Donna N. Lampert Associates, P.C.
701 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

Donna N. Lampert
dnlampert@aol.com

Telephone: 202/393-6410
Fax: 202/393-6411

January 13, 1999

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

BY HAND
Magalie Roman Salas
Secretary
Federal Communications Commission
The Portals
TW-A325
445 12th Street, S.W.
Washington, D.C. 20554

Re: Joint Application of AT&T Corp. and Tele-Communications, Inc. for Transfer of Control to AT&T of Licenses and Authorizations Held by TCI and Its Affiliates or Subsidies -- CS Docket No. 98-178; and Deployment of Wireline Services Offering Advanced Telecommunications Capability -- CC Docket No. 98-147

Dear Ms. Salas:

On January 12, 1999, George Vradenburg (Senior Vice President - Global and Strategic Policy) and Steven Teplitz (Public Policy – Senior Counsel) of America Online, Inc. ("AOL"); Peter Ross (Attorney) of Wiley, Rein & Fielding; and I met with Kathryn C. Brown (Chief of Staff); Thomas C. Power (Legal Advisor), both of Chairman Kennard's Office, and Robert M. Pepper (Chief – Office of Plans and Policy) to discuss the attached written presentations. Due to the lateness of the hour, this Notice is being filed today.

Pursuant to Section 1.1206(b)(1) of the Commission's Rules, two copies of this Notice are attached for inclusion in the public record in the above-captioned proceedings. Should you have any questions, please contact me.

Sincerely,

Donna N. Lampert

Enclosures

cc:
Kathryn C. Brown (w/o encl.)
Thomas C. Power (w/o encl.)
Robert M. Pepper (w/o encl.)
International Transcription Service (w/encl.)

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OPEN BROADBAND FACILITIES -- OVERVIEW

1. **PROMOTING CONSUMER CHOICE AND OPEN ACCESS TO "LAST MILE" BROADBAND FACILITIES WILL INCREASE CONSUMER WELFARE, ECONOMIC EFFICIENCY AND ECONOMY-WIDE INVESTMENT INCENTIVES**

2. **ESTABLISHING NOW AN OPEN BROADBAND STRUCTURE FOR "LAST MILE" FACILITIES WILL REDUCE THE NEED LATER FOR MORE DETAILED BEHAVIORAL REGULATION OF ENTRENCHED GATEKEEPERS**

3. **THERE ARE NO TECHNICAL OR OPERATIONAL OBSTACLES THAT WOULD PRECLUDE OR RENDER UNECONOMIC OPEN ACCESS FOR "LAST MILE" CABLE BROADBAND SERVICES**

4. **THE AT&T/TCI MERGER IS AN APPROPRIATE VEHICLE TO IMPLEMENT AN OPEN PLATFORM POLICY FOR "LAST MILE" BROADBAND FACILITIES**

PROMOTING CONSUMER CHOICE AND OPEN ACCESS TO "LAST MILE" BROADBAND FACILITIES WILL INCREASE CONSUMER WELFARE, ECONOMIC EFFICIENCY AND ECONOMY-WIDE INVESTMENT INCENTIVES

- **The open access model of service provision will best stimulate overall investment in the Internet facilities and services that are becoming increasingly central to our nation's economic well-being.**

- **Consumer welfare will be increased through lower prices and expanded choice by preventing cable from tying their Internet access services, such as @Home, with last mile broadband data transmission services.**

- **Economic efficiency will increase through adoption of the open access approach by ensuring that consumers can purchase their preferred service at economic rates.**

- **Rather than undermining incentives to invest in network facilities upgrades, economy-wide investment will increase by stimulating investment by Internet Service Providers, applications providers, portal services, backbone and backhaul services and competitive last mile facilities providers.**

- **An open access policy allows the competitive development of exclusive, proprietary content and allows non-exclusive bundling, but bars tying.**

- **Adopting an open access policy will still allow cable to charge a market-clearing price for its broadband transmission services.**

- **Once cable facilities are upgraded for advanced digital video, entertainment and telephony purposes, the incremental investment costs for Internet access are small.**

- **Even if investment in @Home decreases, which is by no means certain, economy-wide investment will increase, including extensive investment by competitive ISPs.**

- **The FCC has in the past wisely rejected claims that competition will undermine "economies of scale," including the same arguments previously made by AT&T.**

- **Promoting open access is a marketplace solution precisely because it permits consumers to choose their ISPs based upon price, performance, content, and reliability rather than having their choices made for them by the owners of the transmission pipes.**

- **United States policy has consistently underscored in national and international debates a commitment to open and competitive "last mile" transmission platforms.**

ESTABLISHING NOW AN OPEN BROADBAND STRUCTURE FOR "LAST MILE" FACILITIES WILL REDUCE THE NEED LATER FOR MORE DETAILED BEHAVIORAL REGULATION OF ENTRENCHED GATEKEEPERS

