulation in the long term, ILECs must cooperate and lose market share in the short term.

Previous regulatory compacts traded reduced upside earning potential in exchange for insulation from competition and a regulatory agency supported floor on downside earnings. In other words, the traditional regulatory quid pro quo trimmed ILEC profit potential, but all but guaranteed a revenue floor. The new regulatory deal links new market access opportunities in exchange for likely lost market share in existing markets. Arguably none of the interconnection and access burdens imposed by the '96 Act exceed what a telecommunications common carrier has a legal obligation to provide. But in this age of having to balance financial upside and downside impact, the FCC has to revamp its calculus if either factor becomes skewed. Having lost some market share in local exchange markets and finding long distance markets less profitable than anticipated, ILECs consider themselves entitled to regulatory relief, including absolution of service and facilities build out commitments they made to secure regulatory approval for mergers and acquisitions.

B. While the FCC Should Strive for Regulatory Symmetry Between Competing Technologies, the Commission Should Not Abandon Its Procompetitive Interconnection and Facilities Access Regime.

The ILECs have made at least one credible argument that they face unfair regulatory burdens. Functionally equivalent technologies, regardless of the operator exploiting the technology, should not qualify for different and inconsistent regulatory treatment. Currently the FCC treats as common carriage ILEC provision of high speed services through enhancements to existing copper local loops. On the other hand, because the FCC considers cable television private carriage, the Commission has refrained from making an exception to that classification for high speed access services delivered by cable television operators that compete directly with telephone company services.⁵⁰ The FCC proposes to eliminate such regulatory asymmetry by reclassifying as an enhanced, information service any ILEC offering that exceeds 200 kilobits per second regardless of whether the ILEC retrofits existing copper wire, or installs new facilities.⁵¹

The FCC should eliminate regulatory asymmetry, but not through a glib revised application of its existing service definitions that would convert previously basic, regulated services into enhanced, unregulated ones. Mandatory structural safeguards can separate an ILEC provision of basic and enhanced services, in the same way that ILECs voluntarily separate their directory publishing business from telephone services. Neither Congress nor the FCC should accept the invitation to eviscerate common carriage responsibilities, on the premise that some competitors operate free of such duties. Perhaps such duties might properly apply to some of the larger set of basic and enhanced services cable television operators now provide. As well some ILEC common carrier responsibilities might no longer be necessary in view of self-regulation in a

competitive marketplace. The European Union's move to horizontal regulation, based on market conditions and not legacy regulatory status provides a working model for the future.⁵²

Congress and the FCC should not accept the ILEC invitation to abandon procompetitive interconnection and access requirements. Just because an incumbent carrier cannot demand and receive a market rate for facilities access and interconnection does not excuse it from having to deal. On several occasions Congress and the FCC temporarily superseded the marketplace and prescribed access terms and conditions. Congress enacted a law that required electric and telephone public utilities to lease pole and conduit space to cable television operators. Rather than obligate cable television operators to erect a duplicative grid of poles and conduits, Congress ordered sharing at fully compensatory rates. Predictably the utilities objected to the equation the FCC created, largely on grounds that the FCC-prescribed rate did not match what they might have charged. Of course the utilities might not have wanted to lease space in the first place, based on the view that such refusals to deal might thwart competition. Mandatory access, at rates prescribed by regulator, may not replicate an arm's length, market-based rate, but the national interest supported compulsory dealing even between common carriers and private carriers.

To jumpstart long distance telephone service competition, in the face of refusals to deal or the provision of inferior access the FCC repeatedly ordered the Bell System to cooperate and prescribed a substantial discount of the rate paid by AT&T Long Lines to its local exchange affiliates. The Exchange Network for Facilities Interstate Access ("ENFIA") arrangement might not pass muster with courts requiring more precise cost calculations, but rough justice rates—admittedly below a market or preferred ILEC rate—expedited the onset of beneficial competition.⁵³ ENFIA did not promote competition for competition's sake, nor does mandatory

resale, and network element unbundling today. Absent procompetitive initiatives by Congress and the FCC, local exchange competition might not flourish, despite repeated claims by ILECs that they do not operate a natural monopoly.