- **The FCC should not allow history to repeat itself – the long history of cable's growth and development underscores that the public interest suffers if bottlenecks are allowed to take hold.**
- **The FCC should heed the early warning signs and act swiftly and certainly to ensure that the true competitive promise of "loop to loop" competition is fulfilled.**
- **Open access will create incentives for both cable and LEC data transport providers to invest in their networks as they seek to win ISP customers.**
- **Already, history is repeating itself as bottleneck control is being used to limit bandwidth allocated to advanced Internet services.**
- **An initial open framework can obviate the need for heavy-handed intrusive regulation later on to address entrenched "gatekeeper" problems.**
- **Ultimately, an open environment for competing wireline "last mile" providers will decrease the need for government regulation.**

THERE ARE NO TECHNICAL OR OPERATIONAL OBSTACLES THAT WOULD PRECLUDE OR RENDER UNECONOMIC OPEN ACCESS FOR "LAST MILE" CABLE BROADBAND SERVICES

- **Despite business and network configuration decisions regarding the delivery of Internet access services to consumers by cable companies, there are no technical reasons that would preclude an open access policy for Internet services.**
- **The cable architecture can accommodate multiple ISPs and can be easily modified to the extent necessary.**
- **No physical changes to the HFC network are required to accommodate multiple ISPs.**
- **No changes to existing standards are required to accommodate multiple ISPs.**
- **There are no technical compatibility or network security issues that would preclude multiple ISP access.**
- **Arguments that multiple ISP access will create congestion or operational burdens ignore the fact that these issues are related to the overall level of traffic, not the number of ISPs.**
- **The Canadian Cable Television Association in cooperation with the Canadian Association of Information Providers has already devised a workable approach to offer multiple ISP access in Canada.**

THE AT&T/TCI MERGER IS AN APPROPRIATE VEHICLE TO IMPLEMENT AN OPEN PLATFORM POLICY FOR "LAST MILE" BROADBAND FACILITIES

- **The FCC has clear authority to impose targeted conditions in the context of the pending AT&T/TCI merger review proceedings and has a statutory duty to do so when the public interest dictates.**

- **Consumer choice through open access and elimination of bottlenecks is fundamental to the FCC's public interest mandate and should be firmly adopted as a bedrock policy from the outset.**

- **The FCC must not allow the AT&T/TCI merger to entrench bottlenecks in Internet services, which are now central to the health of the U.S. economy and the lives of the American people**

- **Allowing cable to establish a gatekeeper position will deter service, application and facilities development and competition, contrary to the public interest.**

- **There is no statutory bar to imposition of an open access obligation when cable operators offer Internet access services.**

INVESTMENT AND CONSUMER WELFARE IN BROADBAND INTERNET ACCESS

by

Jerry A. Hausman
January 1999

Jerry A. Hausman is the MacDonald Professor of Economics at the Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts. He received an A.B. degree from Brown University and a B.Phil and D.Phil (Ph.D.) in Economics from Oxford University where he was a Marshall Scholar. He is also the director of the MIT Telecommunications Economics and Business Research Program. He has also edited two books on telecommunications and is the author of several telecommunications papers.

EXECUTIVE SUMMARY

This paper analyzes whether it is in the public interest to require providers of cable broadband networks to allow access to non-affiliated Internet service providers to provide to consumers Internet services over the cable "last mile" network. Based upon standard economic analysis, I find that consumer welfare, economic efficiency and economy-wide investment incentives will be increased through the adoption of an "open access" policy that fosters consumer choice and service competition.

Requiring cable companies to allow open access to the last mile network creates competition in Internet services that will increase consumer welfare by lowering prices and increasing consumer choice. When the cable industry claims that "extra profits" from a closed system will lead to higher investment in the network they are unintentionally making the case that a closed system will mean higher prices to consumers than would exist under an open access framework. Additionally, in a marketplace comprised of over 5000 providers of different Internet services it is difficult to justify the notion that provision of a single brand of service over the cable broadband network provides greater consumer welfare than providing consumers with diverse services from multiple, competing brands.

Prohibiting cable companies from tying ISP services to last mile broadband transmission services will also promote the public interest by encouraging economic efficiency. The competitive pricing in an open system will speed consumer adoption of broadband services. Further, in the absence of tying, the dynamic nature of the Internet industry makes it highly likely that multiple brands of cable-based Internet services that some consumers would prefer over the cable-affiliated Internet services would be introduced, thereby increasing demand.

Economy-wide investment will likely increase through an open access approach even if investment by cable companies in tied services may decrease (which is by no means certain). The increased investment by competing service providers using the cable network last mile will more than outweigh any decrease in investment from the loss of the "extra profits" that may accrue to the cable companies' affiliated service provider. There will also be an overall increase in innovation and investment in services and marketing as competitors develop new broadband applications to reach the increased numbers of broadband customers.

Open access will also lead to increased investment in backbone and related facilities as multiple providers of broadband Internet services are able to share the high fixed costs of the network infrastructure and reduce consumer prices. Importantly, if ISPs have a choice of cable or local exchange carrier (LEC) high-speed Internet

transmission services, both incumbent LECs and cable companies will have an incentive to increase their investment in their transmission capabilities.

Regulators have in the past and should now reject claims that competition will undermine "economies of scale" or prevent the delivery of superior services to consumers. No financial analysis supports the claim that without the tying of Internet access service with broadband transport the cable industry (and/or AT&T) will not invest in upgrading their last mile facilities.

Today, there are many reasons for cable operators to upgrade their facilities, including the ability to provide more channels of entertainment, pay-per-view services, and competitive telephony services. As the cable industry has expressly acknowledged, once the networks are upgraded for these purposes, the incremental costs for providing broadband transmission are low. And, regardless of claims that cable will be forced to provide below-cost transport services, cable will be able to charge, even under an open access policy, a market-clearing price for its broadband transmission services, thereby justifying their investment.

The cable industry's analysis supports tying internet broadband services with last mile broadband transmission services because it assumes that "What is good for the cable industry is good for the country." This approach wholly ignores the broader public interest economic consequences. However defined - whether as consumer welfare or as economic efficiency or as added investment in broadband facilities - the public interest will be best served by preventing the tying of cable's ISP services with their last mile broadband transmission services.

INVESTMENT AND CONSUMER WELFARE IN BROADBAND INTERNET ACCESS

Jerry A. Hausman
MacDonald Professor of Economics, MIT
January 11, 1999

Today, cable operators are tying purchase of @Home Internet service or Roadrunner Internet service to high bandwidth (broadband) "last-mile" data transmission services.[1/] In response to requests that they open access to their last mile broadband facilities, cable companies have claimed that they will not find it economical to invest in last mile high speed data transport unless they are able to tie @Home's Internet access and other services with last mile high speed data transport. As explained more fully below, the result will be a reduction in economic efficiency and consumer welfare through higher prices to consumers and decreased choices for consumers.[2/]

In support of their position, the National Cable Television Association ("NCTA") has submitted a paper by Drs. Bruce Owen and Gregory Rosston ("Owen-Rosston Paper") which claims that a prohibition on tying will potentially decrease profits for @Home and therefore reduce incentives for investment by cable companies.[3/] I agree with the conclusion that profits for @Home may be reduced and therefore investment incentives for @Home may be reduced under a competitive open access policy. What

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1/ In what follows I will refer only to the @Home situation, although most of the details of RoadRunner are similar.

2/ By the exercise of monopoly power I mean charging a price above the competitive level for a significant period of time. See also my previous Declaration of October 28, 1998, Comments of America Online, CS Docket No. 98-178, filed Oct. 29, 1998 (AOL Comments) at Appendix B, "Declaration Regarding Market Definition."

3/ Ex Parte Written Submission of the National Cable Television Association, "Cable Modems, Access and Investment Incentives," by B. M. Owen and G. L. Rosston, CS Docket No. 98-178, filed Dec. 10, 1998 ("NCTA Ex Parte").

does not follow, however, is the conclusion that decreased investment in broadband cable last mile facilities will occur or that overall investment in cable-based broadband access service will be reduced.

Furthermore, the Owen-Rosston Paper makes two fundamental economic mistakes within the context of sound regulatory policy making. First, it does not consider the public interest, which can be defined to be either consumer welfare or economic efficiency. Instead, it makes the assumption (to paraphrase a famous saying in the history of U.S. economic policy) that "What is good for the cable companies (TCI) is good for the country." Indeed, neither consumer welfare nor economic efficiency is ever considered.

The second mistake of the Owen-Rosston Paper is that even within the more narrow goal of maximizing investment in Internet facilities and services, it considers only investment by the cable companies and @Home. Yet, investment in the Internet, and related facilities and services, is also made by Internet Service Providers ("ISPs"), portal services, incumbent and competitive carriers, and other infrastructure providers, as well as by numerous other companies. Thus, to capture fully the impact of an open cable policy, it is necessary to consider aggregate or economy-wide investment in Internet services and facilities.

In this paper I will discuss why consumer welfare and economic efficiency will likely be greater if the Commission does not permit the tying of @Home service to broadband cable last mile transmission service. I will then consider aggregate Internet investment and discuss why economic analysis leads to the conclusion that it will be

higher if tying is not allowed. While cable companies should be permitted to bundle broadband transport service with @Home service on a non-exclusive basis, they should not be allowed to tie the two. Consumers should have the choice of using an alternative ISP without being forced to "pay twice" — for @Home and for their favorite broadband ISP.