C. Congress should Concentrate on Creating Incentives to Invest in the Sector Through Tax Credits.

Reinvigorating the ICE sectors of a nation's economy constitutes an important and desirable public policy goal. Legislatures and regulators must take initiatives rather than rely on the conditional promises of incumbents that once free of unfair and burdensome regulations they will conscientiously and robustly invest in new technology and make broadband service ubiquitous regardless of competitive necessity. Legislatures and regulators can create more certain incentives for investment and universal service through well crafted tax policy, than by abandoning regulation.

Similarly telecommunications in the U.S. triggers shared jurisdiction between federal and state agencies. The FCC regularly tries to preempt states based on the view that a single consistent regulatory regime must apply nationwide. States reject this fear of "balkanism," because political, social and economic circumstances widely vary among states on such factors as size, wealth, and number of rural residents.

Washington D.C. bureaucrats perennially offer an easy target for libertarian, deregulatory advocates who claim immediate progress would result simply by eliminating the regulator. However, eliminating regulation at the very same time as market forces stimulate industry consolidation, establishes a recipe for remonopolization, or a shared monopoly among a very few local and long distance carriers.

Advocates for deregulation or unregulation point to proliferation of wireless options as proof that a competitive marketplace exists, but mobile services remain metered and significantly more costly than wireline options. That some wireless users have abandoned their wireline service only demonstrates that some people, whether by wealth or preference, choose to pay more for the convenience of wireless services. Similarly the potential for cable television delivered telephony and other lower cost wireless options offer the promise not the certainty of future competition.

In the transition to competition regulation becomes perhaps even more essential and more thorough. But without this transition process, we might return to conditions favoring re-regulation and control of a vastly reduced but powerful set of service providers. We should not jump to conclusions and declare ICE industries competitive and therefore immediately qualified for marketplace, self-regulation.

NOTES

¹ See, e.g., Steve Rosenbush, "When will the telecom depression end" Business Week Online (Oct. 7, 2002); available at http://www.businessweek.com/@@OzF2t4cQQktOPgIA/magazine/content/02_40/b3802082.htm.

² See, e.g., Bill Gates, B. *The Road Ahead* (New York: Penguin Books 1996); Negroponte, N., *Being digital*. (New York: Alfred A. Knopf, 1995).

³ "It was an essential ingredient of dotcom business plans and conference slide-shows: Internet traffic, went the industry's favourite statistic, doubles every 100 days. The claim assumed unimpeachable status when it appeared in a report published by America's Department of Commerce in April 1998. Unfortunately for the telecoms firms that rushed to build networks to carry the reported surge in traffic, it wasn't true." "The Power of Worldcom's Puff--Exaggerated figures for Internet traffic inflated the telecoms bubble" *The Economist* (July 18, 2002), available at http://www.economist.com/displaystory.cfm?story_id=1234733.

⁴ "Economies of scale and scope are also easier to obtain online than offline. A single website can be used to cover the globe: once it is set up, and subject always to fulfillment

problems—of which more later—it is eminently scalable (the current buzzword for the ability to get bigger without a big rise in costs). Similarly, it is far easier for a website that is successful at selling one product to branch into others. And the web allows things like customer aggregation and auctions to be done in ways that are impossible in the physical world.” Survey: E-Commerce, Define and Sell, *The Economist* (Feb 24, 2000); available at http://www.economist.com/displaystory.cfm?story_id=285533.

⁵ “Not too long ago, anybody who questioned the religion of the start-up was told they ‘just didn’t get it’. Nimble newcomers were supposed to blow incumbents to bits with disruptive technologies. Yet the revolution, it turns out, was less technological than financial. Venture capitalists and the stock markets provided start-ups with capital that was essentially free.” Big is beautiful again, *The Economist* (July 19, 2001); available at http://www.economist.com/displaystory.cfm?story_id=705249.