I. CABLE COMPANY PROFITS AND INVESTMENT INCENTIVES

A number of cable operators currently offer last mile high speed data transport at speeds said to be in the range of 5-10 Mbps. This nominal speed is significantly higher than commonly available options for residential customers using the local exchange carriers' ("LECs") networks with either modems or via Digital Subscriber Line ("xDSL") services. Today, however, the cable companies affiliated with @Home only sell the last mile high speed data transport as a tied product with @Home Internet access and other services. Thus, a residential customer must buy both the last mile high speed data transport and the Internet access and other services provided by the @Home ISP. If a customer wants to use another ISP, say AOL, (s)he would have to pay for both the @Home ISP service and again for the AOL ISP service. This restriction on consumer choice by cable companies meets the economic definition of tying two different products together (for which there are separate demands), since they cannot be purchased separately. Notably, while the Owen-Rosston Paper refers to the tying strategy of the cable operators as "exclusive bundling," the fact remains that this strategy is referred to as tying in the economics and antitrust literature.

Since cable companies are engaged in tying, I assume that they expect this strategy to be more profitable than non-exclusively bundling broadband cable transmission service with @Home and allowing consumers to buy broadband transmission separately if they want to use AOL or some other ISP instead of @Home. The likely decrease in profits in the current situation occurs because of the very fixed (and sunk) costs of providing @Home-type services, which means that downstream perfect competition cannot hold.[4/] Also, given diverse consumer preferences, the importance of advertising revenue to Internet service provider profitability, and the possibility of price discrimination, given the individual addressability of the Internet, I expect that the tying strategy employed by the cable industry may yield higher profits than a non-exclusive bundling strategy, which would also afford cable broadband access to other Internet service providers.

Prohibiting cable operators from tying their @Home service to their last mile broadband cable transmission services is likely to decrease overall profits of the cable operators, when the value of their investment in @Home is also taken into account. Expectation of higher profits for @Home leads to a higher market (stock) value for @Home. This expectation of higher profits will also typically cause @Home to invest

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4/ Thus, no "one monopoly" argument holds here or cable companies would not be acting in their shareholders best interests. I find it surprising that the OR paper claims that I make the "Chicago school" one monopoly claim (OR, p. 10). I certainly believe that John Malone understands how to maximize shareholder returns as he has demonstrated over the past two decades through exercise of monopoly power in the cable industry. Indeed, in AT&T's response to me by Profs. Ordover and Willig, they discuss the possibility of "perfect price discrimination" that would eliminate the monopoly power distortions created by the tying policy. While I consider perfect price discrimination to be extremely unrealistic here, Ordover and Willig grasp the essential point about exercise of monopoly power and consumer welfare that Owen and Rosston miss. AT&T's and TCI's Joint Reply to Comments and Joint Opposition to Petitions to Deny or to Impose Conditions, CS Docket No. 98-178, filed Oct. 29, 1998 (AT&T/TCI's Joint Reply) at "Affidavit of Professors Willig and Ordover."

more, under almost any economic theory of investment, e.g., maximizing shareholder value, the q theory of investment, or the neoclassical theory.[5/] Furthermore, empirical evidence has demonstrated that higher expected returns lead to greater investment in research and development ("R&D").[6/] Thus, I agree with the basic claim of the Owen-Rosston Paper that a Commission prohibition on tying @Home service to last mile broadband transport will reduce the incentives for cable operators to invest in @Home because of @Home's lower expected profits. Significantly, however, the proposition, "What is good for @Home and the cable companies (and TCI) is good for consumers" does not follow.

II. THE PUBLIC INTEREST AND ECONOMIC EFFICIENCY

In examining this issue, the overarching regulatory objective is the public interest, not the welfare of stockholders of @Home or cable companies. While there has never been a precise and fixed definition of what the public interest means in all circumstances, here I use economic tools of analysis to consider the public interest in terms of consumer welfare and economic efficiency.[7]

5/ Actually, in my view these theories are similar at the most basic level of economic analysis.

6/ I discuss this relationship in J. Hausman and J. MacKie-Mason, "Innovation and International Trade Policy," Oxford Review of Economic Policy, 1988.

7/ I discuss the definition of the public interest in "Valuation and the Effect of Regulation on New Services in Telecommunications," Brookings Papers on Economic Activity: Microeconomics, 1997 and Taxation By Telecommunications Regulation," Tax Policy and the Economy, 1998.

A. Consumer Welfare is Decreased by Tying

Consumer welfare is lower for two reasons if the cable operators are allowed to tie the @Home ISP service to broadband cable transmission services. First, prices are higher to consumers. The extra profits that the Owen-Rosston Paper claim lead to higher investment incentives come either directly from higher prices to consumers for ISP service or indirectly from consumers because advertisers and other users of broadband Internet services are charged more and then pass along their higher costs through their higher product prices.[8/] The usual outcome of the exercise of monopoly power is higher prices and the higher profits of the cable companies here will arise from higher prices.