⁶ “Why do companies fail? Their CEOs offer every excuse in the book: a bad economy, market turbulence, a weak yen, hundred-year floods, perfect storms, competitive subterfuge - forces, that is, very much outside their control. In a few cases, such as the airlines’ post-Sept 11 problems, the excuses even ring true. But a close study of corporate failure suggests that, acts of God aside, most companies founder for one simple reason: managerial error.” Ram Charan and Jerry Useem, “The collapse of giants; CEOs offer every excuse on why their companies fail. Every excuse but the right one: their own errors. Here are 10 mistakes to avoid,” *The Business Times Singapore* (August 10, 2002); available at http://web.lexis-nexis.com/universe/document?_m=77729d7323ea1409a381271fbe12fd53&_docnum=3&wchp=dGLbVzb-ISIAI&_md5=985030303432592f2e1d467bf61b3415.

⁷ “The original Moore’s Law derives from a speech given by Gordon Moore, later a founder of Intel, in 1965, in which he observed that the number of microcomponents that could be placed in an integrated circuit (microchip) of the lowest manufacturing cost was doubling every year and that this trend would likely continue into the future. As this observation and prediction began to be frequently cited, it became known as Moore’s Law. In later years, the Law was occasionally reformulated to mean that rate. The pace of change having slowed down a bit over the past few years, the definition has changed (with Gordon Moore’s approval) to reflect that the doubling occurs only every 18 months.” Whatis.com, IT Encyclopedia; available at http://whatis.techtarget.com/definition/0,,sid9_gci212591,00.html.

⁸ When every long distance telephone company offer crystal clear service via fiber optic cables no single carrier, such as AT&T and Sprint, can differentiate their service based on reliability (“genuine” AT&T) or quality (“you can hear a pin drop”).

⁹ “According to figures from RHK, [an Internet research firm] as of May 2002, Internet traffic in the United States totaled approximately 100 million gigabytes per month, representing more than double the amount of long-distance phone calls made in the United States. However, RHK also found that U.S. Internet traffic grew by 100% in 2001, down from 130% in 2000 and 160% in 1999. Revenues also fell during 2001, by 45% per bit.” “U.S. Net Traffic Growth

Slows,” *Entrepreneur.com* (June 27, 2002); available at http://www.entrepreneur.com/Your_Business/YB_SegArticle/0,4621,300532,00.html.

¹⁰ “[N]arrowband users still comprise the bulk of the US online population with more than 74.4 million Americans accessing the Net via a dial-up connection.” *NUA.com*; available at http://www.nua.com/surveys/index.cgi?f=VS&art_id=905358709&rel=true. As of December 2002, 33.6 million Americans accessed the Internet via broadband connections.

¹¹ “Dense wavelength division multiplexing (DWDM) is a technology that puts data from different sources together on an optical fiber, with each signal carried at the same time on its own separate light wavelength. Using DWDM, up to 80 (and theoretically more) separate wavelengths or channels of data can be multiplexed into a lightstream transmitted on a single optical fiber. Each channel carries a time division multiplexed (TDM) signal. In a system with each channel carrying 2.5 Gbps (billion bits per second), up to 200 billion bits can be delivered a second by the optical fiber.” SearchNetworking.com, *whatis.com* definitions; available at http://searchnetworking.techtarget.com/sDefinition/0,,sid7_gci213892,00.html.

¹² For background on the different cultures and philosophies of telecommunications and information processing stakeholders *see* Rob Frieden, “Revenge of the Bellheads: How the Netheads Lost Control of the Internet,” 26 *Telecommunications Policy*, No. 6, 125-144 (Sep./Oct. 2002).

¹³ Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified at 47 U.S.C. §151 *et seq.*).