The other reason that consumer welfare will be lower is because of the restriction in consumer choice. Diverse preferences exist among Internet users and it is extremely unlikely that any single brand of ISP, whether @Home or any other "brand" of ISP, including AOL, will produce the Internet service liked best by all consumers. Indeed, this diversity of consumer preferences is one economic reason that there are today almost 5,000 ISPs currently offering different Internet services. Consumer welfare is increased significantly when successful new brands of products are introduced.[9/] Competition among firms to provide successful new brands of products, whether cereals, ISPs, or mobile telecommunications services, has served consumers well. Multiple brands allow for diversity of choice for consumers, and it has long been recognized in a wide array of

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8/ Since the cable companies would still be able to bundle @Home with broadband on a non-exclusive basis, no pricing distortion arises from both services being produced under the situation of imperfect competition.

9/ My academic research has demonstrated this. J. Hausman, "Valuation of New Goods Under Perfect and Imperfect Competition," T. Bresnahan and R. Gordon eds., The Economics of New Goods, University of Chicago Press, 1997.

contexts that consumer welfare is increased by a diversity of choices.[10/] Rather than accepting this basic premise, however, NCTA, AT&T, and other cable parties are making the claim that AT&T has made before for other services — that monopoly provision of a service with a single brand is superior to competitive provision of the service with multiple competing brands.[11/] Just as these claims have been rejected before, so too should they be rejected now as inconsistent with economic analysis of consumer welfare.

Consumer welfare will be higher if regulators forbid cable companies from tying the @Home service to their delivery of last mile high speed transport services. Unsurprisingly, AT&T has claimed that its investment in upgrades of the TCI cable plant (after its purchase) may be slowed down or even not happen if they are not allowed to tie.[12/] Yet, AT&T has put forward no financial analysis to demonstrate that it will not invest in upgrades if tying is forbidden. This outcome is also inconsistent with AT&T's announced plans, discussed by AT&T's chairman, Mr. Armstrong, of providing voice services over TCI's network.[13/]

First, as NCTA's Chairman notes, broadband Internet access can be provided over a cable network, once upgrades have been made for voice and video services, "at modest

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10/ In fact, source, ownership , viewpoint, and use diversity have all been expressly promoted. See, e.g., Metro Broadcasting Inc. v. FCC, 497 U.S. 547, 566-67 (1990), quoting Associated Press v. U.S., 326 U.S. 1, 20 ("widest dissemination of information from diverse and antagonistic sources is essential to the welfare of the public.").

11/ See, e.g., Testimony of C. Michael Armstrong Before the Antitrust, Business Rights and Competition Subcommittee of the Senate Committee on Judiciary (July 7, 1998); See generally, NCTA Ex Parte.

12/ See, e.g., Reply Comments of AT&T, Section 706 NOI, CC Docket 98-146, Oct. 8, 1998, p. 15. Owen and Rosston (p. 20) on behalf of NCTA make a similar claim.

13/ See Telecom Mergers: En Banc Hearing on Telecom Mergers to Discuss Recent Consolidation Activities in the Telecommunications Industry (October 22, 1998), Opening Statement of C. Michael Armstrong ("This merger means most importantly real local phone competition for residential customers. It will create a facilities based

incremental cost".[14/] Most importantly, even if the Commission forbids tying, the cable operators would be free to charge a market-clearing price for broadband cable transmission services. Thus, consumer welfare would increase unless cable companies could not charge a sufficiently high price for broadband transport to earn a high enough rate of return to justify the investment. This outcome is extremely unlikely, especially given the prices of DSL access that have been announced by the LECs and the claims that the incremental cost of providing broadband access is well below the costs to LECs of providing DSL services.[15/]

B. Economic Efficiency is Decreased by Tying

The other approach to define the public interest is to use economic efficiency. Here, both consumer welfare (consumers surplus) and firms' economic profits (producers surplus) are both taken into account. Economic efficiency is measured (approximately) as the sum of consumers' surplus and producers' surplus. Thus, we need to answer the question, "Do the higher profits of the cable companies offset the decrease in consumer welfare from tying?" For two reasons, the answer is "No."

The first reason is the usual answer from economists that the exercise of monopoly power, i.e., setting prices above their competitive levels decreases economic efficiency.

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alternative to the Bell companies in areas TCI reaches by allowing residential customers to make phone calls over broadband cable.").

14/ Decker Anstrom, Remarks to the Western Show Opening General Session, December 2, 1998. See also, e.g., Cable Competition and Rates Subject of 2 Upcoming FCC Reports, Communications Daily, Nov. 30, 1998, p. 4; Making the Connection, Washington Post, June 27, 1998 p. E 1; AT&T Plans $4.4 Billion Upgrade, Television Digest, July 6, 1998; TCI's Cable Phone On Hold, Chicago Tribune, Aug. 26, 1998 p. B1; TCI's Cable Phone On Hold, Chicago Tribune, Aug. 26, 1998 p. B1.

15/ See, for example, Tom Jermoluk (CEO of @Home), Remarks Before the National Press Club, June 9, 1998.

While the higher prices from consumers (either directly or indirectly) do go to the cable companies, extra harm to consumers arises from consumers who would have bought the service at the lower competitive price, but do not find the service worthwhile at the higher price. Thus, a consumer who prefers AOL to @Home and who would have purchased broadband cable access and AOL if permitted to do so, could well find it not worth paying twice for both @Home and AOL as the current tying policy requires. As a result, consumer welfare decreases without any offsetting increase in producers surplus, and economic efficiency decreases. Consequently, the public interest in economic efficiency is lower.

The second reason that economic efficiency is lowered by the tying practice of cable operators arises from the dynamic nature of the Internet industry. As discussed above, it is highly likely that multiple new brands of cable-based Internet services preferable to @Home for some consumers will be introduced. In the absence of the new brands of Internet services, these consumers' welfare will be lower. Again, some of these consumers will not find @Home sufficiently attractive to purchase. And again, no offsetting increase in producers' surplus will exist for this loss in consumer welfare. As such, economic efficiency is again lower.[16/]

Thus, no matter which definition is used for the public interest — consumer welfare or economic efficiency — the conclusion follows that the tying of the purchase of @Home Internet access services with last mile broadband transmission service by cable

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[16/] A debate exists in the economics literature whether too many or too few brands are produced under competition. In the current context when only one brand, @Home, is offered to cable broadband access buyers, the "too few" brands outcome follows under reasonable economic assumptions.

operators harms the public interest. Significantly, the harm to the public interest is likely to be especially large in the current situation where only one brand of Internet access service, @Home, is offered to consumers who purchase broadband cable transmission. Conversely, the gain in consumer welfare by having a choice of many competing brands of cable Internet service is likely to be especially high given the diverse preferences of consumers who purchase Internet services and the dynamic changes in technology of both the Internet and the PCs that are used to access the Internet.

III. ECONOMY-WIDE INVESTMENT INCENTIVES WITH AND WITHOUT TYING

For purposes of this analysis, I am assuming that one primary regulatory goal is to maximize investment in broadband Internet services and infrastructure to promote improved access and consumer welfare.[17/] In addressing this goal, the Owen-Rosston Paper only considers the potential effect of forbidding the tying of broadband @ Home services to last mile cable broadband transport services on the investment incentives of cable operators and @Home. The correct analysis, however, should consider economy-wide investment. When economic analysis is done on an economy-wide basis, competition will, as expected, lead to greater overall investment.[18/]

First, extensive new investment will be done by ISPs to use and support broadband service, so long as consumer demand exists for different "brands" of Internet access

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17/ See 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, Notice of Inquiry, CC Docket No. 98-146 (rel. Aug. 6, 1998) pp. 1-7.

18/ Indeed, the debate in the economics literature about the optimal number of brands, which I discussed above, centers around the possibility of too much investment being made in new brands, given the existence of many current brands.

services. In the first place, new cable-based Internet services will become available that are precluded by cable industry tying practices. And since broadband access has 20-100 times the capacity of the fastest current narrowband access, new broadband applications will become available with the greater critical mass of broadband customers that will exist as a result of new services and the wider penetration of such services that is to be expected with increased demand resulting from more services. This increased competition to provide Internet services, and the greater demand for such services as a result of offering greater consumer choice, under what I call the "open access" model, follows from standard economic analysis.

To illustrate how economic analysis demonstrates this point, suppose that five providers of a service exist and that the governments decides to tax four of the providers while letting the last provider be tax free. Standard economic analysis under reasonable conditions demonstrates that the increased investment of the tax-free provider is less than the reduced investment of the providers who are taxed. This situation corresponds approximately to the current situation where a consumer who wants to use broadband cable transport service for, say, AOL must also buy @Home, even if (s)he does not use the @Home service. Indeed, a further result holds from economic analysis. Suppose the "tax payments" of the four taxed service providers are remitted to the tax-free service provider. Again, economic analysis demonstrates that overall investment will be less because of the required tax payments. Thus, economy-wide investment will increase if tying is forbidden and the open access model is used.