¹⁴ In June 2002, cable-modem service accounted for 9.2 million lines, up 30%, while DSL rose 29% to 5.1 million lines. *Trendsetters.com, Broadband*; available at <http://www.trendsetters.com/technology-trend/9001,1,broadband-use.html>. *See also*, Federal Communications Commission, Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable And Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, CC Docket 98- 146, Third Report, 17 FCC Rcd. 2844 (2002), available at <http://www.fcc.gov/broadband/706.html>.

¹⁵ “Our industry is in critical condition. In the last two years, there have been 500,000 jobs and \$2 trillion in market capitalization lost. Investment is at a standstill.” Remarks of Walter B. McCormick, Jr., President and CEO of the United States Telecom Association to the 105th Annual USTA Convention and Exhibition, Boca Raton, FL. (September 30, 2002); available at <http://www.usta.org/final%20wbm%20speech%20093002.pdf>.

¹⁶ “The truly revolutionary impact of the Information Revolution is just beginning to be felt. But it is not ‘information’ that fuels this impact. It is not ‘artificial intelligence.’ It is not the effect of computers and data processing on decision-making, policymaking, or strategy. It is something that practically no one foresaw or, indeed, even talked about ten or fifteen years ago:

e-commerce -- that is, the explosive emergence of the Internet as a major, perhaps eventually *the* major, worldwide distribution channel for goods, for services, and, surprisingly, for managerial and professional jobs. This is profoundly changing economies, markets, and industry structures; products and services and their flow; consumer segmentation, consumer values, and consumer behavior; jobs and labor markets.” Peter Drucker, “Beyond the Information Revolution,” *The Atlantic Monthly, Digital Edition* (Oct. 1999); available at <http://www.theatlantic.com/issues/99oct/9910drucker.htm>.

¹⁷ “SBC in Talks for DirectTV,” *International Herald Tribune* (Feb. 10, 2003); available at <http://www.ihf.com/articles/86141.html>.

¹⁸ “On the Internet, peer-to-peer (referred to as P2P) is a type of transient Internet network that allows a group of computer users with the same networking program to connect with each other and directly access files from one another’s hard drives. Napster and Gnutella are examples of this kind of peer-to-peer software. Corporations are looking at the advantages of using P2P as a way for employees to share files without the expense involved in maintaining a centralized server and as a way for businesses to exchange information with each other directly.” searchNetworking.com, Definitions; available at http://searchnetworking.techtarget.com/sDefinition/0,,sid7_gci212769,00.html

¹⁹ Background on the Netflix service is available at <http://www.netflix.com/LearnMore?lnkctr=unrecHomeLearnMore>.

²⁰ “‘Solution’ is far too final a term for this business still very much in flux. But after years of denial and confusion, belligerence and panic, most of the big record labels have coalesced around a set of prices at which they will make almost all of their music available to an ever-expanding array of legal online services.” Saul Hansell, “E-Music Sites Settle on Prices. It’s a Start,” *The New York Times*, Section C; Page 1 (March 3, 2003).

A major step toward a legal mass market for online music came with America Online’s online music service at a monthly subscription rate of about \$10 for non-recording access to about 250,000 songs online, using a technology called streaming. AOL charges about 99 cents to download and copy a song.

²¹ “In the early days of the internet boom, there was much talk of the ‘death of distance’. The emergence of a global digital network, it seemed, would put an end to mundane physical or geographical constraints. There was some truth in this. E-mail made it cheap and easy to stay in constant touch with people, whether they lived around the corner or on the other side of the globe. Companies could communicate with customers and employees no matter where they were. And like-minded individuals who shared a common interest could get together online from all round the world.

Actually, geography is far from dead. Although it is often helpful to think of the internet as a parallel digital universe, or an omnipresent ‘cloud’, its users live in the real world where limitations of geography still apply. And these limitations extend online.” “The revenge of geography,” *Technology Quarterly, The Economist* (March 15, 2003).