This analysis brings up a further distinction— between investment in the cable network and facilities to provide broadband transmission services and cable company returns from their investments in @Home. Today, cable multi-system operators ("MSOs"), including TCI (AT&T) have numerous economic reasons to upgrade their networks, including, for example, the ability to provide more channels of entertainment, increased pay per view services, and the provision of voice telephony services in competition with LECs. Thus, the question arises of whether cable operators would in any event provide last mile broadband transmission capability given these other reasons to upgrade and the relatively small incremental cost to provide broadband services once they have decided to upgrade. Under these circumstances, it is reasonable to conclude that "last mile" investment will be increased if the open access policy is followed because of the increased demand created by the competitive offerings of ISPs. While it is true that decreased investment in @Home may result because of decreased expected profits, the increased investment by other service providers generated by the participation of competitive ISPs in the provision of services to consumers will more than outweigh this decrease in investment by @Home.[19/] Thus, overall investment in both "last mile" facilities and in Internet services will likely increase if an open access policy is adopted.

A. Open Access Will Lead to Increased Investment by Service Providers

Given the wide diversity in consumer preferences and the likely multitude of new service opportunities that improved technology will permit, I expect the open access

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19/ This result follows because the cable providers will not be able to capture all of the profits which their monopoly power create under the tying policy. Indeed, the Owen-Rosston Paper agrees with conclusion given its rejection of the "one monopoly" result.

policy to lead to substantially increased investment by Internet service providers compared to the closed current policy. Since competition among ISPs for consumers of new services will lead to greater returns for the inventors of these new services than they could expect to receive from the monopoly provider @Home, they will have a greater economic incentive to innovate and invent new Internet services. The investment expenditures in inventing and marketing these new services and applications will be greater in the open model than in the closed model. Thus, both Internet service providers and the inventors of these services will increase their investments more than sufficiently to offset any potential decrease in @Home investments, which once again demonstrates that competition provides a better outcome than monopoly.

B. Open Access Will Lead to Increased Investment in Backbone and Related Facilities

Further, there is another source of additional investment that exists under the open access model. Just recently on January 6, 1999, @Home announced that it would use AT&T exclusively to provide backbone facilities.[20/] With multiple providers of broadband Internet services, however, there will be backbone provision and new telecommunications infrastructure investment by other companies such as Qwest, Level 3, and MCI Worldcom. This additional investment will benefit consumers as well because the high fixed costs of network backbone investment, backhaul facilities, and related infrastructure will be shared across both Internet service providers and residential

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[20/] @Home Network to Create Internet Backbone with Initial Capacity for 5 Million Broadband Users, @Home News Release dated Jan. 6, 1999, available at http://www.athome.net/corp/news/pr_990105_01.html; http://biz.yahoo.com/rf/990106/m.html, "@Home awards AT&T IP network contract."

and business customers, who will be able to purchase lower priced voice and data services because of the increased competition.

C. Open Access Will Lead To Increased Investment by LECs in Competing Last Mile Facilities

The additional investment created by the adoption of an open access approach with multiple providers of broadband Internet services is also likely to extend to increased investment by LECs in their "last mile" infrastructure and facilities, as they seek to provide ISP customers improved transmission speeds and greater bandwidth to compete with cable broadband transmission service offerings to ISPs. By offering ISPs a choice of broadband Internet transmission services — between cable transmission facilities and LEC transmission facilities —competition between cable transport and LEC transport will be increased. As such, incumbent LECs will have an incentive to make increased investments in their networks so that ISP customers will choose to use LEC transport services, such as improved xDSL capabilities, rather than using cable broadband transmission services.

This outcome can be viewed from the residential consumer's point of view as well. There are two consumer benefits of having a choice of ISP service over both LEC and cable facilities. Under the closed model of tying, a consumer that wants to use an Internet service provider with high-speed access other than @Home will typically use an ISP offering service over LEC-provided facilities to avoid paying twice for ISP service.[21] But, if a consumer has the choice to use an ISP service being offered over cable

broadband transmission or over LEC high-speed transport services, the consumer will be able to compare directly the quality and price of the services. As such, this increased competition will cause the LECs to upgrade their networks, more than they would if consumers could not compare and choose between last mile transport services. And second, Internet service providers will have the ability to offer a full range of communications and video services. As a result, competition in consumer communications and video services will increase.

D. AT&T's Acquisition of TCI Requires It to Provide Voice, Video, and Data Broadband Transmission Services to Justify the Purchase Price

Lastly, I return to AT&T's claim that it will delay or even not invest in upgrades of TCI's network if regulators do not allow it to tie @Home service to broadband transmission services. At least two times in the past, however, AT&T has made similar claims, each of which turned out to be false. First, in connection with the offering of cellular services, AT&T claimed it should be allowed to be the monopoly provider of cellular, arguing that the economies of scale would lead to lower prices to consumers than would the competitive provision of services. The Federal Communications Commission rejected AT&T's arguments and decided that introducing "competition into the cellular market will foster important public benefits of diversity of technology,

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21/ For these purposes, competitive and incumbent LECs are very similar, as they both rely upon the same "last mile" infrastructure to reach consumers.

service and price..."[22] Not only was AT&T's assertion false, competition led to lower cellular prices.[23]

Second, in connection with an assessment of AT&T's status as the then-monopoly voice services provider, AT&T also claimed that it would provide lower prices for voice telecommunications prices as a regulated monopolist than if competition were permitted.[24] This claim by AT&T has again been proven to be false. Economists have an old saying: "Talk is cheap, but only market actions count." Regulators confronted with these arguments should ask themselves whether AT&T would actually forego the opportunity to upgrade TCI's network after its acquisition if it is forbidden to tie @Home service to broadband transport. The answer, based upon past experience and current circumstances, is that such an outcome is extremely unlikely.