²² “No longer able to rely on novelty for continued growth, major online retailers are now trying to mine territory they had previously dismissed as too challenging. For example, industry bellwether Amazon.com Inc. is putting the finishing touches on a plan to open a virtual store to sell clothing. . . . Amazon has little choice but to pursue increasingly difficult categories. It often has stated it will grow by offering an ever-increasing variety of items.” David Colker, “Internet Retailing Is Growing Into a State of Maturity; And Along With It Comes a Flattening Out of Growth,” *Los Angeles Times*, Business; Part 3; Page 1 (Oct. 31, 2002).

²³ The greater fool theory has been defined as the “[b]elief held by one who makes a questionable investment, with the assumption that he/she will be able to sell it later to a bigger fool.” *Investorwords.com*; available at <http://www.investorwords.com>.

²⁴ A new \$443 million transatlantic fiber optic cable called Apollo will offer 3.2 terabits of capacity “30% more than all current transatlantic capacity combined.” “When Will the Telecom Depression End,” *Business Week Online* (Oct. 7, 2002).

²⁵ “When the Internet became popularized in the 1990s, it opened up the possibility of real-time information being shared up and down the supply chain. And when the Net began to be connected to back-end systems and companies began to outsource more of their production, then the possibilities for inventory automation became both more real and more urgent.” John Zipperer, Driving Performance: Managed Supply Chain, *Internet World* (March 1, 2003); available at <http://www.internetworld.com/magazine.php?inc=030103/03.01.03managedsupply.html>.

²⁶ “[T] the impact of stock options and executive compensation on executives’ decisions should not be ignored. During the last twenty years, the CEO became a hero in American society, bringing wealth to his or her employees by raising the value of company stock and expanding the use of stock option grants. Limits on executive compensation seemed to disappear, as the receipt of significant sums, often measured in the tens of millions of dollars, seemed relatively reasonable when the company’s market capitalization had increased by hundreds of millions of dollars.” Neil H. Aronson, “Preventing Future Enrons: Implementing the Sarbanes-Oxley Act of 2002,” 8 *Stanford Journal of Law, Business and Finance* 127, 130 (Autumn, 2002).

²⁷ “The basis for a case against Mr. Blodget [an Internet stock analyst at Merrill Lynch] emerged last April when Eliot Spitzer, the New York attorney general, released Merrill Lynch e-mail messages in which Mr. Blodget and his colleagues ridiculed companies that they were recommending to the firm’s clients. The messages also showed how influential investment bankers were in securing positive research reports for companies that were either clients of the firm or potential customers. For example, in one e-mail message Mr. Blodget referred to InfoSpace, an Internet company that he favored publicly, as ‘a piece of junk.’” Gretchen

Morgenson and Patrick Mcgeehan, "Wall Street Star May Face Suit By Regulators," *New York Times*, Section A; Page 1 (Jan 4, 2003).

²⁸ For background on the Telecommunications Act of 1996, see John C. Roberts, "The Sources of Statutory Meaning: An Archaeological Case Study of the 1996 Telecommunications Act," 53 *Southern Methodist University Law Review*, 143, 151 (2000); Michael Glover & Donna Epps, "Is the Telecommunications Act of 1996 Working?," 52 *Administrative Law Review*, 1013 (2000); Rob Frieden, "The Telecommunications Act of 1996: Predicting the Winners and Losers," 20 *Hastings Communications & Entertainment Law Journal*, No. 1, 11-57 (Fall, 1997), Michael I. Meyerson, "Ideas of the Marketplace: A Guide to the 1996 Telecommunications Act," 49 *Federal Communications Law Journal*, 251, 252 (1997); Thomas G. Krattenmaker, "The Telecommunications Act of 1996," 49 *Federal Communications Law Journal*, 1, 3 (1996); Glen O. Robinson, "The 'New' Communications Act: A Second Opinion," 29 *Connecticut Law Review*, 289, 304 (1996).

²⁹ Section 271 of the Telecommunications Act of 1996, 47 U.S.C. § 271 (2003) provides that an RBOC may provide long distance service within its own territory (determined on a state-by-state basis) once it has met certain conditions, including a fourteen-point competitive checklist and a determination by the FCC that granting the RBOC's application is consistent with the public interest. The FCC must act on an application within ninety days after its filing. It must consult with the United States Department of Justice, giving the DOJ recommendation substantial but not preclusive weight. It must also consult with the PUC for the state that is the subject of the application. In practice, the RBOC typically files its proposal with the state PUC well in advance of a filing with the FCC, and files with the FCC only after the PUC has endorsed the application.

³⁰ See J. Gregory Sidak & Daniel F. Spulber, "Deregulatory Takings and Breach of the Regulatory Contract," 71 *New York University Law Review*, 851 (1996); J. Gregory Sidak & Daniel F. Spulber, "Givings, Takings, and the Fallacy of Forward-Looking Costs," 72 *New York University Law Review* 1068 (1997); J. Gregory Sidak & Daniel F. Spulber, "The Tragedy of the Telecommons: Government Pricing of Unbundled Network Elements Under the Telecommunications Act of 1996," 97 *Columbia Law Review*, 1081 (1997).

³¹ *Verizon Communications Inc. v. FCC*, 122 S. Ct. 1646 (2002).

³² *U.S. Telecom Ass'n v. F.C.C.*, 290 F.3d 415, 351 U.S.App.D.C. 329 (D.C.Cir. May 24, 2002) (NO. 00-1012, 00-1015, 01-1102, 00-1025, 01-1075, 01-1103), *Rehearing and Rehearing en Banc Denied*, *U.S. v. F.C.C.*, 2002 WL 31039663 (D.C.Cir. Sep 04, 2002) (NO. 00-1012), *Certiorari Denied*, *WorldCom, Inc. v. U.S. Telecom Ass'n*, ___ S.Ct. ___, 2003 WL 1448388, 71 USLW 3416 (U.S.Dist.Col. Mar 24, 2003) (NO. 02-858).

³³ *United States v. Am. Tel. & Tel. Co.*, 552 F.Supp. 131 (D.D.C.1982), *aff'd*, 460 U.S. 1001, 103 S.Ct. 1240, 75 L.Ed.2d 472.

³⁴ MCI Telecommunications Corp. v. F.C.C., 712 F.2d 517 (D.C. Cir. 1983); MCI Telecommunications Corp. v. FCC, 561 F.2d 365 (D.C.Cir.1977), *cert. denied*, 434 U.S. 1040, 98 S.Ct. 781, 54 L.Ed.2d 790 (1978); MCI Telecommunications Corp. v. FCC, 580 F.2d 590 (D.C.Cir.), *cert. denied*, 439 U.S. 980, 99 S.Ct. 566, 58 L.Ed.2d 651 (1978).

³⁵ Specialized Common Carrier Services, 29 F.C.C.2d 870 (1971), *aff'd sub nom.* Washington Utilities & Transportation Commission v. FCC, 513 F.2d 1142 (9th Cir.), *cert. denied*, 423 U.S. 836, 96 S.Ct. 62, 46 L.Ed.2d 54 (1975), paved the way for private line market entry by carriers offering services in competition with AT & T. Subsequent FCC and appellate court decisions clarified that AT & T could not, through its subsidiaries, the Bell Operating Companies (BOCs), block competition by denying competitors interconnection. Bell System Tariff Offerings, 46 F.C.C.2d 413, *aff'd sub nom.* Bell Telephone Co. v. FCC, 503 F.2d 1250 (3d Cir.1974), *cert. denied*, 422 U.S. 1026, 95 S.Ct. 2620, 45 L.Ed.2d 684 (1975).