Significantly, if regulators forbid tying, AT&T could still charge a market price for last mile broadband cable transmission services. Indeed, the only potential decrease in its expected profits would be the economic profits that @Home could have attained but that will be competed away by competitive Internet service providers.[25] These lost profits, however, would be expected to be small in relation to profits from voice and data services, especially since AT&T would be allowed to charge a profit-maximizing price

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22/ See Report and Order, Cellular Communications Systems, CC Docket 79-318, 86 FCC 2d, 472. For a history of AT&T's action in terms of cellular radio see G. Calhoun, Digital Cellular Radio, Artech House, 1988, pp. 52ff and especially pp. 57-58. The quotation is from Calhoun, p. 58.

23/ In my declarations to the FCC, I found that competition led to about 10-15% lower prices than did regulation. See AOL Comments at Appendix B. See also fn. 11 above.

24/ See e.g., P. Temin, The Fall of the Bell System, Cambridge, U.P., 1987, pp. 97-99 who cites Memorandum Opinion and Order, Specialized Common Carriers, FCC Docket 18920, 44 FCC 2d 467.

25/ Economic profits here mean those profits beyond a normal risk adjust return to capital which Internet service providers would also expect to recover.

for broadband transmission services. And, the demand for broadband transmission services will increase in an open access environment in which multiple ISPs are purchasing service.

In addition, the incremental investment cost to provide broadband cable transmission capability once the network is upgraded for voice and data services is expected to be small.[26/] AT&T's claim is that the extra profits it can gain from monopoly tying of @Home service to cable last mile broadband transport are crucial to its decision to upgrade TCI's network for voice services. Yet, AT&T's repeated assurances to the market that it will purchase TCI and provide voice services over the TCI network in competition with the LECs is the primary value that AT&T brings to the acquisition. Thus, AT&T's request that it be permitted to engage in tying in order to induce it to provide voice competition to the LECs does not make economic sense in the context of the acquisition and the approximately $10 billion premium that AT&T is paying for TCI.

IV. CONCLUSIONS

NCTA and AT&T are asking regulators to allow tying of Internet access services to the provision of broadband transmission capabilities. I agree with the paper submitted by Drs. Owen and Rosston that AT&T profits for @Home may be less if they are not allowed to tie their two services. I have demonstrated, however, that the public interest will be served under any measure if regulators forbid tying while continuing to allow the non-exclusive bundling of the two services — i.e., if regulators require the "open access" model. Policy here should be designed to protect competition, not a single competitor,

and to foster and enhance economic efficiency and consumer welfare, not @Home's profitability. This finding holds whether the public interest is defined as consumer welfare or economic efficiency, which is the sum of consumer welfare and producer profits. Competition does better than the exercise of monopoly power, a result long known to economists, policy makers, and regulators.

Moreover, based upon economic analysis and available data, it is extremely unlikely, despite arguments and assertions to the contrary, that the extra profit that AT&T obtains from tying the @Home service with broadband transport service is crucial to AT&T's decision to upgrade the TCI network. Under the open access approach, not only will the MSOs have the ability to charge a market clearing price for broadband transmission services, the result that AT&T threatens is inconsistent with AT&T's payment of a significant premium to acquire TCI. Rather, it appears that AT&T and cable-related parties are attempting to use the goal of the Telecommunications Act of 1996 of bringing increased local competition to the LECs to convince regulators to allow them to exercise monopoly power through tying. Regulators should not permit the public interest to be adversely affected by this regulatory strategy.

Finally, if regulators measure the likelihood of increased investment to gauge the wisdom of pursuing the open access approach versus the tying approach, the open access approach is again better and will stimulate increased economy-wide investment in infrastructure and services. Competition among broadband-based Internet service providers, by inventors of new services, by backbone, backhaul, and related infrastructure

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26/ See the discussion above.

providers, as well as by LECs in their last mile facilities will all increase through the adoption of an open access policy. All of this increased investment will substantially outweigh the investment that would otherwise occur through the closed, tying model and thus will best serve the public interest. Just as tying has not been permitted in the past, regulators should here too conclude that it harms the public interest to allow the exercise of monopoly power where a competitive outcome is straightforward to achieve.