³⁶ A study commissioned by a major CLEC trade association estimates that CLECs spent more than \$103 billion on network infrastructure between 1996 and 2001 while ILEC spending on compliance with the '96 Act and responding to competition totaled about \$47 billion. New Paradigm Resources Group, Inc., "Measuring the Economic Impact of the Telecommunications Act of 1996: Telecommunications Capital Expenditures (1996-2001)," study prepared by the Competitive Telecommunications Association (Oct., 2002); available at <http://www.comptel.org/newsfr.html>.

³⁷ Pole Attachment Act of 1978, Pub. L. No. 95-234, 92 Stat. 33 (February 21, 1978), *codified at* 47 U.S.C. § 224 (2002). The Pole Attachment Act requires the FCC to set reasonable rates, terms, and conditions for certain attachments made by cable television and other telecommunications service providers to telephone and electric utility poles. 47 U.S.C. § 224(b)(v). The Act requires the FCC to "regulate the rates, terms, and conditions for pole attachments to provide that such rates, terms, and conditions are just and reasonable, and shall adopt procedures necessary and appropriate to hear and resolve complaints concerning such rates, terms, and conditions." 47 U.S.C. § 224(b)(1). Background on the law is available at S. Rep. No. 95-580, 1978 *U.S. Code Congress and Administrative News*, 109. Background on FCC enforcement actions is available at <http://www.fcc.gov/eb/mdrd/PoleAtt.html>.

³⁸ For example, in 2002 the Supreme Court upheld the FCC's authority to limit fees that cable telecommunications and wireless telecommunications service providers pay to attach wires and other facilities to utility poles. The Court held that the Pole Attachment Act of 1978 provides for many types of attachments, including those used by cable television systems to provide high speed internet access in addition to conventional cable television services. *National Cable & Telecommunications Association, Inc., v. Gulf Power Co.*, 534 US 327 (2002), available at <http://supct.law.cornell.edu/supct/html/00-832.ZS.html>.

³⁹ A partial summary of the '96 Act identifies some of the procompetitive requirements imposed on all telecommunications carriers: (1) to interconnect directly or indirectly with the

facilities and equipment of other carriers; and (2) not to install network features, functions, or capabilities that do not comply with specified guidelines and standards. Specific requirements of local exchange carriers include the duty: (1) not to prohibit resale of their services; (2) to provide number portability; (3) to provide dialing parity; (4) to afford access to poles, ducts, conduits, and rights-of-way consistent with pole attachment provisions of the Act; and (5) to reestablish reciprocal compensation arrangements for the transport and termination of telecommunications. Requirements of ILECs include the duty to: (1) negotiate in good faith the terms and conditions of agreements; (2) provide interconnection at any technically feasible point of the same quality they provide to themselves, on just, reasonable, and nondiscriminatory terms and conditions; (3) provide access to network elements on an unbundled basis; (4) offer resale of their telecommunications services at wholesale rates; (5) provide reasonable public notice of changes to their networks; and (6) provide physical collocation, or virtual collocation if physical collocation is impractical. Congressional Research Service, "Summary of P.L. 104-104," available at <http://thomas.loc.gov/cgi-bin/bdquery/z?d104:SN00652:@@@D&summ2=m&>. Other summaries available at <http://thomas.loc.gov/cgi-bin/bdquery/z?d104:SN00652:@@@D&summ1&>. See also, United States Senate, 104 Congress, 2d Session, Telecommunications Act of 1996, Conference Report, Report 104-230, (1996). available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=104_cong_reports&docid=f:sr230.104.pdf.

⁴⁰ The Federal Communications Commission reported that total toll service revenues declined from \$109.6 billion in 2000 to \$99.3 in 2001 with further declines in 2002. See http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/telrev01.pdf.

⁴¹ Telecommunications Act of 1996, 47 SEC. 271, Bell Operating Company Entry Into Inter-LATA Services, available at <http://www.techlawjournal.com/courts/sbcvfcc/47usc271.htm>.

⁴² For background on formation of the WTO see World Trade Organization, What is the WTO?, available at http://www.wto.org/english/thewto_e/whatis_e/whatis_e.htm.

⁴³ World Trade Organization, Coverage of basic telecommunications and value-added services, available at http://www.wto.org/english/tratop_e/serv_e/telecom_e/telecom_coverage_e.htm.

⁴⁴ Rules and Policies on Foreign Participation in the U.S. Telecommunications Market, IB Docket Nos. 97-142 and 95-22, Report and Order, 11 FCC Rcd 3873 (1997), Report and Order on Reconsideration, 12 FCC Rcd 23,891 (1997); FCC orders implementing aspects of the Basic Telecommunications Agreement is available at <http://www.fcc.gov/ib/pd/pf/wto.html>.

⁴⁵ For an outline of the revenues generated by FCC spectrum auctions see Federal Communications Commission, Completed Auctions, available at <http://wireless.fcc.gov/auctions/summary.html#completed>.

⁴⁶ Internet Freedom and Broadband Deployment Act (H.R. 1542), available at <http://thomas.loc.gov/cgi-bin/query/D?c107:1:./temp/~c107YOJq2i::>

⁴⁷ Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, Notice of Proposed Rulemaking, CC Docket No. 02-033, 17 FCC Rcd. 3019 (2002)[hereinafter cited as Wireline Broadband NPRM].

⁴⁸ Federal Communications Commission News, Federal Communications Commission Releases Data on Local Telephone Competition, (Dec. 9, 2002), available at http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/lcom1202.pdf.

⁴⁹ For background on the scope of commitments made by RBOCs to secure FCC approval of major mergers and acquisitions see Federal Communications Commission, Merger Compliance Oversight Team (MCOT), available at <http://www.fcc.gov/wcb/mcot/>.

⁵⁰ Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, Internet Over Cable Declaratory Ruling, GN Docket No. 00-185, Appropriate Regulatory Treatment for Broadband Access to the Internet Over Cable Facilities, CS Docket No. 02-52, Declaratory Ruling and Notice of Proposed Rulemaking, 17 FCC Rcd. 4798 (2002).

⁵¹ “[W]e tentatively conclude that wireline broadband Internet access service provided over a provider’s own facilities is an information service.” Wireline Broadband NPRM at ¶24; The Commission has used the term “advanced services” to describe services and facilities with an upstream (customer-to-provider) and downstream (provider-to-customer) transmission speed of more than 200 kbps. In addition, the Commission has used the term “high-speed” to describe services with over 200 kbps capability in at least one direction. Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, CC Docket No. 98-146, Report, 17 FCC Rcd. 2844, 2850-2851 (2002). Advanced and high-speed services enable “users to originate and receive high-quality voice, data, graphics, and video telecommunications.” *Id.*

⁵² Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communications networks and services (Framework Directive), *Official Journal of the European Communities*, L 108/33 at (5)(March 7, 2002), available at http://europa.eu.int/information_society/topics/telecoms/regulatory/new_rf/documents/l_10820020424en00330050.pdf.
Recommendation on Relevant Markets; Commission Recommendation On Relevant Product and Service Markets within the electronic communications sector susceptible to ex ante regulation in accordance with Directive 2002/21/EC of the European Parliament and of the Council on a common regulatory framework for electronic communication networks and services. C(2003)497 available at http://europa.eu.int/information_society/topics/telecoms/regulatory/maindocs/documents/recomen.pdf.

⁵³ The FCC Commission, prodded AT & T and new competitors, such as MCI, to negotiate “some sort of a ‘rough justice’ interim” agreement on access charges pending a decision in Docket No. 78-72. Exchange Network Facilities for Interstate Access, 91 F.C.C.2d 1079, 1081 (1982) *aff’d*, MCI Telecomm. Corp., 712 F.2d 517 (D.C.Cir.1983).